

WHOI-81-48

DESCRIPTION OF W.H.O.I. ROCK DREDGE SAMPLES

VOLUME 3

Edited By

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TECHNICAL REPORT

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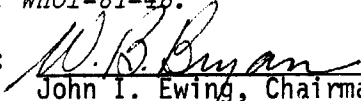
  
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ABSTRACT

This report is Volume III of DESCRIPTIONS OF WHOI ROCK DREDGE SAMPLES. This series represents a major effort to catalog the rock dredge samples in the WHOI Sea Floor Samples collection, and to disseminate this information throughout the scientific community. Volume III contains sample descriptions and station data for the dredge stations from five cruises during the period September 1978 through December 1980.

The material in this and subsequent volumes of rock descriptions was largely prepared onboard ship by the participating scientists. Volumes I and II are now being prepared by the WHOI Curatorial staff, and describe material in the rock collection obtained prior to 1978.

Volume III is being printed prior to volumes I and II because of the excellent documentation of the samples represented in this volume, and because more effort remains in documenting the samples obtained on some of the older cruises. We expect that volumes I and II will be printed and distributed within the next year.

## INTRODUCTION

"Description of W.H.O.I. Rock Samples" is an on-going series of reports that present station data and detailed descriptions of the dredge samples in the W.H.O.I. Sea Floor Samples Repository.

We are currently nearing completion of a major effort to describe the entire back-log of samples in the W.H.O.I. dredge collection. Volume III has been prepared first as it represents a large group of well-described and well-documented dredge hauls that are currently receiving considerable scientific attention. Most of the descriptive material for this volume was prepared on-board ship by participating scientists. In this sense, it has served as a model for future dredging cruises and descriptive reports. In contrast, Volumes I and II contain a large variety of dredged material collected over many years and consequently require more attention in their documentation and description. The W.H.O.I. curatorial staff has painstakingly verified station locations and slabbed and described representative suites from each of these dredge hauls. We anticipate that these two volumes will be distributed over the next year.

The standard format for archiving W.H.O.I. rock dredge samples is as follows: each rock is labelled with the ship symbol, cruise number, and station number of the dredge haul followed by a unique number for every rock within the dredge. For example, AII 107-33-2 refers to rock #2 from station 33 of cruise ATLANTIS II-107. All rock samples from this collection should be referenced in the literature by their Woods Hole identification number.

In describing a dredge haul, all specimens of reasonable size are sorted by rock type, numbered sequentially, and slabbed to obtain a fresh surface for description. If the dredge haul is very large and homogeneous, a representative suite of rocks (~50% of haul) are numbered and slabbed. Any remaining samples are stored in bulk in a labelled bag.

Notes on the descriptive format and abbreviations are provided in Table 1 (Notes on Detailed Rock Descriptions).

As dredge stations generally occupy several hours it is common to get at least one, if not more, satellite fixes during the course of a dredge. Unless otherwise noted, the positions quoted here are satellite fixes approximating the beginning of the station or the best estimate between several fixes of the dredge's location during the station. The end of station is generally considered to be when the dredge leaves the bottom, not when it actually arrives back on the deck of the ship. All water depths are given in corrected meters.

More detailed navigation information such as additional fixes or length of wire-out during stations is available from the curator's office. Likewise, detailed sampling records recording names of investigators, proposed analyses, and copies of published papers are kept at the same office.

The introductory remarks preceding the detailed rock descriptions of each cruise in this report have been provided by the respective Principal Investigators, and thus may vary in their scope and detail.

TABLE 1:

NOTES ON DETAILED ROCK DESCRIPTIONS

<u>Lithology:</u>	Rock name; i.e. amphibolite, basalt, gabbro, greenstone
<u>Wt.:</u>	Weight in grams or kilograms
<u>G.S.:</u>	Grain size: G = glassy A = aphanitic; individual grains not visible to the naked eye F = fine; <1 mm M = medium; 1 to 5 mm C = coarse; >5 mm
<u>Mineralogy:</u>	Phases present in groundmass if apparent in hand specimen.
<u>Phenocrysts:</u>	Type and estimated amount in %; use abbreviations: pg - plagioclase, px - pyroxene, amph - amphibole, mt - magnetite, py - pyrite, ol - olivine, il - ilmenite, ep - epidote, pr - prehnite, mi - mica, etc.
<u>Ve:</u>	Vesicles: give an estimate of the percent in the rock
<u>Am:</u>	Amygdules - filled vugs or vesicles: T - trace, S - scattered C - common, A - abundant
<u>Mn:</u>	Manganese coating - give thickness (in mm or cm)
<u>We:</u>	Weathering F - Fresh, no discoloration L - Light, discolored at edges M - Moderate, discolored H - Heavy, clayey VH - Very Heavy, disaggregating
<u>Alteration:</u>	Metamorphism - facies and degrees i.e. Gr - Greenschist Amph - Amphibolite Ze - Zeolite
<u>Remarks:</u>	Note if glass is present, and indicate visible structures: for example, "pillow rind fragments".

## SAMPLE DISTRIBUTION POLICY

The W.H.O.I. Sea Floor Samples Laboratory is prepared to furnish samples and data to interested researchers and students within the scientific community who express a legitimate interest and need.

Requests for samples may be sent to the Geological Sample Curator's office, McLean Laboratory, W.H.O.I. These should include a summary of the intended research and the laboratory facilities available. Requests will be reviewed by the Principal Investigator responsible for collecting the samples, and may be approved if the proposed studies are not in conflict with concurrent laboratory studies. The Principal Investigator will retain authority to approve sample requests until expiration of the relevant research grant or until two years from the date of termination of the cruise, whichever is later. Following the period of proprietary access, sample requests will be approved by the Curator's office in consultation with the appropriate staff scientists.

Persons receiving samples will also receive a statement explaining the "Responsibilities of Persons Receiving Samples". Further documentation regarding this distribution policy may be found in W.H.O.I. Institution Memorandum #3-75 ("Distribution Policy for Geological Samples").

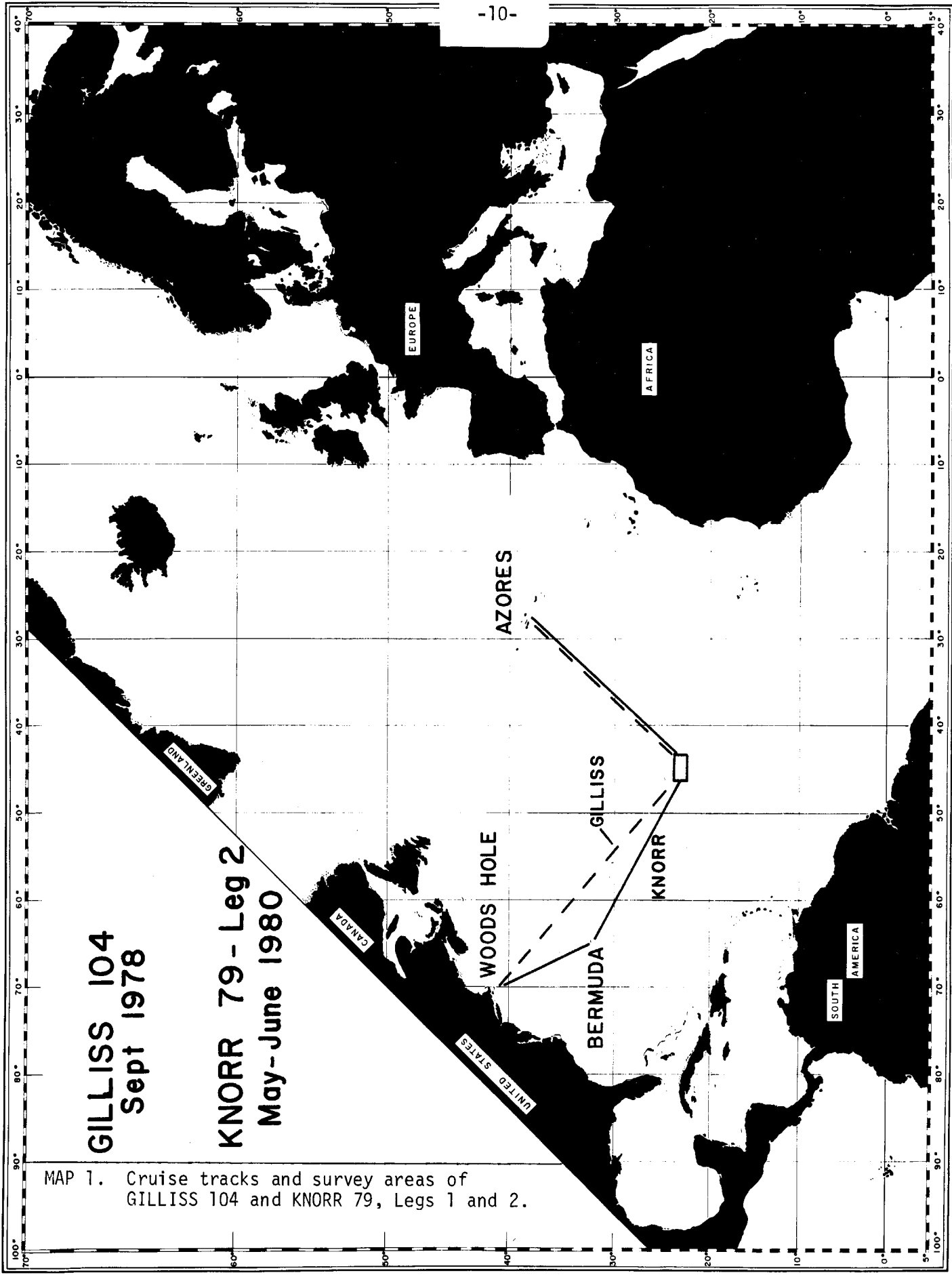
#### ACKNOWLEDGMENTS

The editors of this report would like to recognize all those persons contributing to the rock descriptions provided herein. We also wish to thank the W.H.O.I. curatorial staff for their persistence in carrying out routine archival procedures which maintain the high quality of this collection. David A. Johnson provided much of the guidance and drive for this effort through the years. Donna Allison did most of the typing. Support for the preparation of this report was provided by a grant to the Woods Hole Oceanographic Institution Sea Floor Samples Laboratory (National Science Foundation Grant No. OCE78-25231).

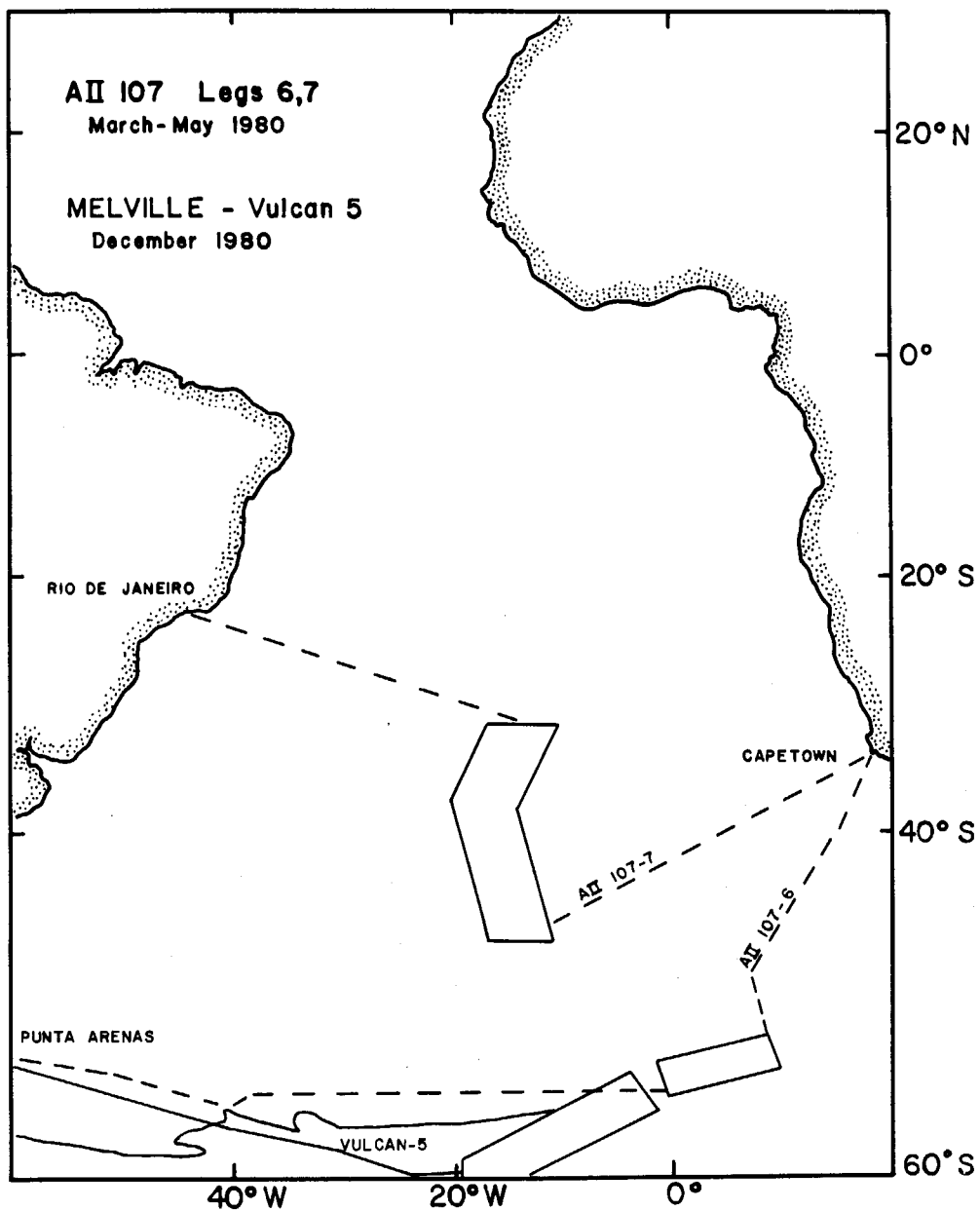


MAPS 1 THROUGH 5

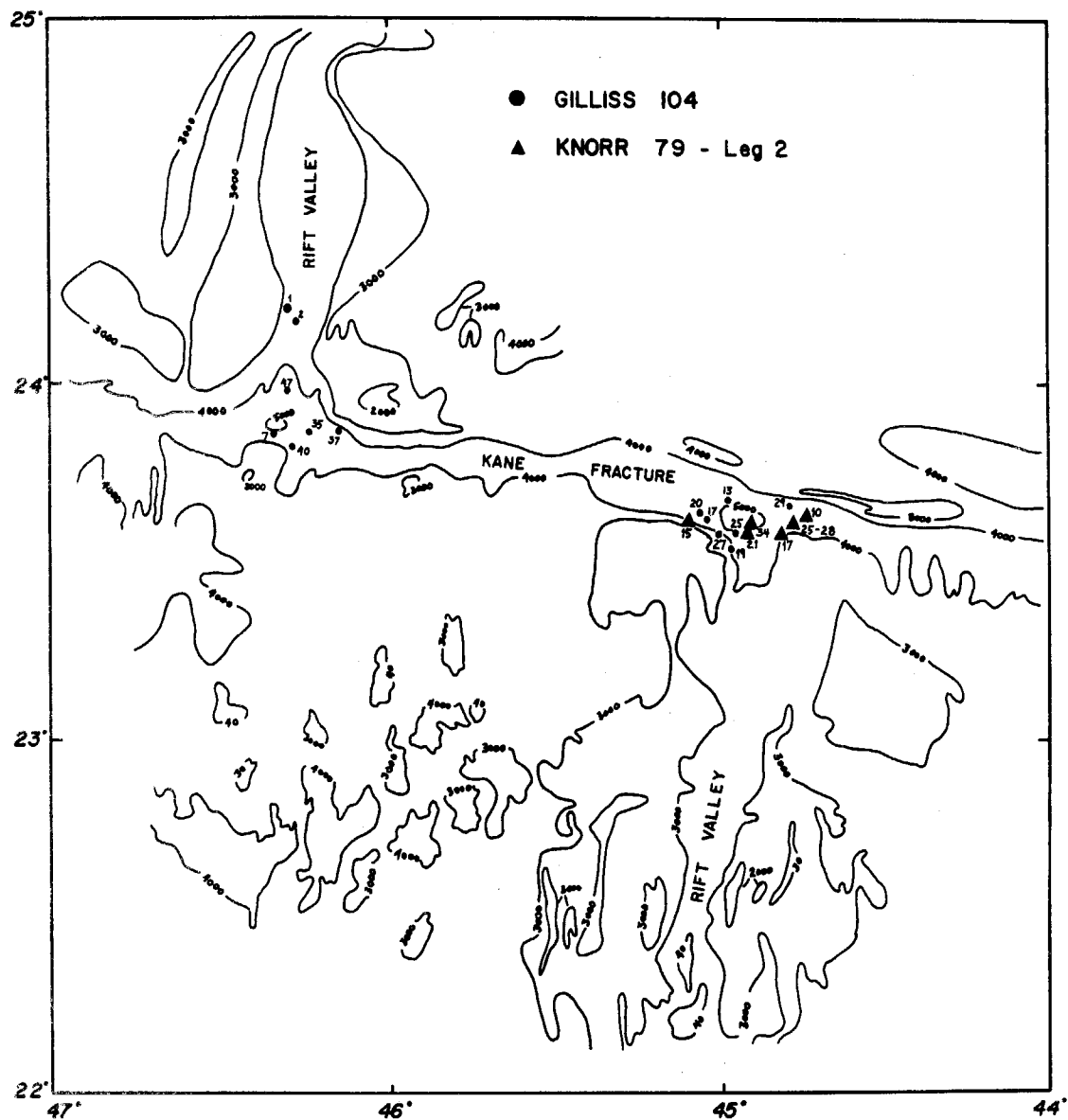
Maps 1 and 2 show the generalized cruise tracks and locations of the dredge stations for each of the five cruises described in this report. Maps 3 through 5 present more detailed bathymetric and/or tectonic information as well as dredge station locations for some of the cruises where such detail is presently available. These detailed maps are not provided, however, for those cruises where the total survey area is quite large or where the bathymetry remains poorly known (e.g. AII-107-7).



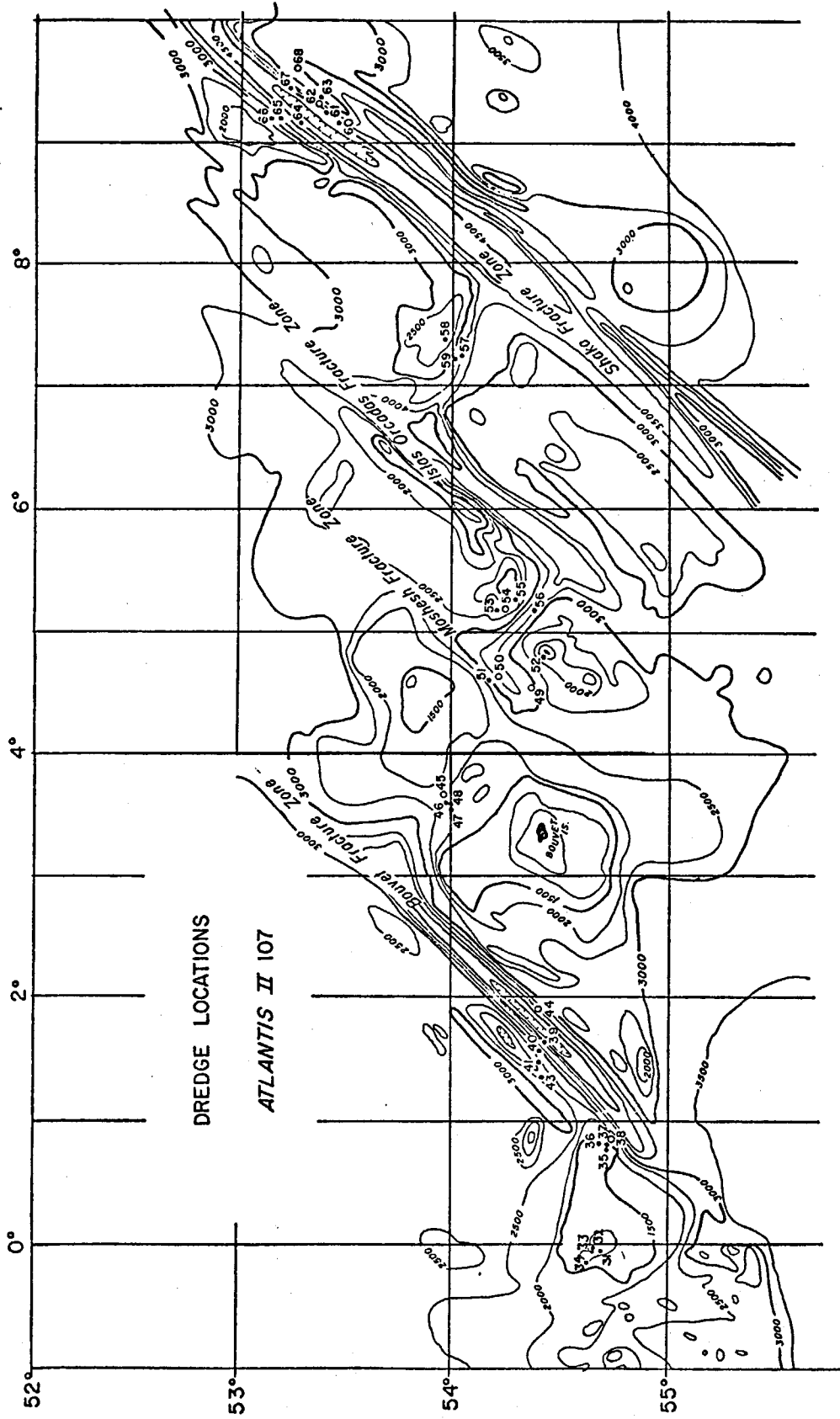
MAP 1. Cruise tracks and survey areas of GILLISS 104 and KNORR 79, Legs 1 and 2.



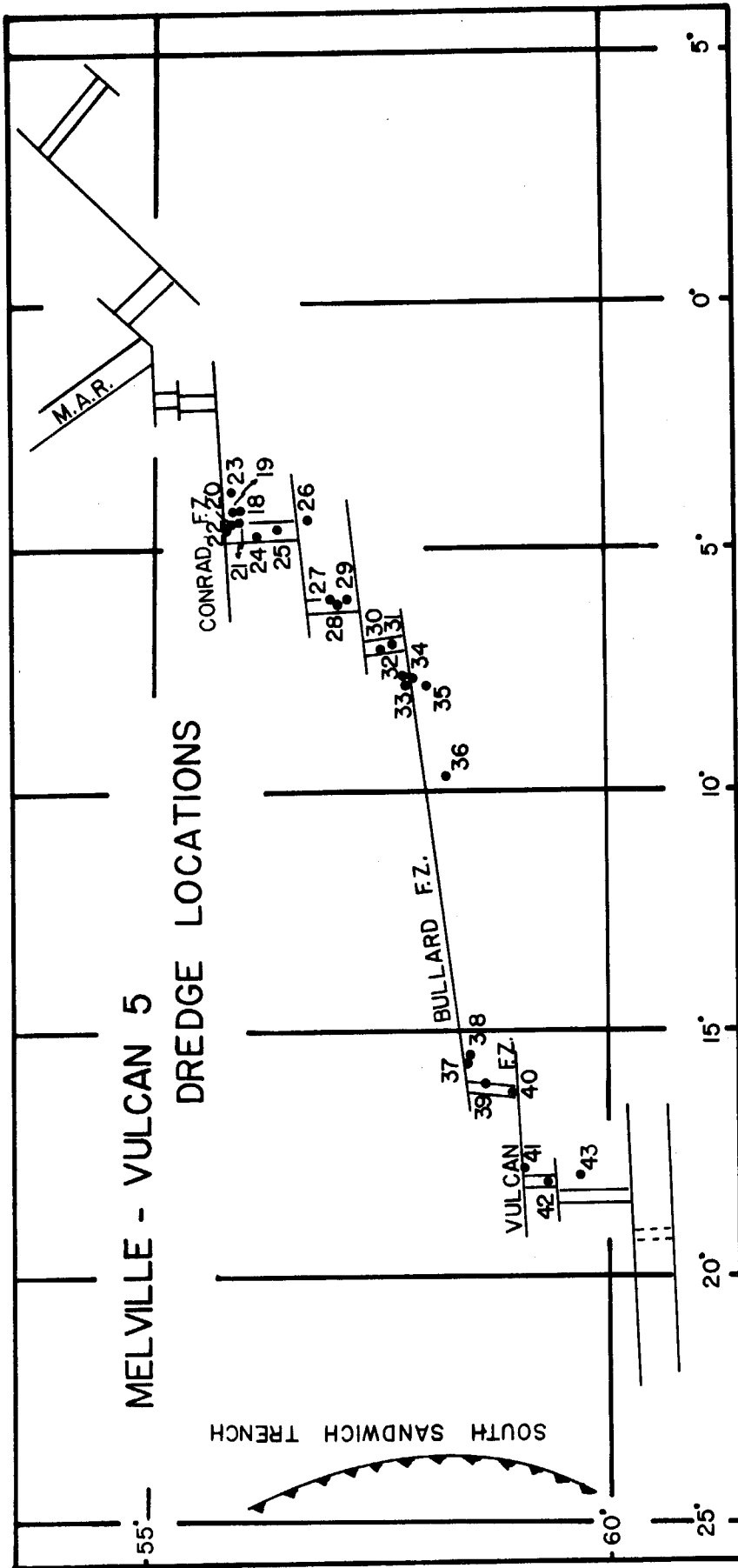
MAP 2. Generalized cruise tracks and survey areas of ATLANTIS II 107 Legs 6 and 7, and VULCAN Expedition Leg 5 of R.V. MELVILLE.



MAP 3. Generalized bathymetry of Kane Fracture Zone with dredge locations from GILLISS 104 and KNORR 79-2.



MAP 4. Generalized bathymetry and dredge locations of AII 107-6 study area.



MAP 5. Schematic drawing indicating approximate relationships between dredge locations and major tectonic features in VULCAN 5 study area.

**GILLISS 104**  
**DREDGE DESCRIPTIONS**

GILLISS 104  
(Maps 1 & 3)

Cruise 104 of the R.V. GILLISS was part of a long term multi-cruise study of the Kane Fracture Zone near 24°N on the Mid-Atlantic Ridge by scientists at the Woods Hole Oceanographic Institution. The R.V. GILLISS was operated by the University of Miami. The chief scientist was Dr. Wilfred B. Bryan of the Woods Hole Oceanographic Institution. Other participating scientists included Dr. Henry Dick and Dr. Michael Mottl of the Woods Hole Oceanographic Institution, Dr. John Ludden of the University of Montreal and Dr. John Delaney of the University of Washington. The R.V. GILLISS left the Azores on September 1, 1978 and arrived at Woods Hole, Massachusetts on September 29, 1978.

Principal shipboard programs included acoustically navigated bottom photography, rock dredging and echo-sounding and satellite-navigated rock dredging, echo-sounding and bottom photography under the direction of Dr. Bryan and Dr. Dick, all in the vicinity of the Kane Fracture Zone. In addition, an ocean bottom seismometer program was directed by Mr. Jeremy Duschenes, a graduate student in the MIT/WHOI joint program in geology and geophysics. Rock sample curation and sampling was done by Drs. Ludden, Delaney, Mottl and Dick and Margaret Sulanowska.

Other cruises in this series include cruise 96 of R.V. ATLANTIS II, cruise 79 of R.V. KNORR and Dives 1008 to 1014 of the DSRV ALVIN, all of the Woods Hole Oceanographic Institution.



Fourteen of the nineteen dredge stations attempted yielded rock. Six of the stations produced more than 50 kg of rock and one yielded about 250 kg. Total rock recovery was as follows:

50%	Basalt and basaltic glass
21	Metabasalt, mostly greenstone
16	Brecciated basalt and metabasalt
3	Talc peridotite (basic gabbro?)
2	Gabbro
1	Calcareous ooze, Mn-deposit, mineralized qtz breccia
7	Dolerite

Basalt was recovered from areas unsampled by AII-96, particularly at the western intersection of the axial valley and the Kane transform (area A). Fresh basalts were predominantly plagioclase and plagioclase-olivine phyric. Eleven dredges yielded fresh basaltic glass (basaltic pillow rinds and hyaloclastite). Basalt recovery was less successful at the eastern intersection (area B).

Gabbro recovery was relatively poor with the exception of one dredge on the east-west ridge within the transform north of area B, in which gabbro, serpentinized gabbro, and serpentinized peridotites and talc were recovered.

Greenstone recovery was particularly successful from the east-facing scarp 10 km south of the eastern intersection of the Kane Fracture zone with the Mid-Atlantic Ridge (area B).

Comments on specific physiographic features:

1. Floor of fracture zone at intersections with Mid-Atlantic Ridge axial valley (areas A and B):

Deep topographic lows exist at both intersections. At the western intersection, both the N-S ridge central to this depression and slopes slightly further east in the depression yielded pillow basalts with fresh glass (Stations 5, 35, 40). At analogous locations at the eastern intersection, ANGUS photography revealed the presence of pillow basalts, but the dredge meant to sample these came up empty (Station 26). Slightly further south in the axial valley, the Station 15 dredge was also empty, but Station 25 sampled fresh basalt.

2. West wall of axial valley 10-15 km south of the fracture zone (area B):

Greenstones, some of them brecciated, made up 60-80% of the 250 kg of rocks sampled at this locality (Station 19). Some of these contained massive quartz veins with pyrite and chalcopyrite mineralization.

3. North wall of the Kane Fracture Zone and probably extension to E-W trending ridge north of area B (Stations 13 and 29):

Station 13, on the probable E-W extension of the north wall, dredged the S-facing escarpment close to the axial valley-transform intersection. It yielded rocks consistent with samples obtained on cruise AII-96 further to the east: metagabbro, greenstone, and basalt.

Station 29 yielded fresh (glassy) basalt and consolidated sediment from supposedly old basaltic terrain.

4. Escarpment in SW quadrant of eastern intersection of K.F.Z. and M.A.R.  
(area B):

Dredging in this area attempted to confirm AII-96 observations and establish the limit of possible outcrop.

Stations 17 and 20 effectively reproduced the stratigraphy defined by AII-96. In addition to gabbro, greenstone, and basalt, talc-rich peridotite (basic gabbro?) was sampled.

On the same escarpment to the southeast, Station 27 yielded metagabbro, greenstone, and basalt.

Station 28 and 23, below and above Station 27 respectively, were empty despite considerable "dredge activity".

Station 19 containing the greenstones discussed in 2. above is located on the southern extension of the same scarp which is transitional to the west wall of the axial valley.

At Station 17, the second most abundant rock type sampled was diabase and metadiabase. This represents additional stratigraphic data for this escarpment.

5. Axial valley north of the western intersection with the Kane  
fracture zone (area A):

Stations 1 and 2 yielded fresh (glassy) plagioclase-phyric basalt.

GILLISS 104  
(September, 1978)

STA NO.	LOCATION	DEPTH RANGE (corr. M.)	GENERAL DESCRIPTION
1 Rift Valley North of F.Z.	24°11.0'N 46°16.9'W	4090- 3910	Plag-phyric basalt (9.7 kg), fresh to light weathered, fresh glass margins
2 E. Slope of Rift Valley	24°09.4'N 46°16.1'W	3970- 3800	Sparse plag-phyric basalt (51 kg), fresh to light weathered, some glassy rinds, very large plag phenocrysts
7 Intersection Rift Valley- Kane F.Z.	23°51.2'N 46°20.0'W	5060- 4780	Fresh highly prophyritic pillow basalt (mostly plag - very minor olivine and cpx), fresh glass rind (12 kg)
13 Intersection Rift Valley- Kane F.Z.	23°39.2'N 44°59.3'W	4870- 4260	Aphyric, plag-phyric and plag-oliv phyric basalt (112 kg) light-moderate weathered, basalt and greenstone breccia (30 kg); gabbro & metagabbro (1 kg) relatively fresh
17 Scarp W. of Intersection	23°37.2'N 45°02.1'W	4820- 4410	Aphyric, plag-phyric and metabasalt, diabase and metadiabase, mafic gabbro and talc-meta peridotite (120kg)
19 Median Valley near F.Z.	23°30.9'N 44°58.9'W	4240- 3980	Metabasalt, metadiabase, aphyric basalt, greenstone & basalt breccia, metalliferous qtz-rich greenstone breccia (>245 kg); qtz-rich breccias contain minor sulfides (pyrite, malachite)
20 S. Wall Kane F.Z.	23°37.7'N 45°02.8'W	4380- 3820	Aphyric, sparsely plag phyric and metabasalt, greenstone breccia, diabase and metadiabase (75 kg); basalts fresh to mod. weathered, several with glass, greenstones with chl-epid-qtz veins.

GILLISS 104  
(September 1978) (continued)

STA NO.	LOCATION	DEPTH RANGE (corr. M)	GENERAL DESCRIPTION
25 Rift Valley South of F.Z.	23°32.0'N 44°57.4'W	4560- 4300	Aphyric basalts, olivine diabase, metabasalt (15 kg); pillow basalt light-mod. weathered most with glass rinds, rare plag. phenocrysts
27 Scarp S.W. of Intersection	23°34.7'N 44°59.9'W	3840- 2870	Metabasalt - highly chloritized (13.5 kg), metagabbro - relatively fresh (0.5 kg)
29 Central Ridge in F.Z.	23°38.8'N 44°48.1'W	3880- 3620	One very fresh pillow basalt with glass (2.5 kg), consolidated calc ooze (11 kg)
35 N. Wall Kane F.Z.	23°51.2'N 46°13.4'W	4590- 4010	Metabasalt and brecciated metabasalt (16 kg), palagonitized hyaloclastite breccia with zeolites and some fresh glass remaining (4.5 kg), Fe-Mn crust (.2 kg)
37 Intersection Rift Valley- F.Z.	23°50.5'N 46°08.3'W	4550- 4320	01-Plag-Cpx basalt and aphyric basalt - lightly weathered (4.2 kg)
40 S. Wall Kane F.Z.	23°48.3'N 46°16.9'W	5220- 4820	Light weathered plag-phyric basalt with glass rind and flow banded sorting of plag (4.3 kg)
47 Center of Rift Valley	23°56.7'N 46°18.0'W	4580- 4470	Fresh plag phyric pillow basalt with glass rind and preferential flow sorting of plag to outer zones (11 kg)



WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 2 DREDGE 2 DESCRIBED BY LUDDEN/DELANEY DATE 9/6/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
2-1	Basalt	2.36	F		Plag to 1.5 cm 1-2 %	10			F		Some glass at margin
2-2	Basalt	6.8	F		"	7	mm	<1	L		Some glass at margin
2-3	Basalt	.9	F		"	5			L		
2-4	Basalt	2.0	F		"	5			F		Some glass at margin
2-5	Basalt	>9.1	F		"	5			L		Glass & Mn crust at margin
2-6	Basalt	.9	G-F		Plag 2-4% ~.5cm	3-5			L	Yellow-brown smectite on glass	
2-7	Basalt Porphyric Plag	>9.1	M-F		Plag up to 1 cm 5%	7			L	Alteration selvages 1 cm thick	Yellow oxidation on surface with tiny Mn rosettes
2-9	"	1.4	M-F		Plag 3-5% ~.5 to 1cm diam	1-2			F	Alteration weathering selvages	-fracture controlled
2-8	Basalt	11	M-F		Plag 1-2% ~.5cm diam	2			L	"	"
2-10	Basalt	3	M-F		Plag 2% up to 0.7 cm	4			F	Slight oxidation rim	
2-11	Basalt	1.6	F		Plag <1%	3			F		Small amt of glass in marg
2-12	Basalt	1.8	F		Plag 2-4%	5			L	Oxidized on outer rind	No glass on margins
2-13	Basalt	.6	F		"	5			L	"	"
2-14	Basalt	.4	F		"	5			L	"	"
2-15	Basalt	.4	F		"	5			L	"	"
2-16	Basalt	.2	F		"	5			L	"	"
2-17	Basalt	.2	F		"	5			L	"	"
2-18	Basalt	.2	F		"	5			L	"	"





# WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 13 DREDGE 4 DESCRIBED BY LUDDEN DATE 9/9/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
13-1	Bag assorted basalt	11 kg									
13-2	Basalt	0.45	A-F		sporadic plag and oliv <2%	~10			L	Sericite in alt margin ~0.5 cm	Small basalt pebbles
13-3	Basalt	.24	A-F		"	~10			L	"	
13-4	Basalt	.32	A-F		"	~10			L	"	
13-5	Basalt	.24	M		"	~10			L	"	
13-6	Basalt	.32	A-F		"	~10			L	"	
13-7	Basalt	3.2	F-M		"	~10			L	"	Glomerocrysts of plag + cpx
13-8	Basalt	.32	A/F	cc in vugs	"	~10	cc		M	Altered margin	
13-9	Basalt	.32	A/F	cpx?	"	~10			L	smectite	
13-10	Basalt	.24	F/M		"	~10			L	"	
13-11	Basalt	.14	F/A		"	~10			M		
13-12	Basalt/dolerite?	.25	M	cpx, plag, ol	none				L		Probably doleritic block from dyke
13-13	Aphyric basalt	0.1	A/F		sporadic plag and oliv	~5			L	Fairly fresh	sample
13-14	Aphyric basalt	0.1	F/M		oliv ~5% plag ~5%	<5			L	good chemistry	
13-15	Basalt	0.1	A/F		Sporadic oliv and plag <2%	<5			L/M		
13-16	Basalt	.32	A/F		Oliv & plag <2%	~10			L/M		
13-17	Basalt	.2	A/F		Oliv & plag <2%	<5			M		
13-18	Basalt	.14	A/F		Oliv & plag <2%	<5			L/M		

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 13 DREDGE 4 DESCRIBED BY LUDDEN DATE 9/9/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
13-19	Aphyric basalt	.05	A/F		Oliv + plag <2%	<5			L		
13-20	Plag phytic	.45	A/F		Plag ~ 10% (minor oliv)	<5			L	Gr minor	
13-21	Plag phytic basalt	.32	A/F		Plag ~ 8%	<5			L/M	chloritized	
13-22	Plag phytic basalt	.24	A/F		Plag ~ 8%	<5			L		
13-23	Plag phytic basalt	.27	A/F		Plag ~ 10%	<5			L		
13-24	Plag phytic basalt	3.0	A/F		Plag ~ 15% (minor Ol + cpx)	<5			L/M	Plag altered	Probable cpx glom. with plag Fe-oxide margin
13-25	Plag phytic basalt	3.2	F/M		Minor plag ~5%				M/H	Gr breccia?	
13-26	Ol-diabase	3.7	M	Pl, cpx, ol	Olivine				L	Oliv. altered plag-cpx	Relatively fresh
13-27	Porphyritic basalt	5.5	F/M		Olivine ~10% Plag ~15%	<5	cc	✓	L	Oliv. altered	
13-28	Porphyritic basalt	3.7	F/M		Oliv + plag ~20-25%	<5	cc	✓	M		
13-29	Porphyritic basalt	5	A/F		Oliv+plag ~30%	<5			L	Oliv. altered	
13-30	Porphyritic basalt	.24	A/F		Oliv+plag ~20%	<5	cc	✓	M	Gr ?	
13-31	Porphyritic basalt	.32	A/F		Plag ~15% Oliv ~ 2 %	<5			L/M		
13-32	Porphyritic basalt	.24	A/F		Plag ~15% Oliv ~ 5%	<5			L/M		
13-33	Porphyritic basalt	.2	A/F		Oliv ~10% Plag ~ 8%	<5			M		
13-34	Porphyritic basalt	.27	A/F		Plag ~10% Oliv ~ 8%	<5			L/M		
13-35	Porphyritic basalt	.32	A/F		Plag ~20% Oliv ~ 2%	<5			L/M		

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 13 DREDGE 4 DESCRIBED BY LUDDEN DATE 9/9/78

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
13-36	Porphyritic basalt	.24	A/F		Oliv ~ 10% Plag ~ 10%	<5			M		
13-37	Porphyritic basalt	.2	A/F		Oliv ~ 5% Plag ~ 12%	<5			M	G.R? Chlorite veins	cpx ? resorbed glomerocrysts
13-38	Plag-oliv phyric basalt	.2	A/F		Plag ~ 10 Oliv < 5	<5			M	Chl. veins	
13-39	"	.24	A/F		Plag ~ 10 Oliv < 5	<5			M		
13-40	"	.2	A/F		Plag ~ 10 Oliv ~ 2	<5			L/M		Minor cpx phenos
13-41	"	.14	A/F		Plag ~ 12 Oliv ~ 4	<5			L/M		Minor cpx phenos
13-42	"	.2	A/F		Plag ~ 12 Oliv ~ 4	<5			H		Fe oxide coating
13-43	"	.45	A/F		Plag ~ 10 oliv < 2	<5			L		
13-44	"	.32	A/F		Plag ~ 8 Oliv ~ 4	<5			L/M	Chlorite Qtz veins	
13-45	"	.36	A/F		Plag ~ 10 Oliv ~ 2	<5			M	Chlorite Qtz veins	
13-46	"	2.0	A/F		Plag < 5	<5			H	Palag. breccia at margin	
13-47	"	0.1	A/F		Plag ~ 8 Oliv < 2	<5			L/M		
13-48	"	1.23	A/F		Plag ~ 5 Oliv ~ 2	<5			M	Chlorite veins	
13-49	"	0.1	A/F		Plag ~ 5 Oliv ~ 2	<5			M	Chlorite veins	
13-50	"	.32	A/F		Plag ~ 12 Oliv ~ 5	<5	√ cc	0.1	M	Chlorite veins	
13-51	"	.32	A/F		Plag ~ 12 Oliv ~ 5			0.1	M		
13-52	"	.32	A/F		Plag ~ 5 Oliv ~ 4	<5		0.1	M	Chl. Qtz veins palag. margin	Fe-coating

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 13 DREDGE 4 DESCRIBED BY LUDDEN DATE 9/9/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
13-53	Plag. Oliv phyric basalt	.32	A/F		Plag ~10 Oliv < 2	< 5		0.1 L/M			
13-54	"	.36	A/F		Plag ~10 Oliv < 2	< 5		0.1 L/M		Chlorite,qtz- cc veins	
13-55	"	.27	A/F		Plag ~ 5 Oliv < 2	< 5		0.1 M		"	
13-56	Oliv. plag phyric basalt	.27	A/F		Oliv ~ 8 Plag ~ 5	< 5		0.1 L/M		Chlorite	
13-57	"	.2	A/F		Oliv ~10 Plag ~ 5			0.1 H			Breccia
13-58	Plag Oliv phyric basalt	.24	A/F		Plag ~ 5 Oliv < 2	< 5		0.1 M			cpx with plag pheno?
13-59	"	.24	A/F		Plag ~10 Oliv ~ 5	< 5		0.1 M		Chlorite	
13-60	"	.2	A/F		Plag ~10 Oliv ~ 5	< 5		0.1 L/M			
13-61	"	.2	A/F		Plag ~10 Oliv ~ 5	< 5		0.1 M		Chlorite,qtz- cc veins	
13-62	"	.2	A/F		Plag ~10 Oliv < 2	< 5		0.1 L/M		Chlorite,qtz- cc veins	
13-63	"	.14	A/F		Plag ~10 Oliv ~ 5 (cpx)	< 5	cc	0.1 L/M			cpx phenos
13-64	"	.36	A/F		Plag ~12 Oliv < 2	< 5		0.1 L/M			
13-65	"	.24	A/F		Plag ~ 8 Oliv ~ 2	< 5		0.1 H		Breccia contact at margin	
13-66	"	.27	A/F		Plag ~10 Oliv ~ 5	tr		tr	H	Chl+qtz veins	
13-67	"	.45	A/F		Plag ~10 oliv < 2	tr		tr	M	chl +cc qtz veins	
13-68	"	.45	F		Plag 10% Oliv < 2%	tr		tr	L/M		
13-69	Pyroxene gabbro	.12	M/C	Cpx, plag				tr	L	G.R. chlorite veins; slight brecciation	Grain size-
13-70	"	0.1	M/C	Cpx, plag				tr	L	Chlorite	Brecciation, layering

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 13 DREDGE 4 DESCRIBED BY LUDDEN DATE 9/9/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
13-71	Basalt breccia	.34	F		Oliv+Plen ~ 2% Plag ~ 10% Oliv ~ 5	tr	cc	tr	H	Palagonite calcite Palagonite sericite	Fe-oxide coatings
13-72	Phyric basalt	.24	A/F			tr	cc		M/H		
13-73	Metagabbro	.24		cpx plag?chlorite						Chlorite G.R.	
13-74	Phyric basalt	.68	A/F		Plag ~ 16 Oliv ~ 5	< 5	✓	0.3	H	Veins: Qtz cc chl	
13-75	Phyric basalt	4.54	A/F		Plag ~ 10 Oliv ~ 5	< 5	✓	0.3	H	Veins: Qtz cc chl	
13-76	Phyric basalt	0.1	A/F		Plag ~ 5 Oliv < 2	tr	cc	0.2	H/M	" "	
13-77	Phyric basalt	4.09	A/F		Plag ~ 15 cpx-tr Oliv ~ 2	tr	cc	0.1	M	" "	
13-78	Pyrox gabbro Brecciated	0.05	C	cpx-plag amph.					F	Veins: cc chl	
13-79	greenstone	0.46	M	chl., cc.	aphyric basalt frags				GR	Possibly diabase	
13-80	Phyric basalt	0.68	F		Plag ~ 5 Oliv < 2	tr	cc	✓	H	Smectite palag	Highly altered, low temp
13-81	Porphyritic basalt	0.24	F		Plag ~ 5 Oliv < 2	tr	cc		M/H		
13-82	Phyric basalt	0.27	A/F		Plag ~ 5 Oliv < 2	tr	cc	✓	H		Highly altered, low temp
13-83	Phyric basalt	8.5	A/F		Plag ~ 5 Oliv < 2	tr			M/H		
13-84	Porph. basalt	2.7	A/F		Plag ~ 12 Oliv ~ 5	tr			M		
13-85	Metagabbro	0.05	C	Chl-plag-cpx?						GR	
13-86	Metagabbro	0.1	C	Chl-plag-cpx						Gr-chl veins	
13-87	Metabasalt	0.6	A			tr		0.5%		GR -qtz veins	
13-88	Metabasalt breccia	0.45	F			tr			tr	GR basalt frags palag matrix breccia	

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 13 DREDGE 4 DESCRIBED BY LUDDEN DATE 9/10/78

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
13-89	Metabasalt	0.6	F		Plag sporadic					GR - greenschist	
13-90	Metabasalt	1.3	A/F		Plag sporadic <5%	tr				GR	
13-91	Phyric basalt	1.0	A/F		Plag ~10% Oliv < 2%	Tr			L/M	Palag at margin	
13-92	Porph basalt	0.4	F		Plag ~ 20%	tr	mm 2		L		
13-93	Metadiabase breccia	0.1	M	Chl-plag						GR	
13-94	Phyric basalt	3.86	A/F		Plag ~10% Oliv < 2%	Tr	1%	1			
13-95	"	0.91	F		Oliv + plag < 5%	tr		tr	F/L		Fresh olivine
13-96	"	2.7	A/F		Plag ~ 20% cpx minor	tr					Minor cpx in glomerophorphs
13-97	Basalt breccia	>9.1			Plag basalt clasts						
13-98	Plag-basalt	2.5	A/F		Plag ~ 20%	tr			L		
13-99	Basalt breccia	5	F		Plag-basalt frags	tr	cc			Greenchist	
13-100	Plag-oliv basalt	3.4	F		Plag ~ 10% Oliv ~ 8%	~ 5	cc			Calcite veins	cpx glomero. with plag
13-101	Basalt breccia	2.95			frags Aphyric basalt	< 5	cc		M	Calcite veins	Fe-oxide ~2 cms
13-102	Basalt breccia	4.5			Oliv-Plag basalt frags	tr	cc		M	Palag breccia	
13-103	Basalt breccia	3.4			Aphyric basalt frags				H	Palag breccia	
13-104	Basaltic breccia	0.45			Oliv, plag, basalt frags	tr	✓	2.0	M	Low T	
13-105	Basaltic breccia	0.27			" "	tr			M	Low T	
13-106	Basaltic breccia	0.55			" "	tr	cc		L/M	Calcite vugs Greenschist?	



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 17 DREDGE 6 DESCRIBED BY LUDDEN/DELANEY DATE 9/11/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-1	Aphyric basalt	1.7	F		Plag v. sporadic	tr			F		
17-2	Aphyric basalt	0.5	F			tr			F		
17-3	Aphyric basalt	0.4	F/M		Plag v. sporadic				F/L		
17-4	Doleritic basalt	0.7	M		Minor micropheno	tr			F/L		
17-5	Aphyric basalt	0.4	F/M			tr			F		
17-6	Aphyric basalt	0.7	F			~2 chl			L	*smectite ves.	
17-7	Aphyric basalt	1.2	F/M		Plag micropheno	~2			L	smectite ves.	
17-8	Aphyric basalt	2.4	F		Microphenocrysts sparse	tr			L/M	Alteration rind ~4 cms	
17-9	Aphyric basalt	0.2	F/M			tr			L		
17-10	Doleritic basalt	0.4	M		Plag v. sporadic glomerocrysts	tr			L	Smectite ves, GR facies	
17-11	Aphyric basalt	2.2	F/M		"	1-2			L/M	" GR?	
17-12	Aphyric basalt	1.0	F/M			tr			L	Smectite fillings rind 2-3 cms	
17-13	Aphyric basalt	1.3	F/M			tr			F	Smectite	Glass
17-14	Aphyric basalt	0.4	F/M			tr			F/L	Smectite rind	1/2 cm
17-15	Aphyric basalt	0.35	F						F		
17-16	Basalt	0.4	F	cpx, plag? chl?	Plag <1% Glom, Oliv?				L/F		
17-17	Serp. gabbro	0.4	C							serp at marg veinlets of cd?	
17-18	Doleritic basalt	0.7	M		Glom of cpx+plag				L/F	thin rind of alt'n, chloritized, GR facies	

\*Green smectite ? chlorite



WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 17 DREDGE 6 DESCRIBED BY LUDDEN/DELANEY DATE 9/11/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-19	Doleritic basalt	0.3	F/M			~2			L	* Smectite green	
17-20	Aphyric basalt	0.5	F		sparse plag	tr			F	~1/2 cm rim	
17-21	Doleritic basalt	0.9	M/F				✓		F/L	GR?	
17-22	Aphyric basalt	0.2	F		sparse plag				L	GR?	
17-23	Aphyric basalt	0.3	A/F			1%			F/L		
17-24	Aphyric basalt	1.6	F			~1%			L	Green smectite	
17-25	Aphyric basalt	0.1	F		sparse plag	1%			F		
17-26	Aphyric basalt	0.4	F/M			3%			L	Altn rim ~1 cm smectite in ves	
17-27	Doleritic basalt	0.5	M/F			2%			L/M	Smectite	
17-28	Aphyric basalt	0.6	F			3%			L/M	Smectite	
17-29	Aphyric basalt	0.3	F/M		sparse glomero' of cpx+plag?	tr			L	Smectite	
17-30	Aphyric basalt	0.4	F		"				F/L		
17-31	Doleritic basalt	1.4	F/M		sparse plag	~5			L	Smectite	
17-32	Aphyric basalt	0.6	F			~5			L-M	Smectite in matrix	
17-33	Basalt	0.5								Glass chill ~3 mm	Uncut
17-34	Basalt	0.25								"	"
17-35	Aphyric basalt	1.1	F/M	Plag	Micro plag	~2			L	Smectite in matrix	Glass chill ~1 mm
17-36	Aphyric basalt	0.2	F		Micro plag	tr			F		Glass chill 1 mm

\*Green Smectite or Chlorite?

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 17 DREDGE 6 DESCRIBED BY LUDDEN/DELANEY DATE 9/11/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-37	Aphyric basalt	0.4	F			tr			F	Smectite in veins	Glass chill 0.5 mm
17-38	"	0.4	F			tr			F/L	Smectite	
17-39	Doleritic basalt	0.2	F/M			6			L/M	Smectite rind ~2 cm, GR?	
17-40	Aphyric basalt	0.2	F		Sparse plag	tr			F		
17-41	"	0.3	F			~5			L/M	Smectite	
17-42	"	0.3	F/M		Glomero plag, cpx	tr			M	thin zone ~0.2cm GR	zoned in GR facies
17-43	"	0.2	F			3			L/M	GR? Smectite	
17-44	"	0.4	F			6			L/M	GR?	
17-45	"	0.6	F		Sparse plag	5			F		Glass rim ~1 mm
17-46	Basalt	0.3	A			tr			F/L	Green smectite? chlorite	Variolitic
17-47	Aphyric basalt	0.3	F		sparse plag	5			F/L	Smectite minor talc	variolitic
17-48	"	0.3	F			tr			F/L	" "	
17-49	Aphyric basalt	0.4	F/M			tr			F/L	GR?	
17-50	"	0.15	F			tr		Ze	L	Smectite	
17-51	"	0.1	F			7		Ze	L	GR?	
17-52	"	0.2	F			4		Ze?	L	GR	
17-53	"	0.1	F/M						F		
17-54	"	0.2	F/M			5			M	Smectite clayey margin	

**WHOI ROCK SAMPLE DESCRIPTION**

CRUISE GILLISS 104 STATION 17 DREDGE 6 DESCRIBED BY LUDDEN/DELANEY DATE 9/11/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-55	Basalt	0.2	A			5		tr	L	Chlorite smectite	Variolitic
17-56	Aphyric basalt	0.1	F			2			F/L	Smectite	
17-57	Aphyric basalt	0.2	F			tr			M	Smectite Chlorite	Alteration rim 2 cm
17-58	Aphyric basalt	0.2	F			tr			L	Smectite	
17-59	Metabasalt	0.2	F			10				GR, Smectite	
17-60	Aphyric basalt	0.3	F			4			F		
17-61	Aphyric basalt	0.2	F			5				GR	
17-62	Doleritic basalt	0.1	M			6			L	GR?	
17-63	Plag - basalt	0.1	F		Plag ~5%	tr			L	Smectites	
17-64	Doleritic basalt	0.2	F						L	Smectite/sericite	
17-65	Doleritic basalt	0.75	F			2			L	Smectite, GR	
17-66	Doleritic basalt	0.1	F			5			L	Smectite	
17-67	Metabasalt	0.2	F		Plag 10% Oliv <2%				M	Hematite, GR	
17-68	Metabasalt	0.3	F		Plag ~4%	5			M	Smectites altn. rim 2 cm	
17-69	Plag-basalt	1.0	F		Plag ~6%	tr			L/M	Chl. smectite	
17-70	Diabase	1.2	M	cpx plag			✓		L	Smectite/sericite	
17-71	Diabase	0.3	M	cpx plag					L	(Veins GR?) Smectite/sericite	
17-72	Diabase	0.4	M	cpx plag					L	(Veins GR?) Smectite/sericite	

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 17 DREDGE 6 DESCRIBED BY LUDDEN/MOTTL DATE 9/11/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-73	Diabase	1.5	M						M	Alteration halo ~2cms	fresh center
17-74	Diabase	2.7	M	cpx pl					M	Alteration halo ~4 cms	fresh center
17-75	Diabase	0.7	M						L/M		
17-76	Diabase	0.5	M/C	cpx pl					L/M	Smectite/sericite	
17-77	Diabase	0.4	M/C	cpx pl					L/M	Smectite/sericite	
17-78	Diabase	1.6	M	cpx pl					M	Smectite/sericite	Alternating halo ~3cms
17-79	Diabase	1.5	M/F						F/L	Smectite	
17-80	Metadiabase	.3	F	Chlorized						Chlorized	Homogeneous
17-81	Metadiabase	0.4	F/M							Chlorized	Homogeneous
17-82	Metadiabase	2.0	F/M							"	1 mm light veins (sparse)
17-83	Metadiabase	0.6	F/M	cpx pl						"	Homogeneous
17-84	Metadiabase	0.5	F/M	cpx plag						"	"
17-85	Metadiabase	0.3	M	cpx plag						"	"
17-86	Metadiabase	0.3	F	cpx plag						"	One vein <<1 mm, dk
17-87	Metadiabase	0.1	M	cpx plag						"	Homogeneous
17-88	Metadiabase	0.2	F	cpx plag						"	Very few, very fine veins light
17-89	Metadiabase	0.15	F	cpx plag						"	Very few, very fine veins light
17-90	Metadiabase	0.2	F/M	cpx plag						Chl, Smec?	Up to 5 mm dk blebs: Smec?

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 17 DREDGE 6 DESCRIBED BY MOTTL DATE 9/11/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-91	Metadiabase	0.5	M	cpx-plag						chl, smec?	Homogeneous
17-92	Metadiabase	0.5	M	"						highly chlorized,	brecciated?
17-93	Metadiabase	0.1	M	"						chlorized	Homogeneous
17-94	Metadiabase	0.8	M	"						"	Blebs, poss. 3 mm grn vein
17-95	Metadiabase	0.4	F-M	"						"	1-2mm blk veins
17-96	Metadiabase	0.3	F-M	"						"	Inhomog: blebs 5 mm veins → massive
17-97	Metadiabase	0.1	M	"						"	homogeneous; few 1 mm veins
17-98	Metadiabase	0.3	F	"						"	homogeneous; few 1 mm veins
17-99	Metadiabase	0.3	F	"						chlorized	Single 1 mm Qtz vein
17-100	Metadiabase	0.3	F	"	plag?					chlorized	Homogeneous
17-101	Metadiabase	1.2	F-M	"						chl, poss smec	1-2 dk sinuous vein-chl?
17-102	Metadiabase	1.5	F-M	"						chl, poss smec	At least 2 sets of veins 1t green, 5 mm
17-103	Metadiabase	2.0	F	"						Chl-qtz epid?	1.5 cm vein = chl-qtz-ep?
17-104	Metadiabase	0.2	F-M	"						slight Fe stain	Homogeneous
17-105	Metadiabase	3.2	F-M	"						chl smec	Several sets of veins; 0.1cm
17-106	Metadiabase	1.0	F-M	"						chl	3mm chl vein w/meta- somatic zone
17-107	Metadiabase	1.8	F-M	"						chl	2mm 1t grn chl vein
17-108	Metadiabase	2.2	M	cpx plag						Chl - Qtz	Several sets of chl-qtz veins, 1.5 cm

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 17 DREDGE 6 DESCRIBED BY MOTT/LUDDEN DATE 9/11/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-109	Metadiabase	1.8	F/M	cpx plag						Chl	Inhomogeneous - fine (<1 mm) veins
17-110	Metadiabase	0.3	F	cpx plag			smec			Chl smec?	Smec blebs, to 3 mm chl
17-111	Metabasalt	0.3	F	" "						Smec-hematite	pillow selvage
17-112	Metabasalt	0.3	F	" "					✓	Hematite? poss weathering zone	Hem poss. high t?
17-113	Metabasalt	0.3	F	" "					✓	" "	" " "
17-114	Meta diabase	1.9	F/M	" "	Plag?					chlorized	1 mm chl vein
17-115	Metabasalt	0.3	F	" "			smec chl		✓	Hematized weathering zone	Variolitic texture
17-116	Metabasalt	0.4	F	" "					poss	Stained yellow-red	Brecciated and heavily veined(fine)
17-117	Metabasalt	0.5	F	" "					"	Hematite, stained yellowish, smec?	Pillow selvage?
17-118	Metabasalt	0.2	F	" "					"	" "	" "
17-119	Metadiabase Quartz vein hydrothermal	1.0	F	cpx plag					"	Chl, smec? qtz	Med. heavily veined; chl, qtz to 5 mm
17-120	Metadiabase	0.2	M/C	qtz chl						Qtz + chl veins	of hydrothermal origin
17-121	Metadiabase	0.4	F	cpx plag						Chl, smec?	Heavily veined <1mm
17-122	Metadiabase	0.6	F	" "						Heavily chlized	2 cm metasomatic vein
17-123	Metadiabase	0.3	M	" "						Chl, hematite	Blotchy, inhomogeneous
17-124	Metadiabase	0.5	F	" "						Chl, qtz?	Chl-qtz? Heavily veined to 1 mm
17-125	Greenstone breccia	0.2	F	Qtz cement						Greenschist grade breccia cemented by quartz/chlorite	
17-126	Quartz-rich greenstone breccia	0.3	F/M	Qtz cement chl						Greenstone frags cemented by qtz + chl	

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 17 DREDGE 6 DESCRIBED BY LUDDEN DATE 9/12/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-127	Qz rich greenstone breccia	0.25		Qz-cement ch1						Greenstone frags cemented by qtz+chl	
17-128	greenstone	0.6	F/M	chl						(GR) epid	
17-129	metadiabase	0.5	M	chl						chl (GR)epidote	
17-130	Greenstone	0.1	F	chl-epid						(GR) chl epid	
17-131	Greenstone	0.3	F	chl-epid						Smec (GR) epid	
17-132	Greenstone	0.2	F	chl						(GR)chl smec	
17-133	Greenstone breccia	0.2	F	chl						(GR)chl talc	
17-134	Greenstone	0.3	F	chl-epid						(GR) chl-epid	
17-135	Greenstone	0.1	F/M	chl						(GR) chl smectite?	
17-136	Greenstone breccia	0.9	F	chl-epid						Veins to 2 cm chl epid (GR) (smectite)	
17-137	Brecciated Greenstone	0.6	F/M	chl						(GR)	
17-138	Greenstone	1.3	F	chl						(GR) (qz veins) chl epid vein	
17-139-141	Greenstone	0.9	F	chl						Veins qz chl (GR)	
17-140	Greenstone breccia	0.3	F/M	chl			✓			(GR) chl rich vein 1 cm	
17-142-144	Greenstone	0.9	F	chl			✓			(GR) chl	
17-145	Greenstone	0.3	F	chl epid					✓	(GR) chl-epid-smect. veins?	
17-146	Greenstone	0.4	F	chl						(GR) smect?	
17-147	Greenstone	0.55	F	chl/epid						(GR) chl/epid	

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 17 DREDGE 6 DESCRIBED BY LUDDEN DATE 9/12/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-148	Greenstone	0.8	F	chl						(GR) epidote vein 2 mm	
17-149	Greenstone	0.2	M/F	Chl-epid						(GR) chl-epid	
17-150	Greenstone	0.2	F	chl						(GR) chl (veins)	
17-151	Greenstone	0.4	F/M	Chl						(GR) chl-qz veins	
17-152	Greenstone	1.5	F	chl (epid?)						smect / chl-epid (GR)	Hem stain in center
17-153	Greenstone	0.7	F	chl						chl (GR)	
17-154	Metaperidotite	1.7	C	chl-opx cpx (plag chloritized)						chl (GR)	Could be mafic gabbro
17-155	Metaperidotite	0.6	C	"						chl (GR)	" " "
17-156-162 164-179	Talc- Metaperidotite	16.5	F	talc opx?						Serp-probably opx in matrix	Could be basic gabbros; mostly <1 kg
17-163	" (gabbro?)	1.3	F	talc opx?	Lower rock contact pure talc, tectonized - possibly gabbro or shear zone					upper 2 cm	Tectonized
17-169	"	0.6	F	talc opx?						Zeolite or epidote?	
17-180	mafic gabbro	>10	C	Plag cpx (opx?)							
17-181	Diabase	0.2	M	plag cpx						Smeectites	



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 19 DREDGE 7 DESCRIBED BY MOTTL DATE 9/11/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19-1	Greenstones Basalts, diabases	7		Bag of many rocks each about .5 kg (uncut)		.5 kg				and unsorted	
19-2-9	Metabasalts	>80		Bags of many uncut rocks; from .5 to 3.5 kg						Rocks are uncut; apparently all contain chlorite, ie., they are quite green in color.	
19-10	Basalt	>9	A	Cpx-plag						Poss. pillow fragment, chloritized, especially on selvage	Large boulder - broken up chl. veins about 1 mm
19-11-13	basalts, diabases	>30		Bags of many uncut rocks; from .5 to 2.5 kg						no chlorite, ie, they are npt green	Uncut
19-14	Metabasalt	1.3	A	Plag-cpx			Smet chl 0.1			Pillow fragment; chloritized selvage, grading thru variolitic zone to less altered interior.	Amygdules are black
19-15	Metabasalt	1.3	A	Plag-cpx			" 0.1			Chl'ized basalt, pillow frag?	Amygdules are black
19-16-18	Metabasalt	8.3	A	Plag-cpx			" 0.1			" " " "	" " " "
19-19	Metabasalt	0.6	A	Plag-cpx			" 0.1			Chloritized;	Chl. veins to 2 mm
19-20	Metabasalt	0.5	A	Plag-cpx			" zoned			Chloritized pillow fragments; selvage chloritized, grading thru red & green variolitic zone to fresher interior	
19-21	Metabasalt	1.7	A	Plag-cpx			" 0.1			Same as 19-20, also contains later blk veins and external, inter-pillow brecciated zone	
19-22	Metadiabase	1.3	F	" v fine diabase or basalt			" 0.1			Black altered margin bordered by green chl'ized zone	grading to fresher interior

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 19 DREDGE 7 DESCRIBED BY MORTI DATE 9/13/78

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19-23	Metabasalt	1.7	A	Plag-cpx				0.1		Chl'ized basalt surrounded by greenstone breccias	
19-24	Metabasalt	3.6	A	Plag-cpx			smec chl	0.1		Poss. pillow fragment w/ chl'ized selvedge	
19-25	Metabasalt	1.0	A	"			"	0.1		Basalt fragment altered to chl along marg	
19-26	Metabasalt	0.8	A	"			"	0.1		Highly chl'ized basalt fragment cut by several blk veins to 1 mm	
19-27	Metabasalt	1.8	A	"			"	0.1		Pillow fragment with chl'ized selvedge grading thru variolitic zone to fresher interior	
19-28	Metabasalt	5.1	A	"			chl smec	0.1		Same as 19-27 with chl-qtz veins to 5 mm	
19-29	Metabasalt	0.9	A	"			"	0.1		SPECTACULAR VARIOLES Same as 19-27 some later blk veins,	
19-30	Metabasalt	1.3	A	"			"	0.1		Similar to 19-25; less altered on margins	
19-31	Metabasalt	0.7	A	"			"	0.1		Similar to 19-30	
19-32	Metabasalt	0.8	A	"			"	0.1		Slightly chl'ized basalt fragment	
19-33	Metadiabase	0.4	vF	"			"	0.1		Chloritized	Homogeneous
19-34	Greenstone breccia	1.1	A					0.1		Fragments of basalt, partially chloritized and glass completely chloritized	
19-35	"	1.1	A				"	0.1		Similar to 34; bordered by homogeneous chl'ized basalt; purplish in places -Hem?	
19-36	"	1.6	A				"	0.1		Same as 34; chl and smec?	
19-37	"	0.2		Chl			"	0.1		Completely chloritized (some smec?)	
19-38	"	1.9		Chl, qtz (smec)			"	0.1		Similar to 19-37	
19-39	Metabasalt	2.0	A	Plag-cpx			"	0.1		Brecciated into 5 cm fragments separated by lt. green & black veins to 5 mm	

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 19 DREDGE 7 DESCRIBED BY MOTTL DATE 9/12/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am mm or smec	Mn	We	Alteration	Remarks
19-40	Metabasalt	5.5	A	Plag-Cpx			0.1			Same as 19-39,	poss. epid; sulfide? but with qtz;
19-41	Greenstone breccia	0.1		chl-ep? smec?			0.1			Pink varioles;	lt. green, largely chloritized
19-42	"	0.5		chl-smec, cal.			0.1			Almost completely	chloritized
19-43	"	0.1		" " "						Same as 19-42;	some fresher basalt frags
19-44	Metabasalt	1.8	A	" " "			0.1			Pillow fragments with chloritized rind, variolitic zone, grading to fresher interior, some calcite, black veins	
19-45	Metabasalt	0.1	A							Chl'ized sulfides & some qtz (5mm bleb)	
19-46	Brecciated ? metabasalt	2.0	A				0.1	✓		Pillow fragments, brecciated, with glassy rind altered to blackish smectite; interior is red-brown to gray	
19-47	Greenstone breccia	3.5		Chl-qtz-sulfides			0.1			Qtz rich with assoc. sulfides, qtz veins to 1 cm; chloritized basalt	
19-48	"	0.6		Qtz-chl-sulfides			0.1			Similar to 19-47, but with >50% qtz in pervasive veins 2-3 cm, including chl frag (chl'ized basalt)	
19-49	"	9		portion of thick vein (Chl-qtz-sulfides) w/wall rock			0.1			Similar to 19-48; more oxidized; malachite, discrete oxidized sulfides reddish stain to qtz; with wall rock?	
19-50	"	0.7		" " "						Similar to 19-48	
19-51	"	0.6		Qtz-chl-sulfides			0.1			Similar to 19-48	
19-52	Palagonite breccia	1.0	to 1 cm	Chl or smec matrix?			0.1			Irregular to equant fragments of hyalo-clastite in green matrix, similar to rind on 19-46	
19-53	Metabasalt	9.0	A	Plag-cpx?	Pillow frag.		0.1			Cut by 2 mm veins (numerous) of the green chl or smec, disseminated hematite flecks + pyrite.	

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104

STATION 19

DREDGE 7

DESCRIBED BY MOTTL

DATE 9/12/78

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19-54	Metabasalt	>9	A	Plag-cpx			chl smec	0.1		Similar to 19-53, but veins less numerous more chloritized, no hematite & more pyrite	
19-55	Metabasalt	"	A	Plag-cpx	<1% altered plag		"	0.1	sl	Chloritized, poss. pillow fragment; low-T oxidized veins homogeneous	
19-56	Metabasalt	1.4	A	Plag-cpx			"	"	?	Chloritized? reddish-purple some blk veins hematite flecks	
19-57	Metabasalt	1.8	A	Plag cpx			"	0.1	?	Same as 19-56, but lacking dark veins hematite veins	
19-58	Basalt	1.9	A	Plag-cpx			"	0.1	?	Pillow frag. with fresh glass, slight purplish tone, <1mm lo-T oxidized veins	
19-59	Basalt	1.3	A	"			"	0.1	zoned	Basalt fragment purplish tinge, hematite flecks disseminated, few 0.1mm veins	
19-60	V. fine diabase	0.9	F	"	1% plag	✓	"	0.1	"		
19-61	Basalt	0.8	A	"			"	0.1	"	Same as 19-59, oxidized	
19-62	Basalt	0.8	A	"			"	0.1	oxi	Some clay	
19-63	Basalt	0.9	A	"			"	0.1	"	Same as 19-59, some lt. colored clay	
19-64	Metabasalt	0.4	A	"	1% plag		"	0.1	"	Slightly chloritized, 2 mm chl veins	
19-65	Basalt	1.5	A	"			"	0.1	oxi	Same as 19-59	
19-66	Basalt breccia	3.7	A	"			"	0.1	"	Reddish purple oxidized to hem? <0.5 mm blk veins separate fragments	
19-67	"	1.2	A	"	Plag?		"	0.1	"	Similar to 19-66; chloritized	
19-68	Metabasalt	0.7	A	"			"	0.1	"	Similar to 19-67; oxidized zones along veins	
19-69	Metabasalt	0.6	A	"			"	0.1	Slight	chloritized, 1 mm dk veins	
19-70	basalt prophyry	1.1	F	"	3% plag	✓	"	0.1	zoned		
19-71	Palagonite breccia	0.1		Smec? matrix			"	0.1	"	Same as 19-52	
19-72	Greenstone breccia	0.1	to 2	cm chl, smec?	calcite?		"	0.1	"	Chloritized fragments, angular, chl matrix	



WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 20 DREDGE 8 DESCRIBED BY LUDDEN DATE 9/12/78

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-1	Aphyric basalt	1.1	A			1		Tr	L	Smectite in vesicles	Variolitic margin
20-2	"	0.6	F			5		Tr	L/M	Smectite in vesicles deuteric	
20-3	Doleritic basalt	0.3	F/M						L/M	1 cm alteration halo with smectites	
20-4	Aphyric basalt	0.4	A						L/M	Smectite in matrix Alter'n rim 1/2 cm	
20-5	"	0.4	A			tr		2	L/M	Smectites, deuteric?	
20-6	Basalt	0.6	A		Oliv+Plag 4%	tr		1	L	Deuteric	
20-7	Aphyric basalt	0.5	A/F			tr		1	L/M	Smect., deuteric	
20-8	Doleritic basalt	1.4	F/M						L	Altern. halo 1-2 cms	Intrusive
20-9	Doleritic basalt	0.5	F/M						L/M	Smectites in matrix	
20-10	Aphyric basalt	0.4	F			Tr		tr	M	Smectite, deuteric?	
20-11	"	0.5	A		Sparse plag			tr	F		
20-12	"	0.4	A/F						M	Greenish color	
20-13	Doleritic basalt	0.5	F/M						L	Smectite?	Intrusive
20-14	Aphyric basalt	0.4	F					1	L/M	alter'n halo 1cm chl-smect.	
20-15	Basalt	0.4	F		Plag 2%				L	Chloritized glass	Variolitic
20-16	Aphyric basalt	0.6	A				5%		M	Smectite?	
20-17	Aphyric basalt	0.7	A		Sparse plag ~1%				L		Glass rind 2-4 mm
20-18	Basalt	0.4	F		Sparse plag ~2%	4			L		Glass rind 2-4 mm

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 20 DREDGE 8 DESCRIBED BY LUDDEN DATE 9/12/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-19	Aphyric basalt	0.4	A		Oliv-sparse; plag?			tr	F/L	Smectite	Glass rind ~4mm
20-20	Aphyric basalt	0.2	A		"	tr		tr	F/L	Smectite	" " "
20-21	"	1.2	A			tr			F	Altered plag. breccia contact with basalt	Glass rind ~2 mm
20-22	"	0.4	A			tr			F/L	Variolitic - glass & smectite	" "
20-23	"	1.2	A						F		trace glass
20-24	"	0.6	A				10	tr	F/L		trace glass
20-25	Doleritic basalt	0.1	F/M			tr		tr	L	Smectite	" "
20-26	Aphyric basalt	0.2	A/F			Tr			F	Smectite	" "
20-27	Aphyric basalt	6.0	A		Plag sparse				F/L		" "
20-28	"	0.1	A		Plag sparse	tr			F		" "
20-29	"	1.4	F						F/L	Altern. zone discoloration 1 cm	
20-30	"	1.5	F			5%			F/L	Deuteric alteration	
20-31	Basalt	0.3	A/F		Sparse oliv+Plag	tr			F		Glassy rind 1 mm
20-32	Aphyric basalt	0.3	A/F			tr			F		
20-33	Aphyric basalt	0.9	A/F			tr			F	Smectite, deuteric	
20-34	Aphyric basalt	0.8	F			tr			F/L	Smectite	
20-35	Aphyric basalt	1.0	F/M		Sparse plag				F/L	Alteration halo	~1/2 cm
20-36	Basalt	0.6	F		"				F/L	Deuteric	

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 20 LUDDEN 8 DREDGE 8 DESCRIBED BY DATE 9/13/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-37	Doleritic basalt	1.2	F/M		Plag- sparse				F		Probably intrusive
20-38	"	2.5	F/M		"				F		Probably intrusive
20-39	Aphyric basalt	1.5	F			tr			F		
20-40	Aphyric basalt	1.2	F			tr			F	Deuteric?	
20-41	Doleritic basalt	2.1	M				tr		F/L	Deuteric?	Intrusive?
20-42	Metabasalt	0.8	A/F							Chloritized interior smectite filling vesicles	
20-43	Doleritic basalt	2.2	M		Plag					Alteration half 1 cm	
20-44	Doleritic basalt	1.8	F/M		Plag+cpx glomerocrysts				Gr?	Chloritized interior	
20-45	Diabase	0.5	M/C	cpx, plag, oliv 60% 30% 10%					L	Some deuteric laths of plag	
20-46	Diabase	0.2	M	Cpx +plag					F	"	
20-47	Diabase	0.4	M/C	cpx + plag 60% 40%					F/L	"	
20-48	Metadiabase	0.1	F/M	Plag+ cpx +magnetite or spinel?					Gr	Probably greenschist grade	
20-49	Diabase	1.1	M	"	"				F/L	Deuteric?	
20-50	Oliv. diabase	1.3	M	Oliv+Plag+cpx					M	Well altered deuteric	
20-51	Oliv diabase	1.4	M	Oliv+Plag+cpx 25%					F/L	Some deuteric olivine is fresh in part	
20-52	Metabasalt?aphyric	0.2	A							Probably Gr grade	Glassy rind ~2 mm
20-53	Aphyric basalt	0.4	A		Sparse plag				F/L		



WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 20 DREDGE 8 DESCRIBED BY LUDDEN DATE 9/13/78

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-54	Aphyric basalt	0.5	A		Sparse plag				F/L		Glassy rind 2 mm
20-55	metabasalt	0.4	A/F			tr			Smeo	Greenschist Grey/green color	
20-56	metabasalt	0.1	A/F						Gr	Light green margin 1 cm dark green center	
20-57	metabasalt	0.2	A/F						Gr	Hematite ring near margin dark green center	
20-58	metabasalt	0.2	A/F						Gr	Light green margin dark green center	
20-59	Metabasalt	0.4	F/M							Smeo Smect green interior + epidote in hematite staining vugs	
20-60	Metabasalt	0.3	F						Gr	Hematite zones - chloritized center	
20-61	Oliv diabase	1.1	M	Cpx,oliv(30%plag)					M	Smectites olivine altered completely	
20-62	metabasalt	0.3	F						GR	Dark green - chloritized	
20-63	metabasalt	0.4	F						GR	Smectite (dark green) (Variolitic) Chloritized basalt + glass margin	
20-64	greenstone breccia	0.3							GR	basalt frags; palagonite matrix	
20-65	greenstone breccia	0.2							GR	Grade fragments fine grained matrix	
20-66	greenstone breccia	0.4							GR	Black/green basalt frags, chloritized matrix	
20-67	metabasalt	0.1								light green chloritized basalt	
20-68	aphyric basalt	6.5	F		sparse plag <1%	Tr			F/L	Altered outer rim 1-3 cm interior fresh	
20-69-71	basalt	16		Bags of uncut	rocks, up to 1 kg						
20-72	Greenstones	1.5		Bag of 6 rocks	(uncut) each < 1 kg)						

WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 25 DREDGE 10 DESCRIBED BY MOTT

DATE 9/14/78

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Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
25-1-13	Basalt	8.7	A		A few with sparse plag	2-3			L	Pillow fragments #2,3,6 seem fresher glass	with glass, all slabbed with glass
25-14	Basalt	0.5	A			1			M	Angular fragment with large (3 cm) gas cavities	
25-15	Basalt	0.8	A		1% plag +ol (?)	<1			L		Angular fragment
25-16	Basalt	0.4	A-F		<1% plag+ol ?	2			L		Rounded fragment
25-17	Basalt	0.2	A			1			L		Fragment of small (6cm) pillow with glass
25-18	Basalt	1.1	A		<1% plag				L-M		Angular fragment
25-19	Basalt	1.0	A		1% plag (micro)	2-3			L		
25-20	Basalt	1.2	A		1% plag	1			L		Pillow fragment with rare glass
25-21	Basalt	0.2	A			1			L		Fragment of small (5cm) pillow toe with glass
25-22	Basalt	2.3	A		<1% plag	2-3			L	radial cooling cracks	Pillow fragment of glass some 1 cm gas cavities
25-23	Basalt	3.6	A			2-3	blue smec		L-M		Angular flow top frag with 3 cm gas cavities
25-24	Basalt	1.3	A		1% plag	2-3			L		Pillow fragment with glass + 0.5cm gas cavities
25-25-27	Basalt	1.8	A			2-3			L		Pillow fragment with glass + 0.5 cm gas cavities
25-28	Basalt	0.2	A			2-3			L		Pillow fragment with glass
25-29	Basalt	0.4	A		<1% Ol				L		
25-30	Basalt	0.7	A		<1% Plag ?	2-3			L		Pillow fragment, no glass
25-31	Basalt	4.2	A		<1% Plag ?	2-3	smec		L		2 cm gas cavities

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 25 DREDGE 10 DESCRIBED BY MOTTL DATE 9/14/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
25-32	Basalt	0.7	A			3-4			L-M		
25-33	Basalt	2.3	A			<1			L		Pillow fragment with glass
25-34	Basalt	0.7	A		<1% plag	2-3			L		Pillow fragment with glass
25-35	Basalt	0.3	A		<1% plag, ol?	1			L		
25-36	Basalt	1.0	A			2-3			L		Pillow fragment with glass
25-37	Basalt	1	A		1% plag	1			L-M		Glass
25-38	Basalt	0.7	A			2			L		
25-39-41	Basalt	2.3	A		<<1% plag	2			L		Glass
25-42-45	Basalt	2.2	A			1-3			L		
25-46	Basalt	0.1	A		<1% plag	5			L		Glass bits
25-47	Basalt	0.7	A			5			L		
25-48-51	Basalt	7.3	A			2-5			L		Glass
25-52	Basalt	0.1	A			2			M		
25-53	Basalt	4	A			5			L		
25-54	Basalt	0.1	A			5			L		Glass
25-55	Metadiabase	0.5	M	Orig. plag+px oxides+ol	Plag $\sqrt{2-4}$ mm <2%					Samples largely chloritized-	Remarkably well rounded probably due to chemical weathering
										Distinct greenish cast	

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 25 DREDGE 10 DESCRIBED BY DELANEY DATE 9/15/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
25-56	Diabase	2.5	M	Orig. plag, px + oxides		4%				Samples are relatively fresh, vesicles filled with clayey buff colored material & whitish carbonate. Also well rounded.	
25-57	Diabase breccia	.2	M	Orig plag, prob. px + oxides & oliv		10%				Unusual texture: rounded frags of diabase set in matrix of FeO rich fragmental material of same composition. Some vesicles are filled - Ves. size < 3mm. This may be a weathering phenom.	
25-58	Diabase	2.2	M	Similar to 25-56							
25-59	Bag of assorted hyaloclastites	1.0	G-F-A	Mostly from Pillow rims of	fragmental material					Yellowing brown of most of the glass	
25-60	Assorted glass bearing pillow	4.5	G-A-F			Yes				Same as 25-59	Average frag. size 3-7cm
25-61	Basalt fragments	4.0	G-A-F			Yes				Same as 25-59	Average frag. size 3-7cm
25-63	Basalt	4.0	A-F	Plag+Pxt+oxides		Yes				Bag of interior similar lightly weathered	
25-62	Basalt	>9.0	A-F			Yes					Non-glassy, flow top fragments (15-20 cm)
25-64	Basalt glass	<kg	Variable			Yes					Glassy pillow rinds, many frags.
25-65	Basalt glass	>kg	Variable			Yes					Glassy pillow rinds, many frags.
25-66	Basalt	3.8	A-F	Variable		Yes					1-2 cm frags of basalt pillows
25-67	Basalt	<0.5	Fine	Variable		Yes					Many pillow frags, without glass
25-68	Basalt	>0.5	Fine	Variable		Yes					Many pillow frags, without glass
25-69	Basalt	.5	Fine-M			<1%				Not extensively altered	Flow top breccia

# WHOI ROCK SAMPLE DESCRIPTION

 CRUISE GILLISS 104

 STATION 25

 DREDGE 10

 DESCRIBED BY DELANEY

 DATE 9/15/78

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
25-70	Basalt	.7	G A-F			<1%				Glass is palagonitized, otherwise fairly fresh	Pillow fragment
25-71	Basalt	.5	G A-F			~3%				" "	Glassy flow top
25-72	Basalt	.6	A-F M			4%				Very little alteration	Massive pillow interior
25-73	Aphyric Basalt	1.1	A-F			<1%			Tr	Minor palagonite	and alteration
25-74	Aphyric basalt	.5	A-F			1-2%				Minor alteration/weathering	
25-75	Aphyric basalt	.7	A-F			<1%			Tr	Weathering rind, 1/2 cm around rim	
25-76	Aphyric basalt	.5	G A-F	Minor plag		1-2%				Strong palag.	Glassy flow top breccia
25-77	Basalt	.1	G A-F	Minor oliv		<<1%			Tr		
25-78	Glassy pillow basalt	.3	"			1-2%			Tr	Not well developed-	Mirror palag of glass
25-79	"	<1	G			5%				Minor palag	Large gas cavity
25-80	"	<1	G-A		Aphyric	2-4%			Tr	Glass is partially palagonitized	Large gas cavity
25-81	"	<1	G-A		Aphyric					"	Glassy nubbin & hyalo-clastite
25-82	Glassy basalt	<1	G								Assorted frags
25-83	Basalt	<1	G-A			1-3%				Fresh	Glassy variolitic 'toe'
25-84	Palagonitized hyaloclastites	~.15	G								
25-85	"	~.15	G								





WHOI ROCK SAMPLE DESCRIPTION

CRUISE GILLISS 104 STATION 35 DREDGE 15 DESCRIBED BY MOTTL DATE 9/18/78

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
35-1	Hyaloclastite breccia	0.7	A		~1% Plag				L-M	Cut by numerous veins of smectite to 1 mm	Zeolite? Palagonit. calcite? glass
35-2	"	1.8	A						L?	Frag of basalt (angular)	Cut by veins of smec? Similar to 35-1
35-3	"	1.2	A		~1% Plag				L-M	Chl-epid veins Similar to 35-1 & 2	Calcite? Palagonitized glass
35-4	Metabasalt	1.1	F	Plag, cpx					L?	Chl-epid	
35-5	"	0.9	F	Plag, cpx			0.1			Chl-epid-qtz	
35-6	"	1.8	F	Plag, cpx			0.1			Chl-qtz-hem, epid	new oxid <sup>h</sup> bordering veins
35-7	"	1.3	F				0.1			chl-qtz-epid	1cm pods of qtz
35-8	"	0.8	F	Plag - cpx ?			0.1			chl-epid-qtz-hem	
35-9	Brecciated metabasalt	0.3	F						L-M	Chl-or smec, epid	2 mm qtz veins
35-10	"	0.3	F				0.1		L-M	Similar to 35-9	
35-11	"	0.3					0.1		M	Qtz, chl or smec Smec matrix	Angular frags
35-12	"	0.3	A/F				0.1		?	Calcite? Similar to 35-11	" "
35-13	"	6.9	F				Smec chl 0.1		H	Clay & Fe oxides in matrix; chloritized	
35-14	"	0.8	A				0.1			Clayey matrix chloritized? w/ altered selvages	Pillow basalt fragments
35-15	Metabasalt	0.2	F				Smec or chl 0.1			Qtz-chl?	Quartz vein to 2 mm
35-16	Brecciated metabasalt	0.2						0.1		Chloritized? Ep? Poss smec	
35-17	Metabasalt	0.2	F					0.1		Chl-qtz-ep?	











**KNORR 79-2**  
**DREDGE DESCRIPTIONS**

KNORR 79 Leg 2  
(Maps 1 & 3)

Cruise 79 of the R.V. KNORR was part of a long term study of the Kane Fracture Zone by scientists at the Woods Hole Oceanographic Institution. The cruise left Woods Hole on 17 May 1980, stopped in Bermuda 20-23 May 1980, and arrived in the Azores 19 June 1980. Dr. Wilfred Bryan was chief scientist, and Dr. Geoffrey Thompson, Dr. Henry Dick, Dr. Michael Mottl and Dr. Jeffrey Karson, all of the Woods Hole Oceanographic Institution, and Dr. John Delaney of the University of Washington were participating scientists. Principal research programs included acoustically navigated bottom photography (ANGUS) and echo sounding and satellite-navigated rock dredging at the eastern intersection of the Kane F.Z. and the Mid-Atlantic Ridge. The R.V. KNORR also acted as support vessel for the submarine tender R.V. LULU during the diving program by the DSRV ALVIN.

Rock dredging during KNORR 79 concentrated on the south wall of the Kane Fracture Zone and the eastern rift mountains near their intersection with the Kane F.Z. Two dredges were made along the axis of the median valley. The program was carried out under the direction of Dr. Dick and Dr. Bryan. Sample curation and sampling was done largely by Dr. Dick with some assistance from Dr. Delaney, Dr. Mottl and Mr. Thomas Bullen.

Dredging on the south wall of the fracture zone recovered largely pillow basalt, greenstones and some diabase and gabbro. Dredging in the median valley recovered fresh to lightly weathered glassy basalt. Dredging in the eastern rift mountains recovered glassy pillow basalts all of which were characterized by a well-developed rim of brown palagonite on the glassy chill margins.

KNORR 79

(June, 1980)

STA NO.	LOCATION	DEPTH RANGE (corr. M.)	GENERAL DESCRIPTION
10 S. Wall Kane F.Z.	23°37.4'N 44°44.3'W	4225- 4077	Light to heavily weathered pillow basalts (197 K) with scattered plag & rare ol. phenocrysts; palagonite breccia (20 K); horn coral (.1K)
15 S. Wall Kane F.Z.	23°36.7'N 45°05.9'W	3682- 2430	Light weathered basalts (3K); greenstone breccias (.8K); diabase & gabbro (.4K)
17 East Side Median Valley	23°34.3'N 44°48.5'W	3890- 3640	Lightly weathered, aphyric basalt (11 K)
21 Median Valley	23°33.4'N 44°55.5'W	5068- 4616	120K light weathered, plag phyric (trace ol.) glassy basalt
25 E. Flank Median Valley	23°36.4'N 44°46.7'W	3671- 3910	Lightly weathered, slightly vesicular plag phyric basalt tubes (18 K)
26 E. Side Median Valley	23°36.7'N 44°47.3'W	3660- 3670	Lightly weathered, plag phyric basalt (10K)
27 E. Side Median Valley	23°36.5'N 44°46.4'W	3930- 3743	35K very lightly weathered aphyric glassy basalt
28 E. Side Median Valley	23°37.0'N 44°49.2'W	3840- 3580	73K light to moderately weathered plag-ol phyric basalt with scattered vesicles
34 Median Valley	*	~4770	*Rocks recovered on ANGUS camera frame between 23°31'N, 44°54.5'W and 23°37'N, 44°54.5'W. Fresh glassy basalt with scattered plag pheno's (40K)

WHOI ROCK SAMPLE DESCRIPTION

CRUISE KNORR 79 STATION 10 DREDGE 2 DESCRIBED BY DICK, MOTT, DELANEY DATE May 31, 1980

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
KN79-10-1	Basalt	3.6	A	-	2% Plag, 2% Ol	<1%	-	1/2 M	M	None	Pillow frag; glass altered to clay
2	Basalt	1.4	A		2% Plag, 2% Ol	"		1/2 H	H	None	Pillow frag; glass to palagonite & clay
3	Basalt	4.6	A		2% Plag.	"		1/2 H	H	None	Thick gl. chill zone; 60% palagonite
4	Basalt	7.7	A		1% Plag	"		1/4 M	M	None	Pillow frag
5	Basalt	.2	A		2% Plag	2%			L	None	Plag.-chalk breccia <sup>on</sup> margin of angular cobbles
6	Basalt	2.7	A		2% plag, 1% Ol	1%			L	None	Pillow frag. glass alter to palagonite
7	Basalt	.9	A		2% plag	2%			L	None	"
8	Basalt	5	A		2% Plag	2%		1 L	L	None	"
9	Basalt	4	A		2% Plag	2%		tr L	L	None	"
10	Basalt	.3	F		<1% Ol	1%		1/2 M	M	None	"
11	Basalt	2.7	A		1% Plag, 1% Ol	1%		1 M	M	None	"
12	Basalt	1.4	A		<1% Plag	<1%		1 H	H	None	Pillow joint block
13	Basalt	.2	A-glassy		1% Plag	7%		1 L	L	None	Irreg. whorled glassy frag to palagonite, baked sed inclusions
14	Basalt	2.5	A		<1% Plag	3%		1/2 L	L	None	Vugs
15	Basalt	3.6	A		7% Plag, 1/2% Ol	1%		1/2 M	M	None	"
16	Basalt	.2	A		8% Plag, 1% Ol	1%		tr H	H	None	1/2 cm-long plag. phenocryst
17	Basalt	2.4	A		4% Plag, 1% Ol	1%		1/2 H	H	None	Pillow rind, glass 90% palagonite
18	Basalt	1.4	A		3% Plag, 1% Ol	2%		1/2 H	H	None	"









# WHOI ROCK SAMPLE DESCRIPTION

CRUISE KNORR 79 STATION 21 DREDGE 6 DESCRIBED BY H. Dick DATE 6/6/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
79-21-1	Basalt	1.4	A		3% Pg, tr O1	1%			L	None	Glassy pillow rim
2	Basalt	2.3	A		3% Pg, tr O1	1%			L	None	"
3	Basalt	5.5	A		"	1%			L	None	"
4	Basalt	7.3	A		"	1%			L	None	"
5	Basalt	30	A		"	1%			L	None	"
6	Basalt	4.6	A		"	1%			L	None	"
7	Basalt	10	A		"	1%			L	None	"
8	Basalt	20	A		"	1%			L	None	"
9	Basalt	14	A		"	1%			L	None	"
10	Basalt	15	A		"	1%			L	None	"
11	Basalt	.3	A		4% Pg, <1% o1	7%			L	None	Pillow fragments
12	Basalt	.3	A		"	7%			L	None	"
13	Basalt	.2	A		"	7%			L	None	"
14	Basalt	.1	A		"	7%			L	None	"







WHOI ROCK SAMPLE DESCRIPTION

CRUISE KNORR 79 STATION 28 DREDGE 10 DESCRIBED BY H. DICK DATE 6/11/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
79-28-1	Basalt	.8	A		4% Pg, 2% O1 microphenos	2%		mm 1	L- M		Phenocrysts lath-like ~1mm O1 + 3 mm Pg palagonitized chill zone
2	Basalt	.9	A		"	2%		1	M		Angular basalt fragment
3	Basalt	.8	A		"	2%		Tr	M		Angular basalt fragment
4	Basalt	.8	A		2% Pg, 1½% O1 microphenos	2%		.5	L/ M		Pillow fragment with palagonitized glass
5	Basalt	.8	A		"	<1%		tr	M		" "
6	Basalt	.3	A		"	2%		.3	L/ M		Angular basalt fragment
7	Basalt	2.5	A		"	2%		.3	L/ M		Pillow fragment with palagonitized glassy chill zone
8	Basalt	1.9	A		2% Pg, 1½% O1 microphenos	2%		.5	L/ M		" "
9	Basalt	3.6	A		2% Pg, 1% O1 microphenos	2%		1	L		" "
10	Basalt	.7	A		"	1%		1	L/ M		" "
11	Basalt	2.1	A		2% Pg, 1½% O1 microphenos	3%		.3	L/ M		Angular basalt fragment
12	Basalt	1.4	A		1½% Pg, 1½% O1 microphenos	2%			L/ M		Pillow fragment with palagonitized glassy chill zone
13	Basalt	3.2	A		4% Pg, 3% O1	2%		.5	L/ M		" "
14	Basalt	.3	A		2% O1, 1½% Pg microphenos	2%		.3	M		" "
15	Basalt	.2	A		2% Pg, 2% O1	~1%		tr	L/ M		" "
16	Basalt	20	A		2% Pg, 2% O1	2%		1	L/ M		" "







**ATLANTIS 11-107-6**  
**DREDGE DESCRIPTIONS**

ATLANTIS II-107 LEG 6  
(Maps 2 & 4)

Cruise 107 Leg 6 of the R.V. ATLANTIS II left Punta Arenas Chile on March 4, 1980 and arrived at Cape Town South Africa on April 7, 1980. Dr. Henry Dick of the Woods Hole Oceanographic Institution was Chief Scientist. Principal shipboard programs included rock dredging under the direction of Dr. Dick, sediment coring under the direction of Dr. Bruce Corliss (W.H.O.I.), heat-flow measurements in the Scotia Sea under the direction of Mr. Victor Zlotnicki and Mr. Walter Loy (W.H.O.I./M.I.T. Joint Education Program) and underway geophysical data collection (12 and 3.5 kHz echo-sounding, air-gun profiling, magnetics and gravity) under the direction of Dr. Dick. The preliminary results of the rock dredging program are reported here, in order to assist those investigators currently working on the rock collection (Chap. VIII) and to provide a basis for sample requests from outside investigators.

The dredging program on Cruise AII-107 leg 6 was part of a long-term study of the petrology and geochemistry of the crust and upper mantle of the southern circumpolar-ocean. This program is a cooperative effort involving the Woods Hole Oceanographic Institution, the Department of Earth and Planetary Sciences of the Massachusetts Institute of Technology, and the Departments of Geology and Geochemistry of the University of Cape Town (Southern Oceans Lithosphere Project).

The SW Indian Ridge and the Bouvet Triple Junction are part of a unique circumpolar ridge system and do not share the predominant north-south orientation of the other major ocean ridge systems. The SW Indian Ridge in the area of the dredge program consists of short ridge segments offset by a remarkable series of fracture zones with reliefs and offsets comparable to the great equatorial fracture zones of the Mid-Atlantic Ridge. The very slow-spreading rate (1/2 rate  $\sim 1$  cm/yr) and close spacing of the major fracture zones along this ridge system distinguishes it from either of what are commonly referred to as typical fast-spreading or slow-spreading mid-ocean ridges.

Cruise 107 sampled each of the ridge segments between the Bouvet Triple Junction and the Shaka F.Z. at  $\sim 10^\circ$ E. In addition, the Bouvet and Shaka F.Z. were extensively sampled. Despite numerous attempts we were largely unsuccessful in sampling the Moshesh F.Z. to the east of Bouvet Island.

We documented major mantle intrusions at both the Shaka and Bouvet Fracture Zones similar to the one earlier described at the Islas Orcadas F.Z. by Sclater et al. (1978).<sup>\*</sup> Based on the distribution of rock dredges and the local bathymetry it is evident that peridotite is a major lithology along the SW Indian Ridge and may constitute more than 15% of the exposed basement rocks on the seafloor in this region.

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<sup>\*</sup>Sclater, J.G., Dick, H., Norton, I.O., and Woodroffe, D., 1978. Tectonic structure of the Antarctic Plate Boundary near the Bouvet Triple Junction. Earth Planet. Sci. Lett., 37, p. 393-400.

Basalt was the major lithology recovered along the ridge segments. Two geochemical features distinguish these samples. First, despite the very slow-spreading rates, Fe-Ti basalts were a major rock type. Second, both typical mid-ocean ridge basalts and plume-related (LIL-enriched basalts) occur together along the SW Indian Ocean Ridge and there is no simple geochemical gradients from plume-related to typical LIL-depleted MORB's along the ridge axis from the triple junction.

In addition to basalts and peridotites, gabbros, greenstones and diabase were recovered in minor amounts from both ridge segments and fracture zones. Two successful dredge hauls were also made on a seamount in the Scotia Sea behind the South Sandwich Islands. Due to the very large number of erratics recovered, it is difficult to determine if any of the material recovered is autochthonous.

Geochemical data is available for many of these samples to assist present and future investigators in selecting additional samples for study. This data may be obtained from the Chief Scientist and Dr. Anton le Roex.

The following is a summary of the initial research being conducted on these samples:

Dr. Henry Dick (WHOI) - Petrographic and microprobe analysis on basalts, gabbros and peridotites.

Dr. Robert Fisher (SCRIPPS) - Petrographic analysis on gabbros and peridotites.

Dr. Martin Fisk (SUNY - Stony Brook) - Melting experiments on basalts.

Dr. Fred Frey (MIT) - Neutron activation analysis for rare earth elements on basalts.

Mark Kurz (WHOI/MIT) - Isotope (helium) studies on basalt glass.

Dr. Anton le Roex (WHOI/Univ. of Cape Town, S. Africa) - Major and trace element analyses by XRF and microprobe analyses of basalts.

Dr. William Melson (Smithsonian Institution) - Electron microprobe analyses of basalt glasses.

The scientists who contributed to rock descriptions in this section of the report are abbreviated as follows:

T.B. - Tom Bullen	Woods Hole Ocean. Inst.
H.D. - Henry Dick	Woods Hole Ocean. Inst.
R.F. - Robert Fisher	Scripps Inst. of Oceano.
M.F. - Martin Fisk	State Univ. of NY, Stony Brook
A.L. - Anton le Roex	Woods Hole Ocean. Inst./ Univ. of Cape Town, S. Africa

NOTES ON STATION DATA FOR AII 107-6

Start and end fixes for dredge stations were taken from the final navigation file for leg 6 of AII 107. This file is generated from satellite fixes updated by five-minute averages of ship's velocity obtained from the shipboard gravity acquisition system.

Start time of a station was considered to be when lowering was resumed after securing the pinger to the wire (either 150 or 500 m wire-out). The end of station fix was taken when the dredge left the bottom on final recovery. Water depth given in the tables is depth to bottom from the ship. Wire out in excess of this depth is a measure of the actual depth and distance behind the ship of the rock dredge.



## AII-107-6 STATION DATA

-81-

Station	Water Depth(cm)	Wire Out(m)	Latitude	Longitude	General Description
#1 Seamount Scotia Sea	Pinger over:	150	56°10.2'S	41°48.0'W	101 samples of glacial erratics (67.6 kg).
	Dredge on				
	Bottom:	3979			
	Dredge off				
Bottom:	3402	3770	56°09.2'S	41°46.1'W	
#2 Seamount Scotia Sea	Pinger Over:	No ping	56°07.3'S	41°41.1'W	2 glacial erratics (1.4 kg)
	Dredge on				
	Bottom:	3403			
	Dredge off				
Bottom:	2959	~3100	56°07.5'S	41°40.6'W	
#31 W.Speiss Ridge	Pinger over:	150	54°41.4'S	0°02.3'W	35 samples (46 kg) of homogeneous fresh aphyric vesicular basalt; fragments are angular pillow joint blocks with bubbly appearance (high vesicularity) and all have varying amounts of glass.
	Dredge on				
	Bottom:	1118			
	Dredge off				
Bottom:	884	1285	54°40.7'S	0°03.7'W	
#32 W.Speiss Ridge	Pinger over:	150	54°39.7'S	0°00.8'W	Two fragments (10 kg) of plagioclase phyrice basalt with abundant glass. One sample (1 kg) of plagioclase olivine phyrice basalt with glass rind.
	Dredge on				
	Bottom:	1191			
	Dredge off				
Bottom:	900	1245	54°39.3'S	0°02.0'W	
#33 W.Speiss Ridge	Pinger over:	150	54°39.0'S	0°04.1'W	Dredge haul consists of 186 fragments of aphyric, glassy pillow basalt; 71 samples (50 kg) were described and numbered. Most samples have thick glass rinds and are generally vesicular with 10-20% vesicles.
	Dredge on				
	Bottom:	1124			
	Dredge off				
Bottom:	987	~1200	54°38.8'S	0°05.6'W	
#34 W.Speiss Ridge	Pinger over:	150	54°38.1'S	0°07.6'W	15 samples (17 kg) of fine grained sparsely phyrice basalt with microphenocrysts of olivine (<1%) and plagioclase (<1%). Samples are generally fresh and somewhat vesicular (5-10%) with many having thick glass rinds.
	Dredge on				
	Bottom:	1214			
	Dredge off				
Bottom:	1082	1186	54°37.7'S	0°08.6'W	

AII-107-6 STATION DATA

Station	Water Depth(cm)	Wire Out(m)	Latitude	Longitude	General Description
#35 E. Speiss Ridge	Pinger over:	150	54°43.4'S	0°48.2'E	12 fragments of peridotite (12 kg), 6 fragments of porphyritic basalt (2 kg) and 7 assorted boulders of diabase, dunite and gabbro (34 kg). The rounded peridotites are coarse grained with most of the olivine altered to serpentine. All have pyroxene phenocrysts and calcite filled veins. The basalts have phenocrysts of plagioclase and olivine and no glass.
	Dredge on				
	Bottom:	750			
	Dredge off				
	Bottom:	943	54°43.0'S	0°48.9'E	
#36 E. Speiss Ridge	Pinger over:	150	54°42.9'S	0°49.4'E	10 samples (4 kg) of subangular aphyric basalt with no glass, 4 samples (2.5kg) of porphyritic (plag and ol) basalt, two fragments of diabase (1 kg) and several basalt breccias (1.5 kg) were obtained. The remainder (12 fragments, 20 kg) are erratics of sedimentary, granitic and gabbroic rocks.
	Dredge on				
	Bottom:	1045			
	Dredge off				
	Bottom:	1238	54°42.4'S	0°50.1'E	
#37 E. Speiss Ridge	Pinger over:	150	54°44.2'S	0°50.3'E	4 fragments plagioclase phyric basalt (1.4 kg), 2 fragments (0.9 kg) plagioclase, pyroxene diabase; 3 fragments (3 kg) of basalt breccia and 2 rounded quartzites (3.5 kg).
	Dredge on				
	Bottom:	1408			
	Dredge off				
	Bottom:	1270	54°43.5'S	0°50.1'E	
#38 E. Speiss Ridge	Pinger over:	150	54°44.8'S	0°50.9'E	No rocks recovered
	Dredge on				
	Bottom:	~1500			
	Dredge off				
	Bottom:	1421	54°44.3'S	0°49.8'E	
#39 Bouvet F.Z. NW Wall	Pinger over:	150	54°26.5'S	1°37.3'E	31 fragments (23 kg) of ultramafic rocks (harzburgite, serpentine) with extensive alteration. Remaining material comprises volcanic bombs (1 kg), 2 gabbros (1 kg), 2 diorites (0.2 kg), and 2 erratics (0.3 kg).
	Dredge on				
	Bottom:	5143			
	Dredge off				
	Bottom:	5130	54°25.7'S	1°36.4'E	

AII-107-6 STATION DATA

Station	Water Depth(cm)	Wire Out (m)	Latitude	Longitude	General Description
#40 Bouvet F.Z. NW Wall	Pinger over: 3701 Dredge on Bottom: 3240 Dredge off Bottom: 2724	150 4141 4183	54°25.4'S 54°25.2'S	1°34.2'E 1°31.7'E	60 pieces (61 kg) of harzburgite and serpentinite, 1 fragment (0.1 kg) of epidosite, 1 fragment (0.1 kg) rodingite, 12 pieces (6 kg) of serpentinite clay breccia, 2 mafic pegmatite fragments (0.25 kg), 4 gabbros (0.6 kg), 2 glacial erratics.
#41 Bouvet F.Z. NW Wall	Pinger over: 1907 Dredge on Bottom: 1924 Dredge off Bottom: 1983	150 2395 2615	54°25.1'S 54°25.1'S	1°28.4'E 1°24.6'E	Two glacial erratics (1.4 kg).
#43 Bouvet F.Z. NW Wall	Pinger over: 2095 Dredge on Bottom: 2170 Dredge off Bottom: 2272	150 2428 2635	54°24.4'S 54°25.5'S	1°19.8'E 1°15.9'E	1 rounded glacial erratic (0.4 kg).
#44 Bouvet F.Z. SE Wall	Pinger over: 3967 Dredge on Bottom: 3536 Dredge off Bottom: 2990	150 4711 4714	54°25.9'S 54°26.9'S	1°54.1'E 1°54.6'E	No rocks recovered.
#45 Median Valley NE of Bouvet Is.	Pinger over: 2019 Dredge on Bottom: 1949 Dredge off Bottom: 1917	150 2310 2075	53°58.7'S 53°58.9'S	3°41.4'E 3°38.6'E	No rocks recovered.
#46 Median Valley NE of Bouvet Is.	Pinger over: 2176 Dredge on Bottom: 2236 Dredge off Bottom: 2252	150 2435 2740	53°58.9'S 53°59.7'S	3°35.6'E 3°33.8'E	Single sample of plagioclase phyrlic glassy basalt (.15 kg). Large plagioclase phenocrysts comprise approx. 45% of sample.

## AII-107-6 STATION DATA

Station	Water Depth(cm)	Wire Out (m)	Latitude	Longitude	General Description
#47 Median Valley NE of Bouvet Is.	2069 1930 1895	150 2256 ~2500	54°00.7'S 54°01.9'S	3°33.1'E 3°31.0'E	38 samples (40 kg) of aphyric massive pillow basalt; a few samples have glassy rinds. Two samples (2.8 kg) of sparsely plagioclase phyrlic basalt.
#48 Median Valley NE of Bouvet Is.	1901 1918 2178	150 2193 2531	54°01.8'S 54°00.2'S	3°31.3'E 3°33.1'E	8 fragments (2.3 kg) of plagioclase phyrlic basalt, 7 fragments (14 kg) of aphyric basalt. Most of the basalt samples contain glass. 1 sample (0.3 kg) of conglomerate.
#49 Moshesh F.Z.	3340 3401 2879	150 3565 3626	54°24.5'S 54°23.4'S	4°31.1'E 4°34.0'E	No rocks recovered.
#50 Moshesh F.Z.	3879 3930 2992	150 4334 4170	54°13.4'S 54°11.8'S	4°37.6'E 4°36.1'E	No rocks recovered.
#51 Moshesh F.Z.	3142 3060 2536	150 3471 3122	54°11.9'S 54°10.5'S	4°35.6'E 4°30.5'E	1 fragment (1.0 kg) of highly plagioclase phyrlic vesicular basalt, 6 fragments (3.3 kg) sparsely phyrlic plagioclase olivine basalt and 3 fragments (1.75 kg) of aphyric basalt. Remainder of dredge composed of 3 glacial erratics and partially consolidated sediment.
#52 Top of Seamount East of Bouvet	973 730 1001	150 1099 1036	54°25.5'S 54°24.8'S	4°43.9'E 4°44.5'E	41 fragments (62 kg) of sparsely plagioclase phyrlic pillow basalt. Minor glass present on some samples. 1 fragment (1.5 kg) of highly plagioclase phyrlic basalt.

AII-107-6 STATION DATA

Station	Water Depth(cm)	Wire Out (m)	Latitude	Longitude	General Description
#53 Moshesh-Islas Rift Valley E. Flank	Pinger over: 2810 Dredge on Bottom: 2390 Dredge off Bottom: 2364	150 3496 2940	54°13.5'S	5°10.5'E	5 samples (3.4 kg) of plagioclase phyric basalt, 2 fragments (0.45 kg) aphyric basalt and 7 fragments (14 kg) medium grained diabase.
#54 Moshesh-Islas Rift Valley E. Flank	Pinger over: 2748 Dredge on Bottom: 2767 Dredge off Bottom: 2327	150 3169 3189	54°13.0'S	5°13.1'E	No rocks recovered.
#55 Moshesh-Islas Rift Valley E. Flank	Pinger over: 2355 Dredge on Bottom: 2168 Dredge off Bottom: 2010	150 2624 3163	54°17.6'S	5°18.5'E	15 fragments (3 kg) of plagioclase olivine phyric basalt, very vesicular. 1 fragment (13 kg) of vesicular olivine phyric basalt, 13 fragments (5 kg) of vesicular plagioclase phyric basalt, 13 fragments (3.2 kg) of aphyric basalt. Three diabase samples (0.8 kg), 2 samples metabasalt (0.8 kg), 18 fragments (7 kg) of greenstone breccia and 5 glacial erratics.
#56 Moshesh-Islas Rift Valley	Pinger over: 3664 Dredge on Bottom: 3602 Dredge off Bottom: 3122	150 3929 4472	54°23.8'S	5°08.2'E	28 fragments (36 kg) of plagioclase phyric basalt; mostly pillow basalt. Most fragments contain quench glass.
#57 Median Valley NW of Shaka F.Z.	Pinger over: 3648 Dredge on Bottom: 3767 Dredge off Bottom: 1920	150 4416 5175	54°02.7'S	7°13.4'E	9 samples (5.4 kg) of aphyric quench basalt with thick glass rinds. 25 samples of sparsely phyric (olivine, plagioclase) massive pillow basalt (29 kg). Sparse quench glass occurs on some samples.
#58 Seamount NE of Sta. 57	Pinger over: 1507 Dredge on Bottom: 2074 Dredge off Bottom: 1316	150 2438 ~2450	53°58.8'S	7°20.4'E	7 samples plagioclase phyric basalt (1.8 kg), 8 samples aphyric basalt (7.5 kg), 1 dolerite (5 kg), 32 fragments of greenstone (26 kg) and 87 samples (31 kg) of soapstone.

AII-107-6 STATION DATA

Station	Water Depth(cm)	Wire Out (m)	Latitude	Longitude	General Description
#59 Median Valley NW of Shaka F.Z.	Pinger over: Dredge on Bottom: Dredge off Bottom:	150 3949 3823	54°01.1'S	7°14.1'E	14 samples (8 kg) of gabbro, 2 aphyric basalts (0.4 kg), 1 diabase (0.5 kg), 6 serpentinite samples (1.6 kg) and one quartzite erratic (0.8 kg).
#60 Shaka F.Z. SE Wall	Pinger over: Dredge on Bottom: Dredge off Bottom:	500 6457 5790	53°25.7'S	9°09.1'E	38 samples (42 kg) of peridotite mylonite, some with cross cutting rodingite veins; 17 samples (8 kg) of harzburgite mylonite and 11 samples (4 kg) harzburgite; 19 samples of basalt, diabase and greenstone (9 kg) and 5 erratics (7 kg).
#61 Shaka F.Z. SE Wall	Pinger over: Dredge on Bottom: Dredge off Bottom:	500 6023 5650	53°25.1'S	9°11.9'E	53 samples (28 kg) of harzburgite, 35 samples (27 kg) of harzburgite mylonite, 5 samples (4.1 kg) peridotite and peridotite mylonite, 6 samples serpentinite (1 kg), a basalt fragment (0.06 kg) and a granite erratic (0.07 kg).
#62 Shaka F.Z. SE Wall	Pinger over: Dredge on Bottom: Dredge off Bottom:	500 4841 4500	53°22.5'S	9°20.3'E	No rocks recovered.
#63 Shaka F.Z. SE Wall	Pinger over: Dredge on Bottom: Dredge off Bottom:	500 4838 4260	53°23.3'S	9°20.3'E	16 samples (3.6 kg) of pillow basalt (oxidized), 2 basalt breccias (0.40 kg), 11 harzburgite (5.5 kg) samples, 2 peridotite (2 kg), 1 rodingite (0.12 kg), 1 volcanic bomb (0.15 kg) and 2 sandstone erratics (0.43 kg).
#64 Shaka F.Z. NW Wall	Pinger over: Dredge on Bottom: Dredge off Bottom:	500 5682 5224	53°19.2'S	9°08.4'E	1 samples (3.0 kg) of plagioclase pyrrhic basalt.

AII-107-6 STATION DATA

Station	Water Depth(cm)	Wire Out (m)	Latitude	Longitude	General Description
#65 Shaka F.Z. NW Wall	Pinger over:	500	53°14.3'S	9°11.6'E	19 samples (8 kg) of basalt (aphyric and plagioclase phyrlic), 10 samples of breccia (4 kg), 19 glacial erratics (10 kg).
	Dredge on				
	Bottom:	6497			
	Dredge off Bottom:	3710	53°10.2'S	9°10.2'E	
#66 Shaka F.Z. NW Wall	Pinger over:	500	53°08.8'S	9°11.5'E	85 rounded pieces manganese encrusted uncut basalt (20 kg), 29 pieces (12.7 kg) aphyric basalt with thick Mn coating, 20 samples (8.5 kg) of sparsely plagioclase phyrlic basalt with little or no glass, 22 samples plagioclase phyrlic basalt (19 kg), 11 samples (8 kg) glacial erratics and breccias.
	Dredge on				
	Bottom:	3376			
	Dredge off Bottom:	2687	53°09.1'S	9°10.0'E	
#67 Shaka F.S. SE Wall	Pinger over:	500	53°14.4'S	9°27.6'E	66 samples (23 kg) of aphyric metabasalt and basalt, 4 samples (0.8 kg) metadiabase, 1 serpentinite (0.3 kg) and 4 erratics (0.54 kg).
	Dredge on				
	Bottom:	6383			
	Dredge off Bottom:	5700	53°15.2'S	9°31.4'E	
#68 Shaka F.Z. SE Wall	Pinger over:	500	53°16.5'S	9°37.2'E	No rocks recovered.
	Dredge on				
	Bottom:	4173			
	Dredge off Bottom:	3435	53°17.7'S	9°38.3'E	

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 1 DREDGE \_\_\_\_\_ DESCRIBED BY T.B., M.F., A.L. & H.D. DATE 3/9/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Min	We	Alteration	Remarks
1	Granite	5.0 Kg.	M-C	qtz, k-spar, hbd				<1	L		Angular (A)
2	Biotite Granite	0.5	M-C	qtz, k-spar, bio				0	F		Round (R)
3	Granite	0.3	M-c	"				<1	L		Sub-angular (SA)
4	Granite	0.1	M	"				1-2	L		(A)
5	Hbd. Granite	0.2	M-C	qtz, k-spar, hbd				1-2	F		(A)
6	Meta Sandstone	0.1	M-C	qtz, k-spar				1-2	F		(SA)
7	Orthoquartzite	0.3	M-C	"				1-2	F		(A)
8	Granite	2.0	C	"				1-2	L	chlorite	(SA)
9	Pink Granite	1.0	M-C	qtz, k-spar, hbd				0-1	F		(A)
10	Diorite	0.5	M-C	feldspar, pyrox?				1-2	F		(R)
11	Orthoquartzite	3.0	C	qtz.				0-15	L		(A)
12	Hbd Granite	0.2	C	qtz, k-spar, hbd				0-1	F		(A)
13	Hbd Granite	0.5	C	"				0-1	L	k-spar altered	(SA)
14	Altered Granite	0.2	C	"				0-10M		hbd(?) altered to chlorite	(SA)
15	Biotite Granite	0.1	C	qtz, k-spar, bio				0-1	F		(A)
16	Dacite	1.0	M-C	qtz				0-1	H	k-spar & hbd to chlorite	(A)
17	Diorite	0.2	F-M	qtz, plag, k-spar				0-1	F		(R)
18	Metaquartzite	1.0	F-M	qtz, k-spar, hbd				10-20	F		(R)



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 1 DREDGE \_\_\_\_\_ DESCRIBED BY T.B., M.F., A.L. & H.D. DATE 3/9/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am <sup>(mm)</sup> Mn	We	Alteration	Remarks
19	Granodiorite	0.5 Kg.	M-C	qtz, k-spar, biotite			10-20	H	k-spar to clay	Round (R)
20	Gabbro	0.1	M-C	plag, hbd			0-1	F	hbd to chlorite	(R)
21	Quartzite	0.1	M-C	qtz, garnet			0-1	F		Sub-angular (SA)
22	Rhyolite	2.0	M-C	qtz, bio, k-spar			0-1	F		Angular (A)
23	Granite	0.1	C	qtz, bio, hbd			0-1	F		(A)
24	Conglomerate	0.1	F-C	qtz, feldsp, oxides	qtz rounded		0-1	M	some chlorite; (metamorphic?)	(R)
25	qtz-mica schist	0.1	F-M	qtz, feldsp, bio			0-1	F		(A)
26	Diabase	0.1	F-M	plag, hbd			0-1	F		(A)
27	Granite Porphyry	3.0	M-C	qtz, plag	hbd?		0-5	F		(A)
28	Altered Gabbro	0.1	F	qtz			0-1	F		(A)
29	Gabbro	0.1	M-C	plag, hbd			0-1	F		(SA)
30	Metasandstone	0.1	M	plag, qtz			0-1	F		(R)
31	Hbd Diorite	0.1	M-C	plag, hbd			0-1	L	slight (?)	(R)
32	Granodiorite	0.2	M	hbd, plag, k-spar			1-2	F	talc vein	(R)
33	"	0.5	M	"			0-5	F		(SA)
34	Diabase	0.2	M	hbd, feldsp			0-1	L		(R)
35	Biotite Granite	0.1	M	biot, k-spar, hbd, qtz			0-1	F		(R)
36	Dacite	1.0	M	hbd, feldsp			0-1	L		(SA)

WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-6 STATION 1 DREDGE \_\_\_\_\_ DESCRIBED BY T.B., M.F., A.L. & H.D. DATE 3/9/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	(mm) Mn	We	Alteration	Remarks
37	Gabbro	5.0 Kg.	M	plag, px				0-5 L	L		(A)
38	Hbd Diabase	0.5	M	plag, hbd, px				0-1 L	L		(SA)
39	Alkali Basalt	3.0	M-C	plag, oliv				10-15 H	H		(R)
40	Basalt	0.1	A					0-1 L	L		(A)
41	"	0.1	A					0 F	F		(SA)
42	Meta Sandstone	0.05	A	qtz, feldsp				0-1 F	F		(R)
43	Sandstone	0.1	A	"				0-1 F	F		(R)
44	Hbd Gabbro	0.5	M	hbd, pg, px				5 L	L		(R)
45	Gabbro	0.5	C	pg, px, (hbd?)				3 F	F		(SA)
46	Basalt	0.1	F	plag, px (?)		5%		1 F	F		(A)
47	Gabbro	0.1	M	px, plag				0-1 F	F		(SA)
48	Greenstone	0.1	M	plag, px				0 F	F	chlorite (?)	(A)
49	Gabbro	0.1	M	"				0-1 L	L		(R)
50	Basalt	0.1	F-M	"	plag, microphen			0-1 L	L		(R)
51	Sandstone	0.2	F-M	qtz, pg				0-1 L	L		(SA)
52	Greenstone	0.1	M	plag, px				0-1 F	F	chlorite (?)	(R)
53	Altered Sed (?)	3.0	M-C	plag, px (pseudomorphs?)				0 F	F	to greenschist ?	(R)
54	Gabbro	0.1	C	plag, px, hbd				1-2 F	F		(A)

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 1 DREDGE \_\_\_\_\_ DESCRIBED BY T.B., M.F., A.L. & H.D. DATE 3/9/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	(mm) Mn	We	Alteration	Remarks
55	Basalt	0.2 Kg.	A	plag, px ?				1-2	F	oxidation	(SA)
56	"	1.1	A					10- 20	F		(R)
57	Greenstone	0.2	F-M		hbd			1-3	L	chlorite	(R)
58	Sandstone	0.5	A	qtz, feldsp				0-1	F		(A)
59	Diabase	1.0	F-M	plag, px, hbd	plag			1	F	minor clay	(SA)
60	Greenstone	0.5	F	plag				1	F	chlorite	(SA)
61	Granite	0.1	C	k-spar, qtz				1-5	F		(A)
62	Greenstone	0.2	F					0-1	F	chlorite	(A)
63	Basalt	0.1	F		plag			0-1	F		(SA)
64	Sandstone	3.0	F	plag, qtz, hbd				0-5	F		(A)
65	Graywacke	0.1	A		plag, px			0-1	F	clays	(SA)
66	Basalt	0.1	A		plag			0-1	F	plag altered to clay	(A)
67	Greenstone	0.1	A					0-5	F	chlorite	(SA)
68	Basalt	1.0	A					2	F		(R)
69	Greenstone	1.0	C	plag				1	F	chlorite	(A)
70	Basalt	0.5	A					<<1	F		(SA)
71	Graywacke	1.5	A		plag			10	F		(R)
72	Quartzite	0.3	F	qtz				<1	F		(R)

WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-6 STATION I DREDGE \_\_\_\_\_ DESCRIBED BY T.B., M.F., A.L. & H.D. DATE 3/9/80

Sample #	Lithology	Wt. Kg.	G. S.	Mineralogy	Phenocrysts	Ve	Am	(mm) Mn	We	Alteration	Remarks
73	Mica Schist	0.2	M	musc, bio, plag, hbd				<<1		oxidation	(A)
74	Arkose	0.2	F	feldsp, qtz				0	F		(R)
75	Glanconite Sandstone	0.2	F	glanconite, qtz				0	F		(R)
76	Andesite ?	0.2	F		qtz, feldsp			<<1	F		(SA)
77	Baked Sediment	0.1	variable	?				2	F		(SA)
78	Conglomerate	1.0	A		altered plag			10	L	phenocrysts altered	(R)
79	Graywacke	1.0	F					5	F		(SA)
80	Graywacke	0.2	F					0	F		(SA)
81	Qtz-Porphry	0.2	F	qtz, feldsp				1	F		(R)
82	Meta Graywacke	0.8	F	qtz, feldsp				<3	F		(R)
83	Limestone	0.2	A					<5	F		(SA)
84	Limestone	0.6	A					<1	F		(R)
85	Sandy Shale	0.2	A					<1	F		(SA)
86	Graywacke	1.0	A	feldsp, qtz				<2	F		(SA)
87	Sandstone	0.2	F	"				<1	F		(SA)
88	Arkose	0.2	A	"				0	F		(R)
89	Greenstone	0.3	A					<1	F	chlorite	(A)
90	"	0.3	A					<2	F	chlorite	(SA)

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 1 DREDGE \_\_\_\_\_ DESCRIBED BY T.B., A.L., M.F. & H.D. DATE 3/9/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
								(mm)			
91	Gabbro	0.2 Kg.	F	plag, hbd				2		oxidation	(SA)
92	Claystone	0.3	A					<1			(SA)
93	Limestone	0.3	A					<1			(SA)
94	Basalt	0.2	A		feldspar	2%		0		oxidation	(SA)
95	Claystone	2.0	A					5	F		(R)
96	Sandstone	5.0	A	qtz, feldsp	feldspar			5	F		(R)
97	Granite	0.2	F-M	qtz, k-spar, plag				<<1	F		(A)
98	Mn-Nodule	0.1		mn (fe)					F		(R)
99	Shale	0.2	A					<<1	F		(A)
100	Banded Gneiss	0.8	F	plag, hbd				2-3	L		(SA)
101	Greenstone	0.3	A					<<1	L	chlorite	(A)



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 31 DREDGE \_\_\_\_\_ DESCRIBED BY T.B. DATE 3/20/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1 to 35	Aphyric Highly Vesicular Basalt		G-A		rare plag pheno	10-15%		0	F	none	much glass
1	Aphyric Highly Vesicular Basalt	1.2 Kg	G-A								
2	"	0.8	G-A								
3	"	1.0	G-A								
4	"	1.3	G-A								
5	"	0.6	G-A								
6	"	1.5	G-A								
7	"	0.7	G-A								
8	"	1.5	G-A							more glass than most, but some-what altered	
9	"	1.4	G-A								
10	"	1.7	G-A								
11	"	1.0	G-A								
12	"	1.3	G-A								appears to be from pillow tube
13	"	4.0	G-A								
14	"	4.0	G-A								much good glass
15	"	1.0	G-A		plag. (1)						single pheno of plag
16	"	1.2	G-A								appears to be from pillow tube; very bubbly appearance. may be more vesiculated than others

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 31 DREDGE \_\_\_\_\_ DESCRIBED BY T.B. DATE 3/20/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17	Aphyric Highly Vesicular Basalt	7.0 Kg	G-A								
18	"	1.2	G-A								
19	"	0.5	G-A								
20	"	0.7	G-A								
21	"	0.7	G-A								
22	"	7.0	G-A							appears to be from pillow tube; bubbly base (flat side)	
23	"	0.7	G-A								
24	"	0.5	G-A								
25	"	0.4	G-A							slightly more discolored than others (brown red)	
26	"	0.3	G-A								
27	"	0.4	G-A								
28	"	0.5	G-A								
29	"	0.3	G-A								
30	"	0.3	G-A								
31	"	0.3	G-A								
32	"	0.2	G-A								
33	"	0.4	G-A								
34	"	0.4	G-A								
35	"	0.4	G-A								





WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-6 STATION 33 DREDGE \_\_\_\_\_ DESCRIBED BY M.F. DATE 3/25/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	Basalt	0.8 Kg	A	Only 5% of these basalts are without glass		2%			F		1 cm glass
2	"	0.8	A			10%			F		
3	"	0.5	A			20%			L		
4	"	0.8	A			10%			L		1 cm glass
5	"	0.8	A			20%			L		
6	"	0.6	A			10%			L		little glass
7	"	2.0	A		p1 < 1%	20%			L		1 cm glass pillow fragment
8	"	1.5	A			10%			F		pillow fragment
9	"	0.8	A			20%			L		1 cm glass pillow fragment
10	"	2.0	A			20%			F		1 cm glass pillow fragment
11	"	1.0	A			20%			F		
12	"	0.8	A			20%			F		beautiful ropey glass
13	"	0.8	A			10%			F		pillow fragment
14	"	0.6	A			10%			L		little surface glass
15	"	0.8	A			20%			L		
16	"	0.6	A			10%			L		
17	"	0.2	A			1%			L		

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 33 DREDGE \_\_\_\_\_ DESCRIBED BY M.F. DATE 3/25/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am Mn	We	Alteration	Remarks
18	Basalt	0.4 Kg	A			10%		L		slight glass: ?pillow fragment
19	"	1.5	A			20%		L		1 cm glass: ropey glass
20	"	1.0	A			10%		L		1 cm glass
21	"	1.2	A		p1<1%	1%		L		
22	"	0.6	A		"	10%		L		rare glass lava tube edges worn
23	"	0.8	A			20%		L		lava tube frag fresh; 1 cm glass
24	"	0.1	A		p1<1%	10%		L		no glass: coral growth over most of rock
25	"	3.0	A			20%		L		1 cm glass lava tube rind
26	"	2.0	A			20%		L		
27	"	1.5	A			20%		L		lava tube frag
28	"	1.2	A			20%		L		"
29	"	0.1	A			20%		L		
30	"	0.2	A			20%		L		
31	"	0.1	A			20%		L		
32	"	0.1	A			40%		L		coral growth lava tube
33	"	0.1	A			20%		L		
34	"	0.8	A			10%		L		
35	"	4.0	A			10%		L		pillow fragment

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 33 DREDGE \_\_\_\_\_ DESCRIBED BY M.F. DATE 3/25/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
36	Basalt	2.0 Kg	A			10%			L		pillow fragment
37	"	1.8	A			10%			L		pillow fragment ?
38	"	2.0	A			10%			L		lava tube ?
39	"	1.8	A			10%			L		glassy fragment
40	"	0.8	A			10%			L		ropey glass: tube?
41	"	0.6	A			10%			L		ropey glass: coral growth
42	"	0.3	A			10%			L		ropey glass: tube
43	"	0.6	A			10%			L		pillow fragment?
44	"	0.6	A			10%			L		tube fragment?
45	"	0.4	A			10%			L		pillow fragment?
46	"	0.3	A		p1<1%	10%			L		lava tube frag: growth coral
47	"	0.2	A			20%			L		"
48	"	0.1	A			10%			L		glass on upper and lower surfaces
49	"	0.3	A		p1 ?	10%			L		
50	"	0.2	A			20%			L		
51	"	0.1	A			10%			L		
52	"	0.3	A			20%			L		coral growth
53	"	0.2	A			20%			L		

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-6 STATION 33 DREDGE \_\_\_\_\_ DESCRIBED BY M.F. DATE 3/25/80

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Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
54	Basalt	0.2 Kg	A		p1<1%	20%			L		tube fragment with lava blob
55	"	0.2	A			20%			F		
56	"	0.4	A		p1<1%	10%			L		tube or pillow frag glass on upper and lower surfaces
57	"	0.3	A			20%			F		
58	"	0.2	A			10%			F		smooth glass on 2 surfaces
59	"	0.2	A		p1<1%	20%			M		ropey glass: pillow frag highly vesicular, 3 glass layers
60	"	0.4	A			40%			F		
61	"	0.2	A			10%			F		tube frag
62	"	0.2	A			10%			L		pillow frag; coral growth
63	"	0.2	A			10%			F		tube frag
64	"	0.3	A			10%			L		pillow fragment?
65	"	0.2	A			10%			L		angular glassy frag
66	"	0.4	A		p1<1%	0%			L		"
67	"	0.2	A		"	10%			L		"
68	"	0.2	A			20%			F		lava tube fragment
69	"	0.1	A			10%			F		lava tube fragment coral growth
70	"	0.1	A			10%			F		lava tube fragment; coral growth; glass on 2 surfaces
71	"	0.1	A			20%			F		lava tube fragment



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 35 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. & M.F. DATE 3/22/80

Sample #	Lithology	Wt.	G.S.	Minerology	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
SAMPLES 1 through 12 are rounded pieces of peridotite with most of the olivine altered to serpentine or clays. The samples all have pyroxene phenocrysts. Veins in the rocks are filled with calcite or black alteration.											
1	peridotite	1.5 kg	C		Px				M	olivine heavily alter.	
2	"	1.1	"		"				"	"	
3	"	.5	"		"				"	"	calcite vein
4	"	2.0	"		"				"	ol,px altered	black crosscut veins
5	"	.5	"		"				"	olivine alter.	calcite veins
6	"	.7	"		"				"	"	heavily sheared
7	"	1.3	"		"				"	"	"
8	"	.8	"		"				-	ol,px altered	black crosscut veins
9	"	.6	"		"				"	olivine alter.	thin (1mm) calcite veins
10	"	3.0	"		"				"	olivine alter. px part. alter	heavily sheared
11	"	.1	"		"				"	ol,px altered	veins (calcite)
12	"	.1	"		"				"	olivine alter. px part. alter	black veins
Samples 13 through 18 are porphyritic basalts					plag., olivine				"	olivine alter.	calcite vein
13	basalt	.4	F								
14	"	.2	"		"	10%			L	"	-
15	"	.4	"		pl				"	groundmass alter. to clay	-





WHOLE ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-6 STATION 36 DREDGE                      DESCRIBED BY A.L. & M.F. DATE 3/22/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
Samples 1, 2 and 4-8 are very fine grained aphyric basalt											
1	aphyric basalt	.5kg	A		plag(sparse)	5%			L		Subangular
2	"	.2	"		-	1			"		(SA) cemented by yellow geothitic(?) material; (A)
3	breccia of fine grained basalt	.6	"		sparse plag.(2)	2			"		Subrounded
4	aphyric basalt	1.2	"		-	-			"		(SA)
5	"	0.1	"		-	-			"		(SA)
6	"	0.3	"		-	-			"		(SA)
7	"	0.4	"		-	-			"		(SA)
8	"	0.2	"		-	-			M		spherical weathering marks in interior; (SR)
9	breccia of fine grained basalt	0.2	"		-	-			L		cemented by yellow geothitic(?) material
10	"	0.3	"		-	-			"		"
Samples 11-13 are plagioclase-olivine aphyric basalts; single large plagioclase phenocrysts up to 1 cm.											
11	pl-ol aphyric basalt	0.6	F	pl & ol, cpx?	pl & ol				L	slight olivine alteration	rounded cobble from breccia
12	"	1.2	"	"	"				-	"	"
13	"	0.4	"	?	"				L	olivine clay	Subrounded
14	breccia of angular basalt & glass	0.3	"	?	(- basalt) pl & ol?				"	-	cemented by yellow geothitic(?) material; (A)

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 36 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. & M.F. DATE 3/22/80

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Sample #	Lithology	Wt.	G.S.	Minerology	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
15	breccia of angular bas. & glass	0.2kg	F	?	(- basalt) pl & ol?				L	-	cemented by yellow geothitic(?) material; (A)
16	pl & ol phyric basalt	1.2	"	-	pl & ol				"	-	large plag pheno-crystal on glassy crust; (R)
17	aphyric basalt	1.3	"	-	plag (sparse)	10%			"		plag pheno-crystal on surface; (SR)
18	diabase	0.4	M	pl & pyx	plag.	-			"	slight oxidation	rounded cobble
19	"	0.6	"	"	plag (large&num)	-			"	groundmass to orange mat.	Subrounded
20	lizardite/ serpentinite	0.4	"	chrysothile & serpentinite	-	-			-	-	Sheared (R)
21	mudstone	0.3	A	-	-	-			-	-	Angular
22	greywacke	0.3	M	-	-	-			-	-	(A)
23	shale	0.5	A	-	-	-			-	-	Subrounded
24	dunite	9kg	M	olivine & cpx	-	-			L	-	1/2 large rounded boulder
25	granite	4	C	Qtz, Ksp, Plag	Qtz, fsp	-			"	-	rounded boulder
26	"	0.6	"	Qtz, Ksp, Biot	Ksp	-			"	-	(SA)
27	sandstone	0.2	M	Qtz	-	-			-	-	(SR)
28	gabbro	0.4	C	Plag, cpx, hbl	-	-			L	-	flat slab
29	"	0.1	"	"	-	-			"	-	round cobble
30	quartzite	0.4	M	Qtz	-	-			"	-	cobble; (SA)
31	shale	5kg	A	-	-	-			-	-	black, massive, glossy
				One siliceous coral piece							



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 39 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 3/28/80

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	harzburgite rodingite contact	.08	L	ol-opx-cpx-sp calc-silicate				.1	M/L		fresh peridotite near contact
2	serpentinite	.2	C-F	lizardite				1.0	M	98% serpentine	-
3	harzburgite	.15	C	ol, en, cpx, sp				.5	M	95%	-
4	"	.05	"	"				.5	"	70%	some fresh enstatite
5	serpentinite	.1	C-F	enst./lizardite				.1	"	85%	-
6	harzburgite	.05	C	ol, en, cpx, sp				.3	"	70%	-
7	"	.8	"	"				3	M/H	60%	-
8	"	3.5	"	"				1	M	90%	serpentine veins
9	"	4	"	"				.5	M/H	75%	-
10	"	.1	"	"				.1	M	85%	-
11	"	.75	"	"				.3	"	90%	-
12	"	.8	"	"				3	"	80%	-
13	"	4.5	"	"				.1	M/H	90%	-
14	"	.4	"	"				.2	M	85%	enstatite/olivine islands in serpentinite
15	"	1.5	"	"				10	M	95%	-
16	"	.05	"	"				3	H	85%	-
17	serpentine	.05	F-C	lizardite				.3	M	98%	-
18	harzburgite	1.75	C	ol, en, cpx, sp				.5	H	85%	-

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 39 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 3/28/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19	harzburgite	.75	C	ol, opx, cpx, sp	-	-	1	H		75% serpentine	-
20	"	.3	"	"	-	-	.5	"		"	stretched opx
21	"	.2	"	"	-	-	1	"		"	
22	"	.6	"	"	-	-	.5	"		"	-
23	"	.1	"	"	-	-	.2	"		"	-
24	"	.01	"	"	-	-	<.1	L/M		85%	-
25	"	.03	"	"	-	-	.5	M		"	-
26	"	.01	"	"	-	-	1	"		90%	-
27	serpentine	.1	C-F	lizardite	-	-	1.5	"		99%	-
28	"	.15	"	"	-	-	.5	H		"	-
29	harzburgite	.1	C	ol, opx, cpx, sp	-	-	.5	"		90%	-
30	"	.15	"	ol, opx, cpx, sp & pg	-	-	1	M/H		"	pg vein → calc silicates
31	"	.1	C	ol, opx, cpx, sp	-	-	1	M		60%	serp. breccia on surface
32	gabbro	.1	C-M	pg-px-ol	-	-	<.1	L		-	-
33	diorite	.1	M	pg-px-bi?	-	-	<.1	M		-	-
34	volcanic cinder	.02	G	-	abundant plag.	70%	-	L		-	-
35	volcanic bomb	1	-	-	pg-cpx	-	<.1	"		-	thick red oxide coating over pg-cpx basalt
36	volcanic cinder	.1	G	-	pg & ol?	30%	-	"		-	-



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 40 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 3/25/79

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	Harzburgite	.2 kg	C	Ol, OPX, CPX, SP		-	-	1.0 mm	M	40%+ Serpentine	
2	"	.9	"	"		-	-	-	"	"	Dunite layer
3	"	3.0	"	"		-	-	0.5	"	"	
4	"	2.0	"	"		-	-	2.0	"	"	Clay-serpentine Breccia
5	"	4.0	"	"		-	-	<.1	"	50% serpentine;	En → bastite
6	"	5.0	"	"		-	-	1.0	"	40% serpentine	
7	"	.2	"	"		-	-	2.5	H	"	
8	"	2.0	"	"		-	-	.5	M	"	
9	"	3.5	"	"		-	-	.2	"	"	
10	"	.5	"	"		-	-	.3	"	"	
11	"	.4	"	"		-	-	<.1	"	65% serpentine	
12	"	.1	"	"		-	-	1.5	H	60% serpentine	
13	"	.2	"	"		-	-	.1	M	"	
14	"	.05	"	"		-	-	-	"	50% serpentine	
15	"	.1	"	"		-	-	1.0	H	"	
16	"	.1	"	"		-	-	.3	M-H	"	
17	"	.1	"	"		-	-	.1	"	65% serpentine	OPX → Bastite
18	"	.9	"	"		-	-	3.0	M	75% serpentine	OPX → Bastite

WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-6 STATION 40 DREDGE \_\_\_\_\_ DESCRIBED BY \_\_\_\_\_ H.D. \_\_\_\_\_ DATE 3/26/80

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19	Harzburgite	.2 kg	C	Ol, EN, CPX, SP		-	-	4.0 mm	M	50% serpentine	
20	"	.2	"	"		-	-	<.1	"	"	
21	"	1.5	"	"		-	-	4.0	"	"	Serpentine-clay breccia coated by 4mm Mn.
22	"	.25	"	"		-	-	.1	L-M	80%	
23	"	.25	"	"		-	-	1	"	75%	Enst + Bastite
24	"	.3	"	"		-	-	1.5	M	60%	
25	"	3	"	"		-	-	1.5	L-M	70%	
26	"	5	"	"		-	-	10	"	50%	2cm lizardite & cutting chrysotile vein on side; serf alt. by weathering
27	"	.1	"	"		-	-	<.1	M	60%	Serpentine vein on side
28	"	1.3	"	"		-	-	3	M-H	80%	Enstatite + Bastite
29	"	.3	"	"		-	-	.1	M	80%	Rimmed by serpentine
30	"	7	"	"		-	-	3	"	65%	
31	"	.1	"	"		-	-	1	M	80%	
32	"	.1	"	"		-	-	-	"	80%	
33	"	.2	"	"		-	-	-	"	85%	
34	Serpentinite	.20	"	"		-	-	.2	"	95%	
35	"	.15	"	"		-	-	2	"	95%	
36	Harzburgite	.25	"	"		-	-	2	M-H	75%	



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 40 DREDGE \_\_\_\_\_ DESCRIBED BY \_\_\_\_\_ H.D. \_\_\_\_\_ DATE 3/26/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
37	Harzburgite	.1 kg	C	Ol, OPX, CPX, SP		-	-	-	M-H	50% serpentine	
38	"	.05	"	"		-	-	-	"	"	
39	"	1.4	"	"		-	-	1.0 mm		65%	"
40	"	.15	"	"		-	-	-	H	60%	"
41	"	.75	"	"		-	-	3	"	"	
42	"	.1	"	"		-	-	-	M	75%	"
43	"	.1	"	"		-	-	-	"	85%	"
44	"	"	"	"		-	-	3	H	55%	"
45	Serpentinite	4	F-C	Lizardite & chrysotile serpentine		-	-	3	L-M	97%	Relict Enstatite
46	"	4.5	"	"		-	-	1	"	95%	Relict Ol?
47	"	.2	"	"		-	-	<.1	L-M	85%	Patches of weathered olivine & fresh CPX
48	"	1.1	"	"		-	-	3	H	98%	Breccia
49	"	.05	F	"		-	-	2	L-M	97%	"
50	"	.05	"	Lizardite		-	-	1	L	99%	"
51	"	.1	"	"		-	-	.1	L	99%	"
52	"	.1	"	"		-	-	.1	L	99%	"
53	"	.05	"	"		-	-	.1	L	99%	Hydrothermal alteration
54	"	.2	"	"		-	-	.1	L	99%	"

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 40 DREDGE DESCRIBED BY H.D. DATE 3/27/80

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
55	Serpentine	.03 kg	F	Lizardite		-	-	<.1	L	99% serpentine	
56	"	.1	F-C	"		-	-	<.1	"	96% "	Primary enstatite left
57	"	.75	"	"		-	-	.1	M	98% "	A little primary PX & weathered O1
58	"	1.5	F	"		-	-	.3	M-H	99% "	
60	Harzburgite	1.5	C	O1, OPX, CPX, SP		-	-	<.1	M-H	65% serpentine	Thin rodingite & hydrothermal veins
61	"	.1	"	"		-	-	.1	M	65% serpentine & serp. rind	"
62	"	.3	"	"		-	-	.3	M-H	60% serpentine	"
63	Epidosite	.1	F	Chlorite, Epidote, Prehnite?		-	-	.1	L	-	altered dikelet
64	Rodingite	.1	F-C	Chlorite, serp. Prehnite?	hydrogrossular of	-	-	<.1	F	-	
65	Serpentine-clay Breccia	.1	C	Harzburgite & serp. pebbles & volc. frag.		-	-	-	-	-	
66	?										
67	?										
68	Serpentine-clay Breccia	.1	"	"		-	-	.3	M-H	Clay matrix	
69	"	.3	"	"		-	-	.1	L-M	"	Bronzite cobble & serp. w/ vein
70	Serpentine-Clay Breccia	1.5	F-C	Harzburgite & serp. pebbles, volc. frag. mineral frag.		-	-	.5	L-M	Clay matrix	
71	"	.3	C	"		-	-	.3	L-H	"	



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION See below DREDGE DESCRIBED BY T.B. & A.L. DATE 24 March 80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
Station 41											
1	Shale-Grawacke?	Kg. 0.4		?						Layering Evident	Rounded Erratic
2	Meta-Conglomerate	1.0		Plag, Qtz, Pyroxenes ?							Rounded Erratic
Station 43											
1	Granitoid Gneiss	0.4		Qtz, fsp, Garnet							Rounded Erratic
Station 46											
1	Plag Phyrlic Glassy Basalt	.15	G	Glass	Plag ~ 45%						Large euhedral plag crystal, (well developed faces) projecting from top. Several other plag. grains protruding. Very glassy.
				Exceptional Sample!							

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-6 STATION 47 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. DATE 26/3/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	aphyric basalt	1.0 Kg	A			3%			L		glass;angular
2	"	0.4	A			3			L		glass;sub angular
3	"	3.0	A			2			L		glass;sub rounded
4	"	0.4	A			1			L		angular
5	"	0.8	A			<1			L		"
6	"	0.6	A			--			L		"
7	"	0.6	A			<1			L		"
8	"	0.5	A			<1			L		"
9	"	0.3	A			--			L		"
10	"	0.8	A			<1			L		glass;sub angular
11	"	1.8	A			<1			L		glass;angular
12	"	0.5	A			1			L		angular
13	"	0.9	A			1			L		glass;angular
14	"	0.7	A			1.5			L		glass;angular

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 47 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. DATE 26/3/80

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
15	basalt	0.8 Kg	F		pg 1.5%				F	albitized	angular
16	aphyric basalt	0.7	A			<1.5			L		"
17	"	1.0	A			1	<1%		L		large partially filled vesicles angular
18	"	0.8	A			2			L		glass; angular
19	"	1.2	A			1.0			L		angular
20	"	0.8	A			1.5			L		glass; angular
21	"	0.7	A			2			L		angular
22	"	1.0	A			2			L		"
23	"	1.1	A			1.5		<1m <sub>w</sub>	L		"
25	"	0.4	A			1			L		sub angular
26	"	2.0	A			1			L		glass; angular
27	"	0.8	A			1			L		angular
28	"	0.3	A			<1			L		glass; angular
29	"	0.9	A			<1			L		angular
30	"	0.8	A			1			L		glass; sub angular
31	pg phyric basalt	2.0	F		pg 1%	10			L		rounded boulder
32	aphyric basalt	1.0	A			1			L		glass; angular









WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-6 STATION 52 DREDGE \_\_\_\_\_ DESCRIBED BY M.F. & A.L. DATE 30/3/80

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
	Samples 1 through 3b and 37 through 52 are sparsely phyric pillow basalt fragments. Some samples contain minor glass and most show varying extents of oxidation alteration.										
1	sparsely phyric basalt	5.0 Kg.	A		pg < 1%				L		angular (A)
2	"	10.0	"		"				L		"
3	"	6.0	"		"				L		"
4	"	1.5	"		"				L		"
5	"	1.5	"		"				L		"
6	"	2.0	"		"				L		"
7	"	1.5	"		"				L		"
8	"	0.7	"		"				L		"
9	"	3.0	"		"				L		"
10	"	4.0	"		"				L		"
11	"	2.0	"		"				L		"
12	"	1.5	"		"				L		"
13	"	2.0	"		"				L		"
14	"	1.5	"		"				L		"
15	"	1.0	"		"				L		"

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 52 DREDGE \_\_\_\_\_ DESCRIBED BY M.F. & A.L. DATE 30/3/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
16	sparsely phyrlic basalt	0.8 Kg.	A		pg < 1%				L		angular (A)
17	"	0.2	"		"				L		"
18	"	0.4	"		"				L		"
19	"	1.2	"		"				L		large cavity; (A)
20	"	2.0	"		"				L		(A)
21	"	2.2	"		"				L		"
22	"	1.0	"		"				L		"
23	"	1.1	"		"				L		"
24	"	0.1	"		"				L		"
25	"	0.2	"		"				L		"
26	"	0.1	"		"				L		"
27	"	0.1	"		"				L		"
28	"	0.1	"		"				L		"
29	"	0.2	"		"				L		"
30	"	0.1	"		"				L		"
31	"	0.2	"		"				L		"
32	"	0.2	"		"	<2%			L		"
33	"	0.3	"		"				L		"

WHOI ROCK SAMPLE DESCRIPTION

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CRUISE AII 107-6 STATION 52 DREDGE DESCRIBED BY M.F. & A.L. DATE 30/3/80

Sample #	Lithology	Wt. Kg.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
34	sparsely phyrlic basalt	0.3	A		pg < 1%				L		glass; angular (A)
35	"	0.4	"		"	<1%			L		(A)
36	highly plagioclase phyrlic basalt	1.5	A		pg 30%	<1%			L		pillow fragment (A)
37	sparsely phyrlic basalt	0.3	A		pg < 1%				L		(A)
38	"	0.3	"		"				L		"
39	"	0.2	"		"				L		"
40	"	0.4	"		"				L		"
41	"	0.6	"		"				L		"
42	"	0.1	"		"				L		"
43	"	0.1	"		"				L		"
44	"	0.2	"		"				L		"
45	"	0.5	"		"				L		"
46	"	0.9	"		"				L		"
47	"	0.8	"		"				L		"
48	"	0.6	"		"				L		"
49	"	0.4	"		"				L		"
50	"	0.3	"		"				L		"
51	"	0.8	"		"				L		"
52	"	6.0	"		"				L		"



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 55 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. & M.F. DATE 3/4/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	Basalt	1.3	A		o1 10%	20-30			L		very vesicular volc. bomb; (Angular)
2	"	0.6	A		Plag 10% o1 <1%	<1%			"		lightly fractured volc. bomb; (A)
3	"	0.6	A		P1 3-5%	10-20			"		lightly vesicular volc. bomb; (A)
4	"	0.3	A		P1 3-5%, o1 <1%	10-40			"		"
5	"	0.2	A		"	"			"		"
6	"	0.2	A		"	"			"		"
7	"	0.2	A		"	"			"		"
8	"	0.1	A		P1 2-3%, o1 <1%	"			"		"
9	"	0.1	A		P1 <2%	5-10			"		"
10	"	0.2	A		P1 2-5%, o1 <1%	5-20			"		"
11	"	0.2	A		P1 1-2%	5-10			"		"
12	"	0.2	A		P1 2-5%, o1 <1%	10-40			"		"
13	"	0.2	A		"	"			"		" (not slabbed)
14	"	0.15	A		"	"			"		"
15	"	0.2	A		"	"			"		"
16	"	<0.1	A			"			"		scoriacious bomb
17	"	0.1	A		P1 2-5%, o1 <1%	"			"		volc. bomb lightly vesicular; (A)
18	"	<0.1	A		"	"			"		"

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 55 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. & M.F. DATE 3/4/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19	Basalt	<0.05	A		p12-5%, ol <1%	10-40			L		vesicular volc. bomb. (A)
20	"	<0.1	"		p1 <1%	10-40			"		"
21	"	<0.15	"		"	"			"		"
22	"	0.2	"		p1 5%, ol <1%	5%			"		"
23	"	0.2	"		p1 <3%	<3%			"		altered volc. bomb. material
24	"	0.8	"		p1 10-20%				"		smooth surface
25	"	0.7	"		p1 5-15%	5-10%			"		similar to bomb more massive
26	"	0.2	"						"		meta basalt? (A)
27	"	0.3	"		p1 <2%	<1%			"		glass; (A)
28	"	0.2	"						"		(A)
29	"	0.2	"						"		similar to 28; (A)
30	"	0.5	"			<1%			"		(A)
31	"	0.3	"			"			"		Similar to 30; (A)
32	"	0.2	"			"			"		"
33	"	0.3	"			"			"		"
34	"	0.3	"			"			"		"
35	"	0.3	"		p1 <1%	<2%			"		(A)
36	"	0.15	"						"		as to 30-34; (A)

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 55 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. & M.F. DATE 3/4/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
37	Basalt	0.2	A					<1mm	L		(A)
38	"	"	"						L		round smooth surface
39	"	"	"		p1 <2%				F		(A)
40	"	"	"		p1 <2%				L		"
41	"	0.3	"		"				"		"
42	"	"	"						"		"
43	"	0.2	"						"		"
44	"	1.2	"		p1 <1%			<2mm	"		"
45	Basalt/Diabase	0.4	"					<1mm	"		"
46	Diabase	0.2	F				<1%		L/M		"
47	"	0.2	"				<1%		"		"
48	Metabasalt	0.5	A					2-3 mm	L		calcite vein; (A)
49	"	0.3	"						"		(Subangular)
50	Basalt Breccia	0.2	"						"		interstitial clay binding plag. phytic basalt fragment
51	Greenstone Breccia	0.3	"						L/M	Greenschist	(A)
52	"	0.3	"						"	Greenschist	"
53	"	0.1	"						"	Greenschist	"
54	"	0.5	"						"	Greenschist	"



WHOI ROCK SAMPLE DESCRIPTION

CRUISE A11 107-6 STATION 55 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. & M.F. DATE 3/4/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
55	Greenstone Breccia	0.6	A						L/M	Greenschist	(A)
56	"	0.5	"						"	"	More fragmented less altered
57	"	0.6	"						"	"	
58	"	0.4	"						"	"	(not cut)
59	"	0.3	"						"	"	"
60	Greenstone	0.1	"						"	"	Pillow fragment
61	Greenstone Breccia	<0.1	"						"	Greenschist	(A)
62	"	<0.1	"						"	"	
63	Greenstone	0.2	"						"	"	Fractured
64	Greenstone Breccia	.02	"					1mm	"	"	(A)
65	Greenstone	0.2	"						"	"	"
66	Greenstone Breccia	0.2	"					1mm	"	"	"
67	Limestone?	0.2	"						"	"	"
68	"	0.15	"						"	"	"
69	Chert nodule	0.3	"						"	"	"
70	Cobble	0.8	"						L		(R)
71	"	0.9	"						L		(R)
72	Greenstone	2.0	"						L	Greenschist	Foliated; (A)

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 56 DREDGE \_\_\_\_\_ DESCRIBED BY M.F. & A.L. DATE 4/1/80

Sample #	Lithology	kg. Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
	28 Plagioclase and most contain quench glass.										
1	Basalt	6.0	A		1 pl; ol trace	<1			L		Angular, glass
2	"	7.0	"		"	<1			"		"
3	"	3.0	"		3 pl	<1			"		"
4)	2 pieces same	0.3	"		3 pl	<1			"		"
5)	rock										
6	"	0.4	"		2 pl	<1			"		" No glass
7	"	0.5	"		2 pl	<1			"		" "
8	"	1.5	"		<1 pl	<1			"		" Glass
9	"	1.2	"		" pl	<1			"		" "
10	"	1.0	"		1 pl	<1			"		" "
11	"	0.5	"		<1 pl	<1			"		" "
12	"	0.6	"		3 pl	<1			"		" No glass
13 )	Pieces of the	1.7	"		<1 pl	2			"		" Glass
14 )	same basalt										
15	"	0.3	"		<2 pl	<1			"		" "



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 57 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. DATE 29/3/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	aphyric basalt	0.6	A			1%			L		pillow/tube fragments; thick glass rind
2	"	0.9	"			"			"		"
3	"	0.5	"			"			"		"
4	"	0.5	"			"			"		"
5	"	1.0	"			"			"		"
6	"	0.5	"			"			"		"
7	"	0.4	"			"			"		"
8	"	0.3	"			"			"		"
9	"	0.7	"			<1%		<1mm	"		"
10	Basalts 10-34 are massive or pillow basalts. Sparse glass occurs as noted finely phyrlic basalt	1kg	A		ol <1%, pl <1%	<1%			L		thin glass rind; (Angular)
11	"	1.0	"		"	"			"		(A)
12	"	1.2	"		"	"			"		glass; (A)
13	"	0.7	"		"	"		<1mm	"		(A)
14	"	0.9	"		"	"			"		glass; (A)
15	"	1.5	"		"	<1%			"		(A)
16	"	0.7	"		"	"			"		(A)

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 57 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. DATE 30/3/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17	finely phytic basalt	2.0	A		ol <1%, pl <1%				L		glass; (A)
18	"	1.3	"		"	<1%			"		(A)
19	"	1.5	"		"				"		glass; (A)
20	"	0.8	"		"				"		"
21	"	1.5	"		"	<1%			"		"
22	"	0.6	"		"	"			"		(A)
23	"	1.1	"		"	"			"		glass; (A)
24	"	1.8	"		"	"			"		(A)
25	"	1.3	"		"	"			"		glass; (A)
26	"	1.4	"		"	"			"		"
27	"	0.3	"		"	"			"		(A)
28	"	1.0	"		"	"			"		glass; (A)
29	"	1.4	"		"				"		glass/palagonite; (A)
30	"	1.5	"		"				"		(A)
31	"	1.0	"		"	<1%			"		"
32	"	2.0	"		"	"			"		glass; (A)
33	"	0.5	"		"	"			"		"
34	"	0.7	"		"	"			<2mm		"

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 58 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/1/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	oxides	.25	A	various oxides				?	?		
2	basalt	.1	"		10% Pg, <1% O1	10%	<1%		F		slightly rounded possible volc. bomb
3	"	.05	"		3% Pg, <1% O1	4%			L		"
4	"	1.3	"		4% Pg	7%			L/M		"
5	"	.1	"		3% Pg	6%		<.1	"		"
6	"	.1	"		2% Pg	10%		<.1	F		"
7	"	.1	"		4% Pg, 1% O1	10%			L		"
8	"	.1	"		<1% Pg	6%			"		"
9	augen gneiss	.12	F-C	Pg-Px-O1				<.1	"		highly deformed gabbro
10	dolerite	5	F					<.1	"		altered diabase
11	basalt	.5	A					<.1	M		
12	pillow basalt	.6	"		tr O1			.1	"		a little fresh glass left
13	basalt	.25	"			2%		<.1	"		
14	"	.1	"		tr O1			<.1	"		
15	pillow basalt	1	"					"	"		no glass left on chill zone
16	basalt	1.5	"			<1%		1.0	"		
17	"	1.5	F					<.1	"		
18	"	2	F		tr O1		3%	.1	M/H		

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 58 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/1/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19	Greenstone	3	F					.1	M	Greenschist	Pink Yellowish grey color
20	"	4.5	F					.1	"	"	"
21	"	4.0	F		3% pseudomorphs after Pg + O1			.3	"	"	"
22	"	1.5	F					.1	M/ H	"	Yellow color
23	"	1.5	F					.1	L	"	Altered pillow basalt
24	"	1	F					.1	"	"	
25	"	.7	A					.1	"	"	Altered pillow basalt
26	"	.8	A					.1	"	"	"
27	"	1.3	F					.1	"	"	
28	"	3	F					.1	"	"	Partially brecciated
29	"	.8	F					.1	"	"	"
30	"	.5	F					.1	"	"	
31	"	.15	F					.1	"	"	
32	"	.5	F					.1	"	"	
33	"	.4	F					.2	"	"	
34	"	.3	F					.2	"	"	
35	"	.15	F					<.1	"	"	
36	"	.15	F					.1	"	"	





WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 58 DREDGE \_\_\_\_\_ DESCRIBED BY \_\_\_\_\_ H.D. DATE 4/1/80 -137-

Sample #	Lithology	Wt.	G.S.	Minerology	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
51	Soapstone	2	A	talc				<.1	F	Greenschist	Pseudomorphing serpentinite
52	"	2	"	"				.3	"	"	"
53	"	1	"	"				<.1	"	"	Pseudomorphed crosscutting picrolite vein in pseud_serp
54	"	.25	"	"				.1	"	"	
55	Picrolite serpentine vein in soapstone	.1	"	Lizardite? & Talc				.1	"	"	Picrolite vein highly deformed
56	Soapstone	.1	"	Talc				.1	"	"	
57	Soapstone with tremolite vein	.1	F-M	Talc, tremolite Chlorite				.1	"	"	
58	Meta Serpentinite	.8	M-C	Talc, tremolite Antigorite				.1	"	"	
59	Tremolite nodule	.4	"	Talc rimmed massive tremolite				.1	"	"	Nodule shaped
60	Meta Serpentinite	.4	"	Asbestos-chrysotile? vein, partially altered to talc after serpentinite				.1	"	"	
61	Meta-Peridotite	.4	F-C	Serpentine? & Tremolite, talc				.1	"	"	Nodule rimmed with talc
62	"	.15	"	Talc, serpentine & tremolite				.3	"	"	
63	"	.4	"	Talc & tremolite				.1	"	"	Tremolite nodule in talc
64	Tremolite vein in talc	.05	"	Tremolite, talc Chlorite				.1	"	"	
65	Meta-Peridotite	.6	"	"				.3	"	"	
66	"	.1	"	Talc, chlorite tremolite & Others				.1	"	"	
67	Rodingite in soapstone	.8	"	Calc-silicates & Talc				-	"	"	5cm thick Rodingite

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 58 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/1/80

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
68	Meta-Peridotite	.03	F-C	Tremolite & Talc				.1	L	Greenschist	
69	"	.03	"	"				"	"	"	
70	Soapstone, Greenstone contact	.15	"	Talc & Meta Basalt				"	"	"	3cm basalt frag. in contact with soapstone
71	Rodingite in soapstone	.15	"	Talc with cross-cutting calc-silicate vein				"	"	"	3cm thick calc-silicate vein
72	Soapstone	.10	"	Talc				"	"	"	Massive soapstone with pseudomorphed serpentinite texture
73	"	.15	"	"				-	"	"	Massive soapstone pseudomorphing peridotite & cross-cutting serp. vein
74	"	.10	"	"				.1	"	"	Massive soapstone pseudomorphing serpentinite
75	"	.10	"	"				"	"	"	"
76	"	.12	"	"				"	"	"	"
77	"	.10	"	"				"	"	"	Massive soapstone pseudomorphing sheared serp.
78	"	.12	"	"				"	"	"	Massive soapstone pseudomorphing serpentinite
79	"	.80	"	"				"	"	"	"
80	"	1.10	"	"				"	"	"	"
81	"	.80	"	"				"	"	"	"
82	"	.25	"	"				"	"	"	"
83	"	.10	"	"				"	"	"	"
84	"	.08	"	"				"	"	"	"
85	"	.25	"	"				"	"	"	"

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 58 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/1/80 -139-

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
86	Soapstone	.85	F-C	Talc				.1	L	Greenschist	Pseudomorphed serpentinite shear polyhedra
87	"	.15	"	Talc and some tremolite.				"	"	"	Pseudomorphed serpentinite texture
88	"	.25	"	Talc				"	"	"	"
89	"	.05	"	"				"	"	"	"
90	"	.02	"	"				"	"	"	"
91	"	"	"	"				"	"	"	"
92	"	.10	"	"				"	"	"	"
93	"	.65	"	"				"	"	"	"
94	"	.60	"	"				"	"	"	"
95	"	.80	"	"				"	"	"	" " sheared serpentinite texture
96	"	2.00	"	Talc/chlorite & tremolite in crosscutting vein				"	"	"	Pseudomorphed serpentinite with cross-cutting hydrothermal vein
97	"	.60	"	Talc				"	"	"	Pseudomorphed serpentinite
98	"	1.00	"	"				"	"	"	Pseudomorphed serpentinite block with pseudomorphed marginal micro lite vein. Pseudomorphed serpentinite
99	"	.08	"	"				"	"	"	"
100	"	.05	"	"				"	"	"	"
101	"	.20	"	"				"	"	"	"
102	"	.35	"	"				"	"	"	Pseudomorphed peridotite & cross-cutting serpentinite
103	"	.05	"	"				"	"	"	Pseudomorphed partially serpentinitized harzburgite with pseudomorphed pyroxene

WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-6 STATION 58 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/1/80

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Sample #	Lithology	Wt.	G. S.	Minerology	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
104	Soapstone	.20	F-C	Talc				.1	L	Greenschist	pseudomorphed partially ser- pentinized harzburgite with pseudomorphed pyroxene
105	"	.30	"	"				"	"	"	"
106	"	.30	"	"				"	"	"	"
107	"	.10	"	"				"	"	"	"
108	"	.10	"	"				"	"	"	"
109	"	.15	"	"				"	"	"	"
110	"		"	"				"	"	"	"
111	"	.02	"	"				"	"	"	"
112	"	.75	"	"				"	"	"	"
113	"	.06	"	"				"	"	"	pseudomorphed hydrotherm- ally altered peridotite
114	"	.70	"	"				"	"	"	pseudomorphed partially serpentinized harzburgite with mesh texture & bastite
115	"	.30	"	"				"	"	"	"
116	"	.40	"	"				"	"	"	"
117	"	.40	"	"				"	"	"	"
118	"	.10	"	"				"	"	"	"
119	"	.40	"	"				"	"	"	"
120	"	.12	"	"				"	"	"	"
121	"	.40	"	"				"	"	"	"



**WHOI ROCK SAMPLE DESCRIPTION**

CRUISE ALL 107-6 STATION 59 DREDGE \_\_\_\_\_ DESCRIBED BY RLF DATE 29 March 80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
59-1	Gabbro equigranular	1.0 Kg.	M	Pg 25, Px 75			<<1		F		Very fresh
-2	"	0.4	M	"			"		L		Rim weathering to 5-7 mm
-3	Gabbro	0.25	M	"			"		F		
-4	Leucogabbro (anorthositic)	0.8	C	Pg 60, Px 40			<1		L		
-5	Gabbro	1.5	M-C	Pg 40, Px 60			<<1		L	Px → Amph	Zoning or rudimentary layering
-6	Banded: anorthositic-anorthositic gabbro	0.5	M	Phase A: pg > 95 Phase B: Pg 60, Px 40			"		F	Slight Px → Amph	
-7	Leucogabbro (anorthositic)	0.6	M-C	Pg 60-70 Px 40-30			"		F	"	
-8	Gabbro	0.5	M	Pg 50, Px 50			"		L	Px → Amph	Oxidation spots
-9	"	0.5	M	Pg 30, Px 70			"		L-M	"	
-10	"	0.5	F-M	Pg 20, Px 80			"		M	"	
-11	"	1.0	C	Pg 30, Px 70			"		M	"	Iron stains
-12	Gabbro Equigranular	0.4	F-M	Pg 30, Px 70			"		L	"	"
-13	Gabbro	0.4	M	Pg 30, Px 70			"		L-M	"	Pitted, resembles 9
-14	Gabbro (leucogabbro ?)	0.25	M-C	Pg 40, Px 60			0		L-M	"	
-15	Basalt	0.2	A				<<1		L	"	
-16	Microgabbro	0.5	F	Pg 50, Px 50			<1		F		Pale gray; equigranular
-17	Diabase	0.5	F	Pg 20, Px 80			<<1		L	Px → Amph	Pale gray; equigranular discolored rim



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 60 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/3/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn mm	We	Alteration	Remarks
1	peridotite mylonite	0.8	A	olivine, opx, sp, + cpx				.1	L/M	4% serpentine	cross cutting carbonate vein; similar type folding
2	"	3.0	"	"				"	L/H	6%	foliation well developed almost slaty; opx augen
3	"	3.5	"	"				.2	"	6%	"
4	"	7.0	"	olivine, sp, rare opx, augen				"	L/F	3%	flasure structure
5	peridotite mylon. w/crosscutting	9.0	"	olivine, sp, calc - silicates in vein				.3	"	7%	folded with brachiating rodingite
6	rodingite	3.0	"	olivine, sp., rare opx, augen				.2	"	4%	"
7	peridotite mylonite	0.35	"	"				.1	H/M	6%	"
8	peridotite x-cut by rodingite	1.2	A-C	olivine, sp, bastite				.2	"	10%	ol. appears fresh; enst → lizard. or talc
9	peridotite mylonite	.1	A	olivine, sp				.2	"	30%	unserp. portion heavily weathered
10	"	.12	A-M	olivine, sp?				.2	H/F	10%	near slaty foliation
11	with rodingite	.14	A	"				.1	H/M	8%	"
12	"	.25	"	olivine, enstatite, augen, sp.				.1	H/L	3%	"
13	"	.06	"	-				.2	M	30% - 80%	"
14	"	.15	"	olivine + ?				.1	H/L	25%	core of fresh peridotite enclosed in serp.
15	"	.20	"	"				.1	M/H	45%	flasure structure
16	"	.30	"	"				.1	L/M	15%	"
17	"	.25	"	"				.1	"	20%	"
18	"	.70	"	"				.1	"	30%	"



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 60 DREDGE \_\_\_\_\_ DESCRIBED BY H. Dick DATE 4/3/80

Sample #	Lithology	Wt. kg	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn mm	We	Alteration	Remarks
19	peridotite mylonite	.13	A	ol + ?				.1	M/H	30% serpent.	flasure structure weathered core enclosed in serp.
20	"	.09	A	ol + px + sp				.1	M	75% "	
21	"	.18	A	"				1.1	H/L	3% "	enst → bastite?
22	"	.30	A	ol + ?				.3	H	40% "	
23	"	.07	A	ol + px				.1	H/M	25% "	enst → bastite?
24	"	"	A	"				.1	H/L	20% "	
25	"	"	A	"				.2	H/M	15% "	
26	"	1.50	A	ol + px augen				3.0	H	40% "	with pyroxenite layer
27	"	.09	A	"					H	40% "	
28	"	"	A	"					M	100% "	
29	"	"	A	"					H	50% "	
30	"	.10	A	"					H	65% "	
31	"	.80	A	ol + ?				.2	H	60% "	
32	"	.70	A	"				.2	H	" "	
33	"	.30	A	"				.2	H	" "	
34	"	.70	A	ol + px				.2	M	40% "	
35	"	1.2	A	?					M/H	100% "	
36	"	.15	A	"					M/H	97% "	

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 60 DREDGE \_\_\_\_\_ DESCRIBED BY \_\_\_\_\_ H.D. \_\_\_\_\_ DATE 4/3/80

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am mm	Mn	We	Alteration	Remarks
37	harzburgite mylonite	.25	F-M	ol + opx				.2	M	97% serp.	
38	"	0.08	A-M	"				1.0	M	100% "	
39	"	3.00	A-M	"				.2	M	" "	
40	"	.10	A-M	"				.2	M	" "	
41	"	.15	A-C	"				.1	M/H	90% "	compositional layering
42	"	.15	"	"				.1	M	97% "	
43	"	.08	"	"				.1	M/H	100% "	
44	"	2.00	A-M	"				.1	H/L	30% "	enst → bastite
45	"	0.12	A-M	"				.2	H/L	15% "	enst → talc?
46	"	0.10	"	"				.1	H/L	" "	" "
47	"	0.08	"	"				.1	M/L	20% "	" "
48	"	1.00	"	ol + opx + cpx + sp				<.1	M	85% "	clay breccia
49	"	0.10	"	"				3.0	M/H	95% "	
50	"	0.35	"	"				.1	H/L	12% "	enst → talc?
51	"	0.35	"	"				.4	H	50% "	
52	"	0.35	"	"				.3	H/L	40% "	flasure structure
53	"	0.10	"	"				.1	H	" "	
54	"	0.12	"	"				.1	H	45% "	

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 60 DREDGE \_\_\_\_\_ DESCRIBED BY \_\_\_\_\_ H.D. \_\_\_\_\_ DATE 4/3/80

Sample #	Lithology	Wt. kg	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
55	harzburgite	0.10	M	ol + opx + cpx + sp				.1	H	50% serp.	px → bastite
56	"	0.30	M	"				.3	H	"	"
57	"	0.30	M	"				.3	H	40%	"
58	"	1.8	M	"				.3	H/L	35%	px → talc?
59	"	0.15	M	"				-	H	"	px → bastite
60	"	0.15	M	"				.5	H	50%	"
61	"	0.20	M	"				.2	H	"	"
62	"	0.70	M	"				.5	H/M	"	"
63	"	0.40	M	"				.2	M/H	"	px → talc or serp.
64	"	0.06	M	"				.2	H	40%	px → bastite
65	"	0.06	M	"				.1	H/M	50%	"
66	indurated clay?	0.30	A	?				.4	?	"	"
67	durite?	0.15	A	ol + ?				.3	H	20%	"
94	Sample 69 through 93 are gabbros, basalts and gneisses listed in following pages pseudotite mylon.	0.65	A-M	ol, a few opx auger, sp.				.1	H/L	10%	"
95	"	3.8	A-C	ol + opx + cpx + sp				.2	M	85%	"

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 60 DREDGE \_\_\_\_\_ DESCRIBED BY M.F. & A.L. DATE 3/4/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
69	granite	kg 0.5	C	fsp,qtz,pl,biot	-				L		cobble erratic
70	granite	0.5	C	fsp,qtz,mica	-						
71	granite gneiss	0.2	C	fsp,mica,qtz	-				L		well banded
72	diabase	1.1	F	plag+FeMg minerals	-				L		angular (A)
73	"	0.3	F		-				L		subangular (SA)
74	"	0.8	F		-				L		(SA)
75	"	0.3	F	plag + cpx?	-				L		(SA)
76	"	2.0	F		pl < 1%, cpx?, alt. ol.?				L		red mineral app. alt. ol.
77	basalt	0.1	A		-				L/M		baked red; (A)
78	"	0.4	A		-				"		"
79	"	0.2	A		-				"		"
80	"	0.2	A		-				"		"
81	"	0.3	A		-				"		"
82	"	0.2	A		-				"		(A)
83	"	0.3	A		-	< 1%			M/H		(A)
84	"	0.3	A		-				"		(A)
85	mudstone	0.5	A		-						(SA)
86	basalt	0.4	A		alt. ol < 1%				M/L		(SA)



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 61 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/4/80

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am Mn	We	Alteration	Remarks
1	harzburgite	5.0	C	clay after partially serpentinized	harzburgite		.3 mm	H	clay ~100%	porphyroclastic texture
2	"	.40	"	"	"		<.1	"	"	"
3	"	.11	"	"	"		.1	"	"	"
4	"	.45	"	"	"		.1	"	"	"
5	harzburgite mylonite	.65	A-C	"	enstatite augen		.2	"	"	porphyroclastic → mylonitic texture
6	"	.35	"	"	"		.2	"	"	"
7	"	.07	"	"	stretched enstatite augen		.1	"	"	"
8	"	.20	"	"	enstatite augen		.1	"	"	"
9	"	.35	"	"	"		.1	"	"	"
10	harzburgite	2.0	"	"	"		.1	"	clay ~100%	porphyroclastic text.
11	"	2.5	"	"	"		.2 L/H	"	"	porphyroclastic → mylon. text; some fresh harz.!
12	"	2.5	"	"	"		.1 H	"	"	porphyroclastic → mylonitic texture
13	"	3.2	"	+ spinel	"		.1	"	"	mylonitic texture
14	"	4.2	"	"	"		.1	"	"	"
15	"	.12	"	"	"		.1	"	"	porphyroclastic → mylonitic text.
16	"	.10	"	+ spinel	"		3.0	"	"	"
17	"	.10	"	"	"		.1	"	"	"
18	"	.12	"	+ spinel	"		.1	"	"	"

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 61 DREDGE \_\_\_\_\_ DESCRIBED BY H. D. DATE 4/4/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19	harzburgite	.06	A-C	relict enst, ol, sp, serp.				<.1	H	clay ~100%	porphyroclastic → mylonitic
20	"	.10	"	"			"	"	"	serpentine + clay ~65%	"
21	"	.15	"	"			"	"	"	"	"
22	"	.10	"	relict primary enst, serp, ol??			"	"	"	clay ~85%	"
23	"	.20	"	primary enst. preserved			"	"	"	"	"
24	"	.10	"				"	"	"	clay ~100%	"
25	"	.12	"				"	"	"	"	"
26	"	.13	"				"	"	"	"	"
27	harzburgite mylonite	.30	"	enst, cpx, ol? sp, serpent.			.2	M	M	originally 80% serp., now ~45% clay?	mylonitic
28	"	.10	"				.1	H	H	clay ~100%	"
29	"	.08	"	primary enst			<.1	M	M	~50% serp. now partially → clay	"
30	"	.08	"	partially serpentinized harzburgite altered nearly ent. to clay			.1	H	H	~100% clay	"
31	"	.10	"	"			-	"	"	"	"
32	"	.20	"	"			<.1	"	"	"	"
33	"	.30	"	"			.1	M/H	M/H	40% serp? 40% clay?	"
34	"	.40	"	"			.1	"	"	"	"
35	"	.70	"	"			.1	"	"	originally ~50% serp. now 60% clay	"
36	"	.08	"	"			<.1	H	H	~100% clay	"

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 61 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/4/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
37	harzburgite	.10	A-C	partially serpentized harzburgite altered to indurated clay				~.1	H	~100% clay	porphyroclastic texture
38	harzburgite mylonite	.65	"	"	"			.2	"	"	mylonitic text.
39	"	.90	"	"	"			.2	"	~90% clay	"
40	"	.20	"	"	"			.1	"	~95% clay	"
41	"	.80	"	"	"			.3	"	~90% clay	porphyroclastic → mylonitic
42	"	.80	"	"	"			.1	"	~100% clay	"
43	"	.80	"	"	"			.2	"	"	mylonitic
44	"	.85	"	"	"			.2	"	~99% clay	"
45	"	.30	"	"	"			.2	"	~95% clay	1-3mm enst. preserved porphyroclastic
46	"	.30	"	"	"			"	"	~100% clay	porphyroclastic
47	"	.40	"	"	"			"	"	85% clay 15% serp.	porphyroclastic x-cutting aragonite veins
48	"	.20	"	"	"			.1	"	~90% clay ~100% serp.	-
49	"	.08	"	"	"			"	"	~100% clay	mylonitic
50	"	.10	"	"	"			"	"	"	porphyroclastic
51	"	1.3	"	"	"			"	"	"	porphyroclastic → mylonitic text.
52	"	.15	"	"	"			.1	"	"	"
53	"	.10	"	"	"			.1	"	80% clay 15% serp.	primary enst. porphyroclastic text.
54	"	.80	"	"	"			.1	"	~100% clay	porphyroclastic mylonitic texture



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 61 DREDGE \_\_\_\_\_ DESCRIBED BY \_\_\_\_\_ DATE 4/4/80 H.D. \_\_\_\_\_

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
55	harzburgite	.14	A-C	partially serp. altered to clay	harzburgite			.1	H	85% clay	porphyroclastic text.
56	"	.14	"	"	"			.1	H	100% clay	porphyroclastic → mylonitic text.
57	"	.08	"	"	"			.1	M/H	60%? rest serpent?	"
58	"	.08	"	"	"			.1	H	60% clay 37% serp.	1.5cm enst. preserved porphyroclastic
59	"	.09	"	"	"			.1	"	50% clay 30% serp.	primary enst.; porphyroclastic text.
60	"	.09	"	"	"			.1	"	95% clay	"
61	"	.10	"	"	"			.2	"	100% clay	porphyroclastic texture
62	"	.08	"	"	"			.1	"	"	"
63	"	.40	"	"	"			.1	"	65% clay 30% serp.	primary enst.; porphyroclastic text.
64	peridotite	.12	"	partially serpen. with rodingite veins → clay				.1	"	90% clay	?
65	harzburgite	.04	"	partially serp altered to clay	harzburgite			<.1	"	100% clay	porphyroclastic text.
66	"	.08	"	"	"			.1	"	"	"
67	"	.12	"	"	"			.1	"	"	"
68	"	.03	"	"	"			.1	"	"	"
69	"	.20	"	"	"			.1	"	"	"
70	"	.10	"	"	"			.1	M/H	60% clay 35% serp.	primary enst.; porphyroclastic text.
71	"	.25	"	"	"			.2	M/H	"	"
72	"	.25	"	"	"			.2	VH	clay.	"

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AI1 107-6 STATION 61 DREDGE \_\_\_\_\_ DESCRIBED BY \_\_\_\_\_ H.D. \_\_\_\_\_ DATE 4/4/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
73	harzburgite	.20	A-C	ol, enst, cpx, spinel				<.1	H/L	20% serpentine	
74	"	.40	"	"				<.1	L	3%	
75	"	.25	"	"				<.1	H/L	10%	
76	"	.20	"	"				<.1	"	"	
77	peridotite mylonite	.07	A	ol + sp	rare enst.augen			<.1	"	4%	
78	harzburgite	1.0	A-C	ol + opx augen + sp + cpx augen				<.1	M/F	2%	
79	"	0.55	"	"				<.1	H/L	10%	
80	"	0.35	"	"				.1	"	7%	
81	"	0.11	"	"				.1	"	10%	
82	"	0.25	"	"				.1	"	3%	
83	"	0.90	"	"				.1	"	"	
84	"	0.15	"	"				<.1	"	"	
86	"	0.10	"	"				.1	"	"	
87	"	0.09	"	"				.1	M/L	5% serpentine	
88	"	0.15	"	"				<.1	M/H	60% clay 30% serp.	
89	peridotite mylonite	3	A	ol + ?				-	M/L	Serpentine block with 5 to 4 cm wide cores of fresh peridotite, transition sharp	
90	"	0.90	"	"				-	"	Blocks cut by several generations of serpentine + covered by lizardite + chrysotile	
91	"	0.15	"	"				.1	"	asbestos → talc mylon. texture	



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 63 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/4/80

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	basalt	kg .30	F-M	pg +				.2	M		
2	"	.25	A-F					.1	M/H	lower greenschist	
3	"	.08	"						M	"	
4	"	.09	"						"	"	red oxidized basalt
5	pillow basalt	.40	A					.2	M/H	"	red oxidized basalt; glassy rind → green clay; qtz.epi-dote veins
6	"	.12	"					4.1	"	"	"
7	"	.25	"					"	"	"	"
8	basalt	.10	"					"	"	"	red oxidized basalt
9	"	.15	"					"	H	"	qtz veins; red-green oxidized basalt
10	"	.18	"					"	M/H	"	"
11	pillow basalt	.12	"					"	"	"	"
12	basalt	.25	"					"	"	"	"
13	"	.75	"					"	H	"	brecciated; qtz, chlor., epid. veins; red-green rock
14	"	.40	"					"	"	"	"
15	pillow basalt	.40	"					"	"	"	"
16	basalt	.15	"					"	"	lower green-schist/zeolite	red oxidized bas. w/white carbonate or zeolite veins
17	basalt breccia	.20	"					"	"	"	red oxidized clay? matrix-indurated
18	breccia	.20	"					"	"	"	peridotite fragments in white clay

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 63 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/4/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19	harzburgite	kg 1.0	C	ol, opx, cpx, sp				.1 mm	M	10% serpent.	porphyroclastic texture
20	peridotite mylonite	0.17	M-A	ol + ?				.2	H	50% "	mylonite with near slaty cleavage
21	harzburgite	0.09	A-C	ol, opx, cpx sp				.2	"	25% "	porphyroclastic texture
22	serpentinite	0.13	"	ol + ?				<.1	L	100%?	
23	rodingite with serpentinite	0.12	?	ol, + calc silicates				"	"	90% "	5 cm thick rodingite
24	harzburgite	0.25	C	ol, opx, cpx, sp				.3	M/H	50% "	porphyroclastic texture
25	"	0.15	"	"				<.1	"	85% "	"
26	"	0.08	M-C	"				.2	H	35% "	porphyroclastic texture /mylonite
27	"	0.10	"	"				.2	"	" "	"
28	"	1.2	C	"				.3	M	50% "	porphyroclastic texture
29	"	0.25	"	"				.1	"	65% "	"
30	"	1.4	"	"				.4	M/H	70% "	"
31	harzburgite with orthopyroxenite	2.2	"	"				.2	H*	35% "	porphyroclastic texture with 1cm thick oxpenite lay.
32	peridotite mylonite	1.8	A-C	"?				.3	"	65% "	myl nitic texture
33	harzburgite	0.15	"	"				.3	"	50% "	porphyroclastic texture
34	volc. bomb	0.15	A		10% plagioclase			<.1	L		
35	sandstone	0.18	M	qtz, feldspar lithic fragments	mud chips			.1	"		erratic
36	"	0.25	"	"				"	"		glacially striated + grooved pebble

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 64 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. DATE 3/29/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	porph. basalt	kg 3.0	A	-	pl < 10%			1mm	L		large, angular, black

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 65 DREDGE DESCRIBED BY M.F. & A.L. DATE 6/4/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	diabase	kg 1.2	F	pl, cpx, ol				mm 1	L		Subrounded (SR)
2	glaucanite? sandstone	0.4	M	qtz, glaucanite				8	L		Angular (A)
3	basalt	1.0	F		pl <1%	<1%	<1%	10	L		(A)
4	"	0.4	F		pl <1%, cpx?	"	"	"	L		(A)
5	"	0.7	F		pl <1%	"	"	"	L/M		(A)
6	"	0.2	A						L		(A)
7	"	0.2	A		pl <1%	<1%		10	L		Rounded (R)
8	breccia	1.2						"			basalt frag. cemented by Mn oxide
9	basalt	0.1	A		pl <1%	?		2			volcanic bomb?
10	breccia	1.6						10			basalt frag. cemented by Mn oxide
11	basalt	0.7	M	pl	pl 20%, ol <1%	2	2%	5	L/M		encrusted by Mn; (R)
12	"	0.6	M	pl	pl 50%, cpx, ol	<1%	1%	12	M		(R)
13	"	0.2	A		pl <2%	20%			L		scoriaceous
14	"	0.1	A			40%			L		volcanic bomb
15	"	0.2	A		pl 20%, ol	5-10%			L		"
16	"	0.3	A						L		pillow?
17	"	0.3	A						H		(R)
18	agglomerate	0.2	A		lithic fragments				L/M		(SR)

WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-6 STATION 65 DREDGE \_\_\_\_\_ DESCRIBED BY M.F. & A.L. DATE 6/4/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19	basalt	kg 0.2	A		pl? (1%)	10%		mm	L		rounded (R)
20	"	0.2	"		"	"			"		(R)
21	"	2.0	"		pl 1%	5%			"		(R)
22-28	breccia	1.4									uncut; mn
29	"	0.9						10			Mn encrustation
30	basalt	0.2	A								uncut (R)
31	greenstone	0.2	"							greenschist	angular (A)
32	basalt? cobble	0.2	"								cobble (R)
33	"	0.2	"								subrounded (SR)
34	breccia	0.2									mudstone breccia
35	hbl/diorite	1.0	F		hbl 5%				L		erratic (SR)
36	conglomerate	1.0	M		lithic fragments				"		"
37	diorite	2.0	F		pl 2%				"		(SA)
38	conglomerate?	0.2	M		pl, qtz, lithic fragments				"		flat slab (A)
39	gneiss	0.2	C	fsp (mica) (hbl) qtz					3		(A)
40	sandstone	0.2	M	qtz					5		(SA)
41	granite	0.4	C	fsp, qtz, pl					5		(SR)
42	"	0.4	"	"					3		(R)





WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 66 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. DATE 4/4/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn mm	We	Alteration	Remarks
1	aphyric basalt	0.4	A					2	L		heavy mn crusting; angular (A)
2	"	0.3	A					<<1	L		pillow fragment; (A)
3	"	0.3	A					<1	L		"
4	"	0.6	A					<1	L		(A)
5	"	0.4	A			<1%		1	L		pillow frag; (A)
6	"	1.5	A						L		(A)
7	"	0.3	A			<1%		2	L		heavy mn coat; (A)
8	"	0.3	A					<1	L		(A)
9	"	0.3	A			<1%		<1	L		(A)
10	"	0.2	A			<1%		<1	L		pillow frag.; (A)
11	"	0.3	A					3	L		heavy mn coat; (A)
12	"	0.4	A			<1%			L		(A)
13	"	0.7	A					2	L		pillow frag.; (A)
14	"	0.3	A			<1%			L		"
15	"	0.25	A					1.5	L		heavy mn coat; (A)
16	"	0.4	A			<1%		<1	L		pillow frag.; (A)
17	"	0.5	A			<1%		1-2	L		"
18	"	0.9	A					1-2	L		"

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 66 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. DATE 5/4/80

Sample #	Lithology	Wt. kg	G.S.	Mineralogy	Phenocrysts	Ve	Am mm	Mn	We	Alteration	Remarks
19	aphyric basalt	0.5	A			<1%			L		pillow frag; (A)
20	"	0.3	A			<1%		<1	L		"
21	"	0.35	A			1%		<1	L		(A)
22	"	0.4	A			1%		1	L/M		(A)
23	"	0.4	A					2	L/M		(A)
24	"	0.4	A			<1%		2	L		heavy mn; (A)
25	"	0.4	A					4	L/M		heavy mn coat; (A)
26	"	0.5	A					3	L/M		"
27	"	0.4	A					5	L		"
28	"	0.3	A			<1%		3-4	L		basalt fragments in the coat (R)
29	sparsely phyric basalt	0.4	A		p1 <1%	<1%		1-2	L		subrounded (SR)
30	aphyric basalt	0.35	A			<1%		10	L/M		basalt fragments in the mn coat; (SR)
31	sparsely phyric basalt	0.35	A		p1 <2%			20	L/M		(SR)
32	plag.phyric bas.	0.4	A		p1 <2%	<1%		<1% 4	L/M		basalt fragments in the mn coat; (SR)
33	basalt	0.3	A		p1 <2% cpx?			1	L		pillow frag.; (A)
34	"	0.25	A		p1 <1%	<1%			L		(A)
35	"	0.4	A		p1 <1%	<1%			L		glassy pillow frag.; (A)
36	"	0.35	A		p1 <1%	<1%		<1% 1	L		(A)

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 66 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. DATE 5/4/80

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
37	basalt	kg 0.4	A		p1 <1%	<1%		1	L		(SA)
38	"	0.25	A		"			1	L		(A)
39	"	0.4	A		"	<1%		<1	L		(A)
40	"	0.8	A		p1 3%, cpx <1%			2	L		(A)
41	"	0.5	A		p1 2%, cpx <1%				L		(A)
42	"	0.2	A		p1 <1%, ol?			2	L		(A)
43	"	0.35	A		p1 <1%	3%		<1	L		(A)
44	"	0.4	A		p1 1%			3	L		(SA)
45	"	0.35	A		"	1%		<1	L		pillow frag; glass; (A)
46	"	0.8	A		p1 <1%	1%		2	L		(SA)
47	"	0.4	A		p1 ~2%	<1%		<1	L		(SR)
48	"	0.8	A		p1 2%	2%		<1	L		pillow frag; glass; (A)
49	"	0.45	A		p1 3%	10%		<1	L		(A)
50	"	0.3	A		p1 2%			2	L		(A)
51	"	0.6	A		"	2%		1	L		glass; pillow frag; (A)
52	"	0.7	A		p1 4%			1	L		(A)
53	"	0.3	A		p1 10%	<1%			L		(A)
54	"	0.35	A		p1 15%	2%		<1	L		pillow frag; (A)

**WHOI ROCK SAMPLE DESCRIPTION**

CRUISE AII 107-6 STATION 66 DREDGE \_\_\_\_\_ DESCRIBED BY A.L. DATE 5/4/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
55	basalt	1.0	A		p1 5%	1%		<1	L		(A)
56	"	0.6	A		p1 5%, cpx <1%	1%		<1	L		(A)
57	"	0.4	A		p1 4%			2	L		(A)
58	"	0.4	A		p1 10%	3%		2	L		(A)
59	"	2.0	A		p1 3%			4	L/M		(R)
60	"	1.5	A		p1 40%	<1%		2	L/M		pillow frag; glass; (SA)
61	"	1.1	A		p1 30%			3	L/M		(SR)
62	"	1.3	A		p1 30% ol ?	3%		<1	L/M		(A)
63	"	0.5	A		p1 5%	<1%		1	L/M		veined/fractured; (A)
64	"	0.25	A		p1 5%	5%		<1	L		(A)
65	"	0.25	A		p1 15%	2%		<1	L		(A)
66	"	0.3	A		p1 10%			1	L		(A)
67	"	0.25	A		p1 8%				L/M		(A)
68	"	0.25	A		p1 40%	<1%		1	L/M		veined/fractured; (A)
69	"	1.8	A		p1 20%	1%		<1	L		(A)
70	"	1.8	A		p1 50%			2-3	M		(SA)
71	"	3	A		p1 40%	20%			L		(SR)
72	breccia	1.2	A					20	M		thick mm encrusting



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 67 DREDGE \_\_\_\_\_ DESCRIBED BY \_\_\_\_\_ H.D. \_\_\_\_\_ DATE 4/2/80 -167-

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	meta pillow basalt	1.4	F					.1 mm	M	lower greenschist?	heavily oxidized suggesting contact metamorphism of weathered basalt
2	"	.04	F-A					.1	M/H	"	altered pillow breccia
3	"	.04	F-A					<.1	M/H	"	pillow margin-altered
4	"	.05	A					.1	M/H	"	altered glass
5	"	.3	A-F					.2	M	"	altered pillow margin
6	"	.10	A-F					.1	M	"	altered pillow margin breccia
7	"	.05	A					.1	M	"	altered pillow margin
8	"	.11	A-F					.1	M/H	"	" "
9	"	.10	A					.1	M/H	"	altered pillow margin with carbonate veining
10	"	.3	A-F					.1	M	"	altered pillow margin
11	basalt breccia	.2	A-F					.1	M/H	"	smectite-chlorite matrix, discolored basalt chips
12	"	.4	A-F					.1	M/H	"	" "
13	"	.2	A-F					.1	M/H	"	" "
14	"	.5	A-F					<.1	M/H	"	brick red basalt, brecciated w/numerous carbonate rich veins
15	"	.6	A-F					<.1	M/H	"	" "
16	"	.25	A-F					<.1	M/H	"	" (qtz in veins)
17	"	.15	A-F	epidote,qtz, chlorite,calcite	basalt			<.1	M/H	greenschist	heavily altered basalt frag
18	"	.30	A-F	epidote,chlorite, qtz,carbonate				<.1	M/H	"	" "

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 67 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/2/80

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Sample #	Lithology	Wt. kg	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19	meta basalt	.30	F					.1M/H		greenschist	Heavily oxidized, red colored basalt w/qtz-chlor-epid veins
20	"	1.3	F					"	"	"	"
21	"	0.70	F					"	"	"	"
22	"	0.10	F					"	"	"	+ abundant chlorite? precciated basalt-discolored with abund. qtz-chlor-epid veins
23	greenstone	0.15	F					"	"	"	green + red metabasalt with abundant qtz-ep.-chlor veins
24	"	0.08	F					"	"	"	red basalt with thick chlorite vein
25	meta basalt	0.30	F					"	M	"	red oxidized metabasalt
26	"	0.45	F					"	"	"	"
27	"	0.12	F				3%	"	"	"	"
28	"	0.20	F					"	"	"	"
29	"	0.95	F					"	"	"	"
30	"	0.05	F					"	"	"	"
31	"	0.08	F					"	"	"	red oxidized metabasalt w/thick qtz-epidote-carbonate chlor.
32	"	0.75	F					"	"	"	brick red meta basalt
33	"	0.60	F					"	"	"	red black meta basalt
34	"	0.15	F					"	"	"	red oxidized meta basalt
35	"	0.15	F					"	"	"	red + greenish meta basalt
36	"	0.15	F					"	"	"	"



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 67 DREDGE \_\_\_\_\_ DESCRIBED BY \_\_\_\_\_ H.D. \_\_\_\_\_ DATE 4/2/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
37	meta basalt	0.45	F					.1	M	greenschist?	red oxidized meta basalt
38	"	0.40	F					<.1	M	"	redish oxidized basalt
39	"	0.05	F					"	M	"	red oxidized meta basalt
40	"	0.07	F					"	M	"	" "
41	"	0.60	F					.1	M	"	red-green meta basalt
42	"	1.80	F					"	M	"	" "
43	"	1.00	F					"	M	"	" with qtz vein
44	"	0.40	F					"	M	"	red oxidized meta basalt with qtz veins
45	"	0.20	F					<.1	M	"	" "
46	"	0.65	F					"	M	"	" "
47	"	0.10	F					"	M	"	yellow-red oxidized basalt with numerous qtz veins
48	"	0.10	F					"	M	"	reddish-brown meta basalt
49	"	0.15	F					"	M	"	reddish-green meta basalt
50	"	0.10	F					"	M	"	red oxidized meta basalt
51	"	0.09	F					"	M	"	" "
52	"	0.13	F					"	M	"	" "
53	"	0.18	F					"	M	"	red-brown meta basalt
54	"	0.11	F					"	M	"	red oxidized basalt surrounded by green altered glass (smectite?)

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-6 STATION 67 DREDGE \_\_\_\_\_ DESCRIBED BY H.D. DATE 4/2/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
55	meta basalt	kg 0.20	F					.1	M	greenschist?	reddish oxidized meta basalt
56	"	0.12	F-A					"	M	"	red oxidized basalt w/ brecciated margin with smectite?-chlor-qtz matrix
57	"	0.35	F					"	M	"	greenish to reddish meta-basalt
58	basalt	0.85	A					.2	L	?	dense black glassy basalt
59	meta basalt	0.09	F					<.1	L	greenschist	reddish-dark green meta basalt w/qtz-chlor veins
60	"	0.10	F					"	L	"	reddish to light green meta basalt w/qtz-chlor-epid veins
61	"	0.10	F					"	L	"	"
62	"	0.30	F					"	L	"	"
63	"	0.18	F-M					"	L	"	"
64	greenstone	0.08	F					"	L	"	dark green metabasalt w/ numerous qtz-epid-chlor veins
65	"	0.15	M					"	L	"	"
66	meta basalt	2.00	F-M					"	L	greenschist?	meta diabase?
67	chert-limestone nodule	0.12	F-A					"			highly irregular knobby surfaces, chert interior grading to limestone ext.
68	"	0.14	F-A					"			
69	sandstone	0.07	F						M		yellow sandstone
70	gneiss	0.08	F-M	qtz-bio					F	amphibolite	erratic?
71	meta peridotite	0.30	C	serpentine				.1	M		foliated, altered to dark chocolate brown numerous bastites
72	meta diabase	0.30	M	ab,chl,ep,qtz				"	M	greenschist	



**ATLANTIS 11-107-7**  
**DREDGE DESCRIPTIONS**

ATLANTIS II 107 LEG 7  
(MAP 2)

Leg 7 of cruise 107 on the R.V. ATLANTIS II was a joint expedition between the Woods Hole Oceanographic Institution and the University of Rhode Island to dredge along the Mid-Atlantic Ridge axis north and south of the Tristan da Cunha island group. This area is of interest in that it includes a confluence of geochemically different structural features at about 36°S. The island of Tristan da Cunha which, from its chemistry, appears to be derived from a rather unique oceanic mantle source, lies about 500 km east of the axis of the Mid-Atlantic Ridge. This island appears to be related, via a province of numerous seamounts, to the Walvis Ridge — a sinuous, offset, aseismic ridge that extends to the west coast of Africa at 18°S. However, the detailed geological and geochemical relationships between these three features — the Mid-Atlantic Ridge, Tristan da Cunha, and the Walvis Ridge — are unknown.

During previous cruises, samples have been obtained from the Walvis Ridge and Tristan da Cunha. The specific objective of cruise AII 107-7 was to dredge along the Mid-Atlantic Ridge north and south of Tristan da Cunha, in order to study any existent geochemical variations and to establish the lateral extent of mantle source heterogeneities associated with the island. In addition, a geological expedition on the island of Tristan da Cunha was planned to supplement the already existent collection of rocks; however, this had to be cancelled due to bad weather.

The cruise left Cape Town, South Africa, on 12 April, 1980 and arrived in Rio de Janeiro, Brazil on 16 May 1980. Co-chief scientists were Dr. Susan Humphris (WHOI) and Mr. Richard Kingsley (URI). Principal shipboard programs included dredging along the axis of the Mid-Atlantic Ridge, with

short (30-50 km) reconnaissance magnetic, 3.5 and 12 kHz bathymetric surveys in an attempt to delineate the median valley. Twenty-five dredging stations were completed under the direction of the co-chief scientists. In addition, ten hydrostations were carried out to collect bottom waters for helium isotope studies, which are being completed by Mr. Mark Kurz of WHOI.

The dredging program sampled several different ridge segments between 46° and 31°S. The median valley of the Ridge in this area proved to be ill-defined and the rift poorly developed, making positioning of the dredging stations in the rift valley very difficult. However, lightly to moderately weathered basalts were collected and glass was recovered in thirteen of the dredge hauls. Texturally, the basalts ranged from aphanitic to fine-grained and porphyritic, with plagioclase being the dominant phenocryst phase. Major, trace element, and isotopic analyses are currently being completed at WHOI and URI.

AII-107 LEG 7  
(April-May, 1980)

STA NO.	LOCATION	DEPTH RANGE (corr. M.)	GENERAL DESCRIPTION
2 Median Valley	46°12.7'S 14°04.4'W	2485- 2913	150 K light to moderately weathered, vesicular pillow basalts, largely aphyric, many have lightly weathered glassy rims; one piece dolerite 10K; erratics ~10K
4 Median Valley	42°54.9'S 16°22.2'W	3086- 2519	Light to moderately weathered basalts (>175K), generally aphyric and sparsely vesicular, weathered rims common, one piece metabasalt; 3 basalt breccias (3K); 3 serpentinites (4K)
6 Median Valley	41°14.9'S 16°36.2'W	2614- 2175	Lightly weathered pillow basalts, lava tubes, and glass, many showing flow structures, sparsely vesicular but many with plag. pheno (82 K); 1 meta-conglomerate (1.7 K); erratics (0.3K); assorted calcareous shells (>30K)
7 W. Wall Median Valley	40°26.3'S 16°45.0'W	2627- 2597	Slightly weathered, very glassy, vesicular pillow basalts with rare plag. phenocrysts (>390K)
9 W. Wall Median Valley (or F.Z.?)	39°41.8'S 16°03.2'W	2314- 2633	Serpentinite (29K); metabasalts (62K); moderately weathered basalts (6K); weathered basalt breccias (4K)
10 Median Valley	38°52.9'S 16°14.4'W	2384- 1954	One large aphyric, very glassy pillow basalt, very lightly weathered (>20K)
11 Median Valley	38°10.9'S 16°33.7'W	2490- 2209	Light and moderately weathered aphyric basalts, sparsely vesicular, with thick Mn crust (0.3K); Mn crusts (1.3K)

AII-107 Leg 7  
(April-May 1980) (continued)

STA NO.	LOCATION	DEPTH RANGE (corr. M.)	GENERAL DESCRIPTION
13 Median Valley	37°50.0'S 17°08.5'W	2723- 1885	Lightly weathered, vesicular glassy pillow basalts, with coarse plag. phenocrysts (>11 K); weathered porphyritic basalt breccia (1.5K)
14 Median Valley	37°11.2'S 17°30.9'W	2454- 2224	Lightly weathered, sparsely vesicular, porphyritic (plag. & rare ol.) basalts, moderate Mn coating, some glass exhibiting unusual flow structures (>350 K)
15 Median Valley	36°33.5'S 17°35.2'W	2683- 2434	Lightly weathered, sparsely vesicular, porphyritic (plag. & ol.) basalt, some with glass, variable Mn coating (235 K); basalt breccia (2.5K)
16 Median Valley	36°04.4'S 18°05.0'W	2623- 2284	Moderately weathered, porphyritic (plag. & ol.) basalts with thick Mn crusts (>25 K)
17 Median Valley	35°16.7'S 15°44.1'W	3638- 3135	Generally lightly weathered, porphyritic (plag & rare ol.) basalts with moderate Mn coating, some fresh glass (>300K)
18 Median Valley	34°33.2'S 15°08.8'W	2924- 2464	Generally lightly weathered basalt with plag. and rare ol. phenocrysts, glassy margins partly palagonitized, light Mn coating (>400 K)
20 Median Valley	33°42.8'S 14°15.0'W	2283- 1489	Moderate to heavily weathered porphyritic (plag. & ol.) basalts, palagonite on surface, and moderate Mn coating (31 K)
23 Median Valley	32°40.6'S 14°01.1'W	2634- 2087	Moderately weathered porphyritic basalts with weathered plag. & ol. phenocrysts, thick Mn crusts (7K)
25 Median Valley	31°50.0'S 13°34.7'W	2984- 2364	Light to moderately weathered porphyritic (plag. & rare ol.) basalts some with glass, moderate Mn on surface (44K)



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 2 DREDGE 2 DESCRIBED BY HUMPHRIS & KURZ DATE 23 Apr 80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
2-1	Basalt	1	A			10	1		L		
2-2	Basalt	5.5	A				5		L		
2-3	Basalt	1.3	A	Plag		10			L		Glass removed
2-4	Basalt	4.0	A	Plag		10	3		L		
2-5	Basalt	0.75	A	Plag		10	5		L		
2-6	Basalt	1.40	A			15	5	2	L		Filled fractures
2-7	Basalt	1.25	A	Plag		20	15	1	L		
2-8	Pillow basalt	1.05	A			5	2		L		Glass separate
2-9	Basalt	2.75	A		Occasional large plag (0.3 cm)	10	3		L		
2-10	Glacial erratic	1.0	F	Plag					L		Rounded edges with striations
2-11	Glacial erratic	4.25	C	Gabbroic?							
2-12	Basalt	4.5	F	Plag, weathered ol		5	5		M		Possible zeolites in vugs
2-13	Basalt	2.5	M	Plag & ol				<1	M		
2-14	Basalt	4.5	A	Plag; clay		20	5		L-M		Vesicular
2-15	Basalt	0.5	A	Occasional Plag phenx. weathered ol		10	8		L		
2-16	Basalt	1.8	F	Plag.	occasional plag	10	10		M		Vugs contain clay
2-17	Diorite	2.0	M	Plag	Plag				M		
2-18	Basalt	2.5	A	Plag	Occasional Small plag	10	5		L		

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE A11 STATION 107-7 DREDGE 2 DESCRIBED BY HUMPHRIS & KURZ DATE 4/23/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
2-19	Basalt	0.8	M	Plag		5	5		M		Possibly erratic
2-20	Basalt	2.5	F		Occasional large plag + 1 lg. ol	10	2		L		
2-21	Basalt	1.0	A			5	3		L-M		Weathered in patches
2-22	Basalt	2.0	F		Large plag	5	5		M		
2-23	Basalt	0.25	F	Plag		5	5		M		
2-24	Basalt	1.0	F		Occasional plag	10	5		M		Large vesicles > 1 mm
2-25	Basalt	.25	F		Small plag	3	3		L		Vesicles ~ 1 mm
2-26	Basalt	.5	F			1	5	mm	M		Outer rim is more altered
2-27	Basalt	.5	M	Olivine?					M		Possible erratic
2-28	Basalt	1.0	F		Large plag	2	10	30	M		Some glass present. Glass altering at exterior
2-29	Basalt	.3	F			5			L		Spherulites
2-30	Basalt	.1	F-G		uncut				M		Moderately glassy frags, partially altered
2-31-37	Basalt	1.5	F-G	Uncut lightly weathered pillow	fragments with					1-10 mm glass	hinds
2-38	Basalt	2.0	A		Occasional plag	10	3	5	L		Small amount of glass
2-39	Metamorphosed conglomerate	1.8	C							Metamorphosed	Erratic?
2-40	Erratic Layered metasediment	2.0	M	?	?						Light colored metamorphic erratic(?)
2-41		.25	F								
2-42	Basalt	1.5	A			10	3	1	L		Erratic?

WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-7 STATION 2 DREDGE 2 DESCRIBED BY HUMPHRIS & KURZ DATE 4/23/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
2-43	Basalt	2.0	A		Rare olivine	2			L		1 mm vesicles
2-44	Basalt	1.7	A		(1 cm) large olivine				M		
2-45	Basalt	1.6	A			2			M		Exterior altered
2-46	Basalt	2.7	F		Plag	5	2		M		Weathered rim
2-47	Basalt	1.8	F		Plag	5	2		M		Weathered rim
2-48	Basalt	.75	A			15			L		Weathered rim
2-49	Dolerite	>10	M		Occasional plag phen.				L		Weathered rim
2-50	Basalt	0.3	F	Plag	Occasional plag	2	1	1	L		
2-51	Basalt	1.2		Uncut					H		Boring
2-52	Basalt	1.0	A			5	4	1	M		
2-53	Glassy basalt	.6			Uncut				L		Glassy rim
2-54	Basalt	>20		Plag	Plag	2	1	2			Large angular boulder - weathered rim
2-55	Porphyritic Basalt	2.2	F		Plag, 5 mm ol 3 mm	8	3	1	L		Glassy rim
2-56	Basalt	.6	A	Plag		1	.5		L		
2-57	Basalt	1.0	F	Plag		5	3		L		
2-58	Basalt	.5	F	Plag		5	2		L		
2-60	Basalt	1.7	F		Plag 1 mm	5			L		
2-59, 61-72, 74	Basalt	13	F	Moderately weathered, angular							1-3 mm Mn #61-70 appear vesicular uncut basalts,



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 4 DREDGE 4 DESCRIBED BY HUMPHRIS/KINGSLEY DATE 4/26/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
4-1	Basalt	0.25	A	Spherulites visible		1		<1	VL		
4-2	Basalt	4.25	A			3	2	<1	L	Patchy weathering	
4-3	Breccia	0.25	C	Fragments of glass and glassy basalt in highly weathered matrix				3	M		Whole piece taken as sample
4-4	Pillow basalt	>40	F	Glassy rind Plag, Olivine	Occasional plag			<1	L		Glass
4-5	Basalt	0.5	A	Spherulites visible		1		1	VL		
4-6	Basalt	0.25	A	"		1		1	VL		
4-7	Basalt	3.25	A		Occasional plag	4	1	2-6	L	Patchy weathering	
4-8	Basalt	1.75	F	Plag. visible		2	1		L		
4-9	Basalt	6.5	F	Plag	Occasional plag	1	½		L	Weathered rim Serpentinized peridotite	
4-10	Serpentinite	1.0	C	Serpentine							
4-12	Breccia	2.0	C-F	Basalt frags with interstitial serpentine					M	Serpentinization	
4-13	Basalt	.25	F			1		<1	L		
4-14	Basalt	.25	F			1	.5		M		
4-15	Basalt	.25	F			1	.5	1	L		
4-16	Basalt	3.0	F	Glass on all sides		2	.5	1	L		Tubular shape
4-17	Basalt	1.5	F			2	1		L		
4-18	Basalt	1.0	F			1	.5	<1	L		Veins filled
4-19-21	Basalt	9	F	Plag		2-5	2	<1	L		

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 4 DREDGE 4 DESCRIBED BY HUMPHRIS/KINGSLEY DATE 4/28/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
4-22	Basalt	2.0	F			2	1	2	L		Large vesicles 1-2 mm
4-23	Basalt	.5	F	Plag		1	.5	<1	L	Weathered rim	
4-24	Serpentinite	2.5	F-C	Serpentinite + feldspar veins					L	Serpentinized	
4-25	Metabasalt	1.0	F						L	Low grade metamorph.	
4-26	Basalt	.75	F	Plag	Weathered Ol	1	1		M		
4-28	Basalt	.25		Thin (3 cm) Mn (uncut) side, altered glass on other	crust on one altered glass on other			2	M		"sheet flow" orange crust
4-27, 29-32	Basalt	4.5						2	M	weathered glass	Uncut
4-33	Basalt	2.25	F	Plag	Plag	1			L	Weathered rim	
4-34	Serpentinite	.4	F-C	Serpentinite + feldspar	Serp.				M		
4-35	Basalt	2.0	F	Patchy texture		2	2	<1	M		
4-36	Basalt	2	F	Plag		.5		<1	L		
4-37	Basalt	6.0	A			5	4	2	M		
4-38	Basalt	1.0	A	Large piece with 1 cm thick rim of breccia		2	0		L		
4-39	Basalt	3.0	A			3	1		L	weathered rim 1 cm	
4-40	Basalt	3.4	A			5	2	1	L	Patchy weathering	
4-41	Basalt	0.5	A			2	1	1	L		
4-42	Basalt	7.0	A	Plagioclase		2	1	<1	L		
4-43	Basalt	1.5	A			5	1	<1	L	Weathering rim 1 cm	

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-7 STATION 4 DREDGE 4 DESCRIBED BY HUMPHRIS/KINGSLEY DATE 4/28/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
4-44	Basalt	0.75	A	Fresh basalt with about 1 cm of breccia	with about 1 cm	2	1	mm		Fresh interior	weathered breccia
4-45	Basalt	1.75	A	Basalt with about 1 cm breccia	basalt fragments in matrix	3	1	<1	L	Weathered interior	weathered breccia
4-46	Basalt	0.75	A				1	1	VL	Weathered rim,	0.5 cm
4-47	Basalt	2.75	A	Altered glass rim; plag.		5	1	<1	L-M		
4-48	Basalt	1.25	A	Weathered matrix		1		<1	L		
4-49	Basalt	3.0	A	weathered rim		2	1	<1	L-M		Altered glass
4-50	Basalt	0.1	A	Weathered glass on one rim		1		<1	L		
4-51	Bag of fragments	.5		Small basalt fragments and altered glass in breccia						Breccia matrices altered	
4-52	Basalt	1.5	F	Plag		2	2	<1	M	Patchy weathering	
4-53	Basalt	1.25	F	Plag		3	2		M		Spherulitic texture
4-54	Basalt		A			2	1		L		
4-55	Basalt	2.5	A			2	1		L		Light flow structure visible
4-56	Basalt	2.0	A			3	2		M	Weathered patchy matrix	
4-57	Basalt	3.5	F			2	1	1	M		
4-58	Basalt	<20	F	Plag	Occasional Plag	2	1	<1	M	Large $\sqrt{2}$ cm weathered rim	
4-59	Basalt	<20	A			2	1	2	M	Large $\sqrt{2}$ cm weathered rim	
4-11	Breccia	0.5	C	Frag. aphyric basalt in fluggaceous matrix					L	none	

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 6 DREDGE 6 DESCRIBED BY HUMPHRIS DATE 4/27/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
6-1	Basalt	6.0	F	Plag		2	1		L	~1cm weathering rim	vesicles near rim
6-2	Metamorphosed conglomerate	1.75	F-C	Pieces of weathered and fresh basaltic fragments (<1 cm diameter) in green metamorphosed matrix							
6-3	Basalt	4.5	A	Plag		2	1		L	8 mm weathering rim	
6-4	Basalt	0.5	F		Plag	1					
6-5	Basalt	5.5	F		Plag	1			VL		
6-6	Basalt	2.5	F		Plag	1	<1				
6-7	Basalt	2.5	F		Plag	1	1		L-M	1 cm rim	
6-8	Basalt	0.8	F	Altered glass	Plag	2			VL		Glass
6-9	Basalt	1.0	F		Plag	8	4		L		Vesicular
6-10	Basalt	0.5	A	Weathered glass rim		1	<1		VL		
6-11	Basalt	1.0	F		Occasional Plag	2	1		L	0.5-1 cm weathering rim	Part of tubular flow
6-12	Basalt	1.0	A	Plag, glassy rim		1			VL		
6-13-15	Basalt	0.7		Uncut, but glassy surfaces							Whole samples taken
6-16	Glassy basalt	0.1	A	Concave shaped	sample of glassy rim				L		Whole sample taken
6-17	Glassy basalt	0.1	A	Concave shaped	sample of glassy rim				L		Whole sample taken
6-18	Basalt	0.4	F	Glassy rims -	aphyric basalt	1	1		L		Convoluted
6-19	Pillow basalt	0.7	A	Glass on outer rim No other crystals visible		<1			L		
6-20	Basalt	1.8	F	Plag, glass	Plag	2	1		VL		



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII-107-7 STATION 6 DREDGE 6 DESCRIBED BY HUMPHRIS DATE 4/27/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
6-21	Basalt	2.5	Porphyritic	Plag	2				M		
6-22	Basalt	1.9	F	Glassy rim; no other crystals visible	Plag	2	1		L		
6-23	Bag of glass	2.3		Miscellaneous pieces of glasses and in various stages of weathering							
6-24	Breccia	0.6		6 pieces of tuffaceous-type material with various stages of weathering - mostly moderate							shards of basaltic glass in
6-25	Basalt	0.2	F	Tube-like	Plag				VL		Layered flow
6-26	Basalt	3.0	F		Occasional plag	1	1		L		Contorted flow
6-27	Basalt	0.5	A						M		
6-28	Basalt	0.1	A	Pumice-like		40			L-M		Highly vesicular
6-29	Basalt	0.7	A			1	1		L		Contorted tubular flow
6-30	Pillow basalt	0.7	F	Glassy rims; <10 cm length	Plag				L		3 pieces
6-31	Basalt	0.5	F		Plag	1			VL		Convolutated flow
6-32	Basalt	0.4	A			1	1		L		Thin ~2 cm flow
6-33	Basalt	3.5	A			8	5	1		Large weathered rim	Vesicular
6-34	Basalt	1.8	F	Plag	Occasional plag	2	1		L		
6-35	Basalt	0.7		Uncut							Contorted flow
6-36	Basalt	>20	F	Uncut					L		Glass sample, large pillow
6-37	Basalt	0.7	F	Glass rim	Plag	1			VL		
6-38	Basalt	0.9	F		Occasional plag	2	1		M		Weathered patches

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 6 DREDGE 6 DESCRIBED BY HUMPHRIS DATE 4/27/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
6-39	Pillow basalt	0.5	F	Glass rim plag	Plag	1	1		L		
6-40	Basalt	0.5	A			1			L		Concave flow
6-41	Basalt	0.25	A								Thin flow
6-42	Basalt	0.25	A			<1			VL		
6-43-47	Basalt	2.6	F		Plag	<1			L		Glass
6-48	Basalt	0.3	F	Plag.		2	1		VL		
6-49	5 pieces of fragile tuffaceous material	0.25	F-C	Small pieces of glass and basalt in weathered matrix					M		
6-50	Basalt	3.25		Bag of assorted fragments <5 cm long							
6-51	Basalt	3.25		Bag of assorted fragments <5 cm long							
6-52	Basalt	0.5		3 pieces of weathered basalt mineralogy invisible					M-H		
6-53	Erratics	0.3									
6-54	Pink coral			Mn stained - growth rings visible							
6-55-57	Calcareous shells	>30		3 sacks of assorted calcareous shells, all major pieces of basalt removed							

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 7 DREDGE 7 DESCRIBED BY HUMPHRIS DATE 4/23/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
7-1	Basalt	2.0	A	Plag		4	2		M		
7-2	Pillow basalt	2.5	F	Small amount of glass	Occasional Plag	4	1		L		Glass sample
7-3	Lg pillow basalt	>40	F	Plag - glass rim	rim (3-5 mm)	2	1		L	Broke- packed as 3A & 3B	
7-4	Large pillow	>30	F	Plag-glass rim	(3-5 mm)	4			L		
7-5	Lg pillow basalt	>30	F	Small plag	-glass rim (1 mm)	5			L		
7-6	Basalt	2.0	A			3			L		
7-7	Basalt	1.3	A			3			L		
7-8	Basalt	1.5	A	Plag		2	1		L-M		
7-9	Pillow basalt	2.6	A	Glassy outer rim	-some fresh	4			L		
7-10	Lg pillow basalt	7.0	A	Glassy coating on l surface		3			VL		
7-11	Thin (1.5 cm) basaltic flow	0.5	A	Glassy upper surface	surface-lightly weathered			<1	L-M	Thin layer adhering to lower surface	Glassy rim (uncut)
7-12	"	0.5	A	Thick glassy surface	upper convex	1			L-M	"	"
7-13	"	0.4	A	"	"				M	"	"
7-14	Lava tube	1.5		Cylindrical sample of basalt w/complete covering of glass					L-M		Glass coated
7-15	Basalt	1.5	F	Plag		5	3		M		
7-16	Lava tube	0.4		Small, top of lava tube w/complete covering of glass					L-M		Glass coated
7-17	Pillow basalt	3.0	F	Plag							
7-18	Pillow basalt	2.5	A	Glass outer surface on one side	surface on one side	5	3		L-M		Glassy outer rim

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 7 DREDGE 7 DESCRIBED BY HUMPHRIS DATE 4/28/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
7-19	Pillow basalt	1.7	A	Glassy upper surface quite fresh	surface	3	1	mm	m		
7-20	Glassy basalt	0.2	F	Small basaltic fragment - uncut on 3 sides with glass lightly covered	fragment - uncut on 3 sides with glass lightly covered	- covered					
7-21	Glassy basalt	2.5	F	Thick (1 cm) layer of glass, mostly although some light weathering -	layer of glass, mostly quite fresh						Uncut
7-22	Basalt	2.0		Basalt covered on sides with glass - other half a pillow or the end of a tube	on sides with glass - other half a pillow or the end of a tube						Uncut
7-23	Glassy basalt	3.2	F	<b>Plag. -</b> Glassy outer surface - fresh	surface - fresh	5	2		L	Weathered rim + animal	
7-24	Basalt	0.5	A			2			L-M		
7-25	Basaltic flow	0.5	A	Outer surface - spherulites	glass on one side	2			L-M		
7-26	pillow basalt	4.5	F	Glass on upper surface - Plag	surface- weathered	5	1		L		
7-27	Pillow basalt	2.0	A	Glass on one surface	surface	3	2		M		
7-28	Basalt	0.8	A			3			VL		
7-29	Basalt	1.5	F		Occasional plag	5	3		L		
7-30	Pillow basalt	1.25	A	Glassy layer on one surface lightly weathered	on one surface	3	2		L		
7-31	Pillow basalt	3.25	A	Glass layer on one surface	on one surface	3			VL		
7-32	Pillow basalt	3.0	F	Glass layer on one surface	Occasional Plag	2	1		L	Zonation from outer glass through variolitic zone to interior	
7-33	Basalt	2.5	F	Glass layer on one surface	Occasional small plag	3	1		L		
7-34	Basalt	1.6	F	Plag	" "	3			L		
7-35	Glass	5		Bag of assorted fragment of glass taken fresh bottom of the dredge	fragment of glass taken fresh bottom of the dredge						
7-36	Basalt	2.3	F	Glassy rim	Occasional plag	3	2	1	M		

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 7 DREDGE 7 DESCRIBED BY HUMPHRIS DATE 4/28/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
7-37	Pillow basalt	6.0		Bag of assorted basaltic fragments various degrees of weathering							
7-38	Basalt	5.5		Bag of assorted fragments of basalt none have glassy rims							
7-39	Basalt	2.0	A	Glassy rind Plag		5			L		
7-40	Glass	2.75		Bag of assorted fragments of glass weathering - none to moderate							
7-41	Basalt	2.5	F	Plag, weathered glass rim		1			L		
7-42	Basalt	0.6	F	Plag	very occasional plag	3	<1		VL		
7-43	Basalt	0.7	F	Plag		2	2		M		
7-44	Basaltic flow	0.6	A	Thin layer of basalt (2 cm) with glassy rind in upper surface		1			L		
7-45	Basalt	1.7	F	Glassy rind on one surface	Plag	2	1		L-M		
7-46	Basalt	1.5	A			2	2		M	Flattened piece with curved "dribble" protruding	
7-47	Basalt	1.5	F	Weathered glassy rind Plag		5			VL		
7-48	Basalt	3.0		Bag of assorted basaltic fragments a glassy rim - L-M weathering							
7-49	Basalt	1.25	F	Plag	Occ. plag	5	4		M		
7-50	Basalt	1.0	A		Some weathered glass	2	1		L		Calcareous ooze through layer
7-51	Basalt	5.0		Bag of assorted basaltic fragments with glass rims - weathering: light to moderate							
7-52	Basalt	8.0	F	Glassy rim on one surface; Plag		5	1		L		
7-53	Basalt	5.0		Bag of assorted basaltic fragments weathering: light to moderate							
7-54	Glassy basalt	1.5		4 pieces of aphyric basalt with							condition - good-average

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 7 DREDGE 7 DESCRIBED BY HUMPHRIS DATE 4/28/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
7-55	Glassy basalt	2		2 pieces of basalt with glass on more than one side. Glass condition: good to fair						than one side. Probably fair	
7-56	Glassy basalt	1.75		4 fragments of glassy basalt, probably parts of Show "ridges and runnels" flow structure. Max dimension - 10 cm							
7-57	Pillow basalt	1.0		3 fragments of pillow basalts with glassy rims on one surface (√10 cm)							
7-58	Basalt	2.0		4 fragments of basalt - 5 cm thick with glassy outer surface Probably part of lava tube. Glass condition average to good							
7-59	Basalt	2.0		3 pieces of basalt with glassy rims on one side							
7-60	Basalt	1.5		4 fragments - same as 7-59							
7-61	Basalt flow	1.0		2 pieces of basalt with glass on outer surface and "ridge and runnel" flow structure on underside. Max dimensions 15 cm							
7-62	Basalt	1.0		Outer surface shows regions of droplets							Uncut
7-63	Basalt flow	2.25		3 pieces (√20 cm max dimensions) of basalt showing channels and ridge structures. Glass on outer surface							Flow structure
7-65	Basalt flow	1.0		4 thin (√1 cm) pieces of basalt flow with no glass but flow structures - mainly ridges							Flow structure
7-64, 66-72	Basalt	11		Numerous pieces uncut basalt, light to moderately weathered, few with glass							
7-73, 74, 75	Basalt	6		3 bags of assorted fragments basalt some with glass							Uncut
7-76, 77	Basaltic flow	2.5		Bag of assorted fragments of flow (<10 cm) some with glass							Uncut
7-78	Basalt	1.0		4 pieces of basalt, some with light Mn coating							Uncut
7-79	Basalt	5.5	F	Plag - Glassy rim (√3 mm)	5	1					
7-80	Basalt	2.0	F	Plag	Occasional plag	5	4				
7-81	Basalt	6.0	F	Plag - glassy rim on 1 surface	rim on 1 surface	4	2				Patchy weathering
7-82	Basalt	6.0	F	Plag - glassy surface-fresh	surface-fresh	2	<1				

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 7 DREDGE 7 DESCRIBED BY HUMPHRIS DATE 4/28/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
7-83	Basalt	2.25	A	Glassy upper surface	surface	3	1		L		
7-84	Basalt	0.5	A			2	1		L		
7-85	Basalt	3.7	F	Plag	Glassy surface	4	1		L		Calcareous ooze
7-86	Basalt	1.75	F	Plag	Glassy surface	3	1		L		
7-87	Basalt	1.5	F	Plag	Occasional plag	1			VL		Glass on l surface
7-88	Basalt	0.5	A			1			L		
7-89	Basalt	0.75	A			1	<1		L	Weathering rim	
7-90	Basalt	1.25	F	Plag	Occasional Plag pheno	2	1		L-M		
7-91	Basalt	>10	F	Plag. Glassy rim	Plag	3		mm <1	L		
7-92-94	Basalt	8.5		14 fragments of basalt - max dimension all with glass on one surface	Plag - max dimension 20 cm -						Uncut
7-95	Basaltic flow	0.5		2 pieces flow (one concave) both with glass							Uncut
7-96	Basalt	1.0	F	Glassy rim plag		4	<1		L		
7-97	Basalt	2.0		2 fragments of basalt (dimensions up to 20 cm) on one surface						with glass	Uncut
7-98	Basalt	4.5	F	Glass on outer surface, plag	Occasional plag	3	1		VL		
7-99	Basalt flow	0.3		2 pieces of basaltic flow - concave	vesicular	2		cm			Uncut
7-100	Basalt	2.0		2 pieces basalt - no glass, max dimension	20 cm						Uncut
7-101	Basalt	1.75	F	Glassy surface plag	Plag	3	<1		L		
7-102	Basalt	4.0		3 pieces basalt - no fresh glass	- max dimension 25 cm						Uncut

**WHOI ROCK SAMPLE DESCRIPTION**

CRUISE ALL 107-7 STATION 7 DREDGE 7 DESCRIBED BY HUMPHRIS DATE 4/28/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
7-103	Basalt	0.9	F	Plag; glass rim		3	1		VL		
7-104	Basalt	2.5	F	Plag; glass rim		3			L		
7-105	Basalt	7.5	F		glass rim(2mm)	2			L		
7-106	Basalt	4.0	F	Occasional plag	glass rim (2 mm)	4	3		L		
7-107	Basalt	>10	F	Large pillow, broken	glass rim (2 mm) broken, glass rim	4	1		L		
7-108	Basalt	1.3	F	Plag	glass rim (2-3mm)	3			L		
7-109	Basalt	~10	F		glass rim (2 mm)	4			L		Large pillow
7-110	Basalt	>10	F	Plag	glass rim(3-5mm)	3	2		L	Weathering rim	Large pillow
7-111	Basalt	2.0	F		Glass rim(2 mm)	2	1		L		
7-112	Basalt	15	F		Glass rim(1 cm) plag	5	1		L	Orange crust on glass	
7-113-115	Basalt	30			Glassy rim						Uncut
7-116	Basalt	.5		Assorted pieces							
7-117	Basalt	2.0			Glassy rim(1mm)	3					



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 9 DREDGE 9 DESCRIBED BY HUMPHRIS DATE 4/29/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
9-1	Metabasalt	2.5	F	Feldspar			<1			Light green in appearance G.S. too small	to observe Xtrabs
9-2	Serpentinite	1.25	C	Feldspar	Serpentine		<1			Serpentinized	
9-3	"	0.3								"	Uncut
9-4	Metabasalt	0.7	F				<1			Green	
9-5	Serpentinite	0.6	C				<1			Serpentinized	
9-6	Weathered basalt	1.6	F	Plag; weathered ol.		2	1		M		
9-7	Serpentinite	2.0	F	Large amount of feldspar						Serpentinized	
9-9	Altered basalt	.3	A			<1			M	Bright red clay groundmass	mineral replacing
9-10	Basalt	0.2	F	Plag, Ol	Plag	1	<1		L	Weathered rim	Whole sample taken
9-8, 11, 12, 14-18, 22-26, 28, 31, 35, 40	Serpentinite	10.5	C	Feldspar	Serpentine		<1	<1		Serpentinized	Only #12, 16, 22 uncut
9-19	Altered basalt	0.2	A			<1			M	Bright red clay matrix as in	mineral replacing
9-20	Altered basalt	0.5	A			1	1		L-M		
9-21	Altered basalt	0.5		Same as 9-19							
9-27	Altered basalt	0.5		Uncut		1	<1		L		
9-29	Altered basalt	0.1	F	Plag		1	1		M		
9-32	Altered breccia	0.4	F-C	Fragments of altered basalt in dark brown matrix							
9-33	Altered breccia	0.6	F-C	Small fragments of weathered aphyric basalt in dark brown-black matrix							









# WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-7 STATION 14 DREDGE 14 DESCRIBED BY HUMPHRIS DATE 5/2/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
14-1	Basalt	>10	F- Porph.	Plag	Plag-up-to-6cm	3		1-2	VL		
14-2	Basalt	4.5	"	Plag	"				L	Weathering rim up to 3 cm	
14-3	Basalt	2.5	"	Plag	Plag.1-3 cm	2	<1	1-2	L	Veins filled with clay minerals forming network	
14-4	Basalt	.5	"	Plag	Plag			<1	L		Uncut
14-5	Basalt	1.0	"	Plag	Plag up to 0.5 cm	2		1	L	Weathering rim	
14-6-9	Basalt	1.1	"	-	Plag			<1	L-M		Uncut
14-10	Basalt	4.5	F	Plag		2		<1	L	1 cm weathering rim	
14-11	Basalt	3.0	F- Porph.	Plag	Plag up to 1 cm	3	1		L	1-1.5 cm weathering rim	
14-12	Basalt	2.0		Same as 14-11						Weathering rim	
14-13	Basalt	4.5		Same as 14-1	Plag up to 0.8cm	3	1	1-3	L	Veins filled with clay minerals	
14-14	Basalt	2.0		Same as 14-5				<1	L-M	1 cm weathering rim	Uncut
14-15	Basalt	3.0						1-2			Uncut
14-16	Basalt	1.75		Same as 14-5,	but small amount of glass	1	1		L	0.5 cm weathering rim	
14-17	Basalt	2.5		Same as 14-5							Uncut
14-18	Basalt	1.25	F- Porph.		weathered Plag; Ol	2	1	1	L	Olivines weathered to orange clay mineral	
14-19	Basalt	1.0	"		Plag up to 0.4 cm	2	1	1	M	Weathering rim - up to 0.5 cm	
14-20	Basalt	1.0	"	Plag	Plag up to 0.2	1		<1	L	Weathering rim up to 0.5 cm	
14-21	Basalt	1.5	-					<1	L-M		Uncut

**WHOI ROCK SAMPLE DESCRIPTION**

CRUISE AII 107-7 STATION 14 DREDGE 14 DESCRIBED BY HUMPHRIS DATE 5/2/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
14-22	Basalt	2.3	Porp F	Plag	Plag up to .3 cm	10	8	<1	M	Vugs filled w/ clay minerals.	Weathering rim
14-23	Basalt	>10	"		Plag up to .2 cm	4		2	VL	0.5 cm weathering rim	
14-24	Basalt	3.25	"	Plag	Plag, " 0.5 cm	5	1	4	L	Veins	
14-25	Basalt	2.0	"	Plag		2	1	<1	L		
14-26	Basalt	2.0	F					1	L		Uncut
14-27	Basalt	4.25	F-porph.		Plag up to .2 cm	<1			L		
14-28	Basalt	7.0	F-porph.		Plag + few Ol	2	1	5	L-M	Veins	
14-29	Basalt	5.5	Porphyritic		Plag	3	2	1	M-H	Vugs filled w/clay minerals	Large weathering rim
14-30	Basalt	7.0	Porphyritic		Plag up to .2 cm	3		1-3	L		
14-31	Basalt	1.6	Porphyritic	Plag	Dominantly plag w/rare ol	4		<1	VL		
14-32	Basalt	0.6	A	Plag		3		6	L		
14-33	Basalt	4.0	A			10			L		
14-34	Basalt	0.75	A	Plag		1		1	L		
14-35	Basalt	1.5	A			1		2	L	Weathering rim	
14-36	Basalt	1.0	A			1		<1	M		
14-37	Basalt	0.75	Porphyritic		Plag + Ol	3	1	3	M	Weathering rim	
14-38	Basalt	>10	"	Plag	Plag	2		1	L	1 cm weathering rim	
14-39	Basalt	1.5	Porphyritic	Plag	Plag	3	1	3	L	Rim ~1 cm wide	





WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 14 DREDGE 14 DESCRIBED BY HUMPHRIS DATE 5/2/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
14-63	Basalt	5.0	Porph.	Plag	Plag	2	2	3	M	Vugs filled with clays	
14-64-66	Basalt	>25		2 bags of assorted fragments of basalt max dim. 30 cm - no glass							Uncut
14-67	Basalt	4.0	Porph.	Plag	Plag 0.4 cm	2		2	M	Large weathered rim	
14-68	Basalt	3.5	Porph.	Plag	Plag .2 cm	2		3	M	Weathered rim	
14-69, 71-73		>35		4 bags of assorted fragments of basalt max. dimension 30 cm							Uncut
14-70	Glass	0.75		Small fragments of basalt with small amounts of glass							Uncut
14-74	Basalt	2.5	Porph.	Plag	Plag; rare Ol	3	1	<1	L-M	Weathered rim	1-3 cm
14-75	Basalt	2.25	A	Plag		3	2	1	L	Vugs filled with clay minerals	Half taken as
14-76	Basalt	1.0	Porph.	Plag	Plag; rare Ol	4	1	<1	L	1 cm weathering rim	sample
14-77	Basalt	1.6	"	Plag	Plag, ol	2			Fresh		
14-78-79	Basalt	8.7		Seven fragments of basalt with plag phenos							Uncut
14-80-82	Basalt	8.4	Porph.		Plag, Ol	4	1	<1	L		Uncut
14-83	Basalt	7.0	A	Plag		1		1	L-M		Uncut
14-84	Basalt	6.0	A			1	1	3	L-M		Uncut
14-85	Basalt	1.75	Porph.	Plag	Plag, Ol	2		<1	L		
14-86	Basalt	1.0	"	Plag	Large plag 1 cm	1		<1	L		
14-87	Basalt	4.25	"		Plag	1		<1	L		
14-88	Basalt	4.5	"	Plag	Plag, rare Ol	1		<1	VL	0.5 weathering rim	



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 15 DREDGE 15 DESCRIBED BY HUMPHRIS DATE 5/3/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
15-1	Pillow basalt	1.25	Porph.	Plag	Plag + 01	2		<1	L	1-2 cm thick glassy rim	Glass
15-2	Pillow basalt	5.0	F-Porph.		(plag dominant) Plag + 01	3		<1		Fresh sample 1 cm	Glass
15-3	Pillow basalt	5.0	"	Plag	Plag + 01	3	1	<1	L	weathering rim	Glass
15-4	Basalt	2.5		Bag of assorted fragments of weathering and up to 6 cm in size						basalt - light to moderate size - all with some glass attached	
15-5	Basalt	3.5		Bag of fragments of porphyritic in size, with no glass						basalt up to 10 cm	
15-6	Basalt	4.5		Same as 15-5							
15-7	Basalt	4.2	Porph.	Plag	Plag + 01	2		1	L		
15-8	Basalt	3.0	Porph.	Plag, glassy rim	Plag + 01	2	1	<1	L		
15-9	Basalt	3.5		Bag of fragments	- porphyritic basalt					- some with glass	
15-10	Basalt	3.5		Bag of fragments	- porphyritic basalt					- some with glass, max. dimension 5 cm	
15-11	Basalt	3.5		Bag of fragments	- porphyritic basalt					- max. dimensions 4 cm - Mn coated	
15-12	Basalt	3.5		Bag of fragments	- up to 6 cm					- Mn coated	
15-13	Basalt	4.5		Bag of fragments	, some with glass					- up to 10 cm - Mn-coated	
15-14	Basalt	1.25	A			4		<1	L-M	Weathered rim	Cut
15-15	Basalt	4.0		Bag of fragments	- porphyritic basalt					with 1 mm Mn coating	
15-16	Basalt	4.0		Same as 15-15							
15-17	Basalt	5.0		Bag of fragments	- up to 10 cm					- some with glass + Mn coating	
15-18	Basalt	4.75		Bag of fragments	- up to 5 cm					- some with glass + Mn coating	

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE ATI 107-7 STATION 15 DREDGE 15 DESCRIBED BY HUMPHRIS/KINGSLEY DATE 5/3/80

-204-

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
15-19	Basalt	4.0		Bag of assorted size up to 10 cm	basalt fragments - all with Mn coating						
15-20	Basalt	4.5		Same as 15-19							
15-21	Glass	0.5		Fragments of glass found loose in dredge							
15-22	Basalt	3.5		Bag of six basalt fragments - with Mn coating	size - 10 cm						
15-23	Basalt	2.5	F- porph	Glass on 1 surface, plag	Weathered plag + Ol	3	1	1	L	Veins	
15-24	Basalt	2.0	F- porph		Plag	3		1	L	1 cm weathering rim	
15-25	Basalt		M	Plag	Plag + rare Ol	3		1	L-M	"	
15-26	Basalt	4.75	F	Plag	Plag + rare Ol	2		<1	L		
15-27	Basalt	2.25	F- porph	Plag	Plag + Ol	2		<1	L-M	1 cm weathering rim	Many Ol, weathered
15-28	Basalt	>10	"		Plag + Ol					weathering rim	Uncut
15-29	Basalt	6.5	"		Plag + Ol	2	1	<1	M	Blue clays in vesicles 1 cm weathering rim	
15-30	Basalt	3.5	"		Plag	1			L-M		Uncut
15-31	Breccia	2.5		Small fragments of basalt and glass	in highly weathered matrix						
15-32	Basalt	2.5	F- porph	Plag	Plag + Ol	1		<1	L	1 cm weathering rim	
15-33	Basalt	4.0	"		Plag + Ol	1		<1	L	weathered rim	Uncut
15-34	Basalt	2.0	"	Plag	Plag (up to 6cm) + Ol	2	1	<1	L	1 cm weathered rim	
15-35	Basalt	1.75	"	Plag	Plag + Ol	4		<1		Very fresh sample	
15-36	Basalt	1.6	"	Plag	Plag + Ol	5	1	1	1	1 cm weathering rim	

WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-7 STATION 15 DREDGE 15 DESCRIBED BY HUMPHRIS/KINGSLEY DATE 5/3/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
15-37	Basalt	1	Perph-F	Plag	Plag + Ol	4	<1	<1			
15-38	Basalt	1	Perph-F		Plag + Ol	2	<1	1	L	1 cm rim	
15-39	Basalt	>20	F	Plag		<1		<1	L	2 cm rim	
15-40	Basalt	1.5	Perph-F	Plag	Plag + Ol	1		<1	L		
15-41	Basalt	4	Perph-F	Plag	Plag	1			L	1 cm rim	Uncut
15-42	Basalt	1.5	Perph-F		Plag	9	4	1	L		Vesicular
15-43	Basalt	4.5	Perph.	Plag	Plag + Ol	1		<1	L	1 cm rim	Uncut
15-44	Basalt	1.2	"	Plag	Plag + Ol	1			L		Uncut
15-45	Basalt	6	"		Plag	1		<1	L		Uncut
15-46	Basalt	1.6	"	Plag	Plag	1		<1	L		Uncut
15-47	Basalt	2.5	F	Plag	Plag	5	3	5	M	Large rim	Vesicular
15-48-52	Basalt	14	F-Perph.		Plag	2	1	1	L	Rim	Uncut
15-53	Basalt	2	"	Plag	Plag	2	<1	<1	L	Surface palagonite	Altered glass rim
15-54	Basalt	2.7	"	Plag	Plag + Ol	1.5	<1	<1	L	"	Altered glass rim
15-55	Basalt	2	"	Plag	Plag + Ol	1	<1	5	L	Rims around fractures	
15-56	Basalt	1.3	"	Plag	Plag + Ol	2	1	<1	F		
15-57	Basalt	1.2	"	Plag	Plag + Ol	1	<1	1	L	5 cm rims	Uncut
15-58	Basalt	0.9	"	Plag	Plag + Ol	1	<1		L		Uncut





WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 17 DREDGE 17 DESCRIBED BY HUMPHRIS DATE 5/ 5/8C

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-1	Basalt	~15	F- Peroph	Glass plagi		1	<1	1	L		Calcareous ooze mixed with glass
17-2	Basalt	2.6	Porphy	Plagi		1	<1		L-M	Weathered glass	" "
17-3	Basalt	9	"	Plagi	Rare plagi	2	1	2	M		Veins filled with clay
17-4	Basalt	~15	F	Plagi	Rare plagi + ol	<1		1	VL		
17-5	Basalt	2.2		Bag of assorted fragments of basalt 10 cm, all with ~1 mm Fe-Mn coating							Uncut
17-6	Basalt	1.5		Bag of assorted fragments of basalt 5 cm, all with ~1 mm Fe-Mn coating							Uncut
17-7	Weathered glass	2.0		Bag of small fragments of glass in orange - brown matrix. Some lightly weathered glass - mostly palagonitized							Uncut
17-8	Basalt	2.2		Bag of seven fragments of basalt 10 cm - all with at least 1 mm Fe-Mn coating							Uncut
17-9	Basalt	2.2		Six fragments of basalt - max dimension 10 cm - all with at least 1 mm Fe-Mn coating							Uncut
17-10	Basalt	1.0		Bag of small (< 5 cm) fragments, all with Fe-Mn coating							Uncut
17-11	Basalt	0.8		Bag of 3 pieces basalt (<5 cm) with some sediment attached							Uncut
17-12	Basalt	2.5		Bag of fragments of basalt (< 10 cm) with at least 1 mm Fe-Mn coating							Uncut
17-13	Basalt	2.5		5 pieces of basalt with < 1 mm Fe-Mn coating. Max dimension 15 cm							Uncut
17-14	Basalt	2.6		4 pieces of basalt - max dimension ~10 cm with < 1 mm Fe-Mn coating							Uncut
17-15	Basalt	16.5	Perph- F		Plagi	2	1	4	L-M	2 cm weathering rim	
17-16	Basalt	1.5		2 fragments of basalt - max dimension 20 cm with < 1 mm Fe-Mn coating							Uncut
17-17	Basalt	2.7		5 fragments of basalt - max dimension 20 cm with < 1 mm Fe-Mn coating							Uncut
17-18	Basalt	1.2	Perph- F		Occasional plagi up to 4 mm	2	1	1	L		Glass



WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 17 DREDGE 17 DESCRIBED BY HUMPHRIS DATE 5/5/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-19	Basalt	4.5		Bag of 8 fragments of basalt - 15 cm all with Fe-Mn coating up to 1 mm	max dimension						Uncut
17-20	Basalt	2.5		6 pieces of basalt - all with less than 1 mm Fe-Mn coating	max dimension 15 cm -						Uncut
17-21	Basalt	3.9		5 pieces of basalt - with up to 1 mm Fe-Mn coating	max dimension 15 cm						Uncut
17-22	Basalt	4.5		5 pieces of basalt - with up to 1 mm Fe-Mn coating	max dimension 20 cm						Uncut
17-23	Basalt	5.0		5 pieces of basalt - with less than 1 mm Fe-Mn coating	up to 20 cm in size						Uncut
17-24	Basalt	2.0	F- Perph.	Plag up to 5 mm and rare Ol	< 1		< 1	L		Weathering rim < 0.5 cm	
17-25	Basalt	2.0	"	Plag Occasional plag & rare Ol	1		< 1	L		Weathering rim < 0.5 cm	
17-26	Basalt	> 10	"	Glass on one surface, plag	Occasional plag up to 3 mm	2	< 1	< 1	VL		
17-27	Basalt	3.1	"	Plag	Plag up to 2 mm	1		< 1	L		
17-28	Basalt	1.5	"	Plag	Occasional Plag	1	< 1	< 1	L		
17-29	Basalt	1.3	"	Plag	Occasional plag	1	1	1	L	Vugs filled with orange-brown clays	
17-30	Basalt	1.8	"		Plag + rare olivine	1	< 1	1	L		
17-31	Basalt	1.8	"	Small amount of glass	Plag	1		1	L		
17-32	Basalt	1.2	"	Plag	Plag	1		1	L		
17-33	Basalt	5.6	"	Plag	Plag up to 4 mm	2	1	L	2		
17-34	weathered glass	5.7		Pavement-like highly weathered matrix;	sample (0.5cm thick) of small glass shards in 1 mm Fe-Mn coating						
17-35	Basalt	2.2	"	Plag	Occasional plag	1		1	L	1 cm weathering rim	
17-36	Basalt	3.5	"	Plag	"	3	2	2	M-H		

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 17 DREDGE 17 DESCRIBED BY HUMPHRIS DATE 5/5/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-37	Basalt	1.5	F- Perph	Small amount of glass	Occasional plagioclase	<1		<1	L		
17-38	Basalt	0.8		Small fragments of basalt with about 1 mm of Fe-Mn coating							Uncut
17-39	Basalt	1.5		6 fragments of basalt with about 1 mm Fe-Mn coating	basalt - max dimension 8 cm - all with about 1 mm Fe-Mn coating						Uncut
17-40	Basalt	4.8		6 pieces of basalt with about 1 mm Fe-Mn coating	basalt - max dimension 25 cm with about 1 mm Fe-Mn coating						Uncut
17-41	Basalt	3.0	"	Plagioclase	Plagioclase + rare olivine	1	3	1	L-M	Vugs filled with orange-brown clays	
17-42	Basalt	2.0	"	Plagioclase	Plagioclase	1	1	<1	L-M		
17-43	Basalt	1.7	"	Plagioclase	Plagioclase	1		<1	L		
17-44	Basalt	1.2	"	Plagioclase	Plagioclase + rare olivine	1	1	1	L	0.5 cm weathering rim	
17-45	Basalt	1.4	"	Plagioclase	Plagioclase			1	L		Uncut
17-46	Basalt	3.7	"	Plagioclase	Plagioclase up to 8 mm	2	1	1	L	Vesicles filled with green & blue clay minerals	Glass
17-47	Basalt	1.9	"		Plagioclase up to 1 cm	1		<1	L		
17-48	Basalt	2.2	"		Plagioclase up to 4 mm	3	1	<1	L	Some vesicles filled w/clay minerals.	Glass
17-49	Basalt	10	"		Plagioclase + occasional olivine	2	1	2	L	0.5 weathered rim	Glass
17-50	Basalt	10.5	F		Very rare plagioclase + olivine	1		1	VL		
17-51	Basalt	1.8	F		Few plagioclase	2	1	<1	M	2 cm weathered rim vesicles filled with blue clay	
17-52	Basalt	4.5	F		Plagioclase + rare olivine	1		1	L		
17-53	Basalt	4.5	F	Some glass on one surface	Occasional plagioclase	1		2	L		
17-54	Basalt	4.0	F			1		2	M		

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 17 DREDGE \_\_\_\_\_ DESCRIBED BY HUMPHRIS DATE 5/5/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
17-55	Basalt	2.8	F	Plag	Plag	1	1	1	L		
17-56	Basalt	6.5	F		Plag	2	1	1	M		
17-57	Basalt	4.7	F	Plag	Plag + Ol	2	1	1	L		Glass
17-58	Basalt	3.0	F	Plag	Occasional plag & rare ol	1	1	1	L		
17-59	Basalt	1.8	F	Plag	Ol & Occasional plag	1	2	2	L-M		
17-60	Basalt	8.0	F	Plag Glassy margin	Plag	<1		<1	L		
17-61	Basalt	5.2	F		Plag	<1		<1	L		
17-62	Basalt	2.1	F		Plag up to 3 cm from edge	2	1	1	L		no pheno in interior
17-63	Basalt	1.5	F		Plag	1		1	L		Uncut; glass
17-64	Basalt	4.1	F		Plag & Ol	2	1	1	L		
17-65	Basalt	1.5	F	Large glassy rind		1	2	4	L	1 cm weathered rim	
17-66	Basalt	8	F	Glassy rim; plag Some glass on surface	Plag & occasional Ol	1	<1	2	L		
17-68	Basalt	15	F		Plag	1		2	L		
17-69	Basalt	15	F	Plag	Plag + rare Ol	2	1	<1	L		Glass
17-70	Basalt	2.5	F	Glassy rind on one surface	Plag up to 8 mm	2	1	2	L		
17-71	Basalt	15	F		Plag	1		1	L		Glass



# WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 18 DREDGE 18 DESCRIBED BY HUMPHRIS/KURZ/KINGSLEY DATE 5/5/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
18-22	Basalt	6.5	Porphyritic F	Plag	Plag -up to 5 mm	1	<1	1	L		Glass
18-23	Basalt	~1.5	"	Large pillow form with lava bud.	Plag (5 mm)						Uncut
18-24	Basalt	1.5	F	No glass	Occasional Plag	3	2		M	Vesicles filled with greenish orange clay	Large weathering rim
18-25	Basalt	9.0		Assorted fragments							Uncut-similar to 18-24
18-26	Basalt	10	F/G	Glassy rim	Plag (1 to 5mm) near exterior	2	1	1	L	Weathering rim	
18-27	Large pillow Basalt	~1.5	"	Glassy rim	Plag (up to 1 cm) rare Ol	3	1	2	L	1 cm weathering rim	
18-28	Sheet flow basalt	~1.0	"	Glassy rim (1cm) top & bottom	Plag up to 1 cm	2		1	L		
18-29	Basalt	2.5	porphyritic -F		Plag	<1	<1		L		Uncut
18-30	Basalt	3.5	"	Glass rim on 3 sides	Plag	2	1	1	L-M	Palagonite	Uncut
18-31	Basalt	3.4	F	Glassy rim	Occasional Plag	3	1		M	Large rim 2-10 cm	Uncut
18-32	Basalt	1.8	porphyritic -F	Weathered glass rim	Plag	2	1	<1	L	Palagonite	Uncut
18-33	Basalt	2.1	"		Plag	1	<1	1	L	Surficial	Uncut
18-34	Basalt	2.2	"		Plag	<1	<1	1	L		Uncut
18-35	Basalt	1.2	"	Plag	Plag	2	1		L		Uncut
18-36	Basalt	2.2	"	Glassy rim	Plag to 1 cm	1	<1	1	L		Uncut
18-37	Basalt	0.9	"	Altered glass rim	Plag to 1 cm	<1	<1	1	L	Palagonite	Uncut
18-38	Basalt	4	"		Plag	1	<1	1	L	Palagonite	Uncut
18-39	Basalt	1.5	"	Altered Glassy rim	Plag to 1 cm	<1	<1	1	L	Palagonite	Uncut

# WHOI ROCK SAMPLE DESCRIPTION

 CRUISE AII 107-7

 STATION 18

 DREDGE 18

 DESCRIBED BY HUMPHIS/KURZ/KINGSLEY

 DATE 5/5/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
18-40	Basalt	3.25	F	Porphyritic Plag	Plag	<1	<1	L			Uncut
18-41	Basalt	1.4	F	Glassy rim Plag	Occasional plag	1	<1	1	L	1 cm rim	Uncut
18-42	Basalt	2	F	Glassy rim Plag	Occasional plag	1	<1	<1	L		Uncut
18-43	Basalt	1.6	Porp F	Plag - Ol glassy rim	Plag-Ol	<1	<1	1	L	Palagonite large rim	Uncut
18-44	Basalt	3.5	"	Plag	Plag	3	1	2	L-M	Palagonite	Uncut
18-45	Basalt	3.5	"	Plag	Plag	<1	<1	L			Uncut
18-46	Basalt	2.25	"	Plag	Plag	1	<1	2	L		Uncut
18-47	Basalt	1.25	"	Plag	Plag-Ol	<1	<1	1	L		Uncut
18-48	Basalt	3.25	"	Plag	Plag-Ol	<1	<1	L			Uncut
18-49	Basalt	2.25	"	Plag	Plag-Ol	1	<1		F		Fresh glassy rim
18-50	Basalt	1.5	"	Plag	Plag	1	<1	1	L		Uncut
18-51	Basalt	2	"	Plag	Plag	2	2	1	L		Uncut
18-52	Basalt	2.75	"	Plag	Plag	<1	<1	<1	L		Uncut
18-53	Basalt	3.5	"	Cobbles (5)	porphyritic and grey in color with sediment						attached
18-54	Basalt	4.5	"	Cobbles (4)	porphyritic - size to 20 cm						
18-55	Basalt	5	"	5 cobbles up to 15 cm in size							
18-56	Basalt	6	"	7 cobbles up to 15 cm in size							
18-57	Basalt	7	Porp F	Plag	Plag	1		1	L		Uncut

WHOI ROCK SAMPLE DESCRIPTION

CRUISE AII 107-7 STATION 18 DREDGE 18 DESCRIBED BY HUMPHRIS/KURZ/KINGSLEY DATE 5/5/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
18-58	Basalt	1.5		3 cobbles up to 15 cm with sediment attached							
18-59	Basalt	4.5	Porphyritic F	Glassy rim plag	Plag	3	2	mm	L	Palagonite 2 cm rim	
18-60	Basalt	3	F	Plag	Plag	4	1	1	L	1-5 cm rim	
18-61	Basalt	10	porphyritic A	Glassy rim	Plag	1	<1	<1	F	palagonite	
18-62	Basalt	10	porp F	Glass rim	Plag	<1	<1	1-2	L	Palagonite	Uncut
18-63	Basalt	1.8	"	Plag	Plag	3	1	1	L		
18-64	Basalt	10	F		Plag	<1	<1	1-2	L		Uncut
18-65	Basalt	2.4	Porp F	Plag	Plag	2	0.5	1-2	L	1-3 cm weathering rim	
18-66	Basalt	4.5		Plag	occasional Ol Plag	3	1	1-3	L	3-5 cm "	
18-67	Basalt	2.75	porp F	Plag	Plag + Ol	3	1	1-3	L	1-2 cm weathering rim	
18-68	Basalt	10	F	Glassy rim	Plag	<1	<1	1-2	L		
18-69	Basalt	3.5	F	Glassy rim	Plag	4	1	<1	L		
18-70	Basalt	3.2	F	Glassy rim	Plag	2	1	<1	L	1 cm weathering rim	
18-71	Basalt	7.0	F	Glassy rim	Plag	3	.5	<1	L	"	
18-72	Basalt	20	F-A	Glassy rim	Plag	<1	<1	<1	L		
18-73	Basalt	15	F		Plag	<1	<1	1-2	L		Uncut
18-74	Basalt	20	F	Glass	Plag	<1	<1	1	L		Uncut

# WHOI ROCK SAMPLE DESCRIPTION

CRUISE A II 107-7 STATION 20 DREDGE 20 DESCRIBED BY HUMPHRIS DATE 5/6/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-1	Basalt	7.0	Porphyritic F	Some glass on rim	Plag. + altered ol	<1	1	1	M-H	Brown matrix around veins	
20-2	Basalt	12.5	"	Plag, glass	Plag	<1	1	1	M	1-3 cm rim	
20-3	Basalt	4.5	"	Plag, glass	Plag, olivine	<1	1	1	M	2 cm along veins	
20-4	Basalt	2	F	Plag, glass	Plag	<1	1	1	L-M	2 cm rim	
20-5	Basalt	1.5					1-2				Nice flow structure, uncut
20-6	Basalt	0.6	Porphyritic F	Plag, glass	Plag, olivine	<1	1-3	1	M	Palagonite	
20-7	6 basalt	0.5		Pieces, thin and crustlike, coated with Mn						Palagonite	
20-8	4 basalt	1.6		Cobbles up to 15 cm wide							
20-9	6 small	0.2		Basalt pieces up to 5 cm wide							
20-10	Mud balls	0.1									
20-11	Tube basalt	1.0	F-G	10x5 cm tube, glass rim 5 mm	Plag, oliv	<1	1	1	M-H	Interior is weathered heavily	





# WHOI ROCK SAMPLE DESCRIPTION

CRUISE ALL 107-7 STATION 25 DREDGE 25 DESCRIBED BY HUMPHRIS DATE 5/9/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
25-1	Basalt	8.0	F- Porph.	Weathered glassy rim; plag	Plag up to 4 mm	1	<1	1	L	1 cm weathering throughout the sample	rim around cracks
25-2	Basalt	5.3	"	"	Plag, rare ol	1	<1	1	L		
25-3	Basalt	15	"	Glass on rim, plag	plag up to 1 cm, olivine	2	1	3	L	Veins filled with orange/brown clays	
25-4	Glass	0.25		Small shards of weathered glass in a matrix	- ten pieces				H		
25-5	Glass	0.30		3 pieces of glass rims - up to 5 cm moderately weathered							Whole sample taken
25-6	Basalt	1.0		4 fragments of basalt up to 10 cm plag, phenocrysts, 1 mm Mn							Uncut
25-7	Basalt	0.4		3 fragments of basalt up to 10 cm, with large plag. + div. phenocrysts							
25-8	Basalt rim	0.6		2 pieces of 1 cm thick pillow margins with concentrated weathered plag. phenocrysts							
25-9	Basalt	0.3		2 pieces of basalt with plagioclase phenocrysts <1 mm Manganese							
25-10-12	Basalt	5.5	Porph. - F	Plag	Rare olivine Plag up to 8 cm	2	1	<1	L-M	1-3 cm weathering rim	
25-13	Basalt	1.5	F	Finer grained than previous	Few plag up to 3 mm + olivine	2	1	<1	M	Patchy weathering - rims around cracks	
25-15	Basalt	0.75	F- Porph.	Plag.	Plag. up to 5 mm	2	1	<1	L-M		
25-16	Basalt	0.75	"	Plag(lathes)	Rare olivine Plag. up to 7 mm	2	1	<1	L	Weathering around cracks	
25-17	Basalt	1.2	F	Glassy surface	Plag				2		Uncut
25-18	Basalt	0.5			Plag				1	L	Uncut
25-19, 20	Basalt	1.7	F- Porph	Plag	Plag & Ol (rare)	1	<1	<1	L-M		
25-21	Basalt	1.0	F	Plag		1	<1	<1	L	1 cm weathering rim	

**MELVILLE**  
**VULCAN 5**  
**DREDGE DESCRIPTIONS**

MELVILLE - VULCAN 5  
(Maps 2 & 5)

VULCAN Expedition, Leg 5 was a cruise on the R.V. MELVILLE of the Scripps Institution of Oceanography funded by the Division of Polar Programs of the National Science Foundation. Dr. Henry Dick of the Woods Hole Oceanographic Institution was chief scientist. The ship left Valparaiso Chile on December 1, 1980 and returned to Puntas Arenas, Chile on January 11, 1981. Principal shipboard programs included surveying and dredging of the America-Antarctic Ridge and underway geophysical surveying, including magnetics and echosounding, across the South Chile Margin, Scotia Sea and South Sandwich Trench under the direction of Dr. Dick. A heat-flow survey of the central Scotia Sea using a POGO probe was directed by Dr. Lawrence Lawver of the Massachusetts Institute of Technology. Shipboard sampling and curation of rock samples was supervised by Dr. Elaine Padovani of the Massachusetts Institute of Technology.

The dredging program during VULCAN Expedition, Leg 5, was part of a long-term study of the petrology, geochemistry, and geophysics of the crust and upper mantle of the southern circumpolar ocean. This program is a cooperative effort involving the Woods Hole Oceanographic Institution, the Department of Earth and Planetary Sciences of the Massachusetts Institute of Technology and the Departments of Geology and Geochemistry of the University of Cape Town (Southern Oceans Lithosphere Project).

The America-Antarctic Ridge is part of the circumpolar ridge system and trends more east-west than the north-south orientation of most of the major ridge systems of the world's oceans. It is characterized by

very slow spreading rates from about 0.95 cm/yr (half rate) near the Bouvet Triple Junction to about 0.85 cm/yr at about 60°S near the western end of the ridge. Like the SW Indian Ridge to the east, it is characterized by numerous closely spaced major fracture zones. The largest of these, the Bullard Fracture Zone, bisects the America Antarctica ridge, offsetting it by a remarkable 560 kilometers. The maximum depth of this transform is 6400 meters.

The dredging program sampled each of the major ridge segments between the Conrad Fracture Zone and 60°S. In addition extensive dredging was done on the walls of the Conrad and Bullard fracture zones. A single dredge haul was also made on the wall of the newly named Vulcan Fracture Zone. Twenty-six attempted dredges were made all of which recovered autochthonous rocks as well as glacial erratics.

The dredges on the ridge axes recovered principally pillow basalts. Many of these along the eastern portion of the ridge were unusually plagioclase phyric, and could be described as plagioclase porphyritic. The principal phenocrysts in the glassy portions of the basalts are plagioclase and olivine, and less frequently clinopyroxene. Analyses of the basalt glasses provided by W.G. Melson reveal a large range in chemistry with  $FeO^*/MgO$  ranging from 0.913 to 2.22 and  $TiO_2$  ranging from 0.90 to 2.69 wt.%. Samples recovered from station number 27 alone, however, have  $FeO^*/MgO$  ranging from 0.913 to 1.877 and  $TiO_2$  ranging from 0.90 to 2.50 wt.%  $TiO_2$ , a variation nearly as large as for the entire ridge system. The majority of the basalts recovered had alumina contents typical for mid-ocean ridge basalts (14.0 to 17.0 wt.%  $Al_2O_3$ ), although a number of high  $Al_2O_3$  basalts (~18.0 wt.%) were recovered at station no. 27 located between the Bullard and Conrad fracture zones.

Dredges from the fracture zones recovered basalts, altered peridotites, greenstones, altered dunites, and massive hydrogeneous or hydrothermal iron oxides. The massive iron oxides were described onboard ship as massive manganese, but proved to be principally iron oxides during preliminary examination in the laboratory by Dr. Virginia Burns of M.I.T. They were recovered principally at station 33.

Peridotites were not recovered from the Conrad Fracture Zone despite the large number of stations located there. Elsewhere peridotites were recovered in abundance from along the Bullard Fracture Zone and the Vulcan Fracture Zone. These closely resemble mantle-tectonites commonly dredged from other fracture zones in the Atlantic. Dunite with cumulus chromite was also recovered in all the peridotite-bearing dredge hauls. Such samples are very rare in the rest of the Woods Hole dredge collections.

Along with the greenstones dredged from the Conrad and Bullard Fracture Zones were several suites of hydrothermal quartz veins and breccia.

Geochemical data is available for many of these samples to assist present and future investigators in selecting additional samples for study. This data may be obtained from the chief scientist or Dr. le Roex.

The VULCAN 5 samples are labeled in the conventional manner, indicating cruise name, leg number, station number, and sample number. We have followed the Scripps system in referring to the designated expedition name (e.g. VULCAN); thus the 4-letter prefix in the sample designation corresponds with the expedition name (e.g. VULC) rather than referring to the ship name and cruise number, as is the convention at W.H.O.I.

The following is a summary of the initial research being conducted on the samples from VULCAN 5:

Dr. Henry Dick (WHOI) - Microprobe and petrographic studies of basalts, gabbros and peridotites.

Dr. William Melson (Smithsonian Institution) - Microprobe analyses of basalt glasses.

Dr. Elaine Padovani (MIT) - Phenocryst studies on basalts.

Dr. Anton le Roex (WHOI/Univ. of Cape Town, S. Africa) - Major and trace element analyses by XRF, rare earth element and strontium isotope analyses on basalts.

Dr. Fred Frey (MIT) - Rare earth elements analysis with le Roex.

Dr. Virginia Burna (MIT) - Mineralogy of iron oxide crusts.

MELVILLE - VULCAN 5

(December, 1980)

STA NO.	LOCATION	DEPTH RANGE (corr. M.)	GENERAL DESCRIPTION
18 Conrad F.Z. S. Wall Transform	55°51.94'S 4°17.40'W	2488- 2032	Lightly weathered sparsely phyric (plag + ol) glassy basalts (135K); one small basalt with 30% phenos.
19 Conrad F.Z. S. Wall Transform	55°51.07'S 4°19.32'W	2835-	Generally lightly weathered basalts, some with glass rind, plag & ol pheno's common (83K); lightly weathered gabbro & diabase (15K); basalt breccia (1.4K); scoria with 30% plag (0.1K) granite erratic.
20 Conrad F.Z. E. Intersection S. Wall	55°50.04'S 4°25.34'W	4782- 3221	Lightly weathered generally glassy basalts, aphyric (15K), plag & ol phyric (82K); metabasalt & meta-diabase (12K); gabbro & diabase (12K); erratics (2K).
21 Conrad F.Z. E. Intersection S. Wall	55°50.70'S 4°25.26'W	4456- 3490	Lightly weathered basalts with glass rinds common, aphyric (16K), plag & ol phyric (237K); greenstone & metabasalt (8K); diabase and gabbro (21K); hydrothermal quartzite (3K); erratics (1K).
22 Conrad F.Z. E. Intersection N. Wall	55°46.89'S 4°39.16'W	4560- 4361	Fresh plag phyric glassy basalts (25K).
23 Conrad F.Z. S. Wall Transform	55°47.14'S 3°55.69'W	5378- 3321	Lightly weathered aphyric basalt (23K); light-moderate weathered plag & ol phyric basalt (48K); light weathered diabase (127K); breccias (53K); erratics (5K).
24 Median Valley South of Conrad F.Z.	56°02.56'S 4°42.09'W	3295- 3227	Fresh sparsely phyric basalt (46K).
25 Median Valley South of Conrad F.Z.	56°16.95'S 4°39.17'W	3294- 3095	Fresh glassy plag phyric basalt (2K).



MELVILLE-VULCAN 5  
(December 1980)

STA NO.	LOCATION	DEPTH RANGE (Corr. M.)	GENERAL DESCRIPTION	
26	S. Wall F.Z. East of E. Intersection	56°36.75'S 4°26.85'W	3984- 3523	Sparsely phyric lightly weathered basalts (3.5K); metabasalts, diabase, gabbro (11K); variety of mafic and felsic erratics (6K).
27	Axial High Rift Valley 6°W	56°53.65'S 6°02.64'W	2379- 2495	Fresh-lightly weathered aphyric glassy basalts (33K); light weathered phyric blassy basalts - pheno's sparse to abundant (14K).
28	Median Valley 6°W Magnetic High	56°57.56'S 6°07.54'W	3098- 2822	Fresh highly phyric pillow basalt with plag concentrically zoned (17K).
29	Median Valley 6°W Magnetic High	57°03.28'S 6°04.04'W	3589- 3648	Lightly weathered glassy basalt with sparse plag pheno's (17K).
30	Rift Valley 7°W	57°28.06'S 7°00.64'W	4074- 3794	Lightly weathered generally glassy basalts, aphyric (115K), sparsely plag phyric (5K); erratics (2K).
31	S. Rift Valley 7°W Axial High	57°34.38'S 6°59.13'W  (57°33.17'S 6°57.33'W)	3808- 3500	Lightly weathered highly phyric (plag & ol) basalt, many with glass margin (93K); minor aphyric basalts and breccias (3K); moderately weathered diabase (1.5K).
32	Northern Wall of 58°S F.Z.	57°42.58'S 7°39.46'W	3152- 2543	Lightly weathered plag & ol phyric basalt with minor glass (6K); erratics (25K).
33	Base of Northern Wall (58°S F.Z.)	57°46.26'S 7°40.55'W	3944- 2797	Light moderately weathered basalt, sparsely phyric (46K), aphyric (20K); hydrothermal(?) ferromanganese (6K); gabbro & diabase (4K); erratics (12K).

MELVILLE-VULCAN 5  
(December, 1980)

STA NO.	LOCATION	DEPTH RANGE (corr. M.)	GENERAL DESCRIPTION
34 Base of N. Wall Axial Ridge 58°S F.Z.	57°46.91'S 7°40.29'W	3983- 3684	Very heavily weathered peridotite (27K); fresh basalts (3K); assorted erratics (17K).
35 N. Wall Transverse Ridge	57°56.97'S 7°48.73'W	3479- 2920	Very heavily weathered peridotite (313K) and minor altered mafic rocks; erratics (4K).
36 Top of Transverse Ridge	58°08.83'S 9°45.82'W	3414- 2779	Light-moderately weathered sparsely phyric basalt, few with glass (38K); two large diabase/gabbro (46K); 35% of dredge haul was erratics.
37 N. Wall F.Z.	58°25.82'S 15°39.70'W	4104- 3319	Heavily weathered basalt breccias (46K), plag phyric basalts (19K) and aphyric basalts (12K); heavily weathered diabase (13K) and minor ultramafics; erratics (18K).
38 Low-Mid South Wall of F.Z.	58°27.16'S 15°29.16'W	3233- 2966	Light-moderately weathered phyric basalt (46K); diabase (17K); hydrothermal quartz? (.1K); erratics (11K).
39 Center of Axial High in Median Valley	58°39.08'S 16°12.67'W	3958- 3822	Lightly weathered phyric glassy basalts (170K), aphyric (25K).
40 High near W. Wall of Median Valley	58°59.35'S 16°19.04'W	4476- 4372	Fresh-lightly weathered glassy aphyric basalts (75K).
41 North Wall 59°S F.Z.	59°05.21'S 16°48.46'W	4645- 3379	Med-heavily weathered peridotites (64K).

MELVILLE-VULCAN 5  
(December, 1980)

STA NO.	LOCATION	DEPTH RANGE (corr. M.)	GENERAL DESCRIPTION
42 Axial High in Median Valley	59°21.84'S 18°03.59'W	3984- 3832	Lightly weathered sparsely plag phyric glassy basalts (40K), aphyric (4K).
43 Ridge Axis	59°44.90'S 17°58.43'W	2594- 2502	Lightly weathered phyric basalts with minor glass (15K); few erratics.

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE  
VULCAN 5

CRUISE 18 STATION 18 DREDGE            DESCRIBED BY E. PADOVANI/H. DICK DATE 12/22/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
18-1	Basalt	kg .6	A		Micropheno Ol + PG 2-4%	1%		<.1	L		
2	Basalt	1.4	A		"	3%		"	L		
3	Basalt	.9	A		"	3%		"	L		Glass rind <1mm
4	Basalt	.9	A		"	2%		"	L		"
5	Basalt	2.3	A	Plag + Ol(?) Xenocrysts	"	1%		"	L		"
6	Basalt	.3	A	Plag Xeno	"	1%		"	L		"
7	Basalt	.5	A	Plag+Ol Xenos	"	3%		"	L		Glass rind <2mm
8	Basalt	.1	A	Plag Xenos	"	1%		"	L		" " <1mm
9	Basalt	1.4	A	Plag Xenos	"	1%		"	L		" " "
10	Basalt	.5	A	Plag Xenos	"	1%	<.1	"	L		" " "
11	Basalt	1.6	A	Plag+Ol Xenos	"	3%		"	L		" " "
12	Basalt	.2	A	Ol Xenos	"	1%		"	L		" " <2mm
13	Basalt	.2	A	Plag+Ol Xenos	"	2%		"	L		" " <1mm
14	Basalt	.4	A	Ol Xenos	"	2%		"	L		" " "
15	Basalt	.2	A	Plag Xenos	"	1%		"	L		" " "
16	Basalt	.2	A	Plag+Ol Xenos	"	2%		"	L		" " "
17	Basalt	.4	A	Plag Xenos	"	1%		"	L		" " "
18	Basalt	.2	A	Plag Xenos	"	2%		"	L		" " "

**WHOI ROCK SAMPLE DESCRIPTION**

MELVILLE

**CRUISE** VULCAN 5 **STATION** 18 **DREDGE** \_\_\_\_\_ **DESCRIBED BY** E. PADOVANI/H. DICK **DATE** 12/23/80

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Sample #	Lithology	Wt.	G.S.	Minerology	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19	Basalt	kg 9	A		Micropheno Ol+Pg, 2-4%	2%		mm <.1	L		Glass rind <2mm
20-26	Basalt	.9	A		"	1-3%		"	L		Glass rind <1-2mm
27	Basalt	.9	A		"	1%		"	L		Glass rind <1mm
28	Basalt	12	A		Micropheno Plag 5%	1%		"	L		Glassy rind
29	Basalt	4.5	A	Ol xenocrysts	Micropheno Pg+Ol, 2-4%	3%		"	L		Glass rind <2mm
30-33, 35-39	Basalt	2	A		"	1-3		"	L		
34	Basalt	.1	A	Plag xenos	"	3%		"	L		Glass rind <1mm
40-42	Basalt	.5	A		"	3%		"	L		" "
43	Basalt	9	A		"	2%		"	L		Glass rind
44	Basalt	10	A		"	1%		"	L		" "
45	Basalt	.2	A		"	3%		"	L		" "
46	Basalt	2	A	Plag xeno	"	2%		"	L		" "
47	Basalt	3.6	A		"	1%		"	L		" "
48-50	Basalt	.3	A		"	1%		"	L		" "
51	Basalt	3.6	A		"	1%		"	L		" "
52	Basalt	12	A		"	1%		"	L		Glass rind, some epidote present(?)
53	Basalt	.1	A		"	2%		"	L		Glass rind
54	Basalt	.1	A		"	3%		"	L		

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 18

DESCRIBED BY E. PADOVANI/H. DICK

DATE 12/23/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
18-55	Basalt	kg .4	A		Microphenocrysts Pg and Ol, 2-4%	3%		mm <.1 L	L		Glass rind
56	Basalt	.4	A	Plag Xenocryst	"	3%		2	L		
57	Basalt	.1	A		"	1%		<.1	L		Glass rind
58	Basalt	.1	A		"	3%		"	L		"
59	Basalt	.1	A		"	1%		"	L		
60	Basalt	.4	A		"	5%		"	L		Glass rind
61	Basalt	.1	A		"	1%	✓ 2%	"	L		
62	Basalt	.1	A		"	2%	2%	"	L		
63	Basalt	.4	A		"	5%		"	L		
64	Basalt	.1	F	Plag xenocryst	Phenocrysts Pg+Ol, 30%	2%		"	L		One of a kind- erratic(?)
65	Basalt	.9	A		Microphenocrysts Ol+Pg 2-4%	1%		"	L		Glass rind
66	Basalt	.2	A		"	4%		"	L		
67	Basalt	.1	A		"	1%		"	L		
68	Basalt	.1	A	Rounded Ol xenocryst	"	1%		"	L		Glass rind
69	Basalt	.4	A	"	"	1%		"	L		
70	Basalt	.3	A	"	"	1%		"	L		Glass rind
71	Basalt	.9	A	"	"	3%		"	L		Glass rind
72	Basalt	6	A	Plag xenos	"	1%		"	L		



# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE 5 STATION 19

DESCRIBED BY E. PADOVANI/H. DICK

DATE 12/24/80

DREDGE \_\_\_\_\_

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19-1	Basalt	.1	A		Plag 1-2% Ol-iddingsite			<.1	M		Pillow basalt-green-schist facies metamorphic overprint
2	Basalt	1.5	A		Pg+Ol 5-8%	1%	1%	"	L		
3	Basalt	.1	A	Micropheno. Pg	Pg 1-2%	1%		"	M		Gr facies overprint
4	Basalt	3	A		Pg+Ol 5-8	1%		"	L		
5	Basalt	.2	A	Microphen PG;	Pg + Ol 2-4%	<1%	<1	"	L		Glass rind
6	Basalt	5	A-F		Pg+Ol 5-8	<1%		"	L		" (?)
7	Basalt	.9	A		Pg 2-6%		1%	"	L		" (?)
8	Basalt	3.5	A-F		Pg+Ol 5-8		1%	"	L		" (?)
9	Basalt	.5	A-F		Pg+Ol 2-4%	<1%		"	L		Possibly a diabase?
10	Basalt	.5	A		Pg+Ol 1-3%	2%		"	L		
11	Basalt	2	A-F		Pg+Ol 2-4%		<1%	"	L		
12	Basalt	4	A		Pg+Ol, 5-8%	1%	2%	"	L		
13	Basalt	.1	A		Pg+Ol, 2-4%	1%		"	L		Glass rind
14	Basalt	.2	A		.Ol+Pg, 5-8%	1%		"	L-M		Iddingsite replacing Ol
15	Basalt	.1	A		Pg+Ol, 1-2%	2%		"	L		Glass rind
16	Basalt	.1	A		"	1%		"	L		
17	Basalt	.1	A		Pg+Ol, 7-10%	1%	1%	"	L		Glass rind
18	Basalt	.1	A		Pg+Ol, 1-2%	1%		"	L		Glass rind



MELVILLE

VULCAN 5

STATION 19

DREDGE

DESCRIBED BY

E. PADOVANI/H. DICK

DATE

12/24/80

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## WHOI ROCK SAMPLE DESCRIPTION

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19-19	Basalt	.2	A		Pg + Ol, 2-4%	1%	<.1	L			
20	Basalt	4	A		Pg+ Ol, 1-3%	1%	<.1	M		Hematite & palagonite-sealed cracks	Glass rind altered by gr facies minerals (iddingsite)sealed cracks
21	Basalt	2	A		Pg+ Ol, 1-3%	1%	<.1	L			Glass rind
22	Basalt	.2	A		Pg + Ol, 5-8%	<1%	<.1	L			Glass rind, very thin
23	Basalt	1.5	A		Pg + Ol, 1-2%	<1%	<.1	L			Glass rind
24	Basalt	.2	A		Pg + Ol, 1-2%	1%	<.1	L			Breccia rind on one end
25	Basalt	.5	A		Pg + Ol, 2-4%	1%	<.1	L			
26	Basalt	.1	A		Pg + Ol, 5-8%		<1% .1	L/M			
27	Basalt	4	A		Pg + Ol, 5-8%	1%	<.1	L/M		Palagonite sealed cracks	Pillow rind altered Only example, probably erratic
28	Scoria	<.1	A		Pg, 30%	10%			L		
29	Basalt	~.2	A		Pg + Ol, 10-15%	1%	<.1	L			
30	Basalt	~.4	A		Pg + Ol, 10-15%	2%	<.1	L			
31	Basalt	3	A		Pg + Ol, 15-20%	1%	<.1	L			
32	Basalt	.2	A		Pg + Ol, 10-15%	<1%	<.1	L			
33	Basalt	.2	A		Pg + Ol, 5-10%		<1% .1	L			
34	Basalt	.1	A		Pg + Ol, 10-15%	1%	<.1	L			
35	Basalt	<.1	A		Pg + Ol, 10-15%	<1%	<.1	L			
36	Basalt	<.1	A		Pg + Ol, 10-15%		1%		L/M	Ol altered	

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 19

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE 12/24/80

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19-37	Basalt	5	A		Pg + Ol, 15-20%	1%	<.5	<.1	L		
38	Basalt	1.5	A		Pg + Ol, 10-15%	1%	"	"	L		Crack sealed with palagonite and/or hem.
39	Basalt	.3	A		Pg + Ol, 15-20%	1%	"	"	L		
40	Basalt	.2	A		Pg + Ol, 5-10%		1%	"	L/M		Cracks sealed with palagonite
41	Basalt	.2	A		Pg + Ol, 10-15%	1%	"	"	L		Glass rind (?)
42	Basalt	1	A		Pg + Ol, 15-20%	2%	"	"	L		Glass rind (?) open cracks
43	Basalt	2	A		Pg + Ol, 10-15%	1%	1%	"	L/M		Cracks sealed with palagonite
44	Basalt	2	A		Pg + Ol, 15-20%	1%	"	"	L		"
45	Basalt	.2	A		"	1%	"	"	L		
46	Basalt	.1	A		Pg + Ol, 10-15%	<1%	"	"	L		Glass rind(?)
47	Basalt	.5	A		"	2%	"	"	L		
48	Basalt	3	A		Pg + Ol, 15-20%	3%	"	"	L		
49	Basalt	.2	A		Pg + Ol, 15-20%	2%	"	"	L		
50	Basalt	<.1	A		"	1%	"	"	L		
52	Basalt	.2	A		Pg + Ol, 10-15%	3%	"	"	L		
53	Basalt	2	A		Pg + Ol, 15-20%	5%	"	"	L		
54	Basalt	6	A		Pg + Ol, 20-25%	1%	"	"	L		Glass rind, Ol very fresh, euhedral
55	Basalt	.5	A		Pg + Ol, 10-15%	1%	<.5	"	L		Palagonite sealed cracks

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 19

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE

12/24/80

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
19-57	Basalt	1.5	A		Pg + Ol, 15-20%	3%		<.1	L		
58	Basalt	3	A		"	2%		"	L		
59	Basalt	.2	A		Pg + Ol, 3-5%	<1%		"	L		
60	Basalt	2	A		Pg + Ol, 2-4%	2%		"	L		
61	Basalt	.2	A		Pg + Ol, 5-7%	1%		"	L		
62	Basalt	.1	A		Pg + Ol, 5-10%	2%		"	L		
63	Basalt	1	A		Ol + Pg, 5-10%	1%		"	L		
64	Basalt	.2	A		Ol + Pg, 3-5%	1%		"	L		
65	Basalt	.1	A		Ol + Pg, 2-4%	2%		"	L		Glass rind
66	Basalt	.1	A		Ol + Pg, 3-5%	<1%		"	L/M		Ol altered to idding-site, crack sealed w/ paragonite
67	Basalt	2	A		Ol + Pg, 3-5%		3%	"	L/M		
68	Basalt	2	A		Ol + Pg, 10-15%	.5	1%	"	"		
69	Basalt	3	A		Ol + Pg, 5-10%	.5	.5	"	"		
70	Basalt	.5	A		Pg, 1-2%		3-4%	"	"		
71	Basalt	.1	A		Ol + Pg, 2-4%		1%	"	M		Gr facies overprinted pillow basalt
72	Ol gabbro	2	F-M		Ol + Pg, 30%		<.1	"	L		
73	Ol gabbro	.7	F		Ol + Pg, 3-5%		1%	"	L		Ol altered to iddingsite
74	Ol gabbro	.1	F		Ol + Pg, 5-10%		"	"	"		



WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 20

DREDGE \_\_\_\_\_ DESCRIBED BY PADOVANI/DICK

DATE

12/26/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-1	Aphyric basalt	.9	A			1%	<.5	<.1	L		Glass pillow margin
2	Aphyric basalt	.5	A			3%		"	L		" " "
3	Aphyric basalt	1	A			1%		"	L		" " "
4	" "	3	A			<.5%		"	L		" " "
5	" "	.1	A			3%		"	L		
6	" "	.1	A			5%		"	L		Glass pillow margin
7	" "	.2	A			5%		"	L		
8	" "	.2	A			3%		"	L		Glass pillow margin glass very fresh
9	" "	.2	A			1%		"	L		" " "
10	" "	.5	A			1%		"	L		" " " 4 pieces
12	" "	.2	A			5%		"	L		Glass pillow margin
13	Basalt	.5	A		Pg, 2-3%	3%		"	L		" " "
14	Basalt	1	A		Pg, 1-2%	3%		"	L		" " "
15	Basalt	.2	A		Pg, 5-10%	3%		"	L		" " "
16	Basalt	.1	A		Pg, 1%	1%		"	L		" " "
17	Basalt	.1	A		Pg, 1%	2%		"	L		" " "
18	Basalt	.1	A		Pg, 2-5%	1%		"	L		" " "
19	Basalt	1	A		Pg, 2-3%	2%		"	L		" " "

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE  
VULCAN 5

CRUISE \_\_\_\_\_ STATION 20 DREDGE \_\_\_\_\_ DESCRIBED BY PADOVANI/DICK DATE 12/26/80

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-20	Basalt	.1	A		Pg, 1%	1%		<sup>mm</sup> <.1	L		Glass pillow margin
21	Basalt	.1	A		Pg, 1%	2%		"	L		" " "
22	Basalt	.1	A		Pg, 1%	3%		"	L		" " "
23	Basalt	.1	A		Pg, 1-2%	5%		"	L		
24	Basalt	.2	A		Pg, 1-2%	5%		"	L		
25	Basalt	1.5	A		Pg, 1%	2%		"	L		Glass pillow margin
26	Basalt	2	A		Pg, 2-4%	<1%		"	L		" " "
27	Basalt	1	A		Pg, 1%	1%	1%	"	L		
28	Basalt	.1	A		Pg + Ol, 1%	2%		"	L		Glass pillow rind
29	Basalt	.2	A		Pg + Ol, 1%	3%		"	L		" " "
30	Basalt	.5	A		Pg + Ol, 1-2%	3%		"	L		" " "
31	Basalt	.2	A		"	2%	1%	"	L		
32	Basalt	.2	A		"	2%		"	L		
33	Basalt	2	A		"	2%		"	L		Glass pillow rind
34	Basalt	3.5	A		Pg + Ol, 5-8%	1%		"	L	See also #20-64-69	" " "
35	Basalt	3	A		Pg + Ol, 10-15%	<1%		"	L		Glass rind, ol & Pg pheno-up to 1 cm
36	Basalt	7	A		"	2%		"	L		" " "
37	Basalt	2	A		Pg + Ol, 15-20%	2%		"	L		Pg phenocryst ≤2 cm

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 20 DREDGE DESCRIBED BY PADOVANI/DICK DATE 12/27/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-38	Basalt	.1	A		Pg + Ol, 15-20%	3%		<.1 mm	L		Glass pillow margin Pg phenocryst < 1cm
39	Basalt	.1	A		Pg + Ol, 10-15%	1%		"	L		" " "
40	Basalt	.1	A		Pg + Ol, 1-2%	2%		"	L		" " "
41	Basalt	3	A		" 15-20%	2%		"	L		Pg phenocryst ≤ 2cm
42	Basalt	.2	A		" 5-10%	2%		"	L		Pg phenocryst < 1 cm
43	Basalt	2	A		" 10-15%	1%		"	L		phenocryst < 2 cm
44	Basalt	3	A		" 5-8%	1%		"	L		Glass rind phenocryst < 2 cm
45	Basalt	2	A		" 15-20%	2%		"	L		" "
46	Basalt	3	A		" 5-10%	1%		"	L		phenocryst < 1 cm
47	Basalt	1	A		" 5-10%	1%		"	L		" "
48	Basalt	6	A		" "	1%		"	L		Glass rind phenocryst < 2 cm
49	Basalt	1	A		" "	2%		"	L		" "
50	Basalt	1.5	A		" 2-4%	<.5	1%	"	L-M		" < 1 cm
51	Basalt	1	A		" 10-15%	1%	<.2	"	L		Glass rind phenocryst < 1 cm
52	Basalt	3	A		" 3-5%	1%		"	L		phenos < 1cm
53	Basalt	.2	A		" 5-10%	2%		"	L		
54	Basalt	.5	A		" 1-2%	1%		"	L		
56	Basalt	4	A		" 5-10%	1%		"	L		Pg phenocryst < 2 cm

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 20

DREDGE

DESCRIBED BY

PADOVANI/DICK

DATE

12/27/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-57	Basalt	kg 2	A		Pg + Ol, 5-10%	1%		mm <.1	L		
58	Basalt	3	A		" 2-5%	3%	<.5	"	L-M		Pg phenocryst <1 cm
59	Basalt	.5	A-F		Pg+Ol+Px, 5-10%	1%	1%	"	L		Almost a diabase in texture
60	Basalt	1	A		Pg + Ol, 5-10%	1%	<.5	"	L		
61	Basalt	4	A		" 10-15%	1%		"	L		Glass rind Pg phenocryst < 2 cm
62	Basalt	.2	A		" "	1%		"	L		" " < 1 cm
63	Basalt	.1	A		" 20-25%	1%		"	L		" " < 2 cm
64	Basalt	.5	A		" 1-2%	2%		"	L		" " < 1 cm
65	Basalt	.5	A		" 1%	1%	1%	"	L		Pg phenocryst < 5 mm
66	Basalt	3	A		" 1%	1%		"	L		Glass rind
67	Basalt	.2	A		" 1%	1%	.5%	"	L		
68	Basalt	.1	A		" 3-5%	1%	1%	"	L		
69	Basalt	.5	A		" 5-10%	1%		"	L		Glass rind
70	Basalt	.5	A		" 3-5%	1%		"	L		
71	Basalt	.5	A		" 5-8%	3%		"	L		
72	Basalt	.1	A		" 5-10%	1%		"	L		
73	Basalt	.2	A		" 1-3%	<1%		"	L		
74	Basalt	2	A		" 3-5%	1%		"	L		Glass rind, expansion crack



WHOI ROCK SAMPLE DESCRIPTION

MELVILLE STATION 20 DREDGE DESCRIBED BY PADOVANI/DICK DATE 12/27/80  
 CRUISE VULCAN 5

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-75	Gabbro or Peridotite	kg 1	A-M		Pg + Ol, 20%			<sup>mm</sup> <.1	M-H		Chlorite sealed cracks throughout
76	Basalt	.1	A		" 1-2%		1%	1	"	Palagonite re-placed → Pg phenocrysts have red staining	Glass rind
77	Basalt	.2	A		" 5-10%	1%		<.1	L		
78	Gabbro	3	F-M		" 5-10%			"	L		
79	"	.2	"		" "			"	"		
80	"	.2	"		Pg 1-3%			"	L-M	Quartz vein gr facies	
81	"	.2	"		Pg, px, 1-3 %			"	"	Quartz vein w/ sulfide gr facies	
82	"	3	F-C		Pg + Ol, 1-3%			"	L		
83	"	1	F-M		Pg, 1-3%			"	L	Bifurcating quartz vein	
84	Metadiabase(?)	.5	F-M		Pg, 1%			"	L		Possibly an erratic
85	Metagabbro	.1	M-C		Pg, 1-2%			"	L/M	Gr facies	
86	Gabbro	.1	F-M		Pg + Ol, 5-10%			"	L		
87	Diabase	2	F		" 3-5%	<1%		"	L		
88	Diabase	1.5	F		Ol + Pg, 25-30%	"		"	L		
89	Diabase	.5	F-M		Pg + Ol, 5-10%	"		"	L		
90	Metadiabase	.1	F-M		Pg, 1-2%	"		"	L-M	Gr facies	
91	Metadiabase	.1	F-M		Pg + Ol, 2-3%	"		"	L-M	Gr facies	
92	Metadiabase	.1	F-M		Pg, 1-3%	"		"	L-M	Gr facies	

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 20

DREDGE

DESCRIBED BY PADOVANI/DICK

DATE 12/28/80

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-93	Metadiabase	.1	F-M		Pg + Ol, 1-3%		<.1	L-M		Gr facies	
94	Metadiabase	.5	"		Pg, 1-2%		"	"	"	Sulfide present Gr facies	
95	Metadiabase	<.1	"		Pg + Ol, 3-5%		"	"	"	Calcite veins Gr facies	
96	Metadiabase	.1	"		Pg, 1%		"	"	"	Chlorite(?) sealed cracks; Gr facies	
97	Metabasalt	.5	A		Pg + Ol, 2-3%		1%	"	"	Hematite(?) sealed cracks; Gr facies	
98	Metabasalt	.2	A		"		2%	"	"	Gr facies	
99	Metabasalt	.9	A		Ol + Pg, 5-10%		<1%	"	"	L. Gr facies	
100	Metadiabase	.2	A/F		Pg + Ol, 3-5%		"	"	"		Sealed cracks
101	Meta-glass pillow rind	<.1	A/M		Pg, 1-3%				H		Palagonite replaced glass
102	Metabasalt	.1	A		Pg + Ol, 10-15%		<.1	L-M		Gr facies	
103	Metadiabase	.5	A		"		"	"	"	L. Gr facies	
104	Metadiabase	.3	A-F		Pg, 5-10%		3%	"	"	L. Gr facies	
105	Metadiabase	.1	F		Pg + Ol, 1-2%		<1%	"	"	Transgranular cracks (TGC)	
106	Metadiabase	.1	A-F		Pg, 1%				"	TGC sealed with chlorite	
107	Metabasalt	.5	A		Pg, 1-2%		3%	<.1	"	L. Gr facies	
108	Metabasalt	<.1	A		Pg + Ol, 1%				"	L. Gr facies	
109	Metabasalt	.1	A		Pg + Ol, 3-5%		<1%	<.1	"	L. gr facies chlorite(?) sealed cracks	
110	Quartzite	1.5	F-C				1%	"	L	Hydrothermal in origin(?)	

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 20

DREDGE

DESCRIBED BY PADOVANI/DICK

DATE 2/28/80

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Sample #	Lithology	Wt. kg	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
20-111	Metabasalt	3	A-F					<.1	L	Quartz vein with sulfides	
112	Metabasalt	.5	A		Pg, 15-20%		1%	.5	L-M	Calcite sealed cracks	
113	Metabasalt	1.5	A		Pg, 1-2%	1%	1%	<.1	"	Palagonitized pillow rind	
114	Metabasalt	.1	A		Pg + Ol, 5-10%			"	"	Chlorite sealed cracks	
115	Metadiabase	.1	A-F				15%	"	"	Erratic (?) only one like this	
116	Metabasalt	.1	A			<1%	1%	"	"	Abundant calcite sealed cracks	
117	Metabasalt	.1	A		Pg + Ol, 3-5%	1%		"	L	Abundant calcite sealed cracks	
118	Metabasalt	.1	A					"	L-M		
119	Metabasalt	<.1	A					"	"	"	
120	Metabasalt	.5	A					"	"	"	
121	Metadiorite	.2	F-C					"	"		Glacial erratic
122	"	.1	"					"	"	Sulfide present	Glacial erratic
123	Volcanic breccia	<.1	A			10%		"	"		"
124	Biotite schist	.2	F					<.1	L		"
125	Rhyolite	.2	A-F					"	L		"
126	Dacite	.1	A-F			2%		"	L		"
127	Meta sedimentary	.2	A-F					"	L		"

MELVILLE VULCAN 5 STATION 21 DREDGE DESCRIBED BY E. PADOVANI/H. DICK DATE 12/28/80

CRUISE

MELVILLE VULCAN 5 STATION 21 DREDGE DESCRIBED BY E. PADOVANI/H. DICK DATE 12/28/80

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
21-1	Aphyric basalt	1.5	A			1%		<.1	L		Glass rind
2	"	1.5	A			2%		"	L		" "
3	"	1	A			1%		"	L		
4	"	.5	A			1%		"	L		Glass rind
5	"	2	A			1%		"	L		" "
6	"	.5	A			<1%	.5	"	L		" "
7	Basalt	.2	A		01+Pg <1%		.5	"	L		
8	"	.2	A		Pg < 1%	3%		"	L		Glass margin
9	"	5	A			1%		"	L		Glass rind
10	"	1	A			3%	.5	"	L		" "
11	"	1.5	A		01 <0.5%	<1%		"	L		
12	"	.5	A			3%		"	L		Glass rind
13	"	2	A			1%	1%	"	L		
14	"	3	A			1%	.5	"	L		Glass rind
15	"	1.5	A		Pg <0.5%	3%		"	L		Paragonite sealed cracks
16	"	2	A		" "	1%	1%	"	L		Glass rind
17	"	5	A		" "	2%		"	L		" "
18	"	3	A			1%		"	L		

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE  
 CRUISE VIII-CAN 5 STATION 21 DREDGE \_\_\_\_\_ DESCRIBED BY E.PADOVANI/H.DICK DATE 12/28/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am Mn mm	We	Alteration	Remarks
21-19	Aphyric basalt	.1	A				1% <.1	L		Glass margin
20	Basalt	2	A		Pg 1-2%	1%	"	L		" "
21	"	2	A		Pg 1-2%	1%	"	L		" "
22	"	1.5	A		Pg 5-8%	<1%				Large xenocryst
23	"	3	A		Pg+01 1-2%	1%	<.1	L		Glass margin
24	"	5	A		Pg 1-2%	1%	"	L		" "
25	"	2	A		"	1%	"	L		" "
26	"	2	A		"	1%	5%	L		" "
27	"	2	A		Pg 2-5%	2%	"	L		Glass margin
28	"	.5	A		"	1%	"	L		" Pg Xenocryst
29	"	.2	A		Pg 1-2%	2%	"	L		Glass margin Irridescent blue
30	"	20	A		Pg+01 10-15%	1%	"	L		Glass margin
31	"	1	A		" 5-10%	1%	"	L		" "
32	"	3	A		"	1%	2%	L		
33	"	2	A		Pg+01 5-8%	3%	1%	L		
34	"	1	A		" 15-20	<1%	"	L		Glass margin Xenocrysts
35	"	.1	A		" 20-25	1%	1%	L		
36	"	1			" 15-20	1%	"	L		

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VILLAGE 5 STATION 21 DREDGE DESCRIBED BY E. PADOVANI/H. DICK DATE 12/28/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
21-37	Basalt	3	A		Pg+Ol 5-10	1%	0.5	<.1	L		Glass rind
38	"	3	A		Pg 15-20	1%	"	"	L		
39	"	5	A		Pg+Ol, 15-20	1%	"	"	L		Glass rind
41	"	1	A		Pg+Ol, 5-10%	1%	"	"	L		" "
42	"	.2	A		Ol+Pg, 3-5%	1%	"	"	L		
43	"	1	A		" 1-3%	1%	"	"	L		
44	Diabase	3	F		Pg 1-3%	<5	"	"	L		
45	"	2	F						L-M	Calcite-sealed cracks, gr facies	
46	"	3	F		Pg 3-5%	<.5	"	"	L		
47	"	4	F			"	"	"	L		
48	Gabbro	5	F-C		Pg 15-20		"	"	L		
49	Hydrothermal quartzite	.5	F-C				"	"	L	Chlorite frags; pseudomorph basalt; qtz veins with sulfides	
50	"	.5	F-C				"	"	L	Chlorite frags; pseudomorph basalt	
51	"	1	F-C			<.5	"	"	L	" "	"
52	"	.2	F-C			"	"	"	L	Chlorite frags, pseudomorph basalt sulfide present	
53	"	.2	F-C			"	"	"	L	Pseudomorph basalt	
54	Metabasalt	1.5	A		Pg 3-5%		1%	"	L-M	Gr facies Calcite/chlorite sealed cracks	
55	"	1	A-F		Pg 1-3%		"	"	L	Could be diabase; sulfides; chlorite-sealed cracks	

**WHOI ROCK SAMPLE DESCRIPTION**

MELVILLE

CRUISE VULCAN 5

STATION 21

DREDGE

DESCRIBED BY E.PADOVANI/H.DICK

DATE 12/28/80

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Sample #	Lithology	Wt. kg	G.S.	Mineralogy	Phenocrysts	V <sub>o</sub>	Am Mn	We	Alteration	Remarks
21-56	Metabasalt	1	A-C		Pg 3-5%		<.1	L-M	Sealed cracks (with qz, sulfides)	
57	Greenstone	.2	A				"	M-H		Meta-pillow basalt
58	Gabbro	.2	F-C		Pg 15-20%	<.5	"	L		
59	Breccia	3	F-C			1%	"	L		Mostly glassy basalt fragments
60	Garnet amphibolite	1	"				"	L		Glacial erratic
61	Sandstone	.2	F				"	L		" "
62-78	Aphyric basalt	9	A			1-3	"	L		Most have glass rind
79-86	Basalt	4	A		Sparse Pg	.5-2%	.5	L		3 with glass rind
87	Basalt	5	A		Pg 1%	1%	.5	L		
88	"	1	A		Pg 1%	2%	1%	L		
89	"	.5	A		Pg 1%	.5	.5	L		
90	"	.1	A		Pg+O1, 1%	2%	"	L		Glass rind
91	"	1	A		Pg+O1 1%	2%	5%	L-M		
92	"	1	A		" 1-2%	2%	.5%	L		
93	"	2	A		" 1-3%	2-3%	"	L		
94	"	.2	A		" 1-2%	1%	.5%	L		
95	"	3	A		" 3-5%	.5%	"	L		Glass rind
96	"	1	A		" "	3%	"	L		" "

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE  
 CRUISE VULCAN 5 STATION 21 DREDGE \_\_\_\_\_ DESCRIBED BY E. PADOVANI/H. DICK DATE 12/28/80

Sample #	Lithology	Wt. kg	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
21-97	Basalt	.5	A		Pg+01 1-2%	1%		<.1	L		Glass rind
98	"	.1	A		" 1%	1%	.5	"	L		(Pg-rich) xenolith
99	"	.5	A		Pg 1%	2%	1%	"	L		
100	"	.5	A		Pg 1%	2%	"	"	L		Glass rind
101	"	.2	A		" 1%	10%	"	"	L		
102-104	"	.4	A		" 1%	2%	.5	"	L		
105	"	.2	A		Pg+01 1-2%	1%	"	"	L		Glass rind
106	"	.2	A		Pg 1%	.5	.5	"	L		" "
107	"	.5	A		Pg+01 1-2%	2%	"	"	L		" "
108	"	.2	A		Pg 1%	1%	1%	"			
109	"	.2	A		Pg+01 1-2%	1%	"	"	L		Glass rind
110	"	1	A		Pg 3-5%		"	"	L		" "
111	"	.2	A		Pg+01 5-10%	.5%	"	"	L		" "
112	"	.1	A		" 3-5%	2%	"	"	L		" "
113	"	.1	A		" 15-20%	1%	2%	"	L		
114	"	.1	A		" 10-15	2%	"	"	L		Glass rind
115	"	.1	A		" 5-10	<.5	"	"	L		
116	"	.5	A		" 15-20	2%	"	"	L		Glass rind



WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5

STATION 21

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE 12/30/80

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Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
117	Basalt	kg 2	A		Pg+Ol 15-20	3%		mm <.1	L		Glass rind
118	"	.1	A		" 3-5	<.5		"	L		Glass rind Pg <1cm
119	"	1	A		" 3-5	1%		"	L		Glass rind Pg <2 cm
120,121, 123-126	"	3	A		" 5-10	1%	.5	"	L		
122	"	.2	A		" 5-10	2%		"	L		Glass rind, very fresh Ol; pg <2cm
127	"	.2	A		" 3-5	1%		"	L		Pg <2cm
128	"	.1	A		" 15-20	2%		"	L		" "
129	"	1	A		" "	3%	1%	"	L		" "
130	"	.5	A		Ol 2-5	1%	1%	"	L		
131	"	.5	A		Ol+Pg 5-8%	1%					
132	"	.1	A		" "	1%	1%	<.1	L		
133	Diabase	.2	F		Ol+Pg 1-3%	1%	.5	"	L		
134	"	.1	F		Ol 1-3%		1%	"	L		
135	"	.5	F		Pg 5-8%						
136	"	.5	F		Pg 1%			<.1	L		
137	"	.1	F		Ol+Pg 3-5%	1%	1%	"	L		
138	"	.1	F		Pg+Ol 15-20			"	L		
139	"	.1	F		" 10-15						

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE CRUISE VULCAN 5 STATION 21 DREDGE \_\_\_\_\_ DESCRIBED BY E. PADOVANI/H. DICK DATE 12/30/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
140	metadiabase	kg .1	F		Pg+O1 1-3			<sup>mm</sup> <.1	L-M	Gr facies	
141	Diabase	.1	F		O1 20-30			"	"		
142	"	.5	F		O1+Px? 20-30			"	"		
143	Silicified? diabase	2	F-M		O1+Pg 15-20	1%	1%	"	L	Chlorite frags; basalt	pseudomorphitic
144	Hydrothermal Quartzite	.1	F-M					"	L		
145	"	.2	F					"	L	"	"
146	"	.1	F					"	L	Chlorite frags/ basalt, sulfides	
147	Greenstone	.5	A-F				1%	"	H	Gr facies; sulfides	
148	Basalt	1	A		Pg 3-5%	<.5	1%	"	L-M	Gr facies	
149	"	.2	A		"		1%	"	"	"	
150	Greenstone	.2	A		" 1-3%		.5	"	"	"	
151	"	.1	A		"			"	"	"	
152	"	.1	A		"			"	"	" ; sulfides	
153	"	.1	A		"		.5	"	"	"	
154	"	.1	A		"	.5	.5	"	"	"	
155	"	.1	A		"	"	.5	"	"	" ; sulfides	
156	"	.1	A		"	"	.5	"	"	"	
157	"	.5	A		Pg 3-5	"	1%	"	"	" ; sulfides	

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 21 DREDGE DESCRIBED BY E. PADOVANI/H. DICK DATE 12/30/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
158	Greenstone	kg .2	A		Pg 3-5%	<.5	1%	<sup>mm</sup> <.1	L-M	Gr facies	
159	Basalt	12	A		Pg+Ol 5-8	~ 1		"	L		Glass rind
160	"	19	A		" 5-10	~ 1		"	L		" "
161	"	4	A		" "	1%		"	L		" "
162	"	9	A		" "	1%		"	L		
163	"	5	A			.5%	.5%	"	L		
164	"	9	A			1%		"	L		
165	"	2	A		Ol+Pg 1-2%	1%		"	L		Glass margin, small narrow piece
166	"	1.5	A		Pg 1-3%	1%	3%	"	L		" " "
167	"	3	A			1%		"	L		
168	"	2	A		Pg+Ol 1-2%	1%		"	L		
169	"	2	A		" 5-10	1%		"	L		
170	"	3	A		Ol+Pg 5-10%	.5%		"	L-M	L. gr. facies sulfides	
171	"	5	A		" 3-5	1%		"	L		
172	"	4	A		Pg 3-5	1%		"	L		
173	"	4	A		Ol+Pg 1-3%	.5%		"	L		Glass margin
174	"	3	A		Pg+Ol 2-4%	2%		"	L		
175	"	1.5	A			1%		"	L		





# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 23

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE 12/30/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
23-1	Aphyric basalt	.4	A			1%		<.1	L	see also: 23-82 to 23-87	Glass rind
2	"	.1	A			"	.5	"	L		
3	"	3	A			"	"	"	L		Note: glass rind from 23-11 is from one end of 23-3
4	"	.9	A			"	"	"	L		
5-9	"	.7	A		Tr		"	"	L		
10	"	.1	A				1%	"	L		Glass rind
11	"										
12	"	2	A			1%	.5%	<.1	L		Glass rind
13	Basalt	3	A			1%		"	L		" (only small area of glass)
14	Aphyric basalt	4	A			2%	.5%	"	L		
15	"	3	A			1%	10%	"	L		
16	"	.9	A				5%	"	L		Partial breccia rind
17	"	.1	A				8%	"	L		
18	"	.3	A				3%	"	L		Encrustation of zeolite
19	"	.1	A				5%	"	L		"
20	"	.1	A				5%	"	L		Glass rind
21	"	3	A			.5%		"	L		
22	Basalt	2			Pg < 1%	1%	1%	"	L		Glass rind

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE  
VULCAN 5

CRUISE \_\_\_\_\_ STATION 23

DREDGE \_\_\_\_\_ DESCRIBED BY E. PADOVANI/H. DICK

DATE 12/30/80

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
23-23	Greenstone	kg .2	A		Pg < 1%		1%	<.1	L-M		
24	Basalt	.2	A		Pg+01 2-4%	1%		"	"		
25	"	.2	A		Pg 1-2%	2%	1%	"	"		
26	"	.4	A		Pg+01 1-2%	3%	"	"	"		
27	"	.9	A		" 5-8%	1%	"	"	"		
28	"	.2	A		Pg 2-3%	1%	"	"	"		
29	"	5	A		Pg 8-10%	1%	2%	"	"		Zeolites present
30	"	3	A		Pg+01 8-10%	1%	1%	"	"		Partial breccia rind
31	"	.1	A		Pg 15-20%		1%	"	"	See also 23-91 to 23-99	Pg <2cm
32	"	.1	A		Pg 10-15%	1%	.5%	"	"		" "
33	"	.2	A		Pg 1-2%	1%		"	"		Glass rind
34	"	.2	A		Pg 30-35%	1%	.5%	"	"		" "
35	"	.1	A		Pg 20-25%	1%	"	"	"		Pg <2cm
36	"	.1	A		Pg+01 15-20%	2%	"	"	"		" "
37-39	"	.6	A		" 25-35%	1%		"	L		
40	Diabase	.1	F		Pg 5-8%				L	See also 23-101 to 23-115	
41	"	.4	F		Pg 1-2%			<.1	L		
42	"	.1	F		Pg 3-5%			"	L		

**WHOLE ROCK SAMPLE DESCRIPTION**

MELVILLE STATION 23 DREDGE DESCRIBED BY E. PADOVANI/H. DICK DATE 12/31/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am Mn	We	Alteration	Remarks
23-43	Diabase	.2	F		Pg 3-5%		mm 1	L		
44	"	.1	F		Pg 1%	1%	<.1	L		
45	"	.4	F		Pg 1-2%		"	L		
46	"	3	F		Pg 3-5%		.5	L		
47	"	.4	F		Pg 5-8%	1%	<.5	L		
48	"	3	F		Pg "	1%	"	L		
49	"	3	F		Pg 3-5%	1%	"	L		
50	"	.4	F				3%	L		
51	"	.1	F		Pg 1%		1%	L		
52	"	.1	F				1%	L		
53	"	7	F		Pg 1%		3%	L		
54	Greenstone	1	A		Pg+01 1-3%		"	L-M		Lt. gr. facies
55	Breccia	1	A-F			1%	"	"	See also 23-117 to 23-121	
56	"	3	"			2%	"	L		Fresh glass frags
57	"	4	"				1%	L		Coarse breccia
58	"	.4	"			1%	"	L		Fresh glass frags
59	Gneiss	2	"				"	L		Glacial erratic
60	Shale	.2	A				"	L		" "



**WHOI ROCK SAMPLE DESCRIPTION**

MELVILLE

CRUISE VULCAN 5 STATION 23 DREDGE \_\_\_\_\_ DESCRIBED BY E. PADOVANI/H. DICK DATE 12/31/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
23-61	Amphibolite	3	A-F					<sup>mm</sup> <.1	L		Glacial erratic
62	Aphyric basalt	1	A			1%	1%	"	L		Glass rind
63	Basalt	3	A		Pg+Ol 3-5%	1%		"	L		
64	Diabase	3	F		Pg 1-3%		<.5	"	L		
65	"	5	F				<.1	"	L		
66	"	9	F			1%	"	"	L		
67	"	9	F		Possibly aphyric	1%	"	"	L		Glass rind very fine stained
68	"	3	F		Pg 1-2%	1%	<.1	"	L		
69	Ol diabase	9	F		Pg 1-2%	1%	"	"	L		
70	Basalt	3	A		Ol+Pg 1-2%	1%	"	"	L		
71	Diabase	11	F			1%	1%	"	L		
72	"	4	F				1%	"	L		
73	Basalt	3	A		Pg 1-2%	1%	"	"	L		Glass rind (small piece on one end)
74	Aphyric basalt	2	A		Microphenocr Pg 1-2%	<.5	"	"	L		
75	Basalt	2	A		Pg 3-5%	1%	.5%	"	L		
76	Diabase	11	F			.5%	2%	"	L		
77	Basalt	14	A		Pg 1-2%		"	"	L		
78	Breccia	7	A-M			.5%	2%	"	L-M		

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 23 DREDGE DESCRIBED BY E. PADOVANI/H. DICK DATE 12/31/80

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
23-79	Breccia	kg 25	A-C			.5%	2%	<.1	L-H		
80	"	11	A-M			.5%	"	"	L-H		
81	Diabase	27	F		Pg+01 2-5%			"	L		
82-85	Aphyric basalt	2.2	A			1%	1%	"	L		
86	"	.4	A				1%				Zeolites on surface
87	"	1	A			1%	<.1	L			Glass margin
88	"	.4	A				2%	"	L-M		" "
89	Basalt	.4	A		Pg 1%	2%	<.1	"	L		" "
90	"	.4	A		Pg 1%	2%	"	"	L		" "
91	"	1	A				.5%	"	L	Glass rind & calcite sealed cracks	Contact between 2 flows or 2 dikes
92	"	.4	A		Pg+01 3-5%	3%		"	L		
93	"	.1	A		" 1-3%		1%	"	L		Breccia rind
94	"	.4	A		Pg 3-5%	3%		"	L		" "
95-98	"	2	A		Pg 1-3%	.5%		"	L		Pg <2cm
99	"	1	A		Pg 10-15%	2%	1%	"	L		
100	"	1	A		Pg 10-15%	1%		"	L		
101-103	Diabase	5	F			1%		"	L		
104	Diabase	.2	F		Pg 1-2%		1%	"	"		

**WHOI ROCK SAMPLE DESCRIPTION**

MELVILLE

VULCAN 5

STATION 23

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE

12/31/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn mm	We	Alteration	Remarks
105	Diabase	.4	F		Pg 1-2%			1	L		
106	"	2			Pg+01 5-10%	<.1	<.1	L			
107	"	1	F		Pg 3-5%		<.5	"	L		
108	"	.1	F		Pg 1%			"	L		
109	"	.1	F		Pg 3-5%			"	L		
110	"	.6	F		Pg 1-3%			"	L		
111	"	.4	F		Pg 5-10%		<.5	"	L		
112	"	1	F		Pg 3-5%			"	L		
113	"	3	F				5%	"	L		
114	"	2	F		Pg+01 5-8%	<.5%	<.5%	"	L		
115	"	2	F		Pg 3-5%		3%	"	L		
116	Gabbro(?)	.1	F		Pg 3-5%			"	L		
117	Breccia	.1	A-F						L-M		
118	"	.4	"			<.5%	3%	"	"		
119	"	1	"			"	"	"	L		
120	"	.4	"			"	"	"	L		
121	Flow breccia?	.1	A			"	10%	"	L-M		

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 24

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE 1/1/81

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am mm	We	Alteration	Remarks
24-1	Basalt	4	A		Pg 1-2%	1%		F		
2	"	4	A		"	"		F		
3	"	7	A		"	"		F		
4	"	4	A		"	1		F		
5	"	3	A		"	2%		F		
6	"	1	A		"	"		F		
7	"	.4	A		"	"		F		
8	"	.4	A		"	1%		F		
9	"	1	A		"	"		F		
10	"	.2	A		"	3%		F		
11	"	1	A		"	1%		F		
12	"	.2	A		"	"		F		
13	"	.1	A		"	2%		F		
14	"	1	A		"	1%		F		
15	"	.4	A		"	2%		F		
16	"	1	A		"	1%		F		
17	"	3	A		"	1%		F		
18	"	1	A		Pg + O1 2-3%	3%		F		





# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 26 DREDGE \_\_\_\_\_ DESCRIBED BY E. PADOVANI/H. DICK DATE 12/25/80

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
26-1	Basalt	1	A-F		Pg 2-4%			<.1	L		
2	Basalt	.2	A					<.5	L		Flow banding (?)
3	Basalt	.6	A			1%	1%	5-10	M		
4	Basalt	.1	A					<.1	L		
5	Basalt	.2	A		Pg 1%			<.1	L		
6	Basalt	.4	A		Pg 1%			<.1	L		Xenocrysts of mudstone crystal frags
7	Gabbro	.4	F		Pg + Ol, 10-15%			<.1	L		
8	Greenstone	7	A		Pg 15-20%			5-10	M		Metabasalt
9	Greenstone mylonite	.2	A					<.1	L		
10	Basalt	1	A			3%		5-8	M		
11	Diabase	2	F					<.1	L		
12	Scoria	.1	A			15%		<.1	L		Erratic
13	Greenstone	.2	A					<.1	L		
14	Biomicrite	.2	A-F					<.1	L		Erratic
15	Breccia	.1	A-C			<.5		20	M		
16	Breccia	.1	A-C					<.1	L		Erratic
17	Scoria	2	A			10%		<.1	L		Erratic
18	Scoria	.4	A			15%		5	L-M		Erratic





WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5

STATION 27

DREDGE

DESCRIBED BY E.PADOVANI/H.DICK

DATE 1/3/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am mm	Mn	We	Alteration	Remarks
27-1	Aphyric Basalt	16	A			<.5	<.1	M			Glass margin
2	Aphyric basalt	1	A			2%		L			Glass margin
3	Aphyric basalt	.4	A			<.5	<.1	L			" "
4	"	.1	A			"	"	L			" "
5	"	.2	A			"	"	L			" "
6	"	.2	A			"	"	L			" "
7	"	.4	A			1%	"	L			" "
8	"	.1	A			<.5	"	L			" "
9	"	.2	A			"	"	L			" "
10-15	"	1.4	A			"	"	F-L			" "
16	"	<.1	A			"	"	"			Glass margin, one lrg pg. pheno in glass
17	"	.2	A			"	"	"			Glass rind
18	"	.2	A			"	"	"			" "
19	"	7	A			<.5	"	"			" "
20-23	"	.4	A			tr	"	"			Glass rind (in plastic sack)
24	"	1	A			<.5	"	"			" "
25	"	.4	A			"	"	"			" "
26	"	.4	A			"	"	"			" "

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE  
VULCAN 5

CRUISE \_\_\_\_\_ STATION 27 DREDGE \_\_\_\_\_ DESCRIBED BY E. PADOVANI/H. DICK DATE 1/3/81

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am mm	Mn	We	Alteration	Remarks
27-27	Basalt	.1	A		Pg 1%	<.5	<.1	F-L			Glass rind
28	Basalt	1	A		Pg 1%	3%	"	L			Glass rind
29	Basalt	4	A		Pg <1%	<.5	"	F-L			"
30	Aphyric basalt	.2	A			"	"	"			"
31	"	.1	A			3%	"	"			"
32	Basalt	<.1	A		Pg ~1%	1%	"	L			"
33	Aphyric basalt	.2	A			1%	"	"			
34	"	.4	A			1%	"	"			Glass rind
35	"	.1	A			1%	"	"			" (remnant)
36	"	.1	A			5%	"	"			"
37	"	.1	A			5%	"	L			Glass rind
38	"	.1	A			<.5	"	L			Glass rind (in plastic bag)
39	"	.1	A			3%	"	L			
40	Basalt	.2	A		Pg(sparse) <1%	10%	"	L			Glass rind (very large vesicles)
41-43, 45	Aphyric basalt	.6	A			5-10%	"	L			Glass rind (very large vesicles)
44	Aphyric basalt	.2	A			3%	"	L			Glass rind
46	Aphyric basalt	.1	A		Sparse Pg Phenos <1%	2%	"	L			"
47	Aphyric basalt	.2	A			<.5	"	L			







# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5

STATION 30

DREDGE \_\_\_\_\_

DESCRIBED BY E. PADOVANI/H. DICK

DATE 1/2/81

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am mm	Mn	We	Alteration	Remarks
30-1	Aphyric basalt	4	A			1%	<.1	L-M			Glass rind
2	Aphyric basalt	4	A			1%	"	"	"		"
3	"	11	A			1%	"	"	"		"
4	"	6	A			1%	"	"	"		"
5	"	6	A			1%	"	L	"		"
6	"	2	A			1%	"	L	"		"
7	"	4	A			1%	1%	L-M			Glass rind quite weathered
8	"	3	A			1%	"	"	"		Glass rind
9	"	2	A			1%	"	"	"		Broken pieces in plastic bag
10	"	2	A			<.5	.5	L			
11	"	.2	A			"	"	L			Bomb-shaped
12	"	1	A			"	"	L			Glass rind remnant
13	"	1	A			"	"	L			Sponge microphenos of unknown composition
14	"	.3	A			1%	"	L			
15	"	.2	A			1%	"	L			
16	"	3	A			<1%	<.5	L			Glass rind sparse microphenos
17	"	1	A			2%	"	L			Glass rind
18	"	.4	A			2%	"	L			

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 30 DESCRIBED BY E. PADOVANI/H. DICK DATE 1/3/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
30- 19-22	Aphyric basalt	1.0	A			<.5		<.1	L		
23	"	1	A			.5		"	L		Glass rind
24	"	.2	A			<.5		"	L		
25	"	.4	A			.5		"	L		
26	"	.4	A			<.5	.5	"	L		
27	"	.2	A				.5	"	L		sparse plag(?) microphenos
28	"	.4	A				.5	"	L		
29	"	.1	A			<.1	.5	"	L		
30	"	.1	A			.5	.5	"	L		
31	"	1	A			1%		"	L		
32	"	2	A			.5		"	L		Glass rind
33	"	4	A			.5		"	L		" "
34	"	4	A					"	L		" "
36	"	3	A			.5		"	L		" "
37	"	3	A			1%		"	L		" "
38	"	.4	A			<.5		"	L		
39	"	.2	A					"	L		Glass rind (plastic bag)
40	"	.1	A					"	L		" "

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 30 DREDGE DESCRIBED BY E. PADOVANI/H. DICK DATE 1/3/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
30-41	Aphyric basalt	.4	A			1%	mm	<.1	L		
42	"	.6	A			2%	"	"	L		Glass rind
43	"	.2	A			<.5	"	"	L		"
44	"	.4	A			1%	"	"	L		"
45	"	1	A			.5	"	"	L		"
46	"	.2	A			1%	"	"	L		"
47	"	.1	A			1%	"	"	L		"
48	"	.2	A			1%	"	"	L		"
49	"	.2	A			1%	"	"	L		"
50	"	.4	A			1%	"	"	L		"
51	"	2	A			1%	"	"	L		"
52	"	1	A			.5	"	"	L		"
53	"	.1	A			1%	"	"	L		"
54	"	.1	A			1%	"	"	L		"
55-59	"	.8	A			<.5	"	"	L		Glass margin
60	Basalt	.4	A		Microphenocr Pg 1-2		"	"	L		"
61	Basalt	.2	A		" <1%	<.5	"	"	L		"
62	Basalt	.2	A		" 1-2	"	"	"	L		"





WHOI ROCK SAMPLE DESCRIPTION

MELVILLE  
VULCAN 5

STATION 31

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE 1/4/81

Sample #	Lithology	Wt. kg	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
31-1	Basalt	4	A		Ol 2-3%			<.1	L		
2	Basalt	4	A		Ol+Pg 3-5%	1%		"	L		Glass rind
3	Basalt	4	A		" 1-3%	<1%		"	L		
4	Basalt	6	A		Pg 2-4%	1%		"	L		Glass rind
5	Basalt	18	A		Pg 10-15%	1%		"	L		Glass rind
6	Basalt	11	A		Ol + Pg 3-5%		1%	"	L		
7	Basalt	4	A		Pg 20-25%	<1%		"	L		Glass rind Hydrothermal deposits
8	Basalt	8	A		Pg 10-15%	"		"	L		Glass rind
9	Basalt	7	A		Pg 5-10%	"		"	L		Glass rind
10	Aphyric basalt	2	A			<.5		"	L		
11	Aphyric basalt	.4	A			"		"	L		
12	Diabase	.3	F					"	L		
13	Basalt	.4	A		Pg ~1%	1%		"	L		Glass pillow margin
14	Basalt	.1	A		Pg "	1%		"	L		Glass pillow margin
15	Basalt	1	A		Pg "	1%		"	L		Glass pillow margin
16	Basalt	.4	A		Pg 1-2%	1%		"	L		Glass pillow margin
17	Basalt	.2	A		Pg+Ol 1-2%	1%		"	L		
18	Basalt	4	A		Pg 1-2%	1%		"	L		Glass pillow margin

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5

STATION 31

DREDGE \_\_\_\_\_

DESCRIBED BY E. PADOVANI/H. DICK

DATE 1/4/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn mm	We	Alteration	Remarks
31-19	Basalt	1	A		Pg + O1 1%	1%		<.1	L		
20	Basalt	.2	A		" 1-2%	1%		"	L		Glass rind
21	Basalt	.4	A		Pg 2-3%	1%		"	L		Glass rind (Differentiated flow)
22	Basalt	.4	A		Pg + O1, 2-3%	1%		"	L		(Differentiated flow)
23	Basalt	.4	A		" 3-5%	<.5		"	L		Glass rind (differentiated flow)
24	Basalt	.4	A		" 2-3%	"		"	L		Glass rind
25	Basalt	.2	A		" 1%	1%		"	L		Glass rind
26-29	Basalt	.6	A		Pg 1%	1-3%		"	L		Glass rind
30	Basalt	1	A		Pg+O1 1-2%	1%		"	L		
31	Basalt	.4	A		" 2-3%	1%		"	L		Glass rind
32	Basalt	.4	A		" 1-2%	1%		"	L		Glass rind
33	Basalt	.1	A		" 3-5%	3%		"	L		Glass rind
34	Basalt	.4	A		O1+Pg 3-5%	<.5		"	L		
35	Basalt	.4	A		O1+Pg 3-5%	2%		"	L		
36	Basalt	1	A		Pg+O1 10-15%			"	L		One Pg Xenocryst
37	Basalt	.4	A		Pg+O1, 5-10%	2%		"	L		Glass rind (remnant)
38	Basalt	1	A		" 10-15%	3%		"	L		
39	Basalt	.4	A		" 5-10%	1%		"	L		Glass rind





# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

Cruise 5 Station 33 Dredge \_\_\_\_\_ Described by E. PADOVANI/H. DICK Date 1/7/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am mm	We	Alteration	Remarks
33-1	Aphyric basalt	2	A			< 1%	<.1	L		
2	"	2	A			"	1	L	Glass pillow margin	
3	"	3	A			"	<.1	L		
4	Gneiss	.1	M-C				"		Glacial erratic	
5	Granite	.1	"				"	L	"	
6	"	.4	"				"	L	"	
7	Gneiss	.4	"				"	L	"	
8	Basalt	5	A		Pg+01 1-3%	<.1			Glass margin	
9	Aphyric basalt	2	A				3	L-M	Glass margin, thick Mn sulfides present	
10	"	.4	A				1	"	Glass margin, Mn crust	
11	Basalt	3	A		Pg+01, 1-2	<1%	1	L-M	Xenocrysts(?) of Pg+01 <3 cm	
12	Basalt	4	A		" 3-5	"	1	L		
13	Basalt	4	A		Pg 1-3%	<.5		L		
14	Diabase or gabbro	4	F		Pg+01 3-5	"		L		
15	Gabbro	2	F			"		L	Possibly a glacial erratic; very rounded, only one	
16	Basalt	3	A		Pg+01 1-2%	"		L-M		
17	Basalt	.4	A		"	"		L		
18	Basalt	.4	A		"	"		"		

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 33

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE 1/7/81

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Va	Am	Mn	We	Alteration	Remarks
33-19	Basalt	.2	A		Pg+Ol 1-2%	<.5		<.1	L		
20	Basalt	.4	A		"	"		"	"		
21	Basalt	.2	A		Ol+Pg 1-2%	"		"	"		
22	Basalt	.1	A		Pg 1-2%	"		"	L		
23	Basalt	1	A-F		Pg+Ol 1-2%	"		"	L		Possibly a diabase
24	Basalt	.4	A		Ol 3-5%	"		"	L		
25	Aphyric basalt	4	A					"	L		
26	"	.1	A			<.5		<.1	L		
27	"	.1	A			"		"	L		
28	"	.2	A			"		"	L		
29	"	3	A			"		"	L		
30	"	.4	A			"		"	L		
31	Basalt	.2			Microphenocr. Ol 1-2%	"		"	L		
32	Aphyric basalt	2	A			1%		"	L-M		
33	"	1	A			1%		"	"		
34	Basalt	3	A		Pg+Ol 1-2%	<.5		"	"		
35	Basalt	.1	A		"	"		"	"		
36	"	.1	A		Pg	"		1	L-M		

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 33

DREDGE

DESCRIBED BY E. PADOVANI/H.DICK

DATE

1/7/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
33-37	Basalt	.1	A		Pg <1%	<.5	mm <.1	L			
38	"	.4	A		Pg+01 2-3%	1%	"	L-M			
39	"	.2	A		" 1%	1%	1	"			
40	"	.4	A		" 1%	1%	1	"			
41	"	1	A		" 1-2%	1%	1	"			
42	"	.4	A		" 1%	1%	1	"			
43	"	.4	A		" 1%	1%	1	"		Glass rind (remnant)- sulfides at contact of glass w/Mn rind	
44	"	2	A		" 2-3%	1%	1	"			
45	"	.4	A		" 1%	<.5	1	"			
46	"	.1	A		" 1%	"	1	"			
47	"	.4	A		" 1%	"	1	"			
48	"	1	A		Pg <1%	"	1	"			Glass rind (remnant)
49	"	.1	A		" 1-2%	"	1	"			
50-54	"	3	A		Pg+01 2-3%	"	2	"			
55	"	.4	A		Pg 1-2%	"	1-2	"			
56	"	.2	A		" 1-2	"	<.1	"			
57	"	.2	A		" "	"	2-3	"			
58	"	.4	A		" 2-3	"	1	"			



WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VILCAN 5 STATION 33 DREDGE DESCRIBED BY E. PADOVANI/H. DICK DATE 1/7/81

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
33-59	Basalt	kg 4	A		Pg 2-3%	<.5		mm 1-3	L-M		
60	Basalt	.2	A		Pg+O1 2-3%	"		<.1	"		
61	"	1	A		"	"		"	"		
62	"	1	A		Pg 1-2%	"		.5	"		
63	"	2	A		Pg+O1 2-3%		3%	.1- .5	"		
64	Px gabbro	3	F-M		Px+O1 5-10%	<.5		"	"	Erratic?	
65	Basalt	.4	A		O1+Pg 3-5%	.5		<.1	L		
66	"	.2	A		O1 2-4%			"	L		
67	"	.4	A		O1 1-2%			<.5	L		
68	"	.2	A		Microphenocr. O1 1-2%	.5		"	L		Glass margin
69-76	Hydrothermal ferromanganese	6	A					2-3			Surrounds aphyric basalt frag
77	"	.2	A								
78	Gabbro	.2	A					1			Erratic
79	Sandstone	.2	A					1-3			Glacial erratic
80	Scoria	.2	A					<.1			"
81	"	.2	A					"			"
82	Rhyolite	.2	A					"			"
83	Granite	1	F-M								"



WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 34 DREDGE \_\_\_\_\_ DESCRIBED BY H. DICK DATE 1/8/81

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
34-1	Granite	kg 1	M-C	K-spar				mm tr	L		Glacial erratic
2	"	.6	"	"				tr	L		"
3	Biotite gneiss	1	M-C					1.0	L		"
4	Granite	2	M					.1	L		"
5	"	1	C	K-spar				tr	L		"
6	Biotite gneiss	.1	M					1.0	L		"
7	Mafic granite	3	C	K-spar, biotite				0.5	L		"
8	Sandstone	.2	F-A					.8	L		Round glacial cobble
9	Diabase?	1	F					.1	L		"
10	Chert	1	A					.1	L		Glacial erratic
11	Diorite?	.1	M-C	Quartz				.2	L		"
12	Gneiss	.1	"	Qtz, biotite				tr	L		"
13	Basalt	.4	A		Sparse olivine + plagioclase	<1%		tr	F		Round glacial cobble
14	Aphyric basalt	1	A					.2	F		Sparse manganese
15	"	.2	A			<1%		.3	F		coating may indicate
16	Plag. basalt	.6	A		4% Plag	"		.1	L		erratic origin
17	Aphyric basalt	1	A			1%		3.0	L		"
18	Welded tuff	.2	A-F					.1	L		Glacial erratic

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 34

DESCRIBED BY H. DICK

DATE 1/8/81

CRUISE

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
34-19	Welded tuff	.6	A					mm tr	L		Freshness & lack of Mn suggest erratic origin
20	Plag basalt	2	A		7% Plag	12%		3.0	L		" "
21	" "	.2	A		7% Plag			.1	L		" "
22	Greenstone breccia	.2	A					.1	L	Greenschist facies	Thin carbonate veins possible
23	Diabase	1	M					3.0	L/M		glacial erratic
24	Chert breccia	.1	A					.2	L		" "
25-29	Fe-Mn crust on mudstone	1	A					3-10			Limey mudstone with Mn clots inside-hydrothermal
30-32	Lithic & mud chip conglomerate	3	A					1-2			Basalt, limey mudstone chips
33	Harzburgite	.4	C	80% Ol, 20% Px				15	VH		Px pseudomorphed by serp Ol " " clay
34	" "	.3	C	" "				16	VH		" " " "
35	" "	.6	C	" "				18	VH	40% serp + rest mostly clay	Some relict Px + Ol
36	" "	.3	C	" "				15	VH	" " "	" " " "
37	" "	1	C	" " + 1% Sp				16	VH	95% clay + serpentine	
38	" "	2	C	" "				20	VH	" "	No relict Px some olivine
39	" "	2	C	" "				20	VH	" "	" "
40	" "	.3	C	" "				15	VH	80% clay + serpentine	Possible relict Px + olivine
41	" "	.4	C	77% Ol, 20% Opx 2% Cpx, <1% Sp				15	VH	98% clay + serpentine	
42	" "	2	C	" "				18	VH	90% clay + serpentine	Possible relict Px

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 34

DREDGE

DESCRIBED BY

H. Dick

DATE

1/8/81

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
34-43	Harzburgite	kg 7	C	77% Ol, 20%Opx 2%Cpx, <1% Sp				mm 15	VH	90% Clay + serpentine	Possible relict Px
44	"	.1	C	" " "				10	"	"	" " "
45	"	.3	C	" " "				15	"	"	" " "
46	"	.1	C	" " "				15	"	95% Clay + serpentine	
47	"	.1	C	" " "				4	"	"	
48	"	.2	C	" " "				2	"	92% clay + serpentine	Relict Opx + Opx
49	"	2	C	" " "				17	"	"	All Opx → Serp relict Ol?
50	"	.2	C	" " "				.2	"	"	Relict Opx + Cpx relict olivine(?)
51	"	2	C	77% Ol, 20%Opx 4%Cpx, <1% Sp				7	"	80% clay + serpentine	" " " "
52	"	.3	C	80%Ol, 20% Px				18	"	99% clay + serp	
53	Mn cemented pavement	2	C					14	"	Some calcareous clay cement	Serp.+Hz cobbles
54	Websterite	.1	C	20% Ol, 80% relict Px				13	"	99% Serp + clay	
55	Harzburgite	.1	C	Ol, Px				10	"	60% serp 28% clay	Some relict primary minerals?
56	"	.1	"	80% Ol, 19% Opx 1%Cpx, <1% Sp				1	"	30% serp 60% clay	Relict Px + Ol?
57	"	.1	"	"					"	95% Clay + serp	
58	"	.2	C	"				tr	"	"	tr of relict Opx
59	"	.2	C	"				tr	"	"	" " "
60	"	.1	C	"				tr	"	"	"



MELVILLE

VULCAN 5

## WHOI ROCK SAMPLE DESCRIPTION

CRUISE \_\_\_\_\_ STATION 35 DREDGE \_\_\_\_\_ DESCRIBED BY H. DICK DATE 1/5/81

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Sample #	Lithology	Wt. kg	G. S. C	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
1	Harzburgite	18	C	85% Ol, 15 Opx <1% Cpx, Sp				<.1	M	15-25% serpentine serp veins	serpentine w/x-cutting
2	"	3	C	"				.2	M	80% serp with 1 1/2 cm 100%	serp rind
3	"	.4	C	80% Ol, 20% Opx <1% Sp, Pg, Cpx				<.1	L	80% serp with x- cutting, serp veins Local patches of weathered Ol	
4	"	1	C	80% Ol, 20% Opx <1% Sp				.2	M	40% serp with large patches of weathered olivine	
5	"	.4	C	"						70% serp with large patches of weathered olivine and green clay	
6	"	.3	C	80% Ol, 20% Opx tr Sp				.1	M/H	30% serp mostly replacing Opx 1/2 cm serp rind	
7	"	.1	C	"				.2	"	"	"
8	"	.2	C	Ol, Opx				.1	L/M	100% black serp	with pale gr serp veins
9	"	.1	C	"				.1	"	90% black serp w/isolated patches of weathered Ol and Opx	
10	"	.1	C	85% Ol, 14% Opx 1% Cpx, <1% Sp				.1	M	Serpentine rind around buff yellow to grey green weathered ol-Px core with x-cutting black serp. veins	
11-16	"	.4	C	"				.1	M	"	"
17	"	.1	C	"				.1	"	80% serpentine rind +black serp veins	
18	"	.4	C	"				.1	"	Same as #9	
19	"	.3	C	80% Ol, 19% Opx <1% Sp & Cpx				.2	M/H	30% serpentine dun colored	
20	"	1	C	80% Ol, 18% Opx 2% Cpx, <1% Sp				.3	"	65% serp, serpentine rind P. green - dun colored	
21	"	.6	C	80% Ol, 17% Opx 2% Cpx <1% Sp				.2	"	40% serp with rind of P. green serp around buff to grey-green	
22	"	1.5	C	85% Ol, 13% Opx 2% Cpx, <1% Sp				.2	"	weathered core with x-cutting veins of black serpentine	
23	"	.2	C	"				.2	"	"	"

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE CRUISE \_\_\_\_\_ STATION 5 \_\_\_\_\_ DREDGE \_\_\_\_\_ DESCRIBED BY H. DICK \_\_\_\_\_ DATE 1/5/81 \_\_\_\_\_

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
24	Harzburgite	kg .2	C	85%Ol, 13% Opx 2%Cpx, <1% Sp				mm .2	M/H	Weathered core veins of black serpentine	with x-cutting serpentine
25	"	.3	C	"				"	"	75% serp, grey- peridotite	green weathered
26-30	"	4	C	"				"	"	40% serpentinized to grey green serpentine	core, buff yellow with a rind of pale green
31	Harzburgite	1	C	75%Ol, 20% Opx 2-4%Cpx, <1%Sp				.1	H	50%serpentinized Buff yellow to green brown	w/pale gr. serp rind.
32	"	.4	C	80% Ol, 18%Opx 1-2%Cpx, <1%Sp				.2	M/H	Buff yellow to peridotite	brown serpentinized
33	"	1	C	80% Ol, 17%Opx 2-3%Cpx, <1%Sp				.2	"	Same as #31	
34	"	.1	C	78%Ol, 19%Opx 2-3%Cpx, <1%Sp				.2	"	"	without serp rind
35	"	.2	C	82%Ol, 15%Opx 3%Cpx, <1%Sp				.2	"	"	" " "
36	"	.4	C	80%Ol, 18%Opx 1-2%Cpx, <1%Sp				.2	"	Same as #31	
37	"	4	C	72%Ol, 23%Opx 4%Cpx, <1%Sp				.2	M/H	20% serpentine	
38	"	3	C	80%Ol, 18%Opx 1-2%Cpx, <1%Sp				.2	"	50% "	
39	"	.1	C	80%Ol, 20%Px				<.1	"	70%Serpentine, weathered olivine	no fresh Px,
40	"	1	C	78%Ol, 20% Opx 2%Cpx, <1%Sp				.1	"	50% serpentine	with weathered rind
41	"	.5	C	"				"	H	60% serpentine	
42	"	.3	C	"				"	"	"	
43	"	1	C	78%Ol, 20%Opx 2%Cpx, <1%Sp				"	"	20% serp, weathered	rind
44	"	.2	C	78%Ol, 19%Opx 3%Cpx, <1%Sp				"	"	60%Serp, weathered	rind



**WHOI ROCK SAMPLE DESCRIPTION**

MELVILLE VILLAGE STATION 35 DREDGE DESCRIBED BY H. DICK DATE 1/6/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
45	Harzburgite	1	C	80%Ol, 18%Opx 2%Cpx, <1%Sp				.1	H	50% serpentine,	weathered rind
46	"	.6	C	75%Ol, 20%Opx 4%Cpx <1%Sp				.1	H	65% "	serp "
47	"	.5	C	"				"	"	40% "	" "
48	"	.6	C	84%Ol, 13%Opx 3%Cpx, <1%Sp				"	"	" "	" "
49	"	5	C	85%Ol, 12%Opx 3%Cpx, <1%Sp				.2	H	30%Serp	" "
50	"	2	C	83%Ol, 14%Opx 2-3%Cpx, <1%Sp				.2	H	" "	" "
51	"	1.5	C	80%Ol, 18%Opx 2%Cpx <1%Sp				"	"	" "	" "
52	"	.1	C	75%Ol, 21%Opx 4%Cpx, <1%Sp				"	"	40%Serp, preferentially replacing Opx	" "
53	"	.6	C	"				"	H/ VH	60% Serp	" "
54	"	.3	C	"				"	H	60% serp, linedated Px	" "
55	"	7	C	80%Ol, 18%Opx 2%Cpx, <1%Sp				.1	M/H	50%Serp, Serp rind, lightly alt. to green clay	" "
56	"	6	C	"				"	"	" "	" "
57	"	6	C	"				"	"	" "	" "
58	"	4	C	75%Ol, 21%Opx 3-4%Cpx, <1%Sp				"	"	" "	" "
59	"	1	C	75%Ol, 21%Opx 4%Cpx, <1%Sp				.1	M/H	40% Serpentine	" "
60	"	.5	C	80%Ol, 17%Opx 2%Cpx, <1%Sp				.1	M	70% Serpentine with serpentine rind baked chocolate brown	" "
61	"	.3	C	"				"	M/H	40%serpentine with pale green serpentine rind	" "
62	"	.2	C	"				"	"	" "	" "

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5 STATION 35 DREDGE DESCRIBED BY H. DICK DATE 1/7/81 290

Sample #	Lithology	Wt. kg	G. S. C	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
63	Harzburgite	.7	C	80%Ol, 17%Opx 2%Cpx <1%Sp			.1	H		40% serpentine weathered rim	with heavily
64	"	.2	C	"			"	H		" " "	" "
65	"	.1	C	"			"	H		40% serpentine, with black serp. replacing opx preferentially	
66	"	.1	C	"				M/H		85% pale green serpentine	
67-74	"	4	C	"			.1	H		40% serpentine with serpentinized & v. heavily weathered rind	
75	"	.6	C	"			"	"		40% serpentine with v.H. weath. rim	
76	"	1	C	"			"	"		" " "	" " "
77	"	1	C	75%Ol, 20% Px <1% Sp			.1	VH		All Px →serpentine Ol 50% serpentine	
78	"	.4	C	83%Ol, 15% Opx 2%Cpx, <1%Sp			.1	VH		40% Serp with serp rind	
79	"	.1	C	"			.1	"		" " "	" "
80	"	.1	C	"			.1	"		60% serp	
81	"	.1	C	80%Ol, 16%Opx 3-5%Cpx, <1%Sp			.1	"		40% serp	
82	"	.2	C	"			.1	"		" "	
83	"	.2	C	"			.1	"		" "	
84	"	.2	C	"			.1	"		" " , all Px →serp.	
85	"	4	C	80%Ol, 20%Px			.1	VH		Heavily altered to green clay after serpentinization	
86-90	"	5	C	"			.1	"		" " "	" " "
91	"	1	C	"			.1	"		Heavily altered to green clay, red tint at rim may indicate baking	

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 35 DREDGE \_\_\_\_\_ DESCRIBED BY H. DICK DATE 1/7/81

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
92	Harzburgite	kg 3	C	80%Ol, 20%Px				mm .1	VH	Moderately altered to green clay Serpent. rind	
93	"	2	C	"				"	"	"	"
94	"	.1	C	"				"	"	"	"
95	"	1	C	"				"	"	"	"
96	"	.4	C	"				"	"	"	"
97	"	.4	C	"				"	"	"	"
98	"	.4	C	"				"	"	"	"
99	Soapstone	.4	F	Talc				.1	L		
100	Serpentine	.4	C	Serpentine + Bastite				.1	L	Pseudomorphing harzburgite	
101	Serpentine + Gabbro vein	.4	C	Ol, Px, Pg				.1	L	X-cutting gabbro vein, relict Ol+Px mostly serpentine	
102	Serpentine breccia	.6	F					.1	M	Mixture of clasts in heavily sheared serpentine matrix	
103	Rodingite	.6	C					.1	M	Serpentine around calc-silicate metagabbro	
104	Dunite	.1	M	99%Ol, 1%Sp				tr	VH		
105	"	.1	M	"				tr	VH		
106	Olivine gabbro	1	M-C	50%Px, 39%Pg 1%Ol				.1	L		
107	"	.6	"	"				"	"		
108	"	.5	"	"				"	"		
109	"	.1	"	"				"	"		

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5 STATION 35 DREDGE \_\_\_\_\_ DESCRIBED BY H. DICK DATE 1/7/81

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
110	Ferro-gabbro	.2	C	30%Pg, 50%Cpx 10%Ilmenite				.1	L	Hornblende?	Light greenschist alteration
111	Aphyric basalt	1	A					tr	M		
112	Olivine basalt	1	A		2% Ol	3%		.1	L		
113	Metabasalt	.4	A-F				3%	.1	M	Greenschist facies	
114	Olivine basalt	.6	A		2% Olivine pseudomorphs	1%		.3	L/M		Limestone breccia
115	Aphyric basalt	.1	A					.1	M		
116	"	.1	A				2%	.1	M		
117	Metadiabase	.1	M		2% Pg			.1	M		
118	Plagioclase basalt	1	F		microphenos 2% Pg				M		
119	Aphyric basalt	.1	A			1%		.1	M		
120	Aphyric basalt	1	A			<1%		.1	M/H		
121	Mudchip breccia	1	A					.1			
122	Metabasalt breccia	.6	A					.2	M/H	Lower greenschist palagonite	
123	Greenstone	.2	F	Epid,qtz,chl				.1	M	Qtz-epidote veins	
124	"	.1	F					tr	H		
125	"	.3	F					tr	H		
126	"	1	F					.1	M/H	Qtz veins	
127	Gneiss	.1	M					.1	M	Metadiabase?	



WHOI ROCK SAMPLE DESCRIPTION

MELVILLE STATION 36 DREDGE DESCRIBED BY E. PADOVANI/H. DICK DATE 1/9/81  
 CRUISE VULCAN 5

Sample #	Lithology	Wt.	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
36-1	Basalt	kg 11	A		Pg+Ol(?) 10-15%			.5-1	L		
2	Gabbro	23	F-M		Pg 8-10%			<.1	L-M	Metagabbro(?) glacial erratic	could be a
3	Diabase	23	F-M		Pg 20-25%			2-6	L		or micro gabbro?
4	Basalt	.4	A		Pg 3-5%			<.1	L		
5	Basalt	1	A		" "			.5-1	L-M		
6	Metadiabase	3	A					1-2	L-M	Lt gr facies	
7	Aphyric basalt	.2	A				3%	1-4	"		
8	Metabasalt	.4	A				1%	<.1	"	Lt gr facies	
9	Aphyric basalt	.2	A				3%	"	L		
10	Greenstone	.4	A				3%	1-2	M	Lt gr facies	
11	Greenstone	.4	A		Pg 2%			"	L	" "	
12	Aphyric basalt	.2	A			3%		1-3	L		
13	"	3	A					<.1	L	Rounded; probably glacial erratic	
14	"	.2	A			.5	1%	1-2	"		
15	Basalt	.2	A		Pg 3-5%		<.5	<.5	"	Palagonite-sealed cracks	
16	Aphyric basalt	1	A				.5	.5	L	" "	"
17	Basalt	.2	A		Pg 2-4%		.5	<.1	L		
18	Basalt	1	A		Pg 10-15%			"	L		

**WHOI ROCK SAMPLE DESCRIPTION**

MELVILLE  
 CRUISE VULCAN 5 STATION 36 DREDGE \_\_\_\_\_ DESCRIBED BY E. PADOVANI/H. DICK DATE 1/9/81 1295-

Sample #	Lithology	Wt. <sup>kg</sup>	G. S.	Mineralogy	Phenocrysts	Ve	Am <sup>mm</sup>	Mn	We	Alteration	Remarks
36-19	Basalt	.4	A		Pg + OI 5-8%		<.5	1-4 L		Palagonite(?)	sealed cracks
20	Basalt	.2	A		"	.5	1% <.5 L				
21	Basalt	.1	A		"		.5	" L			
22	Basalt	.2	A		"		.5	1 L		Palagonite and calcite-sealed cracks	
23	Basalt	.2	A		"		.5	<.1 L			
24	Basalt	.2	A		"		1%	1-4 L		Palagonite sealed cracks	
25	Basalt	.1	A		"			<.1 L		Greenstone; lt. gr facies; abundant sealed cracks	
26	Basalt	3	A		"		1%	" L			
27	Basalt	1	A		"		1%	" L			
28	Basalt	.4	A		"		"	.5-1		Lt. gr. facies; palagonite-sealed cracks	
29	Basalt	.4	A		"		"	<.1		Palagonite-sealed cracks	
30	Basalt	.4	A		"		"	"		Perhaps a diabase; lt gr facies?	
31	Basalt	.2	A		"		1%	"			
32	Basalt	.1	A		"			1-3		Abundant sealed cracks	
33	Basalt	.2	A		"		.5	<.1		Several cracks sealed with palagonite (?)	
34	Greenstone	.4	A					"		Lt. gr. facies	
35	Basalt	2	A		Pg + OI 1-3%		.5	" L-M			
36	Basalt	3	A		" 10-15		.5	2-4		Abundant sealed cracks; mudstone + Mn find	

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 36

DREDGE \_\_\_\_\_ DESCRIBED BY E. PADOVANI/H. DICK

DATE 1/9/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
36-37	Basalt	.2	A		Pg 1-3%			.1- H	M- H	Cut by breccia contact metam.	- sealed cracks
38	Basalt	1	A		" 10-15			<.1	L	Lt. gr. facies	abundant sealed cracks
40	Basalt	.4	A		" 3-5		<.5	<.1	L		
41	Basalt	.4	A		" "		"	"	L	Several sealed cracks	
42	Basalt	.2	A		" "		1%	"	L		
43	Basalt	1	A		" 8-10	.5		3-8	L-M	Abundant sealed cracks	
45	Basalt	.1	A		Pg+O1 1-3%		<.5	<.1	M	Lt gr facies	
46	Basalt	.4	A		" "			"	L	Contact metamorphosed; palagonite breccia	
47	Basalt	.4	A		" "	.5	"	"	L	"	
48	Basalt	.4	A		Pg 1-2%			.5	L-M		
49	Aphyric basalt	3	A			1%		.1- 1	"	Hyaloclastic breccia some fresh glass	
50	"	.2	A				.5	<.1	"	Lt. gr. facies	
51	Diabase	.2	A					.1- .5	L		
52	Aphyric basalt	.1	A				.5	1-2	L-M		
53	Greenstone	.4	A		Pg 1-3			<.1	"	Lt. gr facies,	abundant sealed cracks
54	Breccia	.4	A-M					"	"		
55	Basalt	.2	A		Pg 5-8%		.5	"	M-H		
56	Basalt	.2	A		" "	<.5	"	1-2	"	Mn & mudstone	find



MELVILLE

VULCAN 5

STATION 36

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE 1/9/81

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## WHOI ROCK SAMPLE DESCRIPTION

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
36-57	Basalt	.1	A		Pg 1-2%			<.5	M-H	Hyaloclastic breccia	
58	Greenstone	.1	A					<.1	"		
59	Basalt	.2	A		Pg 1-2%			<.1	M-H	Hyaloclastic breccia; some fresh glass	
60	Basalt	.2	A		Pg 1-2%			<.1	"	"	
61	Basalt	.1	A		"			"	"	"	
62	Basalt	.4	A		" 2-3		1%	.5- 1	L-M		
63	Basalt	.4	A		" 1-2		1%	1-4	M-H		
64	Aphyric basalt	.2	A				1	3-6	M	Hyaloclastic breccia	
65	Hyaloclastic breccia	.4	A-M					1-3	M	No glass - abundant cracks; replaces Pg phyrlic basalt	
66	Aphyric basalt	.1	A					<.1	M	Hyaloclastic breccia rind	
67	Greenstone	.1	A					.5	M	Former hyaloclastic breccia	
68	Basalt	.2	A		Pg 3-5%		.5	3	M		
69	Aphyric basalt	1	A					3-5	M	Hyaloclastic breccia & mudstone	
70	Greenstone	.1	A				1	<.5	M	Lt gr facies	
71	Basalt	1	A		Pg 1-2%			5- 10	M-H	Hyaloclastic breccia rind - no glass	
72	Basalt	.2	A		Pg 1-2%			<.1	"	Hyaloclastic breccia rind - some glass	
73	Hb gneiss	.1	F					.5- 4	L	Glacial erratic	
74	Basalt	.2	A		Pg 3-5		.5		L	Hyaloclastic breccia	



WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5

STATION 37

DREDGE

DESCRIBED BY H. DICK/M. OTTER

DATE 1/10/81

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
37-1	Troctolite	kg 2	C	90% Ol, 10% Pg				mm tr	M	90% Serp.	Cumulate
2	Harzburgite	.2	C	20% Pg 70% Ol, 10% Px				"	"	70% "	Opx intercumulates ol cumulate
3	"	.3	"	85% Ol, 14% Px				tr	"	75% serp	
4	Troctolite	.5	"	90% Ol, 10% Pg 1% Sp				tr	"	95% Serp	Equant spinel Ol cumulate
5	Harzburgite	.4	"	75% ol, 22% Opx 2% cpx, 1% Sp				tr	M	70% serp	
6	Serpentinite	.2		100% serp				.1 M			
7	" breccia	1	A-C	"				tr	H		
8	Chert	.1	A					.1 L	L		Glacial erratic?
9	Gabbro	2	C					tr	M		?
10	Hyaloclastite breccia	6	A	glass & palagonite				tr	M		fresh glass
11	"	.1	A	" "				.1 M			" "
12	"	.4	A	" "				tr	M		" "
13	Aphyric diabase breccia	1	M					tr	M		
14	Basalt breccia	.4	A	Variety of angular lithic & basalt clasts				tr	H		Calcareous cement
15	" "	.2	A	" "				tr	H		" "
16	" "	.3	A	" "				tr	H		" "
17	" "	.4	A	" "				tr	H		" "
18	" "	1	A	" "				"	H		" "

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5 STATION 37 DREDGE \_\_\_\_\_ DESCRIBED BY H. DICK DATE 1/10/81 -300-

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
37-19	Basalt breccia	kg .4	A	Various angular basalt clasts				mm tr	VH- H		Calcareous cement
20	"	7	A	"				"	"		"
21	"	16	A	"				"	"		"
22	"	2	A	"				"	"		"
23	"	3	A	"				.1	"		"
24	"	3	A	"				tr	"		"
25	Basalt	.3	A		Very sparse Pg <1% Pg	<1%		"	M/H		fresh glass present
26	"	.4	A		"	"		"	"		
27	"	.4	A		"	"		.1	"		
28	"	.3	A		"				"		
29	"	.4	A		"	<1%		tr	"		
30	"	1	A		"			"	"		
31	"	.3	A		"			.1	"		
32	"	.2	F		5% med plag	<1%		tr	"		
33	"	.2	F		"			"	"		
34	"	.4	F		"			"	"		
35	"	.5	F		"			"	"		
36	"	.1	F		"			"	"		

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 37 DREDGE DESCRIBED BY H. DICK DATE 1/10/81

Sample #	Lithology	Wt. kg	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
37-37	Basalt	.3	F		3-5% med. plag			tr	M/H		
38	"	.3	F		"			tr	"		
39	"	.2	F		"			tr	"		altered glass
40	"	.2	F		"			tr	"		
41	basalt breccia	.3						tr	VH		calcareous cement
42	Basalt	1	F		5-10% Med pg	<1%		tr	H		
43	"	.3	F		"	"		"	"		
44	"	.3	F		"	"		.1	M		
45	"	.3	F		"	"		tr	H		
46	"	.5	F		"	"		.1	H		
47	"	.4	F		"	"		.1	H		
48	"	1	F		"	"		tr	H		
49	"	3	F		"	"		"	"		
50	"	2	F		"	"		"	"		
51	"	5	F		"	"		.1	"		
52	Diabase	.1	F		2% Plag			.1	M/H		Vuggy
53	"	.3	F		2% Pg, 7% O1			tr	"		Olivine iddingitized
54	"	.3	M					tr	"		

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5

STATION 37

DREDGE \_\_\_\_\_ DESCRIBED BY H. DICK

DATE 1/10/81

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn mm	We	Alteration	Remarks
37-55	Diabase	.1	F					.1	M		
56	"	.3	F-M		2% Plag, 1% Ol			tr	M	Olivine clay →	Pillow fragment
57	Aphyric basalt	.4	F			2%		tr	H		"
58	"	.3	A/G			<1%		tr	M/H		"
59	"	.2	"			"		.1	"		"
60	"	.1	"			"		.1	H		"
61	"	.1	A			"	<1%	.1	VH		Pillow fragment
62	"	.2	A					tr	"		"
63	"	.2	A					.1	H		"
64	"	.1	A/G			1%		tr	M/H		"
65	"	.1	A					tr	"		"
66	"	.2	A/G			<1%		tr	"		"
67	"	.2	A					tr	"		"
68	"	.3	A					tr	"		"
69	"	.4	A/G			<1%		tr	"		"
70	"	.3	"			"		tr	"		"
71	"	.4	"			"		tr	"		"
72	"	.4	F					tr	"		Pillow fragment

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 37

DESCRIPTED BY H. DICK

DATE 1/10/81

CRUISE

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am Mn	We	Alteration	Remarks
37-73	Aphyric basalt	.5	A/G				tr	M/H		
74	"	.6	"			<1%	tr	"		
75	"	.4	"			"	"	"		
76	"	.4	A			"	"	"		
77	"	.4	F				tr	"		Vuggy
78	"	.4	A				.1	"		
79	Greenstone	1	F				.1	"	Greenschist	
80	Aphyric basalt	1	F			<1%	tr	"		
81	"	1	A-F			"	.1	M		
82	Diabase	3	F-M				.1	M/H		
83	"	6	"				tr	"		
84	"	2	"				.1	"		
85	Greenstone	2	A				tr	"	Greenschist	
86	"	4	A				.2	"	"	
87	"	2					tr	"		
88	Qtz gneiss	.2					.1	"		glacial erratic
89	Augen gabbro	.1		Px, Plag, Amph?			.1	"		"
90	Diorite	.2					.1	"		"

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 37

DREDGE

DESCRIBED BY

H. DICK

DATE 1/10/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn mm	We	Alteration	Remarks
37-91	Granite gneiss	.2						.1			glacial erratic
92	"	.2						.1			"
93	Qtz	.2						tr			"
94	Greenstone	.2						tr			
95	Biotite gneiss	.2						.1			glacial erratic
96	Granite	.4						.1			"
97	Sandstone	.2						tr			"
98	Garnet gneiss	.2						tr			"
99	Granite	.2									"
100	Sandstone	.3						tr			"
101	Garnet gneiss	.4						tr			"
102	Sandstone	.4									"
103	Schist	3						.1			"
104	Granite	1						.1			"
105	"	6						.1			"
106	Sandstone	4						tr			"
107	Basalt breccia	.2						tr			"



WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 38 DREDGE DESCRIBED BY E.PADOVANI/H.DICK DATE 1/8/81

Sample #	Lithology	Wt. kg	G.S.	Mineralogy	Phenocrysts	Ve	Am	Mn <sup>mm</sup>	We	Alteration	Remarks
38-1	Basalt	9	A		Pg 3-5%	1%		<.1	L		
2	"	9	A		Microphenocr. Pg 2-4%	1%		"	L		
3	"	7	A		Pg 1-2%	3%	1%	"	L		
4	Pg diabase	2	A-F		Pg 1-2%	5%		"	L		
5	Pg diabase	14	A-F		Pg 1-2%	<.5		"	L		
6	Basalt	4	A		Pg 1-2%	"		"	L		
7	"	3	A		Pg 1-2%	"		"	L		
8	"	.2	A		Microphenocr Pg 1-2%	"		"	L		
9	"	.2	A		Pg 1-2%	"	<.5	1-3	L-M	Hair-like microphenocr of Pg <1%	
10	Aphyric basalt	.2	A			"		<.1	L		
11	Basalt	.2	A		Microphenocr Pg+O1 1-2%	1%		"	L		
12	"	.4	A		"	.5%		"	L		Breccia rind
13	Aphyric basalt	.4	A			"	.5	"	L		Glass rind
14	Basalt	1	A		Microphenocr Pg 1-2% <.5	"		"	L		" "
15	"	4	A		"	1%		"	L		" "
16	"	.4	A		"	1%		"	L		" "
17	Aphyric basalt	1	A			.5	.5	1-2	L-M		
18	Basalt	.2	A		Pg 1-2%	1%		<.1	L		

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE CRUISE VULCAN 5 STATION 38 DREDGE \_\_\_\_\_ DESCRIBED BY E. PADOVANI/H. DICK DATE 1/8/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
38-19	Basalt	.1	A		Pg 3-5%	<.5		<.1	L		
20	"	.2	A		Microphenocr Pg+01 1-3	"		"	L		Glass rind & some breccia remnant
21	"	.2	A		Pg 1-2		1%	"	L		
22	"	.1	A		Pg+01 5-8%		1%	1-2	L-M		
23	"	.2	A		" 3-5%		.5	<.1	"		
24	"	1	A		" "		.5	"	"		
25	"	2	A		" 15-20			"	"	Lt Gr facies calcite(?) sealed cracks	
26	"	.4	A		" "			"	"	Lt Gr facies palagonite and/or breccia sealed cracks	
27	"	1	A		" "			"	"	Lt.gr facies	
28	"	.4	A		Pg 1-3%	.5		1-3	"		In plastic bag
30	"	.4	A		Pg 3-5%		1%	<.1	L		
31	"	.4	A		Pg+01 5-8%		.5	"	L		
32	"	.4	A		" 10-15%	<		"	L		
33	"	1	A		" 20-25%			"	L	Gr facies overprint; calcite and/or palagonite - sealed cracks	
34	"	.1	A		" 5-10	<.5	1%	"	L	Palagonite sealed cracks	
35	"	.1	A		" 10-15	"	1%	"	L		
36	"	.2	A		" 10-15	"		"	L		
37	"	.4	A		" 5-10	"	1%	"	L-M	Gr facies overprint sealed cracks	

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 38

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE 1/8/81

CRUISE \_\_\_\_\_

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
38-38	Basalt	.2	A		Pg+O1 10-15%	<.5	1%	<.1	L		
39	Pg diabase	1	A-F		" 8-10%		<.5	"	L		
40	Diabase	.1	F					"	L		
41	Basalt	<.1	A		Pg+O1 3-5%			"	L-M	Gr facies overprint	
42	"	.2	A		" 5-8%		.5	"	"	Lt. gr facies	
43	"	.2	A		" 10-15%			1-3	"	"	sealed cracks
44	"	.2	A		" "		?	"	M-H	"	"
45	"	.2	A		Pg 2-3%	<.5		"	L-M	"	"
46	Breccia	.1	A					1-5	M-H		
47	"	.1	A								
48	"	.2	A								
49	Basalt	.2	A		Pg + O1 10-15%			1-3	L-M	Lt. gr facies in plastic bag	very crumbly/
50	Basalt	.4	A		" "			<.1	"	Lt gr facies	
51	Aphyric basalt	.2	A					"	"	"	"
52	Hydrothermal ? qtz	.1									
53	Amphibolite	.4	F-M					<.1	L	Glacial erratic	
54	Mudstone	4	A					1-4	M		
55	Rhyolite	.4	A					<.1	L	Glacial erratic	

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 38 DREDGE DESCRIBED BY E. PADOVANI/H. DICK DATE 1/8/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
38-56	Rhyolite	.4	A				mm < 1	L			Glacial erratic andesite(?)
57	Granite	.4	F-M				"	L			"
58	Aplite	.4	F				"	L			"
59	Granite	.4	F-M				"	L			"
60	Phyllite	.4	A				"	L			"
61	Biot. granite	1	M-C				"	L			"
62	Sandstone	.4	A-F				"	L			"
63	Phyllite	.1	A				"	L			"
64	Chert/quartzite	.2	A				"	L			"
65	Sandstone	.2	A				"	L			"
66	Rhyolite	.2	A				"	L			"
67	Sandstone	.1	A				"	"			"
68	Andesite(?)	.4	F				"	"			"
69	Sandstone	.2	A				"	"			"
70	Andesite(?)	.2	F				"	"			"
71	Sandstone	.2	F				"	"			"
72	Garnet gneiss	.4	F-M				"	"			"
73	Phyllite	.4	A				"	"			"



WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 39

DREDGE

DESCRIBED BY E.PADOVANI/H.DICK

DATE 1/8/81

39

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
39-1	Basalt	7	A		Pg 1-3%	1%		<.1	L		Glass rind remnant
2	Basalt	4	A		Pg+01, 3-5%	.5%		"	L		" " "
3	Basalt	5	A		Pg <1%	<.5		"	L		" " "
4	Basalt	4	A		Pg+01, 3-5%	1%		"	L		" " "
5	Basalt	4	A		" 8-10%	.5		"	L		
6	Basalt	4	A		Pg 1-2%	3%		"	L		Glass rind remnant
7	Basalt	4	A		Pg+01, 3-5%	1%		"	L		" " " large phenocrysts
8	Basalt	7	A		" "	<.5		"	L		Glass rind remnant
9	Basalt	4	A		Pg+01, 5-8%	.5		.5	L		" " "
10	Aphyric basalt	2	A			1%		.5	L		" " "
11	Basalt	18	A		Pg <1 %	1%		.5	L		" " "
12	Aphyric basalt	7	A			1%		.5	L		" " "
13	Basalt	4	A		Pg 1-2%	<.5		.5	L		Glass rind
14	Basalt	4	A		Pg+01, 3-5%	1%		.5	L		Glass rind
15	Basalt	11	A		" 1-3%	1%		<.5	L		
16	Basalt	4	A		" 1-3%	1%		"	L		Glass rind
17	Basalt	4	A		" 5-8%	<.5		"	L		Glass rind
18	Basalt	23	A		Pg <1%	"		"	L		Glass rind

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 39 DESCRIBED BY E. PADOVANI/H. DICK DATE 1/8/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
39-19	Basalt	4	A		Pg+O1 5-8%	1%	<.1	L			Glass rind
20	"	4	A		Pg+O1(?) 3-5%	1%	"	L			" "
21	"	23	A		Pg 5-8%	.5	"	L			
22	"	4	A		Pg 1-2%	1%	"	L			
23	"	2	A		Pg 1-3%	1%	"	L			Glass rind
24	"	2	A		Pg+O1 3-5%	<.1	1	L-M			Glass rind remnant
25	"	4	A		Pg+O1 1-3%	<.5	<.1	L			
26	"	1	A		O1 1-2%	3%	"	L			Glass rind
27	"	2	A		Pg+O1 5-8%	3%	"	L			Glass rind remnant
28	"	.4	A		O1 1-2%	1%	"	L			" " "
29	"	.4	A		O1 1-2%	1%	"	L			" " "
30-35	Aphyric basalt	6	A			3%	"	L			" " "
36	Aphyric basalt	4	A			1%	"	L			Glass rind
37	Aphyric basalt	.2	A			2%	"	L			" "
38	Aphyric basalt	.2	A			2%	"	L			" "
39-43	Aphyric basalt	4	A			3%	"	L			" "
44-51	Aphyric basalt	2	A			2%	"	L			" "
52	Aphyric basalt	.1	A			2%	"	L			" "





WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

VULCAN 5

STATION 40

DREDGE

DESCRIBED BY E. PADOVANI/H. DICK

DATE 1/9/81

CRUISE

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
40-1	Aphyric basalt	4	A			<.5	mm	<.1	L		Glass rind
2	"	4	A			"	"	"	L		"
3	"	2	A			"	"	"	L		"
4	"	4	A			"	"	"	L		"
5	"	2	A			"	"	"	L		"
6	"	2	A			"	"	"	L		"
7	"	3	A			"	"	"	L		"
8	"	3	A			"	"	"	L		"
9	"	.4	A			"	"	"	L		"
10	"	.4	A			"	"	"	L		"
11	"	.3	A			"	"	"	L		"
12	"	2	A			"	"	"	L		"
13	"	3	A			"	"	"	L		"
14	"	3	A			"	"	"	L		"
16	"	2	A			"	"	"	L		"
17	"	.4	A			"	"	"	L		"
18	"	.2	A			"	"	"	L		"
19	"	1	A			1%			L		Glass margin

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5 STATION 40 DREDGE \_\_\_\_\_ DESCRIBED BY E.PADOVANI/H.DICK DATE 1/9/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn mm	We	Alteration	Remarks
40-20	Aphyric basalt	2	A			1%		<.1	L		Glass margin
21	"	3	A			<.5		"	L		"
22	"	4	A			<.5		"	L		"
23-28	"	10	A			1%		"	L		"
29-31	"	3	A			1%		"	F		"
32	"	4	A			1%		"	F		"
33	"	.2	A			1%		"	L		"
34	"	.4	A			3%		"	L		"
35	"	.4	A			1%		"	L		"
36	"	.2	A			1%		"	F		"
37	"	.1	A			1%		"	F		Glass rind
38	"	1	A			3%		"	F-L		"
39	"	.4	A			3%		"	"		"
40	"	.4	A			.5		"	"		"
41	"	1	A			.5- 1%		"	F		"
42	"	.2	A			<.5		"	F-L		"
43	"	.4	A			"		"	"		"
44	"	.4	A			"		"	"		"

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE VULCAN 5 STATION 40 DREDGE \_\_\_\_\_ DESCRIBED BY E. PADOVANI/H. DICK DATE 1/10/81

Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
40-45	Aphyric basalt	.1	A			1		<.1	F		Glass rind
46	"	.2	A			1		"	F		"
47	"	1	A			2		"	L		"
48	"	.4	A			2		"	F		"
49	"	.1	A			1		"	L		"
50	"	.4	A			3		"	F		"
51	"	1	A			1		"	F		"
52	"	.2	A			3		"	F		"
53	"	.2	A			1		"	F		"
54	"	.1	A			<.5		"	F		"
55	"	.1	A			1%		"	F		Glass margin
56	"	.2	A			<.5		"	F		All glass
57-59	"	.3	A			"		"	F		Glass margin
60-66	"	.8	A			1%		"	F		"
68-86	"	2	A			.1		"	F		"
				ENTIRE DREDGE DESCRIBED.							
67	"	.1	A			.5		"	F		Glass rind

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5

STATION 41

DREDGE

DESCRIBED BY H. DICK

DATE

1/9/81

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Sample #	Lithology	Wt. kg	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
41-1	Granite	2	C	K-spar				mm tr	F		Glacial erratic
2	Gneiss	.2	C					tr	L		"
3	Greenstone	.2	F	Qz, ep., chl				"	L	Greenschist	
4	Anorthosite	.2	C	Plag, Hb				"	L		Glacial erratic
5	Diabase	2	M					"	M		?
6	Dunitite	.5	C-M	Ol+1-3% Sp				.3	M/H	40% serpentine 30% clay	X-cutting black serpentine veins
7	"	.2	"	"				"	"	"	"
8	"	.2	"	"				"	"	"	"
9	"	.2	"	"				"	"	"	"
10	"	.1	"	"				"	"	"	"
11	"	.1	"	"				"	"	"	"
12	Welded tuff	1	A-E						L		reddish colored with altered lapilli
13	Lherzolite	2	C	75% Ol, 20% Opx 5% Cpx <1% Sp					tr L/M	60% serpentine black (Mt)	Oriented Cpx fresh Opx
14	Harzburgite	1.5	C	77% Ol, 20% Opx 3% Cpx <1% Sp					tr	"	fresh Opx
15	Lherzolite	1	C	75% Ol, 20% Opx 4-5% Cpx, <1% Sp					tr	"	fresh Opx
16	Harzburgite	.6	C	85% Ol, 14% Opx 1% Cpx <1% Sp					.1	75% serpentine Black (Mt)	"
17	Lherzolite	1	C	70% Ol, 24% Opx 6% Cpx <1% Sp					.1	"	"
18	Harzburgite	1	C	80% Ol, 19% Ppx 1% Cpx, <1% Sp					.2	90% serpentine Green-black	"

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5 STATION 41 DREDGE

DESCRIBED BY H. Dick

DATE 1/9/81

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
41-19	Harzburgite	kg .2	C	85%Ol, 10%Opx 1% Sp				mm .1	M	95% Serp black (mt)	
20	"	.4	C					.1	M/H	95% black to green serp	
21	"	.3	C	80% Ol, 20% Opx 1-2%Cpx <1% Sp				"	"	90% black-green serp	Fresh Opx + Cpx
22	Lherzolite	.6	C	75% Ol, 20% Opx 5% Cpx, <1% Sp				tr	"	80% bl-gr serp	" " "
23	Harzburgite	.5	C					.3	"	98% bl-gr serp	
24	"	.7	C	80% Ol, 17%Opx				.1	"	90% bl-gr serp	fresh Opx
25	"	.6	C	"				.1	M	"	
26	"	.5	C	80% Ol, 17%Opx 2-3%Cpx, <1% Sp				.1	H	80% serp & gr clay	fresh Opx+Cpx
27	"	.2	C					tr	M	98% serp	
28	"	.2	C	80%Ol, 20%Ppx <1% Sp				.1	L	most Ppx →serp or, talc, most olivine fresh	Px replaced but not olivine
29	"	9		80% Ol, 18%Opx 2%Cpx, <1%Sp				2	H	40% serp 40% brown clay	Fresh Px
30	Lherzolite	1		75%Ol, 20%Opx 5%Cpx, <1%Sp				.1	H	"	Cpx fresh, Opx altered
31	Harzburgite	.2		80%Ol, 15%Opx 4%Cpx, <1% Sp				.1	H	"	fresh Px
32	"	.1		80% Ol, 18%Ppx <1% Sp				.2	H	"	" "
33	Lherzolite	1.5		75%Ol, 19%Opx 5%Cpx, 1%Sp				.1	H	"	" "
34	"	1		77%Ol, 15%Opx 7%Cpx, 1%Sp				tr	H	20%Serp 50%br clay	" "
35	"	.4		" "						50%Serp 40%br clay	" "
36	Harzburgite	.6		70% Ol, 19%Ppx 1%Sp				.1	H	70% Serp 15% br clay	Px altered

WHOI ROCK SAMPLE DESCRIPTION

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MELVILLE VULCAN 5 STATION 41 DREDGE H. Dick DESCRIBED BY DATE 1/9/81

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
41-37	Harzburgite	.1	C	75%Ol, 20%Opx 4%Cpx, 1%Sp				.1	M-H	60% Serp 15% br clay	fresh px
38	"	.4	C	80% Ol, 18%Opx 2%Cpx, 1%Sp				.2	"	50% Serp 30% br clay	" "
39	Lherzolite	.2	C	75% Ol, 19%Opx 5%Cpx, 1% Sp				.1	H	"	" "
40	Harzburgite	.2	C	80%Ol, 17%Opx 2%Cpx, 1%Sp				.2	H	40%Serp 40% br Clay	" "
41	Lherzolite	1	C	75%Ol, 18%Opx 6%Cpx, 1% Sp				tr	H	"	" "
42	"	.3	C	"				"	"	"	" "
43	"	1	C	"				.1	"	40% serp 40% Br&gr clay	" "
44	"	.3	C	"				.2	VH	30%serp 60% br clay	" "
45	"	1	C	"				"	MH	45%serp 20% br clay	" "
46	"	.2	C	"				"	VH	40%serp 40%br clay	" "
47	"	.1	C	"				"	H	50% serp 30% br clay	" "
48	Harzburgite	1	C	80% Ol, 17%Opx 2%Cpx, 1% Sp				.1	H	"	" "
49	"	.2	C	"				"	H	"	" "
50	"	1	C	"				"	H	"	" "
51	"	.2	C	"				"	VH	50% Serp 40% br Clay	" "
52	Lherzolite	.6	C	75% Ol, 17% Opx 6% Cpx, 1%Sp				tr	H/ VH	40%serp 30% br clay	" "
53	"	.1	C	"				"	H	"	" "
54	"	.1	C	"				"	VH	40% serp 40% br clay	" "

WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

CRUISE VULCAN 5 STATION 41 DREDGE \_\_\_\_\_ DESCRIBED BY H. DICK DATE 1/9/81

Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
41-55	Lherzolite	kg .3	C	71% Ol, 22%Opx 5% Cpx, 1% Sp				mm .1	M/H	50% Serp 15% Br Clay	Fresh px
56	"	.1	C	80% Ol, 10% Opx 6% Cpx, 3% Sp				.2	M/H	60% Serp 20% br clay	"
57	"	.2	C	"				.1	H	"	"
58	Harzburgite ?	.1	C	80% Ol, 20% Px				tr	H	70% Ol 20% br clay	Px altered
59	"	1	C	85% Ol, 15% Ppx				3.0	VH	30% serp 65% br clay	
60	"	.2	C	78% Ol, 18% Opx 3% Cpx, 1% Sp				.2	H	50% serp 25% br clay	fresh px
61	"	.2	C	"				.3	H	"	"
62	Lherzolite	.2	C	79% Ol, 14% Opx 6% Cpx, 1% Sp				.2	H	30% serp 30% br clay	"
63	"	1.5	C	78% Ol, 12% Opx 8% Cpx, 2% sp				tr	H	"	"
64	"	.2	C	"				.8	H	40% serp 40% br clay	"
65	"	1	C	"				.1	H	50% serp 25% br clay	"
66	"	.2	C	" 1 1/2% sp				tr	H	"	"
67	"	.3	C	"				"	"	30% serp 65% br clay	"
68	Harzburgite	2	C	80% Ol, 20% Ppx				.1	VH	30% Serp 65% br clay	
69	"	.1	C	"				tr	H	50% serp 25% br clay	
70	Lherzolite	.4	C	75% Ol, 16% Opx 8% Cpx 1% Sp				.1	M/H	"	fresh px
71	"	.6	C	65% Ol, 25% Opx 8% Cpx, 1% Sp				.1	H	"	"
72	"	.2	C	"				.1	VH	40% serp 40% br clay	"

# WHOI ROCK SAMPLE DESCRIPTION

MELVILLE

 CRUISE VILCAN 5

 STATION 41

DREDGE \_\_\_\_\_

 DESCRIBED BY H. DICK

 DATE 1/9/81

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Sample #	Lithology	Wt.	G. S.	Mineralogy	Phenocrysts	Ve	Am	Mn	We	Alteration	Remarks
41-73	Lherzolite	kg .2	C	80% Ol, 14% Opx 5% Cpx, 1% Sp				.1	H	30% Serp 30% br clay	fresh px
74	"	.5	C	"				.1	VH	30% serp 50% br clay	
75	Harzburgite	.2	C	80% Ol, 16% Opx 3% Cpx, 1% sp				1.0	H	40% serp 25% br clay	fresh px
76	Lherzolite	.5	C					1.5	H	60% serp 30% br clay	fresh Cpx only
77	Harzburgite ?	1	C					.3	M	90% serp 3% br clay	
78	"	.1	C					.3	M	"	
79	Lherzolite	2	C	76% Ol, 15% Opx 8% Cpx, 1% Sp				.4	MH	70% serp 12% br clay	fresh Cpx only
80	"	3	C	75% Ol, 17% Opx 7% Cpx, 1% Sp				.1	MH	65% serp 5% br clay	fresh Px
81	Serpentinite	.6	C					.1	M	1% br clay	trace primary mineral
82	Lherzolite	.6	C	75% Ol, 18% Opx 5% Cpx 1% sp				tr	M	70% serp 1% br clay	
83	Harzburgite	.1	C	80% Ol, 16% Opx 2% cpx, 1% sp				tr	M	80% serp	
84	Serpentinite	.1	C					.1	M	90% serp	
85	"	.2	C					.1	M	"	
86	Harzburgite	1.5	C					.1	VH	95% green clay + serp	
87	Claystone	2		90% gr clay 10% br clay				tr	VH	Clay pseudomorphing Peridotite	
88	"	1.5		"				tr	VH	"	
89	Harzburgite	2		Px + Ol				tr	VH	80% green clay 20% serpentine	
90	Serpentinite breccia	2		Serpentine				tr	H		









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<p>16. Abstract (Limit: 200 words)</p> <p>This report is Volume III of DESCRIPTIONS OF WHOI ROCK DREDGE SAMPLES. This series represents a major effort to catalog the rock dredge samples in the WHOI Sea Floor samples collection, and to disseminate this information throughout the scientific community. Volume III contains sample descriptions and station data for the dredge stations from five cruises during the period September 1978 through December 1980.</p> <p>The material in this and subsequent volumes of rock descriptions was largely prepared onboard ship by the participating scientists. Volumes I and II are now being prepared by the WHOI Curatorial staff, and describe material in the rock collection obtained prior to 1978.</p> <p>Volume III is being printed prior to volumes I and II because of the excellent documentation of the samples represented in this volume, and because more effort remains in documenting the samples obtained on some of the older cruises. We expect that volumes I and II will be printed and distributed within the next year.</p>			
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