



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02254-9149

*File #1
Admin Record*

New Bedford
4.2

April 20, 1989

Operations Division



SDMS DocID 000200367

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APR 27 89

**ME & VT WASTE
MANAGEMENT BRANCH**

Mr. Frank Ciavattieri
EPA
Waste Management Division (HANCAN 2)
J. F. Kennedy Building
Boston, MA 02203

Dear Mr. Ciavattieri:

The attachments describe the operation of the confined disposal facility during the New Bedford Harbor Pilot Study. The information is being forwarded for use by E.C. Jordan in their preparation of the Hot Spot FS.

Please give me a call at 647-8273 if there are any questions.

Sincerely,

Mark J. Otis

Mark J. Otis
New Bedford Superfund
Project Office

Enclosures

cc: *Daniel Averett
Douglas Allen*

NEW BEDFORD HARBOR PILOT STUDY
CONFINED DISPOSAL FACILITY (CDF) OPERATION

1. Dredged material was pumped into this facility from 21 November to 4 January. The following table summarizes operations.

<u>Type of Material</u>	<u>Quantity (c.y.)</u>	<u>Days</u>	<u>Hours</u>	<u>Period</u>
Contaminated	2200	23	59.7	21 November - 19 December
Clean	3930	11	51.5	20 December - 4 January

2. Sampling was conducted at the weir dividing the primary cell from the secondary cell on 19 days. Samples were taken hourly over varying daily periods with the hourly samples combined into a daily composite. Sampling at the CDF discharge was conducted over a 16 day period following the same procedure. Attachment 2 provides the total suspended solids data for both locations. Attachment 3 provides the PCB concentrations found in the composite samples.

3. The boards in the weir between the primary and secondary cell were set to elevation +8.0 MLW at the start of the operation and were not lowered. Water flowed through the weir and leaked through the sheet pile wall during the early stages of dredging. The water level within the CDF increased as material built up within the site and dredging periods increased in length until water began flowing over the weir at elevation +8.0 MLW on 23 December. Additional boards were added until the water reached the design elevation at +10 MLW on 3 January.

4. The system which added polymer to the water flowing over/through the weir between the primary and secondary chambers operated for 96.7 hours over a 6-day period while clean material was being pumped into the CDF. The polymer was spraying into the flow at the weir at a rate of approximately 2 GPM. The mix of water to polymer was approximately 1000 to 1.

5. We estimated that suspended solid levels in the CDF discharge could be as low as 70 mg/l. Attachment 4 provides the daily averages and shows that this was an accurate estimate. The overall value of a secondary cell needs further evaluation. It proved to be a benefit at the later stages of the project but a smaller area may have been as effective. The polymer had a significant impact in reducing suspended solids levels during the later stages of the project. During this period suspended solids levels were high (800 mg/l) at the primary weir and the polymer significantly reduced these levels prior to discharge from the site. The polymer appeared to have only minimal impacts when suspended solids levels were in the 100 mg/l range at the primary weir. These results indicate that use of polymer only during selected periods may be the appropriate approach.

6. The modified elutriate test is used to estimate the contaminant load in CDF effluents. The results of this test for the pilot study sediment are shown on Attachment 5 where they can be compared with the PCB levels in the CDF discharge shown on Attachment 3. The result indicate that the modified elutriate test provides a conservative estimate of the contaminant loading.

SUBJECT NEW BEDFORD HARBOR PILOT STUDY

COMPUTATION CDF EFFLUENT MONITORING

COMPUTED BY _____ CHECKED BY _____ DATE _____

CDF EFFLUENT WEIR BETWEEN CELLS

12/2 - Dredging began @ 1300 - Dredge operated for 1.9 hours

TIME	TSS MG/L
1430	59.92
1530	46.36
1630	38.64
1730	68.32
1830	71.96
1930	49.00
2030	46.44
2130	44.20
2230	37.00
2330	25.08
2430	33.44

Dredging

12/3 - Dredging began @ 1300 - Dredge operated for 4.3 hours

Time	TSS mg/l
1330	70.72
1430	102.64
1530	91.08
1630	114.72
1730	132.72
1830	149.84
1930	144.00
2030	193.12
2130	149.60
2230	174.32

Dredging

12/4 - Dredging began @ 1615 - Dredge operated for 1.6 hours

1630	101.24
1700	101.80
1730	96.08
1800	108.16
1830	102.28
1900	102.96
1930	111.92
2000	120.20
2030	103.76
2100	100.52

Dredging

SUBJECT NEW BEDFORD HARBOR PILOT STUDY

COMPUTATION CDF EFFLUENT MONITORING

COMPUTED BY _____ CHECKED BY _____ DATE _____

CDF Effluent
PRIMARY WEIR

CDF DISCHARGE

12/5 Dredging began @ 1445 - Dredge operating for 3.4 hours

<u>TIME</u>	<u>TSS mg/l</u>	<u>TSS mg/l</u>
1600	19.60	
1700	28.00	
1800	37.40	
1900	37.72	
2000	38.08	
2100	42.48	
2200	38.76	
2300	36.12	
2400	38.28	
0100	57.40	

Dredging

12/10 Dredging began @ 0615 - Dredge operated for 3 hours

0800	90.4	124.6
0900	91.5	106.0
	79.2	
	91.0	101.6
	83.6	101.8
	98.4	85.7
	14.6	32.8
	12.7	82.5
	26.6	36.1
	20.7	26.0
	76.5	32.2
	13.5	33.1
	20.3	33.6
	25.6	33.4
	81.7	27.2
	79.4	81.8
2400	80.4	82.7
0100	77.4	80.3
	80.0	76.8
	77.8	84.2
	77.2	74.9
	80.2	76.3
0600	84.8	80.2
		77.6

Dredging

SUBJECT NEW BEDFORD HARBOR PILOT STUDY

COMPUTATION CDF EFFLUENT MONITORING

COMPUTED BY _____

CHECKED BY _____

DATE _____

CDF Effluent

Primary Weir

CDF Discharge

12/11 Dredge operated for only 20 minutes in morning

<u>TIME</u>	<u>TSS mg/l</u>	<u>TSS mg/l</u>
0700	20.5	23.0
0800	9.9	10.1
0900	13.2	20.1
1000	20.4	16.3
1100	9.9	12.4
1200	14.8	16.0
1300	44.2	18.0
1400	79.0	8.5

12/12 Dredge operated for 1.5 hours beginning at 1130

0700	40.6	26.0
	21.4	19.2
	19.4	14.7
1000	108.1	48.6
comp	66.7	11.0

12/13 Dredging began at 0915. Dredge operated for 2.3 hours

0800	96.9	94.1
	99.4	101.9
	95.3	100.2
	64.0	128.0
	125.8	123.0
	125.8	189.8
	208.6	
	216.2	224.9
	195.7	199.4
1700	149.9	205.0
composite		161.0

Dredging

27 Sept 49

CORPS OF ENGINEERS, U. S. ARMY

SUBJECT NEW BEDFORD HARBOR PILOT STUDY

COMPUTATION CDF EFFLUENT MONITORING

COMPUTED BY _____

CHECKED BY _____

DATE _____

CDF EFFLUENT
PRIMARY WEIR

CDF DISCHARGE

12/16 Dredging began at 1345. Dredge operated for 2.3 hours

<u>TIME</u>	<u>TSS mg/l</u>		<u>TSS mg/l</u>
1400	104.6	Dredging ↓	86.9 - 1500?
	97.5		84.7
	83.9		93.7
	79.7		71.9
	86.4		94.6
	25.3		34.7
	17.1		32.2
	19.7		29.9
	14.5		31.8
	21.6		30.8
2400	15.6		26.4

12/17 Dredging began at 1320 and operated for 3.7 hours

0100	22.0		29.0
	24.3		26.8
	21.7		28.6
	19.5		28.7
	22.5		26.6
	38.6		
	64.7		87.7
	80.0		92.1
	85.3		87.5
	91.7		88.8
	87.6		99.2
1200	85.2		90.4
	90.7	Dredging ↑	84.0
	82.2		87.3
	86.7		88.1
	38.8		104.6
	26.3		72.6
	27.9		54.8
	30.1		45.6
	23.5		49.0
	26.6		46.1
	22.2		48.0
	23.2		48.2
2400	15.9		49.9

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SUBJECT NEW BEDFORD HARBOR PILOT STUDY

COMPUTATION CDF EFFLUENT MONITORING

COMPUTED BY _____ CHECKED BY _____ DATE _____
CDF EFFLUENT

PRIMARY WEIR

CDF DISCHARGE

12/18 Dredging began at 1400 and operated for 3.83 hours

<u>TIME</u>	<u>TSS mg/l</u>	<u>TSS mg/l</u>	
0100	77.8	122.1	
↓	24.2	42.6	
	21.6	42.8	
	33.9	45.2	
	29.8	101.4	
	0600	28.8	44.6
	38.5	43.6	
	35.6	43.2	
	32.3	31.0	
	31.3	30.7	
	31.4	29.3	
1200	29.3	29.1	
↓	32.6	31.0	
	33.3	37.8	
	26.7	30.9	
	28.3	35.9	
	37.7	42.6	
	41.0	68.5	
	45.1	136.4	
	43.6	67.0	
	38.4	82.3	
	30.8	85.8	
1800	34.0	75.1	
↓	41.5	69.8	

Dredging

12/19 Dredging began at 1515 and operated for 3 hours

0100	46.0	64.6
↓	135.5	63.2
	59.9	54.7
	132.3	59.8
	46.6	61.1
	0500	

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CORPS OF ENGINEERS, U. S. ARMY

SUBJECT New Bedford Harbor Pilot Study

COMPUTATION CDF Effluent Monitoring

COMPUTED BY CDF Effluent

CHECKED BY _____

DATE _____

PRIMARY WEIR

CDF DISCHARGE

12/19 Dredging began at 1515 and operated for 3 hours

<u>TIME</u>	<u>TSS (mg/L)</u>	<u>TSS (mg/L)</u>
0600	63.9	44.7
	50.8	44.2
	34.3	32.5
	23.0	29.1
	27.4	22.2
	23.1	36.7
1200	24.7	34.2
	22.2	30.3
	20.6	25.0
	25.6	32.5
	26.5	25.8
	52.7	111.8
1800	54.2	84.2
	47.8	87.4
	68.3	87.9
	95.4	83.0
	88.1	87.4
	85.0	82.7
2400	72.9	91.5

Dredging

12/20 Dredging began at 1615 and operated for 3.3 hours.
First day dredging cap material

0100	51.1	73.5
	61.7	77.6
	63.2	82.0
	61.7	48.9
	88.4	142.2
0600	245.8	240.3
	215.1	212.3
	192.5	193.8
	206.5	228.9
	189.1	183.1
	213.4	200.2
1200	204.2	191.9

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CORPS OF ENGINEERS, U. S. ARMY

SUBJECT New Bedford Harbor Pilot Study

COMPUTATION CDF Effluent Monitoring

COMPUTED BY _____

CHECKED BY _____

DATE _____

PRIMARY WEIR

CDF DISCHARGE

12/20 (continued)

<u>TIME</u>	<u>TSS (mg/L)</u>	<u>TSS (mg/L)</u>
1300	198.6	197.4
↓	201.9	184.1
1800	202.2	193.7
↓	197.7	211.0
↓	43.7	47.0
↓	41.5	46.1
↓	52.6	49.3
↓	102.4	52.5
↓	84.2	56.0
↓	84.2	60.4
↓	59.6	54.7
2400	74.5	55.3

Dredging

12/21 Dredging began at 0515. Dredge operated for 4+ hours. Polymer system started at 0920.

0100	53.6	68.4
↓	63.6	52.1
↓	64.9	53.8
↓	61.0	60.0
0600	69.6	53.8
↓	102.0	99.0
↓	127.4	110.5
↓	215.4	183.9
↓	144.3	143.6
↓	91.9	143.8
↓	252.2	211.9
1200	245.1	161.4
↓	228.3	46.0
↓	100.6	40.6
↓	241.0	125.3
↓	202.1	158.2
↓	58.6	30.0
1800	63.1	53.8

Dredging

Polymer

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CORPS OF ENGINEERS, U. S. ARMY

SUBJECT New Bedford Harbor Pilot. Study

COMPUTATION CDF Effluent Monitoring

COMPUTED BY _____

CHECKED BY _____

DATE _____

PRIMARY WEIR

CDF DISCHARGE

12/21 (continued)

<u>TIME</u>	<u>TSS (mg/l)</u>	<u>TSS (mg/l)</u>
1900	56.7	39.4
	76.0	37.0
	62.0	35.7
	54.5	33.4
	59.7	33.3
2400	56.6	33.0

12/22 Dredging began at 0540. Dredge operated for 3.7 hours.

<u>TIME</u>	<u>TSS (mg/l)</u>	<u>TSS (mg/l)</u>
0100	36.6	38.1
	54.8	36.0
	51.1	28.1
	44.8	19.1
	35.1	34.7
0600	90.8	31.2
	120.2	74.6
	136.5	115.5
	178.4	168.2
	140.9	93.2
	102.8	67.0
1200	100.2	66.3
	48.5	68.6
	51.8	56.9
	24.6	45.4
	28.3	48.1
	40.7	42.4
1800	60.8	56.6
	65.0	41.0
	57.4	41.8
	72.2	41.0
	48.9	34.2
	187.4	51.9
2400	54.4	32.9

Dredging

Polymer System Operating

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CORPS OF ENGINEERS, U. S. ARMY

SUBJECT New Bedford Harbor Pilot Study

COMPUTATION CDF Effluent Monitoring

COMPUTED BY _____

CHECKED BY _____

DATE _____

PRIMARY WEIR

CDF DISCHARGE

12/23 Dredging began at 0600. Dredge operated for 4.4 hours

<u>TIME</u>	<u>TSS (mg/l)</u>		<u>TSS (mg/l)</u>
0100	44.5	↓ Polymer ↓	44.0
	33.2		29.2
	60.4		42.9
	37.6		25.4
0500	42.7		27.1
No Dredging on 12/24, 12/25 & 12/26			

12/27 Dredge operated for 4.2 hours between 0900-1300.

12/28 Dredging began at 0800. Dredge operated for 5.8 hours.
 Polymer system turned on at 0915.

0600	212.2		209.0
	171.2	↑ DREDGING ↓	181.0
	171.7		180.1
	314.5		73.7
	376.5		71.9
1200	681.4		107.7
	812.1		257.7
	630.5		203.6
	895.4		165.2
	785.9		264.7
	280.3		70.6
	170.5	183.5	
1800	169.5	186.0	
	134.4	94.7	
	178.9	77.4	
	123.6	78.0	
	131.4	68.6	
	212.6	52.6	
2400	85.8	49.9	

SUBJECT New Bedford Harbor Pilot Study

COMPUTATION CDF Effluent Monitoring

COMPUTED BY _____

CHECKED BY _____

DATE _____

PRIMARY WEIR

CDF DISCHARGE

12/29 - Dredging began at 0800. Dredge operated for 5 hours

<u>TIME</u>	<u>TSS (mg/L)</u>		<u>TSS (mg/L)</u>
0100	62.3		59.8
	183.0		93.4
	110.8		57.4
	77.6		58.7
	66.8		47.6
0600	211.5		172.6
	206.5		147.5
	192.4		152.1
	506.5		155.1
	687.8		159.4
	637.9		577.4
1200	695.4		181.0
	812.4		152.6
	698.4		149.0
	424.8		58.6
	394.9		153.7
	152.9		85.7
1800	109.4		50.2
	78.9		48.7
	86.5		63.9
	35.9		40.0
	62.2		47.6
	62.6		49.2
2400	55.1		42.9
12/30			
0100	71.10		135.2
	58.2		50.8
	56.6		33.0
	58.6		119.0
0500	60.2		39.1

DREDGING

Polymer System Operating

SUBJECT NEW BEDFORD HARBOR PILOT STUDY

COMPUTATION CDF Effluent

COMPUTED BY _____ CHECKED BY _____ DATE _____

DATE	SAMPLE NO.	WEIR	TSS (mg/l)	PCB (ppb)			
				1242	1252	TOTAL	
12-2	514025	1		2.33	2.62	4.96	FWC
12-3	514050	1		4.07	4.07	8.15	FWC
12-4	514075	1		3.14	2.95	6.10	FWC
12-5	514100	1		4.21	3.70	7.91	FWC
12-10	514125	1	66.72	3.60	3.33	6.93	FWC
12-12	514150	1		3.06	3.28	6.33	FWC
12-13	515200	2	160.96	10.00	8.44	18.50	FWC
	515200	2		1.12	0.506	1.63	WFC
	515225	2		2.25	2.51	4.77	FWC
	515225	2		1.140	0.643	1.780	WFC
12-15	515250	2		7.18	6.16	13.30	FWC
12-16	515275	2		5.83	4.32	10.20	WWC
	515275	2		4.22	3.78	8.00	FWC
12-17	515300	2		5.13	4.88	10.00	FWC
12-18	515325	2		6.69	5.98	12.70	FWC
12-19	515350	2		5.80	5.45	11.20	FWC
12-20	515375	2		3.58	3.58	7.15	FWC
12-21	515400	2		0.991	1.15	2.14	FWC
12-22	515425	2		0.219	0.305	0.524	FWC
12-28	515450	2	149.92	0.062	0.169	0.231	FWC
12-29	515475	2		0.203	0.247	0.450	FWC

WWC = WHOLE WATER COMPOSITE
 FWC = FILTERED WATER COMPONENT (solids)
 WFC = WATER FILTER COMPONENT (dissolved)

SUBJECT NEW BEDFORD HARBOR PILOT STUDY

COMPUTATION CDF EFFLUENT MONITORING

COMPUTED BY _____ CHECKED BY _____ DATE _____

DAILY AVERAGES (TSS)

<u>DATE</u>		<u>WEIR (mg/l)</u>	<u>CDF DISCHARGE (mg/l)</u>
12-2	11	47.3	
12-3	10	132.2	
12-4	10	104.9	
12-5	10	37.1	
12-10	17	58.0	60.7
12-11	14	49.2	48.2
12-12	4	47.4	27.1
12-13	9	136.4	151.8
12-16	11	51.4	56.1
12-17	24	47.4	63.6
12-18	24	35.3	57.0
12-19	24	55.3	58.9
12-20	24	130.7	128.4
12-21	24	114.6	83.7
12-22	24	77.2	55.5
12-23	5	43.7	33.7
12-28	19	344.1	130.3
12-29	24	275.5	96.8
12-30	5	60.9	75.4

SUBJECT NEW BEDFORD HARBOR PILOT STUDY

COMPUTATION MODIFIED ELutriATE TEST - DREDGE AREA 1

COMPUTED BY _____

CHECKED BY _____

DATE _____

<u>SAMPLE NO.</u>	<u>DESCRIPTION</u>	<u>TSS (mg/l)</u>	<u>TOTAL PCBs (PPb)</u>
3532	ME (F)		6.24
3533	ME (F)		8.85
3534	ME (F)		9.38
3535	ME (U)	129	70.30
3536	ME (U)	167	87.20
3537	ME (U)		63.90
<hr/>			
3514	SW (F)		0.06
3515	SW (F)		0.19
3516	SW (F)		0.14
3517	SW (U)		0.52
3518	SW (U)		0.36
3519	SW (U)		0.51

ME = Modified Elutriate

SW = Site Water

F = Filtered (dissolved)

U = Unfiltered (total, dissolved & suspended)

Comparison

	<u>Dissolved PCB (PPb)</u>	<u>Suspended PCB (PPb)</u>	<u>Total PCB (PPb)</u>
<u>SITE WATER</u>	0.06	0.46	0.52
	0.19	0.17	0.36
	0.14	0.37	0.51
<u>Average</u>	0.13	0.33	0.46
<hr/>			
<u>Modified Elutriate</u>	6.24	64.10	70.30
	8.85	78.30	87.20
	9.38	54.50	63.90
<u>Average</u>	8.16	65.63	73.80