DATE: 22 August 1984 SAMPLE: 63 DK

CRUISE ID: SO 33

LOC: VII

AREA: E

box dred

	time (GMT)	LAT (N)	LON (W)	water depth (m)	wire o
ON BOTTOM =					
OFF BOTTOM =					

RECOVERY WEIGHT = TOTAL ~ 50 kg CRUST ~ 20 kg

CRUST THICKNESS = 1-4 cm Avg = 3 cm
2 generations

SUBSTRATE = hyaloclastite, vesicular basalt w/ flow vesicles (stretched + large), 1 clast of nearly pure green nontronite w/ Mn dendrites

COMMENTS:

* confidential

63 DK

Sample No: [illegible] 1 | [illegible] 2

Rock Type: Alkalic Basalt (?) | Trachyte Breccia (leucotrachyte)

Color: Pale brown 5YR 5/2 (fresher) to pale greenish-yellow (10Y 8/2) (more altered) | Pale greenish yellow (10Y 8/2) to moderate greenish yellow (10Y 7/4) to grayish olive (10Y 4/2)

Texture: Aphyric, subtrachytic → -do-, trachytic

Phenocrysts: Rare Plagioclase (?) <1%. Pyroxene (augite?) <<1%. | Phenocrysts rare (biotite occasional visible)

(Matrix) fragmental trachyte

Groundmass: Plagioclase ?, Pyroxene ?, Opaques ?, Glass ? (not determined) → -do-

(Cement) Zeolites, Fe(OH)? (OH-Fe), tobermorite? (very loosely, but firmly cemented)

Vesicles: %: [illegible] | %: (variable: dense to ±5%) ±1 mm in avge, elliptical, elongate

usually empty, or lined with zeolites (often vuggy)

Size: (avge) ±5 mm (extremely variable) (range: ±0.10 mm to ±40 mm)

Shape: round, irregular elliptical

Filling: Calcite, zeolites, smectite (Ca-phillipsite?) illite-smectite?

(±3% of [illegible] vesicle contents) (varies greatly from place to place)

Sorting: extremely poorly-sorted

(avge grain size) extremely variable (fine gravel – cobble size)

(" grain shape) angular → -do-

Alteration: extensive (zeolitization, silicification, hydration, oxidation)

porosity: extremely variable (huge open spaces to compact [illegible])

permeability: (≈ porosity)

Remarks: clasts of varying size (pebble to boulder) of trachyte flow rock probably already broken and rubble before the dredge collected them. flow structure is quite evident in every piece; hydrothermal alteration (greenish-yellow bleaching effect displayed in many sections – transition between fresher and more altered rock) serves as substrate for thick (±50 mm) (dendritic internally, 2 generations, lower most part) laminar to nonuniform ferromanganese crust with finely nodose superstructure

* Tholeiitic (?) basalt porphyry xenolith observed in one piece of basalt

clasts of sizes varying from pebble to large cobbles (usually flattened slabs in larger pieces) of fine-grained (glassy?), highly altered trachyte cemented loosely but firmly (sometimes intimately) with zeolites (phillipsite?), may represent vent breccia erupted prior to main flow. flow structure distinct, serves as substrate for laminar, nodose, and arborescent, cuspate Mn-oxide encrustation (±1 cm thick); fractures, open space penetrated, lined, studded with tobermorite [illegible]

	3	4
Rock Type:	Basaltic / Hyaloclastite Breccia I	Basaltic (AOB?) Hyaloclastite Breccia II
Color:	Grayish-yellow 5Y 8/4 ("cement") & Light brown (5YR 5/6) ("matrix")	→ -do-
Texture:	clastic	→ -do-
Matrix:	Basaltic (AOB?) hyaloclastite ± 70% fragments ± 20%, ± 5 mm dia	Basaltic AOB hyaloclastite fragments ± 70%. Trachytic rock fragments ± 20%.
Cement:	trachytic glass shards, zeolites (intimate mixture); manganese micronodules ± 5%, ± 0.75 mm dia.	zeolites, $Fe(OH)_3$, todorokite? (intimate mixture) ± 10%
Average grain size:	(matrix) ± 5 mm; (cement) ± 0.5 mm	great variability (± 4 mm avge.)
Average grain shape:	angular	→ -do-
Sorting:	(matrix) very poorly sorted; (cement) moderately well-sorted	→ -do-
Porosity:	± 60% (some large, vuggy openings)	→ ± 70% → -do- (± 20%)
Permeability:	± 35%	→ ± 50%
Alteration:	Complete (?) (zeolitization, smectitization, hydration, oxidation)	→ -do-
Remarks:	Classes of hyaloclastite probably dislodged from outcrop by dredge; faint, discontinuous bedding apparent; no manganese encrustations observed (probably a substrate, but no such sample recovered); basaltic hyaloclastite fragments appear to be fairly penecontemporaneous with the trachyte ash	Similar to 63 PK 2 in many ways, but made up largely of AOB(?) hyaloclastite fragments mixed in with some trachytic fragments, cemented by zeolites, $FeOH_3$(?), serves as substrate for reniform ferromanganese encrustation (± 5 mm thick) with finely nodose superstopography → -do-

Sample No.: 5033 63 DK 5

Rock Type: Trachyte Flow

Color: Light yellowish Olive gray (5Y 7/1) to Light gray (N7)

Texture: Subtrachytic, "Spotted"

Phenocrysts: Aphyric (?)
(Biotite?) (clots of crystals about size of rest of groundmass.)

Groundmass: Sanidine (?), - ± 80%
Biotite (?), - ± 10%

Vesicles:
- ± 10%
- ± 1mm (range: 0.5 – 3mm)
- irregular
- lined w/ euhedral phillipsite (?)
- flow-oriented

Alteration: Extensive (argillation [smectite?] zeolitization (phillipsite?), hydration, oxidation [of biotite?])

Remarks: Large cobble-to-boulder size subangular clast of trachyte displaying distinct marmatose flow structure (flow-banding); may be one of the fresher trachytes recovered, but all cavities are lined w/ phillipsite (?); so, ???; remarkably phenocryst-free (biotite (?) occurs as clusters of foliae throughout the groundmass); serves as substrate for ± 3mm-thick deposit of corroded (!?) cuspate- to finely nodose surface topographied, dendritic (internal structure) ferromanganese oxide deposit, like 63 DK2 material adhering to some surfaces.