PROTOCOL DREDGE

Cruise No. SO 37	Stat. No. Equipm. 20 DKS	Location IV	Area I
Date 26/5 1985	Protocol written by : Hein / Herzig		

Pinger on wire 3.00 m from dredge JO 146

	Time GMT	Latit. N	Longit. W	Water depth	Wire length	Tension (t)	Remark
begin operation	0410	15°39.898'	170°23.898'	1450	0	0	—
begin lowering	0414	15°39.738'	170°23.895'	1430	1	0.2	—
+1. bottom contact	0439	15°39.835'	170°23.800'	1433	1503	0.8	—
Bite	0526	15 39.95	170.23.49	1197	1700	3.4	3 bites in rapid succession
Bite	"	"	"	"	"	3.5	
Bite	"	"	"	"	"	3.6	
Bite	0534	15 39.984	170°23.375	1135	1700	3.2	
"	"	"	"	"	"	4.7	
"	0541	15°40.003	170°23.300	1100	1690	3.5	
"	"	"	"	"	"	5.6	
"	0545	15°40.013	170°23.269	1108	1680	3.5	
"	0546	"	"	1115	1660	3.0	
"	0547	15°40.021	170°23.259	1114	1630	4.0	
"	0555	15°40.036	170°23.214	1121	1520	3.9	
"	0556	"	"	1128	1509	3.9	
"	0557	15°40.042	170°23.112	1121	1493	6.2	
"	"	"	"	1135	1480	5.2	
"	0558	"	"	1131	1476	7.2	
	0600	15°40.045	170°23.168	1130	1433	3.1	
	0601	"	"	1131	1407	3.5	
begin heaving	0547	15°40.021	170°23.259	1114	1630	2.8	
end heaving	0632	15°40.227	170°22.611	1125	0	0.8	
end operation							

+Corrected data 15° 39.84' N 170° 23.80 W

ship course .....64.88..... calcul. mean water depth.....m

total time of bottom contact 99..min ship velocity 0.8..kts

bottom topography ..... length of dredge section 150....m (max)

Samples Probably from 1180 to 1250 m

Result

125..kg Total ~~105~~ 65 ....kg Substrate

0..kg Nodules 0 ....kg Sediment

Station [illegible]

Pinger on wire: 300 m from dredge

	Time (GMT)	Lat. N	Lon. W	Water depth	Wire length	Tension
Begin Operation:	0410	15°39'698"	170°23'898"	1450	0	0
Begin lowering:	0414	15°39'738"	170°23'895"	1430	1	0.2
+1 bottom contact:	0439	15°39'839"	170°23'800"	1433	1503	0.8
off bottom:	0609	15°40'075"	170°23'196"	1141	1200	1.6
Begin heaving:	0547	15°40'021"	170°23'259"	1114	1630	2.8
End heaving:	0532	15°40'227"	170°22'611"	1125	0	0.8

Ships course: 64.88
Total Time of bottom contact: ~90 min.
Ships velocity: 0.8 kts
Length of dredge section: 150 m (max)
Samples probably from 1180 – 1250 m

125 kg total dredge wt; 0% nodules; 20 kg. crust; 105 kg substrate
~100% covered w/ crust
~95% broken from outcrop
texture botryoidal, no obv. internal structure
max thickness – 2 cm
min. thickness – patina } ~0.7 mm avge
~50% covered w/ encrusting foraams, no other biology
no nodules
4 photos of dredge
substrate: hyaloclastite

	1	2	3
Rock Type:	Trachyte(?) Hyaloclastite	Andesite/AOB Hyaloclastite/volcanogenic Breccia	Phosphorite
Color:	Grayish-orange (10YR 7/4)	Pale olive (10Y 6/2)	
Texture:	Pyroclastic	→ - do -	
Framework Grains:	Trachyte(?) hyaloclasts, ± 8%, ± 1mm Sanidine crystals, ± 10%, ± 2mm Augite(?) crystals, ± 5%, ± 2mm Hornblende crystals, ± 5%, ± 2mm	AOB clasts, ± 26%; Andesite(?) clasts ± 25%, Trachyte(?) clasts, ± 3% ± 5mm dia Feldspar crystals, ± 5%. Augite crystals, ± 10%, ± 1mm dia. ± Titanite crystals ± 1%, ± 1mm	
Cement:	Zeolites(?) (Can't determined)	→ open space, ± 15%. - do - , ± 20%	
Average grain size:	± 1mm	± 3mm	
(range:	≤ 0.10 mm – 5 mm)	→ (± 1mm – 2cm)	
Average grain shape	angular	subangular	
Sorting:	moderately poor	poorly sorted	
Porosity:	Very high	Extremely high	
Permeability:	Moderately High	Moderately high	
Notes:	highly altered (smectitization, zeolitization, oxidation of matrix components)	altered (advanced?) smectitization of matrix components, ± devitrification of glass, zeolitization of matrix components & oxidation)	
	Strange kind of hyaloclastite (may be a tuff) though it displays no obvious stratification, and most components appear to be glassy; individual shards are difficult to identify (may be due to intensity of smectitization). main component may be much finer-grained than can be ascertained in hand specimen; curious 'bleached' zone for about 2cm below capping, dense phosphorite; the phosphorite itself is banded and displays different degrees of advanced phosphorization in stratum (color variation); rock is talus, boulder completely encrusted in dendritic ferromanganese oxide (knobby, warty surface topography). ~ 2 mm thick	May be Outcrop substratum; some pieces are definitely talus as they are encrusted in ferromanganese, like 20DS1; appears to be composed of much more mafic rocks than most other lithologies recovered from Black Friday Ridge (Area I), but a few pieces of trachyte were observed	
(~1.5cm thick)			