DATE: 22 August 1984 SAMPLE: 64 DK box dredge
CRUISE ID: SO 33
LOC: VII
AREA: E

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

RECOVERY WEIGHT = total ~50 kg crust ~10 kg

CRUST THICKNESS = Veneer to 3 cm Avg = 0.5 cm
2 generations on some samples
sotty dissolution texture on some samples
SUBSTRATE = Altered basalt, hyaloclastite breccia

COMMENTS:

* microbio sample

* confidential

Sample No: S033 64 DR 1

Rock Type: Basalt, [Tholeiitic ?] flow

Color: Medium brownish-gray (5YR 5/1)

Texture: Aphyric; hyalopilitic

Phenocrysts: rare clinopyroxene (augite?)

Groundmass: Glass, crystallites } (not determined)

Vesicles: %: ±35% (increases toward chilled margin)

Size: ±0.50 mm

Shape: round-oval, coalescing

Filling: Calcite, smectite, zeolites (±15% of total vesicles)

Alteration: moderate-intense; (zeolitization, oxidation, hydration, smectitization, carbonation)

Remarks: rounded clasts from pebble through boulder size (some may be volcanic bombs) of flow basalt. All pieces are ± scoriaceous, the size of the vesicles increasing toward the center of the flow or bomb, decreasing in size and increasing in number toward the chilled margin, which is glassy and highly oxidized (moderate brown 5YR 4/4); this material is very much like the "basaltic hyaloclastite" seen throughout the area of investigation — could be the point (proof) of origin for this material; also has hyaloclastite breccia adhering to it which is very similar to that which is also found throughout the area of investigation; part of the recovery in this dredge was a large, convoluted piece of flow basalt with many chilled margins; probably erupted subaerially from a very gassy melt; probably altered underwater, [illegible]

S033 64 DR 2

Basaltic hyaloclastite

Moderate brown (5YR 4/4) (matrix) & Grayish-yellow clastic

(Matrix:) Basaltic hyaloclastite fragments ±20%; manganese micronodules ±7%

("Cement") "Bleached" (zeolitized) small fragments (sand size) of basaltic hyaloclastite ±63%; zeolites (crystal groups) ±10%

(Average grain size:) (matrix) ±8 mm; ("Cement") ±1 mm

(" grain shape:) angular

(Sorting:) very poorly sorted

(Porosity:) ±70%

(Permeability:) ±50%

(Alteration:) complete (oxidation, smectitization, zeolitization, hydration)

developed on a distinct contact with the underlying bomb; basalt-bomb may have been incorporated in a larger hyaloclastite deposit to which it is related; serves as substrate for encrustion by knobby, warty, porous ferromanganese oxide deposit (±2 cm thick)

-do-

(related)

	3	4
Rock Type	Chalk	Phosphorite
Color:	Very pale orange (10 YR 8/2)	Very pale yellowish orange (10 YR 8/4)
Texture:	granular →	- do -
Matrix:	foraminiferal tests →	- do -
Cement:	Calcite	Francolite
Average grainsize:	± 0.5 mm →	- do -
" grain shape:	round →	- do -
Sorting:	moderately well-sorted →	- do -
Porosity:	90 ± % →	- do
Permeability:	70 ± %	- do -
Alteration:	Superficial (recrystallization of calcite foraminiferal shell material, incipient phosphorization?)	Complete(?) (replacement of calcite with francolite?, infiltration of Fe(OH))
Remarks:	pebble-to-cobble-size fragments probably dislodged from outcrop by dredge; perhaps was a bed 5-10 cm thick at one time; fairly soft, punky chalk, easily disagregated; probably deposited on top of hyaloclastite; somewhat bioturbated, penetrated by small worm tubes; deposits of ferromanganese oxide not observed associated with this material.	± 5 cm-thick layer beneath ± 3 cm thick ferromanganese crust; highly porous, penetrated superficially by worm tubes and FeOH-?; probably the same as 14 DK 3, but phosphorized.