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 =		15°29'33"	169°14'10"	2468	
(uncorrected) OFF BOTTOM =		15°30'26"	169°14'47"	1654	
mean dredge data (corrected):		15°30'23"	169°13'26"	2161 (1182 fm)	

RECOVERY WEIGHT = total ~50 kg crust ~5 kg

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

COMMENTS:

* microbio sample

* confidential

64 DK

Sample Description

Cruise I.D: 5033

Sample I.D: Sta: 64 DK

Location: "Keli" R.dg
15° 30' 23" N
169° 13' 26" W
(-) 2161 m.

Size: _____ Weight: _____

Mn crust thickness:

Total: min: _____ max: _____ ave: _____

Inner crust: min: _____ max: _____ ave: _____

Outer crust: min: _____ max: _____ ave: _____

Surface texture: _____

Internal structure: _____

layered: _____
laminated: _____
massive: _____
porous: _____
dendritic: _____
other: _____

Mineralogy (XRD): _____

Associated alteration, phosphorite, or hydrothermal deposits:

Substratum:

Rock type: _____

Description: _____

Mineralogy (XRD):

Analyses and subsamples:

analysis:	analyst:

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
Fillings: Calcite, smectite (±15% of this/ zeolites vesicles)

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

Remarks: Rounded clasts from pebble- to boulder size (some may be volcanic bombs) of flow basalt. The 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 a 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 of 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, later subaerially, subsequent to eruption;

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 ± 3%
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 — bombs may have been incorporated in a larger hyaloclastite deposit to which it is related; serves as substrate for encrustation by knobby, warty, porous ferromanganese oxide deposit (±2 cm thick)

* very like SO32 41 DS 8

→ -do-

(related)

Sample Description

Cruise I.D: SO 33

Sample I.D: Sta: 64 Dk

Location: "Kel" Sunt area
15°30'23"N
169° 13'26"W
(-) 2161 m.

Size: _____ Weight: _____

Mn crust thickness:

Total: min: _____ max: _____ ave: _____

Inner crust: min: _____ max: _____ ave: _____

Outer crust: min: _____ max: _____ ave: _____

Surface texture: _____

Internal structure: _____

layered: _____
laminated: _____
massive: _____
porous: _____
dendritic: _____
other: _____

Mineralogy (XRD): _____

Associated alteration, phosphorite, or hydrothermal deposits:

Substratum:

Rock type: _____

Description: _____

Mineralogy (XRD):

Analyses and subsamples:

analysis:	analyst:

Rock Type	~~Chalk~~ 3	Phosphorite 4
Color:	Very pale orange (10YR 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 $Fe(OH)_3$
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 $Fe(OH)_3$(?); probably the same as 14 DK 3, but phosphorized

* related to S03747 D5 15 ?