APPENDIX E. COLLECTION FORMS AND FIELD NOTES

Collection Forms

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/12/06 Weather: cool, ~~clear~~ overcast, calm

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, ~~A Rodriguez~~, E Duffield, ~~K Hurley~~

GRAB DATA	Location ID: EW-RM- 01			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
0909	19.5	—	N	didn't fire
0913	19.6	15	Y	

SAMPLE DATA	Sample ID: EW-RM06- 01		
Sediment type (%)	Sediment color	Sediment odor	Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S
gravel	drab olive	slight	petroleum
sand (F M C) — 90% trace	brown splotchy	moderate	other:
silt <10%	gray	strong	worm
clay	black		

GRAB DATA	Location ID: EW-RM- 02			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
0930	19.3 sp	15	Y	

SAMPLE DATA	Sample ID: EW-RM06- 02		
Sediment type (%)	Sediment color:	Sediment odor:	Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S
gravel 5%	drab olive splotchy	slight	petroleum
sand (F M C)*	brown	moderate	other:
silt - 5%	gray	strong	plant debris
clay	black		

* looks like cap material. 95% (coarse sand material)

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/12/06 Weather: cool, light rain

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, ~~A Rodriguez~~, E Duffield, ~~K Hurley~~

GRAB DATA	Location ID: EW-RM- 16 and EW-RM-101 (duplicate)			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
0947	19.2	14	Y	

SAMPLE DATA	Sample ID: EW-RM06-		
Sediment type (%)	Sediment color	Sediment odor	Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S
gravel ~80%	drab olive	slight	petroleum
sand F M C* ~20%	brown	moderate	other:
silt - trace	gray	strong	worm isolated
clay	black		

* 8 cm of silt/fine sand on top of cap (coarse sand) material

GRAB DATA	Location ID: EW-RM- 24			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1000	19.0	15.5	Y	

SAMPLE DATA	Sample ID: EW-RM06- 2		
Sediment type (%)	Sediment color:	Sediment odor:	Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble (90%)	brown surface	~~none~~	H_2S
gravel remainder ~5%	drab olive	slight	petroleum
sand F M C	brown	moderate	other:
silt ~5%	gray	strong	worms pockets of isolated sheen
clay	black		

[redacted]

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/12/06 Weather: cool, light rain

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, ~~A Rodriquez~~, E Duffield, ~~K Hurley~~

GRAB DATA	Location ID: EW-RM- 25			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1018	19.1	14	Y	

SAMPLE DATA	Sample ID: EW-RM06- 25		
Sediment type (%)	Sediment color	Sediment odor	Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none / H_2S	worms surface
gravel	drab olive	slight / petroleum	
sand (F M C)	brown	moderate / other:	
silt	gray	strong	
clay	black		

GRAB DATA	Location ID: EW-RM- 15			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1100	16.8	—	N	- rocks caught in jaws - wash out
1104	16.3	—	N	- rocks caught in jaws - wash out.
1108	16.6	—	N	- rocks caught in jaws - wash out

SAMPLE DATA	Sample ID: EW-RM06- 15		
Sediment type (%)	Sediment color:	Sediment odor:	Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none / H_2S	
gravel	drab olive	slight / petroleum	
sand (F M C)	brown	moderate / other:	
silt	gray	strong	
clay	black		

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/12/06 Weather: cool, light rain

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, ~~A Rodriguez, E~~ Duffield, ~~K Hurley~~

GRAB DATA	Location ID: EW-RM- 15			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1112 #4	17 m	n/a	N	wash out; rocks in jaws
1117 #5	17	n/a	N	" " - ~9.8 ft fm target
1122 #6	17.8	n/a	N	did not trigger ~9.9 ft fm. target

SAMPLE DATA	Sample ID: EW-RM06- 15			
Sediment type (%)	Sediment color	Sediment odor		Comments: ~~(i.e. organic matter, wood~~ debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	
gravel	drab olive	slight	petroleum	
sand (F M C)	brown	moderate	other:	
silt	gray	strong		
clay	black			

GRAB DATA	Location ID: EW-RM- 15			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1128 #7	18	n/a	N	wash out; ~10 ft fm. target
1133 #8	18.5	17	Y	1/2 good to keep - other half OP ~9.7 ft target to NW

SAMPLE DATA	Sample ID: EW-RM06- 15			
Sediment type (%)	Sediment color:	Sediment odor:		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	
gravel 45%	drab olive	slight	petroleum	
sand (F M C)	brown	moderate	other:	
silt - 55%	gray	strong		
clay	black			

not material
sheen layer - multiple patches

* fine sand layer above gravel layer approx 3-3.5cm

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/12/06 Weather: cool, rain

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, ~~A Rodriquez~~, E Duffield, ~~K Hurley~~

GRAB DATA	Location ID: EW-RM- 28			
Latitude:		Longitude:		Depth
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments: (@top) fine material depth - ~~[illegible]~~ discontinuous (4cm) fill material depth ≈ 12cm (coarse sand)
1442	19.5	12	Y	

SAMPLE DATA	Sample ID: EW-RM06- 28			
Sediment type (%)	Sediment color	Sediment odor		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	
gravel 10%	drab olive	slight	petroleum	worms
sand (F M C) * 90%	brown	moderate	other:	
silt trace	gray	strong		
clay	black			

* fill material - coarse sand

GRAB DATA	Location ID: EW-RM- 26			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1456	19.6	15	Y	

SAMPLE DATA	Sample ID: EW-RM06- 26			
Sediment type (%)	Sediment color:	Sediment odor:		Depth Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	
gravel trace	drab olive	slight	petroleum	fine material @ surface - NOT visible
sand (F M C) * 15%	brown	moderate	other:	
silt - trace	gray	strong		fill material - 15 cm (coarse sand)
clay	black			

* fill material - coarse sand

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 **Project no.:** 05-08-09-29

Date: 1/26/06 **Weather:** cool, rain

Sampling Method: 0.1 m^2 van Veen grab **Crew:** T Do, S Pierce, ~~A Rodriquez~~, E Duffield, ~~K Hurley~~

GRAB DATA	Location ID: EW-RM- 23			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1508	20	—	N	chain caught did not fire
1511	20.3	12	Y	

SAMPLE DATA	Sample ID: EW-RM06- 23			
Sediment type (%)	Sediment color	Sediment odor		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	worms
gravel trace	drab olive	slight	petroleum	silt begins at 2cm and is discontinuous w/ coarse sand to 15 cm
sand (F M C) *90%	brown	moderate	other:	
silt borderline	gray	strong		
clay trace	black			

* coarse sand = fill material

GRAB DATA	Location ID: EW-RM- 20			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1524	21.8	14	Y	

SAMPLE DATA	Sample ID: EW-RM06- 20			
Sediment type (%)	Sediment color:	Sediment odor:		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	none
gravel trace	drab olive	slight	petroleum	coarse sand 0-14 cm
sand (F M C) *95%	brown	moderate	other:	
silt trace	gray	strong		
clay	black			

coarse sand = fill material

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/12/06 Weather: cool, rain

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, ~~A Rodriquez~~, E Duffield, ~~K Hurley~~

GRAB DATA	Location ID: EW-RM- 18			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1533	19.8	13	Y	coarse sand = 0-13cm

SAMPLE DATA	Sample ID: EW-RM06- 18			
Sediment type (%)	Sediment color	Sediment odor		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	
gravel	drab olive	slight	petroleum	
sand (F M C)*	brown	moderate	other:	
silt	gray	strong		
clay	black			

none

*coarse sand = fill material

GRAB DATA	Location ID: EW-RM-			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:

SAMPLE DATA	Sample ID: EW-RM06-			
Sediment type (%)	Sediment color:	Sediment odor:		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	
gravel	drab olive	slight	petroleum	
sand (F M C)	brown	moderate	other:	
silt	gray	strong		
clay	black			

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/24/06 Weather: Sunny, Cool

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, A Rodriquez, ~~E Duffield, K Hurley~~

GRAB DATA	Location ID: EW-RM-3			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1321	19.1	15	Y	

SAMPLE DATA	Sample ID: EW-RM06-3		
Sediment type (%)	Sediment color	Sediment odor	Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none / H_2S	0-13cm cap layer
gravel	drab olive	slight / petroleum	13-15 fine sand & silt
sand (F M C) 95% Fine 5%	brown	moderate / other:	
silt Trace <5%	gray	strong	
clay	black		

GRAB DATA	Location ID: EW-RM-4			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1333	19.0	10	N	Insufficient penetration
1338	18.9	11	Y	

SAMPLE DATA	Sample ID: EW-RM06-4		
Sediment type (%)	Sediment color:	Sediment odor:	Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	Discontinuous brown surface	none / H_2S	
gravel	drab olive	slight / petroleum	Organic matter, worms
sand (F M C) 90%	brown	moderate / other:	
silt - 10%	gray	strong	
clay	black		

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/24/06 Weather: Sunny, cool, light wind

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, A Rodriquez, ~~E Duffield, K Hurley~~

GRAB DATA	Location ID: EW-RM- 5			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1351	19.0	15	Y	

SAMPLE DATA	Sample ID: EW-RM06- 5			
Sediment type (%)	Sediment color	Sediment odor		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	Discontinuous brown surface	none	H_2S	Wood debris, worms, bubble snail
gravel	drab olive	slight	petroleum	0-1cm Fine sand, silt
sand (F M C) 5, 10% 80%	brown	moderate	other:	1-3cm Med sand
silt 5%	gray	strong		3cm-15cm Coarse sand (cap)
clay	black			

GRAB DATA	Location ID: EW-RM- 6			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1404	19.0	~~17~~ 15	Y	

SAMPLE DATA	Sample ID: EW-RM06- 6			
Sediment type (%)	Sediment color:	Sediment odor:		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	Woody debris, leaf litter, worms
gravel	drab olive	slight	petroleum	Slight sheen
sand (F M C) 30% 70%	brown	moderate	other:	0-3cm Med sand & silt
silt Trace <5%	gray	strong		3-15cm Coarse sand
clay	black surface			

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/24/06 Weather: Sunny, cool, light wind

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, A Rodriquez, ~~E Duffield, K Hurley~~

GRAB DATA	Location ID: EW-RM-7			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1415	18.6	13	Y	

SAMPLE DATA	Sample ID: EW-RM06-7			
Sediment type (%)	Sediment color	Sediment odor		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	Slight pocket sheen
gravel	drab olive	slight	petroleum	Organic matter, wood debris, leaf litter, worms
sand (F M C) 90% 10%	brown	moderate	other:	11-13cm (Cap layer) Coarse sand
silt	gray	strong		
clay	black			

GRAB DATA	Location ID: EW-RM-8			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1426	18.4	13	Y	

SAMPLE DATA	Sample ID: EW-RM06-8			
Sediment type (%)	Sediment color:	Sediment odor:		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	Discontinous brown surface	none	H_2S	Wood debris, worms
gravel	drab olive	slight	petroleum	0-13cm (Cap layer) Coarse Sand
sand (F M C) Trace <5% 95%	brown	moderate	other:	
silt	gray	strong		
clay	black			

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/24/06 Weather: Sunny, cool, light wind

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, A Rodriquez, ~~E Duffield, K Hurley~~

GRAB DATA	Location ID: EW-RM- 10			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1437	18.3	16	Y	

SAMPLE DATA	Sample ID: EW-RM06- 10			
Sediment type (%)	~~Sediment color~~ Discontinuous	Sediment odor		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	Organic matter, worms, wood debris, leaf litter
gravel 100%	drab olive	slight	petroleum	0-5cm Fine-med sand 100%
sand (F M C) 100%	brown	moderate	other:	5-16cm Coarse sand (cap) 100%
silt Trace < 5%	gray	strong		
clay	black			

GRAB DATA	Location ID: EW-RM- 19			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1448	16.8	NA	N	Wash out, large subangular gravel
1453	16.0	NA	N	Chain lock, empty grab
1456	16.0	NA	N	Wash out

SAMPLE DATA	Sample ID: EW-RM06- 19			
Sediment type (%)	Sediment color:	Sediment odor:		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	
gravel	drab olive	slight	petroleum	
sand (F M C)	brown	moderate	other:	
silt	gray	strong		
clay	black			

FORM 1: SURFACE SEDIMENT COLLECTION FORM

Windward environmental LLC

SURFACE SEDIMENT COLLECTION FORM

Project Name: EW Recontamination Monitoring 2006 Project no.: 05-08-09-29

Date: 1/24/06 Weather: Sunny, Cool

Sampling Method: 0.1 m^2 van Veen grab Crew: T Do, S Pierce, A Rodriquez, ~~E Duffield, K Hurley~~

GRAB DATA	Location ID: EW-RM- 19 Cont'd			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1459	NA	NA	N	Grab flipped; empty grab
1502	NA	NA	N	25 ft NW of target; Large gravel caught in jaws
1506	17.9	12 ~~cm~~	Y	1/2 grab sample kept; 28.7 ft NW of target location

SAMPLE DATA	Sample ID: EW-RM06- 19			
Sediment type (%)	~~Sediment color~~	Sediment odor		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	Discontinous brown surface	none	H_2S	organic matter, pockets of sheen
subangular gravel 20%	drab olive	slight	petroleum	0-2 cm Med-fine sand & silt
sand (F M C)	brown	moderate	other:	2-12 cm Med-fine sand w/ subangular gravel
silt 80%	gray	strong		
clay	black			

GRAB DATA	Location ID: EW-RM- 21			
Latitude:		Longitude:		
Grab time	Bottom depth (m)	Penetration depth (cm)	Acceptable grab (Y/N)	Comments:
1518	18.0	14	Y	

SAMPLE DATA	Sample ID: EW-RM06- 21			
Sediment type (%)	Sediment color:	Sediment odor:		Comments: (i.e. organic matter, wood debris, shell fragments, sheen, fauna, field duplicate, rinsate blank, etc.)
cobble	brown surface	none	H_2S	Worms, wood debris
gravel 95% Trace 45%	drab olive	slight	petroleum	0-3cm Fine with trace med sand
sand (F M C) 100%	brown	moderate	other:	3-14cm Coarse sand (cap)
silt	gray	strong		
clay	black			

Field Notes

1/11/05 EW Recontamination Monitoring
Coring / Grab
Crew: Thai Do
Emily Duffield } WW
Shannon Pierce
Jesse Bennett - Parametrix
Charlie Eaton } Bio Marine
Tom Putnam

0700 - Meet @ Harbor Island Marina
Weather - wind (15-25 knots)
0710 - C. Eaton + crew decided wind + weather conditions are unsafe for sampling conditions - will attempt sampling tomorrow (1/12)

0715 - Leave H. Island Marina.

1/11/05
SPierce

1/12/05 EW Recontamination Monitoring
coring / grab sampling
Crew: Thai Do
Emily Duffield → WW
Shannon Pierce
Jesse Bennett → Parametrix
Charlie Eaton → BioMarine
Tom Putnam
weather: cool, calm, no ppt.

0700 - Meet @ H. Island Marina; mobilization of boat + equip for sampling

0738 - Head to EW for sampling. Beginning in Zone 3 (15, 19, 22)

0755 - Go over Health + Safety Plan + equipment procedure
* Nav. difficult b/c of current in EW

0823 EW-RM-15 → core sampling (took core)
water depth = ~~17 m~~ SP 56 ft
location - (recorded on C. Eaton's nav. equipment)

1/12/05

EM-RM-15 (core-attempt 1)
penetration depth: n/a; core was retrieved empty. will attempt again added more weight (total = 6 weights) 360 lbs.

0834 EW-RM-15 (core-attempt 2)
water depth = 52 ft
sed. recovery depth = 60 cm*
* will allow sed. to settle b/f recording depth

~~EW-RM-19 (core-attempt 1)~~ SP

0840 - core catches + collar fell off core + into water - will not be able to core sample until we get another catcher

0845 - Called Floyd McCarthy + left a msg. to get another catcher

0850 - Talked to Angie Rodriguez to coordinate w/ Floyd + pick up new catcher.

0900 - will sample stations in zone 1, where only a grab is necessary

1/12/05

We will sample ~~[illegible]~~ SP for chemistry grabs until we have the core catcher + resume zone 3.

0909 EW-RM-1 (grab only - attempt 1)
water depth = ~~[illegible]~~ SP 19.5m
(tide = 2.6 m)
grab did not fire

0913 EW-RM-1 (grab only - attempt 2)
water depth = 19.6 m
penetration = 15 cm

0930 ~~[illegible]~~ SP - EW-RM-2 (grab only - attempt 1)
water depth = 19.3 cm
penetration = 15 cm

0920 - 0930 * Decision communication w/ Project Mngr Susie McGroddy for Angie's access to T-25 - ok'd.
For sample EW-RM-15, we discussed the recovery (only 60 cm) but the 2-2.5 cm overlying fine sand, so clearly we will need take chemistry (grab). Susie agreed no need to retake core to meet min. penetration depth (80 cm) b/c would result in chemistry grab.

0947 - EW-RM-16 (grab only - attempt 1)
water depth = 19.2 m + replicate
penetration = 14cm EW-RM-101

1000 - EW-RM-24 (grab only - attempt 1)
water depth = 19.0m ~~+ replicate~~ 8P
penetration = 15.5 cm ~~EW-RM-101~~ 8P
MS/MSD samples collected

1017 - EW-RM-25 (grab only - attempt 1)
water depth = 19.1 cm
penetration = 14cm

1025 - Communication w/ Angie - will retreive ~~gra~~ core catcher fm. her.

1040 - Will plan to collect a grab for chemistry @ EW-RM-15. Based on conversation w/ S. McGroddy, the core taken @ 0834 is acceptable for triggering chemistry grab b/c there was clearly a 2-2.5 cm layer ~~above~~ of fine sand above cap material. even though there was only 60 cm penetration.

Core Description

1050 - EW-RM-15 (fm. 0834 collection time)
water depth = 52 ft
Sed. recovery = 60cm
time sampled = 0834
depth of coarse sand (cap layer) = 23cm
~~depth~~ (present) and gravel present.
depth of fine sand layer above cap material = 2.5 cm
org. material = none visible
Will take chemistry grab based on evidence of fine sand layer (2.5cm) above cap
photos = 1963, 1964

1052 - picked up core material (catcher) fm. Angie @ T-25.

1100 - EW-RM-15 (grab - attempt 1)
water depth = 16.8 m
penetration = n/a - rocks caught in jaws - wash out

1104 - EW-RM-15 (grab - attempt 2)
water depth = 16.3 m
penetration = n/a rocks caught in jaws - wash out

1/12/05 S. Pierce

1108 EW-RM-15 (grab-attempt 3)
water depth = 16.6 m
penetration depth = rocks in jaws - wash out

1112 EW-RM-15 (grab-attempt 4)
water depth = 17 m
penetration depth = rocks in jaws - wash out

1115 - Communication w/ S. McGroddy that if after several grab attempts, its ok to apply BPJ and move several meters out from station but to note whether there is a presence of fine material above cap (based on what triggered sampling).

Moved ~10 ft + took sample

1117 EW-RM-15 (grab-attempt 5)
water depth = 17 m
penetration depth = n/a; wash out ~9.8 ft from target to SW; will try to sample ~10 ft to W of sample

1/12/05 S. Pierce

1122 EW-RM-15 (grab-attempt 6)
water depth = 17.8 m
penetration depth = n/a - did not fire b/c grab flipped over - will attempt again slightly off this new location

1128 EW-RM-15 (grab-attempt 7)
water depth = 18 m
penetration depth = n/a - washed out w/ rocks in jaw

1133 EW-RM-15 (grab-attempt 8)
water depth = 18.5 m
penetration depth = 17 cm (1/2 OP 1/2 ok to take)
9.7 ft off target to NW of station

1145 - lunch break before switching equipment back over to corer.

1220 - change over to coring equipment will return to Zone 3 to complete mound coring; added weight
Weights on corer = 480 lbs

1/12/05 S. Pierce

1240 EW-RM-19 (core-attempt 1)
water depth = 18.5 m
penetration depth = 14 cm - insufficient penetration - will sample again

1248 EW-RM-19 (core-attempt 2)
water depth = 18 m
pen. depth = 14 cm - insufficient penetration

1254 EW-RM-19 (core-attempt 3)
water depth = 18.1 m
pen. depth = 2-3 cm - insufficient penetration - will move ~10 ft fm target

1300 Navigation problems w/ computer - reboot computer

1313 ~~1312~~ EW-RM-19 (core-attempt 4)
water depth = 19 m
pen. depth = n/a - only a few rocks
*moved ~10 ft fm. target @ attempt 4 (11.5 ft)

1/12/05 S. Pierce

will move to EW-RM-22 and attempt

1316 - Communication w/ S. McGroddy. We were told to move on fm EW-RM-19 because of our 4 failed attempts to penetrate through gravel layer. We will let her know how EW-RM-22 goes

1322 EW-RM-22 (core-attempt 1)
water depth = 17 m
pen. depth = 4 cm - insufficient pen. retained some gravel - will move slightly off target

1327 EW-RM-22 (core-attempt 2)
water depth = 17.3 m
pen depth = n/a - water only; no sed/rocks
9.3 ft off target

1329 EW-RM-22 (core-attempt 3)
water depth = 17.6
pen depth = n/a - water only; no sed/rocks
14.6 ft target

1333 - Communication w/ Susie on results of sampling attempts @ EW-RM-22. Given direction to do no more sampling attempts @ EW-RM-22 or on mound. Will move onto Zone 2 Area.

1338 EW-RM-17 (core-attempt 1)
water depth = 21 m
pen depth = <1 cm; coarse sand
fill captured.

1345 - EW-RM-17 (core-attempt 2)
water depth = 21.2 m
penetr. depth = <1 cm, coarse sand
~7.7 ft. fm target

1350 EW-RM-17 (core-attempt 3)
water depth = 21 m
pen. depth = <1 cm - gravel / coarse sand
*speed up RPMs on boat in attempt to get max force to drive core into sed - could be falling over.
6.6 ft fm. target.

Will move on fm EW-RM-17 because of 3 failed attempts; moving onto EW-RM-12

1404 EW-RM-12 (core-attempt 1)
water depth = 20.2 m
pen. depth = <5 cm; coarse sand (retained some) insuff. penetration

1409 EW-RM-12 (core-attempt 2)
water depth = ~~17.8 m~~ 20.5 m
pen depth = n/a - water only no sed or rocks

1406 Left msg. for Susie about sampling unsuccess + the possibility of switching to a vibracore. J. Bennett says vibracore (4") is avail. for rent fm. Parametrix.

1412 - Decided to move to EW-RM-28 (furthest loc. fm mound area)

 4/12/06 S. Pierce

1418 - EW-RM-28 (core-attempt 1)
water depth = 21.6 m
pen. depth = <1 cm - coarse sand

1422 EW-RM-28 (core-attempt 2)
water depth = 21.2 m
pen. depth = <1 cm coarse sand

1428 - Communication w/ S. McGroddy to finish core sampling - is not yielding successful results. We will go to the locations in Zone 2 where both a chemistry grab + core are required.

1430 - switch sampling equip.

~~1430~~ EW-RM-28 (grab - attempt 1)
1442 water depth = 19.5 m * photos 1965, 1966
pen. depth = 12 cm

1456 EW-RM-26 (grab-attempt 1)
water depth = 19.6 m
pen depth = 15 cm

 4/12/06 S. Pierce

1508 EW-RM-23 (grab attempt 1)
water depth = 20.8 m
pen. depth = n/a; chain caught - misfire

1511 EW-RM-23 (grab attempt 2)
water depth = 20.3 m
pen. depth = 12 cm

1524 EW-RM-20 (grab attempt 1)
water depth = 21.8 m
pen. depth = 14 cm

1533 EW-RM-18 (grab attempt 1)
water depth = 19.8 m
pen. depth = 13 cm

1540 Finished sampling for day

Note - EPA oversight - J. Bennett cut thumb on barrel of corer ~ washed + covered w/ band-aid; minor cut

1/12/06 S. Pierce

1550 – Head back to Harbor Island marina

1552 Call Susie to let her know we are done sampling for the day. We will likely try to use parametrix's vibracore for coring next week. No sampling will occur tomorrow (1/13 – Friday)

1/12/06 Shawn Pierce

1/23/06 A. Rodriguez

0730 Arrive at Harbor Island Marina
Weather: Overcast, mist, fog
Crew: A. Rodriguez (Windward)
T. Do (Windward)
S. Pierce (Windward)
Jesse Bennett (Parametrix, oversight)
Charlie Eaton (Biomarine boat operator)
Tom Putnam (Biomarine)

0745 The minimum acceptable penetration for core samples is 80cm = 31.5 in. This is the initial day of sampling with Vibracore equipment. Field crew is setting up. Photos taken.

0805 Motor to EW-RM-5,
Core sampling location
Core attempt 1 @ EW-RM-5
* Penetration ~~Water~~ depth (initial) = 54 ft
* Penetration ~~Water~~ depth (final) = 59 ft
Sed recovery = 39 in
Time sampled: 0847
Depth of coarse sand (cap layer) = 10 in.
Surface sediment fine above cap layer = 2 in
No visible organic material

1/23/06 EW-RM-5 A. Rodriguez

Water Depth = 19.6 m

Because surface sediment observed overlying the sand layer is > 2cm, a chemistry sample (grab) needs to be collected.

*NOTE Pentetration depths at EW-RM-5 location were estimated values b/c the vibracore was setting at angle.

Photos taken 62-67

0920 EW-RM-9, Core sampling location

Core attempt 1, Photos taken 68-69

Penetration depth, initial = 54ft

Penetration depth, final = 60ft

Water depth = 19.7 m

Sed Recovery = 52 in.

Time sampled = 0924

Depth of coarse sand (cap layer) = 12 in

~~Sand~~ Sand layer present

Surface sediment above cap layer = 1 cm

Visible organic material consisting of leaf litter in top 1cm layer

Because surface sediment overlying the sand layer is < 2cm, a chemistry (GRAB) sample is NOT to be collected.

1/23/06 A. Rodriguez

0945 EW-RM-11

Core attempt 1, Photos taken 70-71

Penetration depth, initial = 54 ft

Penetration depth, final = 61

Water depth = 19.8 m

Sed recovery = 80 in.

Time sampled = 0958

Depth of coarse sand (cap layer) = 9 in

Sand layer present

Surface sediment above cap layer 61.5 cm

Visible organic material = none

Because the depth of the coarse sand (cap layer) ≥ 10 cm & overlying surface sediment is < 2 cm, a chemistry (GRAB) sample is NOT needed for collection.

1035 EW-RM-19, core location on mound

Core attempt 1

Penetration Depth, initial = 49 ft

Penetration Depth, final = 53.7 ft

Water depth = 18 m

Sed recovery = None, core was lost

Time sampled = 1044

~~Depth of coarse sand (cap layer) =~~ AR

1/23/06 A. Rodriguez

EW-RM-19 cont'd

1048 Vibracore core & core tube were lost upon retrieval

1100 Core attempt 2, Photos taken 72-74
Penetration depth, initial = 48ft
Penetration depth, final = 53 ft
Water depth = 17.8m
Sed Recovery = ~~57 in~~ AR 53in
Time Sampled = 1112
Depth of coarse sand layer (cap layer) = 11.5in
Sand layer present
Surface sediment above cap layer = 2.0cm
Visible organic material = none

Cut open core tube to visually inspect composition of sand layer. Coarse sand with sub angular gravel dispersed throughout. Photos taken 76-81

After communication w/ Susie McGroddy she directed us to Collect a grab chemistry sample at EW-RM-19 on 1/24

1/23/06 A. Rodriguez

1136 EW-RM-22, core location on mound
Penetration depth, initial = 44.5ft
Penetration depth, final = 50ft
Water depth = 16.1m
Sed Recovery = 52 in.
Time sampled = 1138
Depth of coarse sand layer (cap layer) = 17 in.
Sand layer present
Surface sediment above cap layer = 1.5cm
Photo taken 75
No visible organic material
NO chemistry (grab) sample needed for collection b/c depth of cap layer > 10cm & surface sediment overlying the cap layer is < 2cm.

1200 LUNCH BREAK; called Susie & gave her the progress of the field effort.

1236 Motor to EW-RM-12
Core attempt 1, Photo taken 82
Penetration depth, initial = 57ft
Penetration depth, final = 62.5ft
Water depth = 19.9m
Sed Recovery = 48 in

1/23/06 A. Rodriguez

EW-RM-12 Cont'd
Time Sampled = 1305
Depth of coarse sand layer (cap layer) = 12 in. Sand layer present
Surface sediment above cap layer = 1 cm
Visible organic material = None
No chemistry (Grab) sample needed for collection b/c depth of cap layer > 10cm & material overlying sand layer is < 2 cm.

1327 EW-RM-13
Core attempt 1, Photo taken 83
Penetration depth, initial = 51 ft
Penetration depth, final = 55.5 ft
Water depth = 19.0m
Sed Recovery = 63 in
Time sampled = 1340
Depth of coarse sand layer (cap layer) = 9.5 in
Sand layer is present
Surface sediment above cap layer = 1 cm
Visible organic material = None
No chemistry (Grab) sample needed for collection b/c depth of cap layer > 10cm & material overlying sand layer is < 2 cm.

1/23/06 A. Rodriguez

1356 EW-RM-14
Core attempt 1, photos taken 84-85
~~Pente~~ AR Penetration depth, initial = 50.5 ft
Penetration depth, final = 55.5 ft
Water depth = 19.0m
Sed Recovery = ~~72 ft~~ AR in.
Time sampled = 1407
Depth of coarse sand layer (cap layer) = 31 in.
Sand layer is present
Surface sediment above cap layer = 1.5 cm
Visible organic material = none
No chemistry (GRAB) sample needed for collection b/c depth of cap layer is > 10 cm & material overlying sand layer is < 2 cm.

1423 EW-RM-17
Core attempt 1, Photos taken 86-87
Penetration depth, initial = 50.5 ft
Penetration depth, final = 54.5 ft
Water depth = 18.6m
Sed Recovery = 60 in
Time Sampled = 1439
Depth of coarse sand layer (cap layer) = 8 in.

1/23/06 A. Rodriguez

EW-RM-17 Cont'd
Sand layer is present
Surface sediment above cap layer = not visible
Visible organic material = none
No chemistry (grab) sample needed to be collected b/c cap layer is > 10cm & material overlying sand layer is < 2cm

1500 EW-RM-21
Core attempt 1, Photo taken 88
Penetration Depth, initial = 49 ft
Penetration Depth, final = 54 ft
Water Depth = 18.4m
Sed Recovery = 49 in.
Time sampled = 1508
Depth of coarse sand layer (cap layer) = 14 in.
Sand layer present
Surface sediment above cap layer = 3cm
Visible organic material = None
AR ~~No~~ chemistry (grab) sample required b/c ~~cap layer is > 10cm &~~ AR material overlying cap layer is > 2 cm

1/23/06 A. Rodriguez

1524 EW-RM-27
Core attempt 1, Photo taken 89
Penetration depth, initial = 48 ft
Penetration depth, final = 52.5 ft
Water depth = 18.1 m
Sed Recovery = 47 in.
Time sampled = 1534
Depth of sand layer (cap layer) = 6.5 in
Sand layer present & pockets of sheen
Surface sediment above cap layer = 1cm
Visible organic material = none
No chemistry (grab) sample required b/c depth of cap layer is > 10cm & material overlying cap layer is < 2 cm

1550 EW-RM-26
Core attempt 1
Penetration depth, initial = 46 ft
Penetration depth, final = 51 ft
Water depth = 17.8 m
Sed Recovery = 32 in.
Time sampled = 1558
Depth of sand layer (cap layer) = 16 in.
Sand layer present

1/23/06 A. Rodriguez

EW-RM-26
Surface sediment above cap layer = To be determined 1/24 morning b/c suspended material needs time to settle.
Visible organic material = None

1612 Head back to Harbor Island Marina

1640 Arrive at Harbor Island
End of field day

1/23/06

1/24/06 A. Rodriguez

0730 Arrive at Harbor Island Marina
Crew: Angelita Rodriguez (Windward)
Shannon Pierce (Windward)
Thai Do (Windward)
Charlie Eaton (Bio Marine)
Tom Putnam (Bio Marine)

Weather: Foggy, cool

0744 Continue core description for EW-RM-26
Surface sediment above cap layer = 4 cm
Photos taken 90-91

0750 Motor to EW-RM-28
Core attempt 1, Photos taken 97-98
Penetration Depth, initial = 54 ft
Penetration Depth, final = 59 ft
Water Depth = 19.6 m
Sed Recovery = 48 in.
Time Sampled = 0817
Depth of sand layer (cap layer) = 9.5 in.
Sand layer present

1/24/06 A. Rodriguez

EW-RM-28 Cont'd
Surface sediment above cap layer = <1cm
Visible organic material not present

0830 EW-RM-23
Core attempt 1, Photos taken 102-104
Penetration Depth, initial = 54 ft
Penetration Depth, final = 59 ft
Water Depth = 20 ft m
Sed Recovery = 54 in
Time Sampled = 0849
Depth of sand layer (cap layer) = 9 in
Sand layer is present
Surface sediment above cap layer <1 cm
Visible organic material = worms are present in cap layer

0901 EW-RM-3
Core attempt 1, Photo taken 99
Penetration Depth, initial = 55 ft
Penetration Depth, final = 59.5 ft
Water Depth = 19.9m
Sed Recovery = 62 in
Time Sampled = 0912

1/24/06 A. Rodriguez

EW-RM-3 Cont'd
Depth of sand layer (cap layer) = 9 in
Sand layer is present
Surface sediment above cap layer = 1cm
Visible organic material not present

0923 EW-RM-6
Core attempt 1, Photos taken 100-101
Penetration Depth, initial = 54 ft
Penetration Depth, final = 59 ft
Water depth = 19.6m
Sed Recovery = 60 in.
Time sampled = 0939
Depth of sand layer (cap layer) = 15.5 in
Sand layer is present
Surface sediment above cap layer = 1cm
Visible organic material is not present

0952 EW-RM-8
Core attempt 1, Photos taken 105-106
Penetration Depth, initial = 54 ft
Penetration Depth, final = 59 ft
Water Depth = 19.8m
Sed Recovery = 57 in.
Time Sampled = 1008

1/24/06 A. Rodriguez

EW-RM-8 cont'd
Depth of the sand layer (cap layer) = 10 in.
Sand layer present
Surface sediment above cap layer < 1 cm
Visible organic material not present

1035 EW-RM-10
Core attempt 1, Photos taken 107-108
Penetration Depth, initial = 54.5 ft
Penetration Depth, final = 59.5 ft
Water Depth = 19.5 m
Sed Recovery = 44 in.
Time Sampled = 1048
Depth of the sand layer (cap layer) = 9.5 cm.
Sand layer is present
Surface sediment above cap layer = 1 cm
Visible organic material not present

1058 EW-RM-18
Core attempt 1, Photos taken 149-150
Penetration Depth, initial = 52.5 ft
Penetration Depth, final = 61.5 ft
Water Depth = 19.5 m
Sed Recovery = 44 in.
Time Sampled = 1111

1/24/06 A. Rodriguez

EW-RM-18
Depth of the sand layer (cap layer) = 15 in
Sand layer present
Surface sediment above cap layer < 1 cm
Visible organic material not present

1125 EW-RM-20
Core attempt 1
Penetration Depth, initial = 59.5 ft
Penetration Depth, final = 64 ft
Water Depth = 21.6 m
Sed Recovery = 31.0 in
Time Sampled = 1134
Depth of the sand layer (cap layer) = 13.5 in
Sand layer is present
Surface sediment above cap layer = not visible
Visible organic material not present

1148 Head back to Harbor Island Marina to pick-up grab sampling equipment

1248 Collect rinsate ~~RW~~ AR EW-RM-06-3-RB
1300 Motor to station EW-RM-3
Weather: sunny, cool, light wind

1/24/06 A. Rodriguez

1320 EW-RM-3
Grab attempt 1, Kept
Time Sampled = 1321
Penetration = 15cm
Water Depth = 19.1m

1328 EW-RM-4
Grab attempt 1
Time Sampled = 1333
Penetration = 10 cm
Water Depth = 19.0m
Insufficient penetration not kept

Grab attempt 2, Kept
Time Sampled = 1338
Penetration = 11 cm
Water Depth = 18.9m

1346 EW-RM-5
Grab attempt 1, Kept
Time Sampled = 1351
Penetration = 15
Water Depth = 19.0m
Bubble snail identified by Charlie Eaton

1/24/06 A. Rodriguez

1359 EW-RM-6
Grab attempt 1, Kept
Time sampled = 1404
Penetration = 15 cm
Water depth = 19.0m

1412 EW-RM-7
Grab attempt 1, Kept
Time sampled = 1415
Penetration = 13cm
Water depth = 18.6m

1420 EW-RM-8
Grab attempt 1, Kept
Time sampled = 1426
Penetration = 13 cm
Water depth = 18.4m

1431 EW-RM-10
Grab attempt 1, Kept
Time sampled = 1437
Penetration = 16 cm
Water Depth = 18.3m

1/24/06 A. Rodriguez

1444 EW-RM-19, location on mound
Grab attempt 1
Time sampled = 1448
Penetration = Washed out, large subangular gravel
Water Depth = 16.8m
Insufficient penetration not kept
~~Jaws~~ AR

Grab attempt 2
Time sampled = 14:53
Penetration = NA
Water Depth = 16.0m
Chain lock, empty grab

Grab attempt 3
Time sampled = 1456
Penetration = Washed out
Water depth = 16.0 m
Insufficient penetration not kept

Grap attempt 4
Time sampled = 1459
Penetration = NA
Water Depth = NA
Grab flipped; empty grab

1/24/06 A. Rodriguez

EW-RM-~~5~~ AR 19 Cont'd
Grab attempt 5
Time sampled = 1502
Moved 25 ft NW of target location
Low sediment recovery due to large ~~rock~~ gravel caught in jaws
Penetration = NA
Water Depth = NA

Grab attempt 6
Time sampled = 1506
Penetration = 12cm
Water depth = 17.9m
Kept ½ of grab sample & moved 28.7 ft NW of target location

~~Grab attempt~~ AR

1515 EW-RM-21
Grab attempt 1
Time sampled = 1518
Penetration = 14cm
Water depth = 18.0m

1526 Head back to Harbor Island Marina

1/24/06 A. Rodriguez

1529 Contact Susie to inform that all core & grab sampling is completed. However, delayed getting back to Harbor Island Marina because Railroad Bridge is locked in "down" position

1610 Arrive at Harbor Island Marina
End of field day

Angelo [signature]
1/24/06

Protocol Modification Forms

FORM 2: PROTOCOL MODIFICATION FORM

Project Name and Number: EW Recontamination Monitoring 05-08-09-29

Material to be Sampled: Sediment

Measurement Parameter: Penetration depth

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

Corer will be advanced into the sediment to refusal using enough weight to achieve the minimum target penetration depth of 80 cm (Windward, Oct 4, 2005)

Reason for Change in Field Procedure or Analysis Variation: Gravity corer could not penetrate sand cap layer, even with additional weights. Although there was only 60 cm of penetration, there was clearly a 2-2.5 cm layer of material above the cap material, triggering a grab sample anyways.

Variation from Field or Analytical Procedure: Accept core from EW-RM-15 although penetration depth was only 60 cm.

Special Equipment, Materials or Personnel Required: none

Initiator's Name: T. Do Date: 12 Jan 06

Project Officer: [signature] Date: 3.30.06

QA Officer: [signature] Date: 3/30/06

FORM 2: PROTOCOL MODIFICATION FORM

Project Name and Number: EW Recontamination Monitoring 05-08-09-29

Material to be Sampled: Sediment

Measurement Parameter: N/A

Standard Procedure for Field Collection & Laboratory Analysis (cite reference):

Sediment cores will be collected using a 3-inch (outer diameter) gravity corer (Windward, Oct 4, 2005)

Reason for Change in Field Procedure or Analysis Variation: Gravity corer could not penetrate the sand cap layer to obtain enough sediment penetration.

Variation from Field or Analytical Procedure: Sediment cores will be collected using a 4-inch (outer diameter) Vibracorer

Special Equipment, Materials or Personnel Required: 4-inch (outer diameter) Vibracorer with steel core tube and butyl acetate core-tube liners. (Hamilton P3 vibracorer, Gillette GEN-PRO generator, coring accessories - control unit, cables, core tubes, core noses, weight package, tools)

Initiator's Name: T. Do Date: 18 Jan 06

Project Officer: [signature] Date: Jan 18 2006

QA Officer: [signature] Date: 1.18.06