DREDGE 3
SW Guguan
Ridge

SAMPLE ID	Mn CHEM	Pt & Au	REE	Si Chem	P.Sect.	35mm Pho	Archive	Paleo					
D3-1													
D3-2													
D3-3	Bulk	Bulk			P.S.				O_2 isotopes				
D3-4													
D3-5													
D3-6													
D3-7													
D3-8													

MARIANA IS[illegible]

Cruise I.D: [redacted]W

Sample Description

Sample I.D: Sta: D3-1

Location: SW Guyan Ri[illegible]

Size: 14x10x6cm Weight: 185 g [illegible]

Depth: 2[illegible]-2865m

Mn crust thickness:

Total: min: 6 max: 13mm ave: 10mm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: granular-porous

Internal structure:

layered: ✓
laminated:
massive: ✓
porous: ✓ [illegible]
dendritic:
other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Small patches of red-orange mud

Substratum: None

Rock type:

Mn → Description: Light gray to dark gray hydrothermal Mn w/granular texture on surface and underside. Radial crystals (1-2mm in length) on underside. Oddly-shaped by current activity and a few small shiny polished areas that could not have been polished by current activity because they are in cavities on the underneath side

Mineralogy (XRD):

Marianas Islands
D3-1

Analyses and subsamples:

analysis:	analyst:
D3-1 BULK CC 240mm - XRD	
Archive piece	

Cruise I.D: ~~L5-83-HW~~ Mariana Isl.

Sample Description

Sample I.D: Sta: D3-2

Location: SW Guajan Ridge

Size: 7x6x4cm 2 small pieces 7x7x4cm Weight: 165 g (wet)

Mn crust thickness:

Total: min: 19 max: 30mm ave: 25mm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: Granular porous

Internal structure:

layered: ✓
laminated:
massive: ✓
porous: ✓ cavities & cases
dendritic:
other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Small patches of orange mud

Substratum: None

Rock type:

Description: See D3-1

Mineralogy (XRD):

Marianas Islands
D3-2

Analyses and subsamples:

analysis:	analyst:
Se Won Chang took Subsample	

Sample Description

Cruise I.D: ~~L5-83-HW~~ Mariana I

Sample I.D: Sta: D3-3

Location: SW Guyan Ridge

Size: 9x9x5 cm 5x4.5x1.5 cm Weight: 235 g (wet)

Mn crust thickness:

Total: min: 18 max: 40 mm ave: 30 mm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: Granular - Porous

Internal structure:

layered: ✓ 4-5 ?

laminated: ✓

massive:

porous:

dendritic:

other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Small patch of orange mud

Substratum: None

Rock type:

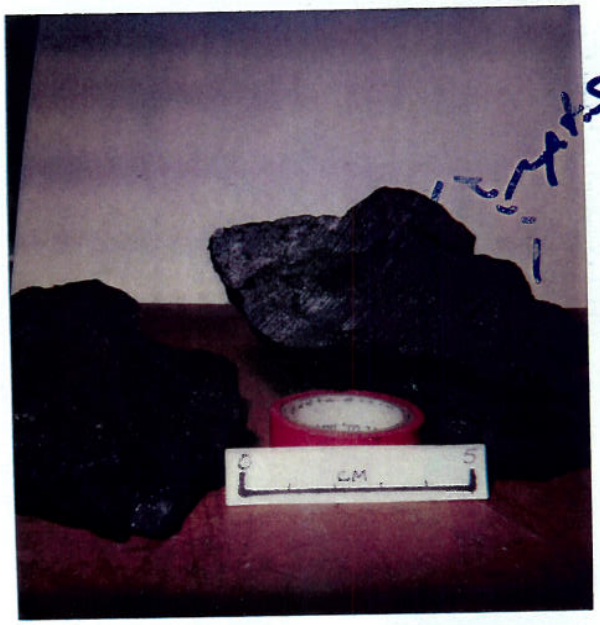
Mn → Description: Same as D3-1 except with laminated layers and several real shiny areas (almost looks like metal!) Also some sort of biology? white to beige sandy(?) volcano shaped craters

Mineralogy (XRD):

Marianas Islands
D3-3

Analyses and subsamples:

analysis:	analyst:
Sampled for XRD:	Charlaine
D3-3-I: surface 0-2 mm	
D3-3-II: middle dense Mn	
D3-3-III: crystals in lense/lava 5-7 mm	
D3-3-IV: crystals on bottom	
D3-3-V: orange mud	
Sampled for bulk chemistry pt. group + Manheim pkg REE	Charlaine
Sampled for O2 isotopes	Charlaine
Polished Thin Section	[illegible]
D3-3-Bulk, Hg, 10.6 gm	2-10-88 J[illegible]
Sample to Collier	LA-ICP-MS



Marianas Islands
D3-3

Mariana Isl.

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

Sample Description

Sample I.D: Sta: D3-4

Location: [illegible]

3 pieces

Size: [illegible] Weight: [illegible] (wet)

Mn crust thickness:

Total: min: 15 max: 40mm ave: 30mm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: Granular porous

Internal structure:

layered: ✓
laminated:
massive: ✓
porous: ✓
dendritic:
other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Small patches of orange mud

Substratum: None

Rock type:

Description: Same as D3-1

Mineralogy (XRD):

Marianas Islands
D3-4

Analyses and subsamples:

analysis:	analyst:

Cruise I.D: ~~L5-83-HW~~ Mariana Isl.

Sample Description

Sample I.D: Sta: D3-5

Location: SW Guguan Ri

Size: 12x10x7cm Weight: 355g (wet)

Mn crust thickness:

Total: min: 5 max: 40mm ave: 23mm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: Granular + porous

Internal structure:

layered: ✓ ?

laminated: ✓

massive:

porous: ✓

dendritic:

other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Small patches of orange mud

Substratum: None

Rock type:

Description: Same as D3-1

[illegible] - cavity is full of radial crystals

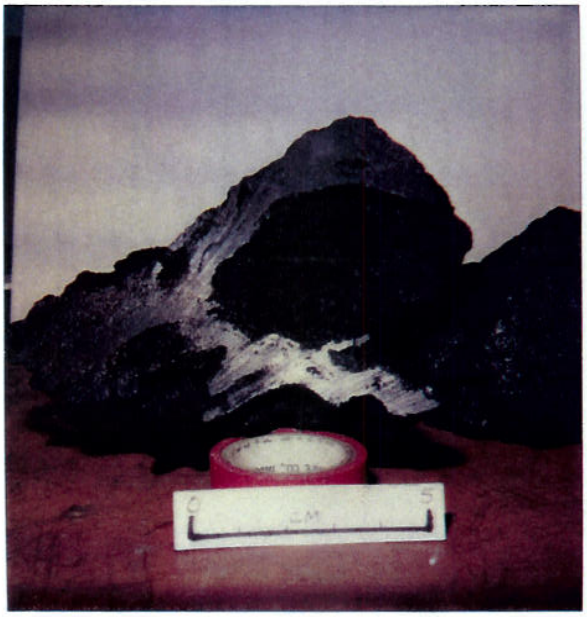
Mineralogy (XRD):

Marianas Islands

D3-5

Analyses and subsamples:

analysis:	analyst:
D3-5, Bulk CC, XRD 29 grms	
Chem sample a grouping of [illegible] broken. 2-3-88 sm	



Marianas Islands
D3-5

Cruise I.D: L5-83-HW

Sample Description

Sample I.D: Sta: D 3-6

Location: SW Guyan R

4 nos total: 11x8x5cm

Size: 12x9x4cm Weight: 350g (wet)

2 pieces: 6x4x2cm

Mn crust thickness:

Total: min: 7mm max: 25mm ave: 10mm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: granular-porous

Internal structure:

layered: ✓

laminated: ✓

massive:

porous: ✓ lenses

dendritic:

other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

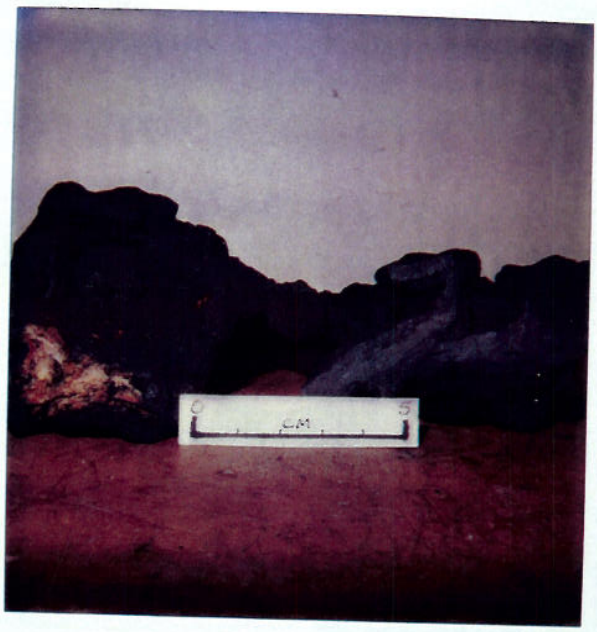
Orange mud in small patches

Substratum: None

Rock type:

Mn Description: Same as D3-1

Mineralogy (XRD):



Marianas Islands
D3-6

Analyses and subsamples:

analysis:	analyst:
One rock given to	P. Halbalk

MARIANA ISLANDS

Sample Description

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

Med. rag & small pieces

Sample I.D: Sta: D3-7

Location: SW Guguan Ridge

Size: 10x7x3cm or smaller Weight: ≈1.25 kg (wet)

Mn crust thickness:

Total: min: 10 max: 25 ave: 12mm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: Granular - porous

Internal structure:

layered: ✓
laminated: ✓
massive:
porous: ✓ lenses
dendritic:
other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Red orange mud in small areas

Substratum: None

Rock type:

Mn Description: Same as D3-1

Mineralogy (XRD):

MARIANAS ISLANDS
D3-7

Analyses and subsamples:

analysis:	analyst:

Sample Description

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

Sample I.D: Sta: D3-8

Location: SW Guguan Ridge

Size: 10x6x3.5cm largest 3 pieces Weight: 200g (wet)

Mn crust thickness:

Total: min: 10 max: 20 ave: 15mm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: Granular

Internal structure:

layered: ✓

laminated: ✓

massive:

porous:

dendritic:

other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Small patch orange mud

Substratum: None

Rock type:

Mn → Description: Same as D3-1

Mineralogy (XRD):

MARIANAS ISLANDS

D3-8

Analyses and subsamples:

analysis:	analyst:
XRD on wet sample	