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NEW BEDFORD SUPERFUND PROJECT

UPPER ACUSHNET RIVER ESTUARY ENGINEERING FEASIBILITY STUDY

OF ALTERNATIVES FOR DREDGING AND DREDGED MATERIAL DISPOSAL

Chemical Analyses of Composite Sediment and Site Water

Interim Draft Report

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Region 1, Boston, Massachusetts

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Encl 2

NEW BEDFORD HARBOR ENGINEERING FEASIBILITY STUDY

BULK SEDIMENT CHEMISTRY FOR COMPOSITE SAMPLE

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Table A

Metals and Organics

Analysis	Replicate 1 (ppm)	Replicate 2 (ppm)	Replicate 3 (ppm)
I Metals			
Arsenic	8.92	9.07	8.23
Cadmium	35.6	35.4	35.0
Chromium	772	755	739
Copper	1750	1740	1690
Lead	1759	2491	1789
Mercury	2.49	2.65	2.52
Nickel	125	121	119
Selenium	< 0.496	< 0.493	< 0.496
Zinc	3070	3000	2990
II Pesticides			
Aldrin	< 5.0	< 5.0	< 5.0
α -BHC	< 5.0	< 5.0	< 5.0
β -BHC	< 5.0	< 5.0	< 5.0
γ -BHC	< 5.0	< 5.0	< 5.0
Acrolein	< 36	< 36	< 36
D-BHC	< 5.0	< 5.0	< 5.0
Chlordane	< 50	< 50	< 50
P,P-DDD	< 5.0	< 5.0	< 5.0
P,P-DDDE	< 5.0	< 5.0	< 5.0
P,P-DDT	< 5.0	< 5.0	< 5.0
Dieldrin	< 0.05	0.5	0.45
α -Endosulfan	< 0.05	0.13	0.11
β -Endosulfan	< 0.05	< 0.05	< 0.05
Endosulfan Sulfate	< 0.099	< 0.002	< 0.002
Endrin	< 0.05	< 0.05	< 0.05
Endrin Aldehyde	< 0.05	< 0.05	< 0.05

(Continued)

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Table A (Continued)

Analysis	Replicate 1 (ppm)	Replicate 2 (ppm)	Replicate 3 (ppm)
Heptachlor	< 5.0	< 5.0	< 5.0
Heptachlor Epoxide	0.05	0.05	0.05
Toxaphene	< 50	< 50	< 50
III Monocyclic Aromatics			
Phenol (GC)	< 4.6	< 4.8	< 4.6
2-Chlorophenol	< 4.6	< 4.8	< 4.6
2-Nitrophenol	< 4.6	< 4.8	< 4.6
2,4-Dimethylphenol	< 4.6	< 4.8	< 4.6
2,4-Dichlorophenol	< 4.6	< 4.8	< 4.6
4-Chloro-3-Methylphenol	< 4.6	< 4.8	< 4.6
2,4,6-Trichlorophenol	< 4.6	< 4.8	< 4.6
Hexachlorobenzene	< 4.6	< 4.8	< 4.6
Phenathrene	10	9.1	9.8
Anthracene	< 4.6	< 4.8	< 4.6
Fluoranthene	8.5	8.6	8.9
2,4-Dinitrophenol	< 46	< 48	< 46
4-Nitrophenol	< 4.6	< 4.8	< 4.6
2-Methyl-4,6-Dinitrophenol	< 46	< 48	< 46
Pentachlorophenol	< 4.6	< 4.8	< 4.6
1,3-Dichlorobenzene	< 4.6	< 4.8	< 4.6
1,4-Dichlorobenzene	5.0	5.9	6.8
1,2-Dichlorobenzene	< 4.6	< 4.8	< 4.6
Benzene	< 1.8	< 1.8	< 1.8
Phenol (Total)	0.715	< 0.633	< 0.544
2,4-Dinitrotoluene	< 4.6	< 4.8	< 4.6
2,6-Dinitrotoluene	< 4.6	< 4.8	< 4.6

(Continued)

Table A (Continued)

Analysis	Replicate 1 (ppm)	Replicate 2 (ppm)	Replicate 3 (ppm)
Nitrobenzene	<4.6	<4.8	<4.6
3,3-Dichlorobenzidine	<23	<24	<23
1,2,4-Trichlorobenzene	<4.6	<4.8	<4.6
Toluene	<1.8	<1.8	<1.8
Chlorobenzene	<1.8	<1.8	<1.8
Ethylbenzene	<1.8	<1.8	<1.8
IV Halogenated Aliphatic Hydrocarbons			
Chloromethane	<3.6	<3.6	<3.6
Bromomethane	<3.6	<3.6	<3.6
Vinyl Chloride	<3.6	<3.6	<3.6
Chloroethane	<3.6	<3.6	<3.6
Methylene Chloride	<1.8	<1.8	<1.8
1,1-Dichloroethene	<1.8	<1.8	<1.8
Trans 1,2-Dichloroethane	<1.8	<1.8	<1.8
Chloroform	<1.8	<1.8	<1.8
Hexachlorobutadiene	<4.6	<4.8	<4.6
Hexachlorocyclopentadiene	<4.6	<4.8	<4.6
1,2-Dichloroethane	<1.8	<1.8	<1.8
1,1,1-Trichloroethane	<1.8	<1.8	<1.8
Carbon Tetrachloride	<1.8	<1.8	<1.8
Bromodichloromethane	<1.8	<1.8	<1.8
1,2-Dichloropropane	<1.8	<1.8	<1.8
Trans-1,3-Dichloropropane	<1.8	<1.8	<1.8
Trichloroethene	<1.8	<1.8	<1.8
Dibromochloromethane	<1.8	<1.8	<1.8
Cis-1,3-Dichloropropene	<1.8	<1.8	<1.8

(Continued)

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Table A (Continued)

Analysis	Replicate 1 (ppm)	Replicate 2 (ppm)	Replicate 3 (ppm)
1,1,2-Trichloroethane	<1.8	<1.8	<1.8
Bromoform	<1.8	<1.8	<1.8
1,1,2,2-Tetrachloroethane	<1.8	<1.8	<1.8
Tetrachloroethene	<1.8	<1.8	<1.8
Hexachloroethane	<4.6	<4.8	<4.6
V Polycyclic Aromatic Hydrocarbons			
Pyrene	6.7	7.5	7.3
Chrysene	6.3	8.5	7.7
Benzo(A)Anthracene	6.3	8.0	8.2
Benzo(B)Fluoranthene	9.6	14	12
Benzo(K)Fluoranthene	9.6	14	12
Benzo(A)Pyrene	7.7	7.7	7.4
2-Chloronaphthalene	<4.6	<4.8	<4.6
Acenaphthylene	<4.6	<4.8	<4.6
Acenaphthene	<4.6	<4.8	<4.6
Fluorene	<4.6	<4.8	<4.6
Indeno(1,2,3-cd) Pyrene	<4.6	<4.8	<4.6
Dibenzo (a-h) Anthracene	<4.6	<4.8	<4.6
Benzo (GHI)Perylene	<4.6	<4.8	<4.6
Naphthalene	<4.6	<4.8	<4.6
VI Halogenated Ethers			
BIS(2-Chloroisopropyl) Ether	<4.6	<4.8	<4.6
BIS(2-Chloroethyl) Ether	<4.6	<4.8	<4.6

(Continued)

Table A (Concluded)

Analysis	Replicate 1 (ppm)	Replicate 2 (ppm)	Replicate 3 (ppm)
BIS(2-Chloroethoxy) Methane	<4.6	<4.8	<4.6
2-Chloroethylvinyl Ether	<3.6	<3.6	<3.6
Dibenzofuran	<4.6	<4.8	<4.6
4-Bromophenyl Ether	<4.6	<4.8	<4.6
4-Chlorophenyl Phenyl Ether	<4.6	<4.8	<4.6
VII Nitrosamines and Miscellaneous Compounds			
Acrylonitrile	<36	<36	<36
N-Nitrosodimethylamine	<4.6	<4.8	<4.6
N-Nitrosodiphenylamine	<4.6	<4.8	<4.6
1,2-Diphenylhydrazine	<4.6	<4.8	<4.6
Benzidine	<46	<48	<46
N-Nitroso-Di-N-propylamine	<4.6	<4.8	<4.6
Isophorone	<4.6	<4.8	<4.6
VIII Phthalate Esters			
BIS(2-ethylhexyl) phthalate	22	26	29
Di-N-Octylphalate	<4.6	<4.8	<4.6
Butylbenzylphthalate	<4.6	<4.8	<4.6
Dibutylphalate	<4.6	<4.8	<4.6
Diethylphthalate	<4.6	<4.8	<4.6
Dimethylphyphalate	<4.6	<4.8	<4.6

Table B

Polychlorinated Biphenyls and Related Compounds

Analysis	Replicate 1 (ppm)	Replicate 2 (ppm)	Replicate 3 (ppm)
I Aroclors			
PCB 1016	<50	<50	<50
PCB 1221	<50	<50	<50
PCB 1232	<50	<50	<50
PCB 1242	810	1020	830
PCB 1248	<50	<50	<50
PCB 1254	560	650	775
PCB 1260	<50	<50	<50
II Congeners			
2,4-Dichlorobiphenyl	<1.0	1.0	<1.0
2,4'-Dichlorobiphenyl	164	163	170
2,4,4'-Trichlorobiphenyl	159	151	149
2,2',3,5-Tetrachlorobiphenyl	88.2	82.2	82
2,2',4,5'Tetrachlorobiphenyl	28.9	27.9	27.2
2,2',4,6-Tetrachlorobiphenyl	159	151	149
2,2',5,5'-Tetrachlorobiphenyl	178	174	169
2,3',4',5-Tetrachlorobiphenyl	62.9	56.6	58.1
3,3',4,4'-Tetrachlorbiphenyl	<1	<1.0	<1
2,2',3,3',4-Pentachlorobiphenyl	<1.0	<1.0	<1
2,2',3,4,5'-Pentachlorobiphenyl	<1.0	<1.0	<1
2,2',3',4,5-Pentachlorobiphenyl	24.2	22.2	22.3

(Continued)

Table B (Concluded)

Analysis	Replicate 1 (ppm)	Replicate 2 (ppm)	Replicate 3 (ppm)
2,2',4',5,5'-Pentachlorobiphenyl	75.2	68.9	67
2,3,3',4,4-Pentachlorobiphenyl	<1.0	<1	<1
2,3',4,4',5-Pentachlorobiphenyl	31.1	29	28.7
2,2',3,3',6,6-Hexachlorobiphenyl	17.5	17.3	16.5
2,2',3,4,4',5'-Hexachlorobiphenyl	25.2	24.4	25.0
2,2',3,4,5,6-Hexachlorobiphenyl	<1	<1.0	<1.0
2,2',4,4',5,5' Hexachlorobiphenyl	58.8	53.2	58.2
2,2',4,4',6,6' Hexachlorobiphenyl	<1.0	<1.0	<1.0
2,3',4,4',5,5' Hexachlorobiphenyl	<1.0	<1.0	<1.0
2,2',3,4,4',5,5' Heptachlorobiphenyl	9.69	6.43	7.710
2,2',3,4,5,5',6-Heptachlorobiphenyl	<1.0	<1.0	<1

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Table C

Properties of Sediment

Analysis	Replicate 1	Replicate 2	Replicate 3
Total Solids, percent	35.8	35.6	36.1
Total Volatile Solids (as % of Total Solids), %	59.5	10.1	44.9
Cation Exchange Capacity, ppm	220.0	248.0	212.0
Oil and Grease, ppm	28000.0	27000.0	3000.0

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Table D

Site Water Analysis

Analysis	Grid Number G-17 (ppm)	Grid Number J-8 (ppm)	Grid Number I-23 (ppm)
I Chemical			
Arsenic	<0.005	<0.005	<0.005
Cadmium	0.0238	0.0039	0.0016
Chromium	0.003	0.002	0.002
Copper	0.005	0.005	0.003
Lead	0.120	0.089	0.119
Mercury	<0.0004	0.0070	0.0069
Nickel	<0.001	0.007	0.009
Selenium	<0.050	<0.050	<0.050
Zinc	0.049	0.312	0.044
PCB-1016	<0.002	<0.002	<0.002
PCB-1221	<0.002	<0.002	<0.002
PCB-1232	<0.002	<0.002	<0.002
PCB-1242	<0.002	<0.002	<0.002
PCB-1248	<0.002	<0.002	<0.002
PCB-1254	<0.002	0.128	<0.002
PCB-1260	<0.002	<0.002	<0.002
Phenol	<0.100	<0.100	<0.100
II Physical			
Total Solids	30804	25155	29936
Total Suspended Solids	40	228	83

************** ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 1 OF 14) ******

JOB DESCRIPTION: NEW BEDFORD - D. AVERETT R06F418E1970001 SEDIMENT JOB FILE:92469
REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

		COLUMN....	1	2	3	4	5	6	7	8	9	
		ANALYSIS..	2	5	6	7	9	10	11	12	15	
B : DENOTES PPB		PPM.....	AS	CD	CR	CU	PB	HG	NI	SE	ZN	
LAB ID	PROJECT ID											SOW
92469	NBED 060501	CONC	8.92	35.6	772	1750	1759	2.49	125	<0.496	3070	
		%REC	82.5	101	102	107		105	102	72	103	1
		DUPL	8.49	36.1	765	1770		2.69	125	<0.496	3050	
		OID	01596209	51206190	51206191	51206191	20566205	09656212	51206190	01306209	51206195	
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		HGA AUTH			
92470	NBED 060501	CONC	9.07	35.4	755	1740	2491	2.65	121	<0.493	3000	
		%REC										
		DUPL						[illegible]				
		OID	01596209	51206190	51206191	51206191	20566205	09656212	51206190	01306209	51206195	
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		HGA AUTH			
92471	NBED 060501	CONC	8.23	35.0	739	1690	1789	2.52	119	<0.496	2990	
		%REC										3
		DUPL						2.53				
		OID	01596209	51206190	51206191	51206191	20306217	09656212	51206190	01306209	51206195	
				HGA AUTH	HGA AUTH	HGA AUTH	HGA AUTH		HGA AUTH			

AS	ARSENIC	CD	CADMIUM	CR	CHROMIUM
CU	COPPER	PB	LEAD	HG	MERCURY
NI	NICKEL	SE	SELENIUM	ZN	ZINC

******* ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 2 OF 14)

JOB DESCRIPTION: NEW BEDFORD - D. AVERETT R06E418E1970001 SEDIMENT JOB FILE:92469
REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

B : DENOTES EPD

LAB ID	PROJECT ID	COLUMN....	10	11	12	13	14	15	16	17	18	ROW
		ANALYSIS..	36	37	38	39	40	41	42	43	44	
		PPM.....	ALDRIN	A-BHC	B-BHC	G-BHC	D-BHC	CLDANE	PPDDD	PPDDE	PPDDT	
92469	NBED 060501	CONC	<5.0	<5.0	<5.0	<5.0	<5.0	<50	<5.0	<5.0	<5.0	
		%REC										1
		DUPL	<5.0	<5.0	<5.0	<5.0	<5.0	<50	<5.0	<5.0	<5.0	
		OID	07976204	07976204	07976204	07976204	07976204	07976204	0796204	07976204	07976204	
92470	NBED 060501	CONC	<5.0	<5.0	<5.0	<5.0	<5.0	<50	<5.0	<5.0	<5.0	
		%REC										2
		DUPL										
		OID	07976204	07976204	07976204	07976204	07976204	07976204	0796204	07976204	07976204	
92471	NBED 060501	CONC	<5.0	<5.0	<5.0	<5.0	<5.0	<50	<5.0	<5.0	<5.0	
		%REC										3
		DUPL										
		OID	07976204	07976204	07976204	07976204	07976204	07976204	0796204	07976204	07976204	

ALDRIN	ALDRIN	A-BHC	A-BHC	B-BHC	B-BHC
G-BHC	G-BHC	D-BHC	D-BHC	CLDANE	CHLORDANE
PPDDD	PPDDD	PPDDE	PPDDE	PPDDT	PPDDT

********** **** ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 3 OF 14) **********

JOB DESCRIPTION: NEW BEDFORD - D. AVERETT RD6E418E1970001 SEDIMENT JOB FILE:92469
REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

B : DENOTES PPB LAB ID	PROJECT ID	COLUMN.... / ANALYSIS.. / PPM..	19 / 45 / DLDRN	20 / 46 / ENDOI	21 / 47 / ENDOII	22 / 48 / ENDOSU	23 / 49 / ENDRN	24 / 50 / ENDALD	25 / 51 / HPTCL	26 / 52 / HPTCLE	27 / 53 / PCB016	SUM
92469	NBED 060501	CONC	<0.05	<0.05	<0.05	0.099	<0.05	<0.05	<5.0	0.05	<50	
		%REC										1
		DUPL	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	<5.0	<0.05	<50	
		OID		07976204	07976204		07976204	07976204	0796204		07976204	
92470	NBED 060501	CONC	0.50	0.13	<0.05	<0.002	<0.05	<0.05	<5.0	0.05	<50	
		%REC										2
		DUPL								<0.05		
		OID		07976204	07976204		07976204	07976204	0796204		07976204	
92471	NBED 060501	CONC	0.45	0.11	<0.05	<0.002	<0.05	<0.05	<5.0	0.05	<50	
		%REC										3
		DUPL								<0.05		
		OID		07976204	07976204		07976204	07976204	0796204		07976204	

DLDRN DIELDRIN ENDOI A-ENDOSULFAN ENDOII B-ENDOSULFAN
ENDOSU ENDOSULFAN SULFATE ENDRN ENDRIN ENDALD ENDRIN ALDEHYDE
HPTCL HEPTACHLOR HPTCLE HEPTACHLOR EPOXIDE PCB016 PCB-1016

JOB DESCRIPTION: NEW BEDFORD - D. AVERETT R06E418E1970001 SEDIMENT JOB FILE: 92469
REPORT DATE: 03 OCT 86 RECEIPT DATE: 05 JUN 86 EST. COMP. DATE: 14 JUL 86

B : DENOTES PPB	COLUMN....	28	29	30	31	32	33	34	35	36	
	ANALYSIS.:	54	55	56	57	58	59	60	61	62	
LAB ID	PROJECT ID / PPM.....	PCB221	PCB232	PCB242	PCB248	PCB254	PCB260	TOXAPH	PHENOL	CLPHEN	NOTE
92469	HBED 060501	CONC <50	<50	810	<50	560	<50	<50	<4.6	<4.6	
		ZREC							40		1
		DUPL <50	<50	850	<50	520	<50	<50	<4.5	<4.5	
		OID 07976204	07976204	07976204	07976204	07976204	07976204	07976204	08956202	08956202	
92470	HBED 060501	CONC <50	<50	1020	<50	650	<50	<50	<4.8	<4.8	
		ZREC									2
		DUPL									
		OID 07976204	07976204	07976204	07976204	07976204	07976204	07976204	08956202	08956202	
92471	HBED 060501	CONC <50	<50	830	<50	775	<50	<50	<4.6	<4.6	
		ZREC									3
		DUPL									
		OID 07976204	07976204	07976204	07976204	07976204	07976204	07976204	08956202	08956202	

PCB221 PCB-1221 PCB232 PCB-1232 PCB242 PCB-1242
PCB248 PCB-1248 PCB254 PCB-1254 PCB260 PCB-1260
TOXAPH TOXAPHENE PHENOL PHENOL CLPHEN 2-CHLOROPHENOL

********** ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 5 OF 14) **********

JOB DESCRIPTION:-NEW BEDFORD - D. AVERETT RD6E418E1970001 SEDIMENT JOB FILE:92469
REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

		COLUMN....	37	38	39	40	41	42	43	44	45
		ANALYSIS..	63	64	65	66	67	68	69	70	71
B : DENOTES PPB		PPM.....	2NIPHE	DMEPHE	DCLPHE	CLMEPH	TCLPHE	DNIPHE	4NIPHE	MDNPHE	PCLPHE
LAB ID	PROJECT ID										
92469	NBED 060501	CONC	<4.6	<4.6	<4.6	<4.6	<4.6	<46	<4.6	<46	<4.6
		%REC		91		73	85			44	78
		DUPL	<4.5	<4.5	<4.5	<4.5	<4.5	<45	<4.5	<45	<4.5
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202
92470	NBED 060501	CONC	<4.8	<4.8	<4.8	<4.8	<4.8	<48	<4.8	<48	<4.8
		%REC									
		DUPL									
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202
92471	NBED 060501	CONC	<4.6	<4.6	<4.6	<4.6	<4.6	<46	<4.6	<46	<4.6
		%REC									
		DUPL									
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202

2NIPHE 2-NITROPHENOL DMEPHE 2 4-DIMETHYLPHENOL DCLPHE 2 4-DICHLOROPHENOL
CLMEPH 4-CHLORO-3-METHYLPHENOL TCLPHE 2 4 6-TRICHLOROPHENOL DNIPHE 2 4 DINITROPHENOL
4NIPHE 4 NITROPHENOL MDNPHE 2-MTHYL-4 6 DINITROPHENOL PCLPHE PENTACHLOROPHENOL

ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 6 OF 14)

JOB DESCRIPTION: NEW BEDFORD - O. ASKREIT RD6341SE1970001 SEDIMENT JOB FILE:92469

REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

		COLUMN....	46	47	48	49	50	51	52	53	54	
		ANALYSIS..	72	73	74	75	76	77	78	79	80	
B : DENOTES		PPM.....	CLME	BRME	VICL	CLET	MECL	DCLETE	11DCE	1DCLE	CHCL3	
LAB ID	PROJECT ID											ROW
92469	RBED 060501	CONC	<3.6 *	<3.6 *	<3.6 *	<3.6 *	<1.8 *	<1.8 *	<1.8 *	<1.8 *	<1.8 *	
		%REC	*	*	*	*	95 *	*	*	*	*	1
		DUPL	<3.6 *	<3.6 *	<3.6 *	<3.6 *	<1.8 *	<1.8 *	<1.8 *	<1.8 *	<1.8 *	
		UID	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	
92470	RBED 060501	CONC	<3.6 *	<3.6 *	<3.6 *	<3.6 *	<1.8 *	<1.8 *	<1.8 *	<1.8 *	<1.8 *	
		%REC	*	*	*	*	*	*	*	*	*	2
		DUPL	-	-	-	-	-	-	-	-	-	
		UID	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	
92471	RBED 060501	CONC	<3.6 *	<3.6 *	<3.6 *	<3.6 *	<1.8 *	<1.8 *	<1.8 *	<1.8 *	<1.8 *	
		%REC	*	*	*	*	*	*	*	*	*	3
		DUPL	*	*	*	*	*	*	*	*	*	
		UID	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	089562020*	

CLME CHLOROMETHANE BRME BROMOMETHANE VICL VINYL CHLORIDE
CLET CHLOROETHANE MECL METHYLENE CHLORIDE DCLETE 1,1-DICHLOROETHENE
11DCE 1,1-DICHLOROETHANE 1DCLE TRANS 1,2 DICHLOROETHENE CHCL3 CHLOROFORM

JOB DESCRIPTION:*NEW BEDFORD - B. AVERETT - RUGE418E1970001 SEDIMENT JOB FILE:92469
REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

		COLUMN....	55	56	57	58	59	60	61	62	63	
		ANALYSIS..	81	82	83	84	85	86	87	88	89	
B : DENOTES PPB		PPM.....	12DCE	111TCA	C CL 4	BRCL2M	DICLPR	+CLPRE	TCE	DBRCLM	CCLPRE	
LAB ID	PROJECT ID											ROW
92469	NBED 060501	CONC	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	
		%REC		85.5	84	83.5	92.5	78.4127		80	77.9796	1
		DUPL	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	
92470	NBED 060501	CONC	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	
		%REC										
		DUPL										
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	
92471	NBED 060501	CONC	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	
		%REC										
		DUPL										
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	

12DCE 1 2 DICHLOROETHANE
BRCL2M BROMODICHLOROMETHANE
TCE TRICHLOROETHENE

111TCA 1 1 1-TRICHLOROETHANE
DICLPR 1 2 DICHLOROPROPANE
DBRCLM DIBROMOCHLOROMETHANE

C CL 4 CARBON TETRACHLORIDE
+CLPRE TRANS-1 3-DICHLOROPROPENE
CCLPRE CIS-1 3-DICHLOROPROPENE

********** ** ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 8 OF 14) **********

JOB DESCRIPTION:NEW BEDFORD - D. AVERETT RD6E418E1970001 SEDIMENT JOB FILE:92469
REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

		COLUMN....	64	65	66	67	68	69	70	71	72	
		ANALYSIS..	90	91	92	93	94	95	96	97	98	
B : DENOTES PPB		PPM.....	112TCA	BENZEN	CLETRE	CHBR3	TCLETA	TCLETE	TOLUEN	CLBEN	ETBEN	
LAB ID	PROJECT ID											ROU
92469	NBED 060501	CONC	<1.8	<1.8	<3.6	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	
		%REC	95	95	114	63.5	92.5	107	100.5	96.5	80	1
		DUPL	<1.8	<1.8	<3.6	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	
		OID	089562202	089562202	089562202	089562202	089562202	089562202	089562202	089562202	089562202	
92470	NBED 060501	CONC	<1.8	<1.8	<3.6	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	
		%REC										2
		DUPL										
		OID	089562202	089562202	089562202	089562202	089562202	089562202	089562202	089562202	089562202	
92471	NBED 060501	CONC	<1.8	<1.8	<3.6	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	
		%REC										3
		DUPL										
		OID	089562202	089562202	089562202	089562202	089562202	089562202	089562202	089562202	089562202	

112TCA 1 1 2 TRICHLOROETHANE
CHBR3 BROMOFORM
TOLUEN TOLUENE

BENZEN BENZENE
TCLETA 1 1 2 2-TETRACHLOROETHANE
CLBEN CHLOROBENZENE

CLETRE 2-CHLOROETHYLVINYLETHER
TCLETE TETRACHLOROETHENE
ETBEN ETHYLBENZENE

JOB DESCRIPTION:*NEW BEDFORD - D. AWERETT RD6E418E1970001 SEDIMENT JOB FILE:92469
REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

B : DEPOSIT PPB LAB ID	PROJECT ID	COLUMN....	73	74	75	76	77	78	79	80	81	
		ANALYSIS..	99	100	101	102	103	104	105	106	107	
		PPM.....	ACRO	ACRY	NDMEAM	CLISOE	NDRPAM	NIBEN	ISOPHO	CLETME	26DNT	FOU
92469	NBED 060501	CONC	<36	<36	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	
		%REC					140	95	92.5	132.5		1
		DUPL	<36	<36	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	<4.5	
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	
92470	NBED 060501	CONC	<36	<36	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	
		%REC										2
		DUPL										
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	
92471	NBED 060501	CONC	<36	<36	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	<4.6	
		%REC										3
		DUPL										
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	

ACRO	ACROLEIN	ACRY	ACRYLONITRILE	NDMEAM	N-NITROSODIMETHYLAMINE
CLISOE	BIS(2-CHLOROISOPROPYL)ETHER	NDRPAM	N-NITROSO-DI-N-PROPYLAMINE	NIBEN	NITROBENZENE
ISOPHO	ISOPHORONE	CLETME	BIS(2-CHLOROETHOXY)METHANE	26DNT	2,6-DINITROTOLUENE

********** *** ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 10 OF 14) **********

JOB DESCRIPTION: NEW BEDFORD - D. AVERETT RD6E418E1970001 SEDIMENT JOB FILE:92469
REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

		COLUMN....	82	83	84	85	86	87	88	89	90	
		ANALYSIS..	108	109	110	111	112	113	114	115	116	
B : DENOTES PPB		PPM.....	24DNT	DPHHYD	BENZID	DCLBEZ	BCLETE	MDCLBE	PDCLBE	ODCLBE	HCLETA	
LAB ID	PROJECT ID											ROU
92469	NBED 060501	CONC	<4.6	<4.6	<46	<23	<4.6	<4.6	5.0	<4.6	<4.6	
		%REC		98.081								1
		DUPL	<4.5	<4.5	<45	<22	<4.5	<4.5	5.0	<4.5	<4.5	
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	
92470	NBED 060501	CONC	<4.8	<4.8	<48	<24	<4.8	<4.8	5.9	<4.8	<4.8	
		%REC										2
		DUPL										
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	
92471	NBED 060501	CONC	<4.6	<4.6	<46	<23	<4.6	<4.6	6.8	<4.6	<4.6	
		%REC										3
		DUPL										
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	

24DNT 2 4-DINITROTOLUENE DPHHYD 1 2-DIPHENYLHYDRAZINE BENZID BENZIDINE
DCLBEZ 3 3-DICHLOROBENZIDINE BCLETE BIS(2-CHLOROETHYL)ETHER MDCLBE 1 3-DICHLOROBENZENE
PDCLBE 1 4-DICHLOROBENZENE ODCLBE 1 2-DICHLOROBENZENE HCLETA HEXACHLOROETHANE

JOB DESCRIPTION: NEW BEDFORD - D. AVNETT — RUGL418E1970001 SEDIMENT — JOB FILE: 92469
REPORT DATE: 03 OCT 86 — RECEIPT DATE: 05 JUN 86 — EST. COMP. DATE: 14 JUL 86

E : DENOTES EPB	COLUMN....	91	92	93	94	95	96	97	98	99
	ANALYSIS...	117	118	119	120	121	122	123	124	125
	PPM.....	TCLBEN	NAPHTH	HCLBU	HCLEPD	CLNAPH	ACENAY	DMEPTH	ACENAP	FLUORE
LAB ID	PROJECT ID									
92469	NBED 060501	CONC	<4.6 *	<4.6 *	<4.6 *	<4.6 *	<4.6 *	<4.6 *	<4.6 *	<4.6 *
		%REC	*	*	*	*	*	*	*	*
		DUPL	<4.5 *	<4.5 *	<4.5 *	<4.5 *	<4.5 *	<4.5 *	<4.5 *	<4.5 *
		OID	08956202*	08956202*	08956202*	08956202*	089562002*	089562002*	089562002*	089562002*
92470	NBED 060501	CONC	<4.8 *	<4.8 *	<4.8 *	<4.8 *	<4.8 *	<4.8 *	<4.8 *	<4.8 *
		%REC	*	*	*	*	*	*	*	*
		DUPL	*	*	*	*	*	*	*	*
		OID	089562002*	089562002*	089562002*	089562002*	089562002*	089562002*	089562002*	089562002*
92471	NBED 060501	CONC	<4.6 *	<4.6 *	<4.6 *	<4.6 *	<4.6 *	<4.6 *	<4.6 *	<4.6 *
		%REC	*	*	*	*	*	*	*	*
		DUPL	*	*	*	*	*	*	*	*
		OID	089562002*	089562002*	089562002*	089562002*	089562002*	089562002*	089562002*	089562002*

TCLBEN 1 2 4-TRICHLOROBENZENE — NAPHTH NAPHTHALENE — HCLBU HEXACHLOROBUTADIENE
HCLEPD HEXACHLOROCYCLOPENTADIENE — CLNAPH 2-CHLORONAPHTHALENE — ACENAY ACENAPHTHYLENE
DMEPHT DIMETHYL PHTHALATE — ACENAP ACENAPHTHENE — FLUORE FLUORENE

********** ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 12 OF 14) **********

JOB DESCRIPTION:NEW BEDFORD - D. AVERETT RD6E418E1970001 SEDIMENT JOB FILE:92469
REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

B : DENOTES PPB LAB ID	PROJECT ID	COLUMN....	100	101	102	103	104	105	106	107	108	ROW
		ANALYSIS..	126	127	128	129	130	131	132	133	134	
		PPM.....	DETPHT	CPPETH	NDIPAM	BRPHPE	HCLBEN	PHENAN	ANTRAC	BUPHTH	FANTHE	
92469	NBED 060501	CONC	<4.6	<4.6	<4.6	<4.6	<4.6	10	<4.6	<4.6	8.5	
		%REC										1
		DUPL	<4.5	<4.5	<4.5	<4.5	<4.5	6.8	<4.5	<4.5	7.1	
		OID	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	
92470	NBED 060501	CONC	<4.8	<4.8	<4.8	<4.8	<4.8	9.1	<4.8	<4.8	8.6	
		%REC										2
		DUPL										
		OID	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	
92471	NBED 060501	CONC	4.6	<4.6	<4.6	<4.6	<4.6	9.8	<4.6	<4.6	8.9	
		%REC										3
		DUPL										
		OID	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	089562O2	

DETPHT DIETHYL PHTHALATE
BRPHPE 4-BROMOPHENYL ETHER
ANTRAC ANTHRACENE
CPPETH 4-CHLOROPHENYL PHENYL ETHER
HCLBEN HEXACHLOROBENZENE
BUPHTH DIBUTYLPHTHALATE
NDIPAM N-NITROSODIPHENYL AMINE
PHENAN PHENANTHRENE
FANTHE FLUORANTHENE

********** ** ** ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 13 OF 14) ** ** **

JOB DESCRIPTION:=NEW BEDFORD - D. AVERFIT RD6E418F1970001 SEDIMENT JOB FILE:92469
REPORT DATE:03 OCT 86 RECEIPT DATE:05 JUN 86 EST. COMP. DATE:14 JUL 86

		COLUMN....	109	110	111	112	113	114	115	116	117
		ANALYSIS..	135	136	137	138	139	140	*141	*142	143
B : DENOTES PPB		PPM.....	PYRENE	BUBPHT	CHRYSE	BAANTH	ETHEPH	DIOPHT	BEHFLU	BEKFLU	BEZPYR
LAB ID	PROJECT ID										ROW
92469	NBED 060501	CONC	6.4	<4.6	6.3	6.3	22	<4.6	9.6	9.6	7.7
		%REC									1
		DUPL	6.4	<4.5	5.2	6.1	28	<4.5	9.4	9.4	6.2
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202
92470	NBED 060501	CONC	7.5	<4.8	8.5	8.0	26	<4.8	14	14	7.7
		%REC									2
		DUPL									
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202
92471	NBED 060501	CONC	7.3	<4.6	7.7	8.2	29	<4.6	12	12	7.4
		%REC									3
		DUPL									
		OID	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202	08956202

PYRENE	PYRENE	BUBPHT	BUTYLBENZYLPHTHALATE	CHRYSE	CHRYSENE
BAANTH	BENZO(A)ANTHRACENE	ETHEPH	BIS(2-ETHYLHEXYL)PHTHALATE	DIOPHT	DI-N-OCTYLPHTHALATE
BEHFLU	BENZO(B)FLUORANTHENE	BEKFLU	BENZO(K)FLUORANTHENE	BEZPYR	BENZO(A)PYRENE

#141 + #142
* Reported as a total

JOB DESCRIPTION: NEW RECORD = D. AVERETT RDGE418E1970001 SEDIMENT JOB FILE: 92469
REPORT DATE: 03 OCT 86 RECEIPT DATE: 05 JUN 86 EST. COMP. DATE: 14 JUL 86

		COLUMN....	118	119	120	121	122	123	124	125	126
		ANALYSIS:	144	145	146	156	157	158	159	160	161
B : UNITS PPB		PRM.....	INDPYR	BEAANT	BEPERY	TS	TVS	PHENOL	CEC	O&G	DIBZFU
LAB ID	PROJECT ID										
92469	NBED 060501	CONC	<4.6	<4.6	<4.6	35.8	59.5%	0.715	220	28000	<4.6
		%REC						99.9	104	81	
		DUPL	<4.5	<4.5	<4.5			0.715	212	31000	<1.5
		OID	089562028	089562028	089562028	51156182	101562058	51406212	01406212	08526208	08526208
92470	NBED 060501	CONC	<4.8	<4.8	<4.8	35.6	10.1%	<0.683	248	27000	<4.8
		%REC									
		DUPL									
		OID	089562028	089562028	089562028	51156182	101562058	51406212	01406219	08526208	08526208
92471	NBED 060501	CONC	<4.6	<4.6	<4.6	36.1	44.9%	<0.544	212	30000	<4.6
		%REC									
		DUPL									
		OID	089562028	089562028	089562028	51156182	101562058	51406212	01406212	08526208	08526208

INDPYR INDENO(1,2,3-C,D)PYRENE BEAANT DIBENZ(A,H)ANTHRACENE BEPERY BENZO(G,H,I)PERYLENE

TS TOTAL SOLIDS TVS TOTAL VOLATILE SOLIDS PHENOL PHENOL

CEC CATION EXCHANGE CAPACITY O&G OIL & GREASE DIBZFU DIBENZOFURAN

RK

********** ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 1 OF 3) **********

JOB DESCRIPTION: *NEW BEDFORD - D. AVERETT — RDGE418E1970001 — JOB FILE: 92472

REPORT DATE: 01 AUG 86 — RECEIPT DATE: 05 JUN 86 — EST. COMP. DATE: 11 JUL 86

B : DENOTES PPB

LAB ID	PROJECT ID		COLUMN.... 1	2	3	4	5	6	7	8	9	RUN
			ANALYSIS.. 2	5	6	7	9	10	11	12	15	
			PPM.....AS	CD	CR	CU	PB	HG	NI	SE	ZN	
92472	G-17-5	CONC	<0.005	0.0238	0.003	0.005	0.120	<0.0004	<0.001	<0.050	0.049	
		%REC	100					98		92	100	1
		DUPL	<0.005					<0.0008		<0.050	0.051	
		OID	01596209	20566197 HGA AUTH	20556205 HGA AUTH	20556205 HGA AUTH	20566205 HGA AUTH	09656202	20556205 HGA AUTH	01306169	51206195	
92473	J-8 6	CONC	<0.005	0.0039	0.002	0.005	0.089	0.0070	0.007	<0.050	0.312	
		%REC										2
		DUPL										
		OID	01596209	20566197 HGA AUTH	20556205 HGA AUTH	20556205 HGA AUTH	20566205 HGA AUTH	09656202	20556205 HGA AUTH	01306169	51206195	
92474	I-23-6	CONC	<0.005	0.0016	0.002	0.003	0.119	0.0069	0.009	<0.050	0.044	
		%REC										3
		DUPL										
		OID	01596209	20566197 HGA AUTH	20556205 HGA AUTH	20556205 HGA AUTH	20566205 HGA AUTH	09656202	20556205 HGA AUTH	01306169	51206195	

AS	ARSENIC	CD	CADMIUM	CR	CHROMIUM
CU	COPPER	PB	LEAD	HG	MERCURY
NI	NICKEL	SE	SELENIUM	ZN	ZINC

********** ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 2 OF 3) **********

JOB DESCRIPTION:*NEW BEDFORD - D. AVERETT — RD6E418E1970001 — JOB FILE:92472

REPORT DATE:01 AUG 86 — RECEIPT DATE:05 JUN 86 — EST. COMP. DATE:11 JUL 86

B = DENOTES PPB

LAB ID	PROJECT ID	COLUMN....	10	11	12	13	14	15	16	17	18	ROW
		ANALYSIS..	53	54	55	56	57	58	59	156	157	
		PPM.....	PCB016	PCB221	PCB232	PCB242	PCB248	PCB254	PCB260	TS	TSS	
92472	G-17-5	CONC	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	30804	40	1
		%REC										
		DUPL										
		OID	07976199	07976199	07976199	07976199	07976199	07976199	07976199	10156204	10156199	
92473	J-8-6	CONC	<0.002	<0.002	<0.002	<0.002	<0.002	0.128	<0.002	25155	228	2
		%REC										
		DUPL										
		OID	07976199	07976199	07976199	07976199	07976199	07976199	07976199	10156204	10156199	
92474	I-23-6	CONC	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	29936	83	3
		%REC					128					
		DUPL										
		OID	07976199	07976199	07976199	07976199	07976199	07976199	07976199	10156204	10156199	

PCB016 PCB-1016 — PCB221 PCB-1221 — PCB232 PCB-1232
PCB242 PCB-1242 — PCB248 PCB-1248 — PCB254 PCB-1254
PCB260 PCB-1260
TS TOTAL SOLIDS — TSS TOTAL SUSPENDED SOLIDS

********** ENVIRONMENTAL LABORATORY ANALYTICAL LABORATORY GROUP DATA REPORTING SHEET (SHEET 3 OF 3) **********

JOB DESCRIPTION:*NEW BEDFORD - D. AVERETT
REPORT DATE:01 AUG 86

RU6E418E1970001
RECEIPT DATE:05 JUN 86

JOB FILE:92472
EST. COMP. DATE:11 JUL 86

COLUMN.... 19
ANALYSIS.. 158
PPM.....PHENOL

B : DENOTES PPB

LAB ID	PROJECT ID				ROW
92472	G-17-5	CONC	<0.100	*	
		%REC	87.3	*	1
		DUPL	<0.100	*	
		OID	51206212	*	
92473	J-8-6	CONC	<0.100	*	
		%REC		*	2
		DUPL		*	
		OID	51206212	*	
92474	I-23-6	CONC	<0.100	*	
		%REC		*	3
		DUPL		*	
		OID	51206212	*	

PHENOL PHENOL