DREDGE 21
NW Urcas
Smt.

SAMPLE ID	Mn CHEM	Pt & Au	REE	Si Chem	P.Sect.	35mm Pho	Archive	Paleo	Oxygen Iso			
D21-1	Bulk		Bulk		DPTS				Che Wen			
D21-2												
D21-3												
D21-4												

Sample Description

Cruise I.D: ~~L5-83-HW~~ MARIANA Islands

Sample I.D: Sta: D21-1

Location: NW Uracus Ridge

Size: 26x22x7cm Weight: 2.81 Kg

Depth: 2200-2000 m

Mn crust thickness:

Total: min: 1cm max: 2cm ave: 1cm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: Botryoidal & porous

Internal structure:

layered:
laminated:
massive:
porous: ✓
dendritic:
other: lots of detrital? or pumice? grains incorporated into the crust

MARIANAB ISLANDS
D21-1

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Several worm tubes on surface of Mn crust

Substratum:

Rock type: Pumice

Description: White fibrous pumice speckled w/black mafic minerals. Some areas of translucent crystals (zeolites?) & other alteration areas of dark tan sediment

Mineralogy (XRD):

Analyses and subsamples:

analysis:	analyst:
XRD:	Charlaine
D21-1-I: bulk Mn	
D21-1-II: bulk pumice	
D21-1-III: bulk sediment/pumice*	
Chemistry:	
D21-1-A bulk Mn Manheim phy	F. Brown Boston USGS
D21-1-B bulk Mn REE	Denver USGS
Doubly Polished Thin Section	Manx Petrographics
Oxygen isotopes	Che Whe
D21-1-B resubmitted for Hg Chemistry	

* material scraped from area btw. Mn crust & substrate - probably just altered pumice

MARIANAS
D21-1

MARIANA ISLANDS

Sample Description

Cruise I.D: L5-83-HW

Sample I.D: Sta: D21-2

Location: NW Mariana Ridge

Size: 10x7x5.5cm Weight: 220g

Mn crust thickness:

Total: min: 1.5cm max: 2cm ave: 1.5cm

Inner crust: min: ____ max: ____ ave: ____

Outer crust: min: ____ max: ____ ave: ____

Surface texture: Botryoidal & porous

Internal structure: ____

layered: ____
laminated: ____
massive: ____
porous: ✓
dendritic: ____
other: Lots of detrital? or ferrous? grains incorporated in crust

Mineralogy (XRD): ____

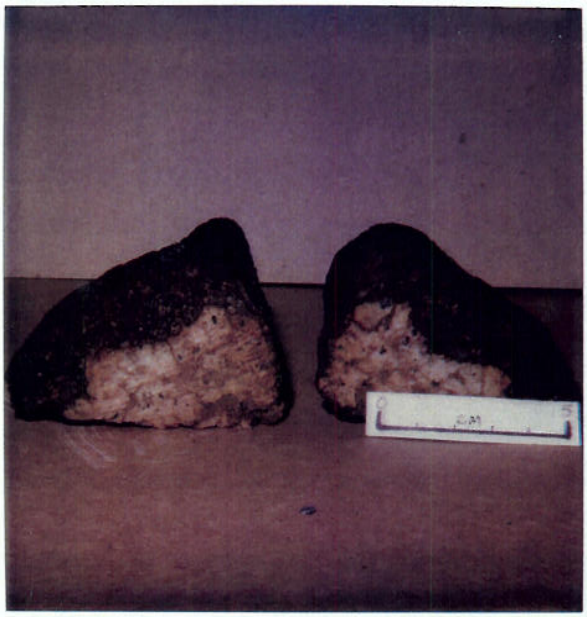
Associated alteration, phosphorite, or hydrothermal deposits: ____

Substratum:

Rock type: Pumice

Description: See D21-1
Somewhat less altered - mafic minerals are needle-like hornblende?

Mineralogy (XRD): ____



MARIANAS D&L
D21-2

Analyses and subsamples:

analysis:	analyst:

Sample Description

Cruise I.D: L5-83-HW Sample I.D: Sta: D 21-3 Location: NW Mariana Ridge

Size: 9x7x5cm Weight: 180g

Mn crust thickness:

Total: min: 7mm max: 24mm ave: 15mm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: Botryoidal & porous

Internal structure:

layered:
laminated:
massive:
porous: ✓
dendritic:
other: lots of detrital grains incorporated into crust

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

forams & worm tubes on crust surface

Substratum:

Rock type: Pumice

Description: See D21-1

Mineralogy (XRD):

Analyses and subsamples:

analysis:	analyst:

MARIANA ISLANDS

Sample Description

Cruise I.D: ~~E5-83-HW~~

Sample I.D: Sta: D 21-4

Location: NW Mariana Ridge

largest of 3 pieces

Size: 10x8x5cm Weight: 185g

Mn crust thickness:

Total: min: 10mm max: 16mm ave: 12mm

Inner crust: min: ____ max: ____ ave: ____

Outer crust: min: ____ max: ____ ave: ____

Surface texture: Botryoidal & porous

Internal structure: ____

layered: ____
laminated: ____
massive: ____
porous: ✓
dendritic: ____
other: lots of detrital grains incorporated into crust

Mineralogy (XRD): ____

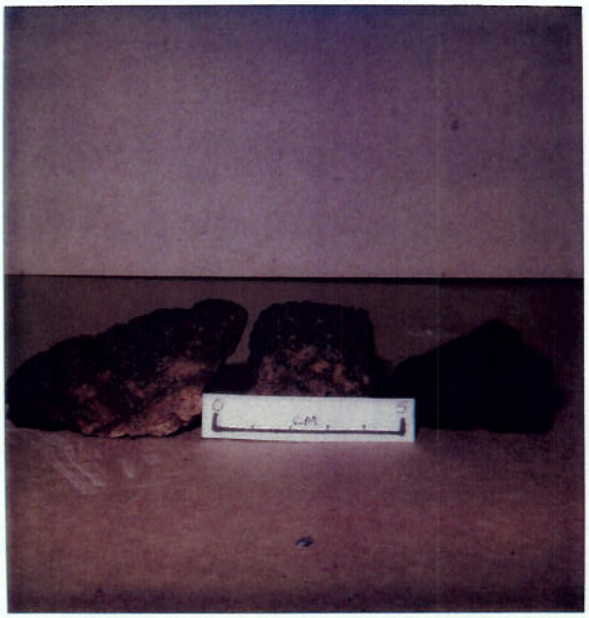
Associated alteration, phosphorite, or hydrothermal deposits: ____

Substratum:

Rock type: Pumice

Description: See D21-1

Mineralogy (XRD): ____



Analyses and subsamples:

analysis:	analyst: