

SCIENTIFIC OBSERVATION HOLE PROJECT

SOH 1 Well

VISUAL CORE DESCRIPTIONS
Volume 3A

February 1991

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EXPLANATORY NOTES

The enclosed visual core descriptions (sheet A) were compiled by the core logging staff at the Puna Research Center, Hawaii. Members of the staff who described drillcore from the Scientific Observation Hole #1 are Rene Evans, Elizabeth Novak and Frank Trusdell. Comments and suggestions were provided by John Deymonaz and Tonto Drilling Crew. Marth Sykes contributed preliminary XRD mineral identifications.

Volume 3A of the core descriptions contains descriptions for the core obtained from 3045 to 5526 feet of the Scientific Observation Hole #1. Each page of this volume corresponds to a box of core and a page in volume 3B. When possible, boxes were filled with ten feet of drillcore, except during PQ intervals where each box contained four feet. 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 # 351 HOLE # 1 Sheet A
 Depth range 928⁷³ to 931⁷⁸ meters Depth range 3045 to 3055 feet
 Logger's Name FT 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							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements				
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay				
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite				
Aphyric							Plag -> Clay				
Vesicles: %							Zeolite				
Shape							Groundmass				
Size(x)							Chlorite				
							Smectite				
PHENOCRYSTS (Original mineralogy)											
Olivine	>5%	<u>5-7</u>					Fracture FILL				
	1-5%						Vesicle FILL				
	<1%						Secondary/Alteration Min.				
Phenos	<input checked="" type="checkbox"/>						Smectite				
mph	<input checked="" type="checkbox"/>						Calcite	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
ol-plag							Zeolite				
Comments								white fibrous			
							green				
Plagioclase	>5%						blue				
	1-5%						Analcime				
	<1%						Chabazite				
Rhombs							MgOH				
Blades/laths							Silica				
mph							Amorphous				
Comments								Chalcedony			
							Crystals				
Augite	%						Pyrite				
							Epidote				
GROUNDMASS (original)											
Aphanitic							Gypsum				
Feldspathic	<input checked="" type="checkbox"/>						Anhydrite				
Diktytaxitic							Chalcopyrite				
							Limonite				
							Hematite				
							Other (describe)				

CRITICAL FEATURES (description of units or features by number)

*Hyaloclastite w/ Pillow Fragments, the pillows have 5-7% olivine as phenocrysts, micropheocrysts in a feldspathic matrix.
 Ratio of Hyalo:Pillow 70:30*

2° minerals: Calcite

CORE LOG

BOX # 352

HOLE # 1

Sheet A

Depth range 931.77 to 934.21 meters

Depth range 3055 to 3063 feet

Logger's Name EN

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%						
1-5%						
<1%						
Phenos mph						
ol-plag						
Comments <u> </u>						
Plagioclase						
>5%						
1-5%	3					
<1%						
Rhombs						
Blades/laths mph	✓					
Comments <u> </u>						
Augite %						
GROUNDMASS (original)						
Aphanitic						
Feldspathic						
Diktytaxitic	✓					

clasts

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

COMMENTS
3055'
calcite in matrix MICRO VOIDS.
3058'
VESICULAR CLAST
3063'

Fracture Fill
Vesicle Fill

CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, matrix as above
 Clasts 50%: anisicular, plag mph 3% in a slightly dikty lt. gray matrix, pillow frags vesicular (flow frag?) 20% w/ visible phenos in a gray aphan mtx.

CORE LOG

BOX # 353

HOLE # 1

Sheet A

Depth range 934.21 to 936.96 meters

Depth range 3063 to 3072 feet

Logger's Name EA

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							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements				3063'
mega (>.5 mm)							Olv -> Clay			VESICULAR CLAST	
micro (<.5 mm)	✓	✓					Iddingsite				hyalo #1
Aphyric							Plag -> Clay			3068'	
							Zeolite				hyalo #2
Vesicles: %	✓						Groundmass			3072'	
Shape							Chlorite				
Size(x)							Smectite				
PHENOCRYSTS (Original mineralogy)							Fractures				
Olivine	>5%						Vesicle Fill				
	1-5%						Secondary/Alteration Min.				
	<1%						Smectite				
Phenos							Calcite	✓ #1			
	mph						Zeolite				
	ol-plag						white fibrous				
Comments								green			
							blue				
Plagioclase							Analcime				
	>5%						Chabazite				
	1-5%	3					MgOH				
	<1%						Silica				
Rhombs							Amorphous				
Blades/laths							Chalcedony				
	mph	✓					Crystals				
Comments								Pyrite			
							Epidote				
Augite	%						Gypsum				
							Anhydrite				
GROUNDMASS (original)								Chalcopyrite			
Aphanitic							Limonite				
Feldspathic							Hematite				
Diktytaxitic	✓						Other (describe)				

CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, matrix as above

Clasts (~70%): vesicular, pillow frags, plag mph 3% in a gray aphan to slightly dikty mtr. vesicular (20%), flow frags, no visible phenos gray slightly dikty basalt

2) hyaloclastite, abrupt contact (but at the end of a core run) brown units. Unit consists of silt size hydrated volcanic glass frags, black highly vesicular glass frags ~1mm,

amygdules, and Olivine x-tals. Friable at contact
but becomes well cemented 55cm below contact. Brownish
black in color.

1-353

CORE LOG
 BOX # 354 ⁹⁶ HOLE # 71 Sheet A
 Depth range 936 to 939 meters Depth range 3072 to 3081 feet
 Logger's Name FT 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓						Olv → Clay			
micro (<.5 mm)	✓						Iddingsite			
Aphyric							Plag → Clay			
							Zeolite			
Vesicles: %	<1						Groundmass			
Shape	R						Chlorite			
Size(x)	<1						Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.	Fracture Fill	Vesicle Fill	
Olivine 1-5%	✓									
Olivine <1%							Calcite			
Phenos	✓						Zeolite			
mph	✓						white fibrous			
ol-plag							green			
Comments										
Plagioclase							blue			
>5%							Analcime			
1-5%							Chabazite			
<1%							MgOH			
Rhombs							Silica			
Blades/laths							Amorphous			
mph							Chalcedony			
Comments										
Augite %							Crystals			
							Pyrite			
GROUNDMASS (original)										
Aphanitic	✓						Epidote			
Feldspathic							Gypsum			
Diktytaxitic							Anhydrite			
							Chalcopryrite			
							Limonite			
							Hematite			
							Other (describe)			

*Soft, waxy green + white
 botrydal ves. fill*

CRITICAL FEATURES (description of units or features by number)

Hyaloclastite v. fine grained (± 1mm) sized particles, fragments. Towards the end of the run fragments becoming more welded/lithified.

Olivine is present @ 3-5% as phenocrysts, microphenocrysts in the glassy matrix.

*2 Minerals: Several exist (that at this time are un-identified)
 1) green core, white tops, botrydal, soft, waxy. 2) Clear, ves. fill, soft, brittle*

BOX # 355

CORE LOG

HOLE # 1

Sheet A

Depth range _____ to _____ meters

Depth range 3081 to 3089 feet

Logger's Name FT

Page 1

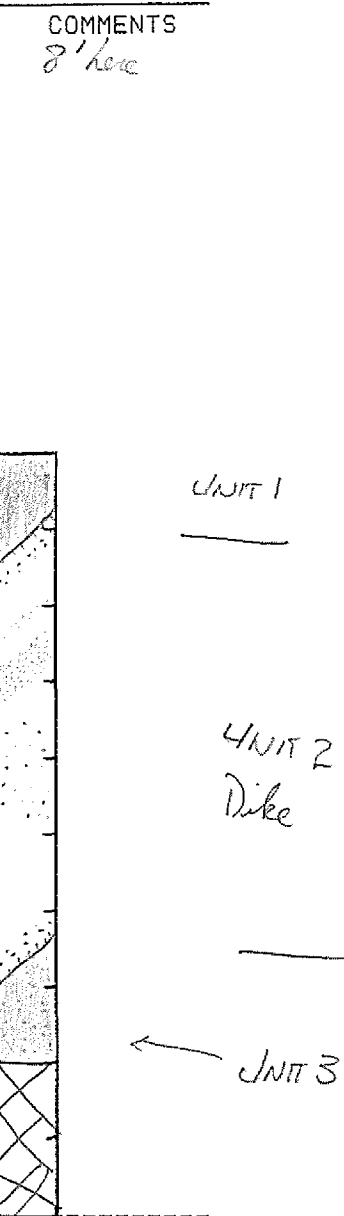
Type of Sample: Flow _____ Intrusive Ash _____ Breccia _____ Red Bed _____

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)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
Aphyric						
Vesicles: %	<1	2	<1			
Shape	R	R	R			
Size(x)	<1	<1	<1			
PHENOCRYSTS (Original mineralogy)						
Olivine	>5%					
	1-5%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
	<1%					
Phenos	mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
ol-plag						
Comments _____						
Plagioclase	>5%		<input checked="" type="checkbox"/>			
	1-5%					
	<1%	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Rhombs						
Blades/laths	mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Comments _____						
Augite	%					
GROUNDMASS (original)						
Aphanitic		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Feldspathic			<input checked="" type="checkbox"/>			
Diktytaxitic						

SECONDARY FEATURES	
Phenocryst replacements	Olv -> Clay _____
	Iddingsite _____
	Plag -> Clay _____
	Zeolite _____
Groundmass	Chlorite _____
	Smectite _____
Secondary/Alteration Min.	
Smectite	
Calcite	<input checked="" type="checkbox"/>
Zeolite	<input checked="" type="checkbox"/>
white fibrous	
green	<input checked="" type="checkbox"/>
blue	
Analcime	
Chabazite	
MgOH	<input checked="" type="checkbox"/>
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	<input checked="" type="checkbox"/>
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- 1) Units 1+3) Compacted Hyaloclastite w/ 5% olivine as phenocrysts, microphenocrysts in a black aphanitic matrix
- 2) Dike w/ 6% Plagioclase as blades, laths and microlaths and 10% olivine as phenocrysts, microphenocrysts in a feldspathic to gray matrix

CORE LOG
 BOX # 356 HOLE # 1 Sheet A
 Depth range 942^{'15} to 945^{'04} meters Depth range 3089 to 3098^{'5} feet
 Logger's Name FT 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	12					
Size(x)	<1					
PHENOCRYSTS (Original mineralogy)						
Olivine	>5%					
	1-5%	✓	3	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.	
Smectite	✓
Calcite	
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	Heulandite, analcime?

COMMENTS
 9.5' here

Vugs/2° Minerals
 Sub // fractures
 4309?

CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite v. fine grained w/ 3-5% Olivine as phenocrysts microphenocrysts in a glassy (not beer colored) matrix.

2° Minerals: Zeolites Thompsonite, Heulandite

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)	<1					

PHENOCRYSTS (Original mineralogy)

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

Plagioclase

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

Augite %

--	--	--	--	--	--	--

GROUNDMASS (original)

Aphanitic	✓					
Feldspathic						
Diktytaxitic						

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

COMMENTS

9.5' here

CRITICAL FEATURES (description of units or features by number)

1) Hyphalastite, fine grained w/ 3-5% Olivine phenocrysts, microphenocrysts in a root beer colored glassy matrix.

2° Minerals: Calcite, Thompsonite, Heulandite

BOX # 358 ^{944 94} ⁶⁹ CORE LOG HOLE # 1 Sheet A
 Depth range 944 to 950 meters Depth range 3108 to 3117 feet
 Logger's Name FT 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						
	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro (<.5 mm)	✓					
Aphyric						
Vesicles: %	5					
Shape	R					
Size(x)	<1					
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	✓ 1-3					
<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.	
Smectite	
Calcite	✓
Zeolite	
white fibrous	✓
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	Heulandite ✓

COMMENTS

9' core

Thompsonite or - white fuzzy
Phillipsite
Heulandite (concess.?)
3111-3117 - Vesicle lining

3113

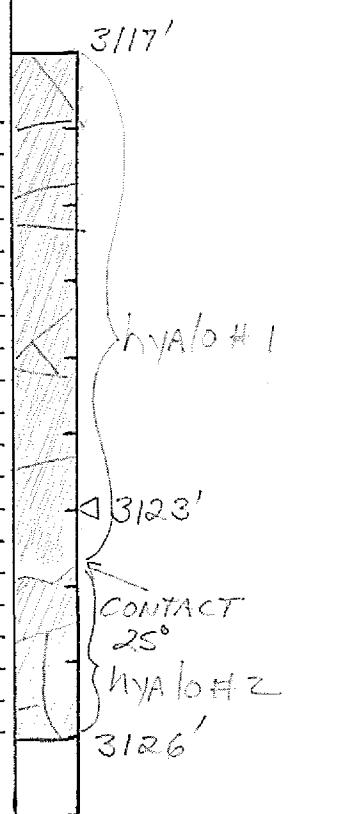
CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite w/ 1-3% olivine in a rootbeer colored aphanitic matrix.

2° Minerals: Calcite, Thompsonite, + Heulandite(?)

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements	Fractures	Vesicle		lg gypsum x-tal 1/2 way thru box in clay seam
mega (>.5 mm)	-						Olv -> Clay	FILL	FILL		
micro (<.5 mm)	-						Iddingsite				
Aphyric							Plag -> Clay				
Vesicles: %	-						Zeolite				
Shape							Groundmass				
Size(x)							Chlorite				
							Smectite				
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.				
Olivine >5%							Smectite				
1-5%							Calcite	✓	✓		
<1%							Zeolite				
Phenos mph							white fibrous		✓		
ol-plag							green				
Comments								blue			
								Analcime		✓	
Plagioclase >5%							Chabazite				
1-5%							MgOH				
<1%							Silica				
Rhombs							Amorphous				
Blades/laths mph							Chalcedony				
Comments								Crystals			
								Pyrite			
Augite %							Epidote				
								Gypsum	✓		
GROUNDMASS (original)								Anhydrite			
Aphanitic							Chalcopyrite				
Feldspathic							Limonite				
Diktytaxitic							Hematite				
								Other (describe)			
								soft transp. shist.			



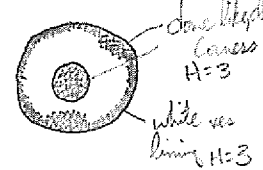
CRITICAL FEATURES (description of units or features by number)

- 1) hyaloclastite (turbidite) unit is composed of highly micromesicular black volcanic glass frags, amber volcanic glass sand and olive x-tals all cemented into a competent unit. Zeolites fill small vesicles as amygdalae. Contact at 3124' b/w unit and thin layer (1.5cm) calcareous mud.
- 2) hyaloclastite, as above

CORE LOG
 BOX # 360 ⁸² HOLE # 1 Sheet A
 Depth range 952 to 956.18 meters Depth range 3124 to 3135 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive 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: %	10	10				
Shape	R	R				
Size(x)	<1	<1				
PHENOCRYSTS (Original mineralogy)						
Olivine	>5%					
	1-5%	✓	✓			
	<1%					
Phenos	mph	✓	✓			
ol-plag						
Comments <u> </u>						
Plagioclase						
	>5%					
	1-5%					
	<1%					
Rhombs						
Blades/laths						
mph						
Comments <u> </u>						
Augite	%					
GROUNDMASS (original)						
Aphanitic		✓	✓			
Feldspathic						
Diktytaxitic						

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

COMMENTS
 9' here
 Vesicles are filled w/
 Calcite

 Dome like
 corners
 H=3
 white no
 lining H=3
 Contact
 3133
 X

CRITICAL FEATURES (description of units or features by number)

1+2) Hyaloclastite of 17% divine phenocrysts in a glassy root beer colored aphanitic matrix.

2 MINERALS: CALCITE, ANALCIME, Clear dome-like w corners

CORE LOG

BOX # 361

HOLE # 1

Sheet A

Depth range 956.17 to 959.22 meters

Depth range 3135 to 3145 feet

Logger's Name EN

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						SECONDARY FEATURES		COMMENTS																																														
Phyric	1	2	3	4	5	6																																																
mega (>.5 mm)	<input checked="" type="checkbox"/>						Phenocryst replacements	<div style="text-align: center;"> <table border="1"> <tr> <td>Fracture</td> <td>Vesicle</td> </tr> <tr> <td colspan="2">Secondary/Alteration Min.</td> </tr> <tr> <td>Smeectite</td> <td></td> </tr> <tr> <td>Calcite</td> <td></td> </tr> <tr> <td>Zeolite</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>white fiberous</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>green</td> <td></td> </tr> <tr> <td>blue</td> <td></td> </tr> <tr> <td>Analcime</td> <td></td> </tr> <tr> <td>Chabazite</td> <td></td> </tr> <tr> <td>MgOH</td> <td></td> </tr> <tr> <td>Silica</td> <td></td> </tr> <tr> <td>Amorphous</td> <td></td> </tr> <tr> <td>Chalcedony</td> <td></td> </tr> <tr> <td>Crystals</td> <td></td> </tr> <tr> <td>Pyrite</td> <td></td> </tr> <tr> <td>Epidote</td> <td></td> </tr> <tr> <td>Gypsum</td> <td></td> </tr> <tr> <td>Anhydrite</td> <td></td> </tr> <tr> <td>Chalcopyrite</td> <td></td> </tr> <tr> <td>Limonite</td> <td></td> </tr> <tr> <td>Hematite</td> <td></td> </tr> <tr> <td>Other (describe)</td> <td></td> </tr> </table> </div>	Fracture	Vesicle	Secondary/Alteration Min.		Smeectite		Calcite		Zeolite	<input checked="" type="checkbox"/>	white fiberous	<input checked="" type="checkbox"/>	green		blue		Analcime		Chabazite		MgOH		Silica		Amorphous		Chalcedony		Crystals		Pyrite		Epidote		Gypsum		Anhydrite		Chalcopyrite		Limonite		Hematite		Other (describe)	
Fracture	Vesicle																																																					
Secondary/Alteration Min.																																																						
Smeectite																																																						
Calcite																																																						
Zeolite	<input checked="" type="checkbox"/>																																																					
white fiberous	<input checked="" type="checkbox"/>																																																					
green																																																						
blue																																																						
Analcime																																																						
Chabazite																																																						
MgOH																																																						
Silica																																																						
Amorphous																																																						
Chalcedony																																																						
Crystals																																																						
Pyrite																																																						
Epidote																																																						
Gypsum																																																						
Anhydrite																																																						
Chalcopyrite																																																						
Limonite																																																						
Hematite																																																						
Other (describe)																																																						
micro (<.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay _____																																															
Aphyric	<input checked="" type="checkbox"/>						Iddingsite _____																																															
Vesicles: %							Plag -> Clay _____																																															
Shape							Zeolite _____																																															
Size(x)							Groundmass																																															
PHENOCRYSTS (Original mineralogy)							Chlorite _____																																															
Olivine >5%							Smeectite _____																																															
1-5%							Calcite _____																																															
<1%							Zeolite _____																																															
Phenos mph							white fiberous <input checked="" type="checkbox"/>																																															
ol-plag							green _____																																															
Comments							blue _____																																															
Plagioclase							Analcime _____																																															
>5%							Chabazite _____																																															
1-5%							MgOH _____																																															
<1%							Silica _____																																															
Rhombs							Amorphous _____																																															
Blades/laths mph							Chalcedony _____																																															
Comments							Crystals _____																																															
Augite %							Pyrite _____																																															
GROUNDMASS (original)							Epidote _____																																															
Aphanitic							Gypsum _____																																															
Feldspathic							Anhydrite _____																																															
Diktytaxitic							Chalcopyrite _____																																															

3135'

hyalo
clastite
#1

3143'

3145'

CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, highly vesicular small (1-3cm) black glassy clasts, vesicles filled with soft white zeolite, sand size amber glass matrix cemented into a competent unit. Unit is black with white speckles.

CORE LOG
 BOX # 362 HOLE # 1 Sheet A
 Depth range 959²³ to 961⁹⁷ meters Depth range 3145 to 3154 feet
 Logger's Name FT 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: %	7					
Shape	R					
Size(x)	<1					

PHENOCRYSTS (Original mineralogy)

Olivine	>5%					
	1-5%	✓ ₁₃				
	<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
 Oliv → Clay
 Iddingsite
 Plag → Clay
 Zeolite

Groundmass
 Chlorite
 Smectite

Secondary/Alteration Min.

Smectite		
Calcite	✓	✓
Zeolite		
white fibrous		
green		
blue		
Analcime		✓
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		
Limonite		
Hematite		
Other (describe)	<u>Zeolite dome like w/ corners</u>	

COMMENTS
 9' reported (9.7' measured)

Vesicular Chert

3152

CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite w/ 1-3% Olivine as phenocrysts, microphenocrysts in a glassy, aphanitic, root beer colored, matrix.

2° Minerals: Calcite; Analcime, dome like w/ corners

Type of Sample: Flow Intrusive 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							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements				Pyrite assoc. w/ Dike
mega (>.5 mm)	✓	✓					Olv -> Clay				
micro (<.5 mm)	✓	✓					Iddingsite				
Aphyric							Plag -> Clay				
							Zeolite				
Vesicles: %	7	φ					Groundmass				
Shape	R	R					Chlorite				
Size(x)	1						Smectite				
PHENOCRYSTS (Original mineralogy)											
Olivine	>5%						Secondary/Alteration Min.				
	1-5%	1/3	1/2				Smectite	✓	✓		
	<1%						Calcite	✓	✓		
Phenos	mph	✓	✓				Zeolite				
ol-plag							white fibrous	✓			
Comments								green			
							blue				
Plagioclase							Analcime				
	>5%						Chabazite				
	1-5%	1					MgOH				
	<1%						Silica				
Rhombs							Amorphous				
Blades/laths	mph	✓					Chalcedony				
Comments								Crystals			
Augite	%						Pyrite	✓			
GROUNDMASS (original)											
Aphanitic	✓	✓					Epidote				
Feldspathic							Gypsum	✓			
Diktytaxitic							Anhydrite				
							Chalcopyrite				
							Limonite				
							Hematite				
							Other (describe)				
							Thompsonite				

CRITICAL FEATURES (description of units or features by number)

1) Hypobasaltite w/ 1-3% Olivine as phenocrysts, microphenocrysts in a glassy dark brown matrix.

2) Dike w/ 2% Olivine as phenocrysts, microphenocrysts + 1% Plagioclase as laths, microlaths in an aphanitic bluish grey matrix

2° Minerals: Smectite, Calcite, Gypsum, Pyrite, Thompsonite
 Zeolite dome-like w/ others.

CORE LOG

BOX # 364

HOLE # 1

Sheet A

Depth range 965.02 to 967.76 meters

Depth range 3164 to 3173 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							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements				
mega (>.5 mm)	✓						Olv -> Clay				
micro (<.5 mm)	✓						Iddingsite				
Aphyric							Plag -> Clay				
Vesicles: %							Zeolite				
Shape							Groundmass				
Size(x)							Chlorite				
							Smectite				
PHENOCRYSTS (Original mineralogy)											
Olivine >5%							Secondary/Alteration Min.				
1-5%	3						Smectite	✓		3164	
<1%							Calcite				
Phenos	✓						Zeolite			hair in fracts.	
mph	✓						white fibrous				
ol-plag							green			dike #1	
Comments							blue				
Plagioclase							Analcime				
>5%							Chabazite				
1-5%	1						MgOH				
<1%							Silica				
Rhombs	✓						Amorphous				
Blades/laths	✓						Chalcedony				
mph	✓						Crystals				
Comments							Pyrite	✓			
Augite %							Epidote				
GROUNDMASS (original)							Gypsum				
Aphanitic							Anhydrite				
Feldspathic	✓						Chalcopryrite				
Diktytaxitic							Limonite				
							Hematite				
							Other (describe)			3173	

CRITICAL FEATURES (description of units or features by number)

1) dike, anisoclastic, olivine phenos & mph Σ 3%, plag agglomerations 1%, in a lt gray feldspathic mtry olivine all black

CORE LOG
 BOX # 368 HOLE # 1 Sheet A
 Depth range 967.76 to 990.51 meters Depth range 3173 to 3182 feet
 Logger's Name PH 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							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements				3173' dike #1 3182' 3182'
mega (>.5 mm)	✓						Olv -> Clay				
micro (<.5 mm)	✓						Iddingsite				
Aphyric							Plag -> Clay				
Vesicles: %							Zeolite				
Shape							Groundmass				
Size(x)							Chlorite				
							Smectite				
PHENOCRYSTS (Original mineralogy)							Fractures				
Olivine	>5%						Fill				
	1-5%	3					Vesicle				
	<1%						Fill				
Phenos	mph	✓					Min.				
	mph	✓					Secondary/Alteration				
	ol-plag	✓					Smectite	✓			
Comments							Calcite				
Plagioclase							Zeolite				
	>5%						white fibrous				
	1-5%	1					green				
	<1%						blue				
Rhombs							Analcime				
Blades/laths	mph	✓					Chabazite				
	mph	✓					MgOH				
Comments							Silica				
Augite							Amorphous				
	%						Chalcedony				
GROUNDMASS (original)							Crystals				
Aphanitic							Pyrite	✓			
Feldspathic		✓					Epidote				
Diktytaxitic		✓					Gypsum				
							Anhydrite				
							Chalcopyrite				
							Limonite				
							Hematite				
							Other (describe)				
							natrolite, sulphur				

CRITICAL FEATURES (description of units or features by number)

1) dike, anisicular, olivine phenos, mph Σ 3%, olivine alt. blk., plag agglomerations 10%, in a lt. gray daky feldspathic mtr.

CORE LOG
 BOX # 366 ⁵¹ HOLE # 1 ²⁶ Sheet A
 Depth range 970 to 973 meters Depth range 3182 to 3191 feet
 Logger's Name FT 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓						Olv → Clay			
micro (<.5 mm)	✓						Iddingsite			
Aphyric							Plag → Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.	Fracture Fill	Vesicle Fill	
1-5%										
<1%							Smectite	✓		
Phenos	✓						Calcite			
mph	✓						Zeolite			
ol-plag							white fibrous			
Comments							green			
							blue			
Plagioclase							Analcime			
>5%							Chabazite			
1-5%							MgOH	✓		
<1%							Silica			
Rhombs							Amorphous			
Blades/laths							Chalcedony			
mph							Crystals			
Comments							Pyrite	✓		
Augite %							Epidote			
GROUNDMASS (original)							Gypsum			
Aphanitic							Anhydrite			
Feldspathic	✓						Chalcopyrite			
Diktytaxitic							Limonite			
							Hematite			
							Other (describe)			

all dike

CRITICAL FEATURES (description of units or features by number)

Dike w/ 1% olivine as phenocrysts, microphenocrysts in a lt gray feldspathic groundmass.

2° Minerals: Pyrite, Smectite, MgOH clay (blue staining)

CORE LOG

BOX # 367

HOLE # 1

Sheet A

Depth range 973.25 to 976.00 meters

Depth range 3191 to 3200 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6		
mega (>.5 mm)	✓						Phenocryst replacements	3191' 3192' dike #1 3200' pore network
micro (<.5 mm)	✓						Olv -> Clay <u> </u>	
Aphyric							Iddingsite <u> </u>	
Vesicles: %	✓						Plag -> Clay <u> </u>	
Shape							Zeolite <u> </u>	
Size(x)							Groundmass	
PHENOCRYSTS (Original mineralogy)							Chlorite <u> </u>	
Olivine >5%							Smectite <u> </u>	
1-5%	3						Calcite <u> </u>	
<1%							Zeolite <u> </u>	
Phenos ✓							white fibrous <u> </u>	
mph ✓							green <u> </u>	
ol-plag ✓							blue <u> </u>	
Comments <u> </u>							Analcime <u> </u>	
Plagioclase							Chabazite <u> </u>	
>5%							MgOH <u> </u>	
1-5%	1						Silica <u> </u>	
<1%							Amorphous <u> </u>	
Rhombs <u> </u>							Chalcedony <u> </u>	
Blades/laths ✓							Crystals <u> </u>	
mph ✓							Pyrite <u> </u>	
Comments <u> </u>							Epidote <u> </u>	
Augite %							Gypsum <u> </u>	
>5%							Anhydrite <u> </u>	
1-5%							Chalcopyrite <u> </u>	
<1%							Limonite <u> </u>	
Rhombs <u> </u>							Hematite <u> </u>	
Blades/laths <u> </u>							Other (describe) <u> </u>	
mph <u> </u>								
Comments <u> </u>								
GROUNDMASS (original)								
Aphanitic <u> </u>								
Feldspathic ✓								
Diktytaxitic ✓								

CRITICAL FEATURES (description of units or features by number)

1) dike, anhedral, olivine phenos & mph 30%, plag laths 1% in a lt. gray felds. dikty mtr.

CORE LOG

BOX # 368

HOLE # 1

Sheet A

Depth range 976 to 978 meters

Depth range 3200 to 3207 feet

Logger's Name FT

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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			7' here
mega (>.5 mm)	✓	✓					Olv -> Clay <u>2</u>			
micro (<.5 mm)	✓	✓					Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	0						Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine	>5%	7-10					Secondary/Alteration Min.			
	1-5%	✓					Smectite	✓		
	<1%						Calcite	✓		
Phenos	mph	✓					Zeolite			
	ol-plag						white fibrous			
							green			
Comments								blue	3202	
							Analcime			
Plagioclase	>5%						Chabazite			
	1-5%						MgOH	✓		
	<1%	✓					Silica			
Rhombs							Amorphous			
Blades/laths	mph	✓					Chalcedony			
							Crystals			
Comments								Pyrite		
Augite	%						Epidote			
							Gypsum			
GROUNDMASS (original)								Anhydrite		
Aphanitic							Chalcopyrite	✓		
Feldspathic	✓						Limonite			
Diktytaxitic							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 1% dike as phenocrysts, microphenocrysts in a gray feldspathic matrix
- 2) Hyaloclastite densely packed/welded w/ 7-10% olivine (altered) as phenocrysts, microphenocrysts and <1% Plagioclase as blades, laths and microphenocrysts in a dark, black, glassy, fine grained matrix.
2° Minerals of Smectite, Chalcopyrite, MgOH (blue staining), Calcite

CORE LOG

BOX # 369

HOLE # 1

Sheet A

Depth range 979.13 to 980.89 meters

Depth range 3207 to 3216 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Fracture	Vesicle		
mega (>.5 mm)	✓						Phenocryst replacements		3207'	
micro (<.5 mm)	✓						Olv -> Clay			
Aphyric							Iddingsite		} dike #1	
Vesicles: %							Plag -> Clay			
Shape							Zeolite		} ASSUMED CONTACT	
Size(x)							Groundmass			
							Chlorite		3211'	
							Smectite			
PHENOCRYSTS (Original mineralogy)										} hyalo-clastite #2
Olivine >5%	15%						Secondary/Alteration Min.			
Olivine 1-5%							Smectite		} 3216'	
Olivine <1%							Calcite			
Phenos mph	✓						Zeolite			
ol-plag							white fibrous	✓		
Comments								green		
							blue			
Plagioclase >5%							Analcime			
Plagioclase 1-5%							Chabazite			
Plagioclase <1%							MgOH			
Rhombs							Silica			
Blades/laths mph							Amorphous			
Comments								Chalcedony		
							Crystals			
Augite %							Pyrite			
							Epidote			
GROUNDMASS (original)							Gypsum	2		
Aphanitic	✓						Anhydrite			
Feldspathic							Chalcopryrite	2		
Diktytaxitic							Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

- 1) dike, aenaculon, olivine mph 15%, olivine is altered to a chlorite green color, 25% black shiny shards (?) in a dk. gray aphan mtr.
- 2) hyaloclastite, highly micular black glassy clasts, fine sand sized amber volcanic glass matrix cemented into a competent unit. Microvesicles are filled with zeolites.

CORE LOG

BOX # 370

HOLE # 1

Sheet A

Depth range 980.82 to 983.67 meters

Depth range 3216 to 3225 feet

Logger's Name EN

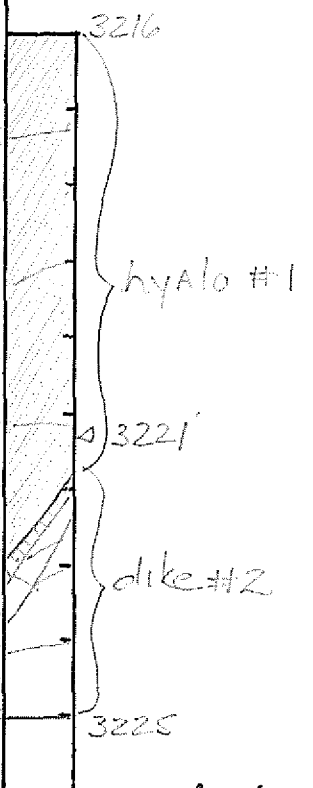
Page 1

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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	-	✓					Olv -> Clay		
micro (<.5 mm)		✓					Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)									
Olivine	>5%						Fracture	Vesicle	
	1-5%	✓							Secondary/Alteration Min.
	<1%						Smectite		
Phenos	mph	✓					Calcite		
ol-plag		✓					Zeolite		
Comments							white fibrous		
							green		
Plagioclase	>5%						blue		
	1-5%						Analcime		
	<1%						Chabazite		
Rhombs							MgOH		
Blades/laths	mph						Silica		
Comments							Amorphous		
							Chalcedony		
Augite	%						Crystals		
							Pyrite		
GROUNDMASS (original)									
Aphanitic							Epidote		
Feldspathic		✓					Gypsum		
Diktytaxitic		✓					Anhydrite		
							Chalcopryrite		
							Limonite		
							Hematite		
							Other (describe)		



CRITICAL FEATURES (description of units or features by number)

- 1) hyaloclastite, small highly muscular black glassy clasts, amber glass sand mtx cemented into a competent unit. Microvesicles unfilled. Unit is black in color.
- 2) dike, olivine phenos & mph 5%, ol. unalt., in a micro x-feldspar sugary textured dark gray mtx.

CORE LOG

BOX # 371

HOLE # 1

Sheet A

Depth range 983.63 to 986.07 meters

Depth range 3225 to 3233 feet

Logger's Name FT

Page 1

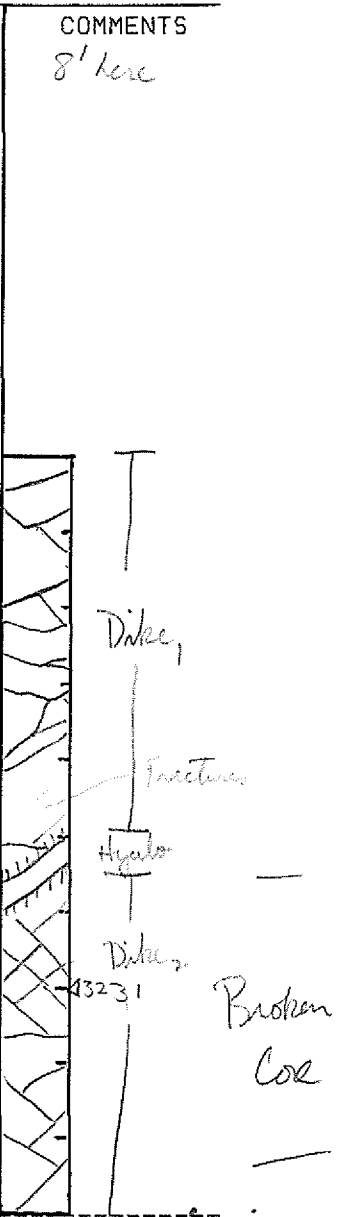
Type of Sample: Flow Intrusive 1,3 Ash Breccia Red Bed

Number of Units in Box 5 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	7	<1			
Shape	R	R	R			
Size(x)	<1	<1	<1			
PHENOCRYSTS (Original mineralogy)						
Olivine >5%	✓15					
1-5%		✓5	✓1			
<1%						
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%	✓3		✓4			
<1%						
Rhombs			✓			
Blades/laths	✓		✓			
mph	✓		✓			
Comments						
Augite %						
GROUNDMASS (original)						
Aphanitic		✓	✓			
Feldspathic	✓		✓			
Diktytaxitic						

SECONDARY FEATURES	
Phenocryst replacements	8' here
Olv -> Clay	
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	
Fracture	
Vesicle	
Secondary/Alteration Min.	
Smectite	✓
Calcite	
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	✓
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	✓
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 15% olivine as phenocrysts, microphenocrysts and 3% Plagioclase as laths, microlaths in a feldspathic, lt gray matrix.
- 2) Hyaloclastite w/ 5% olivine phenocrysts, microphenocrysts in a charcoal gray aphanitic matrix.
- 3) Dike w/ 4% Plagioclase as Rhombic laths and microlaths, 1% olivine phenocrysts, microphenocrysts in a feldspathic lt gray matrix

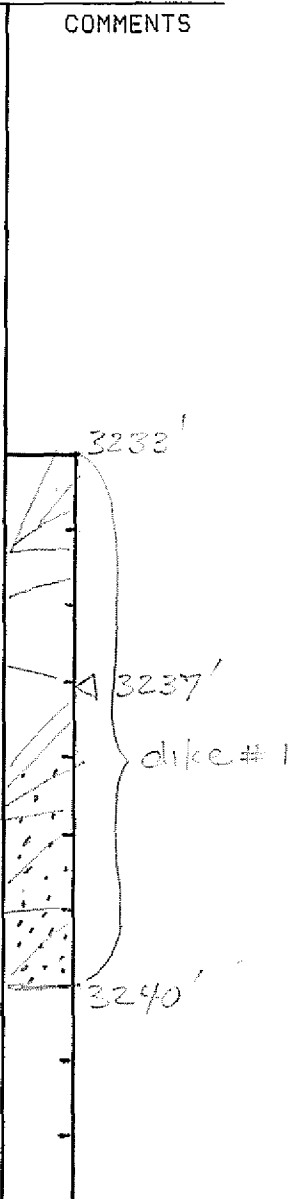
2° MINERALS: SMECTITE, CHALCOPYRITE (PYRITE), MgOH (blue staining)

CORE LOG

BOX # 372 HOLE # 1 Sheet A
 Depth range 986.06 to 992.20 meters Depth range 3233 to 3240 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: %	15					
Shape	SR					
Size(x)	3mm					
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	5					
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments						
Plagioclase						
>5%	25					
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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	
Chalcopryrite	✓
Limonite	
Hematite	
Other (describe)	blue veiner



CRITICAL FEATURES (description of units or features by number)

1) dike, arcicular become sparsely vesicular 5' thru top, olivine phenos & mph 5%, ol alt black, plag blades & laths 25% (!) in a gray aphan mty.

CORE LOG
 BOX # 373 HOLE # 1 Sheet A
 Depth range 988.2 to 990.95 meters Depth range 3240 to 3249 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓						Olv -> Clay	
micro (<.5 mm)	✓						Iddingsite	
Aphyric							Plag -> Clay	
Vesicles: %							Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine	>5%	✓					Smectite	43241
	1-5%	5-7					Calcite	
	<1%						Zeolite	
Phenos	mph	✓					white fibrous	
	ol-plag						green	
							blue	
Comments							Analcime	
							Chabazite	
Plagioclase	>5%						MgOH	✓
	1-5%	✓					Silica	
	<1%	3					Amorphous	
Rhombs							Chalcedony	
Blades/laths	mph	✓					Crystals	
							Pyrite	✓
Comments							Epidote	43246
							Gypsum	
Augite	%						Anhydrite	
							Chalcopyrite	
GROUNDMASS (original)							Limonite	
Aphanitic							Hematite	
Feldspathic	✓						Other (describe)	
Diktytaxitic								

CRITICAL FEATURES (description of units or features by number)

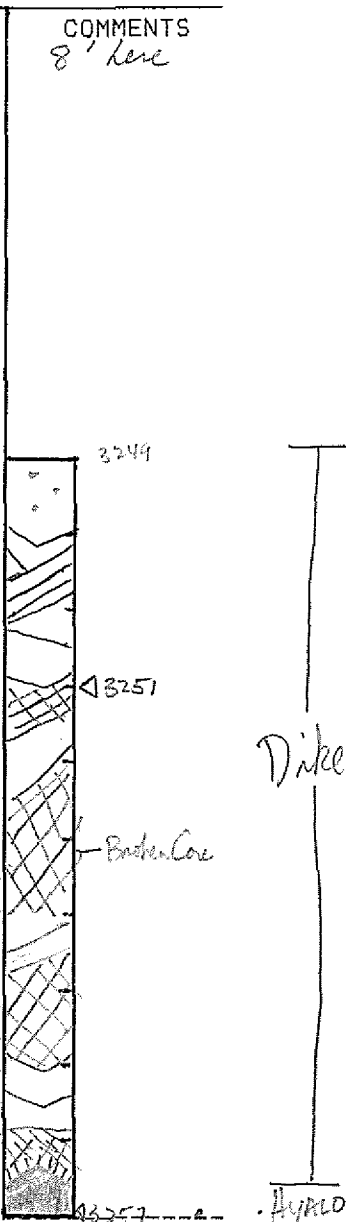
1) Dike, vesicular w/ 5-7% olivine phenocrysts, microphenocrysts and 3% Plagioclase as laths, microlaths in a feldspathic matrix.

2^o Minerals: SMECTITE, MgOH (blue stain), Pyrite

CORE LOG
 BOX # 374 ⁹⁵ HOLE # 1 Sheet A
 Depth range 990 to 993.39 meters Depth range 3249 to 3257 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive / 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	<1				
Shape	R	R				
Size(x)	<1	<1				
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	✓	1-3				
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%	4					
<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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	✓
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	✓
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 4% Plagioclase as laths, micro laths and 2% Olivine as phenocrysts microphenocrysts in a lt gray feldspathic matrix.
 - 2) Hyaloclastite w/ 1-3% olivine as phenocrysts, microphenocrysts in a nearly black colored aphanitic matrix.
- 2 Minerals: Smectite, MgOH (blue stain), Pyrite, Chalcopyrite

CORE LOG

BOX # 375

HOLE # 1

Sheet A

Depth range 993.38 to 995.82 meters

Depth range 3257 to 3265 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Fracture	Vesicle		
mega (>.5 mm)	<input checked="" type="checkbox"/>								Oliv -> Clay _____ Iddingsite _____ Plag -> Clay _____ Zeolite _____	
micro (<.5 mm)	<input checked="" type="checkbox"/>									
Aphyric									Groundmass Chlorite _____ Smectite _____	
Vesicles: %	<u>15</u>									
Shape	<u>R</u>									
Size(x) /mm	<u>1mm</u>									
PHENOCRYSTS (Original mineralogy)										
Olivine >5%									Secondary/Alteration Min. Smectite <input checked="" type="checkbox"/> _____ Calcite _____ Zeolite <input checked="" type="checkbox"/> _____ white fibrous _____ green _____ blue _____ Analcime _____ Chabazite _____ MgOH _____ Silica _____ Amorphous _____ Chalcedony _____ Crystals _____ Pyrite <input checked="" type="checkbox"/> _____ Epidote _____ Gypsum _____ Anhydrite _____ Chalcopyrite _____ Limonite _____ Hematite _____ Other (describe) _____	
Olivine 1-5%	<u>4</u>									
Olivine <1%										
Phenos mph	<input checked="" type="checkbox"/>									
ol-plag mph	<input checked="" type="checkbox"/>									
Comments										
Plagioclase										
>5%	<u>8</u>									
1-5%										
<1%										
Rhombs										
Blades/laths mph	<input checked="" type="checkbox"/>									
Comments										
Augite %										
GROUNDMASS (original)										
Aphanitic	<input checked="" type="checkbox"/>									
Feldspathic										
Diktytaxitic										



CRITICAL FEATURES (description of units or features by number)

1) dike, micromesicular (15%), olivine phenos (mph 4%), ol. unalt, plag blades & laths 8% in a lt gray aphan mtry.

CORE LOG

BOX # 376

HOLE # 1

Sheet A

Depth range 996.82 to 998.88 meters

Depth range 3265 to 3275 feet

Logger's Name EN

Page 1

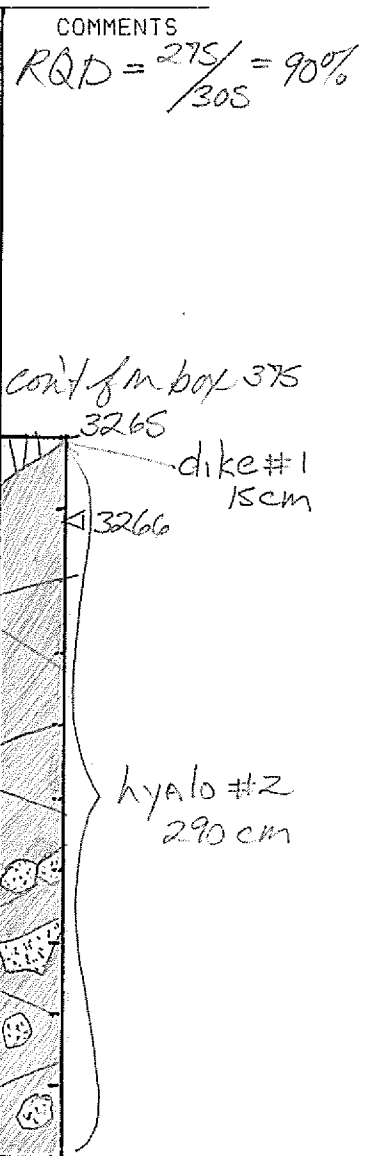
Type of Sample: Flow Intrusive 1 Ash Breccia Red Bed

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: %	-	-				
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	1
Calcite	2
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- 1) dike, no visible phenos, aphan gray basalt. No chill and visible at both contact. $\angle 112 = ?$
- 2) hyaloclastite, blk, vesicular, sand size and amygdaline sand size volcanic glass shards from a competent matrix. Clasts are vesicular basalt, vesicles are filled w calcite and a clear, semi-soft (H=<6) mineral. 1st 17cm of unit pervasively altered to clay

CORE LOG

BOX # 377

HOLE # 1

Sheet A

Depth range 998.84 to 1001.92 meters

Depth range 3275 to 3285 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: %	-	-	-			
Shape						
Size(x)						

PHENOCRYSTS (Original mineralogy)

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

Comments unalt

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

Comments alt blk on mineral-
ized frags

Augite	%					
GROUNDMASS (original)						
Aphanitic		-	-	✓		
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES

Phenocryst replacements	
Olv → Clay	
Iddingsite	
Plag → Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	

Secondary/Alteration Min.

Smectite	3
Calcite	
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	3
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

blue veneer 3

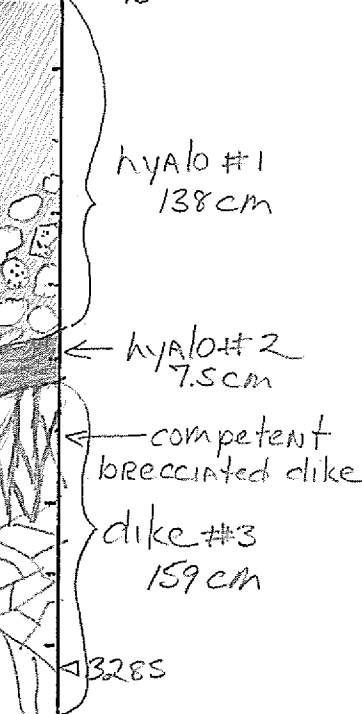
COMMENTS

RQD = $147/305 = 48\%$

SC
33
17
66
31
22
21
147

cont from box 376

3275



CRITICAL FEATURES (description of units or features by number)

3285

1) hyaloclastite, blk, vesicular, sand size and amber fine sand size volcanic glass shards form a competent mtr. Clasts 80% amiscular gray basalt, vesicular basalt clasts do not contain amygdules. $\angle 1A2 = 15^\circ$

2) hyaloclastite, as above, w.o. clasts. $\angle 2A3 = 15^\circ$

3) dike, 1st 27cm brecciated and cemented by clay, olivine mph & ol-plag intus $\leq 1\%$, unalt; plag blades & laths →

Σ 3% alt blk on mineralized fractz, unalt on fresh surfaces, all in a gray aphan mtr. Fairly abund. alt. pyrite on fractz.

1-377

CORE LOG

BOX # 374

HOLE # 1

Sheet A

Depth range 1001.9 to 1004.6 meters

Depth range 3285 to 3294 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		Plag lath concentra- tion 55% thru box RQP = $\frac{36}{294} = 13\%$ // // //	
mega (>.5 mm)	✓						Olv -> Clay			
micro (<.5 mm)	✓						Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
							Fracture			
							Vesicle			
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.		cont from box 377 3285 } dike #1 294cm } plag lath concentration 3294	
Olivine	>5%						Smectite	1		
	1-5%	3					Calcite			
	<1%						Zeolite			
Phenos	mph	✓					white fibrous			
	ol-plag	✓					green			
Comments	<u>unalt</u>							blue		
Plagioclase	>5%						Analcime			
	1-5%	3					Chabazite			
	<1%						MgOH			
Rhombs							Silica			
Blades/laths	mph	✓					Amorphous			
	mph	✓					Chalcedony			
Comments	<u>some alt blk</u>							Crystals		
Augite	%						Pyrite	<u>alt</u>		
GROUNDMASS (original)								Epidote		
Aphanitic		✓					Gypsum			
Feldspathic							Anhydrite			
Diktytaxitic							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)	<u>blue mineral</u>		

CRITICAL FEATURES (description of units or features by number)

1) dike, anesicular, olivine phenos, mph, & ol-plag inters Σ 3%, unalt.; plag blades & laths, mph Σ 3%, plag % increase downward thru box, ~ 50% of ol-plag inters have plag alt. blk., all in a gray aphan mtr.

CORE LOG

BOX # 379

HOLE # 1

Sheet A

Depth range 1004.67 to 1014.43 meters

Depth range 3294 to 3326 feet

Logger's Name FT

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	<1	20			
Shape	R	R	MSA			
Size(x)	<1	<1	1			

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						

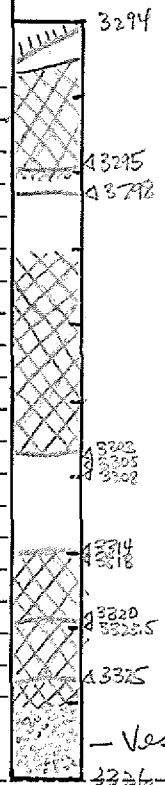
SECONDARY FEATURES	
Phenocryst replacements	
Olv -> Clay	2
Iddingsite	
Plag -> Clay	
Zeolite	

Groundmass	
Chlorite	
Smectite	

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

COMMENTS
32' represented here

Last unit vesicular



CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 40% Plagioclase as blades, laths, microlaths and 2900 olivine as phenocrysts, mph in a bluish gray matrix.
 - 2) Pillows w/ 40% olivine as phenocrysts, mph in a dense bluish gray matrix.
 - 3) Vesicular Pillow w/ 1% olivine as phenocrysts, mph in lt gray aphanitic matrix
- 2° Minerals: Smectite, MgOH (blue staining), Chalcopyrite, Sulfur, white Zeolite

CORE LOG

BOX # 380

HOLE # 1

Sheet A

Depth range 1014.43 to 1019.31 meters

Depth range 3326 to 3342 feet

Logger's Name FAI

Page 1

Type of Sample: Flow Intrusive 2 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%						
1-5%	3					
<1%						
Phenos ✓						
mph ✓						
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%	3	1				
<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	
Secondary/Alteration Min.	
Smectite	
Calcite	
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite 102	
Epidote	
Gypsum	
Anhydrite	
Chalcopryrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

6' last core

3326

3327

3329

3332

3336

3337

3339

3342

pillow RUBB #1

dike #2

CRITICAL FEATURES (description of units or features by number)

- 1) pillow rubble, amsucular, olivine phenos 3%, plag blades & laths 3% in a highly fract. gray aphan mtx. Glassy contacts.
- 2) dike, amsucular, plag blades & laths 1% in a lt. gray aphan mtx. Fracture pattern more linear than pillow rubble.

CORE LOG
 BOX # 381 HOLE # 1 Sheet A
 Depth range 1019³¹ to 1021⁷⁵ meters Depth range 3342 to 3350 feet
 Logger's Name ET 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			8' here - SMECTITE
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay			
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	<1						Zeolite			
Shape	<u>2</u>						Groundmass			
Size(x)	<1						Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%							Smectite	<input checked="" type="checkbox"/>		
<1%							Calcite			
Phenos							Zeolite			
mph							white fibrous			
cl-plag							green			
Comments								blue		
Plagioclase								Analcime		
>5%							Chabazite			
1-5%	<u>1-2</u>						MgOH	<input checked="" type="checkbox"/>		
<1%							Silica			
Rhombs							Amorphous			
Blades/laths	<input checked="" type="checkbox"/>						Chalcedony			
mph	<input checked="" type="checkbox"/>						Crystals			
Comments								Pyrite	<input checked="" type="checkbox"/>	
Augite %								Epidote		
							Gypsum			
GROUNDMASS (original)								Anhydrite		
Aphanitic	<input checked="" type="checkbox"/>						Chalcopyrite			
Feldspathic							Limonite			
Diktytaxitic							Hematite			
							Other (describe)			

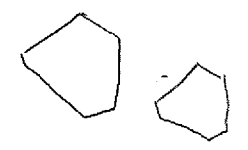


CRITICAL FEATURES (description of units or features by number)

Dike w/ 1-2% Plagioclase as laths, microlaths in a lt gray feldspathic groundmass.

2° Minerals: Smectite, MgOH (blue staining), Pyrite

CORE LOG
 BOX # 382 HOLE # 1 Sheet A
 Depth range 1021⁷⁵ to 1024¹⁹ meters Depth range 3350 to 3358 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv -> Clay _____	
micro (<.5 mm)		✓					Iddingsite _____	
Aphyric							Plag -> Clay _____	
							Zeolite _____	
Vesicles: %	<1	5					Groundmass	
Shape	2	2					Chlorite _____	
Size(x)	<1	<1					Smectite _____	
PHENOCRYSTS (Original mineralogy)								
Olivine	>5%						Fracture	Vesicle
	1-5%							
	<1%						Secondary/Alteration Min.	
Phenos	mph						Smectite	
ol-plag							Calcite	
Comments							Zeolite	
							white fibrous	
Plagioclase	>5%						green	
	1-5%	✓					blue	
	<1%		✓				Analcime	
Rhombs							Chabazite	
Blades/laths	mph	✓	✓				MgOH	✓
Comments							Silica	
							Amorphous	
Augite	%						Chalcedony	
							Crystals	
GROUNDMASS (original)							Pyrite	✓
Aphanitic	✓	✓					Epidote	
Feldspathic							Gypsum	
Diktytaxitic							Anhydrite	
							Chalcopyrite	
							Limonite	
							Hematite	
							Other (describe)	
							Natrolite	✓



CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 1% Plagioclase as laths, microlaths in a feldspathic, lt gray matrix.

2) Dike w/ <1% Plagioclase as laths, microlaths in a vesicular lt gray matrix

2° Minerals: Smectite, Zeolite (white dot rods), MgOH (blue-staining), Pyrite, Natrolite

CORE LOG

BOX # 383

HOLE # 1

Sheet A

Depth range 1021¹⁹ to 1026⁶³ meters

Depth range 3358 to 3366 feet

Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv -> Clay	
micro (<.5 mm)	✓	✓					Iddingsite	
Aphyric							Plag -> Clay	
Vesicles: %	<1	<1					Zeolite	
Shape	R	R					Groundmass	
Size(x)	<1	<1					Chlorite	
							Smectite	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine >5%							Smectite	
1-5%		✓					Calcite	
<1%			✓				Zeolite	
Phenos		✓	✓				white fibrous	
mph		✓	✓				green	
ol-plag							blue	
Comments							Analcime	
							Chabazite	
Plagioclase							MgOH	
>5%			✓				Silica	
1-5%			✓				Amorphous	
<1%	✓						Chalcedony	
Rhombs							Crystals	
Blades/laths	✓		✓				Pyrite	
mph	✓		✓				Epidote	
Comments							Gypsum	
							Anhydrite	
Augite %							Chalcopyrite	
							Limonite	
GROUNDMASS (original)							Hematite	
Aphanitic		✓					Other (describe)	
Feldspathic	✓		✓					
Diktytaxitic								

CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ <1% Plagioclase as laths, micro laths in a feldspathic lt gray matrix
- 2) Dike w/ 1% Olivine phenocrysts, mph in a dark gray aphanitic matrix
- 3) Dike w/ 1% Plagioclase as laths, micro laths and <1% Olivine as phenocrysts, mph in a lt gray feldspathic matrix.

2° Minerals S SMECTITE, MgOH (blue stain), Pyrite

CORE LOG

BOX # 384 ⁶³ HOLE # 38 / Sheet A
 Depth range 1026 to 1029 meters Depth range 3366 to 3375 feet
 Logger's Name FT 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	SECONDARY FEATURES	COMMENTS
Phyric mega (>.5 mm) <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 micro (<.5 mm) <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	Phenocryst replacements Olv -> Clay <u> </u> Iddingsite <u> </u> Plag -> Clay <u> </u> Zeolite <u> </u>	9' here
Aphyric <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	Groundmass Chlorite <u> </u> Smectite <u> </u>	
Vesicles: % Shape <u> </u> Size(x) <u> </u>	Fracture <u> </u> Vesicle <u> </u>	
PHENOCRYSTS (Original mineralogy)	Secondary/Alteration Min.	
Olivine >5% <input type="checkbox"/> 1-5% <input checked="" type="checkbox"/> 2 <1% <input type="checkbox"/> Phenos <input checked="" type="checkbox"/> mph <input checked="" type="checkbox"/> ol-plag <input type="checkbox"/>	Smectite <input checked="" type="checkbox"/> Calcite <u> </u> Zeolite <u> </u> white fibrous <u> </u> green <u> </u> blue <u> </u> Analcime <u> </u> Chabazite <u> </u> MgOH <input checked="" type="checkbox"/> Silica <u> </u> Amorphous <u> </u> Chalcedony <u> </u> Crystals <u> </u>	
Comments <u> </u>	Pyrite <input checked="" type="checkbox"/> Epidote <u> </u> Gypsum <u> </u> Anhydrite <u> </u> Chalcopyrite <u> </u> Limonite <u> </u> Hematite <u> </u> Other (describe) <u> </u>	
Plagioclase >5% <input type="checkbox"/> 1-5% <input type="checkbox"/> <1% <input checked="" type="checkbox"/> Rhombs <u> </u> Blades/laths <input checked="" type="checkbox"/> mph <input checked="" type="checkbox"/> Comments <u> </u>		
Augite % <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6		
GROUNDMASS (original)		
Aphanitic <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 Feldspathic <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 Diktytaxitic <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6		

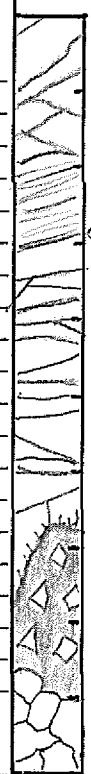
CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 2% olivine phenocrysts, mph and <1% Plagioclase as laths
 microlaths in a well crystallized diktytaxitic gray matrix

2° Minerals: SMECTITE, MgOH (blue stain), Pyrite

CORE LOG
 BOX # 385 HOLE # 1 Sheet A
 Depth range 1029³⁸ to 1032⁴³ meters Depth range 3375 to 3385 feet
 Logger's Name FT 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			10' here
mega (>.5 mm)	✓	✓					Olv -> Clay			
micro (<.5 mm)	✓	✓					Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %							Zeolite		Zeolite, short white Rods of Prismatic Clear needles	
Shape							Groundmass			
Size(x)							Chlorite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.		3375	
Olivine 1-5%		✓4					Smectite	✓		
Olivine <1%	✓						Calcite			
Phenos mph	✓	✓					Zeolite			
ol-plag	✓	✓					white fibrous			
Comments								green		
Plagioclase >5%							blue		3377	Dike
Plagioclase 1-5%							Analcime			
Plagioclase <1%	✓						Chabazite			
Rhombs							MgOH	✓		
Blades/laths mph	✓						Silica			
Comments								Amorphous		
Augite %							Chalcedony			
GROUNDMASS (original)							Crystals			
Aphanitic	✓	✓					Pyrite	✓		
Feldspathic	✓						Epidote			
Diktytaxitic							Gypsum			
							Anhydrite			
							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			
							SULFUR			



CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ <1% olivine as phenocrysts, mph + Plagioclase at <1% as laths, micro laths in a lt gray feldspathic matrix.
- 2) Hyaloclastite and Pillow Fragments w/ 4% olivine as phenocrysts in an aphanitic gray matrix.

2 Minerals: SMECTITE, PYRITE, MgOH (blue staining), SULFUR
 ZEOLITE. white fibrous + Prismatic clear

CORE LOG
 BOX # 386 ⁸² HOLE # 1 Sheet A
 Depth range 1031 to 1036 ²⁴ meters Depth range 3383 to 3397 ^J feet
 Logger's Name FT 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	SECONDARY FEATURES	COMMENTS
Phyric mega (>.5 mm) <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 micro (<.5 mm) <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	Phenocryst replacements Olv -> Clay <u> </u> Iddingsite <u> </u> Plag -> Clay <u> </u> Zeolite <u> </u>	14.5 represented here
Aphyric <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>	Groundmass Chlorite <u> </u> Smectite <u> </u>	
Vesicles: % <u>1</u> Shape <u>SSSA</u> Size(x) <u><1</u>	Fracture <u> </u> Vesicle <u> </u>	
PHENOCRYSTS (Original mineralogy)	Secondary/Alteration Min.	
Olivine >5% <u> </u> 1-5% <input checked="" type="checkbox"/> 4 <u> </u> <1% <u> </u> Phenos <input checked="" type="checkbox"/> <u> </u> mph <input checked="" type="checkbox"/> <u> </u> ol-plag <u> </u>	Smectite <input checked="" type="checkbox"/> <u> </u> Calcite <u> </u> Zeolite <u> </u> white fibrous <u> </u> green <u> </u> blue <u> </u> Analcime <u> </u> Chabazite <u> </u> MgOH <input checked="" type="checkbox"/> <u> </u> Silica <u> </u> Amorphous <u> </u> Chalcedony <u> </u> Crystals <u> </u> Pyrite <u> </u> Epidote <u> </u> Gypsum <u> </u> Anhydrite <u> </u> Chalcopyrite <u> </u> Limonite <u> </u> Hematite <u> </u> Other (describe) <u> </u>	3383 Pillow fragment Hyaloclastite fine grained 43325 43389 Vesicular fragments Pillow fragment 43393 43396 3379.5
Comments <u> </u>		
Plagioclase >5% <u> </u> 1-5% <u> </u> <1% <u> </u> Rhombs <u> </u> Blades/laths <u> </u> mph <u> </u> Comments <u> </u>		
Augite % <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>		
GROUNDMASS (original) Aphanitic <input checked="" type="checkbox"/> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> Feldspathic <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> Diktytaxitic <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>		

CRITICAL FEATURES (description of units or features by number)

Hyaloclastite w/ Pillow Fragments; 4% olivine as phenocrysts, microphenocrysts in an aphanitic, bluish gray matrix

2° Minerals: SMECTITE, MgOH (blue staining)

CORE LOG
 BOX # 387 HOLE # 1 Sheet A
 Depth range 1036²⁴ to 1039¹⁴ meters Depth range 3397.5 to 3407 feet
 Logger's Name FT 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	RA					
Size(x)	<1					
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		COMMENTS
Phenocryst replacements		
Olv -> Clay		
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Fracture		
Vesicle		
Secondary/Alteration Min.		3397.5
Smectite	✓	
Calcite		
Zeolite		
white fibrous		43399
green		
blue		
Analcime		
Chabazite		
MgOH	✓	
Silica		
Amorphous		
Chalcedony		
Crystals		43402
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopyrite		43405
Limonite		
Hematite		
Other (describe)		
		3407

CRITICAL FEATURES (description of units or features by number)

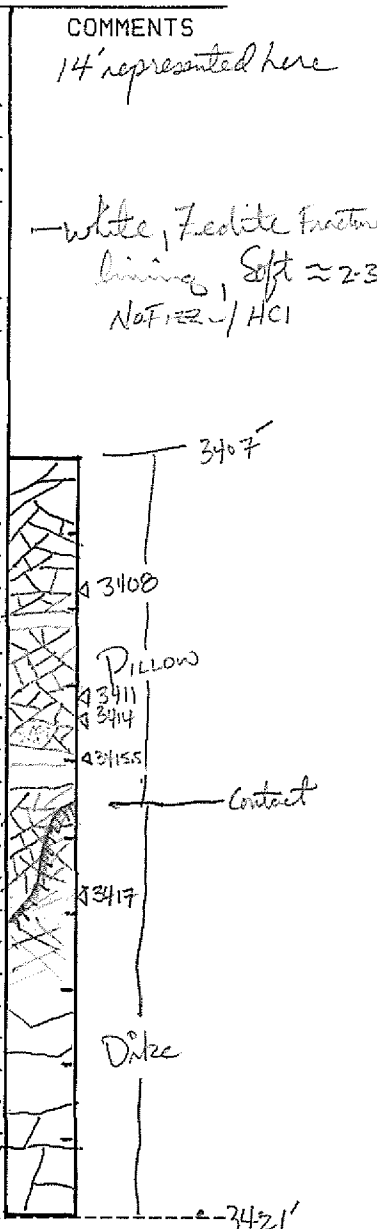
1) Pillow Fragments w/ 5% Olivine as phenocrysts, mph in an aphanitic matrix. The matrix color is dull bluish gray.

2° Minerals: SMECTITE, MgOH (blue stain)

CORE LOG
 BOX # 388 ¹⁴ HOLE # 1 Sheet A
 Depth range 1039 to 1043 meters Depth range 3407 to 3421 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive 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	SR					
Size(x)	<1					
PHENOCRYSTS (Original mineralogy)						
Olivine >5%	3-4					
1-5%	✓					
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						
Comments <u> </u>						
Plagioclase						
>5%						
1-5%						
<1%	✓					
Rhombs						
Blades/laths						
mph	✓					
Comments <u> </u>						
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 fibrous	✓
green	
blue	
Analcime	
Chabazite	
MgOH	✓
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- 1) Pillow lava w/ 3-4 divine as phenocrysts and mph in an aphanitic lt gray matrix
- 2) Dike w/ 1% divine as phenocrysts, microphenocrysts and Plagioclase at <1% as micro laths in a lt gray aphanitic matrix.

2^o Mineral 3 SMECTITE, MgOH (Blue stain), PYRITE
 WHITE FLAKY Zeolite.

CORE LOG
 BOX # 389 HOLE # 1 Sheet A
 Depth range 1043⁴¹ to 1045⁸⁵ meters Depth range 3421 to 3429 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		8 here
mega (>.5 mm)	✓						Olv -> Clay		
micro (<.5 mm)	✓						Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %	✓						Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture		
Olivine	>5%						Secondary/Alteration Min.		
	1-5%	✓					Smectite		
	<1%						Calcite		
Phenos		✓					Zeolite		
mph		✓					white fibrous		
ol-plag							green		
							blue		
Comments							Analcime		
Plagioclase	>5%						Chabazite		
	1-5%						MgOH		
	<1%						Silica		
Rhombs							Amorphous		
Blades/laths							Chalcedony		
mph							Crystals		
Comments							Pyrite		
Augite	%						Epidote		
							Gypsum		
							Anhydrite		
GROUNDMASS (original)							Chalcopyrite		
Aphanitic		✓					Limonite		
Feldspathic							Hematite		
Diktytaxitic							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

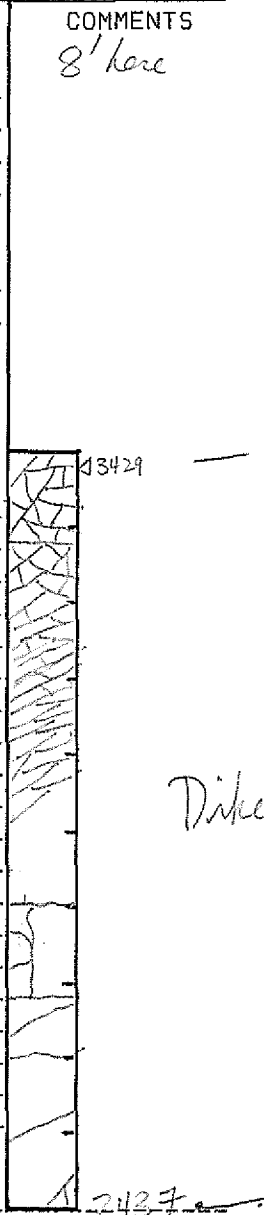
1) Dike w/ 29% Olivine as phenocrysts, mph in an aphanitic to gray feldspathic matrix.

2° Minerals = SMECTITE, MgOH (blue staining), Pyrite

BOX # 390 CORE LOG HOLE # 1 Sheet A
 Depth range 1045 to 1048 meters Depth range 3429 to 3437 feet
 Logger's Name FT 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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aphyric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vesicles: %	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Size(x)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PHENOCRYSTS (Original mineralogy)						
Olivine >5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1-5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phenos mph	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ol-plag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments <u> </u>						
Plagioclase						
>5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1-5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rhombs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blades/laths mph	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments <u> </u>						
Augite %						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROUNDMASS (original)						
Aphanitic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feldspathic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diktytaxitic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECONDARY FEATURES	
Phenocryst replacements	<u>8' here</u>
Olv -> Clay	<u> </u>
Iddingsite	<u> </u>
Plag -> Clay	<u> </u>
Zeolite	<u> </u>
Groundmass	<u> </u>
Chlorite	<u> </u>
Smectite	<u> </u>
Fracture	<u> </u>
Vesicle	<u> </u>
Secondary/Alteration Min.	<u> </u>
Smectite	<input checked="" type="checkbox"/>
Calcite	<input type="checkbox"/>
Zeolite	<input type="checkbox"/>
white fibrous	<input type="checkbox"/>
green	<input type="checkbox"/>
blue	<input type="checkbox"/>
Analcime	<input type="checkbox"/>
Chabazite	<input type="checkbox"/>
MgOH	<input checked="" type="checkbox"/>
Silica	<input type="checkbox"/>
Amorphous	<input type="checkbox"/>
Chalcedony	<input type="checkbox"/>
Crystals	<input type="checkbox"/>
Pyrite	<input checked="" type="checkbox"/>
Epidote	<input type="checkbox"/>
Gypsum	<input type="checkbox"/>
Anhydrite	<input type="checkbox"/>
Chalcopyrite	<input type="checkbox"/>
Limonite	<input type="checkbox"/>
Hematite	<input type="checkbox"/>
Other (describe)	<u> </u>



CRITICAL FEATURES (description of units or features by number)

Dike w/ 2-3% olivine as phenocrysts, mph in a lt gray feldspathic matrix

2 Minerals: SMECTITE, MgOH (blue stain), Pyrite

CORE LOG

BOX # 391 ⁹⁰ HOLE # 1 Sheet A
 Depth range 1048 to 1051⁰³ meters Depth range 3439 to 3446 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements	7' here	
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay		
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite		
Aphyric							Plag -> Clay	Pyrite Canyon	
							Zeolite		
Vesicles: %							Groundmass		
Shape							Chlorite		
Size(x)							Smectite		
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.		
Olivine >5%							Smectite		
1-5%	<input checked="" type="checkbox"/>						Calcite		
<1%							Zeolite		
Phenos	<input checked="" type="checkbox"/>						white fibrous		
mph	<input checked="" type="checkbox"/>						green		
ol-plag							blue		
Comments							Analcime		
Plagioclase							Chabazite		
>5%							MgOH		<input checked="" type="checkbox"/>
1-5%							Silica		
<1%							Amorphous		
Rhombs							Chalcedony		
Blades/laths							Crystals		
mph							Pyrite	<input checked="" type="checkbox"/>	
Comments							Epidote		
Augite %							Gypsum		
GROUNDMASS (original)							Anhydrite		
Aphanitic							Chalcopryite		
Feldspathic	<input checked="" type="checkbox"/>						Limonite		
Diktytaxitic							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 2-3% phenocrysts, mph in a lt gray, feldspathic groundmass.

2° Minerals: SMECTITE, PYRITE, MgOH (the stain)

CORE LOG
 BOX # 392⁰³ HOLE # 1 Sheet A
 Depth range 1051 to 1053.47 meters Depth range 3446 to 3454 feet
 Logger's Name FT Page 1
 Type of Sample: Flow _____ Intrusive 1 Ash _____ Breccia _____ Red Bed _____
 Number of Units in Box _____ Clk/Rubble _____ Carbonate _____ Pillow/Hyaloclast 2
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv -> Clay _____	
micro (<.5 mm)	✓	✓					Iddingsite _____	
Aphyric							Plag -> Clay _____	
Vesicles: %	-	<1					Zeolite _____	
Shape		A					Groundmass	
Size(x)		Z					Chlorite _____	
PHENOCRYSTS (Original mineralogy)							Smectite _____	
Olivine >5%							Calcite _____	
1-5%	2-3	5					Zeolite _____	
<1%							white fibrous _____	
Phenos	✓	✓					green _____	
mph	✓	✓					blue _____	
ol-plag							Analcime _____	
Comments							Chabazite _____	
Plagioclase							MgOH _____	
>5%							Silica _____	
1-5%							Amorphous _____	
<1%							Chalcedony _____	
Rhombs							Crystals _____	
Blades/laths							Pyrite _____	
mph							Epidote _____	
Comments							Gypsum _____	
Augite %							Anhydrite _____	
GROUNDMASS (original)							Chalcopyrite _____	
Aphanitic	✓	✓					Limonite _____	
Feldspathic	✓						Hematite _____	
Diktytaxitic							Other (describe) _____	

CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 2-3% olivine as phenocrysts, mph in a feldspathic matrix lt gray in color.
- 2) Pillow w/ 5% olivine as phenocrysts, mph in a dull bluish gray aphanitic matrix.
 2° MINERALS: SMECTITE, PYRITE, MgOH (the same)

CORE LOG
 BOX # 393 HOLE # 1 Sheet A
 Depth range 1553.47 to 1566.21 meters Depth range 3454 to 3463 feet
 Logger's Name EAT 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)		✓					Olv -> Clay			
micro (<.5 mm)	✓	✓					Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	20	-					Zeolite			
Shape	R						Groundmass			
Size(x)/mm							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.	Fractured Fill	Vesicle Fill	3454
1-5%	2	5				Smectite				
<1%						Calcite				
Phenos mph	✓	✓				Zeolite				
ol-plag		✓				white fibrous				
						green				
						blue				
						Analcime				
						Chabazite				
						MgOH				
						Silica				
						Amorphous				
						Chalcedony				
						Crystals				
						Pyrite				
						Epidote				
						Gypsum				
						Anhydrite				
						Chalcopyrite				3462
						Limonite				
						Hematite				
						Other (describe)				3463
						blue mineral				

CRITICAL FEATURES (description of units or features by number)

- 1) dike, micritic 20%, olivine mph 3% in a lt. gray aphan mtr.
- 2) dike, aphyric, olivine phenos & mph 5%, plag blades & clasts 3% in a lt. gray aphan mtr.

CORE LOG

BOX # 394

HOLE # 1

Sheet A

Depth range 1056.21 to 1059.65 meters

Depth range 3463 to 3471 feet

Logger's Name FN

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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay		
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite		
Aphyric							Plag -> Clay		
							Zeolite		
Vesicles: %							Groundmass		
Shape							Chlorite		
Size(x)							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.		
Olivine 1-5%	<input checked="" type="checkbox"/>						Smectite		
Olivine <1%							Calcite		
Phenos mph	<input checked="" type="checkbox"/>						Zeolite		
Phenos ol-plag	<input checked="" type="checkbox"/>						white fibrous		
Phenos	<input checked="" type="checkbox"/>						green		
mph	<input checked="" type="checkbox"/>						blue		
ol-plag	<input checked="" type="checkbox"/>						Analcime		
Comments									
Plagioclase									
>5%							Chabazite		
1-5%	<input checked="" type="checkbox"/>						MgOH		
<1%							Silica		
Rhombs							Amorphous		
Blades/laths mph	<input checked="" type="checkbox"/>						Chalcedony		
Blades/laths	<input checked="" type="checkbox"/>						Crystals		
mph	<input checked="" type="checkbox"/>						Pyrite	<input checked="" type="checkbox"/>	
Comments									
Augite %									
GROUNDMASS (original)									
Aphanitic	<input checked="" type="checkbox"/>						Epidote		
Feldspathic							Gypsum		
Diktytaxitic	<input checked="" type="checkbox"/>						Anhydrite		
							Chalcopryrite		
							Limonite		
							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

1) dike, amsicular, olivine phenos 5%, some olivine phenos 1cm d., plag blades/laths 5% in a lit gray aphan to dikty mtr.

White fibrous zeolite (?) in fractures may be mold growing on sulphur in pyrite.

CORE LOG

BOX # 395

HOLE # 1

Sheet A

Depth range 1058.81 to 1062.62 meters

Depth range 3471.5 to 3484 feet

Logger's Name EN

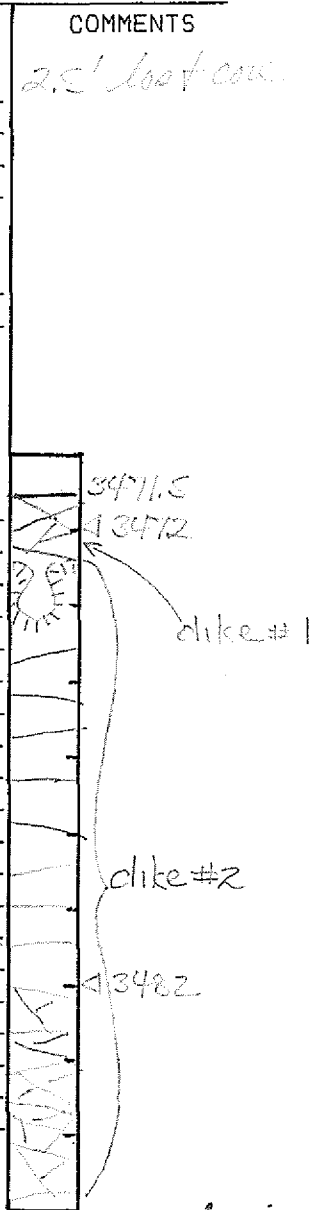
Page 1

Type of Sample: Flow Intrusive 12 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Fracture	Vesicle	
mega (>.5 mm)									2.5' lost core
micro (<.5 mm)	✓	✓							
Aphyric									
Vesicles: %	-	-							
Shape									
Size(x)									
PHENOCRYSTS (Original mineralogy)									
Olivine >5%									
1-5%	3	3							
<1%									
Phenos									
mph	✓	✓							
ol-plag									
Comments									
Plagioclase									
>5%									
1-5%		3							
<1%									
Rhombs									
Blades/laths		✓							
mph		✓							
Comments									
Augite %									
GROUNDMASS (original)									
Aphanitic	✓	✓							
Feldspathic									
Diktytaxitic									
Secondary/Alteration Min.									
Smectite		✓							
Calcite									
Zeolite									
white fibrous									
green									
blue									
Analcime									
Chabazite									
MgOH									
Silica									
Amorphous									
Chalcedony									
Crystals									
Pyrite		✓							
Epidote									
Gypsum									
Anhydrite									
Chalcopyrite									
Limonite									
Hematite									
Other (describe)									



CRITICAL FEATURES (description of units or features by number)

1) dike, anisoclastic. Olivine mph 3% in a lt gray aphan mtx. Unit is rubble, most of which has been rounded (by drilling?).

2) dike, anisoclastic, olivine mph 3%, plag blades & laths 3% in a lt gray aphan mtx.

CORE LOG

BOX # 296 HOLE # 1 Sheet A
 Depth range 1062.62 to 1065.06 meters Depth range 3494 to 3492 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)							Olv -> Clay		<i>pyrite druse at 3491'</i>
micro (<.5 mm)	✓						Iddingsite		
Aphyric							Plag -> Clay		
							Zeolite		
Vesicles: %	<u>20</u>						Groundmass		
Shape	<u>R</u>						Chlorite		
Size(x)	<u>2 mm</u>						Smectite		
PHENOCRYSTS (Original mineralogy)									
Olivine	>5%						Fracture	Vesicle	
	1-5%								
	<1%	✓					Secondary/Alteration Min.		
Phenos	mph						Smectite	✓	
ol-plag							Calcite		
Comments								Zeolite	
							white fibrous		
Plagioclase	>5%						green		
	1-5%						blue		
	<1%	✓					Analcime		
Rhombs							Chabazite		
Blades/laths	mph						MgOH		
Comments								Silica	
							Amorphous		
Augite	%						Chalcedony		
							Crystals		
GROUNDMASS (original)							Pyrite	✓	
Aphanitic	✓						Epidote		
Feldspathic							Gypsum		
Diktytaxitic							Anhydrite		
							Chalcopyrite		
							Limonite		
							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

1) dike, anesicular 1st 180cm grades into resicularity last 60 cm of box (20%, 2mm), sparse olivine mph < 1%, plag blades & laths < 1% in a lt gray aphan mty.

CORE LOG

BOX # 397

HOLE # 1

Sheet A

Depth range 1065.06 to 1067.8 meters

Depth range 3492 to 3500 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Fracture	Vesicle		
mega (>.5 mm)	✓									
micro (<.5 mm)	✓									
Aphyric										
Vesicles: %	20									
Shape	R									
Size(x) / (y) / (z)										
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/Alteration Min.			
							Smectite			
							Calcite			
							Zeolite			
							white fibrous			
							green			
							blue			
							Analcime			
							Chabazite			
							MgOH			
							Silica			
							Amorphous			
							Chalcedony			
							Crystals			
							Pyrite	✓		
							Epidote			
							Gypsum			
							Anhydrite			
							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

1) dike, mesoclastic 1st 60 cm (20%, 1mm) grades to aresiculous
 plag blades & laths <1% in a lt gray aphan mtr.

CORE LOG

BOX # 298

HOLE # 1

Sheet A

Depth range 1067.5 to 1071.16 meters

Depth range 3500 to 3512 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	✓	✓					Olv → Clay		2' top of core.
micro (<.5 mm)	✓	✓					Iddingsite		
Aphyric							Plag → Clay		
							Zeolite		
Vesicles: %							Groundmass		
Shape							Chlorite		
Size(x)							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.		
Olivine 1-5%	✓	✓					Smectite		
Olivine <1%							Calcite		
Phenos mph	✓	✓					Zeolite		
ol-plag							white fibrous		
Comments							green		
Plagioclase >5%							blue		
Plagioclase 1-5%	✓	✓					Analcime		
Plagioclase <1%							Chabazite		
Rhombs							MgOH		
Blades/laths mph	✓	✓					Silica		
Comments							Amorphous		
Augite %							Chalcedony		
GROUNDMASS (original)							Crystals		
Aphanitic	✓	✓					Pyrite	✓	
Feldspathic							Epidote		
Diktytaxitic							Gypsum		
							Anhydrite		
							Chalcopryrite		
							Limonite		
							Hematite		
							Other (describe)		
							blue monec		

CRITICAL FEATURES (description of units or features by number)

- 1) dike, annular, olivine phenos & mph 3%, ol unalt. plag blades & laths 5% in a lt gray aphan mtr.
- 2) pillow rubble, annular, olivine phenos & mph 5% unalt, plag blades & laths 5% in a gray aphan mtr.

CORE LOG

BOX # 399

HOLE # 1

Sheet A

Depth range 1071.16 to 1085.49 meters

Depth range 3512 to 3559 feet

Logger's Name EAJ

Page 1

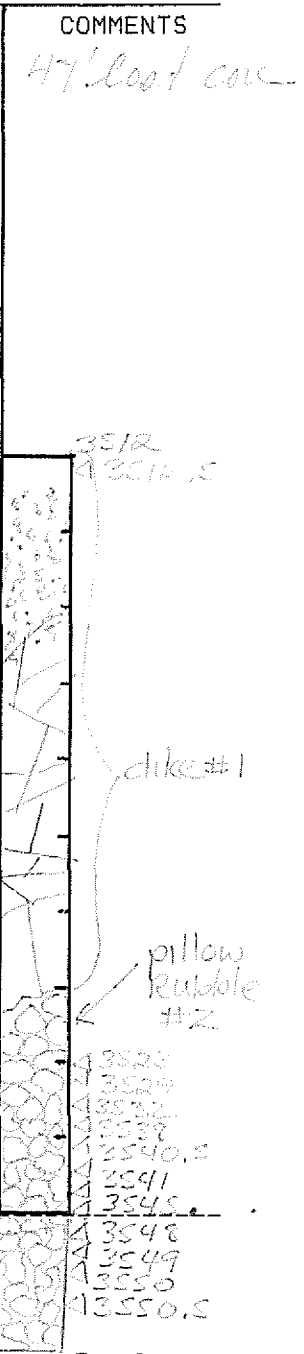
Type of Sample: Flow Intrusive Ash Breccia Red Bed

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%	3	3				
<1%						
Phenos ✓	✓	✓				
mph ✓	✓	✓				
ol-plag						
Comments _____						
Plagioclase						
>5%						
1-5%	3	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	
Fracture	
Vesicle	
Secondary/Alteration Min.	
Smectite	
Calcite	
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite ✓	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	<u>blue green</u>



CRITICAL FEATURES (description of units or features by number)

- 1) dike(?), anisicular, 1st 60cm of unit shows 30% angular voids (not vesicles) which grade out. Olivine phenos & mph 3%, unalt, plag blades & laths 3% in a lt. gray aphan mtr.
- 2) pillow rubble, anisicular, olivine phenos & mph 3%, unalt, plag blades & laths 3% in a dk gray aphan mtr.

CORE LOG

BOX # 1100

HOLE # 1

Sheet A

Depth range 1085.49 to 1089.3 meters

Depth range 3559 to 3569 feet

Logger's Name FN

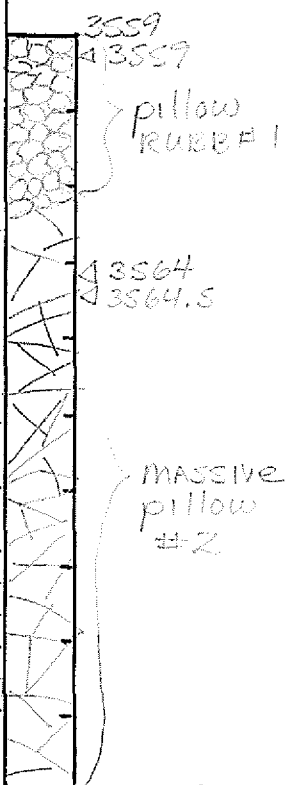
Page 1

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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Fracture	Vesicle	
mega (>.5 mm)									
micro (<.5 mm)	✓	✓							
Aphyric									
Vesicles: %									
Shape									
Size(x)									
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/Alteration Min.									
Smectite		✓							
Calcite									
Zeolite									
white fibrous									
green									
blue									
Analcime									
Chabazite									
MgOH									
Silica									
Amorphous									
Chalcedony									
Crystals									
Pyrite		✓							
Epidote									
Gypsum									
Anhydrite									
Chalcopyrite									
Limonite									
Hematite									
Other (describe)									



CRITICAL FEATURES (description of units or features by number)

- 1) pillow rubble, anhedral, olivine mph 1% w/alt, plag blebs <1% in a dk gray aphan mtx. Clasts show some angular voids and rims of coarse sand size (2mm) breccia.
- 2) massive pillow, anhedral, sparse plag blebs <1% in a lt gray aphan mtx. Fract pattern more linear than unit #1.

CORE LOG

BOX # 461

HOLE # 1

Sheet A

Depth range 1088.54 to 1090.98 meters

Depth range 3569 to 3577 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓						Olv -> Clay			
micro (<.5 mm)	✓						Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%	✓						Smectite	✓		
<1%							Calcite			
Phenos mph	✓						Zeolite			
ol-plag							white fibrous			
Comments								green		
							blue			
Plagioclase >5%							Analcime			
1-5%	✓						Chabazite			
<1%							MgOH			
Rhombs							Silica			
Blades/laths mph	✓						Amorphous			
Comments								Chalcedony		
							Crystals			
Augite %							Pyrite	✓		
							Epidote			
GROUNDMASS (original)								Gypsum		
Aphanitic	✓						Anhydrite			
Feldspathic							Chalcopyrite			
Diktytaxitic							Limonite			
							Hematite			
							Other (describe)	<u>blue brown</u>		

CRITICAL FEATURES (description of units or features by number)

1) massive pillow, aresicular, olivine phenoc mph 10%, unalt, plag blebs 1% in a lt gray aphan mtx.

CORE LOG

BOX # 402

HOLE # 1

Sheet A

Depth range 1090.94 to 1095.86 meters

Depth range 3577 to 3593 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Olv -> Clay		
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Iddingsite		
Aphyric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plag -> Clay		
Vesicles: %	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zeolite		
Shape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Groundmass		
Size(x)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chlorite		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Smectite		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fracture		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vesicle		
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.		
Olivine	>5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Smectite	<input checked="" type="checkbox"/>	
	1-5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Calcite	<input type="checkbox"/>	
	<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zeolite	<input type="checkbox"/>	
Phenos	mph	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	white fibrous	<input type="checkbox"/>	
	ol-plag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	green	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	blue	<input type="checkbox"/>	
Comments							Analcime	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chabazite	<input type="checkbox"/>	
Plagioclase	>5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MgOH	<input type="checkbox"/>	
	1-5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Silica	<input type="checkbox"/>	
	<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Amorphous	<input type="checkbox"/>	
Rhombs		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chalcedony	<input type="checkbox"/>	
Blades/laths	mph	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Crystals	<input type="checkbox"/>	
Comments							Pyrite	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Epidote	<input type="checkbox"/>	
Augite	%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gypsum	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Anhydrite	<input type="checkbox"/>	
GROUNDMASS (original)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chalcopyrite	<input type="checkbox"/>	
Aphanitic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Limonite	<input type="checkbox"/>	
Feldspathic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hematite	<input type="checkbox"/>	
Diktytaxitic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other (describe)	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	blue mineral	<input type="checkbox"/>	

CRITICAL FEATURES (description of units or features by number)

- massive pillow, arcuate, olivine phenos & mph 3%, unalt.; plag mph 1% in a lt gray aphan mtz.
- black sand, black & amber volcanic glass 1mm d. first 90cm of unit loose, becomes friable but competent afterward.

CORE LOG
 BOX # 403 HOLE # 1 Sheet A
 Depth range 1095.84 to 1098.61 meters Depth range 3592 to 3602 feet
 Logger's Name ETI 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	-						Olv -> Clay			
micro (<.5 mm)		✓					Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.			3593
Olivine 1-5%		S					Smectite			
Olivine <1%							Calcite			
Phenos mph		✓					Zeolite			
ol-plag		✓					white fibrous			
Comments								green		black SAND #1
								blue		
Plagioclase								Analcime		
>5%							Chabazite			
1-5%		S					MgOH			
<1%							Silica			
Rhombs							Amorphous			
Blades/laths							Chalcedony			
mph		✓					Crystals			
Comments								Pyrite		3600
								Epidote		MASSIVE PILLOW #2
								Gypsum		
Augite %								Anhydrite		
							Chalcopyrite			
GROUNDMASS (original)								Limonite		
Aphanitic		✓					Hematite			
Feldspathic							Other (describe)			
Diktytaxitic							blue veins			
								pale green		3602

CRITICAL FEATURES (description of units or features by number)

- 1) black sand, black amber glass 1mm d. in a friable but competent unit
- 2) massive pillow, avascular, olivine & ol-plag intus 5% unalt.; plag mph 5% in a dk gray aphan mtx.

CORE LOG

BOX # 404

HOLE # 1

Sheet A

Depth range 1098.6 to 1101.6 meters

Depth range 3602 to 3612 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive Ash Breccia Red Bed

Number of Units in Box 7 Clk/Rubble Carbonate Pillow/Hyaloclast 1,2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓						Olv -> Clay <u> </u>			
micro (<.5 mm)	✓						Iddingsite <u> </u>			
Aphyric							Plag -> Clay <u> </u>			
Vesicles: %	-	-					Zeolite <u> </u>			
Shape							Groundmass			
Size(x)							Chlorite <u> </u>			
							Smectite <u> </u>			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%	5						Smectite <u>✓</u>			
<1%							Calcite <u> </u>			
Phenos ✓							Zeolite <u> </u>			
mph ✓							white fibrous <u> </u>			
ol-plag ✓							green <u> </u>			
Comments <u> </u>							blue <u> </u>			
							Analcime <u> </u>			
Plagioclase										
>5%							Chabazite <u> </u>			
1-5%	5						MgOH <u> </u>			
<1%							Silica <u> </u>			
Rhombs <u> </u>							Amorphous <u> </u>			
Blades/laths <u> </u>							Chalcedony <u> </u>			
mph ✓							Crystals <u> </u>			
Comments <u> </u>							Pyrite <u> </u>			
							Epidote <u> </u>			
Augite %										
							Gypsum <u> </u>			
GROUNDMASS (original)										
Aphanitic ✓							Anhydrite <u> </u>			
Feldspathic <u> </u>							Chalcopryrite <u> </u>			
Diktytaxitic <u> </u>							Limonite <u> </u>			
							Hematite <u> </u>			
							Other (describe) <u> </u>			

CRITICAL FEATURES (description of units or features by number)

- massive pillow, aeniscular, olivine phenos, mph, ol-plag inters 5%, whalt, plag mph 5%, in a dk gray aphan mtr.
- black sand with clasts, black amber volcanic glass 1 mm d. friable but competent. Clasts are vesicular (20%, 1mm) ol mph <1% in a gray aphan mtr.

CORE LOG

BOX # 405

HOLE # 1

Sheet A

Depth range 1101.66 to 1104.40 meters

Depth range 3612 to 3621 feet

Logger's Name FN

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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓	✓					Olv -> Clay			
micro (<.5 mm)	✓	✓					Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	20	-					Zeolite			
Shape	SR						Groundmass			
Size(x)/mm							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%		5					Smectite			
<1%	✓						Calcite			
Phenos		✓					Zeolite			
mph	✓	✓					white fibrous			
ol-plag		✓					green			
Comments							blue			
Plagioclase							Analcime			
>5%							Chabazite			
1-5%		5					MgOH			
<1%							Silica			
Rhombs							Amorphous			
Blades/laths							Chalcedony			
mph		✓					Crystals			
Comments							Pyrite			
Augite %							Epidote			
GROUNDMASS (original)							Gypsum			
Aphanitic	✓	✓					Anhydrite			
Feldspathic							Chalcopryrite			
Diktytaxitic							Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

1) black sand w clasts, black & amber volcanic glass top 180cm competent, last 120cm loose. Clasts, 40% are vesicular (20%, 1mm) with olivine mph <1%; 60% are amsicular with olivine phenos, mph, ol-plag inters 5%, analt; plag mph 5%. Some amsicular clasts are small pillows, all have dk gray aphan mtr.

CORE LOG

BOX # 406 HOLE # 1 Sheet A
 Depth range 1104.40 to 1108.22 meters Depth range 3621 to 3633.5 feet
 Logger's Name FN Page 1
 Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box 2 Clk/Rubble Carbonate Pillow/Hyaloclast 12
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			2.5' lost core 3621' CLASTIC black SAND #1 3625' VESICULAR AREA 3630' pillow RUBBLE #2 3633' blue menen
mega (>.5 mm)	✓	✓					Olv → Clay			
micro (<.5 mm)	✓	✓					Iddingsite			
Aphyric							Plag → Clay			
Vesicles: %		30					Zeolite			
Shape		SA					Groundmass			
Size(x)		1mm					Chlorite			
							Smeectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine	>5%						Secondary/Alteration Min.			
	1-5%	5	5				Smeectite			
	<1%						Calcite			
Phenos	✓	✓					Zeolite			
mph	✓	✓					white fibrous			
ol-plag	✓	✓					green			
							blue			
Comments								Analcime		
Plagioclase	>5%						Chabazite			
	1-5%	5	5				MgOH			
	<1%						Silica			
Rhombs							Amorphous			
Blades/laths		✓					Chalcedony			
mph	✓	✓					Crystals			
Comments								Pyrite		
Augite	%						Epidote			
GROUNDMASS (original)							Gypsum			
Aphanitic	✓	✓					Anhydrite			
Feldspathic							Chalcopryrite			
Diktytaxitic							Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number) 3633.5'

- 1) clast supported black sand, clasts are vesicular and aresicular with lithology as in box 405. Clasts make up 90% of unit with black sand as cement
- 2) pillow rubble, olivine phenos, mph, ol-plag inters Σ 5%, unalt; plag mph & blades & laths Σ 5% in a dk. gray aphan mtr. Unit has vesicular area (30% 1mm) 20cm from top of box 30cm long

CORE LOG

BOX # 467

HOLE # 1

Sheet A

Depth range 1108.22 to 1110.81 meters

Depth range 3633.5 to 3642 feet

Logger's Name EN

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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Fracture	Vesicle		
mega (>.5 mm)	<input checked="" type="checkbox"/>								Phenocryst replacements Olv -> Clay _____ Iddingsite _____ Plag -> Clay _____ Zeolite _____	
micro (<.5 mm)	<input checked="" type="checkbox"/>									
Aphyric									Groundmass Chlorite _____ Smectite _____	
Vesicles: %										
Shape										
Size(x)										
PHENOCRYSTS (Original mineralogy)										
Olivine >5%									Secondary/Alteration Min. Smectite _____ Calcite _____ Zeolite _____ white fibrous _____ green _____ blue _____ Analcime _____ Chabazite _____ MgOH _____ Silica _____ Amorphous _____ Chalcedony _____ Crystals _____ Pyrite <input checked="" type="checkbox"/> Epidote _____ Gypsum _____ Anhydrite _____ Chalcopyrite _____ Limonite _____ Hematite _____ Other (describe) _____ <i>blue resin</i>	
1-5%	<u>5</u>									
<1%										
Phenos <input checked="" type="checkbox"/>										
mph <input checked="" type="checkbox"/>										
ol-plag <input checked="" type="checkbox"/>										
Comments _____										
Plagioclase										
>5%										
1-5%	<u>5</u>									
<1%										
Rhombs										
Blades/laths <input checked="" type="checkbox"/>										
mph <input checked="" type="checkbox"/>										
Comments _____										
Augite %										
GROUNDMASS (original)										
Aphanitic <input checked="" type="checkbox"/>										
Feldspathic										
Diktytaxitic										

3633.5

pillow RUBBLE #1

3642

CRITICAL FEATURES (description of units or features by number)

1) pillow rubble, amscutular, olivine phenocr, mph, ol-plag intus Σ 5%, unalt; plag mph, blades & laths Σ 5% in a dk gray aphan mtx.

CORE LOG

BOX # 409

HOLE # 1

Sheet A

Depth range 1110.81 to 1113.86 meters

Depth range 3642 to 3652 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, 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	✓	✓					Olv -> Clay <u>#2</u>		
micro (<.5 mm)	✓	✓					Iddingsite		
<i>clasts</i>	<u>5</u>						Plag -> Clay		
Aphyric							Zeolite		
Vesicles: %	-	30					Groundmass		
Shape		SR					Chlorite		
Size(x)		1/mm					Smectite		
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.		
Olivine >5%							Smectite <u>1</u>		
1-5%	✓						Calcite		
<1%							Zeolite		
Phenos mph	✓						white fibrous <u>2</u>		
ol-plag	✓						green		
Comments							blue		
Plagioclase							Analcime		
>5%							Chabazite		
1-5%	3						MgOH		
<1%							Silica		
Rhombs							Amorphous		
Blades/laths mph	✓						Chalcedony		
Comments							Crystals		
Augite %							Pyrite		
							Epidote		
GROUNDMASS (original)							Gypsum		
Aphanitic	✓	✓					Anhydrite		
Feldspathic							Chalcopryrite		
Diktytaxitic							Limonite		
							Hematite		
							Other (describe)		
							<i>blue green</i>		

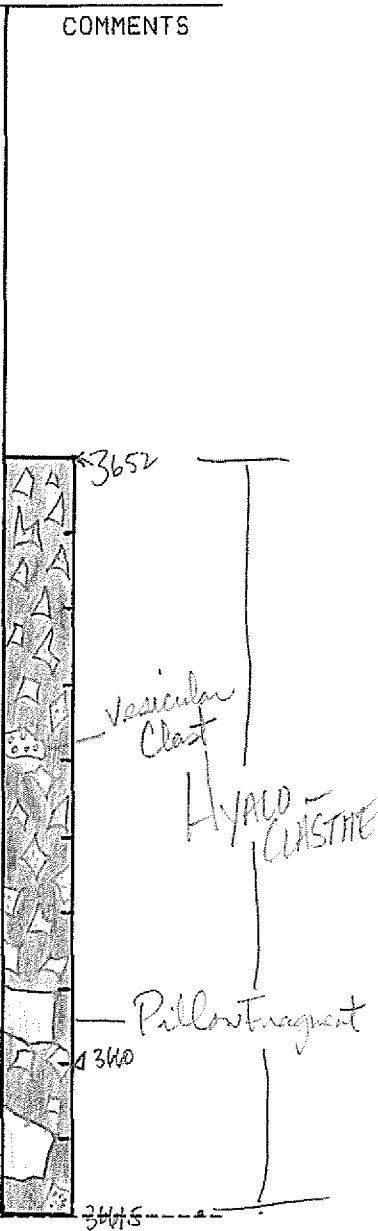
CRITICAL FEATURES (description of units or features by number)

- 1) massive pillow, olivine phenos c mph 5%, ol. unalt.; plag mph 3% in a lt. gray aphan. mtx., aresicular. pte no content decrease toward contact
- 2) hyaloclastite, clasts are vesicular and aresicular with lithology as in unit #1. Mtx is fresh, shiny black volcanic glass, vesicular portions of which are filled with white botry. zeolite.

CORE LOG
 BOX # 409 HOLE # 1 Sheet A
 Depth range 1113.86 to 1116.76 meters Depth range 3652 to 3661.5 feet
 Logger's Name FF 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: %	20					
Shape	SL-A					
Size(x)	1					
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	
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	
Fracture	
Vesicle	
Secondary/Alteration Min.	
Smectite	✓
Calcite	✓
Zeolite	
white fibrous	✓
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

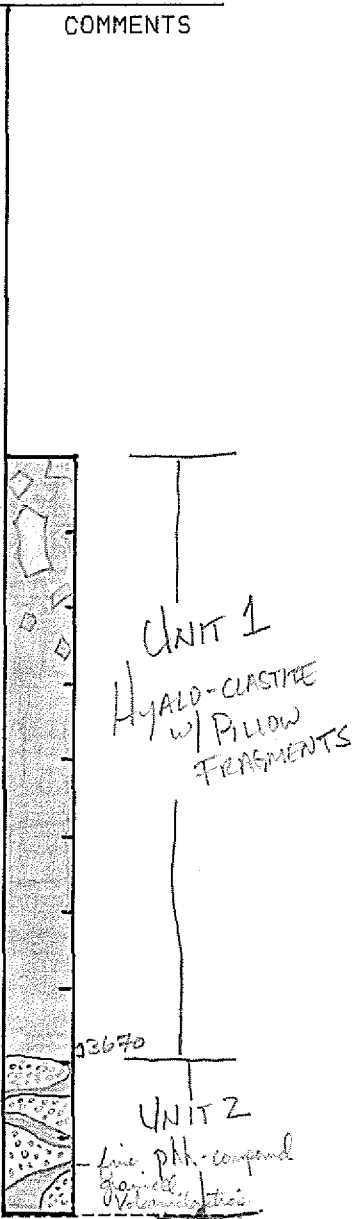
- 1) Hyaloclastite + Pillow Fragments w/ 10% olivine as phenocrysts, mph in a glassy, black + vitreous matrix. Some of the larger clasts are quite vesicular ~20%
- 2° Minerals: Smectite, blue stain, calcite, white Zeolite

CORE LOG

BOX # 410 ^{.76} HOLE # 1 Sheet A
 Depth range 1116 to 1119 meters Depth range 3661.5 to 3670.5 feet
 Logger's Name FT Page 1
 Type of Sample: Flow 2 Intrusive _____ 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						
	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓				
micro (<.5 mm)	✓	✓				
Aphyric						
Vesicles: %	10	25				
Shape	SP	SP				
Size(x)	1	1				
PHENOCRYSTS (Original mineralogy)						
Olivine >5%	✓10	✓5				
1-5%						
<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	
Fracture	Vesicle
Phenocryst replacements	
Olv -> Clay _____	
Iddingsite _____	
Plag -> Clay _____	
Zeolite _____	
Groundmass	
Chlorite _____	
Smectite _____	
Secondary/Alteration Min.	
Smectite	
Calcite	✓
Zeolite	✓
white fibrous	✓
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe) _____	



CRITICAL FEATURES (description of units or features by number)

- 1) Hyaloclastite w/ occasional Pillow fragments w/ 10% olivine as microphenocrysts Phenocrysts in a mostly fine-grained glassy, vitreous matrix
- 2) phk units, compound, w/ 5% olivine as phenocrysts, microphenocrysts in a glassy, diktytaxitic matrix. Plagioclase is present @ 1% as blades, laths and microlaths
 2° Minerals: Calcite, 3 white -> clear Zeolites (amorphous, Anhydrite?)

BOX # 411 .50 CORE LOG HOLE # 1 Sheet A
 Depth range 1119 to 1122 meters Depth range 3670.5 to 3680.5 feet
 Logger's Name FT Page 1
 Type of Sample: Flow 1 Intrusive _____ 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6		
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Phenocryst replacements Olv -> Clay _____ Iddingsite _____ Plag -> Clay _____ Zeolite _____	 <p>3670.5 Clasts comprise UNIT 1 Matrix = Unit 2</p>
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Groundmass Chlorite _____ Smectite _____	
Aphyric		<input checked="" type="checkbox"/>					Fracture _____ Vesicle _____	
Vesicles: %	<u>25</u>						Secondary/Alteration Min. Smectite _____ Calcite _____ Zeolite _____ white fibrous _____ green _____ blue <input checked="" type="checkbox"/>	
Shape	<u>R-SR</u>						Analcime _____ Chabazite _____ MgOH _____ Silica _____ Amorphous _____ Chalcedony _____ Crystals _____ Pyrite _____ Epidote _____ Gypsum _____ Anhydrite _____ Chalcopyrite _____ Limonite _____ Hematite _____ Other (describe) _____	
Size(x)	<u><1</u>							
PHENOCRYSTS (Original mineralogy)								
Olivine >5%	<input checked="" type="checkbox"/>							
1-5%								
<1%								
Phenos mph	<input checked="" type="checkbox"/>							
ol-plag								
Comments _____								
Plagioclase								
>5%								
1-5%	<input checked="" type="checkbox"/>							
<1%								
Rhombs	<input checked="" type="checkbox"/>							
Blades/laths mph	<input checked="" type="checkbox"/>							
Comments _____								
Augite %								
GROUNDMASS (original)								
Aphanitic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
Feldspathic								
Diktytaxitic								

CRITICAL FEATURES (description of units or features by number)

- 1) phh vesicular w/ 7% olivine phenocrysts, mph and 29% Plagioclase as blades, laths and micro laths in an aphanitic matrix.
 - 2) Volcaniclastic, fine grained (>1cm), black, glassy and vitreous
- 2nd Mineral: blue stain unit 1

CORE LOG

BOX # 412

HOLE # 1

Sheet A

Depth range 172.55 to 175.30 meters

Depth range 3680.5 to 3689.8 feet

Logger's Name EN

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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓						Olv -> Clay <u> </u>			
micro (<.5 mm)	✓						Iddingsite <u> </u>			
Aphyric							Plag -> Clay <u> </u>			
							Zeolite <u> </u>			
Vesicles: % <u>20-30</u>							Groundmass			
Shape <u>SR</u>							Chlorite <u> </u>			
Size(x) <u>1-2mm</u>							Smectite <u> </u>			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5% <u>✓</u>							Secondary/Alteration Min.			
1-5%							Smectite <u> </u>			
<1%							Calcite <u> </u>			
Phenos							Zeolite <u> </u>			
mph							white fibrous <u> </u>			
ol-plag							green <u> </u>			
Comments <u> </u>							blue <u> </u>			
Plagioclase							Analcime <u> </u>			
>5% <u>20</u>							Chabazite <u> </u>			
1-5%							MgOH <u> </u>			
<1%							Silica <u> </u>			
Rhombs <u>✓</u>							Amorphous <u> </u>			
Blades/laths <u>✓</u>							Chalcedony <u> </u>			
mph <u>✓</u>							Crystals <u> </u>			
Comments <u> </u>							Pyrite <u> </u>			
Augite % <u> </u>							Epidote <u> </u>			
GROUNDMASS (original)							Gypsum <u> </u>			
Aphanitic <u>✓</u>							Anhydrite <u> </u>			
Feldspathic <u> </u>							Chalcopyrite <u> </u>			
Diktytaxitic <u> </u>							Limonite <u> </u>			
							Hematite <u> </u>			
							Other (describe) <u> </u>			

CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, clasts are vesicular (20-30%, 1-2mm) plag mph 20%. Clast supported matrix of black volcanic glass sand cemented into a competent unit, except last 45cm.

CORE LOG

BOX # 413

HOLE # 1

Sheet A

Depth range 1125.30 to 1127.89 meters

Depth range 3689.5 to 3698 feet

Logger's Name EN

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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay			
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	<u>20-30</u>						Zeolite			
Shape	<u>SR</u>						Groundmass			
Size(x)/mm							Chlorite			
							Smectite			
							Fracture			
							Vesicle			
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.			
Olivine	>5%	<u>-</u>					Smectite		3689.5	
	1-5%						Calcite		3690	
	<1%						Zeolite			
Phenos							white fibrous			
mph							green			
ol-plag							blue			
Comments								Analcime		
							Chabazite			
Plagioclase	>5%	<u>20</u>					MgOH			
	1-5%						Silica			
	<1%						Amorphous			
Rhombs		<input checked="" type="checkbox"/>					Chalcedony			
Blades/laths		<input checked="" type="checkbox"/>					Crystals			
mph		<input checked="" type="checkbox"/>					Pyrite			
Comments								Epidote		
							Gypsum			
Augite	%						Anhydrite			
							Chalcopryrite			
GROUNDMASS (original)								Limonite		
Aphanitic		<input checked="" type="checkbox"/>					Hematite			
Feldspathic							Other (describe)		3698	
Diktytaxitic										

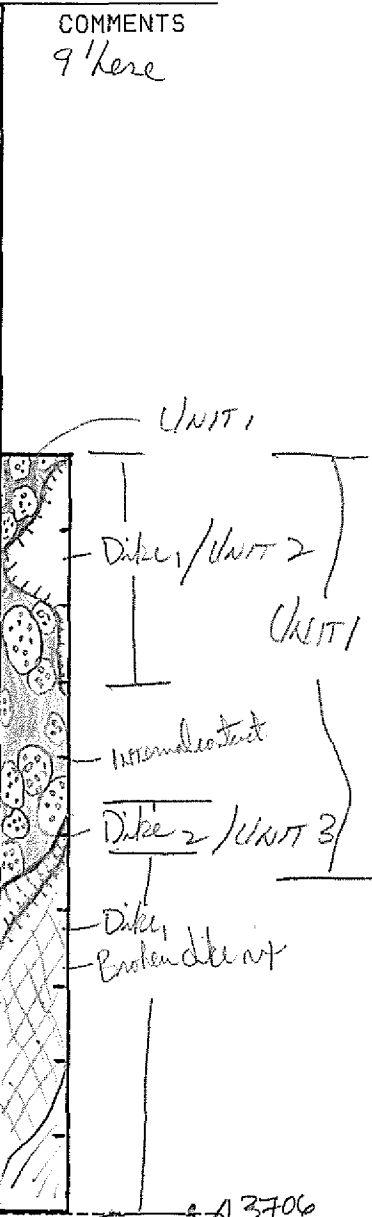
CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, clasts are vesicular (20-30%, 1-2mm) plag mph 20% in an aphan gray mtr. Clast supported matrix of black volcanic glass sand cemented into a competent unit.

BOX # 414 CORE LOG HOLE # 1 Sheet A
 Depth range 1127⁸⁹ to 1130⁶⁴ meters Depth range 3698 to 3707 feet
 Logger's Name FT Page 1
 Type of Sample: Flow 1 Intrusive 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: %	30	-	-			
Shape	SP-A					
Size(x)	<1					
PHENOCRYSTS (Original mineralogy)						
Olivine >5%		7	8			
1-5%	✓					
<1%						
Phenos mph	✓	✓	✓			
ol-plag			✓			
Comments						
Plagioclase						
>5%	✓	8				
1-5%	4		4			
<1%						
Rhombs		✓	✓			
Blades/laths mph	✓	✓	✓			
Comments						
Augite %						
GROUNDMASS (original)						
Aphanitic	✓	✓	✓			
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	
Phenocryst replacements	9 here
Olv -> Clay	
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	
Fracture	
Vesicle	
Secondary/Alteration Min.	
Smectite	✓
Calcite	
Zeolite	
white fibrous	
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

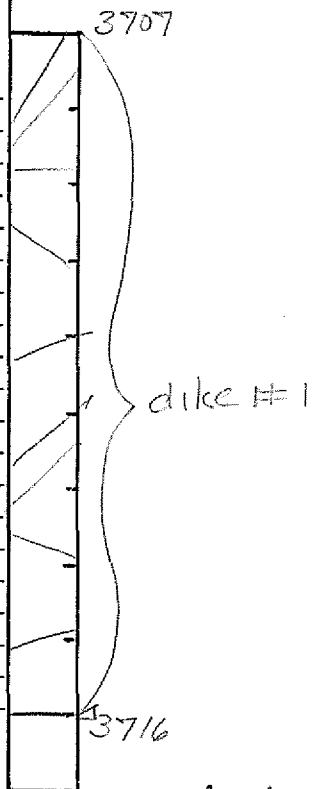
- Vesicular clasts (probably phk) in a fine grained matrix, glassy, probable Hyaloclastite origin. The clasts have 4% Plagioclase as blades, laths + microlaths in a gray aphanitic matrix.
- Dike w/ 8% Plagioclase as laths, blades, Rhombs and 7% olivine as phenocrysts, mph in an aphanitic matrix, bluish gray in color
- Dike w/ 8% Olivine as phenocrysts, mph, ol-Plag intergrowths and 4% Plagioclase as Rhombs, blades, laths and microlaths all in a black glassy matrix
 20% MINERAL = SMECTITE. BLUE STAIN

c. 1 3706

CORE LOG

BOX # 415 HOLE # 1 Sheet A
 Depth range 1130.63 to 1133.38 meters Depth range 3707 to 3716 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)							Olv -> Clay		
micro (<.5 mm)							Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.		
1-5% <u>5</u>							Smectite		
<1%							Calcite		
Phenos							Zeolite		
mph <u>✓</u>							white fibrous		
ol-plag <u>✓</u>							green		
Comments							blue		
Plagioclase							Analcime		
>5% <u>20</u>							Chabazite		
1-5%							MgOH		
<1%							Silica		
Rhombs <u>✓</u>							Amorphous		
Blades/laths <u>✓</u>							Chalcedony		
mph <u>✓</u>							Crystals		
Comments							Pyrite <u>✓</u>		
Augite %							Epidote		
GROUNDMASS (original)							Gypsum		
Aphanitic <u>✓</u>							Anhydrite		
Feldspathic							Chalcopryrite		
Diktytaxitic							Limonite		
							Hematite		
							Other (describe)		



CRITICAL FEATURES (description of units or features by number)

1) dike, anisicular, plag blades & laths, rhombs, mph Σ 20%; olivine 5%, alt to blk clay, in a lt gray aphan. (bordering on dikty.) mtr. Abundant pyrite on fract. (Unit is so full of phenocr. it almost looks like a gabbro.)

CORE LOG
 BOX # 416 HOLE # 1 Sheet A
 Depth range 1133³⁸ to 1136¹³ meters Depth range 3716 to 3725 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv -> Clay	
micro (<.5 mm)	✓	✓					Iddingsite	
Aphyric							Plag -> Clay	
Vesicles: %		3					Zeolite	
Shape		sl. r.					Groundmass	
Size(x)		<1					Chlorite	
PHENOCRYSTS (Original mineralogy)								
Olivine	>5%	7					Fracture	Vesicle
	1-5%	2						
	<1%						Secondary/Alteration Min.	
Phenos		✓					Smectite	
mph		✓					Calcite	
ol-plag							Zeolite	
Comments							white fibrous	
Plagioclase	>5%	6					green	
	1-5%	4					blue	
	<1%						Analcime	
Rhombs		✓					Chabazite	
Blades/laths		✓	✓				MgOH	
mph		✓	✓				Silica	
Comments							Amorphous	
Augite	%						Chalcedony	
GROUNDMASS (original)							Crystals	
Aphanitic		✓	✓				Pyrite	
Feldspathic							Epidote	
Diktytaxitic							Gypsum	
							Anhydrite	
							Chalcopyrite	
							Limonite	
							Hematite	
							Other (describe)	

CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 7% Olivine as phenocrysts, mph and 6% Plagioclase as laths, micro-laths in a lt bluish gray matrix
- 2) Hyaloclastite w/ 4% Plagioclase as laths, micro-laths and 2% Olivine as phenocrysts, microphenocrysts in a black, glassy, vitreous, matrix.

2° MINERALS: Smectite, Blue Stain, Pyrite

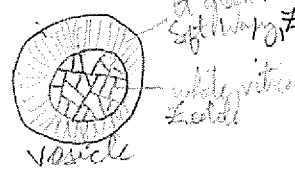
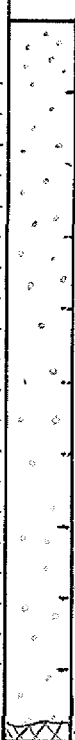
CORE LOG
 BOX # 417¹³ HOLE # 1 Sheet A
 Depth range 1136 to 1138⁸⁷ meters Depth range 3725 to 3734 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive 2 Ash Breccia Red Bed
 Number of Units in Box 2 Clk/Rubble Carbonate Pillow/Hyaloclast /
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	✓	✓					Olv → Clay <u> </u>		
micro (<.5 mm)	✓	✓					Iddingsite <u> </u>		
Aphyric							Plag → Clay <u> </u>		
Vesicles: %	3	<1					Zeolite <u> </u>		
Shape	sub-obl	sub-obl					Groundmass		
Size(x)	<1	<1					Chlorite <u> </u>		
							Smeectite <u> </u>		
PHENOCRYSTS (Original mineralogy)							Fracture	Secondary/Alteration Min. Smeectite ✓ Calcite <u> </u> Zeolite <u> </u> white fibrous <u> </u> green <u> </u> blue ✓ Analcime <u> </u> Chabazite <u> </u> MgOH <u> </u> Silica <u> </u> Amorphous <u> </u> Chalcedony <u> </u> Crystals <u> </u> Pyrite <u> </u> Epidote <u> </u> Gypsum <u> </u> Anhydrite ✓? Chalcoppyrite <u> </u> Limonite <u> </u> Hematite <u> </u> Other (describe) <u> </u>	
Olivine	>5%	12-15%							
	1-5%	✓4							
	<1%								
Phenos	✓	✓							
mph	✓	✓							
ol-plag									
Comments <u> </u>									
Plagioclase									
	>5%								
	1-5%	✓3							
	<1%								
Rhombs									
Blades/laths	✓								
mph	✓								
Comments <u> </u>									
Augite									
	%								
GROUNDMASS (original)									
Aphanitic	✓								
Feldspathic									
Diktytaxitic		✓							

CRITICAL FEATURES (description of units or features by number)

- Hydroxylite w/ clasts, Olivine present at 4% as phenocrysts, mph and 3% Plagioclase as blades, laths and micro laths in a finer grained black, glassy matrix
 - Dike, microvesicular w/ 12-15% olivine phenocrysts, mph in a lt gray feldspathic matrix.
- 2° MINERALS: Smeectite, blue stain, Anhydrite

BOX # 418 CORE LOG HOLE # 1 Sheet A
 Depth range 1132 to 1141 meters Depth range 3734 to 3742 feet
 Logger's Name FT Page 1
 Type of Sample: Flow 1 Intrusive 1 Ash 1 Breccia 1 Red Bed 1
 Number of Units in Box 1 Clk/Rubble 1 Carbonate 1 Pillow/Hyaloclast 1
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓						Olv -> Clay ✓	
micro (<.5 mm)	✓						Iddingsite	Middle piece has a lg gabbro.
Aphyric							Plag -> Clay	
Vesicles: %	1-3						Zeolite	
Shape	R						Groundmass	
Size(x)	1						Chlorite	Fracture Vesicle
PHENOCRYSTS (Original mineralogy)							Smectite	
Olivine >5%	✓ 10-20						Secondary/Alteration Min.	
1-5%							Smectite ✓	
<1%							Calcite	
Phenos mph	✓						Zeolite ✓	
ol-plag	✓						white fibrous ✓	
Comments							green	
Plagioclase >5%							blue	
1-5%							Analcime	
<1%							Chabazite	
Rhombs							MgOH	
Blades/laths mph							Silica	
Comments							Amorphous	
Augite %							Chalcedony	
GROUNDMASS (original)							Crystals	
Aphanitic							Pyrite	
Feldspathic							Epidote	
Diktytaxitic	✓						Gypsum	
CRITICAL FEATURES (description of units or features by number)							Anhydrite	
							Chalcopyrite	
							Limonite	
							Hematite	
							Other (describe)	

1) Dike w/ 10-20% Olivine as phenocrysts, mph in a well crystallized diktytaxitic matrix. Vesicles are present throughout the core @ 1-3%. Olivine seems to have settled and is more plentiful at the bottom. Lg gabbro found middle piece 10cm x 1cm

2° MINERALS: white ves. fill Zeolite, Smectite
 (at least 2 types)

CORE LOG
 BOX # 419 HOLE # 1 Sheet A
 Depth range 1141.31 to 1144.67 meters Depth range 3742 to 3753 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements	11 here	
mega (>.5 mm)	✓						Olv -> Clay ✓		
micro (<.5 mm)	✓						Iddingsite		
Aphyric							Plag -> Clay		
							Zeolite		
Vesicles: %	1-3						Groundmass		
Shape	R						Chlorite		
Size(x)	1						Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture		43744
Olivine >5%	15-20						Vesicle		
1-5%							Secondary/Alteration Min.		
<1%							Smectite ✓		
Phenos	✓						Calcite		
mph	✓						Zeolite		
ol-plag							white fibrous ✓		
Comments							green		
Plagioclase							blue		
>5%							Analcime		
1-5%							Chabazite		
<1%							MgOH		
Rhombs							Silica		
Blades/laths							Amorphous		
mph							Chalcedony		
Comments							Crystals		
Augite %							Pyrite		
GROUNDMASS (original)							Epidote		
Aphanitic							Gypsum		
Feldspathic							Anhydrite		
Diktytaxitic	✓						Chalcopryite		
							Limonite		
							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

i) Dike vesicular 1-3% w/ 15-20% olivine phenocrysts, mph in a well crystallized diktytaxitic matrix.
 1 lg gabbro found 4cm in diameter.

2° Minerals: Smectite, 2 white Zeolites, vesicle fill.

BOX # 420 CORE LOG HOLE # 1 Sheet A
 Depth range 1144 to 1147 meters Depth range 3753 to 3761 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6		8' here
mega (>.5 mm)	✓						Phenocryst replacements	
micro (<.5 mm)	✓						Olv -> Clay ✓	
Aphyric		✓					Iddingsite	
Vesicles: %	1-2	10					Plag -> Clay	
Shape	R	SO-PA					Zeolite	
Size(x)	1	2					Groundmass	
							Chlorite	
							Smectite	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		42755
Olivine >5%	✓	15-20					Smectite ✓	
1-5%							Calcite	
<1%							Zeolite ✓	
Phenos	✓						white fibrous	
mph	✓						green	
ol-plag							blue	
Comments							Analcime	
Plagioclase							Chabazite	
>5%							MgOH	
1-5%							Silica	
<1%							Amorphous	
Rhombs							Chalcedony	
Blades/laths							Crystals	
mph							Pyrite	
Comments							Epidote	
Augite %							Gypsum	
							Anhydrite	
							Chalcopyrite	
							Limonite	
							Hematite ✓	
							Other (describe)	

CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 1-2% vesicles and 15-20% Olivine phenocrysts, mph in a well crystallized diktytaxitic matrix.
- 2) Dike-let, aphanitic, w/ 10% microvesicle in a gray matrix.

2° MINERALS SMECTITE Zeolite - 2 white vesicle filling
 Hematite stained Mn.

CORE LOG
 BOX # 421 HOLE # 1 Sheet A
 Depth range 1147 to 1150 meters Depth range 3761 to 3771 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay <input checked="" type="checkbox"/>	
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
Vesicles: %	<u>1</u>						Zeolite <u> </u>	
Shape	<u>R</u>						Groundmass	
Size(x)	<u>1</u>						Chlorite <u> </u>	
PHENOCRYSTS (Original mineralogy)							Smectite <u> </u>	
Olivine >5%	<input checked="" type="checkbox"/>						Secondary/Alteration Min.	
1-5%	<u>15-20</u>						Smectite <input checked="" type="checkbox"/>	
<1%							Calcite <u> </u>	
Phenos	<input checked="" type="checkbox"/>						Zeolite <u> </u>	
mph	<input checked="" type="checkbox"/>						white fibrous <input checked="" type="checkbox"/>	
ol-plag							green <u> </u>	
Comments	<u> </u>						blue <u> </u>	FRACTURES
Plagioclase							Analcime <u> </u>	2° Minerals 2 white Zeolite, Smectite All olv -> Clay
>5%							Chabazite <u> </u>	
1-5%							MgOH <u> </u>	
<1%							Silica <u> </u>	
Rhombs							Amorphous <u> </u>	
Blades/laths							Chalcedony <u> </u>	
mph							Crystals <u> </u>	
Comments	<u> </u>						Pyrite <u> </u>	
Augite %							Epidote <u> </u>	
GROUNDMASS (original)							Gypsum <u> </u>	
Aphanitic							Anhydrite <u> </u>	
Feldspathic							Chalcopyrite <u> </u>	
Diktytaxitic	<input checked="" type="checkbox"/>						Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe) <u> </u>	

CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 15-20% Olivine phenocrysts, mph in a well crystallized diktytaxitic matrix. Olivine starting to alter to clay

2° Minerals: 2 white Zeolite, Smectite
 All olv -> Clay

CORE LOG
 BOX # 422 HOLE # 1 Sheet A
 Depth range 1150¹⁶ to 1152.9 meters Depth range 3771 to 3780 feet
 Logger's Name F.T. 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv -> Clay <u>1</u>	
micro (<.5 mm)	✓	✓					Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
Vesicles: %		<u>7</u>					Zeolite <u> </u>	
Shape		<u>R</u>					Groundmass	
Size(x)		<u>1</u>					Chlorite <u> </u>	
PHENOCRYSTS (Original mineralogy)							Smectite <u> </u>	
Olivine >5%		<u>10¹⁵ 15</u>					Calcite <u> </u>	
1-5%							Zeolite <u> </u>	
<1%							white fibrous <u> </u>	
Phenos	✓	✓					green <u> </u>	
mph	✓	✓					blue <u> </u>	
ol-plag							Analcime <u> </u>	
Comments								Chabazite <u> </u>
Plagioclase							MgOH <u> </u>	
>5%		<u>10¹⁵</u>					Silica <u> </u>	
1-5%							Amorphous <u> </u>	
<1%							Chalcedony <u> </u>	
Rhombs		✓					Crystals <u> </u>	
Blades/laths		✓					Pyrite <u> </u>	
mph		✓					Epidote <u> </u>	
Comments								Gypsum <u> </u>
Augite %							Anhydrite <u> </u>	
GROUNDMASS (original)							Chalcopyrite <u> </u>	
Aphanitic							Limonite <u> </u>	
Feldspathic							Hematite <u> </u>	
Diktytaxitic	✓	✓					Other (describe) <u> </u>	

CRITICAL FEATURES (description of units or features by number)

- 1) Dike 10%-15% Olivine phenocrysts, mph in a lt gray diktytaxitic matrix.
- 2) Dike w/ 15% Olivine as microphenocrysts, Phenocrysts and 10% Plagioclase as Rhombs, blades, laths and microfaths in a charcoal -> lt gray matrix. UNIT 2 is quite vesicular.
 2° MINERALS: SMECTITE, PYRITE, BLUE STAIN, 2 white Zeolite

BOX # 423 CORE LOG HOLE # 1 Sheet A
 Depth range 1152.9 to 1155.65 meters Depth range 3780 to 3789 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		9' here Fracture Vesicle Secondary/Alteration Min. -Faulting? 2785 -dikelet
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Olv -> Clay <u>1</u>		
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Iddingsite <u> </u>		
Aphyric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plag -> Clay <u> </u>		
Vesicles: %	<u>15</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	Zeolite <u> </u>		
Shape	<u>R</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	Groundmass		
Size(x)	<u>51</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	Chlorite <u> </u>		
PHENOCRYSTS (Original mineralogy)									
Olivine >5%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Smeectite <input checked="" type="checkbox"/>		
1-5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Calcite <u> </u>		
<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zeolite <u> </u>		
Phenos	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	white fibrous <u> </u>		
mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	green <u> </u>		
ol-plag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	blue <input checked="" type="checkbox"/>		
Comments	<u> </u>								
Plagioclase									
>5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Analcime <u> </u>		
1-5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chabazite <u> </u>		
<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MgOH <u> </u>		
Rhombs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Silica <u> </u>		
Blades/laths	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Amorphous <u> </u>		
mph	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chalcedony <u> </u>		
Comments	<u> </u>								
Augite									
%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Crystals <u> </u>		
GROUNDMASS (original)									
Aphanitic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pyrite <input checked="" type="checkbox"/>		
Feldspathic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Epidote <u> </u>		
Diktytaxitic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gypsum <u> </u>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Anhydrite <u> </u>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chalcopyrite <u> </u>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Limonite <u> </u>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hematite <u> </u>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other (describe) <u> </u>		

CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ ^{VESICULAR} 10% olivine as phenocrysts, mph and 6% plagioclase as blades, laths, micro laths and Rhombs. The matrix is well crystallized, lt gray and diktytaxitic.
- 2) dike-let, glassy w/ 12% olivine microphenocrysts. dike-let is < 1cm thick.

2° MINERALS: SMEECTITE, Blue STAIN, Pyrite

CORE LOG
 BOX # 424 65 HOLE # 1 Sheet A
 Depth range 1135 to 1159³⁹ meters Depth range 3789 to 3798 feet
 Logger's Name FT 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: %	10	10	✓			
Shape	R	SPH				
Size(x)	<1	<1				

PHENOCRYSTS (Original mineralogy)

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

Comments

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

Comments

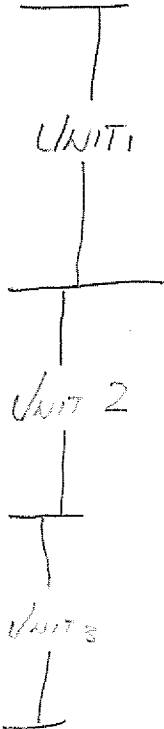
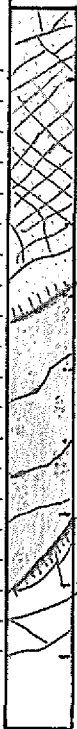
Augite %

GROUNDMASS (original)						
Aphanitic		✓	✓			
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES	
Phenocryst replacements	9' here
Olv -> Clay	
Iddingsite	
Plag -> Clay	
Zeolite	

Groundmass
 Chlorite
 Smectite

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



CRITICAL FEATURES (description of units or features by number)

- 1) Dike vesicular w/ 10% Olivine as phenocrysts, mph and 6% Plagioclase as blade, laths and microlaths in a bl gray feldspathic matrix.
- 2) Hyaloclastite w/ Vesicular clasts, having 6% Olivine phenocrysts, mph and 1% Plagioclase laths in a black vitreous aphanitic fine grained matrix.
- 3) Dike w/ 4% Olivine Phenocrysts, mph and 3% Plagioclase laths, microlaths in a bluish gray aphanitic matrix.

BOX # 425 CORE LOG HOLE # 1 Sheet A
 Depth range 1158³⁹ to 1160⁹⁸ meters Depth range 3798 to 3806.5 feet
 Logger's Name FR Page 1
 Type of Sample: Flow 23,4 Intrusive 4,5 Ash _____ Breccia _____ Red Bed _____
 Number of Units in Box 5 Clk/Rubble _____ Carbonate _____ Pillow/Hyaloclast
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		8.5'
mega (>.5 mm)	✓	✓	✓	✓	✓	✓	Olv → Clay _____		
micro (<.5 mm)	✓	✓	✓	✓	✓	✓	Iddingsite _____		
Aphyric							Plag → Clay _____		
Vesicles: %	<1	15	10	15	—	—	Zeolite _____		
Shape	R	R-SR	R-SH	SR-SR			Groundmass		
Size(x)	<1	1	<1	<1			Chlorite _____		
							Smectite _____		
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.		
Olivine >5%	✓	10	10	10	✓	✓	Smectite ✓		
1-5%	✓				✓		Calcite _____		
<1%							Zeolite _____		
Phenos mph	✓	✓	✓	✓	✓	✓	white fibrous _____		
ol-plag							green _____		
Comments							blue ✓		
Plagioclase >5%							Analcime _____		
1-5%	✓			1			Chabazite _____		
<1%							MgOH _____		
Rhombs							Silica _____		
Blades/laths mph	✓			✓			Amorphous _____		
Comments							Chalcedony _____		
Augite %							Crystals _____		
							Pyrite ✓		
GROUNDMASS (original)							Epidote _____		
Aphanitic		✓	✓	✓			Gypsum _____		
Feldspathic	✓						Anhydrite _____		
Diktytaxitic							Chalcopyrite _____		
							Limonite _____		
							Hematite _____		
							Other (describe) _____		

CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 3% Olivine as phenocrysts, mph and 3% Plagioclase as laths and microlaths in a lt gray feldspathic matrix.
- 2-4) phh Flow w/ 6% Olivine as phenocrysts, microphenocrysts in a black glossy aphanitic groundmass.
- 5) Dike w/ 5% Olivine as phenocrysts, mph and 1% Plagioclase as laths & microlaths in a lt bluish gray aphanitic groundmass.

7° MINERALS: SMECTITE, WHITE FIBROUS, PYRITE, BLUE STAIN

CORE LOG
 BOX # 426 98 58 HOLE # 1 Sheet A
 Depth range 1160 to 1163 meters Depth range 3806 to 3815 feet
 Logger's Name FT Page 1
 Type of Sample: Flow 2,3 Intrusive 1 Ash Breccia Red Bed
 Number of Units in Box 3 Ck/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: %		7	7			
Shape		50-90	50-90			
Size(x)		31	31			
PHENOCRYSTS (Original mineralogy)						
Olivine >5%	✓	6	6			
1-5%	5					
<1%						
Phenos mph	✓	✓	✓			
ol-plag	✓	✓	✓			
Comments						
Plagioclase						
>5%	✓	✓	✓			
1-5%	1	1	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	
Fracture	
Vesicle	
Secondary/Alteration Min.	
Smectite	✓
Calcite	
Zeolite	
white fibrous	
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS
 8.5' here
 Units 2+3 v. much
 phh-like, but biased
 by Hydroxide?
 -Thin oxy. glassy layer
 1584

CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 5% Olivine phenocrysts, mph and 1% Plagioclase as laths micro-laths in a feldspathic matrix
- 2-3) phh(?) w/ 6% Olivine microphenocrysts, phenocrysts and 1% Plagioclase as laths, micro laths in a gray aphanitic matrix

2° MINERALS: SMECTITE, Blue STAIN, Zeolite white - Hgreen
 D/IRITE

CORE LOG
 BOX # 427 ⁵⁸ HOLE # 1 Sheet A
 Depth range 1163 to 1166 meters Depth range 3815 to 3824 feet
 Logger's Name FT 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						
	1	2	3	4	5	6
Phyric mega (>.5 mm)	✓					
micro (<.5 mm)	✓					
Aphyric						
Vesicles: %	3					
Shape	R					
Size(x)	<1					

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 fibrous		
green		
blue		
Analcime		
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite		
Chalcopryrite		
Limonite		
Hematite		
Other (describe)		

COMMENTS

9' here

clasts
open spaces, clasts
fine grained
Volcanoclastics

CRITICAL FEATURES (description of units or features by number)

1) Aphyloclastic + Flow fragments w/ 6% Olivine phenocrysts, mph in a black -> red-brown colored, glassy aphanitic matrix.

BOX # 428 CORE LOG HOLE # 1 Sheet A
 Depth range 1166 to 1169 meters Depth range 3824 to 3833 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Olv -> Clay <input checked="" type="checkbox"/>	
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
							Zeolite <u> </u>	
Vesicles: %	7	5					Groundmass	
Shape	R-sh	R					Chlorite <u> </u>	
Size(x)	<1	<1					Smectite <u> </u>	
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.	
Olivine >5%	<input checked="" type="checkbox"/>						Smectite <input checked="" type="checkbox"/>	
1-5%		2					Calcite <u> </u>	
<1%							Zeolite <u> </u>	
Phenos mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					white fibrous <u> </u>	
ol-plag							green <u> </u>	
Comments	<u> </u>						blue <u> </u>	
Plagioclase							Analcime <u> </u>	
>5%							Chabazite <u> </u>	
1-5%		<input checked="" type="checkbox"/>					MgOH <u> </u>	
<1%							Silica <u> </u>	
Rhombs							Amorphous <u> </u>	
Blades/laths mph		<input checked="" type="checkbox"/>					Chalcedony <u> </u>	
Comments	<u> </u>						Crystals <u> </u>	
Augite %							Pyrite <input checked="" type="checkbox"/>	
							Epidote <u> </u>	
GROUNDMASS (original)							Gypsum <u> </u>	
Aphanitic	<input checked="" type="checkbox"/>						Anhydrite <u> </u>	
Feldspathic		<input checked="" type="checkbox"/>					Chalcopyrite <u> </u>	
Diktytaxitic							Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe) <u> </u>	

CRITICAL FEATURES (description of units or features by number)

- 1) Hyaloclastite, w/ ^{of CLASTS} 6% Olivine phenocrysts, mph in a black/roolbeer colored fine grained ^{GLASSY} matrix.
- 2) Dike, ^{VESICULAR} w/ 2% Olivine phenocrysts, mph and 1% Plagioclase as laths + micro laths in a lt gray feldspathic groundmass.

2° MINERALS: SMECTITE, Clay (Akt. olv.), Pyrite (abundant)

BOX # 429 ⁰⁷ CORE LOG HOLE # 1 Sheet A
 Depth range 1169 to 1171 meters Depth range 3833 to 3842 feet
 Logger's Name FT 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: %	5	2				
Shape	R	R				
Size(x)	<1	<1				

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)		

COMMENTS
 9' here
 Unit 2 starts off dark gray -> lt gray
 vesicular -> vesicular

CRITICAL FEATURES (description of units or features by number)

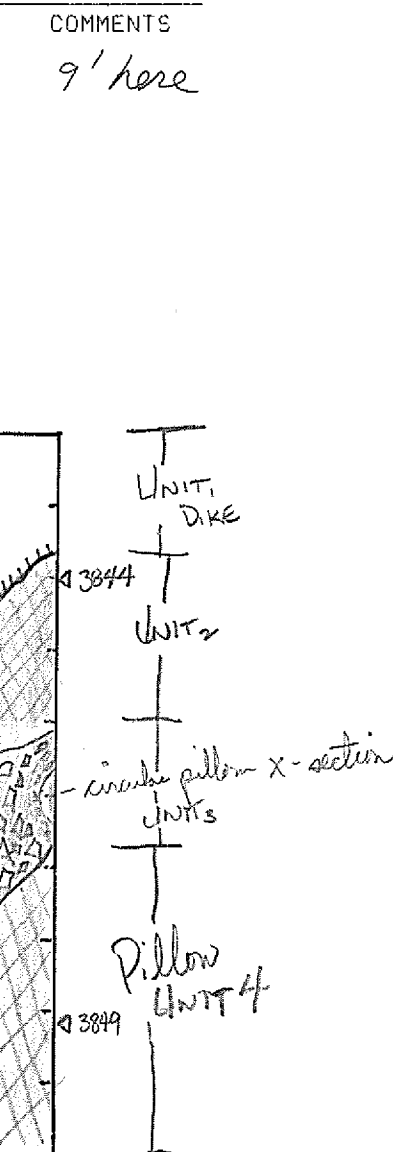
- 1) Dike vesicular w/ <1% Plagioclase as Rhombs, blades, laths and microlaths in a light gray diktytaxitic matrix
- 2) Dike w/ 7% Plagioclase as laths and microlaths and Olivine at 2% as Phenocrysts and microphenocrysts in a lt gray diktytaxitic matrix. This unit gets lighter in color + more vesicular away from the contact.
 2° Minerals: Blue Stain, Pyrite, Smectite

BOX # 430 CORE LOG
 Depth range 1171⁸¹ to 1174⁵⁶ meters HOLE # 1 Sheet A
 Depth range 3842 to 3857 feet
 Logger's Name FT Page 1

Type of Sample: Flow Intrusive 1 Ash Breccia Red Bed
 Number of Units in Box Clk/Rubble Carbonate Pillow/Hyaloclast 2,3,4
 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	<1				
Shape	R	R				
Size(x)	<1	<1				
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	✓5	✓3				
<1%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						
Comments						
Plagioclase						
>5%	✓7					
1-5%						
<1%		✓				
Rhombs	✓					
Blades/laths	✓					
mph	✓	✓				
Comments	<u>Microclastic clots</u>					
Augite %						
GROUNDMASS (original)						
Aphanitic						
Feldspathic		✓				
Diktytaxitic	✓					

SECONDARY FEATURES	
Phenocryst replacements	
Olv -> Clay	1
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	
Fracture	
Vesicle	
Secondary/Alteration Min.	
Smectite	✓
Calcite	
Zeolite	
white fibrous	
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 7% Plagioclase as Rhombs, laths, and microlaths and 5% Olivine phenocrysts, and microphenocrysts all in a diktytaxitic matrix.
 - 2,3,4) Pillows and Hyaloclastite w/ 3% Olivine as Phenocrysts, microphenocrysts and 1% microlaths of Plagioclase. all in a dark gray, feldspathic groundmass.
- 2° Minerals: Blue Clay, Pyrite, Smectite, Anhydrite.

BOX # 431 CORE LOG HOLE # 1 Sheet A
 Depth range 1174.56 to 1177.5 meters Depth range 3851 to 3860 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box Clk/Rubble Carbonate Pillow/Hyaloclast 1-4
 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	R					
Size(x)	<1	<1				

PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	✓	✓	✓	✓		
<1%						
Phenos	✓	✓	✓	✓		
mph	✓	✓	✓	✓		
ol-plag						
Comments						

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

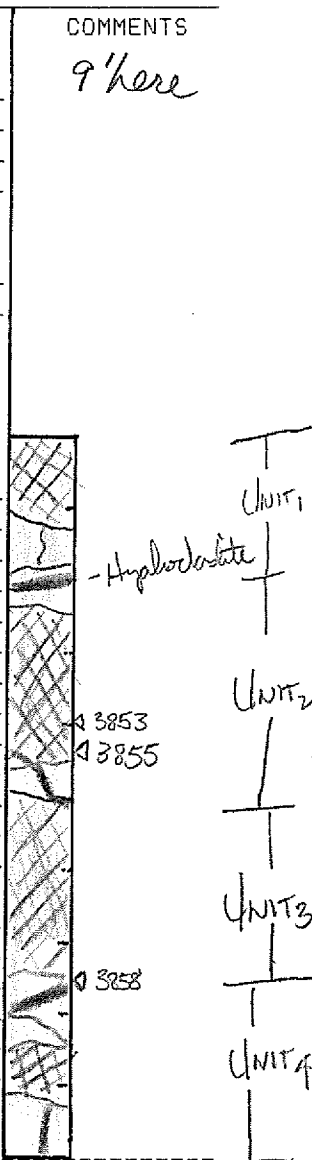
Augite %					

GROUNDMASS (original)

Aphanitic	✓	✓	✓	✓	
Feldspathic					
Diktytaxitic					

SECONDARY FEATURES	
Phenocryst replacements	
Olv -> Clay	✓
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	

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



COMMENTS
9' here

1-4) Pillow w/ minor amounts of Amphibolite. Olivine present at 3% as phenocrysts, mph and <1% Plagioclase as laths + microlaths all in a dull gray/bluish gray aphanitic matrix.

2° Minerals: SMECTITE, PYRITE, BLUE STAIN

BOX # 432 CORE LOG HOLE # 1 Sheet A
 Depth range 1177.3 to 1191.72 meters Depth range 3860 to 3874.5 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive 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 >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 fibrous	
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

14.5' representative

43862

43868

43855

43874

43870

43872

43874

UNIT₁

UNIT₂

UNIT₃

CRITICAL FEATURES (description of units or features by number)

1-3) Pillows, Pillow Fragments w/ 1% Olivine phenocrysts, mph and <<1% Plagioclase laths, microlaths in a bluish gray feldspathic matrix.

2° MINERALS: Blue Stain, Smectite

CORE LOG
 BOX # 433 HOLE # 1 Sheet A
 Depth range 1181.72 to 1184.32 meters Depth range 3874.5 to 3883 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive 5 Ash Breccia Red Bed
 Number of Units in Box 4 Clk/Rubble Carbonate Pillow/Hyaloclast
 Fill in blanks below by using the appropriate unit number. 1,3 | 2,4

PRIMARY FEATURES

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

SECONDARY FEATURES

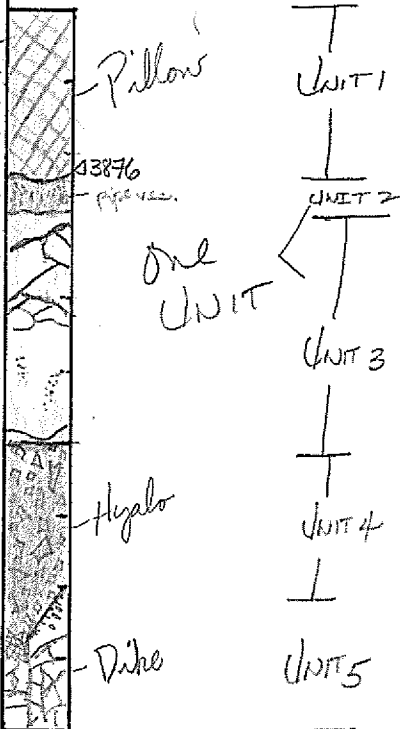
Phenocryst replacements	
Olv -> Clay	✓
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	

COMMENTS
8.5' core

PHENOCRYSTS (Original mineralogy)

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

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)		



Plagioclase

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

GROUNDMASS (original)

Aphanitic				
Feldspathic	✓			✓
Diktytaxitic				

CRITICAL FEATURES (description of units or features by number)

- 1) Pillow w/ 5% Olivine microphenocrysts, phenocrysts and <1% Plagioclase as microblasts all in a micro finely crystalline feldspathic matrix
- 2-3) Hyaloclastite (2) and associated Pillow (3) w/ 5-7% Olivine phenocrysts and Microphenocrysts in a dull bluish gray aphyric matrix
- 4) Hyaloclastite/Voleanitic; aphanitic, glassy/vitreous, colors range from golden -> rootbeer -> black!
- 5) Dike w/ <1% Plagioclase as Rhombs, blades in a lt gray feldspathic matrix
 70% ANHYDRITE, SMECTITE, ANHYDRITE, PYRITE, Blue stain, Oliv -> clay

CORE LOG
 BOX # 434 HOLE # 1 Sheet A
 Depth range 1184³² to 1187²¹ meters Depth range 3883 to 3892⁵ feet
 Logger's Name FT Page 1
 Type of Sample: Flow 1 Intrusive 1 Ash 1 Breccia 1 Red Bed 1
 Number of Units in Box 2 Clk/Rubble 1 Carbonate 1 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%						
Phenos	✓	✓				
mph	✓	✓				
ol-plag						
Comments						
Plagioclase						
>5%						
1-5%	✓	✓				
<1%						
Rhombs						
Blades/laths	✓	✓				
mph	✓	✓				
Comments						
Augite %	<1	<1				
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 fibrous	
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS
 9.5' here

Unit 1, Dike
 Pillow + Dike frag w/ Hyaloclastite
 Unit 2

HYALOCLASTITE
 3887-5

43492

CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ 3% Olivine phenocrysts, mph and 4% Plagioclase as Rhombs, Blades, laths and microlaths. The matrix ranges from Black to bluish gray, + is mildly feldspathic.
- 2) Pillow + associated Hyaloclastite w/ 5% Olivine phenocrysts, mph and <1% Plagioclase as microlaths and laths all in a bluish gray feldspathic groundmass
 2° MINERALS: SMECTITE, Blue stain, ANHYDRITE

CORE LOG

BOX # 435 HOLE # 1 Sheet A
 Depth range 1187.21 to 1189.5 meters Depth range 3892.5 to 3900 feet

Logger's Name FT Page 1
 Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box 3 Clk/Rubble Carbonate Pillow/Hyaloclast 1, 2, 3
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		7.5' here
mega (>.5 mm)	✓	✓	✓				Olv -> Clay ✓		
micro (<.5 mm)	✓	✓	✓				Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
PHENOCRYSTS (Original mineralogy)									
Olivine >5%							Fracture		
1-5%							Vesicle		
<1%	✓	✓	✓				Secondary/Alteration Min.		
Phenos ✓	✓	✓	✓				Smeectite ✓		
mph ✓	✓	✓	✓				Calcite		
ol-plag							Zeolite		
Comments									white fibrous
Plagioclase							green		
>5%							blue ✓		
1-5%							Analcime		
<1%	✓	✓	✓				Chabazite		
Rhombs							MgOH		
Blades/laths ✓	✓	✓	✓				Silica		
mph ✓	✓	✓	✓				Amorphous		
Comments								Chalcedony	
Augite %							Crystals		
GROUNDMASS (original)							Pyrite		
Aphanitic			✓				Epidote		
Feldspathic ✓	✓	✓					Gypsum		
Diktytaxitic							Anhydrite ✓		
							Chalcopyrite		
							Limonite		
							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

- 143) Pillows, fragmented w/ <1% Olivine phenocrysts, microphenocrysts and Plagioclase at <1% as blade, laths and microlaths, all in a dull gray mildly feldspathic groundmass.
- 2) Hyaloclastite, fine to coarse grained, colors range from OD green to black, vitreous. The finer grained material is green in color & altered.
- 2° Minerals 3 Blue Stain, Smeectite, rare Anhydrite

CORE LOG

BOX # 436

HOLE # 1

Sheet A

Depth range 1189.5 to 1191.62 meters

Depth range 3900 to 3907 feet

Logger's Name EN

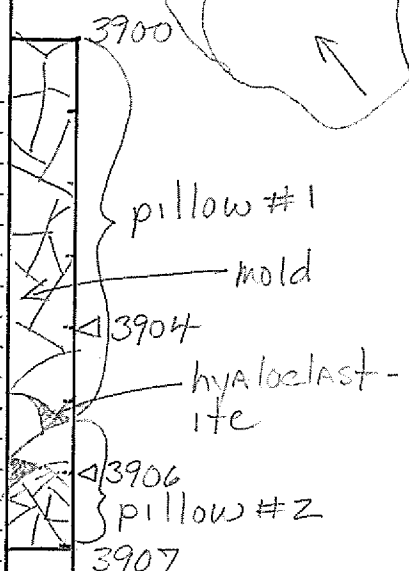
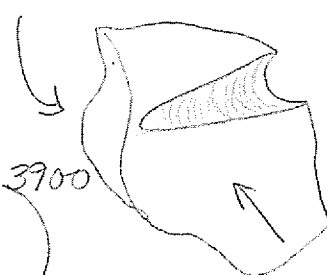
Page 1

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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			mold 1/2 way thru box! cylindrical, 6cm L x 1.5cm d.
mega (>.5 mm)	✓	✓					Olv -> Clay			
micro (<.5 mm)	✓	✓					Idingsite			
Aphyric							Plag -> Clay			
Vesicles: %	-	-					Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%	2	2					Smectite	1,2		
<1%							Calcite			
Phenos mph	✓	✓					Zeolite			
ol-plag	✓	✓					white fibrous			
Comments	<u>umalt</u>									
Plagioclase										
>5%							green			
1-5%	1	1					blue			
<1%							Analcime			
Rhombs							Chabazite			
Blades/laths mph	✓	✓					MgOH			
Comments										
Augite %										
GROUNDMASS (original)										
Aphanitic	✓	✓					Silica			
Feldspathic							Amorphous			
Diktytaxitic							Chalcedony			
							Crystals			
							Pyrite	1		
							Epidote			
							Gypsum			
							Anhydrite			
							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			
									<u>blue mace 1,2</u>	



CRITICAL FEATURES (description of units or features by number)

- pillow, aresicular, olivine & ol-plag mph 2%, ^{umalt.} plag blades and laths 2%, in a gray aphan mtr
 - pillow, lith as above
- Box is fractured to rubble with glassy hyaloclastite clinging to rubble at the 1/2 contact zone.

BOX # 437 ⁶⁴ ⁴⁷ CORE LOG HOLE # 1 Sheet A
 Depth range 1191 to 1193 meters Depth range 3907 to 3913 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box 3 Clk/Rubble Carbonate Pillow/Hyaloclast 1,2,3
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓	✓				Olv → Clay ✓	
micro (<.5 mm)	✓	✓	✓				Iddingsite	
Aphyric							Plag → Clay	
Vesicles: %							Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine >5%							Smectite ✓	
1-5%	✓	✓	✓				Calcite	
<1%							Zeolite	
Phenos ✓	✓	✓	✓				white fibrous ✓	
mph ✓	✓	✓	✓				green	
ol-plag							blue ✓	
Comments							Analcime	
Plagioclase							Chabazite	
>5%							MgOH	
1-5%							Silica	
<1%							Amorphous	
Rhombs							Chalcedony	
Blades/laths ✓	✓	✓	✓				Crystals	
mph							Pyrite ✓	
Comments							Epidote	
Augite %							Gypsum	
							Anhydrite	
GROUNDMASS (original)							Chalcopyrite	
Aphanitic ✓	✓	✓	✓				Limonite	
Feldspathic							Hematite	
Diktytaxitic							Other (describe)	

CRITICAL FEATURES (description of units or features by number)

- 1) Pillows w/ 10% Olivine as phenocrysts, microphenocrysts and rare laths of Plagioclase all in a dull bluish gray matrix
- 2) Pillow fragments w/ Hyaloclastite, Pillow composition similar to above. Hyaloclastite DD green to black glassy & vitreous. Microvesicles found here.

2° MINERALS : Blue stain, Smectite, Pyrite, White Zeolite

CORE LOG

BOX # 439

HOLE # 1

Sheet A

Depth range 1193.46 to 1195.90 meters

Depth range 3913 to 3921 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive Z, 4, 6 Ash Breccia Red Bed

Number of Units in Box 6 Clk/Rubble Carbonate Pillow/Hyaloclast 4, 3, 5

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			last 61 cm of box contains glassy conchoidal fractured rubble
mega (>.5 mm)	✓	✓	✓	✓	✓	✓	Olv → Clay			
micro (<.5 mm)	✓	✓	✓	✓	✓	✓	Iddingsite			
Aphyric							Plag → Clay			
							Zeolite			
Vesicles: %	-	20	-	20	-	20	Groundmass			
Shape		R		R		R	Chlorite			
Size(x)		1mm		1mm		1mm	Smeectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%	2	2	2	2	2	2	Smeectite			
<1%							Calcite <u>Z, 4, 6</u>			
Phenos	✓	✓	✓	✓	✓	✓	Zeolite			
mph	✓	✓	✓	✓	✓	✓	white fibrous			
ol-plag	✓	✓	✓	✓	✓	✓	green			
							blue			
Comments	<u>unalt</u>									
Plagioclase										
>5%							Analcime			
1-5%	2	4	2	4	2	4	Chabazite			
<1%							MgOH			
Rhombs							Silica			
Blades/laths	✓	✓	✓	✓	✓	✓	Amorphous			
mph							Chalcedony			
Comments										
Augite										
%							Crystals			
							Pyrite			
GROUNDMASS (original)										
Aphanitic	✓	✓	✓	✓	✓	✓	Epidote			
Feldspathic							Gypsum			
Diktytaxitic							Anhydrite			
							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			
							<u>blue mesh 1-6</u>			

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, avicular, olivine phenos, mph, ol-plag intus Σ 2%, unalt; plag blades & laths 2% in a gray aphan mtr.
- 2) dike, vesicular 20%, 1mm; olivine phenos, mph, ol-plag intus Σ 2%; unalt; plag blades & laths 4% in a dk gray aphan mtr. 50% vesicles filled w gr. clay.
- 3) pillow, lith as above
- 4) dike, lith as above →

- s) pillow, lith as above

b) dike, lith as above

1-438

BOX # 439 CORE LOG HOLE # 1 Sheet A
 Depth range 1195⁷⁵ to 1198⁶⁴ meters Depth range 3920⁵ to 3928 feet
 Logger's Name FT 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: %	3	-	-	-		
Shape	P					
Size(x)	1					

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

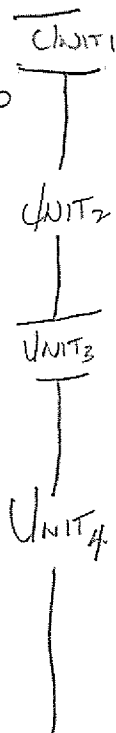
SECONDARY FEATURES	
Phenocryst replacements	
Olv -> Clay	✓
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	

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

COMMENTS

7.5' core

Block marked "Cave" here



1) Pillow w/ 1% Olivine as micro phenocrysts, phenocrysts and <<1% Plagioclase micro laths all in a dull bluish gray mildly feldspathic matrix.

2,3,4) Pillows w/ 2% Plagioclase as blades, laths and microlaths and 1% Olivine as phenocrysts, micro phenocrysts all in a bluish gray feldspathic matrix

2° Minerals: Smectite, Blue stain, Pyrite, Anhydrite, white Zeolite

CORE LOG

BOX # 4410

HOLE # 1

Sheet A

Depth range 1198.04 to 1200.48 meters

Depth range 3928 to 3936 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 42

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	✓	✓					Olv -> Clay <u> </u>		
micro (<.5 mm)	✓	✓					Iddingsite <u> </u>		
Aphyric							Plag -> Clay <u> </u>		
Vesicles: %							Zeolite <u> </u>		
Shape							Groundmass		
Size(x)							Chlorite <u> </u>		
							Smectite <u> </u>		
							Secondary/Alteration Min.		
							Smectite <u> </u> ✓		
PHENOCRYSTS (Original mineralogy)									
Olivine >5%							Calcite <u> </u>		
Olivine 1-5%							Zeolite <u> </u>		
Olivine <1%	1	1					white fibrous <u> </u>		
Phenos mph							green <u> </u>		
ol-plag	✓	✓					blue <u> </u>		
Comments	<u>unalt</u>								
Plagioclase									
>5%							Amorphous <u> </u>		
1-5%	3	3					Chalcedony <u> </u>		
<1%							Crystals <u> </u>		
Rhombs							Pyrite <u> </u>		
Blades/laths mph	✓	✓					Epidote <u> </u>		
Comments									
Augite %									
							Gypsum <u> </u>		
GROUNDMASS (original)									
Aphanitic	✓	✓					Anhydrite <u>1A2</u>		
Feldspathic							Chalcopyrite <u> </u>		
Diktytaxitic							Limonite <u> </u>		
							Hematite <u> </u>		
							Other (describe) <u>blue vescer</u> ✓		

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aresicular, olivine-plag intus 1%, unalt; plag blades, laths, rhombs 3% in a gray aphan mtrx. Anhydrite infills 8cm hyaloclastite zone at 1A2 contact.
- 2) pillow, lith as above.

CORE LOG

BOX # 441

HOLE # 1

Sheet A

Depth range 1200.48 to 1202.00 meters

Depth range 3936 to 3941 feet

Logger's Name EN

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓						Olv -> Clay _____	
micro (<.5 mm)	✓						Iddingsite _____	
Aphyric							Plag -> Clay _____	
Vesicles: %							Zeolite _____	
Shape							Groundmass	
Size(x)							Chlorite _____	
							Smectite _____	
							Secondary/Alteration Min.	
							Smectite ✓	
PHENOCRYSTS (Original mineralogy)							Calcite _____	3936 3939 pillow #1 3944 3945
Olivine >5%							Zeolite _____	
1-5%	1						white fibrous _____	
<1%							green _____	
Phenos ✓							blue _____	
mph _____							Analcime _____	
ol-plag _____							Chabazite _____	
Comments <u>unalt</u>							MgOH _____	
							Silica _____	
							Amorphous _____	
Plagioclase							Chalcedony _____	3936 3939 pillow #1 3944 3945
>5%							Crystals _____	
1-5%	3						Pyrite _____	
<1%							Epidote _____	
Rhombs							Gypsum _____	
Blades/laths ✓							Anhydrite ✓	
mph _____							Chalcopyrite _____	
Comments _____							Limonite _____	
							Hematite _____	
							Other (describe) <u>blue repair</u>	
Augite %								
GROUNDMASS (original)								
Aphanitic ✓								
Feldspathic								
Diktytaxitic								

CRITICAL FEATURES (description of units or features by number)

1) pillow, arcuate, olivine phenos 1%, unalt.; plag blades, rhombs, laths & 3% in a gray aphan mty.

CORE LOG

BOX # 442 HOLE # 1 Sheet A
 Depth range 1202.22 to 1205.36 meters Depth range 3945 to 3952 feet
 Logger's Name FN 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv -> Clay <u> </u>	
micro (<.5 mm)	✓	✓					Iddingsite <u> </u>	
clasts <u>2</u>							Plag -> Clay <u> </u>	
Aphyric							Zeolite <u> </u>	
Vesicles: %	-	-					Groundmass	
Shape							Chlorite <u> </u>	
Size(x)							Smectite <u> </u>	
PHENOCRYSTS (Original mineralogy)							Fracture	
Olivine >5%							Secondary/Alteration Min.	
1-5%							Smectite <u> </u>	
<1%							Calcite <u> </u>	
Phenos							Zeolite <u> </u>	
mph							white fibrous <u> </u>	
ol-plag							green <u> </u>	
Comments <u> </u>							blue <u> </u>	
Plagioclase							Analcime <u> </u>	
>5%							Chabazite <u> </u>	
1-5%	3	5					MgOH <u> </u>	
<1%							Silica <u> </u>	
Rhombs	✓	✓					Amorphous <u> </u>	
Blades/laths	✓	✓					Chalcedony <u> </u>	
mph							Crystals <u> </u>	
Comments <u> </u>							Pyrite <u>2</u>	
Augite %							Epidote <u> </u>	
GROUNDMASS (original)							Gypsum <u> </u>	
Aphanitic	✓	✓					Anhydrite <u>2</u>	
Feldspathic							Chalcopryrite <u> </u>	
Diktytaxitic							Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe)	
							<u>blue norex 2</u>	

CRITICAL FEATURES (description of units or features by number)

- 1) hyaloclastite, clasts: aresicular, plag laths, blades, rhombs Σ 3% in a gray aphan. mtrx. Cement supported, cement is fine black volcanic glass sand indurated to a competent unit.
- 2) pillow, aresicular, plag. blades, rhombs, laths Σ 5% in a gray aphan mtrx.

BOX # 443 ³⁶ CORE LOG HOLE # 1 Sheet A
 Depth range 1205 to 1208 meters Depth range 3952 to 3961 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive 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						SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		9' hole
mega (>.5 mm)	✓	✓					Olv -> Clay ✓		
micro (<.5 mm)	✓	✓					Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %		15					Zeolite		
Shape		sr					Groundmass		
Size(x)		<1					Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture		
Olivine	>5%						Vesicle		
	1-5%	✓1	✓3				Secondary/Alteration Min.		
	<1%						Smectite	✓	
Phenos			✓				Calcite		
mph		✓	✓				Zeolite		
ol-plag							white fibrous		
Comments							green		
Plagioclase							blue	✓	
	>5%						Analcime		
	1-5%		✓2				Chabazite		
	<1%	✓					MgOH		
Rhombs							Silica		
Blades/laths		✓	✓				Amorphous		
mph		✓	✓				Chalcedony		
Comments							Crystals		
Augite	%	<1					Pyrite	✓	
GROUNDMASS (original)							Epidote		
Aphanitic		✓	✓				Gypsum		
Feldspathic							Anhydrite		
Diktytaxitic							Chalcopryrite		
							Limonite		
							Hematite		
							Other (describe)		



CRITICAL FEATURES (description of units or features by number)

- 1) Pillow w/ 19% Olivine mph and <1% Plagioclase as blades and laths in a dull gray aphanitic matrix.
- 2) Dike, vesicular w/ 3% Olivine phenocrysts, mph, 2% Plagioclase as blades, laths and micro laths and <1% Augite phenocryst mph. The matrix is a dull gray and feldspathic.
 2° Minerals: SMECTITE, Blue stain, Pyrite

CORE LOG

BOX # 444

HOLE # 1

Sheet A

Depth range 1208.10 to 1210.85 meters

Depth range 3961 to 3970 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv -> Clay <u> </u>	
micro (<.5 mm)	✓	✓					Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
							Zeolite <u> </u>	
Vesicles: %	20	-					Groundmass	
Shape	R						Chlorite <u> </u>	
Size(x)	<1mm						Smectite <u> </u>	
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.	
Olivine	>5%						Smectite <u>1,2</u>	
	1-5%	5					Calcite <u> </u>	
	<1%						Zeolite <u> </u>	
Phenos							white fibrous <u> </u>	
mph							green <u> </u>	
ol-plag	✓						blue <u> </u>	
Comments	<u>unalt</u>						Analcime <u> </u>	
Plagioclase							Chabazite <u> </u>	
	>5%						MgOH <u> </u>	
	1-5%	1	1				Silica <u> </u>	
	<1%						Amorphous <u> </u>	
Rhombs	✓						Chalcedony <u> </u>	
Blades/laths	✓	✓					Crystals <u> </u>	
mph	✓	✓					Pyrite <u>1</u>	
Comments							Epidote <u> </u>	
Augite							Gypsum <u> </u>	
	%						Anhydrite <u>1,2</u>	
GROUNDMASS (original)							Chalcopryite <u> </u>	
Aphanitic	✓	✓					Limonite <u> </u>	
Feldspathic							Hematite <u> </u>	
Diktytaxitic							Other (describe) <u> </u>	
							<u>blue nevw 1,2</u>	

CRITICAL FEATURES (description of units or features by number)

- 1) dike, micromesoclastic, (20%, <1mm); ol-plag inters 5%; unalt; plag rhombs, blades & laths \approx 10% in a gray aphan mtr.
- 2) pillow, aresicular, plag blades, laths, mph \approx 10% in a gray aphan mtr.

Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box 3 Clk/Rubble Carbonate Pillow/Hyaloclast 1,2,3
 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: %						
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						

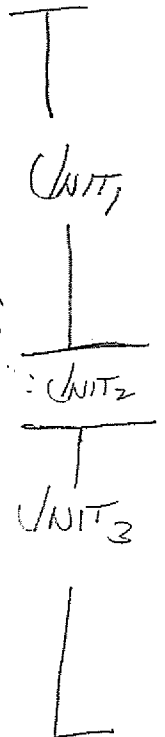
SECONDARY FEATURES	
Phenocryst replacements	✓
Olv -> Clay	
Iddingsite	
Plag -> Clay	
Zeolite	

Groundmass	
Chlorite	
Smectite	

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

COMMENTS

7' here



CRITICAL FEATURES (description of units or features by number)

- 1) Pillow w/ 1% Olivine phenocrysts, mph and 1% Plagioclase as laths and microlaths all in a gray aphanitic matrix.
- 2) Hyaloclastite, black-rotbeer colored glass, vitreous and microvesicular.
- 3) Pillow w/ 2% Olivine phenocrysts, mph and 1% Plagioclase as blades laths and microlaths in a bluish gray milky feldspathic matrix.

2% MINERALS & SMECTITE, BLUE STAIN

CORE LOG
 BOX # 446 99 HOLE # 1 Sheet A
 Depth range 1212 to 1215.73 meters Depth range 3977 to 3986 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv → Clay ✓	
micro (<.5 mm)	✓	✓					Idingsite	
Aphyric							Plag → Clay	
Vesicles: %							Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine >5%							Smectite ✓	
1-5%	✓ ₂	✓ ₃					Calcite	
<1%							Zeolite	
Phenos	✓	✓					white fibrous	
mph	✓	✓					green	
oi-plag							blue ✓	
Comments							Analcime	
Plagioclase							Chabazite	
>5%							MgOH	
1-5%	✓	✓					Silica	
<1%							Amorphous	
Rhombs							Chalcedony	
Blades/laths	✓	✓					Crystals	
mph	✓	✓					Pyrite	
Comments							Epidote	
Augite %							Gypsum	
							Anhydrite	
							Chalcopyrite	
							Limonite	
							Hematite	
							Other (describe)	

CRITICAL FEATURES (description of units or features by number)

- Pillow w/ 2% Olivine phenocrysts, microphenocrysts and 1% Plagioclase as blades, laths and micro laths in a bluish gray mildly feldspathic groundmass.
 - Pillow w/ 3% Olivine phenocrysts, mph and 1% Plagioclase as blades, laths and micro laths in a bluish gray mildly feldspathic groundmass.
- MINOR AMOUNTS OF HYALOCLASTITE FOUND AMONST UNIT 1
 2° MINERALS: Blue stain, Smectite, Clay (alt dr.)

CORE LOG

BOX # 407

HOLE # 1

Sheet A

Depth range 1215.73 to 1218.47 meters

Depth range 3986 to 3995 feet

Logger's Name CAI

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	<i>box is rubble</i>
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay	
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite	
Aphyric							Plag -> Clay	
							Zeolite	
Vesicles: %	<input checked="" type="checkbox"/>						Groundmass	
Shape							Chlorite	
Size(x)							Smectite	
PHENOCRYSTS (Original mineralogy)								
Olivine >5%							Secondary/Alteration Min.	
Olivine 1-5%	<input checked="" type="checkbox"/>							
Olivine <1%							Calcite	
Phenos							Zeolite	
mph	<input checked="" type="checkbox"/>						white fibrous	
ol-plag	<input checked="" type="checkbox"/>						green	
Comments	<i>unalt</i>						blue	
							Analcime	
Plagioclase							Chabazite	
>5%							MgOH	
1-5%	<input checked="" type="checkbox"/>						Silica	
<1%							Amorphous	
Rhombs							Chalcedony	
Blades/laths	<input checked="" type="checkbox"/>						Crystals	
mph	<input checked="" type="checkbox"/>						Pyrite <input checked="" type="checkbox"/>	
Comments							Epidote	
							Gypsum	
Augite %							Anhydrite	
							Chalcopyrite	
GROUNDMASS (original)							Limonite	
Aphanitic	<input checked="" type="checkbox"/>						Hematite	
Feldspathic							Other (describe)	<i>blue matrix</i>
Diktytaxitic								

CRITICAL FEATURES (description of units or features by number)

1) pillow, aversicular, ol-plag inters, mph, Σ 1%, unalt; plag blades & laths 1%, in a gray aphan mtrix.

CORE LOG

BOX # 448

HOLE # 1

Sheet A

Depth range 1218.47 to 1220.61 meters

Depth range 3995 to 4002 feet

Logger's Name EN

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay	
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite	
Aphyric							Plag -> Clay	
Vesicles: %	<input checked="" type="checkbox"/>						Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.	
Olivine >5%							Smectite <input checked="" type="checkbox"/>	
1-5%	<input checked="" type="checkbox"/>						Calcite	
<1%							Zeolite	
Phenos							white fibrous	
mph	<input checked="" type="checkbox"/>						green	
ol-plag							blue	
Comments	<u>unalt</u>						Analcime	
Plagioclase							Chabazite	
>5%							MgOH	
1-5%	<input checked="" type="checkbox"/>						Silica	
<1%							Amorphous	
Rhombs	<input checked="" type="checkbox"/>						Chalcedony	
Blades/laths	<input checked="" type="checkbox"/>						Crystals	
mph	<input checked="" type="checkbox"/>						Pyrite <input checked="" type="checkbox"/>	
Comments							Epidote	
Augite %							Gypsum	
							Anhydrite	
GROUNDMASS (original)							Chalcopryrite	
Aphanitic	<input checked="" type="checkbox"/>						Limonite	
Feldspathic							Hematite	
Diktytaxitic							Other (describe)	
							<u>blue morden</u>	

CRITICAL FEATURES (description of units or features by number)

1) pillow, areolular, olivine mph 1%, unalt.; plag rhombs, blades & laths 3%, in an aphan mtr.

CORE LOG

BOX # 449

HOLE # 1

Sheet A

Depth range 1220.61 to 1222.74 meters

Depth range 4002 to 4009 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							SECONDARY FEATURES				COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements				
mega (>.5 mm)	✓	✓					Olv -> Clay				
micro (<.5 mm)	✓	✓					Iddingsite				
Aphyric							Plag -> Clay				
							Zeolite				
Vesicles: %							Groundmass				
Shape							Chlorite				
Size(x)							Smectite				
PHENOCRYSTS (Original mineralogy)											
Olivine >5%							Secondary/Alteration Min.				
1-5%	1	1						Smectite	✓		
<1%							Calcite				
Phenos	✓	✓					Zeolite				
mph	✓	✓					white fibrous				
ol-plag	✓	✓					green				
							blue				
Comments	<u>unalt</u>										
Plagioclase											
>5%							Analcime				
1-5%	3	3					Chabazite				
<1%							MgOH				
Rhombs	✓	✓					Silica				
Blades/laths	✓	✓					Amorphous				
mph	✓	✓					Chalcedony				
							Crystals				
Comments											
Augite											
%							Pyrite				
GROUNDMASS (original)											
Aphanitic	✓	✓					Epidote				
Feldspathic							Gypsum				
Diktytaxitic							Anhydrite				
							Chalcopyrite				
							Limonite				
							Hematite				
							Other (describe)				
							<u>blue neper</u>	✓			

CRITICAL FEATURES (description of units or features by number)

1) pillow, *areolular*, *divine* phenos, mph, ol-plag interspersed
 ~1%, unalt.; plag rhombs, blades & laths ~3% in a gray aphan mtr.

2) pillow, lith as above

CORE LOG

BOX # 450

HOLE # 1

Sheet A

Depth range 1222.74 to 1224.27 meters

Depth range 4009 to 4014 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 42

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6		box is rubble
mega (>.5 mm)	✓							
micro (<.5 mm)	✓							
Aphyric								
Vesicles: %	✓							
Shape								
Size(x)								
PHENOCRYSTS (Original mineralogy)								
Olivine >5%								
1-5%								
<1%	✓							
Phenos								
mph	✓							
ol-plag	✓							
Comments	<u>unalt</u>							
Plagioclase								
>5%								
1-5%	3							
<1%								
Rhombs	✓							
Blades/laths	✓							
mph	✓							
Comments								
Augite								
%								
GROUNDMASS (original)								
Aphanitic	✓							
Feldspathic								
Diktytaxitic								
Secondary/Alteration Min.								
Smectite	✓							
Calcite								
Zeolite								
white fibrous								
green								
blue								
Analcime								
Chabazite								
MgOH								
Silica								
Amorphous								
Chalcedony								
Crystals								
Pyrite								
Epidote								
Gypsum								
Anhydrite								
Chalcopyrite								
Limonite								
Hematite								
Other (describe)	<u>blue merrin</u>							

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aresicular, olivine mph, ol-plag inters $\leq 1\%$, unalt.; plag rhombs, blades & laths $\leq 3\%$ (some laths 1cm long) in a gray aphan mtrx.
- 2) pillow, lith as above

CORE LOG

BOX # 451

HOLE # 1

Sheet A

Depth range 1224.47 to 1226.23 meters

Depth range 4014 to 4027 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 12

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			4' lost core
mega (>.5 mm)	✓						Olv → Clay			
micro (<.5 mm)	✓						Idingsite			
Aphyric							Plag → Clay			
Vesicles: %	-	-					Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.		4014	
Olivine 1-5%							Smectite	✓	4015	
Olivine <1%	✓	✓					Calcite			
Phenos	✓	✓					Zeolite			
mph	✓	✓					white fibrous			
ol-plag	✓	✓					green			
Comments	<u>unalt</u>							blue		
Plagioclase								Analcime		
>5%							Chabazite			
1-5%	3	3					MgOH			
<1%							Silica			
Rhombs	✓	✓					Amorphous			
Blades/laths	✓	✓					Chalcedony			
mph	✓	✓					Crystals			
Comments								Pyrite		
Augite								Epidote		
%							Gypsum			
GROUNDMASS (original)								Anhydrite		
Aphanitic	✓	✓					Chalcopyrite			
Feldspathic							Limonite			
Diktytaxitic							Hematite			
								Other (describe)		
								<u>blue green</u>		
CRITICAL FEATURES (description of units or features by number)										4020
										4023
										4025
										4026
										4027

- 1) pillow, vesicular, olivine phenos, mph, ol-plag interspersed < 1%, unalt.; plag blades & laths, rhombs < 3% in a gray aphan. mtr.
- 2) pillow, lith as above, dk gray in color.

CORE LOG

BOX # 452

HOLE # 1

Sheet A

Depth range 1226.23 to 1231.28 meters

Depth range 4027 to 4037 feet

Logger's Name EN

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						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6		50% of recovered rock is rounded	
mega (>.5 mm)	✓	✓	✓	✓					
micro (<.5 mm)	✓	✓	✓	✓					
Aphyric									
Vesicles: %	-	-	-	-					
Shape									
Size(x)									
PHENOCRYSTS (Original mineralogy)									
Olivine >5%									
1-5%									
<1%	✓	✓	✓	✓					
Phenos									
mph	✓	✓	✓	✓					
ol-plag	✓	✓	✓	✓					
Comments <u>unalt</u>									
Plagioclase									
>5%									
1-5%	/	/	/	/					
<1%									
Rhombs									
Blades/laths	✓	✓	✓	✓					
mph	✓	✓	✓	✓					
Comments									
Augite %									
GROUNDMASS (original)									
Aphanitic	✓	✓	✓	✓					
Feldspathic									
Diktytaxitic									
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)									
							blue mineral		

CRITICAL FEATURES (description of units or features by number)

1-4) pillows, amsicular, olivine mph, ol-plag interspersed <1%, unalt.; plag mph, blades & laths \approx 1% in a dk gray aphan. mtrix.

CORE LOG

BOX # 463

HOLE # 1

Sheet A

Depth range 1231.26 to 1234.03 meters

Depth range 4037 to 4046 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 42

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6		
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Phenocryst replacements	4037
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Olv -> Clay _____	
Aphyric							Iddingsite _____	pillow #1
Vesicles: %	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Plag -> Clay _____	
Shape							Zeolite _____	4043
Size(x)							Groundmass	
PHENOCRYSTS (Original mineralogy)							Chlorite _____	pillow #2
Olivine >5%							Smectite _____	
Olivine 1-5%							Calcite _____	4046
Olivine <1%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Zeolite _____	
Phenos mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					white fibrous _____	blue mineral
ol-plag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					green _____	
Comments	<u>unalt</u>						blue _____	
Plagioclase							Analcime _____	
>5%							Chabazite _____	
1-5%	<u>3</u>	<u>3</u>					MgOH _____	
<1%							Silica _____	
Rhombs							Amorphous _____	
Blades/laths mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Chalcedony _____	
Comments							Crystals _____	
Augite %							Pyrite <input checked="" type="checkbox"/>	
GROUNDMASS (original)							Epidote _____	
Aphanitic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Gypsum _____	
Feldspathic							Anhydrite _____	
Diktytaxitic							Chalcopyrite _____	
							Limonite _____	
							Hematite _____	
							Other (describe) _____	

CRITICAL FEATURES (description of units or features by number)

- pillow, amesicular, olivine mph, ol-plag inters, Σ < 1%, plag blades & laths, mph Σ 3% in a dk gray to gray aphan mtr.
- pillow, lith as above.

CORE LOG

BOX # 454

HOLE # 1

Sheet A

Depth range 1234.03 to 1236.82 meters

Depth range 4046 to 4055 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%						
1-5%						
<1%	✓	✓				
Phenos						
mph	✓	✓				
ol-plag	✓	✓				
Comments	<u>unalt.</u>					

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

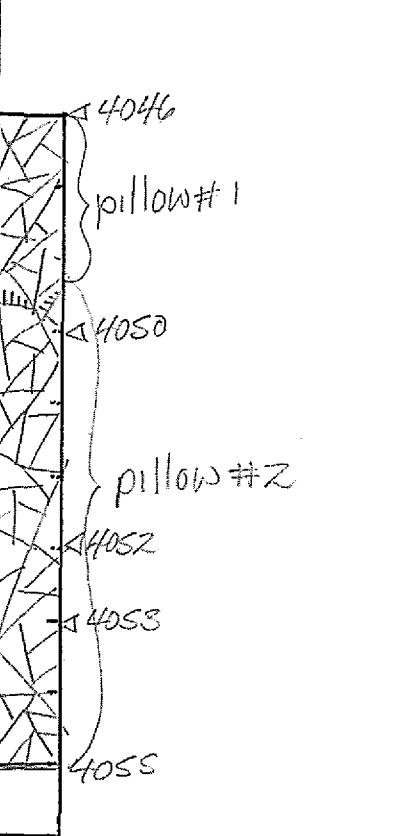
Augite %						
----------	--	--	--	--	--	--

GROUNDMASS (original)						
Aphanitic	✓	✓				
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	
Phenocryst replacements	
Olv -> Clay	
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	

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

COMMENTS
(XRD) 4046'-55': fluc, celadonite = clay. RE 1/8/92.



CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aresicular, olivine mph, ol-plag inters $\Sigma_i < 1\%$, unalt.; plag blades/laths, mph $\Sigma_i 3\%$ in a gray aphan. mtx. Small patches of dikty. text.
- 2) pillow, lith as above

CORE LOG

BOX # 465

HOLE # 1

Sheet A

Depth range 1236.82 to 1237.91 meters

Depth range 4055 to 4065.5 feet

Logger's Name EN

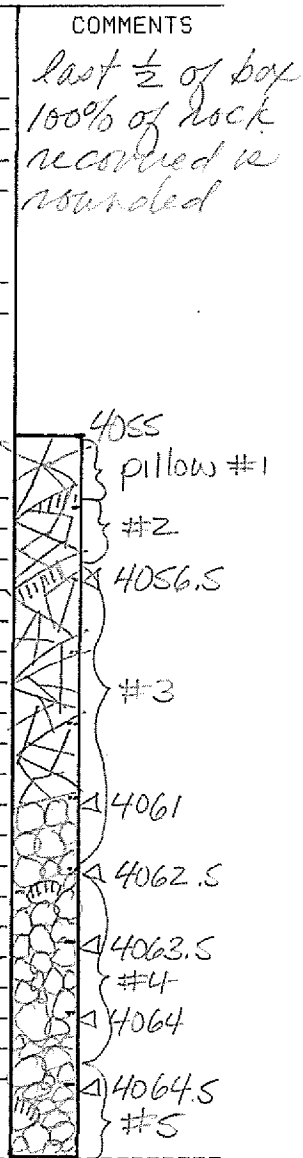
Page 1

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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Fracture	Vesicle	
mega (>.5 mm)	✓	✓	✓	✓	✓	✓			last 1/2 of box 100% of rock recovered is rounded
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	3	3	3	3	3			
<1%									
Rhombs									
Blades/laths	✓	✓	✓	✓	✓	✓			
mph	✓	✓	✓	✓	✓	✓			
Comments _____									
Augite %									
GROUNDMASS (original)									
Aphanitic	✓	✓	✓	✓	✓	✓			
Feldspathic									
Diktytaxitic									
							Secondary/Alteration Min.		
							Smectite	1-5	
							Calcite		
							Zeolite		
							white fibrous		
							green		
							blue		
							Analcime		
							Chabazite		
							MgOH		
							Silica		
							Amorphous		
							Chalcedony		
							Crystals		
							Pyrite		
							Epidote		
							Gypsum		
							Anhydrite		
							Chalcopyrite		
							Limonite		
							Hematite		
							Other (describe)		
							blue green		



CRITICAL FEATURES (description of units or features by number)

1-5) pillows, aresicular, olivine mph, ol-plag inters.
 $\Sigma < 1\%$, unalt.; plag blades & laths, mph, $\Sigma 3\%$
 in a gray aphan mtr. Small patches of dikty text.

CORE LOG
 BOX # 456 ⁹⁸ HOLE # 1 ⁴⁹ Sheet A
 Depth range 1239 to 1243 meters Depth range 4065 to 4077 feet
 Logger's Name FT 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%						
1-5%	✓ ₂	✓ ₂				
<1%						
Phenos mph	✓	✓				
ol-plag						
Comments <u> </u>						
Plagioclase						
>5%						
1-5%	✓ ₁	✓				
<1%						
Rhombs						
Blades/laths mph	✓					
Comments <u> </u>						
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 fibrous	
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

11.5' here

4069
4071
4072.5
4074
4074.5

CRITICAL FEATURES (description of units or features by number)

1-2) Pillows w/ 2% Olivine as phenocrysts, mph and 1% Plagioclase blades, laths and micro laths in a mainly feldspathic groundmass.

2^o Minerals: SMECTITE, BLUE STAIN.

CORE LOG

BOX # 459

HOLE # 1

Sheet A

Depth range 1243.46 to 1246.23 meters

Depth range 4077 to 4086 feet

Logger's Name EN

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓	✓	✓			Div -> Clay <u> </u>	
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
Vesicles: %	-	-	-	-			Zeolite <u> </u>	
Shape							Groundmass	
Size(x)							Chlorite <u> </u>	
PHENOCRYSTS (Original mineralogy)							Smectite <u> </u>	
Olivine >5%							Calcite <u> </u>	
1-5%	/	/	/	/			Zeolite <u> </u>	
<1%							white fibrous <u> </u>	
Phenos mph	✓	✓	✓	✓			green <u> </u>	
ol-plag	✓	✓	✓	✓			blue <u> </u>	
Comments	<u>unalt</u>						Analcime <u> </u>	
Plagioclase							Chabazite <u> </u>	
>5%							MgOH <u> </u>	
1-5%	2	2	2	2			Silica <u> </u>	
<1%							Amorphous <u> </u>	
Rhombs							Chalcedony <u> </u>	
Blades/laths mph	✓	✓	✓	✓			Crystals <u> </u>	
Comments							Pyrite <u> </u>	
Augite %							Epidote <u> </u>	
GROUNDMASS (original)							Gypsum <u> </u>	
Aphanitic	✓	✓	✓	✓			Anhydrite <u> </u>	
Feldspathic							Chalcopryrite <u> </u>	
Diktytaxitic							Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe) <u>blue veins</u>	

CRITICAL FEATURES (description of units or features by number)

1-4) pillows, aversicular, divide mph, ol-plag inters Σ 1%; unalt.; plag blades/laths, mph Σ 2% in a gray aphan mty. Small patches of dikty text.

CORE LOG

BOX # 458 HOLE # 1 Sheet A
 Depth range 1246.23 to 1248.97 meters Depth range 4086 to 4095 feet
 Logger's Name EN 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							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements				
mega (>.5 mm)	✓	✓	✓	✓	✓	✓	Olv -> Clay				
micro (<.5 mm)	✓	✓	✓	✓	✓	✓	Iddingsite				
Aphyric							Plag -> Clay				
							Zeolite				
Vesicles: %	-	-	-	-	-	-	Groundmass				
Shape							Chlorite				
Size(x)							Smectite				
PHENOCRYSTS (Original mineralogy)											
Olivine >5%							Secondary/Alteration Min.	Fracture	Vesicle		
1-5%	/	/	/	/	/	/				Smectite	✓
<1%							Calcite			4087	
Phenos							Zeolite			#2	
mph	✓	✓	✓	✓	✓	✓	white fibrous				
ol-plag	✓	✓	✓	✓	✓	✓	green				
Comments	<u>unalt</u>										4088.5
Plagioclase							Analcime				#3
>5%							Chabazite				
1-5%	2	2	2	2	2	2	MgOH				4091
<1%							Silica				#4
Rhombs							Amorphous				
Blades/laths	✓	✓	✓	✓	✓	✓	Chaicedony				
mph	✓	✓	✓	✓	✓	✓	Crystals				4093
Comments											
Augite %							Pyrite				
							Epidote				
GROUNDMASS (original)											
Aphanitic	✓	✓	✓	✓	✓	✓	Gypsum				4094
Feldspathic							Anhydrite				#5
Diktytaxitic							Chalcopryrite				4095
							Limonite				
							Hematite				
							Other (describe)				<u>blue veneer</u>

CRITICAL FEATURES (description of units or features by number)

1-5) pillows, aresicular, olivine mph, ol-plag intus $\approx 9\%$, unalt.; plag mph, blades & laths $\approx 2\%$ in a gray aphan mtr. Small patches of dikty text.

CORE LOG

BOX # 459

HOLE # 1

Sheet A

Depth range 1248.97 to 1252.02 meters

Depth range 4096 to 4105 feet

Logger's Name EN

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Olv -> Clay <u> </u>	
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
Vesicles: %							Zeolite <u> </u>	
Shape							Groundmass	
Size(x)							Chlorite <u> </u>	
PHENOCRYSTS (Original mineralogy)							Smectite <u> </u>	
Olivine >5%							Secondary/Alteration Min.	
1-5%							Smectite <input checked="" type="checkbox"/>	
<1%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Calcite <u> </u>	
Phenos							Zeolite <u> </u>	
mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			white fibrous <u> </u>	
ol-plag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			green <u> </u>	
Comments							blue <u> </u>	
Plagioclase							Analcime <u> </u>	
>5%							Chabazite <u> </u>	
1-5%							MgOH <u> </u>	
<1%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Silica <u> </u>	
Rhombs							Amorphous <u> </u>	
Blades/laths	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Chalcedony <u> </u>	
mph							Crystals <u> </u>	
Comments							Pyrite <u> </u>	
Augite %							Epidote <u> </u>	
GROUNDMASS (original)							Gypsum <u> </u>	
Aphanitic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Anhydrite <u> </u>	
Feldspathic							Chalcopyrite <u> </u>	
Diktytaxitic							Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe)	
							<u>blue mesh</u>	

CRITICAL FEATURES (description of units or features by number)

1-4) pillows, arcuate, olivine mph, ol-plag inters $\Sigma < 1\%$, unalt.; plag blades/laths, mph $\Sigma < 1\%$ in a gray aphan mtr. Small patches of dikty text.

CORE LOG

BOX # 460

HOLE # 1

Sheet A

Depth range 1252.02 to 1255.68 meters

Depth range 4105 to 4117 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive Ash Breccia Red Bed

Number of Units in Box 7 Clk/Rubble Carbonate Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			<p><i>2' lost core</i></p> <p><i>rounded and angular clasts mixed</i></p> <p>↓ 4105</p> <p>4106</p> <p>4108.5</p> <p>4110</p> <p>4111.5</p> <p>4113</p> <p>4115</p> <p>4116</p> <p>4117</p> <p><i>hyaloclastite clasts</i></p> <p><i>hyaloclastite</i></p>
mega (>.5 mm)	✓						Olv → Clay			
micro (<.5 mm)	✓						Iddingsite			
Aphyric							Plag → Clay			
Vesicles: %	✓						Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smeectite			
							Fracture			
							Vesicle			
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.			
Olivine >5%							Smeectite	✓		
1-5%	1						Calcite			
<1%							Zeolite			
Phenos mph	✓						white fibrous			
ol-plag	✓						green			
Comments	<i>unalt</i>							blue		
							Analcime			
Plagioclase >5%							Chabazite			
1-5%	2						MgOH			
<1%							Silica			
Rhombs							Amorphous			
Blades/laths mph	✓						Chalcedony			
Comments								Crystals		
							Pyrite			
Augite %							Epidote			
							Gypsum			
GROUNDMASS (original)							Anhydrite			
Aphanitic	✓						Chalcopyrite			
Feldspathic							Limonite			
Diktytaxitic							Hematite			
							Other (describe)			
							<i>blue green</i>			

CRITICAL FEATURES (description of units or features by number)

⇒ pillows, amsicular, olivine mph, ol-plag intus Σ 1%, unalt.; plag mph, blades & laths Σ 2% in a gray aphan mtr.

Rock is too fractured to differentiate units. Disaggregated hyaloclastite clasts found at locations marked.

(east) hyaloclastite, amsicular, lith. of clasts as above. Cemented by tan and black volcanic glass sand.

BOX # 461 CORE LOG HOLE # 1 Sheet A
 Depth range 1255⁶⁹ to 1260²⁶ meters Depth range 4117 to 4132 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	15' core
mega (>.5 mm)	✓	✓					Olv -> Clay <u>✓</u>	
micro (<.5 mm)	✓						Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
Vesicles: %							Zeolite <u> </u>	
Shape							Groundmass	
Size(x)							Chlorite <u> </u>	
							Smectite <u> </u>	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine >5%							Smectite <u>✓</u>	
Olivine 1-5%	✓						Calcite <u> </u>	
Olivine <1%							Zeolite <u> </u>	
Phenos	✓						white fibrous <u> </u>	
mph	✓						green <u> </u>	
ol-plag							blue <u>✓</u>	
Comments							Analcime <u> </u>	
							Chabazite <u> </u>	
							MgOH <u> </u>	
							Silica <u> </u>	
							Amorphous <u> </u>	
							Chalcedony <u> </u>	
							Crystals <u> </u>	
							Pyrite <u> </u>	
							Epidote <u> </u>	
							Gypsum <u> </u>	
							Anhydrite <u> </u>	
							Chalcopyrite <u> </u>	
							Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe) <u> </u>	

CRITICAL FEATURES (description of units or features by number)

1) Pillows, Pillow Fragments, microvesicular w/ 2% Olivine as phenocrysts, mph and <1% Plagioclase as laths, microlaths and blades all in a bluish gray mildly feldspathic groundmass

2° Minerals: SMECTITE, Blue Stain

BOX # 462 CORE LOG HOLE # 1 Sheet A
 Depth range 1260²⁶ to 1263⁹² meters Depth range 4132 to 4144 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6		
mega (>.5 mm)	<input checked="" type="checkbox"/>							
micro (<.5 mm)	<input checked="" type="checkbox"/>							
Aphyric								
Vesicles: %								
Shape								
Size(x)								
PHENOCRYSTS (Original mineralogy)								
Olivine >5%								
1-5%	<input checked="" type="checkbox"/>							
<1%								
Phenos	<input checked="" type="checkbox"/>							
mph	<input checked="" type="checkbox"/>							
ol-plag								
Comments								
Plagioclase								
>5%								
1-5%	<input checked="" type="checkbox"/>							
<1%								
Rhombs								
Blades/laths	<input checked="" type="checkbox"/>							
mph	<input checked="" type="checkbox"/>							
Comments								
Augite %								
GROUNDMASS (original)								
Aphanitic								
Feldspathic	<input checked="" type="checkbox"/>							
Diktytaxitic								
						Fracture	Vesicle	
						Secondary/Alteration Min.		
						Smectite	<input checked="" type="checkbox"/>	
						Calcite		
						Zeolite		
						white fibrous		
						green		
						blue	<input checked="" type="checkbox"/>	
						Analcime		
						Chabazite		
						MgOH		
						Silica		
						Amorphous		
						Chalcedony		
						Crystals		
						Pyrite		
						Epidote		
						Gypsum		
						Anhydrite		
						Chalcopyrite		
						Limonite		
						Hematite		
						Other (describe)		

12 'Here



CRITICAL FEATURES (description of units or features by number)

1) Pillows/Fragments w/ 2% Olivine phenocrysts, mph and 1% Plagioclase as laths, microlaths in a bluish gray feldspathic matrix

2° Minerals: SMECTITE, Blue stain

CORE LOG

BOX # 41.3

HOLE # 1

Sheet A

Depth range 1263.77 to 1266.82 meters

Depth range 4143.5 to 4153.5 feet

Logger's Name EN

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓	✓	✓			Olv → Clay <u> </u>	
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite <u> </u>	
Aphyric							Plag → Clay <u> </u>	
Vesicles: %	-	-	-	-			Zeolite <u> </u>	
Shape							Groundmass	
Size(x)							Chlorite <u> </u>	
							Smectite <u> </u>	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine >5%							Smectite ✓	
1-5%	/	/	/	/			Calcite <u> </u>	
<1%							Zeolite <u> </u>	
Phenos mph	✓	✓	✓	✓			white fibrous <u> </u>	
ol-plag	✓	✓	✓	✓			green <u> </u>	
Comments	<u>analt</u>						blue <u> </u>	
							Analcime <u> </u>	
Plagioclase						Silica		
>5%							Amorphous <u> </u>	
1-5%	2	2	2	2			Chalcedony <u> </u>	
<1%							Crystals <u> </u>	
Rhombs							Pyrite <u> </u>	
Blades/laths mph	✓	✓	✓	✓			Epidote <u> </u>	
Comments							Gypsum <u> </u>	
							Anhydrite <u> </u>	
Augite %						Chalcopyrite <u> </u>		
							Limonite <u> </u>	
GROUNDMASS (original)						Hematite <u> </u>		
Aphanitic	✓	✓	✓	✓			Other (describe)	
Feldspathic							<u>blue menen</u>	
Diktytaxitic								
CRITICAL FEATURES (description of units or features by number)								

1-4) pillows, anesicular, olivine mph, ol-plag inters Σ 1%, analt; plag mph, blades & laths Σ 2% in a gray aphan mtr.

CORE LOG

BOX # 4164

HOLE # 1

Sheet A

Depth range 1266.82 to 1270.93 meters

Depth range 4153.5 to 4167 feet

Logger's Name EN

Page 1

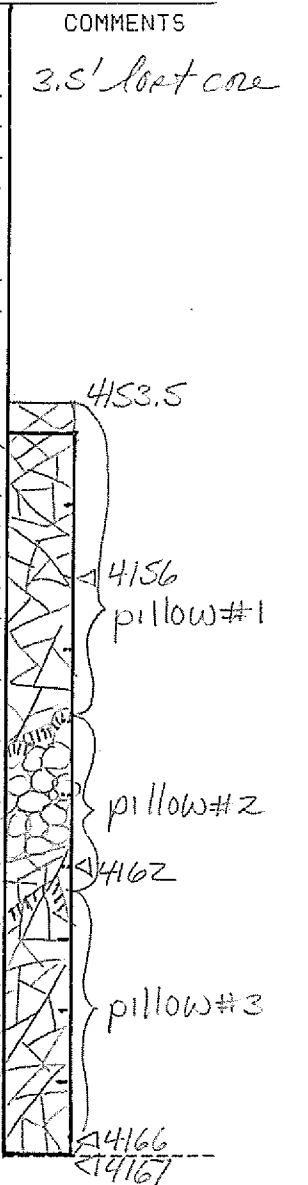
Type of Sample: Flow _____ Intrusive _____ Ash _____ Breccia _____ Red Bed _____

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						
	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓	✓	✓			
micro (<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %	-	-	-			
Shape						
Size(x)						
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	/	/	/			
<1%						
Phenos						
mph	✓	✓	✓			
ol-plag	✓	✓	✓			
Comments	<u>unalt</u>					
Plagioclase						
>5%						
1-5%	2	2	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	
Fracture	
Vesicle	
Secondary/Alteration Min.	
Smectite	✓
Calcite	
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	<u>blue mineral</u>



CRITICAL FEATURES (description of units or features by number)

1-3) pillows, anhedral, olivine mph, ol-plag inters. Σ 1%, unalt.; plag mph, blades & laths Σ 2% in a gray aphan. mtr.

CORE LOG

BOX # 465

HOLE # 1

Sheet A

Depth range 1270.93 to 1278.51 meters

Depth range 4167 to 4182 feet

Logger's Name EAJ

Page 1

Type of Sample: Flow Intrusive Ash Breccia Red Bed

Number of Units in Box 7 Clk/Rubble Carbonate Pillow/Hyaloclast

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		5' lost core	
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay			
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite			
Aphyric							Plag -> Clay			
							Zeolite			
Vesicles: %	<input checked="" type="checkbox"/>						Groundmass			
Shape							Chlorite			
Size(x)							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			4167
1-5%	<input checked="" type="checkbox"/>						Smectite		4168.5	
<1%							Calcite			
Phenos							Zeolite			
mph	<input checked="" type="checkbox"/>						white fibrous			
ol-plag	<input checked="" type="checkbox"/>						green			
Comments	<u>unalt</u>							blue		
Plagioclase								Analcime		
>5%							Chabazite		4173	
1-5%	<input checked="" type="checkbox"/>						MgOH			
<1%							Silica			
Rhombs							Amorphous			
Blades/laths	<input checked="" type="checkbox"/>						Chalcedony			
mph							Crystals		4176	
Comments								Pyrite		
Augite %								Epidote		
							Gypsum		4180	
GROUNDMASS (original)								Anhydrite		
Aphanitic	<input checked="" type="checkbox"/>						Chalcopyrite			
Feldspathic							Limonite		4181	
Diktytaxitic							Hematite		4181.5	
							Other (describe)			
							<u>blue-refer</u>		4182	

ROUNDED CLASTS

CRITICAL FEATURES (description of units or features by number)

?) pillows, amsicular, olivine mph, ol-plag inters \approx 1% unalt.; plag mph, blades/laths \approx 2% in a gray aphan mtr

Box is too fragmented to differentiate units.

BOX # 466 ⁵¹ CORE LOG HOLE # 1 Sheet A
 Depth range 1275 to 1281.5 meters Depth range 4182 to 4200.5 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		18.5' represented here
mega (>.5 mm)	✓	✓	✓	✓			Olv -> Clay ✓		
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture		
Olivine >5%							Vesicle		
1-5%	✓	✓	✓	✓			Secondary/Alteration Min.		
<1%							Smectite ✓		
Phenos mph	✓	✓	✓	✓			Calcite		
ol-plag							Zeolite		
Comments							white fibrous	4184	UNIT 1
							green		
Plagioclase							blue ✓	4186	UNIT 2
>5%							Analcime		
1-5%	✓	✓	✓	✓			Chabazite		
<1%							MgOH		
Rhombs							Silica		
Blades/laths mph	✓	✓	✓	✓			Amorphous		
Comments							Chalcedony		
							Crystals		
Augite %							Pyrite		4196.5
							Epidote		UNIT 3
GROUNDMASS (original)							Gypsum		
Aphanitic							Anhydrite		
Feldspathic	✓	✓	✓	✓			Chalcopryrite		
Diktytaxitic							Limonite		4198.5
							Hematite		UNIT 4
							Other (describe)		
									4200.5

CRITICAL FEATURES (description of units or features by number)

1-4) Pillow Fragment w/ 2% Olivine as phenocrysts, mph and 1% Plagioclase as blades, laths and microlaths in a dark, bluish gray, feldspathic matrix,

2° Minerals: Smectite, Blue Stain.

BOX # 467 CORE LOG HOLE # 1 Sheet A
 Depth range 1281.15 to 1285.58 meters Depth range 4200.5 to 4215 feet
 Logger's Name FR Page 1

Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box 3 Ck/Rubble Carbonate Pillow/Hyaloclast 1-3
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	14.5' represented here Fracture Vesicle Secondary/Alteration Min. Smectite <input checked="" type="checkbox"/> Calcite <input type="checkbox"/> Zeolite <input type="checkbox"/> white fibrous <input type="checkbox"/> green <input type="checkbox"/> blue <input checked="" type="checkbox"/> Analcime <input type="checkbox"/> Chabazite <input type="checkbox"/> MgOH <input type="checkbox"/> Silica <input type="checkbox"/> Amorphous <input type="checkbox"/> Chalcedony <input type="checkbox"/> Crystals <input type="checkbox"/> Pyrite <input type="checkbox"/> Epidote <input type="checkbox"/> Gypsum <input type="checkbox"/> Anhydrite <input type="checkbox"/> Chalcopryrite <input type="checkbox"/> Limonite <input type="checkbox"/> Hematite <input type="checkbox"/> Other (describe) <input type="checkbox"/>	
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Olv -> Clay <input checked="" type="checkbox"/>		
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Iddingsite <input type="checkbox"/>		
Aphyric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plag -> Clay <input type="checkbox"/>		
Vesicles: %	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zeolite <input type="checkbox"/>		
Shape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Groundmass		
Size(x)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chlorite <input type="checkbox"/>		
PHENOCRYSTS (Original mineralogy)							Groundmass		
Olivine >5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Smectite <input type="checkbox"/>		44202 Hyalo 44205 44209 44211 44214 44215
1-5%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Calcite <input type="checkbox"/>		
<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zeolite <input type="checkbox"/>		
Phenos mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	white fibrous <input type="checkbox"/>		
ol-plag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	green <input type="checkbox"/>		
Comments							blue <input checked="" type="checkbox"/>		
Plagioclase							Analcime <input type="checkbox"/>		
>5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chabazite <input type="checkbox"/>		
1-5%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MgOH <input type="checkbox"/>		
<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Silica <input type="checkbox"/>		
Rhombs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Amorphous <input type="checkbox"/>		
Blades/laths mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chalcedony <input type="checkbox"/>		
Comments							Crystals <input type="checkbox"/>		
Augite %							Pyrite <input type="checkbox"/>		
GROUNDMASS (original)							Epidote <input type="checkbox"/>		
Aphanitic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gypsum <input type="checkbox"/>		
Feldspathic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Anhydrite <input type="checkbox"/>		
Diktytaxitic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chalcopryrite <input type="checkbox"/>		

CRITICAL FEATURES (description of units or features by number)

- 1) Pillow w/ 2% Olivine phenocrysts, mph and 2% Plagioclase as laths blades and micro laths in a dull bluish gray matrix, mildly feldspathic.
- 2) Pillow w/ 2% Olivine phenocrysts, mph and 1% Plagioclase as laths and micro laths in a bluish gray mildly feldspathic ground mass.
- 3) Pillow w/ 2% Olivine as phenocrysts, mph and <1% Plagioclase as laths and micro laths in a bluish gray mildly feldspathic matrix.

2° Mineral: SMECTITE. BLUE STAIN

CORE LOG
 BOX # 468 HOLE # 1 Sheet A
 Depth range 1285.58 to 1290.46 meters Depth range 4215 to 4231 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box 7 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.	
Smectite	✓
Calcite	
Zeolite	
white fibrous	
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS
 16' represented here

Fracture
 Vesicle

4218.5 Drill rounded clasts
 4221.5
 4223.5
 4226
 4231 Pillows Fragments

CRITICAL FEATURES (description of units or features by number)

1) Pillow Fragments w/ 2% Olivine phenocrysts, microphenocrysts and 1% Plagioclase as laths, blades and microlaths in a muddy feldspathic matrix dark gray in color.

2° Minerals: SMECTITE, Blue stain

CORE LOG

BOX # 469

HOLE # 1

Sheet A

Depth range 1270.45 to 1294.72 meters

Depth range 4231 to 4245 feet

Logger's Name ENI

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6		
mega (>.5 mm)	✓	✓						4 foot core
micro (<.5 mm)	✓	✓						
Aphyric								
Vesicles: %	-	-						
Shape								
Size(x)								
PHENOCRYSTS (Original mineralogy)								
Olivine >5%								4231 pillow #1
1-5%	1	1						
<1%								
Phenos mph	✓	✓						
ol-plag	✓	✓						
Comments	<u>unalt.</u>							
Plagioclase								
>5%								4234 4236 4236.5 pillow #2
1-5%	2	2						
<1%								
Rhombs								
Blades/laths mph	✓	✓						
Comments								
Augite								
%								
GROUNDMASS (original)								
Aphanitic	✓	✓						4242 4244 4245
Feldspathic								
Diktytaxitic								
Other (describe)	<u>blue veen</u>							

CRITICAL FEATURES (description of units or features by number)

1,2) pillows, aniscular, olivine mph, ol-plag inters Σ 1%, unalt, plag mph, blades & laths Σ 2%, in a gray aphan mtr. with small patches of dikty text. (May be more units, box is rubble!)

ROUNDED CLASTS

CORE LOG
 BOX # 470 HOLE # 1 Sheet A
 Depth range 1294.73 to 1300.22 meters Depth range 4245 to 4263 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv → Clay ✓	
micro (<.5 mm)	✓	✓					Iddingsite	
Aphyric							Plag → Clay	
Vesicles: %							Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
PHENOCRYSTS (Original mineralogy)							Fracture	UNIT 1
							Vesicle	
Olivine >5%							Secondary/Alteration Min.	
1-5%	2	2					Smectite	
<1%							Calcite	
Phenos ✓	✓	✓					Zeolite	
mph ✓	✓	✓					white fibrous	
ol-plag							green	
Comments							blue	
Plagioclase >5%							Analcime	
1-5%	1	1					Chabazite	
<1%							MgOH	
Rhombs							Silica	
Blades/laths ✓	✓	✓					Amorphous	
mph ✓	✓	✓					Chalcedony	
Comments							Crystals	
Augite %							Pyrite	
GROUNDMASS (original)							Epidote	
Aphanitic							Gypsum	
Feldspathic ✓	✓	✓					Anhydrite	
Diktytaxitic							Chalcopyrite	
							Limonite	
							Hematite	
							Other (describe)	

CRITICAL FEATURES (description of units or features by number)

1+2) Pillow(s), Pillow fragments w/ 2% Olivine as phenocrysts, mph and 1% Plagioclase as blades, laths and micro laths all in in dull bluish gray, mudd by feldspathic matrix

2° MINERALS: Blue stain, SMECTITE

CORE LOG

BOX # 471

HOLE # 1

Sheet A

Depth range 1300.91 to 1305.40 meters

Depth range 4263 to 4280 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive Ash Breccia Red Bed

Number of Units in Box 7 Clk/Rubble Carbonate Pillow/Hyaloclast ?

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			7' lost core
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay			
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite			
Aphyric							Plag -> Clay			
							Zeolite			
Vesicles: %	<input checked="" type="checkbox"/>						Groundmass			
Shape							Chlorite			
Size(x)							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%	<input checked="" type="checkbox"/>						Smectite	<input checked="" type="checkbox"/>		
<1%							Calcite			
Phenos							Zeolite			
mph	<input checked="" type="checkbox"/>						white fibrous			
ol-plag	<input checked="" type="checkbox"/>						green			
Comments	<u>unalt</u>									
Plagioclase										
>5%							Analcime			
1-5%	<input checked="" type="checkbox"/>						Chabazite			
<1%							MgOH			
Rhombs							Silica			
Blades/laths	<input checked="" type="checkbox"/>						Amorphous			
mph	<input checked="" type="checkbox"/>						Chalcedony			
Comments								Crystals		
Augite %										
							Pyrite			
GROUNDMASS (original)										
Aphanitic	<input checked="" type="checkbox"/>						Epidote			
Feldspathic							Gypsum			
Diktytaxitic							Anhydrite			
CRITICAL FEATURES (description of units or features by number)										

4263

4270

4273

4274

4277

4280

ROUNDED CLASTS

⇒ pillows, arcular, olivine mph, ol-plag inters $\approx 1\%$; unalt.; plag mph, blades & laths $\approx 2\%$ in a gray aphan mtr. with small patches of dikty text.
Box is too fragmented to differentiate units.

CORE LOG
 BOX # 472 HOLE # 1 Sheet A
 Depth range 1305.4 to 1308.30 meters Depth range 4280 to 4289.5 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	✓	✓	✓				Olv → Clay ✓		
micro (<.5 mm)	✓	✓	✓				Iddingsite		
Aphyric							Plag → Clay		
Vesicles: %	✓	✓	✓				Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.		4280 - dull rounded cherts
1-5%	✓	✓	✓				Smectite ✓	UNIT 1	
<1%							Calcite		UNIT 2
Phenos mph	✓	✓	✓				Zeolite		
ol-plag							white fibrous		UNIT 3
Comments							green		
Plagioclase >5%							blue ✓		
1-5%	✓		✓				Analcime		
<1%		✓					Chabazite		
Rhombs							MgOH		
Blades/laths mph	✓	✓	✓				Silica		
Comments							Amorphous		
Augite %							Chalcedony		
GROUNDMASS (original)							Crystals		
Aphanitic							Pyrite		
Feldspathic	✓	✓	✓				Epidote		
Diktytaxitic							Gypsum		
							Anhydrite		
							Chalcopyrite		
							Limonite		
							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

1+3) Pillow, Pillow Fragments w/ 20% Olivine as phenocrysts, mph and 10% Plagioclase as laths, blades, micro laths in a dull gray, mildly feldspathic matrix.

2) Pillow, Fragments w/ 10% Olivine as phenocrysts, mph and <10% Plagioclase as laths and micro laths in a gray mildly feldspathic matrix

20 Minerals? SMECTITE, BLUE STAIN

CORE LOG

BOX # 473 HOLE # 1 Sheet A
 Depth range 1306.30 to 1311.35 meters Depth range 4289.5 to 4299.5 feet
 Logger's Name FT 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						SECONDARY FEATURES						COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements						
mega (>.5 mm)	✓	✓					Olv -> Clay						
micro (<.5 mm)	✓	✓					Iddingsite						
Aphyric							Plag -> Clay						
Vesicles: %							Zeolite						
Shape							Groundmass						
Size(x)							Chlorite						
							Smectite						
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.							
Olivine >5%							Smectite	✓					
1-5%	✓1	✓4					Calcite						
<1%							Zeolite						
Phenos	✓	✓					white fibrous						
mph	✓	✓					green						
ol-plag							blue	✓					
Comments							Analcime						
							Chabazite						
Plagioclase							MgOH						
>5%							Silica						
1-5%	✓2	✓3					Amorphous						
<1%							Chalcedony						
Rhombs		✓					Crystals						
Blades/laths	✓	✓					Pyrite						
mph	✓	✓					Epidote						
Comments							Gypsum						
							Anhydrite	✓					
Augite %							Chalcopyrite						
							Limonite						
GROUNDMASS (original)						Other (describe)							
Aphanitic							Hematite						
Feldspathic	✓	✓											
Diktytaxitic													

4296.5' : anhydrite = anhyd.
 RE 1/8/92

CRITICAL FEATURES (description of units or features by number)

- 1) Pillow Fragments bonded to dike's chill margin, Fragments contain 20% Plagioclase as blades, laths and microlaths all in a dull bluish gray mildly feldspathic matrix.
- 2) Dike w/ 4% Olivine phenocrysts, mph and 3% Plagioclase as Rhombs, blades, laths and microlaths in a lt gray feldspathic matrix

2° Minerals: SMECTITE, Blue Stain, Anhydrite

CORE LOG

BOX # 474 HOLE # 1 Sheet A
 Depth range 1311.04 to 1315.46 meters Depth range 4298.6 to 4313 feet
 Logger's Name EN Page 1
 Type of Sample: Flow Intrusive 1 Ash Breccia Red Bed
 Number of Units in Box Clk/Rubble Carbonate Pillow/Hyaloclast 2,3
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓	✓				Olv → Clay	
micro (<.5 mm)	✓	✓	✓				Iddingsite	
Aphyric							Plag → Clay	
Vesicles: %							Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine >5%							Smectite ✓	
Olivine 1-5%	1	1	1				Calcite	
Olivine <1%							Zeolite	
Phenos mph	✓	✓	✓				white fibrous	
ol-plag	✓	✓	✓				green	
Comments	<u>unalt</u>						Analcm	
							Chabazite	
Plagioclase >5%							MgOH	
Plagioclase 1-5%	5	2	2				Silica	
Plagioclase <1%							Amorphous	
Rhombs	✓						Chalcedony	
Blades/laths mph	✓	✓	✓				Crystals	
Comments							Pyrite	
Augite %							Epidote	
							Gypsum	
GROUNDMASS (original)							Anhydrite	
Aphanitic	✓	✓	✓				Chalcopyrite	
Feldspathic							Limonite	
Diktytaxitic							Hematite	
							Other (describe)	
							<u>blue mineral</u>	

CRITICAL FEATURES (description of units or features by number)

- 1) dike, anisoclastic, olivine mph, ol-plag inters Σ 1%, unalt.; plag rhombs, blades & laths, mph Σ 5% in a dk. gray aphan mtr.
- 2) pillow, anisoclastic, olivine mph, ol-plag inters Σ 1%, unalt.; plag blades & laths; mph Σ 2% in a gray aphan mtr.
- 3) pillow, lith as above.

CORE LOG

BOX # 475 HOLE # 1 Sheet A
 Depth range 1318.46 to 1318.51 meters Depth range 4313 to 4323 feet
 Logger's Name EN 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay		
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %	<input checked="" type="checkbox"/>						Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
							Fracture		
							Vesicle		
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.		
Olivine >5%							Smectite	<input checked="" type="checkbox"/>	
1-5%	<input checked="" type="checkbox"/>						Calcite		
<1%							Zeolite		
Phenos							white fibrous		
mph	<input checked="" type="checkbox"/>						green		
ol-plag	<input checked="" type="checkbox"/>						blue		
Comments	<u>unalt</u>								
Plagioclase							Analcime		
>5%							Chabazite		
1-5%	<input checked="" type="checkbox"/>						MgOH		
<1%							Silica		
Rhombs	<input checked="" type="checkbox"/>						Amorphous		
Blades/laths	<input checked="" type="checkbox"/>						Chalcedony		
mph	<input checked="" type="checkbox"/>						Crystals		
Comments									
Augite							Pyrite		
							Epidote		
GROUNDMASS (original)									
Aphanitic	<input checked="" type="checkbox"/>						Gypsum		
Feldspathic							Anhydrite		
Diktytaxitic							Chalcopyrite		
							Limonite		
							Hematite		
							Other (describe)	<u>blue vesice</u>	

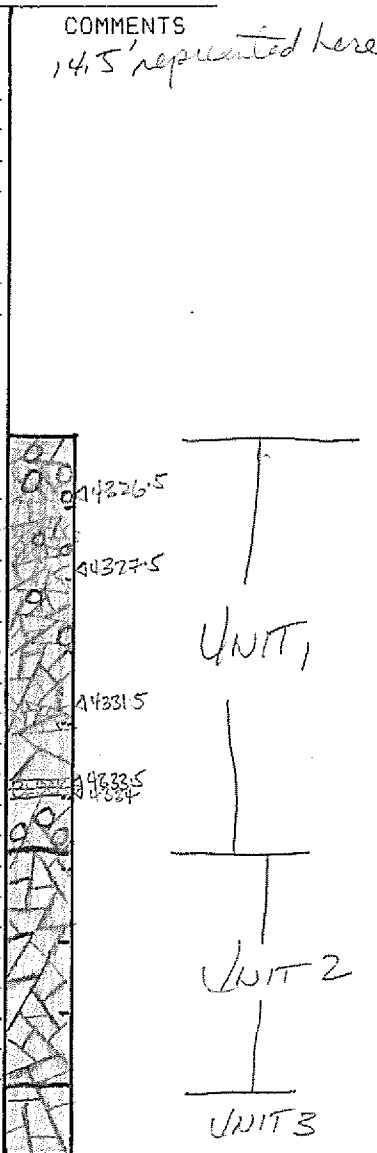
CRITICAL FEATURES (description of units or features by number)

1) pillow, aeniscular, olivine mph, ol-plag intus $\approx 1\%$, unalt.; plag mph, blades & laths $\approx 2\%$ in a gray aphan mtr. Small patches of dikty text.

CORE LOG
 BOX # 476 ⁹⁴ HOLE # 1 Sheet A
 Depth range 1318 to 1323.40 meters Depth range 4324.5 to 4339 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive 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 >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 fibrous	
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- Pillow/Fragments w/ 29% Olivine as phenocrysts, mph and 21% Plagioclase as laths, micro laths in a dull gray feldspathic matrix.
 - Pillow/Fragments w/ 4% Plagioclase as Rhombs, blades, laths and micro laths and Olivine at 19% as phenocrysts, mph in a lt gray - bluish gray feldspathic matrix.
- 2^o Minerals: SMECTITE, Blue Stain, Clay (Alt. olv)

CORE LOG

BOX # 477

HOLE # 1

Sheet A

Depth range 1323.37 to 1329.19 meters

Depth range 4339 to 4358 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			14' lost core
mega (>.5 mm)	✓	✓					Olv -> Clay			
micro (<.5 mm)	✓	✓					Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.		4339	
1-5%	1	1					Smectite	✓		
<1%							Calcite			
Phenos							Zeolite			
mph	✓	✓					white fibrous			
ol-plag	✓	✓					green			
Comments	<u>unalt</u>									4345
Plagioclase										4349
>5%							MgOH			pillow #1
1-5%	2	2					Silica			
<1%							Amorphous			
Rhombs							Chalcedony			
Blades/laths	✓	✓					Crystals			4351.5
mph	✓	✓					Pyrite			
Comments										
Augite %										4355
GROUNDMASS (original)										pillow #2
Aphanitic	✓	✓					Chalcopryrite			
Feldspathic							Limonite			
Diktytaxitic							Hematite			
							Other (describe)			<u>blue mepca</u>

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, anhedral, olivine mph, ol-plag intas $\approx 1\%$, unalt; plag rhombs, blades & laths $\approx 2\%$ in a gray aphan mtx
- 2) pillow, lith. as above

CORE LOG

BOX # 478

HOLE # 1

Sheet A

Depth range 1329.19 to 1333.76 meters

Depth range 4358 to 4373 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		core 4364 to 4369'
mega (>.5 mm)	✓	✓	✓				Olv -> Clay _____		
micro (<.5 mm)	✓	✓	✓				Iddingsite _____		
Aphyric							Plag -> Clay _____		
							Zeolite _____		
Vesicles: %							Groundmass		
Shape							Chlorite _____		
Size(x)							Smectite _____		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.		
1-5%	1	1					Smectite <u>1, 2, 3</u>	4358	
<1%							Calcite _____	4360	
Phenos							Zeolite _____	pillow #1	
mph	✓	✓					white fibrous <u>3</u>		
ol-plag	✓	✓					green _____		
Comments	<u>unalt</u>							blue _____	4362
Plagioclase							Analcime _____	4363.5	
>5%							Chabazite _____	4364	
1-5%	2	2					MgOH _____	pillow #2	
<1%							Silica _____		
Rhombs	✓	✓	✓				Amorphous _____		
Blades/laths	✓	✓	✓				Chalcedony _____	4369	
mph	✓	✓					Crystals _____	dike #3	
Comments									
Augite %							Pyrite <u>3</u>		
GROUNDMASS (original)									
Aphanitic	✓	✓					Epidote _____		
Feldspathic			✓				Gypsum _____		
Diktytaxitic							Anhydrite _____		
							Chalcopyrite _____		
							Limonite _____		
							Hematite _____		
							Other (describe)		
							<u>blue veins 1-3</u>		

CRITICAL FEATURES (description of units or features by number)

4373

- 1) pillow, anvesicular, olivine mph, ol-plag intus Σ 1% unalt.; plag mph, blades & laths Σ 2% in a gray aphan mtr.
- 2) pillow, lith as above
- 3) dike, anvesicular, plag rhombs, blades & laths Σ < 1% in a lt. gray felds. mtr.

ROUNDED CLASTS

CORE LOG
 BOX # 479 HOLE # 1 Sheet A
 Depth range 1333.77 to 1336.51 meters Depth range 4373 to 4382 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	9' here
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay <u> </u>	
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
							Zeolite <u> </u>	
Vesicles: %	<1						Groundmass	PYRITE
Shape	<u>R</u>						Chlorite <u> </u>	
Size(x)	<1						Smectite <u> </u>	
PHENOCRYSTS (Original mineralogy)								
Olivine >5%							Fracture	Vesicle
1-5%								
<1%	<input checked="" type="checkbox"/>						Secondary/Alteration Min.	
Phenos mph							Smectite <input checked="" type="checkbox"/>	
ol-plag							Calcite <input checked="" type="checkbox"/>	
Comments							Zeolite <u> </u>	
							white fibrous	
Plagioclase							green	
>5%							blue <input checked="" type="checkbox"/>	
1-5%	<u>2</u>						Analcime <u> </u>	
<1%							Chabazite <u> </u>	
Rhombs	<input checked="" type="checkbox"/>						MgOH <u> </u>	
Blades/laths mph	<input checked="" type="checkbox"/>						Silica <u> </u>	
Comments							Amorphous <u> </u>	
							Chalcedony <u> </u>	
Augite % <1							Crystals <u> </u>	
							Pyrite <input checked="" type="checkbox"/>	
GROUNDMASS (original)							Epidote <u> </u>	
Aphanitic							Gypsum <u> </u>	
Feldspathic	<input checked="" type="checkbox"/>						Anhydrite <input checked="" type="checkbox"/>	
Diktytaxitic							Chalcopyrite <u> </u>	
							Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe) <u> </u>	

CRITICAL FEATURES (description of units or features by number)

1) Dike, microvesicular w/ 2% Plagioclase as phenocrysts, blade, lath and microlaths, Olivine present at <1% as Phenocrysts mph. Rare CPX found as phenocrysts all in a lt gray, well crystallized feldspathic matrix

2) Minerals: PYRITE, SMECTITE, BLUE STAIN, ANHYDRITE, CALCITE

CORE LOG

BOX # 480

HOLE # 1

Sheet A

Depth range 1336.5 to 1339.4 meters

Depth range 4382 to 4391.5 feet

Logger's Name FN

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							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements				
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay				
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite				
Aphyric							Plag -> Clay				
							Zeolite				
Vesicles: %	<input checked="" type="checkbox"/>						Groundmass				
Shape							Chlorite				
Size(x)							Smectite				
PHENOCRYSTS (Original mineralogy)											
Olivine >5%							Fracture	Vesicle	Secondary/Alteration Min.		
1-5%										Smectite	<input checked="" type="checkbox"/>
<1%							Calcite	<input checked="" type="checkbox"/>			
Phenos							Zeolite				
mph							white fibrous				
ol-plag							green				
Comments								blue			
Plagioclase							Analcime				
>5%							Chabazite				
1-5%	<input checked="" type="checkbox"/>						MgOH				
<1%							Silica				
Rhombs	<input checked="" type="checkbox"/>						Amorphous				
Blades/laths	<input checked="" type="checkbox"/>						Chalcedony				
mph	<input checked="" type="checkbox"/>						Crystals				
Comments								Pyrite	<input checked="" type="checkbox"/>		
Augite %							Epidote	<input checked="" type="checkbox"/>			
GROUNDMASS (original)								Gypsum	<input checked="" type="checkbox"/>		
Aphanitic							Anhydrite				
Feldspathic	<input checked="" type="checkbox"/>						Chalcopyrite				
Diktytaxitic							Limonite				
							Hematite				
							Other (describe)				

4382

dike #1

4387

4391.5

CRITICAL FEATURES (description of units or features by number)

1) dike, anvesicular, plag rhombs, blades & laths
 & 2% in a lt. gray felds mtr.

BOX # 481

CORE LOG

HOLE # 1

Sheet A

Depth range 1339.41 to 1342 meters

Depth range 4391.5 to 4400 feet

Logger's Name FT

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	8.5' Core
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay <input checked="" type="checkbox"/>	
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite	
Aphyric							Plag -> Clay	
Vesicles: %	<1						Zeolite	
Shape							Groundmass	
Size(x)	<1						Chlorite	
							Smectite	
PHENOCRYSTS (Original mineralogy)							Fracture	
Olivine >5%							Vesicle	
1-5%							Secondary/Alteration Min.	
<1% <input checked="" type="checkbox"/>							Smectite <input checked="" type="checkbox"/>	
Phenos	<input checked="" type="checkbox"/>						Calcite <input checked="" type="checkbox"/>	
mph	<input checked="" type="checkbox"/>						Zeolite	
ol-plag							white fibrous	
Comments							green	443935
							blue <input checked="" type="checkbox"/>	
Plagioclase							Analcime	
>5%							Chabazite	
1-5% <input checked="" type="checkbox"/>							MgOH	
<1%							Silica	
Rhombs							Amorphous	
Blades/laths	<input checked="" type="checkbox"/>						Chalcedony	
mph	<input checked="" type="checkbox"/>						Crystals	
Comments							Pyrite	
Augite %							Epidote	
							Gypsum <input checked="" type="checkbox"/>	
GROUNDMASS (original)							Anhydrite <input checked="" type="checkbox"/>	
Aphanitic							Chalcopyrite	
Feldspathic							Limonite	
Diktytaxitic <input checked="" type="checkbox"/>							Hematite	
							Other (describe)	

CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 3% Plagioclase as laths, blades and microlaths and
 <1% Olivine as phenocrysts, mph in a well
 crystallized, bl gray feldspathic + occasionally
 Mottled diktytaxitic matrix

2° Minerals: Pyrite, SMECTITE, BLUE STAIN, CALCITE
 GYPSUM/ANHYDRITE

CORE LOG

BOX # 482

HOLE # 1

Sheet A

Depth range 1342.00 to 1345.35 meters

Depth range 4400 to 4411 feet

Logger's Name EN

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	1' lost core
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay	
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite	
Aphyric							Plag -> Clay	
Vesicles: %	<input checked="" type="checkbox"/>						Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine >5%							Smectite <input checked="" type="checkbox"/>	4400 } dike #1 4404 4407.5 4410.5 4411
Olivine 1-5%							Calcite	
Olivine <1%	<input checked="" type="checkbox"/>						Zeolite	
Phenos mph	<input checked="" type="checkbox"/>						white fibrous	
ol-plag	<input checked="" type="checkbox"/>						green	
Comments							blue	
							Analcime	
Plagioclase >5%							Chabazite	
Plagioclase 1-5%	<u>2</u>						MgOH	
Plagioclase <1%							Silica	
Rhombs	<input checked="" type="checkbox"/>						Amorphous	
Blades/laths mph	<input checked="" type="checkbox"/>						Chalcedony	
Blades/laths mph	<input checked="" type="checkbox"/>						Crystals	
Comments							Pyrite <input checked="" type="checkbox"/>	
Augite %							Epidote	
							Gypsum	
GROUNDMASS (original)							Anhydrite <input checked="" type="checkbox"/>	
Aphanitic	<input checked="" type="checkbox"/>						Chalcopyrite	
Feldspathic							Limonite	
Diktytaxitic							Hematite	
							Other (describe)	
							<u>blue resin</u>	

CRITICAL FEATURES (description of units or features by number)

1) dike, anhedral, plag rhombs, blades & laths increase from <1% to 4% downward thru box. Olivine mph, ol-plag intas <1%, unalt.; texture changes from aphan. to somewhat dikty downward, color lt. gray to gray.

from

CORE LOG

BOX # 483

HOLE # 1

Sheet A

Depth range 1345.35 to 1346.71 meters

Depth range 4411 to 4420 feet

Logger's Name EAJ

Page 1

Type of Sample: Flow 3 Intrusive 12.4 Ash _____ Breccia _____ Red Bed _____

Number of Units in Box 4 Clk/Rubble _____ Carbonate _____ Pillow/Hyaloclast _____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	✓	✓	✓	✓			Div -> Clay _____		
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite _____		
Aphyric							Plag -> Clay _____		
							Zeolite _____		
Vesicles: %	-	-	10	-			Groundmass		
Shape			R				Chlorite _____		
Size(x)			>1mm				Smectite _____		
PHENOCRYSTS (Original mineralogy)									
Olivine >5%							Secondary/Alteration Min.	Fracture	Vesicle
1-5%									
<1%	✓	✓	✓	✓			Smectite	✓	
Phenos							Calcite	✓	
mph	✓	✓	✓	✓			Zeolite		
ol-plag	✓	✓	✓	✓			white fibrous		
Comments	<u>unalt</u>						green		
Plagioclase							blue		
>5%							Analcime		
1-5%	4	2		2			Chabazite		
<1%			✓				MgOH		
Rhombs	✓	✓	✓	✓			Silica		
Blades/laths	✓	✓	✓	✓			Amorphous		
mph	✓	✓	✓	✓			Chalcedony		
Comments							Crystals		
Augite							Pyrite	✓	
							Epidote		
GROUNDMASS (original)							Gypsum		
Aphanitic	✓	✓	✓	✓			Anhydrite	✓	
Feldspathic							Chalcopyrite		
Diktytaxitic							Limonite		
							Hematite		
							Other (describe)		
									<u>blue mesh</u>

CRITICAL FEATURES (description of units or features by number)

- 1) dike, anhedral, olivine mph, ol-plag intus $\Sigma < 1\%$ plag rhombs, blades & laths $\Sigma 4\%$ in a dk gray aphan mtx. Contact shows brecciated tan glass.
- 2) dike, anhedral, olivine mph, ol-plag intus $\Sigma < 1\%$ plag rhombs, blades & laths $\Sigma 2\%$ in a lt gray aphan mtx.
- 3) vesicular unit, ves. 10%, <1mm; plag & olivine phenos $\Sigma < 1\%$ in a gray aphan. mtx.

4) dike, lith as in unit #2

1-483

BOX # 484 CORE LOG HOLE # 1 Sheet A
 Depth range 1348.1 to 1350.25 meters Depth range 4420 to 4429 feet
 Logger's Name FT Page 1
 Type of Sample: Flow 4-6 Intrusive _____ Ash _____ Breccia _____ Red Bed _____
 Number of Units in Box 6 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: %	-	-	-	15	15	15
Shape				R-9	R-9	R-50
Size(x)				1	1	1
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%				✓	✓	✓
<1%	✓	✓	✓			
Phenos mph	✓	✓	✓	✓	✓	✓
ol-plag						
Comments						
PLAGIOCLASE						
>5%						
1-5%	3	3	3	3	3	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	
Fracture	
Vesicle	
Secondary/Alteration Min.	
Smectite	✓
Calcite	✓
Zeolite	
white fibrous	
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	✓
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

9' core

Units 4-6 are phh-like or vesicular Pillow unseen B4.

UNIT 1

UNIT 2

UNIT 3

UNIT 4

UNIT 5

UNIT 6

4420.5

4421

4423

4425

4429 - NO CORE

CRITICAL FEATURES (description of units or features by number)

1-3) Pillow/Fragments w/ 3% Plagioclase as Rhombs, blades, laths and microlaths and <1% Olivine as Phenocrysts, mph in a charcoal gray feldspathic matrix.

4-6) phh/Vesicular Pillows (15%) w/ 3% Plagioclase as beautiful microlaths and lesser blades and laths, Olivine at 1% as phenocrysts mph found all in a lt gray feldspathic matrix.

2° MINERALS: SMECTITE, BLUE STAIN, ANHYDRITE, CALCITE, GYPSUM

CORE LOG

BOX # 445

HOLE # 1

Sheet A

Depth range 1350.84 to 1353.74 meters

Depth range 4429 to 4438.5 feet

Logger's Name EN

Page 1

Type of Sample: Flow 1 Intrusive _____ Ash _____ Breccia _____ Red Bed _____

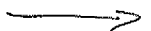
Number of Units in Box 3 Clk/Rubble _____ Carbonate _____ Pillow/Hyaloclast 2,3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓	✓					Olv -> Clay #1			
micro (<.5 mm)	✓	✓					Iddingsite			
clasts	→						Plag -> Clay			
Aphyric							Zeolite			
Vesicles: %	15	10	-				Groundmass			
Shape	R	R					Chlorite			
Size(x) /mm <1mm							Smectite #1,2			
PHENOCRYSTS (Original mineralogy)							Fracture			
Olivine >5%							Vesicle			
1-5%	1						Secondary/Alteration Min.			
<1%							Smectite 3			
Phenos							Calcite			
mph	✓						Zeolite			
ol-plag	✓						white fibrous			
Comments							green			
Plagioclase							blue			
>5%	7						Analcime			
1-5%							Chabazite			
<1%	✓						MgOH			
Rhombs		✓					Silica			
Blades/laths	✓	✓					Amorphous			
mph	✓	✓					Chalcedony			
Comments	#2 clasts						Crystals			
Augite %							Pyrite			
GROUNDMASS (original)							Epidote			
Aphanitic	✓	-	-				Gypsum			
Feldspathic							Anhydrite 1			
Diktytaxitic							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

- resicular unit, ves 15%, 1mm; olivine mph. ol-plag inters & 1% alt to clay, plag blades & laths & <1% in a gray ground mass altered to smectite, 50% of vesicles filled with anhydrite
- hyaloclastite, clasts resicular, 10% < 1mm; with plag blades & laths & 7% in a matrix of black volcanic sand cemented (by clay?) into a competent unit.



3) hyaloclastite, clasts angular, averaging 1.5 cm
tan volcanic glass or basalt in a clast supported
matrix of black volcanic glass sand cemented
into a competent unit.

1-485

CORE LOG
 BOX # 486 HOLE # 1 Sheet A
 Depth range 1353.74 to 1357.25 meters Depth range 4438.5 to 4450 feet
 Logger's Name FT Page 1
 Type of Sample: Flow 1 Intrusive 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: %	15	-	-	-		
Shape	SL-SP					
Size(x)	<1					
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%		✓3	✓1	✓1		
<1%	✓1					
Phenos mph	✓	✓	✓	✓		
ol-plag						
Comments <u> </u>						
Plagioclase						
>5%						
1-5%			✓1	✓1		
<1%	✓	✓				
Rhombs						
Blades/laths mph	✓	✓	✓	✓		
Comments <u> </u>						
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 fibrous	
green	
blue	✓
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

11.5 represented here

Unit 1 could be a res. Dike

Unit 2 Maybe Chilled Margin of Unit 1

UNIT 1

UNIT 2

UNIT 3

UNIT 4

CRITICAL FEATURES (description of units or features by number)

- 1) Vesicular flow, phh w/ <1% Olivine phenocrysts, mph and <<1% Plagioclase as blades and microlaths in a bl gray feldspathic matrix.
- 2) Hyaloclastite w/ 3% Olivine as phenocrysts, mph and <1% Plagioclase as laths, microlaths in a dull bluish gray matrix.
- 3) Pillow w/ 1% Olivine as phenocrysts, mph and 1% Plagioclase as laths, microlaths in a bluish gray feldspathic
- 4) 2° Minerals = SMECTITE, Blue STAIN, PYRITE, Anhydrite

CORE LOG
 BOX # 487 HOLE # 1 Sheet A
 Depth range 1357.25 to 1360.30 meters Depth range 4450 to 4460 feet
 Logger's Name EN Page 1
 Type of Sample: Flow Intrusive 2 Ash Breccia Red Bed
 Number of Units in Box 4 Clk/Rubble Carbonate Pillow/Hyaloclast 1,3,4
 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		1	1		
<1%						
Phenos mph	✓		✓	✓		
ol-plag	✓		✓	✓		

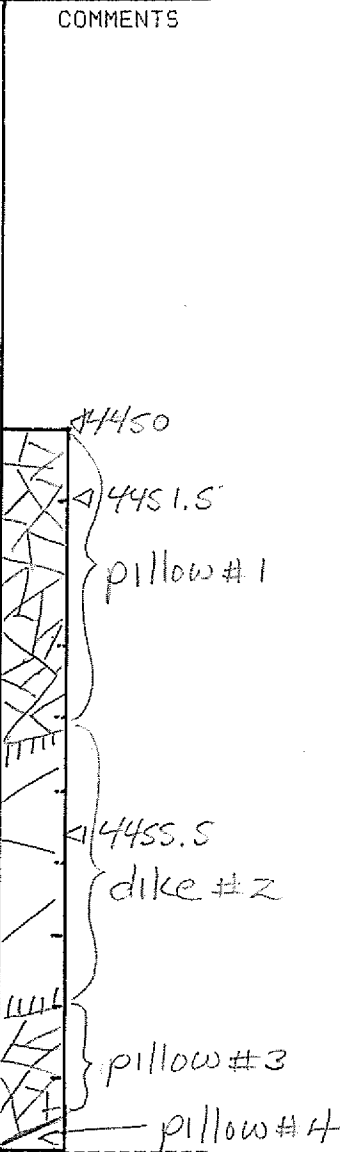
Comments alt to clay

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

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

SECONDARY FEATURES	
Phenocryst replacements	
Olv -> Clay	#1
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	#1,3,4

Secondary/Alteration Min.	
Smectite	✓
Calcite	
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	3&4
Anhydrite	2
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

4460

- 1) pillow, aresicular, olivine mph, ol-plag inters \approx 1% in a dk gray ground mass altered to smectite
- 2) dike, aresicular, plag rhombs, blades & laths \approx 2% in a lt. gray slightly dikty. mtr.
- 3) pillow, lth as in #1
- 4) pillow, aresicular, plag rhomb, blades & laths \approx 4% in a dk gray groundmass altered to smectite.

CORE LOG
 BOX # 488 HOLE # 1 Sheet A
 Depth range 1360³ to 1363⁰⁵ meters Depth range 4460 to 4469 feet
 Logger's Name FT Page 1
 Type of Sample: Flow _____ Intrusive 3 Ash _____ Breccia _____ Red Bed _____
 Number of Units in Box 4 Clk/Rubble _____ Carbonate _____ Pillow/Hyaloclast 1,2,4
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓	✓	✓			Olv -> Clay ✓	
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite _____	
Aphyric							Plag -> Clay _____	
Vesicles: %	-	-	<1	-			Zeolite _____	
Shape			circle				Groundmass	
Size(x)			<1				Chlorite _____	
PHENOCRYSTS (Original mineralogy)								
Olivine >5%							Fracture	
1-5%	✓	✓	✓	✓			Vesicle	
<1%							Secondary/Alteration Min.	
Phenos mph	✓	✓	✓	✓			Smeclite ✓	
ol-plag							Calcite _____	
Comments								
Plagioclase								
>5%							Zeolite _____	
1-5%							white fibrous	
<1%	✓	✓	✓	✓			green	
Rhombs		✓	✓	✓			blue ✓	
Blades/laths mph	✓	✓	✓	✓			Analcime _____	
Comments								
Augite								
%							Chabazite _____	
GROUNDMASS (original)								
Aphanitic							MgOH _____	
Feldspathic	✓	✓		✓			Silica _____	
Diktytaxitic							Amorphous _____	
							Chalcedony _____	
							Crystals _____	
							Pyrite ✓	
							Epidote _____	
							Gypsum _____	
							Anhydrite ✓	
							Chalcopyrite _____	
							Limonite _____	
							Hematite _____	
							Other (describe) _____	

CRITICAL FEATURES (description of units or features by number)

- 1) Pillow/Fragment w/ 30% Olivine microphenocrysts and rare phenocrysts and <1% microlaths in a bluish gray feldspathic matrix.
- 2) Pillow/Fragments w/ 50% Olivine phenocrysts, mph and <1% Plagioclase as microlaths w/ rare blades and Rhombs in a bl. gray feldspathic matrix.
- 3) Dike w/ 5% Olivine phenocrysts, mph and <1% Plagioclase as blades, laths and microlaths in a gray feldspathic matrix.
 70% Nucleus: Smeclite, Blue Stain, Pyrite, ANHYDRITE

CORE LOG

BOX # 489

HOLE # 1

Sheet A

Depth range 1363.04 to 1366.09 meters

Depth range 4469 to 4479 feet

Logger's Name EN

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							SECONDARY FEATURES			COMMENTS		
Phyric	1	2	3	4	5	6	Phenocryst replacements					
mega (>.5 mm)	✓	✓					Olv -> Clay					
micro (<.5 mm)	✓	✓					Iddingsite					
Aphyric							Plag -> Clay					
							Zeolite					
Vesicles: %	10	-					Groundmass					
Shape	R						Chlorite					
Size(x)	<1mm						Smectite	#1				
PHENOCRYSTS (Original mineralogy)							Fracture Vesicle	Secondary/Alteration Min.				
Olivine >5%								Smectite	1		4469	
1-5%	3							Calcite			44470	
<1%		✓						Zeolite			pillow #1	
Phenos	✓	✓						white fibrous				
mph	✓	✓						green				
ol-plag	✓	✓						blue			44472	
Comments									Analcime			44473
Plagioclase								Chabazite				
>5%								MgOH				44474.5
1-5%	2						Silica					
<1%		✓					Amorphous					
Rhombs	✓	✓					Chalcedony					
Blades/laths	✓	✓					Crystals					
mph	✓	✓					Pyrite	2			dike #2	
Comments							Epидote					
Augite %							Gypsum					
GROUNDMASS (original)							Anhydrite	2				
Aphanitic							Chalcopyrite					
Feldspathic							Limonite					
Diktytaxitic	✓	✓					Hematite					
							Other (describe)					

CRITICAL FEATURES (description of units or features by number)

4479

- pillow, micromesicular, 10%, <1mm; olivine phenos mph, ol-plag inters \approx 3%, some alt. to clay; plag rhombs, blades & laths \approx 2%, in a dk gray ground mass altered to smectite.
- dike, anisicular, plag & olivine phenos \approx <1% in a lt. gray dikty mty.

CORE LOG

BOX # 490

HOLE # 1

Sheet A

Depth range 1366.07 to 1368.24 meters

Depth range 4479 to 4488 feet

Logger's Name GN

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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay <input checked="" type="checkbox"/>		
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite <u> </u>		
Aphyric							Plag -> Clay <u> </u>		
							Zeolite <u> </u>		
Vesicles: %	<input checked="" type="checkbox"/>						Groundmass		
Shape							Chlorite <u> </u>		
Size(x)							Smectite <u> </u>		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.		4479
1-5%							Smectite <u> </u>		4479.5
<1%	<input checked="" type="checkbox"/>						Calcite <u> </u>		} dike #1
Phenos	<input checked="" type="checkbox"/>						Zeolite <u> </u>		
mph	<input checked="" type="checkbox"/>						white fibrous <u> </u>		
ol-plag	<input checked="" type="checkbox"/>						green <u> </u>		
Comments							blue <u> </u>		
Plagioclase							Analcime <u> </u>		
>5%							Chabazite <u> </u>		
1-5%							MgOH <u> </u>		
<1%	<input checked="" type="checkbox"/>						Silica		
Rhombs	<input checked="" type="checkbox"/>						Amorphous <u> </u>		
Blades/laths	<input checked="" type="checkbox"/>						Chalcedony <u> </u>		
mph	<input checked="" type="checkbox"/>						Crystals <u> </u>		
Comments							Pyrite <input checked="" type="checkbox"/>		
Augite %							Epidote <u> </u>		
GROUNDMASS (original)									
Aphanitic							Gypsum <u> </u>		
Feldspathic							Anhydrite <input checked="" type="checkbox"/>		
Diktytaxitic	<input checked="" type="checkbox"/>						Chalcopryrite <u> </u>		
							Limonite <u> </u>		
							Hematite <u> </u>		
							Other (describe) <u> </u>		

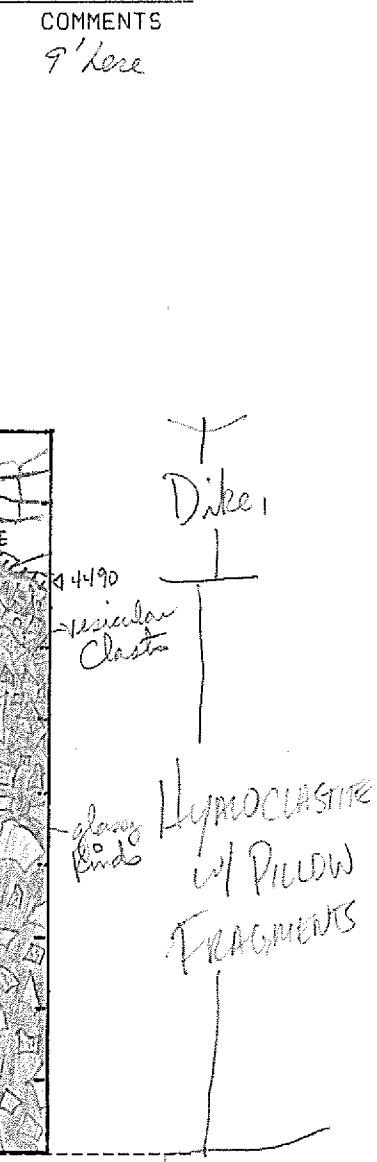
CRITICAL FEATURES (description of units or features by number)

1) dike, amucular, plag & olivine phenos \leq 1%, some olivine alt to blk. clay, in a lt. gray somewhat dikty mtr. 42cm patch of vesicularity (8%, 1mm) 50cm down in box. Phenos increase to \leq 3% last 30cm of box.

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: %	—	30	—			
Shape		SR				
Size(x)		<1				
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%			3-5			
<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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- 1) Dike w/ ^{MICROVESICULAR} <1% Olivine as phenocrysts, mph and <1% Plagioclase as laths, micro laths in a light gray feldspathic groundmass.
 - 2) Hyaloclastite w/ Pillow Fragments, some vesicular. Vesicular clasts have 1% Plagioclase as lath, abundant micro laths and <1% olivine mph in a light gray feldspathic matrix. Dense clasts w/ 3-5% Olivine microphenocrysts, phenocrysts and 1% Plagioclase micro laths in a bluish gray feldspathic matrix.
- 2^o MINERALSO: SMECTITE, CALCITE, PYRITE, ANHYDRITE

CORE LOG

BOX # 492

HOLE # 1

Sheet A

Depth range 1371.56 to 1374.63 meters

Depth range 4497 to 4507 feet

Logger's Name EN

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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		4504': "zeolite" = clay, vermiculite. F. fill? RE. 1/8/92.
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay		
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite		
Aphyric							Plag -> Clay		
							Zeolite		
Vesicles: %							Groundmass		
Shape							Chlorite		
Size(x)							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.		
1-5%	<input checked="" type="checkbox"/>						Smectite		
<1%							Calcite		
Phenos mph	<input checked="" type="checkbox"/>						Zeolite		
ol-plag							white fibrous		
Comments								green	
Plagioclase >5%							blue		
1-5%							Analcime		
<1%							Chabazite		
Rhombs							MgOH		
Blades/laths mph							Silica		
Comments								Amorphous	
Augite %							Chalcedony		
							Crystals		
GROUNDMASS (original)								Pyrite	
Aphanitic	<input checked="" type="checkbox"/>						Epidote		
Feldspathic							Gypsum		
Diktytaxitic							Anhydrite	<input checked="" type="checkbox"/>	
							Chalcopyrite		
							Limonite		
							Hematite		
							Other (describe)		

clasts

bottle



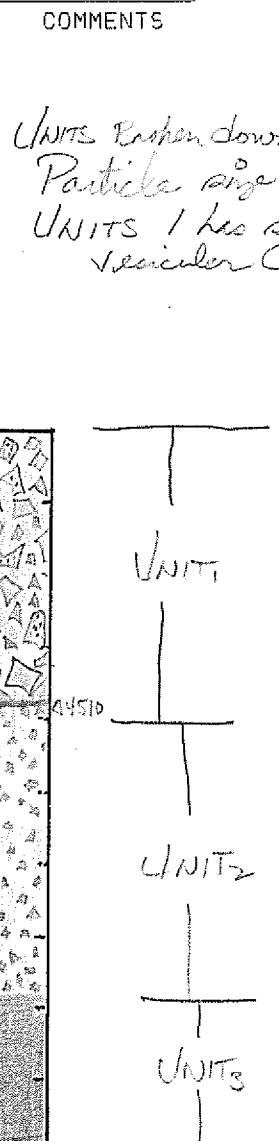
CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, matrix supported, clasts: 90% aresicular 50% with tan quenched chill rind, 10% with olivine mph alt. to blk. clay. Matrix is blk volcanic glass sand, clay cement. Anhydrite & pale green zeolite as amygdules and infilling small voids.

BOX # 493 CORE LOG
 Depth range 1374.64 to 1377.69 meters HOLE # 1 Sheet A
 Depth range 4507 to 4517 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive Ash 3 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						
	1	2	3	4	5	6
Phyric						
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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	✓
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

UNITS 1-3 are related, but differ in grain size.

UNIT 1 - Hyaloclastite + Pillow Fragments w/ 2% Olivine phenocrysts mph and rare plagioclase laths, micro laths in a bluish gray matrix.

UNIT 2 - Intermediate (<1cm) glass rapidly quenched glossy fragments w/ 20% Olivine phenocrysts, mph in an aphanitic matrix

UNIT 3 - OD green fine grained (<1mm) Volcaniclastic.
 2° MINERALS & SMECTITE, A-OTZ, ANHYDRITE, CALCITE

CORE LOG

BOX # 494

HOLE # 1

Sheet A

Depth range 1377.68 to 1380.12 meters

Depth range 4517 to 4525 feet

Logger's Name EN

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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)							Olv -> Clay			
micro(<.5 mm)							Iddingsite			
Aphyric	<input checked="" type="checkbox"/>						Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.			
1-5%							Smectite			
<1%							Calcite			
Phenos mph							Zeolite			
ol-plag							white fibrous			
Comments										
Plagioclase >5%							green			
1-5%							blue			
<1%							Analcime			
Rhombs							Chabazite			
Blades/laths mph							MgOH			
Comments										
Augite %							Silica			
GROUNDMASS (original)										
Aphanitic	<input checked="" type="checkbox"/>						Amorphous			
Feldspathic							Chalcedony			
Diktytaxitic							Crystals			
							Pyrite			
							Epidote			
							Gypsum			
							Anhydrite <input checked="" type="checkbox"/>			
							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, silt size ^{black} volcanic glass particles baked into a competent unit. Fractures have cherty habit. Size of particles decreases thru box, fine banding visible last 10cm of box. Anhydrite in shear fracture.

CORE LOG
 BOX # 495 ¹³ HOLE # 1 Sheet A
 Depth range 1380 to 1382.72 meters Depth range 4525 to 4533.5 feet
 Logger's Name FT Page 1
 Type of Sample: Flow Intrusive 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			8,5' here
mega (>.5 mm)		✓					Olv -> Clay			
micro (<.5 mm)		✓					Iddingsite			
Aphyric	✓		✓				Plag -> Clay			
Vesicles: %	-		-				Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%		✓					Smectite	✓		
<1%							Calcite	✓		
Phenos mph		✓					Zeolite			
ol-plag							white fibrous			
Comments								green		
							blue			
Plagioclase							Analcime			
>5%							Chabazite			
1-5%							MgOH			
<1%		✓					Silica			
Rhombs							Amorphous	✓		
Blades/laths mph		✓					Chalcedony			
Comments								Crystals		
							Pyrite			
Augite %							Epidote			
							Gypsum			
GROUNDMASS (original)							Anhydrite	✓		
Aphanitic	✓		✓				Chalcopyrite			
Feldspathic							Limonite			
Diktytaxitic							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

1+3) OD green + Black, volcanoclastic, fine grained <1mm. The black regions appear to be less altered/metamorphosed

2) Hyalo clastite w/ clasts up to 3cm, some are vesicular.

Olivine is present @ 3% as phenocrysts, mph in a glassy/alterred volcanoclastic matrix OD green in color. Some of the clasts are still glassy.

2° MINERALS: SMECTITE, A-QTZ, Calcite, ANHYDRITE?

CORE LOG

BOX # 496

HOLE # 1

Sheet A

Depth range 1382.70 to 1385.31 meters

Depth range 4533.5 to 4542 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)							Olv -> Clay			
micro (<.5 mm)		✓					Iddingsite			
Aphyric		✓					Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.			
1-5%		3					Smectite	4533.5		
<1%							Calcite	4534		
Phenos mph		✓					Zeolite			
ol-plag							white fibrous			
Comments								green		
							blue			
Plagioclase								Analcime		
>5%							Chabazite			
1-5%							MgOH			
<1%							Silica			
Rhombs							Amorphous			
Blades/laths mph							Chalcedony			
Comments								Crystals		
							Pyrite			
Augite %								Epidote		
							Gypsum			
GROUNDMASS (original)								Anhydrite <u>1,2</u>		
Aphanitic	✓						Chalcopryrite			
Feldspathic							Limonite			
Diktytaxitic							Hematite			
							Other (describe)	4542		

CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, silt size blk volcanic glass particles baked into a competent unit. Fractures have cherty habit.

2) hyaloclastite, matrix supported, clasts av. 1cm, angular, 80% with tan quenched chill rind, olivine mph 3% in gray aphan mrx. Matrix is black volcanic glass sand indurated to a competent unit. (clast size increases downward thru box)

BOX # 497 CORE LOG HOLE # 1 Sheet A
 Depth range 1385³¹ to 1388⁰⁶ meters Depth range 4542 to 4551 feet
 Logger's Name FT 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						
	1	2	3	4	5	6
Phyric						
mega (>.5 mm)	✓					
micro (<.5 mm)	✓					
Aphyric						
Vesicles: %	<1					
Shape	R					
Size(x)	<1					
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	3					
<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 fibrous	
green	✓
blue	
Analcime	✓
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

9' here

4545 fine grained volcaniclastic

4549.5

NO CORE

CRITICAL FEATURES (description of units or features by number)

1) Hyaloclastite w/ Pillow Fragments, Fragments contain 3% Olivine as phenocrysts, mph in a bluish gray matrix. Some Clasts are vesicular, golden quenched glass.

2° Minerals: SMECTITE, CALCITE, ANALCIME, ZEOLITE GREEN

CORE LOG
 BOX # 498 HOLE # 1 Sheet A
 Depth range 1388.05 to 1390.80 meters Depth range 4551 to 4560 feet
 Logger's Name FAI 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%					
1-5%					
<1%					
Phenos mph					
ol-plag					

Comments

Plagioclase

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

Comments

Augite %

1	2	3	4	5	6

GROUNDMASS (original)

Aphanitic	✓				
Feldspathic					
Diktytaxitic					

SECONDARY FEATURES

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

Groundmass
 Chlorite
 Smectite

Fracture
 Vesicle

Secondary/Alteration Min.

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

COMMENTS
 4556': hauyne? " P. 211 = calcite, tr. albite. RE 1/2/92.

4551

hyaloclastite #1

-XRD

4557

SAND ONLY

4560

hauyne or fract.

CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, clast supported, clast av. 5cm, 98% with tan quenched chill rind, no visible phenos matrix is black volcanic glass sand indurated to a competent unit. Two 5 to 8 cm bands lack clasts, black sand only

CORE LOG
 BOX # 499 HOLE # 1 Sheet A
 Depth range 1390.80 to 1393.54 meters Depth range 4560 to 4569 feet
 Logger's Name EN 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)							Olv -> Clay <input checked="" type="checkbox"/>	
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
Vesicles: %	<u> </u>						Zeolite <u> </u>	
Shape							Groundmass	
Size(x)							Chlorite <u> </u>	
							Smectite <u> </u>	
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.	
Olivine >5%							Smectite <u> </u>	
1-5%	<u>5</u>						Calcite <u> </u>	
<1%							Zeolite <u> </u>	
Phenos mph	<input checked="" type="checkbox"/>						white fibrous <u> </u>	
ol-plag							green <u> </u>	
Comments <u>alt to blk clay</u>							blue <u> </u>	
Plagioclase							Analcime <u> </u>	
>5%							Chabazite <u> </u>	
1-5%							MgOH <u> </u>	
<1%							Silica <u> </u>	
Rhombs							Amorphous <u> </u>	
Blades/laths mph							Chalcedony <u> </u>	
Comments <u> </u>							Crystals <u> </u>	
Augite %							Pyrite <u> </u>	
							Epidote <u> </u>	
GROUNDMASS (original)							Gypsum <input checked="" type="checkbox"/>	
Aphanitic	<input checked="" type="checkbox"/>						Anhydrite <input checked="" type="checkbox"/>	
Feldspathic							Chalcopryrite <u> </u>	
Diktytaxitic							Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe) <u> </u>	

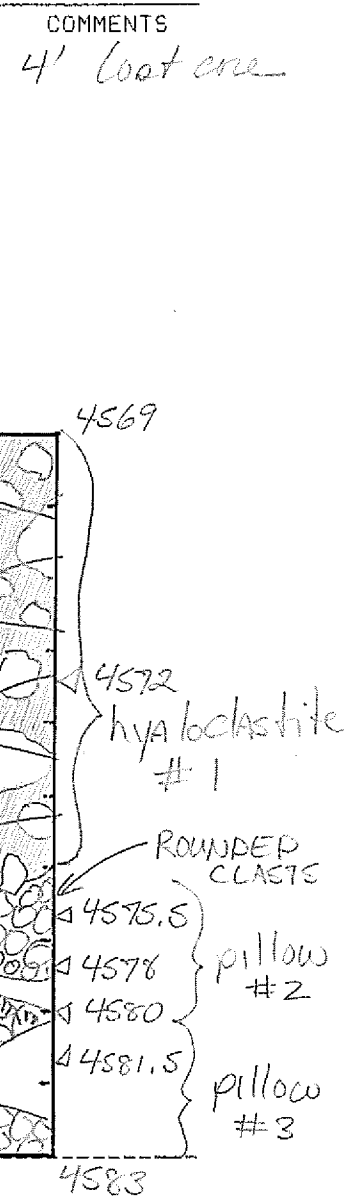
CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, clast supported, clast size increases from .5 cm to 1.5 cm downward thru box, small clasts are quenched tan chill rinds, lg clasts gray basalt with 5% olivine mph alt to blk clay. Matrix is blk volcanic glass sand indurated to a competent unit.

CORE LOG
 BOX # 500 HOLE # 1 Sheet A
 Depth range 1393.54 to 1397.81 meters Depth range 4569 to 4583 feet
 Logger's Name EN Page 1
 Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box 3 Clk/Rubble Carbonate Pillow/Hyaloclast 1,2,3
 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: %	10	-	-			
Shape	R					
Size(x)	5mm					
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	S	S	S			
<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	
Fracture	
Vesicle	
Secondary/Alteration Min.	
Smectite	✓
Calcite	
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	/
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- 1) hyaloclastite, clast supported, 25% small (<2cm) clasts are quenched tan chill nids, 75% lg clasts (>2cm) are so/so vesicular/avesicular with 5% olivine mph, alt to blk clay, in a gray basalt qd. mass. Matrix is black volcanic glass sand indurated to a competent unit.
- 2) pillow, aresicular, 5% olivine mph, alt to blk clay in

a gray aptan. mtrk.
3) pillow, lith as above

1-500

CORE LOG

BOX # 501

HOLE # 1

Sheet A

Depth range 1397.81 to 1401.17 meters

Depth range 4583 to 4594 feet

Logger's Name EN

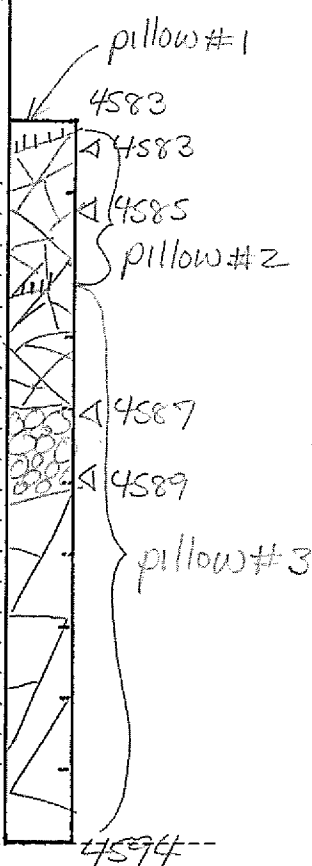
Page 1

Type of Sample: Flow Intrusive 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							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements				
mega (>.5 mm)			✓				Olv -> Clay				
micro (<.5 mm)		✓	✓				Iddingsite				
Aphyric	✓						Plag -> Clay				
Vesicles: %	-	-	-				Zeolite				
Shape							Groundmass				
Size(x)							Chlorite				
							Smeectite				
PHENOCRYSTS (Original mineralogy)											
Olivine >5%							Fracture				
1-5%		3	3				Vesicle				
<1%							Secondary/Alteration Min.				
Phenos mph		✓	✓				Smeectite	✓			
ol-plag			✓				Calcite				
Comments	<u>alt to blk clay #2</u>							Zeolite			
	<u>unalt #3</u>							white fibrous			
								green			
								blue			
								Analcime			
								Chabazite			
								MgOH			
								Silica			
								Amorphous			
								Chalcedony			
								Crystals			
								Pyrite	3		
								Epidote			
								Gypsum			
								Anhydrite	1		
								Chalcopyrite			
								Limonite			
								Hematite			
								Other (describe)			



CRITICAL FEATURES (description of units or features by number)

- 1) pillow, amsicular, wo visible phenos, dk gray aphan basalt.
- 2) pillow, amsicular, 3% olivine mph alt to blk clay in an aphan gray mtr.
- 3) pillow, amsicular, 3% ol-plag intus unalt in an aphan gray mtr.

CORE LOG

BOX # 502

HOLE # 1

Sheet A

Depth range 1401.17 to 1405.13 meters

Depth range 4594 to 4607 feet

Logger's Name EN

Page 1

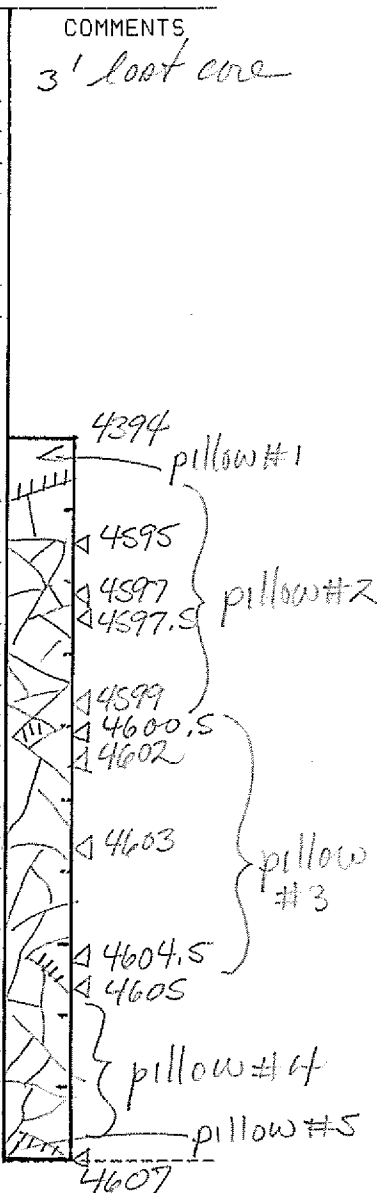
Type of Sample: Flow Intrusive Ash Breccia Red Bed

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						
	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro (<.5 mm)	✓	✓	✓	✓	✓	
Aphyric						
Vesicles: %						
Shape						
Size(x)						
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	3	3	3	3	3	
<1%						
Phenos						
mph	✓	✓	✓	✓	✓	
ol-plag						
Comments	<u>alt to blk clay</u>					
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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	<u>blue mesh</u>



CRITICAL FEATURES (description of units or features by number)

- 1) pillow, amsicular, 3% olivine mph alt to blk clay in an aphan gray mtr.
- 2-5) pillow, lith as above

CORE LOG

BOX # 503

HOLE # 1

Sheet A

Depth range 1405.13 to 1407.88 meters

Depth range 4607 to 4616 feet

Logger's Name EA

Page 1

Type of Sample: Flow Intrusive 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)							Olv -> Clay <u>1, 3</u>	
micro (<.5 mm)	✓		✓				Iddingsite _____	
Aphyric		✓					Plag -> Clay _____	
Vesicles: %	-	-	-				Zeolite _____	
Shape							Groundmass	
Size(x)							Chlorite _____	
							Smectite _____	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine >5%							Smectite ✓	
1-5%	✓		✓				Calcite _____	
<1%							Zeolite _____	
Phenos mph	✓		✓				white fibrous _____	
ol-plag							green _____	
Comments <u>alt to blk clay</u>							blue _____	
							Analcime _____	
							Chabazite _____	
							MgOH _____	
							Silica _____	
							Amorphous _____	
							Chalcedony _____	
							Crystals _____	
							Pyrite _____	
							Epidote _____	
							Gypsum _____	
							Anhydrite ✓	
							Chalcopyrite _____	
							Limonite _____	
							Hematite _____	
							Other (describe) _____	

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, vesicular, 1% olivine mph alt to blk clay in a gray aphan mtr.
- 2) hyaloclastite, clast supported, 1.5 cm clasts are quenched tan chill rinds, matrix is black volcanic glass sand indurated to a competent unit.
- 3) pillow, lith as #1

CORE LOG

BOX # 504

HOLE # 1

Sheet A

Depth range 1407.88 to 1410.47 meters

Depth range 4616 to 4624.5 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive 2 Ash Breccia Red Bed

Number of Units in Box 3 Clk/Rubble Carbonate Pillow/Hyaloclast 4,3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)							Olv -> Clay <u>1</u>	
micro (<.5 mm)	✓						Iddingsite <u> </u>	
Aphyric		✓	✓				Plag -> Clay <u> </u>	
Vesicles: %		5					Zeolite <u> </u>	
Shape		R					Groundmass	
Size(x)		<1mm					Chlorite <u> </u>	
							Smectite <u> </u>	
							Fracture <u> </u>	
							Vesicle <u> </u>	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		4616 } pillow #1 dike #2 4621 4624 4624.5 } pillow #3
Olivine >5%							Smectite <u>✓</u>	
1-5%	1						Calcite <u> </u>	
<1%							Zeolite <u> </u>	
Phenos mph	✓						white fibrous <u> </u>	
ol-plag							green <u> </u>	
Comments	<u>alt to blk clay</u>						blue <u> </u>	
Plagioclase >5%							Analcime <u> </u>	
1-5%							Chabazite <u> </u>	
<1%							MgOH <u> </u>	
Rhombs							Silica <u> </u>	
Blades/laths mph							Amorphous <u> </u>	
Comments							Chalcedony <u> </u>	
Augite %							Crystals <u> </u>	
GROUNDMASS (original)							Pyrite <u>2</u>	
Aphanitic	✓	✓	✓				Epidote <u> </u>	
Feldspathic							Gypsum <u> </u>	
Diktytaxitic							Anhydrite <u>2</u>	
							Chalcopryrite <u> </u>	
							Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe) <u> </u>	

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aversicular, 1% olivine mph alt to blk clay in a gray aphan mtr.
- 2) dike, aphyric, gradus from dk gray aversicular to lt. gray microvesicular (5%, <1mm) back to dk gray aversicular at bottom contact, aphan.
- 3) pillow, lith as #1

CORE LOG

BDX # SOS

HOLE # 1

Sheet A

Depth range 1410.47 to 1413.66 meters

Depth range 4624.5 to 4633 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	Fracture	Vesicle	
mega (>.5 mm)							Olv -> Clay <input checked="" type="checkbox"/>			
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Iddingsite <input type="checkbox"/>			
Aphyric							Plag -> Clay <input type="checkbox"/>			
Vesicles: %	-	-	-				Zeolite <input type="checkbox"/>			
Shape							Groundmass			
Size(x)							Chlorite <input type="checkbox"/>			
							Smectite <input type="checkbox"/>			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.			
1-5%	/	/	/				Smectite <input checked="" type="checkbox"/>		4624.5	
<1%							Calcite <input type="checkbox"/>		} pillow #1	
Phenos mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Zeolite <input type="checkbox"/>			
ol-plag							white fibrous <input type="checkbox"/>		} pillow #2	
Comments <u>alt to blk clay</u>							green <input type="checkbox"/>			
Plagioclase >5%							blue <input type="checkbox"/>			
1-5%							Analcime <input type="checkbox"/>			
<1%							Chabazite <input type="checkbox"/>			
Rhombs							MgOH <input type="checkbox"/>			
Blades/laths mph							Silica			
Comments							Amorphous <input type="checkbox"/>			
Augite %							Chalcedony <input type="checkbox"/>			
GROUNDMASS (original)							Crystals <input type="checkbox"/>			
Aphanitic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Pyrite <input type="checkbox"/>			
Feldspathic							Epidote <input type="checkbox"/>			
Diktytaxitic							Gypsum <input type="checkbox"/>			
							Anhydrite <input type="checkbox"/>			
							Chalcoppyrite <input type="checkbox"/>		4632	
							Limonite <input type="checkbox"/>		} pillow #3	
							Hematite <input type="checkbox"/>			
							Other (describe)		4633	

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aresicular, 1% olivine mph alt to blk clay in a gray aphan mtr.
- 2-3) pillows, lth as above

CORE LOG

BOX # 506

HOLE # 1

Sheet A

Depth range 1413.06 to 1416.11 meters

Depth range 4633 to 4643 feet

Logger's Name EN

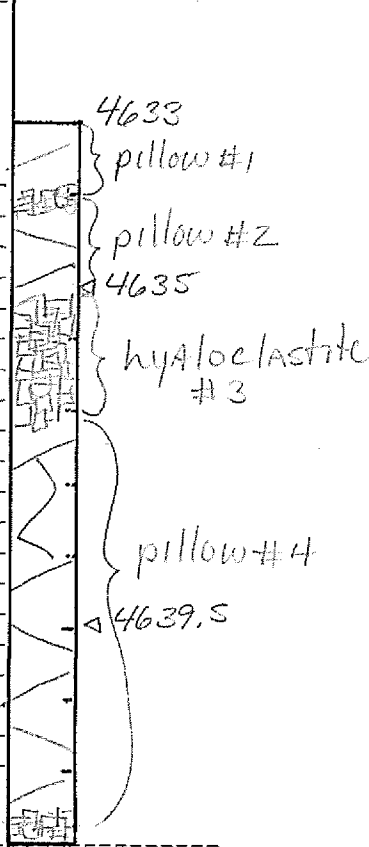
Page 1

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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)							Olv -> Clay <input checked="" type="checkbox"/>		
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)									
Olivine >5%							Secondary/Alteration Min.		
1-5%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Smectite <input checked="" type="checkbox"/>	
<1%							Calcite		
Phenos							Zeolite		
mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			white fibrous		
ol-plag							green		
Comments	<u>alt to blk clay</u>							blue	
Plagioclase							Analcime		
>5%							Chabazite		
1-5%							MgOH		
<1%							Silica		
Rhombs							Amorphous		
Blades/laths							Chalcedony		
mph							Crystals		
Comments								Pyrite	
Augite %							Epidote		
GROUNDMASS (original)							Gypsum		
Aphanitic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Anhydrite <u>2</u>		
Feldspathic							Chalcopyrite		
Diktytaxitic							Limonite		
							Hematite		
							Other (describe)		

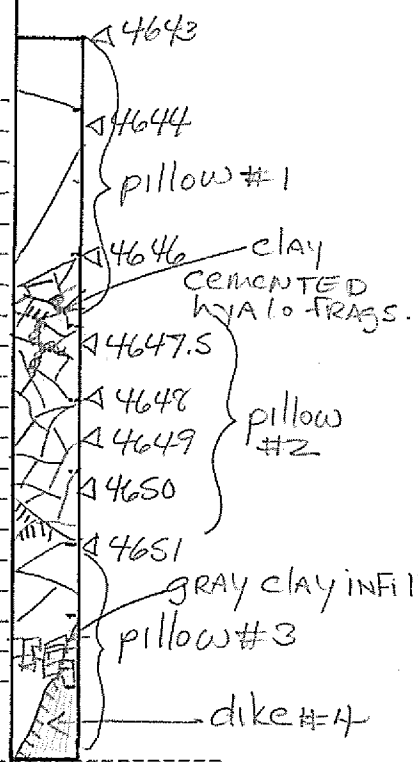


CRITICAL FEATURES (description of units or features by number) 4643

- 1) pillow, anesicular, 1% Olivine mph alt to blk clay in a gray aphan mtk.
- 3) hyaloclastite, brecciated tan quenched chill rinds cemented into a competent unit by anhydrite. Contacts between pillows are the same but narrower.
- 2 & 4) pillows, lith as in #1

CORE LOG
 BOX # 507 HOLE # #1 Sheet A
 Depth range 1416.11 to 1419.16 meters Depth range 4643 to 4653 feet
 Logger's Name EA 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)				✓			Olv -> Clay _____			
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite _____			
Aphyric							Plag -> Clay _____			
							Zeolite _____			
Vesicles: %							Groundmass			
Shape							Chlorite _____			
Size(x)							Smectite _____			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.	Fracture	Vesicle	
1-5%	/	/	/							
<1%				✓			Smectite	✓		
Phenos							Calcite			
mph	✓	✓	✓	✓			Zeolite			
ol-plag							white fibrous			
Comments								green		
Plagioclase							blue			
>5%							Analcime			
1-5%			5				Chabazite			
<1%							MgOH			
Rhombs			✓				Silica			
Blades/laths			✓				Amorphous			
mph			✓				Chalcedony			
Comments								Crystals		
Augite %							Pyrite	✓		
GROUNDMASS (original)							Epidote			
Aphanitic	✓	✓	✓	✓			Gypsum			
Feldspathic							Anhydrite	✓		
Diktytaxitic							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			



CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aresicular, 10% olivine mph, alt to blk clay, in a gray aphan mtr.
- 2, 3) pillows, lith as above
- 4) dike, aresicular, plag shonks, blades & laths < 5% (near contact); olivine mph < 1%, unalt. in a dk gray aphan mtr. Tan quenched chill mid immediate-ly above contact is unfilled with gray clay.

CORE LOG

BOX # 508

HOLE # #1

Sheet A

Depth range 1419.16 to 1422.37 meters

Depth range 4653 to 4663 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)		✓					Olv -> Clay _____			
micro (<.5 mm)	✓	✓					Iddingsite _____			
Aphyric							Plag -> Clay _____			
							Zeolite _____			
Vesicles: %							Groundmass			
Shape							Chlorite _____			
Size(x)							Smeectite _____			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.	Fracture	Vesicle	4653
1-5%										
<1%							Smeectite			dike #1
Phenos mph							Calcite			
ol-plag							Zeolite			
Comments							white fibrous			
							green			
							blue			
							Analcime			
							Chabazite			
							MgOH			
							Silica			
Plagioclase							Amorphous			
>5%							Chalcedony			
1-5%		5					Crystals			
<1%	✓	✓					Pyrite	✓		
Rhombs	✓	✓					Epidote			
Blades/laths	✓	✓					Gypsum			4660
mph	✓	✓					Anhydrite			
Comments							Chalcopyrite			4661.5
							Limonite			
Augite %							Hematite			
							Other (describe)			← dike #2
GROUNDMASS (original)										
Aphanitic	✓	✓								
Feldspathic										
Diktytaxitic										

CRITICAL FEATURES (description of units or features by number)

1) dike, aresicular, < 1% plag mph in a lt gray aphan mtx.

2) dike, aresicular, plag rhombs, blades & laths & 5% (near contact) in a dk gray aphan mtx.

CORE LOG

BOX # 509

HOLE # 1

Sheet A

Depth range 1422.31 to 1425.26 meters

Depth range 4663.5 to 4673 feet


Logger's Name EN

Page 1

Type of Sample: Flow Intrusive 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							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			 <p>clear X-tals found in spherical aggregates</p>	
mega (>.5 mm)							Olv -> Clay				
micro (<.5 mm)	✓	✓	✓				Iddingsite				
Aphyric							Plag -> Clay				
Vesicles: %							Zeolite				
Shape							Groundmass				
Size(x)							Chlorite				
							Smectite				
							Fracture				
							Vesicle				
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.				
Olivine >5%							Smectite	✓		4663.5	
1-5%	1	1	1				Calcite			} pillow #1	
<1%							Zeolite	✓			
Phenos mph	✓	✓	✓				white fibrous	✓		} pillow #2	
ol-plag							green				
Comments	<u>alt to blk clay</u>							blue			} clay cemented
							Analcime				
Plagioclase >5%							Chabazite			4666.5	} MYA/O FRAGS.
1-5%							MgOH				
<1%							Silica			4667.5	
Rhombs							Amorphous				
Blades/laths mph							Chalcedony				
Comments								Crystals			} 4669
							Pyrite	✓			
Augite %							Epidote			} pillow #3	
							Gypsum				
GROUNDMASS (original)							Anhydrite	✓			
Aphanitic	✓	✓	✓				Chalcopyrite				
Feldspathic							Limonite				
Diktytaxitic							Hematite				
							Other (describe)				

CRITICAL FEATURES (description of units or features by number) 4673

- 1) pillow, associated, 1% olivine mph, alt to blk clay, in a gray aphan mtr
 - 2, 3) pillows, lith as above
- Contacts are tan quenched chill rinds unfilled with anhydrite (and other minerals) or gray clay.

CORE LOG

BOX # 510

HOLE # 1

Sheet A

Depth range 1425.2 to 1427.40 meters

Depth range 4673 to 4680 feet

Logger's Name EN

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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			Phillipite both in "snow ball" form and as x-thls at 314 contact
mega (>.5 mm)							Olv -> Clay			
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	✓	✓	✓	✓			Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.		4673	
1-5%	✓	✓	✓	✓			Smectite	✓	pillow #1	
<1%							Calcite			
Phenos mph	✓	✓	✓	✓			Zeolite		pillow #2	
ol-plag							white fibrous	✓		
Comments	<u>alt to blk clay</u>							green		4675
							blue			
Plagioclase								Analcime		pillow #3
>5%							Chabazite			
1-5%							MgOH			
<1%							Silica			
Rhombs							Amorphous			
Blades/laths mph							Chalcedony			
Comments								Crystals		pillow #4
							Pyrite			
Augite %								Epidote		4677.5
							Gypsum			
GROUNDMASS (original)								Anhydrite	✓	4680
Aphanitic	✓	✓	✓	✓			Chalcopyrite			
Feldspathic							Limonite			
Diktytaxitic							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, anhedral, 10% olivine mph alt to blk clay in a gray aphan mtr
 - 2-4) pillows, lith as above
- All contacts are brecciated tan gneiss units, some infilled with anhydrite & zeolites

CORE LOG

BOX # 511

HOLE # 1

Sheet A

Depth range 1427.45 to 1429.97 meters

Depth range 4680 to 4688.5 feet

Logger's Name EM

Page 1

Type of Sample: Flow Intrusive 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)							Olv -> Clay		
micro (<.5 mm)	✓	✓	✓				Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.		
1-5%	/	/	/				Smectite	4680	
<1%							Calcite	4680.5	
Phenos mph							Zeolite	UNALT. OLIVINE ZONE	
ol-plag							white fibrous		
Comments	#1 unalt 2:3 alt to blk clay						green	pillow #1	
Plagioclase							blue		
>5%							Analcime		
1-5%							Chabazite		
<1%							MgOH		
Rhombs							Silica		
Blades/laths mph							Amorphous	4684.5	
Comments							Chalcedony	pillow #2	
Augite %							Crystals		
GROUNDMASS (original)							Pyrite		
Aphanitic	✓	✓	✓				Epidote	pillow #3	
Feldspathic							Gypsum		
Diktytaxitic							Anhydrite		
							Chalcopyrite		
							Limonite		
							Hematite	4688.5	
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

1) pillow, aresicular, 1% olivine mph alt to blk clay (except for 60 cm zone 60-120 cm thru box) in a gray aphan mtr.

2,3) pillows, lth as above

All contacts are brecciated tan quench rinds, 2,3 infilled with anhydrite & zeolites

CORE LOG

BOX # S12

HOLE # 1

Sheet A

Depth range 1429.99 to 1432.74 meters

Depth range 4688.5 to 4697.5 feet

Logger's Name EM

Page 1

Type of Sample: Flow Intrusive 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 >5%						
1-5%	1	1	1			
<1%						
Phenos						
mph	✓	✓	✓			
ol-plag						
Comments	<u>alt to blk clay</u>					

Plagioclase

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

Augite

%						
---	--	--	--	--	--	--

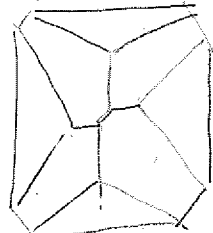
GROUNDMASS (original)

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 fibrous	✓
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

botled



clear x-tal assoc w. Phillipsite

4688.5

4689

pillow #1

hyalo #2

4695

pillow #3

4697.5

see above

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, omiscular, 1% olivine mph alt to blk clay in a gray aphan mtr.
- 2) hyaloclastite, tan quenched chill rinds cemented into a competent unit by gray clay and anhydrite.
- 3) pillow, lith as in #1

CORE LOG

BOX # 513

HOLE # 1

Sheet A

Depth range 1432.74 to 1435.94 meters

Depth range 4697.5 to 4708 feet

Logger's Name EN

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: %	-	-	-	-	-	-
Shape						
Size(x)						
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	/	/	/	/	/	/
<1%						
Phenos mph	✓	✓	✓	✓	✓	✓
ol-plag						
Comments	<u>alt to blk clay</u>					
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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

2.5' float core

50% of box is rounded clasts

4697.5 } hyalo #1

4698.5 } pillow #2

4699 }

4701 } pillow #3

4704

4705.5 } pillow #4

4707.5 } pillow #5

CRITICAL FEATURES (description of units or features by number)

4708

- 1) hyaloclastite, tan quenched chill rinds cemented into a competent unit by anhydrite
- 2) pillow, araucular, 10% olivine mph alt to blk clay in a gray aphan mtx.
- 3-5) pillows, lith as above

CORE LOG

BOX # 514

HOLE # 1

Sheet A

Depth range 1435.94 to 1438.99 meters

Depth range 4708 to 4719 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive 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 >5%						
1-5%	/	/	/			
<1%						
Phenos						
mph	✓	✓	✓			
ol-plag						

Comments alt to blk clay

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

Augite %

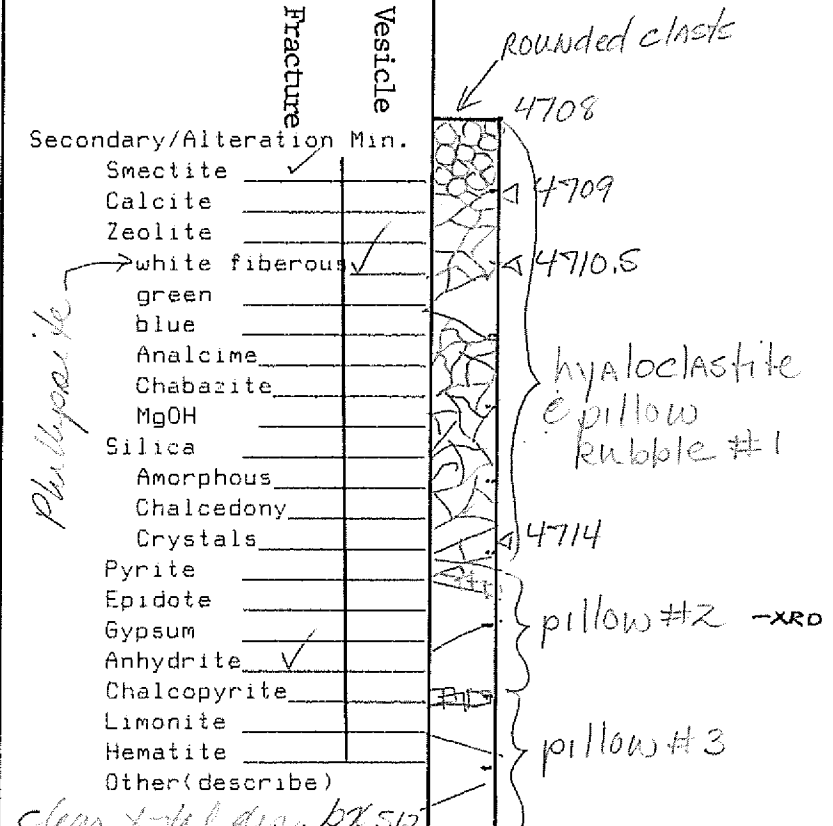
--	--	--	--	--	--	--

GROUNDMASS (original)						
Aphanitic	✓	✓	✓			
Feldspathic						
Diktytaxitic						

SECONDARY FEATURES	
Phenocryst replacements	
Olv -> Clay	
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	

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

COMMENTS
4715' "phillipsite?" = ?zeolite (s. clear crystal ↑?) RE 1/8/12



CRITICAL FEATURES (description of units or features by number) 4718

- 1) pillow rubble & hyaloclastite, tan quenched chill rind cemented by gray clay or anhydrite and small pillows of gray aphan basalt with 1% olivine mph alt to blk clay, all fractured to rubble
- 2) pillow, mesicular, 1% olivine mph, alt to blk clay in a gray aphan mtr.
- 3) pillow, both as above

CORE LOG
 BOX # 515 HOLE # 1 Sheet A
 Depth range 1438.99 to 1441.89 meters Depth range 4718 to 4727.5 feet
 Logger's Name FT Page 1

Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box 3 Clk/Rubble Carbonate Pillow/Hyaloclast 1-4
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		9.5' here	
mega (>.5 mm)							Olv -> Clay <input checked="" type="checkbox"/>			
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.	Practure Vesicle		
1-5%									Smectite <input checked="" type="checkbox"/>	
<1%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Calcite		UNIT 1	
Phenos							Zeolite <input checked="" type="checkbox"/>			
mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				white fibrous		UNIT 2	
ol-plag							green			
Comments								blue		
Plagioclase							Analcime		UNIT 3	
>5%							Chabazite			
1-5%							MgOH			
<1%							Silica			
Rhombs							Amorphous			
Blades/laths							Chalcedony			
mph							Crystals			
Comments								Pyrite		
Augite %							Epidote			
							Gypsum			
							Anhydrite <input checked="" type="checkbox"/>			
							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

1-3) Pillows w/ <10% microphenocrysts of Olivine in a lt bluish gray aphanitic matrix.

2 Minerals: Smectite, Anhydrite, clay (alt olv) (white zeolite)
 Phillipsite, analcime

CORE LOG

BOX # 516

HOLE # 1

Sheet A

Depth range 1441.89 to 1445.39 meters

Depth range 4727.5 to 4739 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive Ash Breccia Red Bed

Number of Units in Box 3 Clk/Rubble Carbonate Pillow/Hyaloclast L3

Fill in blanks below by using the appropriate unit number.

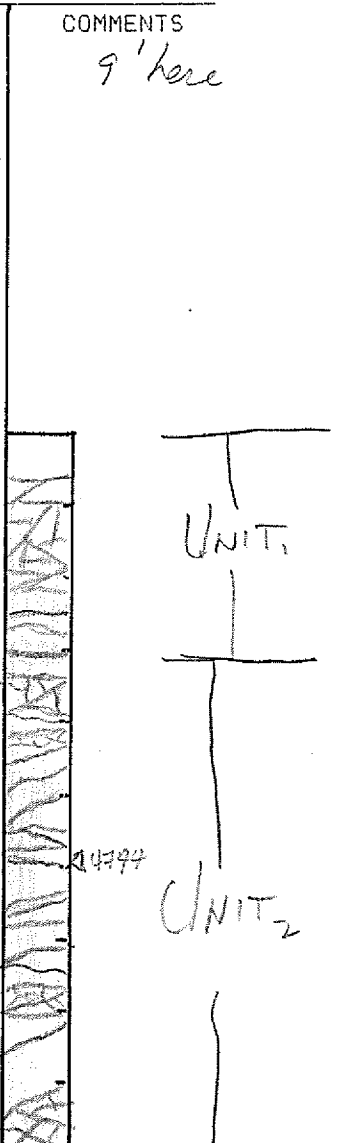
PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		1.5' lost core
mega (>.5 mm)							Olv -> Clay		
micro (<.5 mm)	✓	✓	✓				Iddingsite		
Aphyric							Plag -> Clay		
							Zeolite		
Vesicles: %	-	-	-				Groundmass		
Shape							Chlorite		
Size(x)							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.	4727.5	
1-5%	/	/	/				Smectite	pillow #1	
<1%							Calcite		
Phenos							Zeolite		
mph	✓	✓	✓				white fibrous	4730	
ol-plag							green	pillow #2	
Comments	alt to blk clay						blue		
Plagioclase							Analcime		
>5%							Chabazite		
1-5%							MgOH		
<1%							Silica		
Rhombs							Amorphous	4733.5	
Blades/laths							Chalcedony		
mph							Crystals	4735	
Comments							Pyrite		
Augite %							Epidote		
							Gypsum	4736	
GROUNDMASS (original)							Anhydrite	pillow #3	
Aphanitic	✓	✓	✓				Chalcopyrite		
Feldspathic							Limonite		
Diktytexitic							Hematite		
							Other (describe)		
							clean - tal disc. by 512		
CRITICAL FEATURES (description of units or features by number)									4739

- 1) pillow, auesicular, 1% olivine mph, alt to blk clay in a gray aphan mtr.
- 2) pillow, lith as above
- 3) pillow, lith as above

CORE LOG
 BOX # 517 HOLE # 1 Sheet A
 Depth range 1445.40 to 1448.14 meters Depth range 4739 to 4748 feet
 Logger's Name FT 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						
	1	2	3	4	5	6
Phyric						
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 fibrous	✓
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

1+2) Pillows w/ <1 Olivine nph in a lt gray feldspathic matrix

2° MINERALS: SMECTITE, ANHYDRITE, PALLASITE(?), CLAY WHITE CORTOUT Z

CORE LOG

BOX # 518

HOLE # 1

Sheet A

Depth range 1446.14 to 1451.34 meters

Depth range 4748 to 4758.5 feet

Logger's Name EN

Page 1

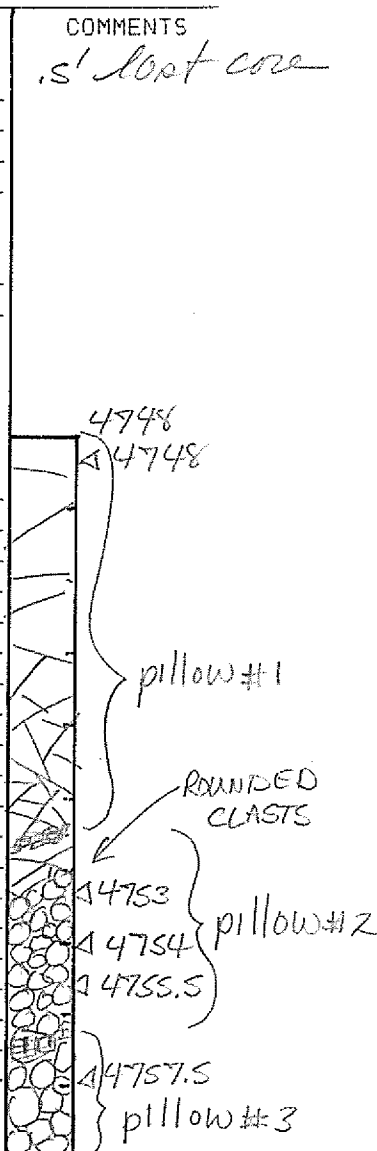
Type of Sample: Flow Intrusive Ash Breccia Red Bed

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 >5%						
1-5%	1	1	1			
<1%						
Phenos						
mph	✓	✓	✓			
oi-plag						
Comments	<u>alt to blk clay</u>					
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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	✓
Chalcopryrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aresicular, 10% olivine mph alt to blk clay in a gray aphan mtr.
- 2,3) pillows, both as above

BOX # 519 CORE LOG HOLE # 1 Sheet A
 Depth range 1451.34 to 1454.55 meters Depth range 4758.5 to 4769 feet
 Logger's Name FT 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		9.5' here
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay <input checked="" type="checkbox"/>		
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.		
1-5%	<input checked="" type="checkbox"/>						Smectite <input checked="" type="checkbox"/>	4760	
<1%							Calcite		
Phenos	<input checked="" type="checkbox"/>						Zeolite <input checked="" type="checkbox"/>	4761 4762	
mph	<input checked="" type="checkbox"/>						white fibrous		
oi-plag							green		
Comments								blue	
							Analcime		
Plagioclase							Chabazite		
>5%							MgOH		
1-5%							Silica		
<1%							Amorphous		
Rhombs							Chalcedony		
Blades/laths							Crystals		
mph							Pyrite	4766	
Comments									
Augite %							Epidote		
							Gypsum		
GROUNDMASS (original)							Anhydrite <input checked="" type="checkbox"/>		
Aphanitic							Chalcopyrite		
Feldspathic	<input checked="" type="checkbox"/>						Limonite		
Diktytaxitic							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

Pillow w/ 10% Olivine as phenocrysts, mph in a
 lt gray feldspathic matrix.

CORE LOG

BOX # 520 ⁵⁵ HOLE # 1 Sheet A
 Depth range 1454 to 1456.99 meters Depth range 4769 to 4777 feet
 Logger's Name TT 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	SECONDARY FEATURES	COMMENTS
Phyric mega (>.5 mm) <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 micro (<.5 mm) <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	Phenocryst replacements Olv -> Clay <input checked="" type="checkbox"/> Iddingsite <u> </u> Plag -> Clay <u> </u> Zeolite <u> </u>	8' here
Aphyric <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>	Groundmass Chlorite <u> </u> Smectite <u> </u>	
Vesicles: % <u> </u> Shape <u> </u> Size(x) <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>	Fracture <u> </u> Vesicle <u> </u>	
PHENOCRYSTS (Original mineralogy)	Secondary/Alteration Min. <input checked="" type="checkbox"/>	
Olivine >5% <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 1-5% <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <1% <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>	Smectite <input checked="" type="checkbox"/> Calcite <u> </u> Zeolite <u> </u> white fibrous <u> </u> green <u> </u> blue <u> </u> Analcime <u> </u> Chabazite <u> </u> MgOH <u> </u> Silica <u> </u> Amorphous <u> </u> Chalcedony <u> </u> Crystals <u> </u>	
Phenos mph <input checked="" type="checkbox"/> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> ol-plag <input checked="" type="checkbox"/> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>	Pyrite <u> </u> Epidote <u> </u> Gypsum <u> </u> Anhydrite <u> </u> Chalcopyrite <u> </u> Limonite <u> </u> Hematite <u> </u> Other (describe) <u> </u>	
Comments <u> </u>		
Plagioclase >5% <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> 1-5% <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <1% <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>		
Rhombs <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>		
Blades/laths mph <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>		
Comments <u> </u>		
Augite % <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>		
GROUNDMASS (original)		
Aphanitic <input checked="" type="checkbox"/> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>		
Feldspathic <input checked="" type="checkbox"/> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>		
Diktytaxitic <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>		

CRITICAL FEATURES (description of units or features by number)

1) Pillow w/ 3% Olivine as phenocrysts, mph in a lt gray feldspathic matrix.

2) Minerals: SMECTITE, Clay (alt olv.)

CORE LOG

BOX # 521

HOLE # 1

Sheet A

Depth range 1456.98 to 1459.73 meters

Depth range 4777 to 4786 feet

Logger's Name EN

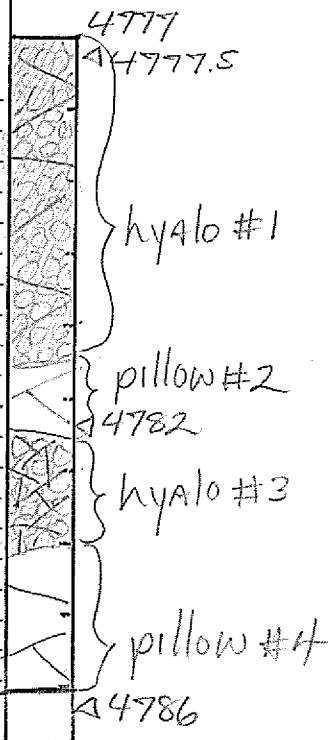
Page 1

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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	Fracture	Vesicle	
mega (>.5 mm)							Olv -> Clay			
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	-	-	-				Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smeectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.			
1-5%	/	/	/	/			Smeectite	✓		
<1%							Calcite			
Phenos							Zeolite			
mph	✓	✓	✓	✓			white fibrous			
ol-plag							green			
Comments	<u>alt to blk clay</u>									
Plagioclase							blue			
>5%							Analcime			
1-5%							Chabazite			
<1%							MgOH			
Rhombs							Silica			
Blades/laths							Amorphous			
mph							Chalcedony			
Comments										
Augite							Crystals			
%							Pyrite			
GROUNDMASS (original)										
Aphanitic	✓	✓	✓	✓			Epidote			
Feldspathic							Gypsum			
Diktytaxitic							Anhydrite	✓		
							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			



CRITICAL FEATURES (description of units or features by number)

- 1) hyaloclastite, clast supported, clasts ^{anisoclast} with 10% olivine mph alt to blk clay in a gray aphan mtrx. No tan quenched chill rinds visible. Matrix is dk gray clay cemented to a competent unit.
- 2) pillow, anisoclast, 10% olivine mph, alt to blk clay in a gray aphan mtrx.
- 3) hyaloclastite, lith as above
- 4) pillow, lith as above

CORE LOG
 BOX # 522 HOLE # 1 Sheet A
 Depth range 1459.73 to 1462.17 meters Depth range 4780 to 4794 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	8' here
mega (>.5 mm)	✓						Olv -> Clay ✓	
micro (<.5 mm)	✓						Iddingsite	
Aphyric							Plag -> Clay	
Vesicles: %	-						Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine >5%							Smectite ✓	
1-5%	✓3						Calcite	
<1%							Zeolite	
Phenos mph	✓						white fibrous	
ol-plag							green	
Comments							blue	
							Analcime	
							Chabazite	
							MgOH	
							Silica	
Plagioclase								
>5%							Amorphous	
1-5%							Chalcedony	
<1%							Crystals	
Rhombs							Pyrite	
Blades/laths							Epidote	
mph							Gypsum	
Comments							Anhydrite ✓	
							Chalcopyrite	
Augite %								
							Limonite	
GROUNDMASS (original)								
Aphanitic							Hematite	
Feldspathic	✓						Other (describe)	
Diktytaxitic								

CRITICAL FEATURES (description of units or features by number)

1) Pillow w/ 30% Olivine as phenocrysts, mph in a lt gray feldspathic matrix.

2° MINERALS & SMECTITE, ANHYDRITE.

CORE LOG
 BOX # 523 HOLE # 1 Sheet #
 Depth range 1462¹⁷ to 1465²² meters Depth range 4794 to 4804 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	✓	✓					Olv → Clay ✓		
micro (<.5 mm)	✓	✓					Iddingsite		
Aphyric							Plag → Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)									
Olivine >5%							Fracture		
1-5%							Vesicle		
<1%	✓	✓					Secondary/Alteration Min.		
Phenos mph	✓	✓					Smectite ✓	UNIT 1	
ol-plag							Calcite		
Comments								Zeolite	
								white fibrous	
Plagioclase							green	UNIT 2	
>5%							blue		
1-5%		✓					Analcime		
<1%							Chabazite		
Rhombs							MgOH	4797	
Blades/laths mph		✓					Silica		
Comments								Amorphous	
								Chalcedony	
Augite %							Crystals		
							Pyrite		
GROUNDMASS (original)							Epidote	UNIT 2	
Aphanitic							Gypsum		
Feldspathic	✓	✓					Anhydrite ✓		
Diktytaxitic							Chalcopyrite		
							Limonite	4803	
							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

- 1) Pillow w/ <1% Olivine as mph in a lt gray feldspathic matrix
- 2) Dike w/ 1% Plagioclase as blades, laths and micro laths and <<1% Olivine as microphenocrysts, Phenocrysts in a lt bluish - bluish gray FELDSPATHIC matrix.

2° MINERALS: SMECTITE, ANHYDRITE

CORE LOG

BOX # 524

HOLE # _____

Sheet A

Depth range 1465.22 to 1467.66 meters

Depth range 4804 to 4812 feet

Logger's Name EA

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							SECONDARY FEATURES				COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements					<div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Fracture</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Vesicle</div> <div style="margin-top: 20px;">4804</div> <div style="margin-top: 100px;">dike #1</div> <div style="margin-top: 20px;">4812</div> <div style="margin-top: 5px;">4812</div> </div>
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay					
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite					
Aphyric							Plag -> Clay					
Vesicles: %							Zeolite					
Shape							Groundmass					
Size(x)							Chlorite					
							Smectite					
PHENOCRYSTS (Original mineralogy)												
Olivine >5%							Secondary/Alteration Min.					
1-5%							Smectite	<input checked="" type="checkbox"/>				
<1%	<input checked="" type="checkbox"/>						Calcite					
Phenos	<input checked="" type="checkbox"/>						Zeolite					
mph	<input checked="" type="checkbox"/>						white fibrous					
ol-plag	<input checked="" type="checkbox"/>						green					
Comments	<u>unalt</u>							blue				
Plagioclase								Analcime				
>5%							Chabazite					
1-5%							MgOH					
<1%	<input checked="" type="checkbox"/>						Silica					
Rhombs	<input checked="" type="checkbox"/>						Amorphous					
Blades/laths	<input checked="" type="checkbox"/>						Chalcedony					
mph	<input checked="" type="checkbox"/>						Crystals					
Comments								Pyrite				
Augite								Epidote				
%							Gypsum					
GROUNDMASS (original)								Anhydrite	<input checked="" type="checkbox"/>			
Aphanitic	<input checked="" type="checkbox"/>						Chalcopryrite					
Feldspathic							Limonite					
Diktytaxitic							Hematite					
							Other (describe)					

CRITICAL FEATURES (description of units or features by number)

1) dike, anisular, ol + mine phenos & ol-plag inters, unalt. $\Sigma < 10\%$, plag rhombs, blades & laths $\Sigma < 1\%$ in a gray aphan mtr. which coarsens slightly downward thru box.

CORE LOG

BOX # S2S

HOLE # 1

Sheet A

Depth range 1467.66 to 1470.98 meters

Depth range 4812 to 4821 feet

Logger's Name FA

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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			<div style="text-align: center;"> <p>4812</p> <p>dike #1</p> <p>4819.5</p> <p>4821</p> </div>
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay <u> </u>			
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite <u> </u>			
Aphyric							Plag -> Clay <u> </u>			
Vesicles: %							Zeolite <u> </u>			
Shape							Groundmass			
Size(x)							Chlorite <u> </u>			
							Smectite <u> </u>			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%							Smectite <input checked="" type="checkbox"/>			
<1%	<input checked="" type="checkbox"/>						Calcite <u> </u>			
Phenos	<input checked="" type="checkbox"/>						Zeolite <u> </u>			
mph	<input checked="" type="checkbox"/>						white fibrous <u> </u>			
ol-plag	<input checked="" type="checkbox"/>						green <u> </u>			
Comments	<u>unalt</u>							blue <u> </u>		
Plagioclase								Analcime <u> </u>		
>5%							Chabazite <u> </u>			
1-5%							MgOH <u> </u>			
<1%	<input checked="" type="checkbox"/>						Silica <u> </u>			
Rhombs	<input checked="" type="checkbox"/>						Amorphous <u> </u>			
Blades/laths	<input checked="" type="checkbox"/>						Chalcedony <u> </u>			
mph							Crystals <u> </u>			
Comments								Pyrite <u> </u>		
Augite %								Epidote <u> </u>		
							Gypsum <u> </u>			
GROUNDMASS (original)								Anhydrite <input checked="" type="checkbox"/>		
Aphanitic	<input checked="" type="checkbox"/>						Chalcopyrite <u> </u>			
Feldspathic							Limonite <u> </u>			
Diktytaxitic	<input checked="" type="checkbox"/>						Hematite <u> </u>			
							Other (describe) <u> </u>			

CRITICAL FEATURES (description of units or features by number)

1) dike, anesicular, ol-plag inters, plag rhombs, blades & laths < 1% in a gray slightly dikty mtr.

CORE LOG

BOX # S26 HOLE # 1 Sheet A
 Depth range 1470.40 to 1473.15 meters Depth range 4821 to 4830 feet
 Logger's Name EN Page 1
 Type of Sample: Flow Intrusive 1,2 Ash Breccia Red Bed
 Number of Units in Box 2 Ck/Rubble Carbonate Pillow/Hyaloclast
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6		
mega (>.5 mm)	✓	✓					Phenocryst replacements Olv -> Clay <u> </u> Iddingsite <u> </u> Plag -> Clay <u> </u> Zeolite <u> </u>	4821
micro (<.5 mm)	✓	✓					Groundmass Chlorite <u> </u> Smectite <u> </u>	
Aphyric								dike #1
Vesicles: %								
Shape								INCLUSION
Size(x)								
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		dike #2
Olivine >5%							Smectite ✓	
1-5%							Calcite <u> </u>	
<1%	✓	✓					Zeolite <u> </u>	
Phenos mph							white fibrous <u> </u>	
ol-plag ✓	✓	✓					green <u> </u>	
Comments <u>unalt</u>							blue <u> </u>	
Plagioclase						Amorphous <u> </u>		4829.5
>5%							Chabazite <u> </u>	
1-5%							MgOH <u> </u>	
<1%	✓	✓					Silica <u> </u>	
Rhombs ✓	✓	✓					Amorphous <u> </u>	
Blades/laths ✓	✓	✓					Chalcedony <u> </u>	
mph <u> </u>							Crystals <u> </u>	
Comments <u> </u>							Pyrite ✓	
Augite %						Epidote <u> </u>		4830
>5%							Gypsum <u> </u>	
1-5%							Anhydrite ✓	
<1%	✓	✓					Chalcopryrite <u> </u>	
Rhombs ✓	✓	✓					Limonite <u> </u>	
Blades/laths ✓	✓	✓					Hematite <u> </u>	
mph <u> </u>							Other (describe) <u> </u>	
Comments <u> </u>								
GROUNDMASS (original)								
Aphanitic ✓	✓	✓						
Feldspathic <u> </u>								
Diktytaxitic ✓	✓	✓						

CRITICAL FEATURES (description of units or features by number)

- 1) dike, anesucular, ol-plag inters, unalt; plag rhombs blades & laths $\Sigma < 1\%$ in a gray slightly dikty mtx.
- 2) dike, as above except aphan mtx

CORE LOG
 BOX # 527 HOLE # 1 Sheet A
 Depth range 1473 to 1475.90 meters Depth range 4830 to 4839 feet
 Logger's Name FT 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay		
micro(<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite		
Aphyric							Plag -> Clay		
							Zeolite		
Vesicles: %							Groundmass		Pyrite - disseminated
Shape							Chlorite		
Size(x)							Smeectite		
PHENOCRYSTS (Original mineralogy)									
Olivine >5%							Secondary/Alteration Min.		
1-5%								Smeectite <input checked="" type="checkbox"/>	
<1%	<input checked="" type="checkbox"/>						Calcite		
Phenos							Zeolite		
mph	<input checked="" type="checkbox"/>						white fibrous		
ol-plag							green		
Comments							blue		
Plagioclase							Analcime		
>5%							Chabazite		
1-5%							MgOH		
<1%	<input checked="" type="checkbox"/>						Silica		
Rhombs	<input checked="" type="checkbox"/>						Amorphous		
Blades/laths	<input checked="" type="checkbox"/>						Chalcedony		
mph							Crystals		
Comments							Pyrite <input checked="" type="checkbox"/>		
Augite %							Epidote		
GROUNDMASS (original)							Gypsum		
Aphanitic							Anhydrite <input checked="" type="checkbox"/>		
Feldspathic	<input checked="" type="checkbox"/>						Chalcopyrite		
Diktytaxitic							Limonite		
							Hematite		
							Other (describe)		

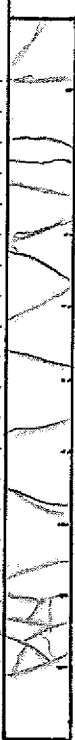
CRITICAL FEATURES (description of units or features by number)

MICROVESICULAR
 1) Dike w/ <1% Plagioclase as blades, laths and microlaths and <<1% Rare olivine mph in a gray feldspathic, well crystallized matrix.

2^o MINERALS SMEECTITE, ANHYDRITE, PYRITE

CORE LOG

BOX # 528 ⁹⁰ HOLE # 1 Sheet A
 Depth range 1475 to 1478.64 meters Depth range 4839 to 4848 feet
 Logger's Name TT 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	SECONDARY FEATURES	COMMENTS
Phyric mega (>.5 mm) <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 micro(<.5 mm) <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	Phenocryst replacements Oliv -> Clay _____ Iddingsite _____ Plag -> Clay _____ Zeolite _____	9/here
Aphyric <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	Groundmass Chlorite _____ Smectite _____	
Vesicles: % <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 Shape _____ Size(x) _____	Fracture Vesicle	
PHENOCRYSTS (Original mineralogy)	Secondary/Alteration Min.	
Olivine >5% <input type="checkbox"/> 1-5% <input type="checkbox"/> <<1% <input checked="" type="checkbox"/>	Smectite <input checked="" type="checkbox"/>	
Phenos mph <input checked="" type="checkbox"/>	Calcite _____	
ol-plag _____	Zeolite _____	
Comments _____	white fibrous _____	
Plagioclase >5% <input type="checkbox"/> 1-5% <input type="checkbox"/> <1% <input checked="" type="checkbox"/>	green _____	
Rhombs _____	blue _____	
Blades/laths mph <input checked="" type="checkbox"/>	Analcime _____	
Comments _____	Chabazite _____	
Augite % <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	MgOH _____	
GROUNDMASS (original)	Silica _____	
Aphanitic <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	Amorphous _____	
Feldspathic <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	Chalcedony _____	
Diktytaxitic <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6	Crystals _____	
	Pyrite <input checked="" type="checkbox"/>	
	Epidote _____	
	Gypsum _____	
	Anhydrite _____	
	Chalcoppyrite _____	
	Limonite _____	
	Hematite _____	
	Other (describe) _____	

CRITICAL FEATURES (description of units or features by number)

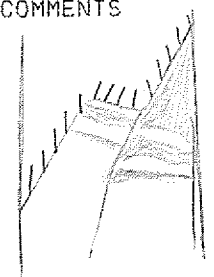
MICROVESICULAR
 Dike w/ <1% Plagioclase as laths, microlaths and <<1%, rare
 Olivine mph in a lt bluish gray matrix.

2° MINERAL S PYRITE, SMECTITE

THIN SECT !

CORE LOG

BOX # 529 HOLE # 1 Sheet A
 Depth range 1478.64 to 1481.54 meters Depth range 4848 to 4857.5 feet
 Logger's Name EN Page 1
 Type of Sample: Flow Intrusive 1 Ash Breccia Red Bed
 Number of Units in Box 3 Clk/Rubble Carbonate 2(?) Pillow/Hyaloclast 3
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES	SECONDARY FEATURES	COMMENTS
Phyric	Phenocryst replacements	
mega (>.5 mm)	Olv -> Clay <u> </u>	
micro (<.5 mm)	Iddingsite <u>#.3</u>	
Aphyric	Plag -> Clay <u> </u>	1/2 contact shows shear 1.5cm 4848 4848.5 dike #1 CARBONATE MATERIAL #2 Altered hyaloclastite #3 4857.5
Vesicles: %	Zeolite <u> </u>	
Shape	Groundmass	
Size(x)	Chlorite <u> </u>	
	Smectite <u>#.3</u>	
PHENOCRYSTS (Original mineralogy)	Fracture	
Olivine >5%	Vesicle	
1-5%	Secondary/Alteration Min.	
<1%	Smectite <u>1</u>	
Phenos mph	Calcite <u> </u>	
ol-plag	Zeolite <u> </u>	
Comments <u>alt to red clay</u>	white fibrous	
Plagioclase	green	
>5%	blue	
1-5%	Analcime <u> </u>	
<1%	Chabazite <u> </u>	
Rhombs	MgOH <u> </u>	
Blades/laths mph	Silica <u> </u>	
Comments	Amorphous	
	Chalcedony	
	Crystals	
	Pyrite <u>1</u>	
	Epidote <u> </u>	
	Gypsum <u> </u>	
	Anhydrite <u> </u>	
	Chalcopyrite <u> </u>	
	Limonite <u> </u>	
	Hematite <u> </u>	
	Other (describe) <u> </u>	
Augite %		
GROUNDMASS (original)		
Aphanitic		
Feldspathic		
Diktytaxitic		

CRITICAL FEATURES (description of units or features by number)

- 1) dike, arvicular, plag rhombs, blades & laths < 1% in a gray mtx which grades from slightly dikty to aphan at contact.
- 2) carbonate material, silt sized carbonate clasts cemented into a competent very lt. gray unit which grades into
- 3) altered hyaloclastite, olivine mph 3% alt. to red clay; vesicles 20% all filled with lt. grn. waxy smectite; groundmass is completely altered to dk gray smectite.

CORE LOG
 BDX # 530 ⁵⁴ ₁₃ HOLE # 1 Sheet A
 Depth range 1481 to 1484 meters Depth range 4857.5 to 4866 feet
 Logger's Name FT 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%						
1-5%						
<1%		✓				
Phenos mph		✓				
ol-plag						
Comments						

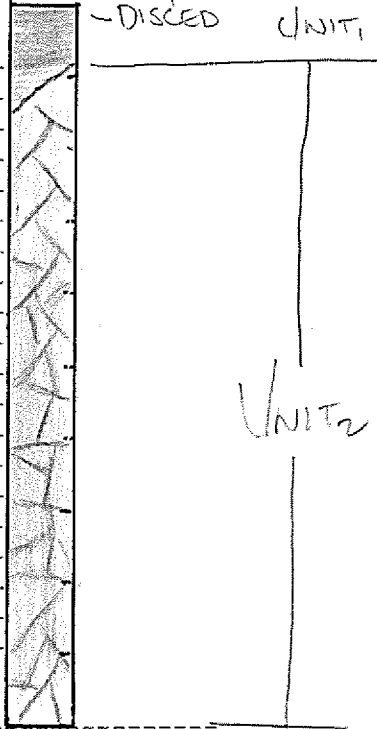
Plagioclase						
>5%						
1-5%		✓				
<1%						
Rhombs						
Blades/laths mph		✓				
Comments						

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 fibrous	
green	
blue	
Analcime	
Chabasite	
MgOH	
Silica	
Opal? - Amorphous	✓
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS
 8.5' here
 - OPAL Here blue
 bulbous (Bx GR)
 Bot spilled some
 pieces fitted together
 need to look @
 photo to discern
 how fit together



CRITICAL FEATURES (description of units or features by number)

- Hyaloclastite/Volcaniclastics, aphyric w/ sand sized clasts (≤ 1mm)
 The matrix color runs from OD green to lt. tannish green.
 - Pillow w/ 10% Plagioclase as laths, blades and micro laths
 in a lt bluish gray feldspathic matrix
- 2^o Mineral: SMECTITE, ANHYDRITE, Opal (bulbous, blue domes)

CORE LOG

BOX # 531

HOLE # 1

Sheet A

Depth range 1484.13 to 1489.16 meters

Depth range 4866 to 4882.5 feet

Logger's Name EAJ

Page 1

Type of Sample: Flow Intrusive 5 Ash Breccia Red Bed

Number of Units in Box 5 Clk/Rubble Carbonate 3 Pillow/Hyaloclast 1, 2, 4

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements	6.5' lost core	
mega (>.5 mm)	✓	✓	-	✓	✓	✓	Olv → Clay <u>1, 2, 4, 5</u>		
micro (<.5 mm)	✓	✓		✓	✓		Iddingsite <u> </u>		
Aphyric			✓				Plag → Clay <u> </u>		
							Zeolite <u> </u>		
Vesicles: %	-	-	-	-	-	-	Groundmass		
Shape							Chlorite <u> </u>		
Size(x)							Smectite <u> </u>		
PHENOCRYSTS (Original mineralogy)							Fracture Vesicle Secondary/Alteration Min.	4866 pillow #1 pillow #2 CARBONATE CLAY INCL. #3 4871.5 4872.5 4880 4880.5 pillow #4 dike #5 4882.5	
Olivine >5%									Smectite <u> </u>
1-5%									Calcite <u> </u>
<1%	✓	✓		✓	✓				Zeolite <u> </u>
Phenos mph	✓	✓		✓	✓				white fibrous <u> </u>
ol-plag									green <u> </u>
Comments <u>alt to blk clay</u>									blue <u> </u>
Plagioclase >5%									Analcime <u> </u>
1-5%									Chabazite <u> </u>
<1%	✓	✓		✓	✓				MgOH <u> </u>
Rhombs							Silica <u> </u>		
Blades/laths mph	✓	✓		✓	✓		Amorphous <u> </u>		
Comments <u> </u>							Chalcedony <u> </u>		
Augite %							Crystals <u> </u>		
GROUNDMASS (original)							Pyrite <u> </u>		
Aphanitic	✓	✓	-	✓	✓		Epidote <u> </u>		
Feldspathic							Gypsum <u> </u>		
Diktytaxitic					✓		Anhydrite <u> </u>		
							Chalcopyrite <u> </u>		
							Limonite <u> </u>		
							Hematite <u> </u>		
							Other (describe) <u> </u>		

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, amscutan, olivine phenos, alt to blk clay; plag blades & laths $\Sigma < 1\%$ in a gray aphan mtr.
- 2) pillow, lith as above
- 3) carbonate clay, lt gray green
- 4) pillow rubble, lith as above, 6.5' lost core here
- 5) dike, amscutan, olivine phenos alt to blk clay; plag blades & laths, $\Sigma < 1\%$ in a lt. gray feldspathic, dikty mtr.

CORE LOG

BOX # 532

HOLE # 1

Sheet A

Depth range 1489.16 to 1491.91 meters

Depth range 4882.5 to 4891.5 feet

Logger's Name EN

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay <input checked="" type="checkbox"/>	
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite <input type="checkbox"/>	
Aphyric							Plag -> Clay <input type="checkbox"/>	
Vesicles: %							Zeolite <input type="checkbox"/>	
Shape							Groundmass	
Size(x)							Chlorite <input type="checkbox"/>	
PHENOCRYSTS (Original mineralogy)							Smectite <input type="checkbox"/>	
Olivine >5%							Secondary/Alteration Min.	
1-5%	<input checked="" type="checkbox"/>						Smectite <input checked="" type="checkbox"/>	
<1%							Calcite <input type="checkbox"/>	
Phenos	<input checked="" type="checkbox"/>						Zeolite <input type="checkbox"/>	
mph	<input checked="" type="checkbox"/>						white fibrous <input type="checkbox"/>	
ol-plag							green <input type="checkbox"/>	
Comments	<u>alt to blk clay</u>						blue <input type="checkbox"/>	
Plagioclase							Analcime <input type="checkbox"/>	
>5%							Chabazite <input type="checkbox"/>	
1-5%	<input checked="" type="checkbox"/>						MgOH <input type="checkbox"/>	
<1%							Silica <input type="checkbox"/>	
Rhombs							Amorphous <input type="checkbox"/>	
Blades/laths	<input checked="" type="checkbox"/>						Chalcedony <input type="checkbox"/>	
mph							Crystals <input type="checkbox"/>	
Comments							Pyrite <input checked="" type="checkbox"/>	
Augite %							Epidote <input type="checkbox"/>	
GROUNDMASS (original)							Gypsum <input type="checkbox"/>	
Aphanitic	<input checked="" type="checkbox"/>						Anhydrite <input type="checkbox"/>	
Feldspathic	<input checked="" type="checkbox"/>						Chalcopryrite <input type="checkbox"/>	
Diktytaxitic	<input checked="" type="checkbox"/>						Limonite <input type="checkbox"/>	
							Hematite <input type="checkbox"/>	
							Other (describe) <input type="checkbox"/>	

CRITICAL FEATURES (description of units or features by number)

1) dike, anisoclastic, olivine phenos & mph \leq 1% alt to blk clay; plag blades & laths \leq 1% in a matrix which grades from feldspathic with dikty patches, lt gray, to aphanitic with dikty patches, gray.

CORE LOG

BOX # S33

HOLE # 1

Sheet A

Depth range 1491.91 to 1494.65 meters

Depth range 4891.5 to 4900.5 feet

Logger's Name EN

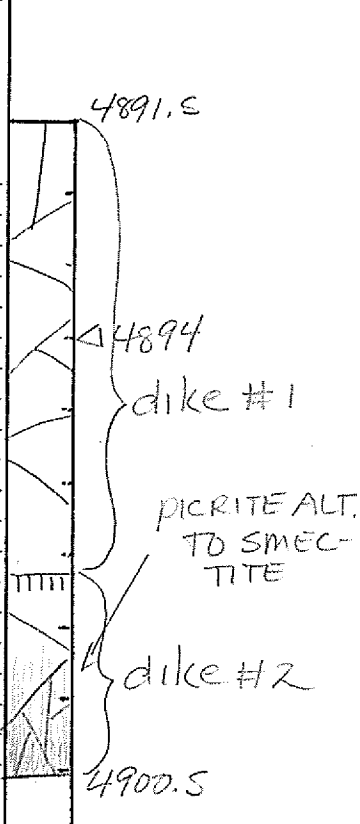
Page 1

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							SECONDARY FEATURES				COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements					
mega (>.5 mm)	✓	✓					Olv -> Clay <u>1, 2</u>					
micro (<.5 mm)	✓	✓					Iddingsite _____					
Aphyric							Plag -> Clay _____					
							Zeolite _____					
Vesicles: %	-	-					Groundmass					
Shape							Chlorite _____					
Size(x)							Smectite <u>#2</u>					
PHENOCRYSTS (Original mineralogy)												
Olivine >5%							Secondary/Alteration Min.					
1-5%	1	7						Smectite ✓				
<1%							Calcite _____					
Phenos mph	✓	✓					Zeolite _____					
ol-plag							white fibrous _____					
Comments	<u>alt to blk clay</u>							green _____				
Plagioclase							blue _____					
>5%							Analcime _____					
1-5%	1	1					Chabazite _____					
<1%							MgOH _____					
Rhombs							Silica _____					
Blades/laths mph	✓	✓					Amorphous _____					
Comments								Chalcedony _____				
Augite %							Crystals _____					
GROUNDMASS (original)								Pyrrite _____				
Aphanitic							Epidote _____					
Feldspathic							Gypsum _____					
Diktytaxitic	✓	✓					Anhydrite _____					
							Chalcopyrite _____					
							Limonite _____					
							Hematite _____					
							Other (describe) _____					



CRITICAL FEATURES (description of units or features by number)

1) dike, anesicular, olivine phenos & mph, alt to blk clay Σ 10%; plag blades & laths Σ 1% in a lt gray dikty mtr.

2) dike, anesicular, plag blades & laths Σ 1%, olivine phenos & mph Σ 1% at contact increase to 7% 45cm into unit, ground mass alters to smectite as olivine pheno % increases.

CORE LOG
 BOX # 534 HOLE # 1 Sheet A
 Depth range 1494.65 to 1497.25 meters Depth range 4900.5 to 4909 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv → Clay ✓	
micro (<.5 mm)	✓	✓					Iddingsite	
Aphyric							Plag → Clay	
Vesicles: %							Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)						Secondary/Alteration Min.		
Olivine >5%							Smectite ✓	
1-5%	✓						Calcite	
<1%		✓					Zeolite	
Phenos	✓	✓					white fibrous	
mph	✓	✓					green	
ol-plag							blue	
Comments							Analcime	
Plagioclase							Chabazite	
>5%							MgOH	
1-5%		✓					Silica	
<1%	✓						Amorphous ✓	
Rhombs							Chalcedony	
Blades/laths	✓	✓					Crystals	
mph	✓	✓					Pyrite ✓	
Comments	UNIT 1 v. lg gabbro here						Epidote	
Augite %							Gypsum	
GROUNDMASS (original)							Anhydrite	
Aphanitic							Chalcopyrite	
Feldspathic							Limonite	
Diktytaxitic							Hematite	
							Other (describe)	
							Talc-like flakes	

CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 5% Olivine phenocrysts, mph and <1% Plagioclase as laths, micro laths in a feldspathic sometimes diktytaxitic matrix. lg gabbro here

2) Dike w/ 1% Plagioclase as micro laths, blades and <1% Olivine as phenocrysts, mph in a lt bluish gray feldspathic matrix.

Mica like flakes (talc-like)
 7% MINERALS: SMECTITE, PYRITE (CALC ALT OLIV), A-QTZ

CORE LOG

BOX # 585

HOLE # 1

Sheet A

Depth range 1497.55 to 1499.99 meters

Depth range 4910 to 4918 feet

Logger's Name EN

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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)							Olv -> Clay			
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite			
Aphyric							Plag -> Clay			
							Zeolite			
Vesicles: %							Groundmass			
Shape							Chlorite			
Size(x)							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Fracture	Vesicle	Secondary/Alteration Min.	4910
1-5%	<input checked="" type="checkbox"/>									
<1%							Smectite	<input checked="" type="checkbox"/>		
Phenos mph	<input checked="" type="checkbox"/>						Calcite			
ol-plag							Zeolite			
Comments								white fibrous		
							green			
Plagioclase							blue			
>5%							Analcime			
1-5%	<input checked="" type="checkbox"/>						Chabazite			
<1%							MgOH			
Rhombs							Silica			
Blades/laths mph	<input checked="" type="checkbox"/>						Amorphous			
Comments								Chalcedony		
							Crystals			
Augite %							Pyrite			
							Epidote			
GROUNDMASS (original)							Gypsum			
Aphanitic							Anhydrite			
Feldspathic							Chalcopyrite			
Diktytaxitic	<input checked="" type="checkbox"/>						Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

1) dike, anesicular, olivine mph 1% alt to blk clay, plag blades & laths \approx 1% in a lt. gray slightly dikty mtr

CORE LOG

BOX # 536

HOLE # 1

Sheet A

Depth range 499.99 to 502.72 meters

Depth range 4918 to 4927 feet

Logger's Name FN

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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Olv -> Clay _____			
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Iddingsite _____			
Aphyric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plag -> Clay _____			
Vesicles: %	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zeolite _____			
Shape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Groundmass			
Size(x)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chlorite _____			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Secondary/Alteration Min.			
1-5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Smectite <input checked="" type="checkbox"/>			
<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Calcite <input checked="" type="checkbox"/>			
Phenos mph	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zeolite			
ol-plag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	white fibrous			
Comments <u>alt to blk clay</u>							green			
Plagioclase	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	blue			
>5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Analcime			
1-5%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chabazite			
<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MgOH			
Rhombs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Silica			
Blades/laths mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Amorphous			
Comments							Chalcedony			
Augite %	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Crystals			
GROUNDMASS (original)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pyrite			
Aphanitic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Epidote			
Feldspathic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gypsum			
Diktytaxitic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Anhydrite			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chalcopyrite			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Limonite			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hematite			
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other (describe)			

CRITICAL FEATURES (description of units or features by number)

- 1) dike, anhedral, olivine mph 1% alt to blk clay; plag mph 1% in a lt. gray slightly dikty mtrx.
- 2) dike, anhedral, plag mph <1% in a dk gray aphan mtrx.

CORE LOG
 BOX # 537 HOLE # 1 Sheet A
 Depth range 1502⁷⁴ to 1505⁴⁸ meters Depth range 4927 to 4936 feet
 Logger's Name PT 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	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
mega (>.5 mm)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aphyric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vesicles: %	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shape	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Size(x)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PHENOCRYSTS (Original mineralogy)						
Olivine >5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1-5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<1%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phenos	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ol-plag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments	<u> </u>					
Plagioclase						
>5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1-5%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rhombs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blades/laths	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments	<u> </u>					
Augite %	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROUNDMASS (original)						
Aphanitic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feldspathic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diktytaxitic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECONDARY FEATURES	
Phenocryst replacements	<input type="checkbox"/>
Olv -> Clay	<input checked="" type="checkbox"/>
Iddingsite	<input type="checkbox"/>
Plag -> Clay	<input type="checkbox"/>
Zeolite	<input type="checkbox"/>
Groundmass	<input type="checkbox"/>
Chlorite	<input type="checkbox"/>
Smectite	<input type="checkbox"/>
Fracture	<input checked="" type="checkbox"/>
Vesicle	<input type="checkbox"/>
Secondary/Alteration Min.	
Smectite	<input checked="" type="checkbox"/>
Calcite	<input type="checkbox"/>
Zeolite	<input type="checkbox"/>
white fibrous	<input type="checkbox"/>
green	<input type="checkbox"/>
blue	<input type="checkbox"/>
Analcime	<input type="checkbox"/>
Chabazite	<input type="checkbox"/>
MgOH	<input type="checkbox"/>
Silica	<input type="checkbox"/>
Amorphous	<input type="checkbox"/>
Chalcedony	<input type="checkbox"/>
Crystals	<input type="checkbox"/>
Pyrite	<input type="checkbox"/>
Epidote	<input type="checkbox"/>
Gypsum	<input type="checkbox"/>
Anhydrite	<input checked="" type="checkbox"/>
Chalcopyrite	<input type="checkbox"/>
Limonite	<input type="checkbox"/>
Hematite	<input type="checkbox"/>
Other (describe)	<u>Talc-like Flakes</u>

COMMENTS
 9' here
 4927: "anhydrite" = anhydrite
 RE 1/3/92
 - XRD
 4930S
 NO CHILL MARGIN
 FOUND HERE

CRITICAL FEATURES (description of units or features by number)

- 1) Dike 10% as Plagioclase laths, microlaths and <1% Olivine phenocrysts mph in a lt gray feldspathic matrix.
- 2) Hyaloclastite of Pillow fragments, The Pillow fragments vary in xtal content + vesicularity, The matrix is fine grained $\leq 1\mu\text{m}$ in size, lt gray - gray in color.

2° MINERALS: ANHYDRITE, SMECTITE, TALC + mica flakes.

CORE LOG

BOX # 538

HOLE # 1

Sheet A

Depth range 1505.48 to 1507.92 meters

Depth range 4936 to 4944 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive Ash Breccia Red Bed

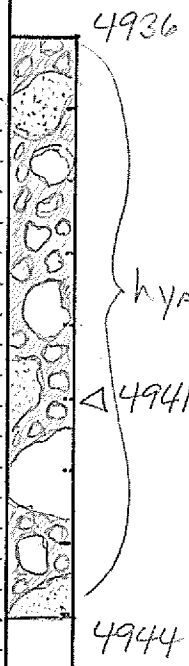
Number of Units in Box 1 Clk/Rubble Carbonate Pillow/Hyaloclast 1

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)							Olv -> Clay			
micro (<.5 mm)	✓						Iddingsite			
Aphyric							Plag -> Clay			
							Zeolite			
Vesicles: %	15						Groundmass			
Shape	R						Chlorite			
Size(x) /mm							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Fracture			
1-5%	3						Vesicle void			
<1%							Secondary/Alteration Min.			
Phenos mph	✓						Smectite			
ol-plag							Calcite			
Comments										
Plagioclase							Zeolite			
>5%							white fibrous			
1-5%							green	✓		
<1%							blue			
Rhombs							Analcime			
Blades/laths mph							Chabazite			
Comments										
Augite %							MgOH			
GROUNDMASS (original)							Silica			
Aphanitic	✓						Amorphous			
Feldspathic							Chalcedony			
Diktytaxitic							Crystals			
							Pyrite			
							Epidote			
							Gypsum	✓		
							Anhydrite	✓		
							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			

clasts

fibrous radiate



CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite, ^{original} clasts 95% amiscular, 5% vesicular; size: .5cm to 10cm; <3cm are tan quenched chill rinds, >3cm are dk gray aphan basalt with up to 3% olivine mph, unalt. Unit is clast supported, cemented by blk clay into a competent unit.

BOX # 539 CORE LOG HOLE # 67 Sheet A
 Depth range 1507 to 1510 meters Depth range 4944 to 4953 feet
 Logger's Name FT 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.

Clasts vesicular Clasts


PRIMARY FEATURES	1	2	3	4	5	6
Phyric	✓	✓				
mega (>.5 mm)	✓	✓				
micro (<.5 mm)	✓	✓				
Aphyric						
Vesicles: %		10				
Shape		R				
Size(x)		1				
PHENOCRYSTS (Original mineralogy)						
Olivine >5%	5-7	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	Fracture	Vesicle
Phenocryst replacements		
Olv -> Clay	✓	
Iddingsite		
Plag -> Clay		
Zeolite		
Groundmass		
Chlorite		
Smectite		
Secondary/Alteration Min.		
Smectite	✓	
Calcite		
Zeolite	✓	
white fibrous		
green		
blue		
Analcime	✓	
Chabazite		
MgOH		
Silica		
Amorphous		
Chalcedony		
Crystals		
Pyrite		
Epidote		
Gypsum		
Anhydrite	✓	
Chalcopyrite		
Limonite		
Hematite		
Other (describe)		
<i>Talc-like flakes</i>		
<i>Heulandite</i>		

COMMENTS

9' here

IMBRICATED Flakes white, aggregated together in lower called Heulandite



4451

- sand size particles
- fine grained ash-like part size

CRITICAL FEATURES (description of units or features by number)

Hyaloclastite w/ a wide range of Clasts, + sizes.
Size range from 41mm - 8cm

- 1) Dense Clasts have 5-7% Olivine phenocrysts, mph in a dense bluish gray aphanitic matrix.*
- 2) Vesicular Clasts 7% Olivine phenocrysts, mph in a lt gray feldspathic matrix*

2° MINERALS: SMECTITE, Analcime, Mica flakes, Heulandite, Anhydrite

CORE LOG
 BOX # 540 ⁶⁷ HOLE # 1 Sheet A
 Depth range 1510 to 1513.72 meters Depth range 4953 to 4963 feet
 Logger's Name FT 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓	✓					Olv -> Clay ✓	
micro(<.5 mm)	✓	✓					Iddingsite _____	
Aphyric							Plag -> Clay _____	
Vesicles: %		5					Zeolite _____	
Shape		R					Groundmass	
Size(x)		<1					Chlorite _____	
PHENOCRYSTS (Original mineralogy)							Smectite _____	
Olivine >5% <u>1-5%</u>							Calcite _____	
1-5%							Zeolite _____	
<1%		✓					white fibrous _____	
Phenos ✓		✓					green _____	
mph ✓		✓					blue _____	
ol-plag							Analcime _____	
Comments _____							Chabazite _____	
Plagioclase							MgOH _____	
>5%							Silica _____	
1-5%		3					Amorphous _____	
<1%							Chalcedony _____	
Rhombs							Crystals _____	
Blades/laths		✓					Pyrite _____	
mph		✓					Epidote _____	
Comments _____							Gypsum _____	
Augite %		✓					Anhydrite ✓	
GROUNDMASS (original)							Chalcopyrite _____	
Aphanitic	✓						Limonite _____	
Feldspathic							Hematite _____	
Diktytaxitic							Other (describe) Nerulandite	

CRITICAL FEATURES (description of units or features by number)

- Hyaloclastite w/ 5-7% Olivine as microphenocrysts, Phenocrysts in a gray aphanitic matrix
 - Dike^{vesicular} w/ 3% Plagioclase as laths, microlaths and <1% Olivine phenocrysts in a lt gray feldspathic matrix. Rare augite seen intergrown w/ Plagioclase.
- 2° Minerals: Smectite, Anhydrite, Nerulandite

CORE LOG
 BOX # 541 HOLE # 1 Sheet A
 Depth range 1513⁷² to 1516⁴⁶ meters Depth range 4963 to 4972 feet
 Logger's Name FT 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	<1				
Shape	R	R				
Size(x)	<1	<1				

PHENOCRYSTS (Original mineralogy)						
Olivine	>5%					
	1-5%	2.5				
	<1%	✓				
Phenos	mph	✓				
	mph	✓				
	ol-plag					
Comments <u> </u>						

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

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

SECONDARY FEATURES	
Phenocryst replacements	
Olv -> Clay	✓
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	

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

COMMENTS
 9' here
 White Zeolite @
 4970.7'



- CRITICAL FEATURES (description of units or features by number)
- 1) Dike w/ 3% Plagioclase as laths, microlaths and <1% Olivine phenocrysts, mph in a bluish gray feldspathic matrix. Rare cpx seen.
 - 2) Hyaloclastite w/ various clasts w/ 3-5% Olivine phenocrysts, mph in a bluish gray ^{aphanitic} matrix.

2° MINERALS: SMECTITE, CALCITE, PYRITE, WHITE ZEOLITE

CORE LOG

BOX # 542 HOLE # 1 Sheet A
 Depth range 1516.46 to 1519.26 meters Depth range 4972 to 4981 feet
 Logger's Name EN 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓						Olv -> Clay			
micro (<.5 mm)	✓						Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	✓						Zeolite			
Shape	<u>R</u>						Groundmass			
Size(x) / <u>1/4mm</u>							Chlorite			
							Smectite ✓			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%	✓						Fracture	Vesicle	Secondary/Alteration Min.	
1-5%										
<1%							Calcite			
Phenos ✓							Zeolite			
mph ✓							white fibrous			
ol-plag							green			
Comments							blue			
Plagioclase							Anaclime			
>5%							Chabazite			
1-5%							MgOH			
<1%							Silica			
Rhombs							Amorphous (?)			
Blades/laths							Chalcedony			
mph							Crystals			
Comments							Pyrite			
Augite %							Epidote			
GROUNDMASS (original)							Gypsum			
Aphanitic ✓							Anhydrite			
Feldspathic							Chalcopyrite			
Diktytaxitic							Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

1) hyaloclastite: angular clasts; 95% aresicular, 10% mesicular, ^{small} amor. silica (?) as amygdules and high chlorine content (7%) Lt. grayish tan in color. Total size range: .5 to 10cm. Small clasts (5%, <.3cm) are tan quenched chill rinds, lg clasts (95%, >3cm) are gray aphan. basalt with differing chlorine pheno %. All cemented by black clay into a competent unit somewhat altered toward smectite.

CORE LOG
 BOX # 543 HOLE # 1 Sheet A
 Depth range 1519²¹ to 1521⁹⁵ meters Depth range 4981 to 4990 feet
 Logger's Name FT 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%						
1-5%						
<1%						
Phenos	✓					
mph	✓					
ol-plag						
Comments <u> </u>						
Plagioclase						
>5%						
1-5%						
<1%		✓				
Rhombs						
Blades/laths		✓				
mph		✓				
Comments <u> </u>						
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 fibrous	✓
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS
 9' here
 Milky white Zeolite here in Hyalo., ves fill, hardness ~5.0
 3 fine grained boundaries of Coarser Hyalo -

CRITICAL FEATURES (description of units or features by number)

- 1) Hyaloclastite, fines dominate. The few clasts have olivine as microphenocrysts, Phenocrysts in a altered green matrix
 - 2) Dike w/ <1% Plagioclase as micro laths, laths in a lt gray feldspathic matrix
- 2^o Minerals: SMECTITE, ANHYDRITE, CALCITE, White milky Z
 L2.5.0

CORE LOG

BOX # 544 HOLE # 1 Sheet A
 Depth range 1521.95 to 1524.85 meters Depth range 4990 to 4999.5 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay <u> </u>	
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
Vesicles: %							Zeolite <u> </u>	
Shape							Groundmass	
Size(x)							Chlorite <u> </u>	
							Smectite <u> </u>	
							Secondary/Alteration Min.	
							Smectite <u> </u>	
PHENOCRYSTS (Original mineralogy)							Calcite <u> </u>	dike #1
Olivine >5%							Zeolite <u> </u>	
1-5%	<u>3</u>						white fibrous <u> </u>	
<1%							green <u> </u>	
Phenos	<input checked="" type="checkbox"/>						blue <u> </u>	
mph	<input checked="" type="checkbox"/>						Analcime <u> </u>	
ol-plag							Chabazite <u> </u>	
Comments	<u>alt to blk clay</u>						MgOH <u> </u>	
							Silica <u> </u>	
							Amorphous <u> </u>	
Plagioclase							Chalcedony <u> </u>	4999.5
>5%							Crystals <u> </u>	
1-5%	<u>2</u>						Pyrite <u> </u>	
<1%							Epidote <u> </u>	
Rhombs	<input checked="" type="checkbox"/>						Gypsum <input checked="" type="checkbox"/>	
Blades/laths	<input checked="" type="checkbox"/>						Anhydrite <u> </u>	
mph	<input checked="" type="checkbox"/>						Chalcopryrite <u> </u>	
Comments							Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe) <u> </u>	
Augite %								
GROUNDMASS (original)								
Aphanitic	<input checked="" type="checkbox"/>							
Feldspathic	<input checked="" type="checkbox"/>							
Diktytaxitic								

CRITICAL FEATURES (description of units or features by number)

1) dike, arosicular, top of box is aphanitic and aphyric, grades into distinctly feldspathic, almost gabbroic, texture with olivine phenos & mph \approx 30%, alt to blk clay; and plag rhombs, blades & laths, mph \approx 20%. Unit is lt. gray in color.

CORE LOG

BOX # 545

HOLE # 1

Sheet A

Depth range 1521⁰⁵ to 1527⁷⁵ meters

Depth range 4999⁰⁵ to 5009 feet

Logger's Name FT

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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay <input checked="" type="checkbox"/>		
micro(<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite <input type="checkbox"/>		
Aphyric							Plag -> Clay <input type="checkbox"/>		
Vesicles: %							Zeolite <input type="checkbox"/>		
Shape							Groundmass		
Size(x)							Chlorite <input type="checkbox"/>		
							Smectite <input type="checkbox"/>		
							Fracture		
							Vesicle		
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.		
Olivine >5%							Smectite <input checked="" type="checkbox"/>		
1-5%	<input checked="" type="checkbox"/>						Calcite <input checked="" type="checkbox"/>		
<1%							Zeolite <input type="checkbox"/>		
Phenos	<input checked="" type="checkbox"/>						white fibrous <input type="checkbox"/>		
mph	<input checked="" type="checkbox"/>						green <input type="checkbox"/>		
ol-plag							blue <input type="checkbox"/>		
Comments								Analcime <input type="checkbox"/>	
							Chabazite <input type="checkbox"/>		
Plagioclase							MgOH <input type="checkbox"/>		
>5%							Silica <input type="checkbox"/>		
1-5%	<input checked="" type="checkbox"/>						Amorphous <input type="checkbox"/>		
<1%							Chalcedony <input type="checkbox"/>		
Rhombs	<input checked="" type="checkbox"/>						Crystals <input type="checkbox"/>		
Blades/laths	<input checked="" type="checkbox"/>						Pyrite <input type="checkbox"/>		
mph	<input checked="" type="checkbox"/>						Epidote <input type="checkbox"/>		
Comments								Gypsum <input type="checkbox"/>	
							Anhydrite <input checked="" type="checkbox"/>		
Augite %	<input checked="" type="checkbox"/>						Chalcopyrite <input type="checkbox"/>		
							Limonite <input type="checkbox"/>		
GROUNDMASS (original)							Hematite <input type="checkbox"/>		
Aphanitic							Other (describe) <input type="checkbox"/>		
Feldspathic									
Diktytaxitic	<input checked="" type="checkbox"/>								

CRITICAL FEATURES (description of units or features by number)

1) Dike w/ 5% Olivine phenocrysts, mph and 3% Plagioclase as laths, Rhombs, blades and micro laths in a light gray diktytaxitic matrix

2^o Minerals: SMECTITE, CALCITE, ANHYDRITE

CORE LOG

BOX # 546

HOLE # 1

Sheet A

Depth range 1527.74 to 1530.79 meters

Depth range 5089 to 5099 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 2

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)		-					Olv -> Clay			
micro (<.5 mm)							Iddingsite			
Aphyric		✓					Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smeectite <u>#2</u>			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Fracture	Vesicle	5009	dike #1
1-5%										
<1%							Secondary/Alteration Min.			
Phenos mph							Smeectite			
ol-plag							Calcite			
Comments							Zeolite			
							white fibrous			
							green			
							blue			
							Analcime			
Plagioclase							Chabazite			
>5%							MgOH			
1-5%							Silica			
<1%							Amorphous	2(?)		
Rhombs							Chalcedony			
Blades/laths							Crystals			
mph							Pyrite			
Comments							Epidote			
							Gypsum	1		
Augite %							Anhydrite			
							Chalcopyrite			
GROUNDMASS (original)							Limonite			
Aphanitic		✓					Hematite			
Feldspathic							Other (describe)			
Diktytaxitic										
CRITICAL FEATURES (description of units or features by number)										5099

- 1) dike, amsicular, aphyric, aphanitic lt gray basalt.
- 2) hyaloclastite, unit is highly altered toward smectite individual clasts are unrecognizable but may contain a high olivine pheno %. Unit is both grayish maroon and grayish green in color.

PRIMARY FEATURES						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)							Olv -> Clay <input checked="" type="checkbox"/>	
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Iddingsite <u> </u>	
Aphyric							Plag -> Clay <u> </u>	
Vesicles: %	-	-					Zeolite <u> </u>	
Shape							Groundmass	
Size(x)							Chlorite <u> </u>	
							Smectite <u> </u>	
PHENOCRYSTS (Original mineralogy)								
Olivine >5%							Fracture	
Olivine 1-5%	<input checked="" type="checkbox"/>						Secondary/Alteration Min.	
Olivine <1%							Smectite <input checked="" type="checkbox"/>	
Phenos	<input checked="" type="checkbox"/>						Calcite <u> </u>	
mph	<input checked="" type="checkbox"/>						Zeolite <u> </u>	
ol-plag							white fibrous <u> </u>	
Comments							green <u> </u>	
							blue <u> </u>	
							Analcime <u> </u>	
							Chabazite <u> </u>	
							MgOH <u> </u>	
							Silica <u> </u>	
							Amorphous <u> </u>	
							Chalcedony <u> </u>	
							Crystals <u> </u>	
							Pyrite <u> </u>	
							Epidote <u> </u>	
							Gypsum <u> </u>	
							Anhydrite <input checked="" type="checkbox"/>	
							Chalcopyrite <u> </u>	
							Limonite <u> </u>	
							Hematite <u> </u>	
							Other (describe) Mica-like flakes	

CRITICAL FEATURES (description of units or features by number)

- 1) Hyaloclastite + Pillow Fragments w/ 5% Olivine phenocrysts, mph in a lt bluish gray ^{Aphanitic} matrix.
- 2) Pillow - lg Clasts w/ <1% Plagioclase as microlaths and rare Rhombs in a feldspathic matrix lt gray in color.

2^o Minerals SMECTITE, ANHYDRITE, Mica-like flakes

CORE LOG

BOX # 548

HOLE # 1

Sheet A

Depth range 1533.84 to 1536.89 meters

Depth range 5029 to 5039 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 4Z

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	-						Olv -> Clay		
micro (<.5 mm)	-						Iddingsite		
Aphyric		✓					Plag -> Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite <u>#1</u>		
PHENOCRYSTS (Original mineralogy)							Fracture		
Olivine >5%							Vesicle		
1-5%							Secondary/Alteration Min.		
<1%		✓					Smectite	✓	
Phenos mph		✓					Calcite		
ol-plag							Zeolite		
Comments							white fibrous		
							green		
Plagioclase							blue		
>5%							Analcime		
1-5%							Chabazite		
<1%							MgOH		
Rhombs							Silica		
Blades/laths mph							Amorphous		
Comments							Chalcedony		
							Crystals		
Augite %							Pyrite		
							Epidote		
GROUNDMASS (original)							Gypsum		
Aphanitic		✓					Anhydrite		
Feldspathic			✓				Chalcopyrite		
Diktytaxitic							Limonite		
							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

- 1) hyaloclastite, angular clasts, 75% gray aphan basalt + 25% tan quenched chill rinds, cemented into a competent unit by dk green clay permanently altered to smectite.
- 2) pillow, aversicular, <1% olivine mph in a lt gray somewhat feldspathic mtr.

CORE LOG

BOX # 549

HOLE # 1

Sheet A

Depth range 1536.67 to 1538.88 meters

Depth range 5038 to 5045.5 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓	✓	✓				Olv -> Clay _____			
micro (<.5 mm)	✓	✓	✓				Iddingsite _____			
Aphyric							Plag -> Clay _____			
							Zeolite _____			
Vesicles: %							Groundmass			
Shape							Chlorite _____			
Size(x)							Smectite _____			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.	Fracture	Vesicle	
1-5%										
<1%	✓	✓	✓				Smectite			
Phenos mph	✓	✓	✓				Calcite			
ol-plag							Zeolite			
Comments								white fibrous		
								green		
								blue		
								Analcime		
								Chabazite		
								MgOH		
								Silica		
								Amorphous #2		
								Chalcedony		
								Crystals		
								Pyrite		
								Epidote		
								Gypsum		
								Anhydrite		
								Chalcopyrite		
								Limonite		
								Hematite		
								Other (describe)		
								Other (describe)		

opad (circled) points to Amorphous #2 and blue botryoidal.

Handwritten notes in comments:
 5038 } pillow #1
 5043.5 } pillow #2
 5045.5 } pillow #3

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, amscular, olivine mph <1% in a lt gray slightly dkty mtr.
- 2,3) pillows, lith as above

CORE LOG

BOX # 550

HOLE # 1

Sheet A

Depth range 1538.88 to 1541.47 meters

Depth range 5045.5 to 5054 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)							Olv -> Clay			
micro(<.5 mm)	✓	✓					Iddingsite			
Aphyric							Plag -> Clay			
							Zeolite			
Vesicles: %							Groundmass			
Shape							Chlorite			
Size(x)							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.			
1-5%								Smectite	✓	
<1%	✓	✓					Calcite			
Phenos							Zeolite			
mph	✓	✓					white fibrous			
ol-plag							green			
Comments								blue		
Plagioclase							Analcime			
>5%							Chabazite			
1-5%							MgOH			
<1%							Silica	✓		
Rhombs							Amorphous	✓		
Blades/laths							Chalcedony			
mph							Crystals			
Comments								Pyrite		
Augite %							Epidote			
GROUNDMASS (original)								Gypsum	✓	
Aphanitic							Anhydrite			
Feldspathic							Chalcopyrite			
Diktytaxitic	✓	✓					Limonite			
							Hematite			
							Other (describe)			5054

CRITICAL FEATURES (description of units or features by number)

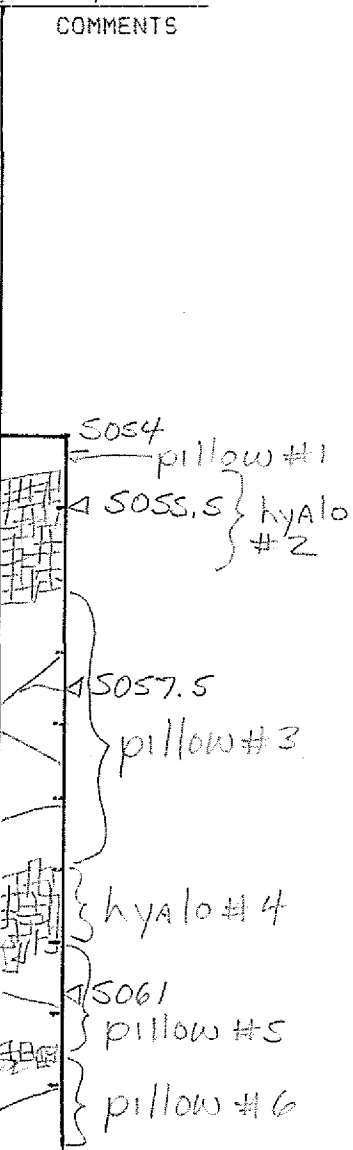
- 1) pillow, amsicular, olivine mph < 1%, alt to blk clay in a slightly dikty mtr.
- 2) pillow, lth as above

CORE LOG

BOX # 551 HOLE # 1 Sheet A
 Depth range 1541.47 to 1544.52 meters Depth range 5054 to 5064 feet
 Logger's Name EN 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 >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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	✓
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	✓
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

5064

- 1) pillow, aenecular, olivine mph < 1%, alt to blk clay in a gray aphan mtx.
- 2) hyaloclastite, tan quenched chill rinds surrounded by an aureole of blk clay, cemented together by gypsum in filling.
- 3) pillow, lith as in #1
- 4) hyaloclastite, lith as in #2
- 5, 6) pillow, lith as in #1

CORE LOG

BOX # 552

HOLE # 1

Sheet A

Depth range 1344.5 to 1347.5 meters

Depth range 5064 to 5074 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 1-3

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)							Olv -> Clay			
micro(<.5 mm)	✓	✓	✓				Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%							Smectite	✓		
<1%	✓	✓	✓				Calcite			
Phenos mph	✓	✓	✓				Zeolite			
ol-plag							white fibrous			
Comments								green		
							blue			
Plagioclase >5%							Analcime			
1-5%							Chabazite			
<1%							MgOH			
Rhombs							Silica			
Blades/laths mph							Amorphous	✓		
Comments								Chalcedony		
							Crystals			
Augite %							Pyrite			
							Epidote			
GROUNDMASS (original)							Gypsum			
Aphanitic	✓	✓	✓				Anhydrite			
Feldspathic							Chalcopyrite			
Diktytaxitic							Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

5074

- 1) pillow, anisular, olivine mph < 1%, alt to blk clay in a gray aphan mtr.
- 2,3) pillows, both as above

CORE LOG

BOX # SS3

HOLE # 1

Sheet A

Depth range 1547.57 to 1550.0 meters

Depth range 5074 to 5082 feet

Logger's Name EN

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							SECONDARY FEATURES				COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements					
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay					
micro(<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite					
Aphyric							Plag -> Clay					
Vesicles: %	<input checked="" type="checkbox"/>						Zeolite					
Shape							Groundmass					
Size(x)							Chlorite					
							Smectite					
PHENOCRYSTS (Original mineralogy)												
Olivine >5%							Secondary/Alteration Min.					
1-5%							Smectite	<input checked="" type="checkbox"/>				
<1%	<input checked="" type="checkbox"/>						Calcite					
Phenos							Zeolite					
mph	<input checked="" type="checkbox"/>						white fibrous					
ol-plag							green					
Comments	<u>alt to blk clay</u>							blue				
							Analcime					
Plagioclase								Chabazite				
>5%							MgOH					
1-5%							Silica					
<1%							Amorphous					
Rhombs							Chalcedony					
Blades/laths							Crystals					
mph							Pyrite					
Comments								Epidote				
							Gypsum					
Augite %								Anhydrite				
							Chalcopryrite					
GROUNDMASS (original)								Limonite				
Aphanitic	<input checked="" type="checkbox"/>						Hematite					
Feldspathic							Other (describe)					
Diktytaxitic	<input checked="" type="checkbox"/>											

CRITICAL FEATURES (description of units or features by number)

1) pillow, aresicular, olivine mph < 1% ^{alt to blk clay} in a matrix which grades from gray aphanitic to lt. gray slightly dikty.

CORE LOG

BOX # SS4

HOLE # 1

Sheet A

Depth range 1550.01 to 1552.75 meters

Depth range 5082 to 5091 feet

Logger's Name EN

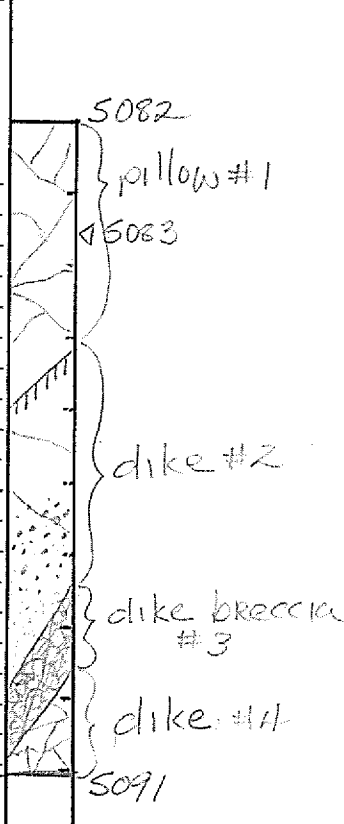
Page 1

Type of Sample: Flow _____ Intrusive 2,4 Ash _____ Breccia 3 Red Bed _____

Number of Units in Box 4 Clk/Rubble _____ Carbonate _____ Pillow/Hyaloclast 4

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES						SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)		✓	-	✓			Olv -> Clay _____		
micro (<.5 mm)	✓	✓	-	✓			Iddingsite _____		
Aphyric							Plag -> Clay _____		
							Zeolite _____		
Vesicles: %		10					Groundmass		
Shape		R					Chlorite _____		
Size(x)		1mm					Smectite <u>#3</u>		
PHENOCRYSTS (Original mineralogy)									
Olivine >5%			-				Secondary/Alteration Min.		
1-5%								Smectite ✓	
<1%	✓	✓		✓			Calcite _____		
Phenos mph	✓	✓		✓			Zeolite _____		
ol-plag		✓					white fibrous _____		
Comments	<u>alt to blk clay</u>						green _____		
							blue _____		
Plagioclase							Analcime _____		
>5%							Chabazite _____		
1-5%							MgOH _____		
<1%							Silica _____		
Rhombs							Amorphous _____		
Blades/laths mph							Chalcedony _____		
Comments							Crystals _____		
Augite %							Pyrite _____		
							Epidote _____		
GROUNDMASS (original)							Gypsum _____		
Aphanitic							Anhydrite _____		
Feldspathic		✓		✓			Chalcopyrite _____		
Diktytaxitic	✓						Limonite _____		
							Hematite _____		
							Other (describe) _____		



CRITICAL FEATURES (description of units or features by number)

- 1) pillow, anhedral, olivine mph < 1% in a lt gray slightly dikty mtr alt to blk clay
- 2) dike, mesoclastic area 34cm below contact, 15cm thick (10%, 1mm). Unit begins as aphyric and aphanitic, quickly grades to fine grained gabbroic texture at mesoclastic area. Olivine phenos & ol-plag inters < 1%, alt to blk clay in a dk gray and white mottled holox-falline mtr.



- 3) dike breccia, clast supported, clasts are from unit #2 cemented by gray clay. Whole unit is altered toward smectite
- 4) dike, lith as in #2

1-554

CORE LOG
 BOX # 555 HOLE # 1 Sheet A
 Depth range 1552 to 1555.5 meters Depth range 5091 to 5100 feet
 Logger's Name FT Page 1
 Type of Sample: Flow _____ Intrusive 2 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Olv -> Clay <input checked="" type="checkbox"/>			
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Iddingsite _____			
Aphyric							Plag -> Clay _____			
Vesicles: %	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Zeolite _____			
Shape							Groundmass			
Size(x)							Chlorite _____			
							Smectite _____			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.			
1-5%							Smectite <input checked="" type="checkbox"/>			
<1%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Calcite _____			
Phenos mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				Zeolite _____			
ol-plag							white fibrous <input checked="" type="checkbox"/>			
Comments								green _____		
							blue _____			
Plagioclase							Analcime _____			
>5%							Chabazite _____			
1-5%		<input checked="" type="checkbox"/>					MgOH _____			
<1%							Silica			
Rhombs		<input checked="" type="checkbox"/>					Amorphous _____			
Blades/laths		<input checked="" type="checkbox"/>					Chalcedony _____			
mph		<input checked="" type="checkbox"/>					Crystals _____			
Comments								Pyrite _____		
							Epidote _____			
Augite %							Gypsum _____			
							Anhydrite <input checked="" type="checkbox"/>			
GROUNDMASS (original)								Chalcopyrite _____		
Aphanitic		<input checked="" type="checkbox"/>					Limonite _____			
Feldspathic	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Hematite _____			
Diktytaxitic							Other (describe) _____			

CRITICAL FEATURES (description of units or features by number)

- 1) Pillow w/ <1% Olivine phenocrysts, mph in a feldspathic, microvesicular, gray matrix.
- 2) Dike w/ 1% Plagioclase as Rhombs, blades, laths and microlaths and <1% Olivine as phenocrysts, mph in a gray aphanitic matrix.

2° MINERAL: SMECTITE, ANHYDRITE, white Zeolite (crust), Clay (alt olv)

CORE LOG

BOX # 556

HOLE # 1

Sheet A

Depth range 1555.5 to 1556.5 meters

Depth range 5100 to 5110 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 1-6, 8, 9

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Fracture	Vesicle	
mega (>.5 mm)									
micro (<.5 mm)									
Aphyric	<u>pillows</u>	<u>✓</u>	<u>✓</u>	<u>1/4/6</u>					
Vesicles: %									
Shape									
Size(x)									
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.		
Olivine >5%									
Olivine 1-5%									
Olivine <1%									
Phenos mph									
ol-plag									
Comments									
Plagioclase									
>5%									
1-5%									
<1%									
Rhombs									
Blades/laths mph									
Comments									
Augite %									
GROUNDMASS (original)									
Aphanitic	<u>✓</u>	<u>✓</u>							
Feldspathic									
Diktytaxitic									
Secondary Features									
Phenocryst replacements									
Olv -> Clay									
Iddingsite									
Plag -> Clay									
Zeolite									
Groundmass									
Chlorite									
Smectite									
Secondary/Alteration Min.									
Smectite									
Calcite									
Zeolite									
white fibrous									
green									
blue									
Analcime									
Chabazite									
MgOH									
Silica									
Amorphous #3									
Chalcedony									
Crystals									
Pyrite									
Epidote									
Gypsum #7									
Anhydrite									
Chalcopyrite									
Limonite									
Hematite									
Other (describe)									

CRITICAL FEATURES (description of units or features by number)

1-6, 8 & 9) pillows, arborescent, aphyric, aphanitic gray basalt. Contacts are tan quenched chill rinds.
 7) hyaloclastite, tan quenched chill rinds with blk alteration rinds cemented into a competent unit by gypsum infilling.

5100

pillows # 1-6

hyalo #7

5108.5

pillows 8 & 9

5110

CORE LOG
 BOX # 557 HOLE # 1 Sheet A
 Depth range 1558.55 to 1562.06 meters Depth range 5110 to 5121.5 feet
 Logger's Name FT 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						
	1	2	3	4	5	6
Phyric						
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.	
Smectite	✓
Calcite	✓
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	✓
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

11.5' here

5117': "zeolite?" R.F. (1) = zeolite, (2) = (pyroxene group?). RE 1/8/92.

UNKNOWN! WHITE Zeolite

1 = Micaceous Flakes

2 = white fibrous THOMPSONITE? XLA? RAME?

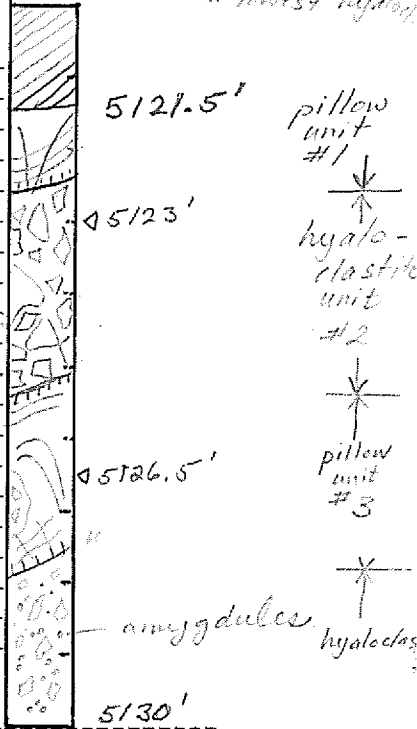
CRITICAL FEATURES (description of units or features by number)

1-2) Pillows, Pillow fragments, w/ rare Olivine and Plagioclase phenocrysts, mph in a lt bluish gray feldspathic matrix

2 Minerals: SMECTITE, CALCITE, ANHYDRITE, WHITE MICACEOUS ZEOLITE
 A - QTZ, WHITE FIBROUS ZEOLITE - THOMPSONITE?

CORE LOG
 BOX # 558 HOLE # 50H-1 Sheet A
 Depth range 1562 to 1564.7 meters Depth range 5121.5 to 5130 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 1-4
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			Good Alteration Mineral assemblage. calcite rhombs, zeolites (white fibrous → natrolite) green partly radial blades (smectite). Red glass (sideromaleone present in hyaloclastite amygdules) OO amorph OO silica fill in lowest hyaloclast.
mega (>.5 mm)							Olv → Clay <input checked="" type="checkbox"/>			
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Iddingsite <u> </u>			
Aphyric							Plag → Clay <u> </u>			
Vesicles: %	<u>5%</u>	<u>5%</u>					Zeolite <u> </u>			
Shape	<u>SR</u>	<u>SR</u>					Groundmass			
Size(x)	<u>4mm</u>	<u>4mm</u>					Chlorite <u> </u>			
							Smectite <input checked="" type="checkbox"/>			
							Fracture <input checked="" type="checkbox"/>			
							Vesicle <input checked="" type="checkbox"/>			
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.			
Olivine >5%							Smectite <input checked="" type="checkbox"/>			
1-5%							Calcite <u> </u>			
<1%	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				Zeolite <u> </u>			
Phenos mph	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>				white fibrolite <u> </u>			
ol-plag							green <input checked="" type="checkbox"/>			
							blue <u> </u>			
Comments	<u>Niv → smectite</u>									
Plagioclase										
>5%							Analcime <u> </u>			
1-5%		<input checked="" type="checkbox"/>					Chabazite <u> </u>			
<1%	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		MgOH <u> </u>			
Rhombs							Silica <u> </u>			
Blades/laths mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Amorphous <input checked="" type="checkbox"/>			
							Chalcedony <u> </u>			
Comments								Crystals <u> </u>		
Augite %										
							Pyrite <u> </u>			
GROUNDMASS (original)										
Aphanitic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			Epidote <u> </u>			
Feldspathic		<input checked="" type="checkbox"/>					Gypsum <u> </u>			
Diktytaxitic							Anhydrite <u> </u>			
							Chalcopyrite <u> </u>			
							Limonite <u> </u>			
							Hematite <u> </u>			
							Other (describe) <u> </u>			



CRITICAL FEATURES (description of units or features by number)

- 1) pillow lava, moderately fractured, micro-phyric < 1% olivine & plag mph, finely vesicular filled w/ smectite. Golden glass, chill margins. Aphanitic grey groundmass.
- 2) Hyaloclastite w/ angular clasts & highly fractured pillow toes. 1-5% plag laths & mph w/ amber-golden glassy clast groundmass. Pillow & clast in fine black aphanitic matrix.
- 4) Hyaloclastite, fine-sandy rounded glassy clasts, microphyric

w/ $\approx 1\%$ plag in golden glassy groundmass. Amygdaloid
w/ amorph. qtz. common.

CORE LOG

BOX # 559

HOLE # 1

Sheet A

Depth range 1564.65 to 1567.70 meters

Depth range 5130 to 5140 feet

Logger's Name EA

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						SECONDARY FEATURES						COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements						5130 hyalo #1
mega (>.5 mm)	-						Olv -> Clay						
micro (<.5 mm)		✓	✓	✓			Iddingsite						
Aphyric							Plag -> Clay						
Vesicles: %							Zeolite						
Shape							Groundmass						
Size(x)							Chlorite						
							Smeectite						
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle				pillow #2	
Olivine >5%							Secondary/Alteration Min.						
Olivine 1-5%							Smeectite	✓					
Olivine <1%		✓	✓	✓			Calcite						
Phenos mph							Zeolite						
ol-plag		✓	✓	✓			white fibrous						
Comments	<u>unalt</u>						green						
Plagioclase >5%							blue						
Plagioclase 1-5%							Analcime						
Plagioclase <1%							Chabazite						
Rhombs							MgOH						
Blades/laths mph							Silica						
Comments							Amorphous	✓					
Augite %							Chalcedony						
GROUNDMASS (original)							Crystals						
Aphanitic	-	✓	✓	✓			Pyrite						
Feldspathic							Epidote						
Diktytaxitic							Gypsum						
							Anhydrite						
							Chalcoppyrite						
							Limonite						
							Hematite						
							Other (describe)						

CRITICAL FEATURES (description of units or features by number)

5140

1) hyaloclastite, matrix supported, small (1cm or less) clasts are tan quenched chill rinds in a matrix of black volcanic glass sand indurated to a competent unit.

2) pillow, aresicular, ol-plag inters <1% unalt. in an aphan gray mtr.

3, 4) pillows, lith as above

CORE LOG
 BOX # 360 HOLE # 1 Sheet A
 Depth range 1567.7 to 1570.45 meters Depth range 5140 to 5149 feet
 Logger's Name FT 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: %	-	-	-	-	-	-
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.	
Smectite	✓
Calcite	✓
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

9' here

UNIT 1

UNIT 2

UNIT 3

UNIT 4

UNIT 5

CRITICAL FEATURES (description of units or features by number)

1-3) Pillows w/ 1% Plagioclase microlaths, laths and rare Rhombs also <1% Olivine phenocrysts, mph in a gray feldspathic matrix.

2-3) Pillows w/ 1% Olivine phenocrysts, mph and 1% Plagioclase as microlaths, laths and Rhombs in a gray feldspathic matrix.

2° Minerals: Smectite, white fibrous Zeolite (Natroite?), Calcite

CORE LOG

BOX # E61

HOLE # 1

Sheet A

Depth range 1576.44 to 1578.19 meters

Depth range 5149 to 5158 feet

Logger's Name EN

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							SECONDARY FEATURES				COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements					5149
mega (>.5 mm)			-				Div -> Clay				pillow #1	
micro (<.5 mm)	✓	✓		✓			Iddingsite					5155
Aphyric							Plag -> Clay				hyalo #3	
Vesicles: %							Zeolite					pillow #4
Shape							Groundmass				5158	
Size(x)							Chlorite					
PHENOCRYSTS (Original mineralogy)												
Olivine	>5%						Smectite	✓				
	1-5%						Calcite					
	<1%	✓	✓		✓		Zeolite					
Phenos	mph	✓	✓		✓		white fibrous					
	ol-plag	✓	✓		✓		green					
							blue					
Comments	<u>unalt</u>							Analcime				
Plagioclase								Chabazite				
	>5%						MgOH					
	1-5%						Silica					
	<1%						Amorphous	✓				
	Rhombs						Chalcedony					
	Blades/laths						Crystals					
	mph						Pyrite					
Comments								Epidote				
Augite								Gypsum	✓			
	%						Anhydrite					
GROUNDMASS (original)								Chalcopyrite				
	Aphanitic	✓	✓	-	✓		Limonite					
	Feldspathic						Hematite					
	Diktytaxitic						Other (describe)					

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aresicular, olivine-plag mph < 1%, unalt in a gray aphan mtrx.
- 2) pillow, lith as above
- 3) hyalo, brecciated pillow fragments cemented into a competent unit by gray clay
- 4) pillow, lith as in #1

CORE LOG
 BOX # 562 HOLE # 1 Sheet A
 Depth range 1573 to 1575 meters Depth range 5158 to 5166 feet
 Logger's Name FT 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 >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	
Non-zeolite white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

8' here

White Zeolite
 1) Fibrous - Natrolite?
 2) Dome-like, soft 2-3
 v. small << 1mm

CRITICAL FEATURES (description of units or features by number)

1) Pillows w/ <1% Olivine phenocrysts, mph and <1% Plagioclase microlaths, laths in a lt gray feldspathic matrix.

2° MINERALS: SMECTITE, white fibrous Zeolite - NATROLITE
 CALCITE, " Zeolite - Dome-like

CORE LOG
 BOX # 563 HOLE # 1 Sheet A
 Depth range 1575 to 1578 meters Depth range 5166 to 5176 feet
 Logger's Name FT Page 1

Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box 3 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: %	1	2	3	4	5	6
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
 Oliv → Clay ✓
 Iddingsite
 Plag → Clay
 Zeolite

Groundmass

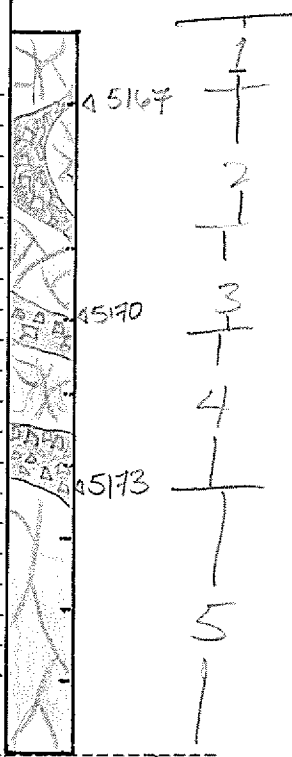
Chlorite
 Smectite

Fracture
 Vesicle
 Secondary/Alteration Min.

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

COMMENTS

10' reported here
 305cm vs 266.5
 Measured!



CRITICAL FEATURES (description of units or features by number)

1-5) Pillars w/ 1% Olivine phenocrysts, mph and <1% Plagioclase as microlaths in a gray, felsic groundmass

2° MINERALS: SMECTITE, NATROCLITE, A-QTZ

CORE LOG

BOX # 564

HOLE # 1

Sheet A

Depth range 1578.62 to 1581.42 meters

Depth range 5176 to 5185 feet

Logger's Name EN

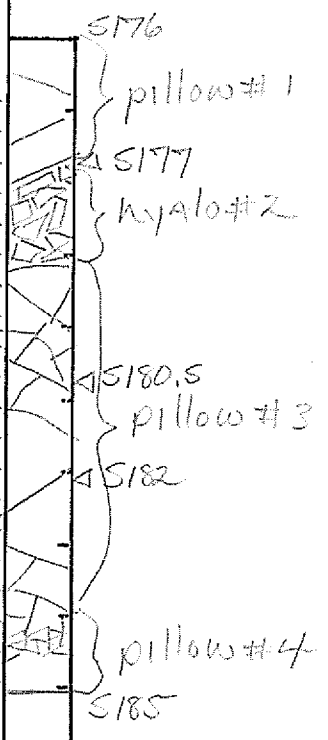
Page 1

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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)							Olv -> Clay			
micro (<.5 mm)	✓		✓	✓			Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smeectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.	Fracture	Vesicle	
1-5%	✓		✓	✓						
<1%							Smeectite			
Phenos							Calcite			
mph	✓		✓	✓			Zeolite			
ol-plag	✓		✓	✓			white fibrous			
Comments	<u>unalt</u>									
Plagioclase							green			
>5%							blue			
1-5%							Analcime			
<1%							Chabazite			
Rhombs							MgOH			
Blades/laths							Silica			
mph							Amorphous	✓		
Comments								Chalcedony		
Augite %							Crystals			
							Pyrite			
GROUNDMASS (original)							Epidote			
Aphanitic	✓	✓	✓	✓			Gypsum	✓		
Feldspathic							Anhydrite			
Diktytaxitic							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			



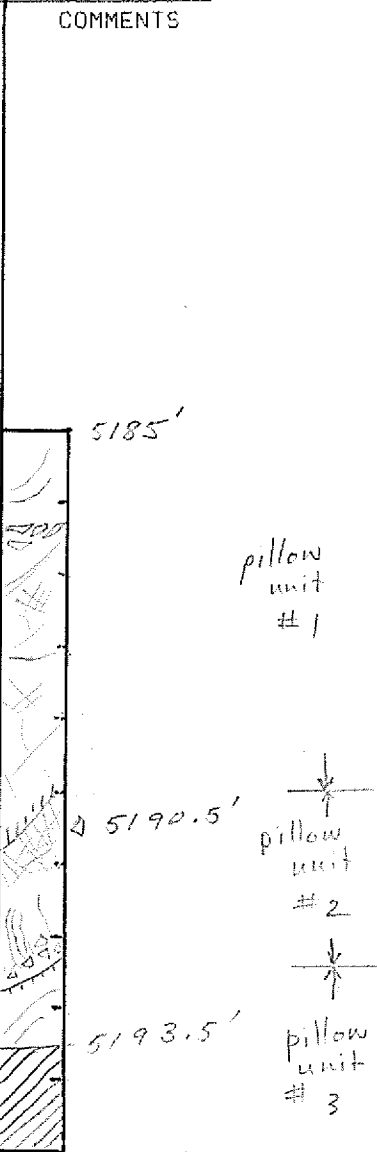
CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aphanitic, olivine-plag mph 1%, unalt in a gray aphan mtr.
- 2) hyaloclastite, tan quenched chill rinds cemented by blk clay or gypsum into a competent unit
- 3,4) pillows, lth as in #1

CORE LOG
 BOX # 565 HOLE # SOH #1 Sheet A
 Depth range 1581.4 to 1584.0 meters Depth range 5185 to 5193.5 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 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%						
1-5%						
<1%	✓	✓	✓			
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						
Comments _____						
Plagioclase						
>5%						
1-5%	3%	3	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	_____
Fracture	_____
Vesicle	_____
Secondary/Alteration Min.	
Smectite	_____
Calcite	✓
Zeolite	_____
white fibrous	_____
green	_____
blue	_____
Analcime	_____
Chabazite	_____
MgOH	_____
Silica	_____
Amorphous	✓
Chalcedony	_____
Crystals	_____
Pyrite	_____
Epidote	_____
Gypsum	_____
Anhydrite	_____
Chalcopyrite	_____
Limonite	_____
Hematite	_____
Other (describe)	_____



CRITICAL FEATURES (description of units or features by number)

1-3) pillow basalt w/ 3% plag laths + mph + <1% olivine phenos in a gray feldspathic matrix. Moderately fractured usually (Highly ~ 5190.5'). Golden glass chill margins.

CORE LOG

BOX # 566

HOLE # 1

Sheet A

Depth range 1584.02 to 1587.05 meters

Depth range 5193.5 to 5203.5 feet

Logger's Name EN

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						SECONDARY FEATURES						COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements						5193.5 ← hyalo #1
mega (>.5 mm)							Olv -> Clay						
micro (<.5 mm)		✓		✓			Iddingsite						
Aphyric							Plag -> Clay						
Vesicles: %							Zeolite						
Shape							Groundmass						
Size(x)							Chlorite						
							Smeectite						
PHENOCRYSTS (Original mineralogy)							Fracture					5196 ← hyalo #3	
Olivine >5%							Vesicle						
Olivine 1-5%		/		/			Secondary/Alteration Min.						
Olivine <1%							Smeectite						
Phenos mph		✓		✓			Calcite						
ol-plag		✓		✓			Zeolite						
Comments	<u>unalt</u>						white fibrous						
							green						
Plagioclase >5%							blue						
Plagioclase 1-5%							Analcime						
Plagioclase <1%							Chabazite						
Rhombs							MgOH						
Blades/laths mph							Silica						
Comments							Amorphous						
							Chalcedony						
Augite %							Crystals						
							Pyrite						
GROUNDMASS (original)							Epidote						
Aphanitic	✓	✓	✓	✓			Gypsum						
Feldspathic							Anhydrite						
Diktytaxitic							Chalcopyrite						
							Limonite						
							Hematite						
							Other (describe)						

CRITICAL FEATURES (description of units or features by number)

5203.5

- 1) hyaloclastite, tan quenched chill rinds with blk^{*} alteration rims cemented into a competent unit by gypsum infilling
- 2) pillow, aresicular, ol-plag. mph. inters. 1%, unalt in a gray aphan. mtr.
- 3) hyalo, lith as in #1
- 4) pillow, lith as in #2

CORE LOG

BOX # 567

HOLE # 1

Sheet A

Depth range 1587.07 to 1589.66 meters

Depth range 5203.5 to 5212 feet

Logger's Name EA

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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)		✓					Olv → Clay <u>#2</u>		
micro (<.5 mm)	✓	✓					Iddingsite <u> </u>		
Aphyric							Plag → Clay <u> </u>		
Vesicles: %	-	-					Zeolite <u> </u>		
Shape							Groundmass		
Size(x)							Chlorite <u> </u>		
							Smectite <u> </u>		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%							Secondary/Alteration Min.		
1-5%	1	3					Smectite <u>✓</u>	5203.5	
<1%							Calcite <u> </u>	pillow #1	
Phenos		✓					Zeolite <u> </u>	5203.5	
mph	✓	✓					white fibrous		
ol-plag	✓	✓					green		
Comments	<u>#2 alt to blk clay</u>							blue	
Plagioclase							Analcime <u> </u>		
>5%							Chabazite <u> </u>		
1-5%		1					MgOH <u> </u>		
<1%							Silica		
Rhombs							Amorphous		
Blades/laths							Chalcedony <u> </u>		
mph		✓					Crystals		
Comments	<u>agglomerations</u>							Pyrite <u> </u>	dike #2
Augite %							Epidote <u> </u>	5208.5	
GROUNDMASS (original)							Gypsum <u> </u>		
Aphanitic	✓	✓					Anhydrite <u>✓</u>		
Feldspathic							Chalcopyrite <u> </u>		
Diktytaxitic							Limonite <u> </u>		
							Hematite <u> </u>		
							Other (describe) <u> </u>	5212	

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aresicular, ol-plag mph inters 1%, unalt in a gray aphan mtr.
- 2) dike, aresicular, olivine phenos c. mph 3%, alt to blk clay; plag mph agglomerates 1% in a lt gray aphan mtr. 1/2 contact somewhat ambiguous; both tan quenched chill rind and blk unhydrated glass present. Unit looks like a dike.

CORE LOG

BOX # S69

HOLE # 1

Sheet A

Depth range 1589.64 to 1592.10 meters

Depth range 5212 to 5220 feet

Logger's Name EAJ

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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓						Olv -> Clay	✓		
micro (<.5 mm)	✓						Iddingsite			
Aphyric							Plag -> Clay			
							Zeolite			
Vesicles: %							Groundmass			
Shape							Chlorite			
Size(x)							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine	>5%	15					Secondary/Alteration Min.			dike #1 5218.5 ol. pheno concentration 5220
	1-5%						Smectite	✓		
	<1%						Calcite			
Phenos	mph	✓					Zeolite			
	ol-plag	✓					white fibrous			
Comments	<u>alt and unalt</u>									
Plagioclase	>5%						green			
	1-5%						blue			
	<1%						Analcime			
Rhombs							Chabazite			
Blades/laths	mph						MgOH			
Comments										
Augite	%						Silica			
GROUNDMASS (original)										
Aphanitic	✓						Amorphous			
Feldspathic							Chalcedony			
Diktytaxitic							Crystals			

CRITICAL FEATURES (description of units or features by number)

1) dike, anisicular, olivine phenos c. mph 3%, alt to blk clay in a gray aphan mtr. Last 30 cm of box olivine phenos increase to 15%, 50% unaltered.

CORE LOG

BOX # 569

HOLE # 1

Sheet A

Depth range 1892.10 to 1894.84 meters

Depth range 5220 to 5229 feet

Logger's Name EN

Page 1

Type of Sample: Flow _____ Intrusive 1,3 Ash _____ Breccia 2 Red Bed _____

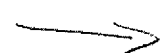
Number of Units in Box 3 Clk/Rubble _____ Carbonate _____ Pillow/Hyaloclast _____

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES				COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements				
mega (>.5 mm)	✓	-	✓				Olv -> Clay _____				dike #1
micro (<.5 mm)	✓		✓				Iddingsite _____				
Aphyric							Plag -> Clay _____				BRECCIA #2
Vesicles: %							Zeolite _____				
Shape							Groundmass				5229
Size(x)							Chlorite _____				
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.				
Olivine	>5%	15	15				Smeectite	✓			
	1-5%						Calcite				
	<1%						Zeolite				
Phenos	mph	✓	✓				white fibrous				
ol-plag	mph	✓	✓				green				
Comments	<u>alt, unalt</u>							blue			
Plagioclase	>5%						Analcime				
	1-5%						Chabazite				
	<1%						MgOH				
Rhombs							Silica				
Blades/laths							Amorphous				
mph							Chalcedony				
Comments								Crystals			
Augite	%						Pyrite				
GROUNDMASS (original)								Epidote			
Aphanitic	✓	✓	✓				Gypsum				
Feldspathic			✓				Anhydrite				
Diktytaxitic							Chalcopyrite				
							Limonite				
							Hematite				
							Other (describe)				

CRITICAL FEATURES (description of units or features by number)

- 1) dike, aresicular, obvise phenos & mph 15% in a mottled gray and white matrix. Unit grades into holox-taline fine grained gabbro 60cm thru bot. Olivine are both altered to black clay and unaltered.
- 2) breccia, aresicular aphyric aphanitic clasts (av. 1cm) gray basalt cemented by gray clay.



3) dike, anisiculae, olivine phenos \approx 15%, alt
and unalt. in a gray felds mtr.

CORE LOG
 BOX # 540 HOLE # 5041 Sheet A
 Depth range 1594.8 to 1599.6 meters Depth range 5229 to 5238 feet
 Logger's Name RE Page 1
 Type of Sample: Flow Intrusive 1 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓						Olv -> Clay ✓	
micro (<.5 mm)	✓						Iddingsite	5237'
Aphyric							Plag -> Clay	
Vesicles: %							Zeolite	5238'
Shape							Groundmass	
Size(x)							Chlorite	dike unit #1
							Smectite ✓	
PHENOCRYSTS (Original mineralogy)							Fracture	5237'
Olivine	>5%	20					Vesicle	
	1-5%						Secondary/Alteration/Min.	5237'
	<1%						Smectite	
Phenos	mph	✓					Calcite	5237'
	mph	✓					Zeolite	
	ol-plag						white fibrous	5237'
							green	
Comments							blue	5237'
							Analcime	
Plagioclase	>5%	7					Chabazite	5237'
	1-5%						MgOH	
	<1%						Silica	5237'
Rhombs							Amorphous	
Blades/laths	mph	✓					Chalcedony	5237'
	mph	✓					Crystals	
Comments							Pyrite	5237'
							Epidote	
Augite	%						Gypsum	5237'
							Anhydrite	
GROUNDMASS (original)							Chalcopyrite	5237'
Aphanitic							Limonite	
Feldspathic		✓					Hematite	5238'
Diktytaxitic							Other (describe)	

CRITICAL FEATURES (description of units or features by number)

1) dike w/ 7% plag. phenos and 20% olivene phenos/mph (altering to smectite) in a mildly fractured dense feldspathic groundmass. Fractures are lined w/ waxy black smectite.

CORE LOG

BOX # 591

HOLE # 1

Sheet A

Depth range 1597.59 to 1600.33 meters

Depth range 5238 to 5247 feet

Logger's Name EN

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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓						Olv -> Clay <u> </u>			
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite <u> </u>			
Aphyric							Plag -> Clay <u> </u>			
Vesicles: %	-	-	-	-			Zeolite <u> </u>			
Shape							Groundmass			
Size(x)							Chlorite <u> </u>			
							Smeectite <u> </u>			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%	30						Secondary/Alteration Min.			
1-5%	1	1	1				Smeectite <u>✓</u>			
<1%							Calcite <u> </u>			
Phenos	✓						Zeolite <u> </u>			
mph	✓	✓	✓	✓			white fibrous <u> </u>			
ol-plag	✓						green <u> </u>			
Comments							blue <u> </u>			
Plagioclase							Analcime <u> </u>			
>5%							Chabazite <u> </u>			
1-5%							MgOH <u> </u>			
<1%							Silica <u> </u>			
Rhombs							Amorphous <u> </u>			
Blades/laths							Chalcedony <u> </u>			
mph							Crystals <u> </u>			
Comments							Pyrite <u> </u>			
Augite %							Epidote <u> </u>			
GROUNDMASS (original)							Gypsum <u>✓</u>			
Aphanitic	✓	✓	✓	✓			Anhydrite <u> </u>			
Feldspathic							Chalcopyrite <u> </u>			
Diktytaxitic							Limonite <u> </u>			
							Hematite <u> </u>			
							Other (describe) <u> </u>			

CRITICAL FEATURES (description of units or features by number)

- 1) dike, anesicular, olivine mph 30% (!) most unalt in a gray aphan mtr, unit looks mottled gray and white.
 - 2) pillow, anesicular, olivine mph 1%, unalt in a dk gray aphan. mtr.
 - (3,4) pillow, lith as above.
- All contacts are tan quenched chill sands cemented by talk clay.

CORE LOG
 BOX # 572 HOLE # SOH#1 Sheet A
 Depth range 1600.3 to 1603.4 meters Depth range 5214 to 5254 feet
 Logger's Name RE Page 1
 Type of Sample: Flow Intrusive 2,4 Ash Breccia Red Bed
 Number of Units in Box 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 >5%		6-2		5-2		
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.	
Smectite	✓
Calcite	
Zeolite	✓?
white fibrous	
green	✓
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	✓
Chalcedony	
Crystals	
Pyrite	
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

Fractures of hyaloclastite filled w/ white radially fibrous min. (4-2) cottony cluster.

5214'

↑ pillow lava
hyaloclastite unit #1

↓ dike #2
pillow
hyaloclastite #3

↑ dike #1

↓ pillow/hyaloclastite #5

5254'

CRITICAL FEATURES (description of units or features by number)

1,3,5) pillow lava toes interbedded w/ hyaloclastite. w/ 41% olivine phenos + mph + <1% plag mph in a grey aphanitic matrix 1-2 cm thick golden glass rinds on pillows. Hyaloclastite glassy & altering.

2,4) dike w/ 5-7% olivine phenos + mph and <1% plag mph in a blue-grey matrix. Black glassy chill margins.

CORE LOG

BOX # 573

HOLE # 1

Sheet A

Depth range 1603.37 to 1606.13 meters

Depth range 5257 to 5266 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)							Olv -> Clay			
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite			
Aphyric							Plag -> Clay			
							Zeolite			
Vesicles: %							Groundmass			
Shape							Chlorite			
Size(x)							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%				30			Secondary/Alteration Min.			
1-5%	1	1	1				Smectite	✓		5257
<1%							Calcite			5257
Phenos							Zeolite			pillow # 1
mph	✓	✓	✓	✓			white fibrous			
ol-plag							green	✓		pillow # 2
Comments	<u>unalt</u>						blue			
Plagioclase										
>5%							Analcime			pillow # 3
1-5%							Chabazite			
<1%							MgOH			
Rhombs							Silica			
Blades/laths							Amorphous	✓		
mph							Chalcedony			
Comments							Crystals			
Augite										
%							Pyrite			dike # 4
							Epidote			
GROUNDMASS (original)										
Aphanitic	✓	✓	✓	✓			Gypsum	✓		
Feldspathic							Anhydrite			
Diktytaxitic							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			5266

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, aversicular, olivine mph 1%, unalt in a dk gray aphan mtr.
- 2,3) pillow, lth as above
- 4) dike, aversicular, olivine mph 30% (!) in a gray aphan mtr. Unit looks mottled gray and white

CORE LOG
 BOX # 544 HOLE # SOA #1 Sheet A
 Depth range 1606.1 to 1608.9 meters Depth range 5266 to 5275 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 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: %						
Shape						
Size(x)						

PHENOCRYSTS (Original mineralogy)						
Olivine >5%	30					
1-5%	1-3					
<1%			✓			
Phenos	✓	✓	✓			
mph	✓	✓	✓			
ol-plag						
Comments						

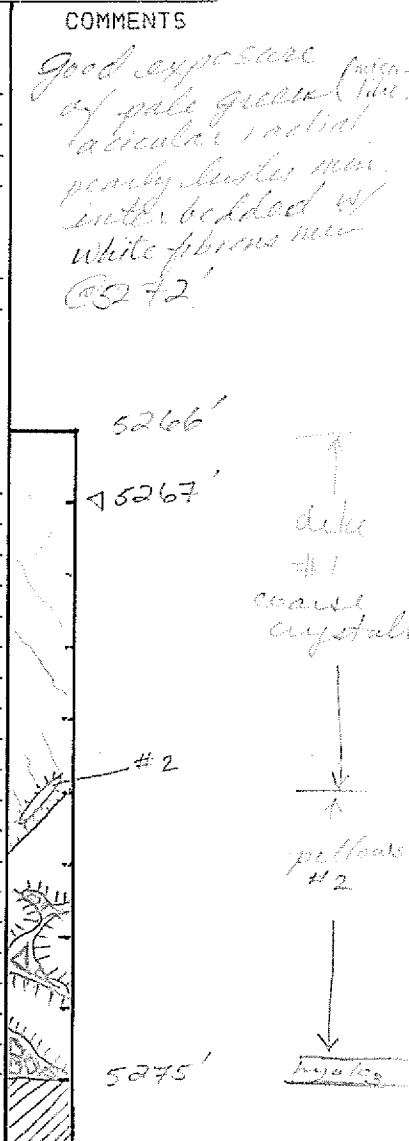
Plagioclase						
>5%						
1-5%	1-3					
<1%		✓	✓			
Rhombs						
Blades/laths	✓	✓	✓			
mph	✓	✓	✓			
Comments						

Augite						
%						

GROUNDMASS (original)						
Aphanitic		✓	✓			
Feldspathic	✓					
Diktytaxitic						

SECONDARY FEATURES	
Phenocryst replacements	
Olv -> Clay	✓
Iddingsite	
Plag -> Clay	
Zeolite	
Groundmass	
Chlorite	
Smectite	

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



CRITICAL FEATURES (description of units or features by number)

- 1) dike, coarse crystalline w/ 30% olivine phenos/ mph and 1-3% plag. laths + mph in a dark grey feldspathic matrix.
- 2) pillows, w/ 1-3% olivine phenos/ mph and <1% laths/ mph in a grey aphanitic matrix. Golden glass rims
- 3) hyaloclastite, w/ <1% olivine + plag phenos/ mph in a dark grey aphanitic matrix w/ golden-black glass rims

CORE LOG

BOX # 575

HOLE # SOH1

Sheet A

Depth range 1608.9 to 1611.6 meters

Depth range 5275 to 5284 feet

Logger's Name RS

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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	✓	✓	✓	✓			Olv → Clay	✓	
micro (<.5 mm)	✓	✓	✓	✓			Iddingsite		
Aphyric							Plag → Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
							Fracture		
							Vesicle		
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.		
Olivine >5%							Smectite	✓	
1-5%	2	2					Calcite		
<1%	✓	✓	✓	✓			Zeolite	✓	
Phenos mph	✓	✓	✓	✓			white fibrous		
ol-plag							green	✓	
Comments							blue		
Plagioclase >5%							Analcime		
1-5%	1	1					Chabazite		
<1%	✓	✓	✓	✓			MgOH		
Rhombs	✓	✓	✓	✓			Silica		
Blades/laths mph	✓	✓	✓	✓			Amorphous		
Comments							Chalcedony		
Augite %							Crystals		
GROUNDMASS (original)							Pyrite		
Aphanitic	✓	✓	✓	✓			Epidote		
Feldspathic							Gypsum		
Diktytaxitic							Anhydrite	✓	
							Chalcopyrite		
							Limonite		
							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

- 1) Hyaloclastite w/ 2% olivine phenos & 1% plag. laths/aph. (1,3,1) in a dark grey - golden glassy aphanitic matrix.
- 2) Pillows w/ <1% olivine phenos/aph & <1% plag laths/aph (2,11) in a blue-grey aphanitic matrix.

CORE LOG

BOX # 576

HOLE # 1

Sheet A

Depth range 1611.62 to 1614.57 meters

Depth range 5284 to 5294 feet


Logger's Name EN

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							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			<i>silica changing from amorphous to quartz 5289'</i> 	
mega (>.5 mm)							Olv -> Clay				
micro (<.5 mm)	✓	✓	✓	✓	✓		Iddingsite				
Aphyric							Plag -> Clay				
Vesicles: %	-	-	-				Zeolite				
Shape							Groundmass				
Size(x)							Chlorite				
							Smectite				
							Fracture				
							Vesicle				
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.				
Olivine	>5%	20	20	15	10		Smectite	✓		5284	
	1-5%						Calcite			} pillow #1	
	<1%						Zeolite				
Phenos	mph	✓	✓	✓	✓	✓	white fibrous				
ol-plag							green	✓			
Comments	<u>unalt.</u>							blue			5287
							Analcime				} pillow #2
Plagioclase	>5%						Chabazite				
	1-5%						MgOH				
	<1%						Silica				} pillow #3
Rhombs							Amorphous	✓			
Blades/laths	mph						Chalcedony				
Comments								Crystals	✓		
Augite	%						Pyrite				} pillow #4
							Epidote				
GROUNDMASS (original)								Gypsum	✓		
Aphanitic		✓	✓	✓	✓	✓	Anhydrite	✓			} pillow #5
Feldspathic							Chalcopyrite				
Diktytaxitic							Limonite				
							Hematite				
							Other (describe)				
							Phillipsite	✓			

CRITICAL FEATURES (description of units or features by number)

- 1) pillow, amicular, olivine mph 20%, unalt in a gray aphan mtr.
 - 2-5) pillows, lith as above with olivine mph % decreasing to 10%
- All contacts are tan quenched chill rinds, some infilled with gypsum or anhydrite

CORE LOG
 BOX # 577 HOLE # 504#1 Sheet A
 Depth range 1614.7 to 1619.4 meters Depth range 5294 to 5303 feet
 Logger's Name RE Page 1
 Type of Sample: Flow Intrusive 3 Ash Breccia Red Bed
 Number of Units in Box Clk/Rubble Carbonate Pillow/Hyaloclast 1,2
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓	✓	✓				Olv -> Clay ✓			
micro (<.5 mm)	✓	✓	✓				Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle		
Olivine >5%							Secondary/Alteration Min.			
1-5%	✓		3-7				Smectite ✓		5294 } pillow ₁	
<1%	✓	✓					Calcite		5295.5' } hyaloclast ₂	
Phenos	✓	✓	✓				Zeolite			
mph	✓	✓	✓				white fibrous			
ol-plag							green			
Comments								blue		} pillow ₁
							Analcime			
Plagioclase							Chabazite			
>5%							MgOH			
1-5%							Silica			
<1%	✓	✓	✓				Amorphous ✓			
Rhombs	✓	✓	✓				Chalcedony			
Blades/laths	✓	✓	✓				Crystals			
mph							Pyrite ✓	dike		
Comments								Epidote		
							Gypsum ✓			
Augite %							Anhydrite ✓			
							Chalcopyrite			
GROUNDMASS (original)							Limonite			
Aphanitic	✓	✓	✓				Hematite ✓	dike		
Feldspathic							Other (describe)			
Diktytaxitic										

CRITICAL FEATURES (description of units or features by number)

1,2) pillow, lava w/ <1% olivine phenos/mph and <1% plag phenos + mph in a grey aphanitic matrix with golden to black glassy chill margins. ^{Angular} Hyaloclasts₂ suspended in anhydrite between pillow units.

3) dike₃ w/ 3-4 olivine phenos/mph and <1% plag. phenos/mph in a dark blue-grey aphanitic matrix. a narrow black glass chill ring along contacts. Pyrite, hematite, smectite present along fractures.

2° min: pyrite, hematite, smectite, anhydrite, ghy.

CORE LOG

BOX # 578

HOLE # 1

Sheet A

Depth range 1617.41 to 1620.16 meters

Depth range 5303 to 5312 feet

Logger's Name EN

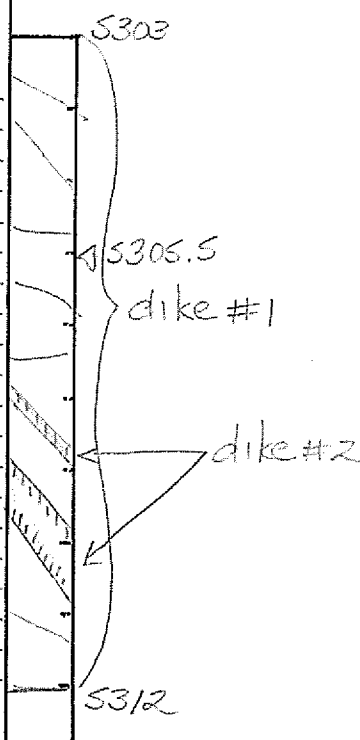
Page 1

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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	Fracture	Vesicle	
mega (>.5 mm)		✓					Olv -> Clay #1			
micro (<.5 mm)	✓	✓					Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	-	-					Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%	20						Secondary/Alteration Min.			
Olivine 1-5%	1						Smectite	✓		
Olivine <1%							Calcite			
Phenos mph	✓	✓					Zeolite			
ol-plag							white fibrous			
Comments	<u>alt, unalt</u>									
Plagioclase										
>5%							green			
1-5%							blue			
<1%							Analcime			
Rhombs							Chabazite			
Blades/laths mph							MgOH			
Comments										
Augite %										
							Silica			
GROUNDMASS (original)										
Aphanitic	✓	✓					Amorphous			
Feldspathic							Chalcedony			
Diktytaxitic							Crystals			
							Pyrite	✓		
							Epidote			
							Gypsum			
							Anhydrite			
							Chalcopryrite			
							Limonite			
							Hematite			
							Other (describe)			



CRITICAL FEATURES (description of units or features by number)

- 1) dike, aresicular, olivine mph 20%, alt to blk clay in a gray aphan mtrx.
- 2) dike, aresicular, olivine phenos & mph 1%, unalt, in a gray aphan mtrx.

CORE LOG
 BOX # 579 HOLE # SOH #1 Sheet A
 Depth range 162.02 to 162.9 meters Depth range 5312 to 5321 feet
 Logger's Name RF Page 1
 Type of Sample: Flow Intrusive 1 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%	7-15%				
	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	
Fracture	Vesicle
Secondary/Alteration Min.	
Smectite	
Calcite	
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	✓
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS
 97% (amorph).
 pyrite
 in dike amygdules.
 5312'
 5313'
 dike #!
 5321'

CRITICAL FEATURES (description of units or features by number)

1) phyric dike w/ 7-15% olivine phenos/mph and amygdules of pyrite + quartz in a dark grey feldspathic matrix.

CORE LOG

BOX # 580

HOLE # SOH #1

Sheet A

Depth range 1622.9 to 1625.4 meters

Depth range 5321 to 5330 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Olv -> Clay <input checked="" type="checkbox"/>		
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Iddingsite <input type="checkbox"/>		
Aphyric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plag -> Clay <input type="checkbox"/>		
Vesicles: %	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zeolite <input type="checkbox"/>		
Shape	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Groundmass		
Size(x)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chlorite <input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Smectite <input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Fracture <input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vesicle <input type="checkbox"/>		
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.		
Olivine	>5%	<u>7-10%</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Smectite <input checked="" type="checkbox"/>		
	1-5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Calcite <input type="checkbox"/>		
	<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zeolite <input type="checkbox"/>		
Phenos	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	white fibrous <input type="checkbox"/>		
mph	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	green <input type="checkbox"/>		
ol-plag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	blue <input type="checkbox"/>		
Comments									
Plagioclase									
	>5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Analcime <input type="checkbox"/>		
	1-5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chabazite <input type="checkbox"/>		
	<1%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	MgOH <input type="checkbox"/>		
Rhombs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Silica <input checked="" type="checkbox"/>		
Blades/laths	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Amorphous <input checked="" type="checkbox"/>		
mph	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chalcedony <input type="checkbox"/>		
Comments									
Augite	%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Crystals <input type="checkbox"/>		
GROUNDMASS (original)									
Aphanitic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pyrite <input checked="" type="checkbox"/>		
Feldspathic	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Epidote <input type="checkbox"/>		
Diktytaxitic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Gypsum <input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Anhydrite <input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chalcopyrite <input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Limonite <input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hematite <input type="checkbox"/>		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other (describe) <input type="checkbox"/>		

CRITICAL FEATURES (description of units or features by number)

1) dike, a vesicular, 7-10% olivine phenos/ mph and pyrite/ qtz filled amygdules in a dark blue-grey feldspathic matrix.

CORE LOG
 BOX # 581 HOLE # SCA#1 Sheet A
 Depth range 1625.7 to 1628.4 meters Depth range 5330 to 5339 feet
 Logger's Name RE 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓	✓					Olv → Clay	✓		} dike ₂
micro (<.5 mm)	✓	✓					Iddingsite			
Aphyric							Plag → Clay			} dike ₂
Vesicles: %							Zeolite			
Shape							Groundmass			} dike ₂
Size(x)							Chlorite			
PHENOCRYSTS (Original mineralogy)										} dike ₂
Olivine	>5%	5-7%					Smectite	✓		
	1-5%						Calcite			} dike ₂
	<1%	✓					Zeolite			
Phenos	mph	✓	✓				white fibrous			} dike ₂
	ol-plag						green			
Comments								blue		} dike ₂
Plagioclase	>5%						Analcime			
	1-5%	✓					Chabazite			} dike ₂
	<1%	✓					MgOH			
Rhombs	Blades/laths	mph	✓	✓			Silica			} dike ₂
			mph	✓	✓		Amorphous	✓		
Comments								Chalcedony		} dike ₂
Augite	%						Crystals	✓		
GROUNDMASS (original)								Pyrite	✓	} dike ₂
Aphanitic		✓	✓				Epidote			
Feldspathic							Gypsum			} dike ₂
Diktytaxitic							Anhydrite			
								Chalcopyrite		} dike ₂
								Limonite		
								Hematite		} dike ₂
								Other (describe)		

CRITICAL FEATURES (description of units or features by number)

1) dike₁, phyric, a vesicular, w/ 5-7% phenos/mph in a dark grey aphanitic matrix.

2) dike₂, a vesicular w/ <1% olivine phenos/mph + 1% plag. microlaths in a aphanitic matrix intrudes and brecciates dike₁.

CORE LOG

BOX # 562 HOLE # 1 Sheet A
 Depth range 1628.39 to 1631.29 meters Depth range 5339 to 5346.5 feet
 Logger's Name EH 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							SECONDARY FEATURES				COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements				
mega (>.5 mm)							Olv -> Clay				
micro (<.5 mm)	/	/	/				Iddingsite				
Aphyric							Plag -> Clay				
Vesicles: %	-	-	-				Zeolite				
Shape							Groundmass				
Size(x)							Chlorite				
							Smectite				
PHENOCRYSTS (Original mineralogy)											
Olivine >5%							Secondary/Alteration Min.				
1-5%	/						Smectite	✓			
<1%	✓		✓				Calcite				
Phenos							Zeolite				
mph	✓	✓	✓				white fibrous				
ol-plag							green				
Comments	<u>unalt</u>							blue			
Plagioclase							Analcime				
>5%							Chabazite				
1-5%							MgOH				
<1%							Silica				
Rhombs							Amorphous				
Blades/laths							Chalcedony				
mph							Crystals				
Comments								Pyrite			
Augite							Epidote				
%							Gypsum				
GROUNDMASS (original)							Anhydrite	✓			
Aphanitic	✓	✓	✓				Chalcopryrite				
Feldspathic							Limonite				
Diktytaxitic							Hematite				
							Other (describe)				

CRITICAL FEATURES (description of units or features by number)

- 1) dike, anesicular, olivine mph <1%, unalt., in a gray aphan mtx.
- 2) pillow, anesicular, olivine mph 1%, unalt., in a gray aphan mtx.
- 3) dike, lith as in #1 (same dike)

CORE LOG
 BOX # 583 HOLE # SOH#1 Sheet A
 Depth range 1631.3 to 1633.9 meters Depth range 5348.6 to 5357 feet
 Logger's Name RE Page 1
 Type of Sample: Flow _____ Intrusive 1, 2, 5 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							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	✓	✓					Olv -> Clay	✓	
micro (<.5 mm)	✓	✓					Iddingsite		
Aphyric							Plag -> Clay		
Vesicles: %							Zeolite		
Shape							Groundmass		
Size(x)							Chlorite		
							Smectite		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%		5-10					Secondary/Alteration Min.		<p>5348.5' } dike #1 } dike #2 5352' } dike #1 5354'</p>
Olivine 1-5%							Smectite	✓	
Olivine <1%	✓						Calcite		
Phenos	✓	✓					Zeolite		
mph	✓	✓					white fibrous		
ol-plag							green		
Comments							blue		
Plagioclase							Analcime		
>5%							Chabazite		
1-5%							MgOH		
<1%							Silica		
Rhombs							Amorphous		
Blades/laths							Chalcedony		
mph							Crystals		
Comments							Pyrite	✓	
Augite %							Epidote		
GROUNDMASS (original)							Gypsum		
Aphanitic	✓	✓					Anhydrite		
Feldspathic							Chalcopyrite		
Diktytaxitic							Limonite		
							Hematite		
							Other (describe)		

CRITICAL FEATURES (description of units or features by number)

- 1) dike, aversicular, w/ <1% olivene phenos/ mph in a grey aphanitic matrix, intrudes dike₂.
- 2) dike, aversicular, w/ 5-10% olivene phenos/ mph in a dark blue-grey matrix.

CORE LOG

BOX # 584

HOLE # 1

Sheet A

Depth range 1633.88 to 1636.13 meters

Depth range 5357 to 5366 feet

Logger's Name EN

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							SECONDARY FEATURES				COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements				
mega (>.5 mm)							Olv -> Clay <input checked="" type="checkbox"/>				
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Iddingsite				5362 dike #2
Aphyric							Plag -> Clay				
Vesicles: %							Zeolite				5366 pillow #3
Shape							Groundmass				
Size(x)							Chlorite				
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.				5366
Olivine >5%							Smeectite <input checked="" type="checkbox"/>				
Olivine 1-5%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Calcite				
Olivine <1%							Zeolite				
Phenos mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					white fibrous				
ol-plag							green				
Comments	<u>alt to blk clay</u>							blue			
Plagioclase								Analcime			
>5%							Chabazite				
1-5%							MgOH				
<1%							Silica				
Rhombs							Amorphous				
Blades/laths mph							Chalcedony				
Comments								Crystals			
Augite %								Pyrite <input checked="" type="checkbox"/>			
							Epidote				
GROUNDMASS (original)								Gypsum			
Aphanitic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					Anhydrite <input checked="" type="checkbox"/>				
Feldspathic							Chalcoppyrite				
Diktytaxitic							Limonite				
							Hematite				
							Other (describe)				

CRITICAL FEATURES (description of units or features by number)

- 1) dike, amsicular, olivine mph 1%, alt to blk clay, in a gray aphan mtrx which has been primarily altered to clay
- 2) dike, lth as above, mtrx alteration is patchy
- 3) pillow, amsicular, 10% olivine mph, alt to blk clay in a gray aphan mtrx.

BOX # 585 CORE LOG HOLE # 504#1 Sheet A
 Depth range 1636.6 to 1639.4 meters Depth range 5366 to 5345 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 _____
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements		
mega (>.5 mm)	✓	✓					Olv -> Clay ✓		
micro (<.5 mm)	✓	✓					Iddingsite _____		
Aphyric							Plag -> Clay _____		
							Zeolite _____		
Vesicles: %							Groundmass		
Shape							Chlorite _____		
Size(x)							Smectite _____		
PHENOCRYSTS (Original mineralogy)							Fracture	Vesicle	
Olivine >5%		5-7					Secondary/Alteration Min.		
1-5%		✓					Smectite _____		
<1%	✓						Calcite _____		
Phenos mph	✓	✓					Zeolite _____		
ol-plag							white fibrous _____		
Comments								green _____	
								blue _____	
								Analcime _____	
								Chabazite _____	
								MgOH _____	
								Silica _____	
								Amorphous ✓	
								Chalcedony _____	
								Crystals _____	
								Pyrite ✓	
								Epidote _____	
								Gypsum _____	
								Anhydrite _____	
								Chalcopyrite _____	
								Limonite _____	
								Hematite _____	
								Other (describe) _____	
									5370'
									5345'

CRITICAL FEATURES (description of units or features by number)

- 1) dike, aphyric, w/ <1% olivine phenos/mph in a grey aphanitic to feldspathic matrix; intrude dike₂.
- 2) dike, aphyric w/ 5-7% olivine phenos in a dark blue-grey aphanitic matrix

Intra: pyrite, quartz.

CORE LOG
 BOX # 586 HOLE # 50H#1 Sheet A
 Depth range 1639.4 to 1642.3 meters Depth range 5375 to 5384.5 feet
 Logger's Name RE 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓	✓					Olv → Clay ✓			
micro (<.5 mm)	✓	✓					Iddingsite			
Aphyric							Plag → Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smeectite			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Fracture			5345'
1-5%	✓						Vesicle			
<1%		✓					Secondary/Alteration Min.			
Phenos mph	✓	✓					Smeectite	✓		
ol-plag							Calcite			
Comments							Zeolite			
							white fibrous			
Plagioclase >5%							green			
1-5%							blue			
<1%		✓					Analcime			
Rhombs							Chabazite			
Blades/laths mph		✓					MgOH			
Comments							Silica			
							Amorphous	✓		
Augite %							Chalcedony			
							Crystals			
GROUNDMASS (original)							Pyrite	✓		
Aphanitic	✓	✓					Epidote			
Feldspathic							Gypsum			
Diktytaxitic							Anhydrite			
							Chalcopyrite			
							Limonite			
							Hematite			
							Other (describe)			

CRITICAL FEATURES (description of units or features by number)

- 1) dike₁, aversicular, w/ 1% olivine phenos/mph in a grey aphanitic matrix, intruding dike₂. Pyrite & quartz (amorphous) in amygdules.
- 2) dike₂, aversicular, w/ <1% olivine/plag phenos/laths/mph in a grey aphanitic matrix.

CORE LOG

BOX # 589

HOLE # 1

Sheet A

Depth range 1642.5 to 1646.1 meters

Depth range 5374.5 to 5394 feet

Logger's Name FN

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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)							Olv -> Clay			
micro (<.5 mm)	✓	✓	✓	✓	✓		iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	-	-	-	-	-		Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
							Fracture			
							Vesicle			
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.			
Olivine >5%							Smectite	✓		5384.5
1-5%	/	/	/	/	/		Calcite			UNIT # 1
<1%							Zeolite			
Phenos mph	✓	✓	✓	✓	✓		white fibrous			UNIT # 2
ol-plag							green			
							blue			UNIT # 3
Comments								Analcime		
							Chabazite			
Plagioclase							MgOH			
>5%							Silica			
1-5%							Amorphous	✓		
<1%							Chalcedony			hyalo # 4
Rhombs							Crystals	✓		
Blades/laths mph							Pyrite	✓		UNIT # 5
Comments								Epidote		
							Gypsum			
Augite %							Anhydrite			
							Chalcopryrite			5392
GROUNDMASS (original)							Limonite			
Aphanitic	✓	✓	✓	✓	✓		Hematite			
Feldspathic							Other (describe)			
Diktytaxitic										

CRITICAL FEATURES (description of units or features by number)

5394

Can't tell pillows from dikes, units show planar fract., and pyrite typical of dikes but have pillow contacts. 1-3, 5) aresicular, olive mph 1%, alt to blk clay, in a gray aphan mtr.

4) hyaloclastite, aresicular, tan quenched chill rinds infilled with black, red, & green clay and amn. silica. Rest of contacts in box are similar but narrower.

CORE LOG

BOX # 589

HOLE # 1

Sheet A

Depth range 1645.17 to 1647.91 meters

Depth range 5394 to 5403 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			<div style="text-align: center;"> Fracture Vesicle </div> <div style="text-align: right; margin-top: 20px;"> <u>5394</u> <u>5402</u> <u>5403</u> </div>
mega (>.5 mm)	<input checked="" type="checkbox"/>						Olv -> Clay <input checked="" type="checkbox"/>			
micro (<.5 mm)	<input checked="" type="checkbox"/>						Iddingsite <u> </u>			
Aphyric							Plag -> Clay <u> </u>			
Vesicles: %							Zeolite <u> </u>			
Shape							Groundmass			
Size(x)							Chlorite <u> </u>			
							Smectite <u> </u>			
PHENOCRYSTS (Original mineralogy)								Secondary/Alteration Min.		
Olivine >5%							Smectite <input checked="" type="checkbox"/>			
1-5%	<input checked="" type="checkbox"/>						Calcite <u> </u>			
<1%							Zeolite <u> </u>			
Phenos	<input checked="" type="checkbox"/>						white fibrous <u> </u>			
mph	<input checked="" type="checkbox"/>						green <u> </u>			
ol-plag	<input checked="" type="checkbox"/>						blue <u> </u>			
Comments	<u> </u>							Analcime <u> </u>		
							Chabazite <u> </u>			
Plagioclase								MgOH <u> </u>		
>5%							Silica <u> </u>			
1-5%							Amorphous <u> </u>			
<1%							Chalcedony <u> </u>			
Rhombs							Crystals <u> </u>			
Blades/laths							Pyrite <input checked="" type="checkbox"/>			
mph							Epidote <u> </u>			
Comments	<u> </u>							Gypsum <u> </u>		
							Anhydrite <u> </u>			
Augite %								Chalcopyrite <u> </u>		
							Limonite <u> </u>			
GROUNDMASS (original)								Hematite <u> </u>		
Aphanitic	<input checked="" type="checkbox"/>						Other (describe) <u> </u>			
Feldspathic	<input checked="" type="checkbox"/>									
Diktytaxitic										

CRITICAL FEATURES (description of units or features by number)

1) dike, anhedral, olivine phenos, mph, ol-plag inters $\leq 1\%$ in a gray slightly felds mtr. Pheno content increases to 5% 45cm into box, zone is 24cm thick then grades back to 1%.

BOX # 589 CORE LOG HOLE # 50A#1 Sheet A
 Depth range 1647.9 to 1650.9 meters Depth range 5403 to 5412 feet
 Logger's Name AE Page 1
 Type of Sample: Flow _____ Intrusive 1, 2, 3 Ash _____ Breccia _____ Red Bed _____
 Number of Units in Box 2 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%						
1-5%		3-5				
<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.	
Smectite	✓
Calcite	
Zeolite	
white fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	✓
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

Units 1 & 3 are showing dikes & pillow qualities.
 Dike: thick, fracture pattern, pyrite & amygdale
 Pillow: Golden hydrated glass.

5403'

dike #1

dike #2

dike #3

5412'

Amygdales w/ pgr/qty.

CRITICAL FEATURES (description of units or features by number)

1, 3) dike, (or pillow) w/ <1% olivine phenos/mph in a grey aphanitic matrix. Golden hydrated glass at contacts.
 2) dike, w/ 3-5% olivine phenos/mph in a blue-grey aphanitic matrix. Black glass @ contact
 20 mic: pyrite, amorph gty.

CORE LOG

BOX # 590

HOLE # 1

Sheet A

Depth range 1650.66 to 1653.41 meters

Depth range 5412 to 5421 feet

Logger's Name EN

Page 1

Type of Sample: Flow Intrusive 1 Ash Breccia Red Bed

Number of Units in Box 5 Clk/Rubble Carbonate Pillow/Hyaloclast 2-5

Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements		<i>pyrite appears in blk clay at contacts assoc. w. red & olive green clay</i>	
mega (>.5 mm)							Olv -> Clay			
micro (<.5 mm)	✓	✓	✓	✓	✓		Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %							Zeolite			
Shape							Groundmass			
Size(x)							Chlorite			
							Smectite			
							Fracture			
							Vesicle			
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.			
Olivine >5%							Smectite	✓	5412	
1-5%	/	/	/	/	/		Calcite		UNIT #1	
<1%							Zeolite			
Phenos mph	✓	✓	✓	✓	✓		white fibrous		UNIT #2	
ol-plag	✓	✓	✓	✓	✓		green			
							blue			
							Analcime			
Comments								Chabazite		
Plagioclase >5%							MgOH		UNIT #4	
1-5%							Silica			
<1%							Amorphous			
Rhombs							Chalcedony		UNIT #3	
Blades/laths mph							Crystals			
Comments								Pyrite	✓	
Augite %							Epidote		UNIT #5	
							Gypsum			
GROUNDMASS (original)							Anhydrite	✓		
Aphanitic	✓	✓	✓	✓	✓		Chalcopyrite			
Feldspathic							Limonite			
Diktytaxitic							Hematite			
							Other (describe)		5421	

CRITICAL FEATURES (description of units or features by number)

Units may be dikes or pillows, fracta and pyrite suggest dikes, contacts pillows.
 1-5) ovoidal, olivine mph, ol-plag inters $\leq 1\%$, alt to blk clay in a gray aphan mty.
 All contacts show tan quenched chill rinds.

CORE LOG
 BOX # 591 HOLE # 50A #1 Sheet A
 Depth range 1653.4 to 1656.3 meters Depth range 5421 to 5430.5 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓						Olv -> Clay ✓	
micro (<.5 mm)	✓						Iddingsite	
Aphyric							Plag -> Clay	
Vesicles: %							Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
PHENOCRYSTS (Original mineralogy)								
Olivine >5%							Fracture	
1-5%							Vesicle	
<1%	✓						Secondary/Alteration Min.	
Phenos	✓						Smectite	5421'
mph	✓						Calcite	
ol-plag							Zeolite	4542'
Comments							white fibrous	
Plagioclase							green	dike #1
>5%							blue	
1-5%							Analcime	5430.5'
<1%							Chabazite	
Rhombs							MgOH	Amygdules
Blades/laths							Silica	
mph							Amorphous ✓	
Comments							Chalcedony	
Augite %							Crystals	
							Pyrite ✓	
GROUNDMASS (original)							Epidote	
Aphanitic	✓						Gypsum	
Feldspathic							Anhydrite	
Diktytaxitic							Chalcopyrite	
							Limonite	
							Hematite	
							Other (describe)	
							Amygdules	

CRITICAL FEATURES (description of units or features by number)

1) dike, aversicular, w/ 41% olivene phenos/ mph in a grey aphanitic matrix. Basal contact black glass. Amorphous quartz and pyrite rhombs along fractures and quartz in amygdules.

CORE LOG

BOX # 592

HOLE # 1

Sheet A

Depth range 1656.30 to 1659.20 meters

Depth range 5430.5 to 5440 feet

Logger's Name EN

Page 1

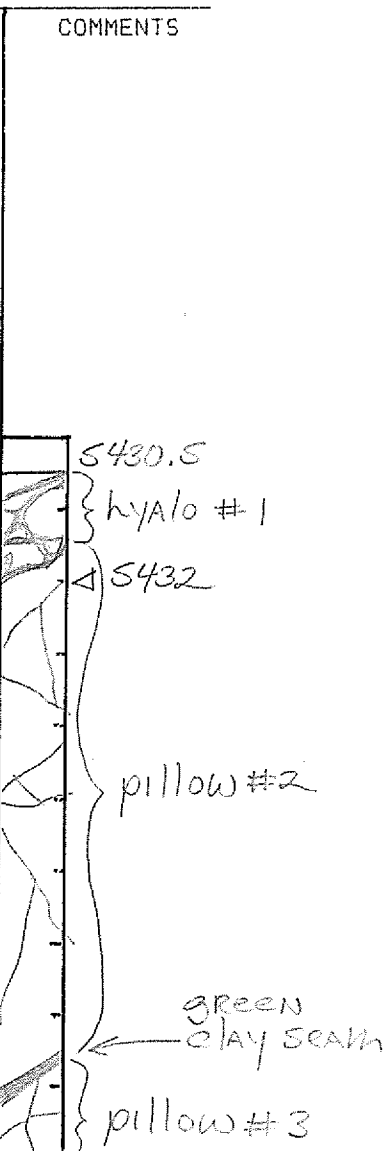
Type of Sample: Flow Intrusive Ash Breccia Red Bed

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						
	1	2	3	4	5	6
Phyric						
mega (>.5 mm)						
micro (<.5 mm)	✓	✓	✓			
Aphyric						
Vesicles: %						
Shape						
Size(x)						
PHENOCRYSTS (Original mineralogy)						
Olivine >5%						
1-5%	/	/	/			
<1%						
Phenos						
mph	✓	✓	✓			
ol-plag	✓	✓	✓			
Comments	<u>alt to blk clay</u>					
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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	
Amorphous	
Chalcedony	
Crystals	✓
Pyrite	✓
Epidote	
Gypsum	
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	



CRITICAL FEATURES (description of units or features by number)

- 1) hyaloclastite (small pillows), aresicular, ^{clasts:} olivine mph & ol-plag inters <1%, alt to blk clay in a gray aphan mtr. Cement is grn and blk clay with pyrite x-tals.
- 2-3) pillows, aresicular, olivine mph 1%, alt to blk clay in a gray aphan mtr.

CORE LOG

BOX # 593

HOLE # 50H#1

Sheet A

Depth range 1659.2 to 1661.6 meters

Depth range 5440 to 5448 feet

Logger's Name RE

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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓						Ol -> Clay ✓	
micro (<.5 mm)	✓						Iddingsite	
Aphyric							Plag -> Clay	
Vesicles: %							Zeolite	
Shape							Groundmass	
Size(x)							Chlorite	
							Smectite	
PHENOCRYSTS (Original mineralogy)								
Olivine >5%							Fracture	
Olivine 1-5%							Vesicle	
Olivine <1%	✓						Secondary/Alteration Min.	
Phenos mph	✓						Smectite ✓	5440' } pillow #1
Phenos ol-plag							Calcite	
Comments							Zeolite	5442' }
							white fibrous	
Plagioclase >5%							green	} pillow #2
Plagioclase 1-5%							blue	
Plagioclase <1%							Analcime	} pillow #3
Rhombs							Chabazite	
Blades/laths mph							MgOH	} pillow #4
Blades/laths mph							Silica ✓	
Comments							Amorphous ✓	} 5448'
							Chalcedony ✓	
Augite %							Crystals ✓	} amygdules
							Pyrite ✓	
GROUNDMASS (original)							Epidote	
Aphanitic							Gypsum	
Feldspathic							Anhydrite	
Diktytaxitic							Chalcopyrite	
							Limonite	
							Hematite	
							Other (describe)	

CRITICAL FEATURES (description of units or features by number)

(1-4) pillow lavas, a vesicular, w/ <1% olivine phenos/mph in a grey aphanitic matrix. Golden hydrated glass on contact margins.

2° mins: amorph & crystalline gty along fractures & in amygdules, pyrite along fractures, smectite.

CORE LOG

BOX # 594

HOLE # 1

Sheet A

Depth range 1661.64 to 1664.69 meters

Depth range 5448 to 5458 feet

Logger's Name EN

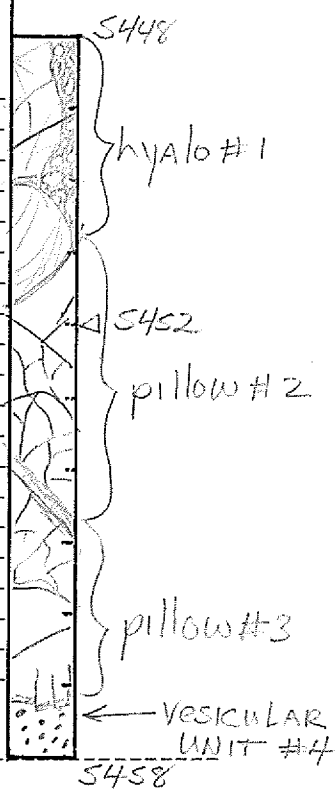
Page 1

Type of Sample: Flow 4 Intrusive _____ 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							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements			
mega (>.5 mm)	✓	✓	✓				Olv -> Clay _____			
micro (<.5 mm)	✓	✓	✓				Iddingsite _____			
Aphyric				✓			Plag -> Clay _____			
Vesicles: %	-	-	-	10			Zeolite _____			
Shape				R			Groundmass			
Size(x)				2mm			Chlorite _____			
							Smectite _____			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%							Secondary/Alteration Min.	Fracture	Vesicle	
1-5%	3	3	3							
<1%							Smectite	✓		
Phenos	✓	✓	✓				Calcite	✓		
mph	✓	✓	✓				Zeolite			
ol-plag	✓	✓	✓				white fibrous			
Comments	<u>unalt</u>							green		
Plagioclase							blue			
>5%							Analcime			
1-5%							Chabazite			
<1%							MgOH			
Rhombs							Silica			
Blades/laths							Amorphous			
mph							Chalcedony			
Comments								Crystals	✓	
Augite %							Pyrite	✓		
GROUNDMASS (original)							Epidote			
Aphanitic	✓	✓	✓	✓			Gypsum			
Feldspathic							Anhydrite			
Diktytaxitic							Chalcoppyrite			
							Limonite			
							Hematite			
							Other (describe)			



CRITICAL FEATURES (description of units or features by number)

- 1) hyaloclastite = small pillows, amesicular, clasts: olivine phenos, mph, ol-plag inters $\approx 3\%$ ^{unalt} in a gray aphan mtr. Cement is black and gray clay.
- 2,3) pillows, lith as in clasts above.
- 4) mesicular unit (10%, 2mm) ^{aphanitic} aphan. gray basalt. Low angle (10°) contact consists of tan quenched chillind at base of pillow followed by discreet mesicular clasts 8cm \rightarrow

thick in a matrix of black clay followed by the
competent vesicular unit. Vesicles are filled with
silica


1-594

CORE LOG
 BOX # 595 HOLE # SOH #1 Sheet A
 Depth range 1664.7 to 1667.3 meters Depth range 5458 to 5466.5 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: % <u>5-15%</u>						
Shape <u>RS</u>						
Size(x) <u>1000</u>						
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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	✓
Amorphous	
Chalcedony	
Crystals	✓
Pyrite	✓
Epidote	
Gypsum	✓
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS



Golden hydrated glass present
 See next box

5458' } pillow #1
 } pillow #2
 } pillow #3
 } pillow #4
 } pillow #5
 } pillow #6
 5466.5'

CRITICAL FEATURES (description of units or features by number)

1-6) interbedded pillow lavas w/ <1% olivine & plag laths & mph, vesicularity 5-15%, in a grey aphanitic matrix. Golden glass present at contacts, some contacts are sandy & have angular clasts of pillow.

CORE LOG
 BOX # 596 HOLE # SOH #1 Sheet A
 Depth range 1664.3 to 1640.3 meters Depth range 5466.5 to 5446.5 feet
 Logger's Name RE Page 1
 Type of Sample: Flow Intrusive Ash Breccia Red Bed
 Number of Units in Box 8 Clk/Rubble Carbonate Pillow/Hyaloclast 1-8
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES			COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements				Vesicles are 100% mineralized w/in 1.5 cm of contacts otherwise random smectite + calcite (same in #595)
mega (>.5 mm)	✓						Olv -> Clay	✓			
micro (<.5 mm)	✓						Iddingsite				
Aphyric							Plag -> Clay				
Vesicles: %	5-10%						Zeolite				
Shape	R-SA						Groundmass				
Size(x)	1mm						Chlorite				
							Smectite				
PHENOCRYSTS (Original mineralogy)										5466.5' } pillow #1 } pillow #2 } pillow #3 } pillow #4 } pillow #5 } pillow #6 } pillow #7 } pillow #8 54476.5'	
Olivine	>5%						Secondary/Alteration Min.				
	1-5%						Smectite	✓			
	<1%	✓					Calcite	✓	✓		
Phenos	mph	✓					Zeolite				
	ol-plag						white fibrous				
							green				
							blue				
							Analcime				
							Chabazite				
Plagioclase											
	>5%						MgOH				
	1-5%						Silica	✓	✓		
	<1%						Amorphous	✓	✓		
	Rhombs						Chalcedony				
	Blades/laths						Crystals				
	mph						Pyrite	✓	✓		
							Epidote				
							Gypsum				
Augite											
	%						Anhydrite	✓	✓		
GROUNDMASS (original)											
	Aphanitic	✓					Chalcopyrite				
	Feldspathic						Limonite				
	Diktytaxitic						Hematite				
							Other (describe)				

CRITICAL FEATURES (description of units or features by number)

1-8) pillow lavas, vesicular, w/ <1% olivine phenos/ mph in a grey aphanitic matrix. Golden glass present along contacts.

20 min: anhydrite, calcite, smectite, pyrite, quartz.

CORE LOG

BOX # SP1

HOLE # 1

Sheet A

Depth range 1670.33 to 1673.23 meters

Depth range 5476.5 to 5486 feet

Logger's Name EN

Page 1

Type of Sample: Flow 1,3,4,6,7,8 Intrusive _____ Ash _____ Breccia _____ Red Bed _____

Number of Units in Box 8 Clk/Rubble _____ Carbonate _____ Pillow/Hyaloclast _____

Fill in blanks below by using the appropriate unit number. CLAY #2, 5

PRIMARY FEATURES							SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	7	8	
mega (>.5 mm)									
micro (<.5 mm)	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Aphyric		<input checked="" type="checkbox"/>							Groundmass Chlorite _____ Smectite <u>1-2</u>
Vesicles: % <u>20</u>									
Shape <u>R</u>									
Size(x) <u>1mm</u>									
PHENOCRYSTS (Original mineralogy)									
Olivine >5%									Secondary/Alteration Min. Smectite _____ Calcite _____ Zeolite _____ white fibrous _____ green _____ blue _____ Analcime _____ Chabazite _____ MgOH _____ Silica _____ Amorphous _____ Chalcedony _____ Crystals _____ Pyrite _____ Epidote _____ Gypsum _____ Anhydrite _____ Chalcopyrite _____ Limonite _____ Hematite _____ Other (describe) _____
1-5%									
<1%	<input checked="" type="checkbox"/>								
Phenos mph <input checked="" type="checkbox"/>									
ol-plag									
Comments <u>alt to blk clay</u>									
Plagioclase									
>5%									UNIT #1 UNIT #2 UNIT #3 UNIT #4 UNIT #5 UNIT #6 UNIT #7 UNIT #8
1-5%									
<1%									
Rhombs									
Blades/laths mph									
Comments _____									
Augite %									
GROUNDMASS (original)									
Aphanitic <input checked="" type="checkbox"/>									5486
Feldspathic <input checked="" type="checkbox"/>									
Diktytaxitic <input checked="" type="checkbox"/>									

CRITICAL FEATURES (description of units or features by number)

- 1) vesicular unit, (20%, 1mm), olivine mph <10%, alt to blk clay, in a somewhat feldspathic matrix pervasively altered to smectite
- 2) gray indurated clay
- 3) vesicular unit, lith as in #1 but mty is aphan.
- 4) vesicular unit, lith as in #1
- 5) gray clay (6-8) mes. white, lith as in #3

CORE LOG
 BOX # 598 HOLE # SOH#1 Sheet A
 Depth range 1673.2 to 1646 meters Depth range 5486 to 5495 feet
 Logger's Name RE Page 1
 Type of Sample: Flow Intrusive 8 Ash Breccia Red Bed
 Number of Units in Box 8 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: %	15-20					
Shape	R-SA					
Size(x)	100					
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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	✓
Amorphous	✓
Chalcedony	
Crystals	
Pyrite	✓
Epidote	
Gypsum	✓
Anhydrite	
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	

COMMENTS

Vesicles mineralized near contacts

5486' } pillow #1
 } pillow #2
 } pillow #3
 } pillow #4
 } pillow #5
 } pillow #6
 } pillow #7
 } dike #8
 5495'

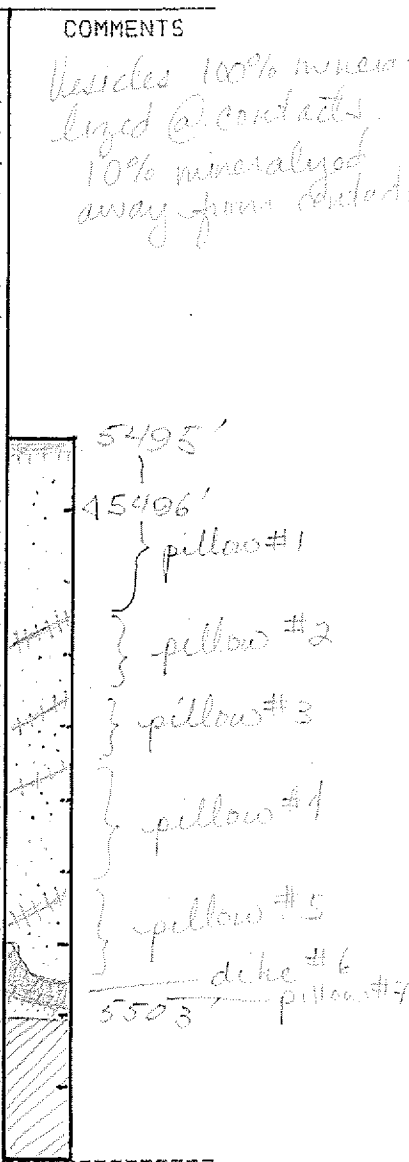
CRITICAL FEATURES (description of units or features by number)

1-7) pillow lavas, vesicular 15-20%, w/ <1% olivine phenos/ mph in a light grey aphanitic matrix. Vesicles are mineralized near contacts. Some golden / amber glass near contacts.

8) dense dike intrusion, a vesicular, w/ <1% olivine mph in a dark grey matrix.

CORE LOG
 BOX # 599 HOLE # 504#1 Sheet A
 Depth range 1636 to 1648.4 meters Depth range 5495 to 5503 feet
 Logger's Name RE Page 1
 Type of Sample: Flow Intrusive 6 Ash Breccia Red Bed
 Number of Units in Box 7 Clk/Rubble Carbonate Pillow/Hyaloclast 1-5, 7
 Fill in blanks below by using the appropriate unit number.

PRIMARY FEATURES							SECONDARY FEATURES			COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	Fracture	Vesicle	
mega (>.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Olv -> Clay <input checked="" type="checkbox"/>			
micro (<.5 mm)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Iddingsite <input type="checkbox"/>			
Aphyric	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plag -> Clay <input type="checkbox"/>			
Vesicles: %	<u>20</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	Zeolite <input type="checkbox"/>			
Shape	<u>R-SA</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	Groundmass			
Size(x)	<u>1mm</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	Chlorite <input type="checkbox"/>			
							Smectite <input type="checkbox"/>			
PHENOCRYSTS (Original mineralogy)										
Olivine >5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Secondary/Alteration Min.			
1-5%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Smectite <input checked="" type="checkbox"/>			
<1%	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Calcite <input type="checkbox"/>			
Phenos mph	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Zeolite <input type="checkbox"/>			
ol-plag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	white fibrous <input type="checkbox"/>			
							green <input type="checkbox"/>			
							blue <input type="checkbox"/>			
							Analcime <input type="checkbox"/>			
							Chabazite <input type="checkbox"/>			
							MgOH <input type="checkbox"/>			
							Silica <input type="checkbox"/>			
							Amorphous <input type="checkbox"/>			
							Chalcedony <input type="checkbox"/>			
							Crystals <input checked="" type="checkbox"/>			
							Pyrite <input type="checkbox"/>			
							Epidote <input type="checkbox"/>			
							Gypsum <input checked="" type="checkbox"/>			
							Anhydrite <input type="checkbox"/>			
							Chalcopyrite <input type="checkbox"/>			
							Limonite <input type="checkbox"/>			
							Hematite <input type="checkbox"/>			
							Other (describe) <input type="checkbox"/>			



CRITICAL FEATURES (description of units or features by number)

1-5, 7) pillow lavas, vesicular 20%, w/ <1% olivine ^{aphanos} mph in a light grey aphanitic matrix. Vesicles 100% mineralized at contacts, 10% otherwise.

6) dense dike, a vesicular, w/ <1% olivine mph in a dark blue-grey aphanitic matrix. Wandering through the pillow pile.

2° mins: pyrite, smectite, qtz xstls, gypsum.

CORE LOG
 BOX # 600 HOLE # SOH#1 Sheet A
 Depth range 1678.4 to 1681.5 meters Depth range 5503 to 5513 feet
 Logger's Name RE 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						SECONDARY FEATURES		COMMENTS
Phyric	1	2	3	4	5	6	Phenocryst replacements	
mega (>.5 mm)	✓						Olv -> Clay ✓	
micro (<.5 mm)	✓						Iddingsite	
Aphyric							Plag -> Clay	
Vesicles: %	10-20%						Zeolite	
Shape	S-A						Groundmass	
Size(x) <1mm							Chlorite	
							Smectite	
							Fracture	
							Vesicle	
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min	
Olivine >5%							Smectite	
1-5%							Calcite	
<1%	✓						Zeolite	
Phenos							white fibrous	
mph	✓						green	
ol-plag							blue	
Comments							Analcime	
							Chabazite	
Plagioclase							MgOH	
>5%							Silica	
1-5%							Amorphous	
<1%							Chalcedony	
Rhombs							Crystals	
Blades/laths							Pyrite	
mph							Epidote	
Comments							Gypsum	✓
							Anhydrite	
Augite %							Chalcopyrite	
							Limonite	
GROUNDMASS (original)							Hematite	
Aphanitic	✓						Other (describe)	
Feldspathic								
Diktytaxitic								

CRITICAL FEATURES (description of units or features by number)

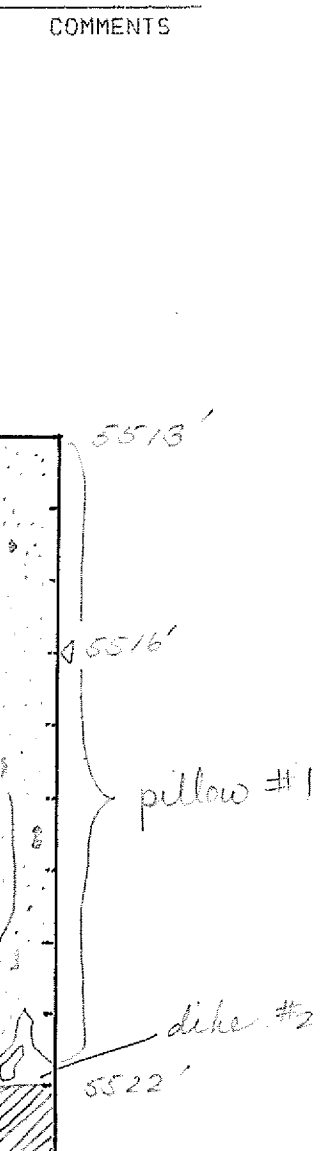
1-5 pillow lavas, vesicular 10-20%, w/ <1% olivine
 mph in a light grey matrix. Golden glass
 along contacts

2° mins: gypsum, smectite

CORE LOG
 BOX # 601 HOLE # 504-#1 Sheet A
 Depth range 1681.5 to 1684.2 meters Depth range 5513 to 5522 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: %	<u>10-15</u>					
Shape	<u>S-SA</u>					
Size(x)	<u>1mm</u>					
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 fibrous	
green	
blue	
Analcime	
Chabazite	
MgOH	
Silica	✓
Amorphous	
Chalcedony	
Crystals	✓
Pyrite	
Epidote	
Gypsum	✓
Anhydrite	✓
Chalcopyrite	
Limonite	
Hematite	
Other (describe)	
<u>green clay</u>	



CRITICAL FEATURES (description of units or features by number)

- pillow lava, vesicular, w/ <1% olivine phenos / mph in a light grey aphanitic matrix.
- dense dike, aversicular, aphyric, dark grey aphanitic matrix. Altering green w/ large 1cm x 6cm frags (?) of gypsum/anhydrite

2° mins: gty xstls, smectite, anhydrite

CORE LOG
 BOX # 1002 HOLE # 1 Sheet A EOH
 Depth range 1684.2 to 1685.4 meters Depth range 5522 to 5526 feet
 Logger's Name EA 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							SECONDARY FEATURES		COMMENTS	
Phyric	1	2	3	4	5	6	Phenocryst replacements			5522 } VES. UNIT #1 } 5526 EOH
mega (>.5 mm)	✓						Olv -> Clay ✓			
micro (<.5 mm)	✓						Iddingsite			
Aphyric							Plag -> Clay			
Vesicles: %	15						Zeolite			
Shape	R						Groundmass			
Size(x)/mm							Chlorite			
							Smectite			
							Fracture			
							Vesicle			
PHENOCRYSTS (Original mineralogy)							Secondary/Alteration Min.			
Olivine >5%							Smectite ✓			
1-5%							Calcite			
<1%	✓						Zeolite			
Phenos ✓							white fibrous			
mph ✓							green			
ol-plag ✓							blue			
Comments <u>alt to blk clay</u>							Analcime			
							Chabazite			
Plagioclase								MgOH		
>5%							Silica			
1-5%							Amorphous			
<1%							Chaicedony			
Rhombs							Crystals			
Blades/laths							Pyrite			
mph							Epidote			
Comments							Gypsum			
							Anhydrite			
Augite %								Chalcopyrite		
							Limonite			
GROUNDMASS (original)								Hematite		
Aphanitic	✓						Other (describe)			
Feldspathic										
Diktytaxitic										

CRITICAL FEATURES (description of units or features by number)

1) macular unit, (15%, 1mm) vesicles are 100% filled w blk clay; olivine phenos, mph, ol-plag intus E. <1%, alt to blk clay in a gray aphan mty somewhat altered to smectite.