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NAVSTA LONG BEACH
SSIC #5090.3

DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE PROGRAM OFFICE
SOUTHWEST DIVISION, NAVAL FACILITIES ENGINEERING COMMAND
1420 KETTNER BOULEVARD, SUITE 507
SAN DIEGO, CALIFORNIA 92101-2404

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From: Commander, Southwest Division, Naval Facilities Engineering Command
To: Distribution

Subj: INSTALLATION RESTORATION SITE 7 (WEST BASIN), NAVAL STATION LONG BEACH, LONG BEACH, CALIFORNIA

Encl: (1) Preliminary Notes, Table 1 and Table 2
(2) Station-by Station Comparison with Reference, ER-Ls and ER-Ms

1. Pursuant to the Joint Agency and Trustee Memo of 4 March 1997, and the technical workshop of 1 April 1997, preliminary results of the additional analyses referenced above are enclosed. These additional analyses were performed in support of the Remedial Investigation being conducted for Site 7. The enclosures are being transmitted to you for review and discussion at the technical workshop planned for 28 April 1997, at the Long Beach Naval Shipyard.

2. Please do not hesitate to contact Mr. Omer Kadaster at (562) 807-2178 if additional information is required.

Alan K. Lee

ALAN K. LEE
BRAC Environmental Coordinator
By direction of the Commander

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ENCLOSURE 1
PRELIMINARY NOTES, TABLE 1 AND TABLE 2

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NOTES FOR TABLES 1 AND 2
Station-by-Station Quotients to Reference Maximum, ERL, and ERM Values

The quotients were calculated following these checks for non-detected analytes:

- No U or UJ qualified (non-detect) data were found in excess of the analyte ERL values except for DDTs and PCBs, as noted below.
- DDD and DDT concentrations at Stations 42, 45, and 51 were reported as non-detected at a detection limit of 2 ug/kg, which is in excess of 1.58 ug/kg, the ERL for Total DDTs.
- Several Aroclor concentrations at Stations 17, 22, 42, 44, 45, 46, 48, 50, and 52 were reported as non-detected at a detection limit of 30 ug/kg, which is in excess of 22.7 ug/kg, the ERL for Total PCBs. Aroclor concentrations at Station 51 were reported as non-detected at a detection limit of 40 ug/kg. Note that Aroclor 1260 was reported above detection limits at Stations 17 and 22.

  Based on the above checks, Total DDTs concentrations at Stations 42, 45, and 51 may be present in excess of the ERL for Total DDTs; Total PCBs concentrations at Stations 42, 44, 45, 46, 48, 50, and 52 may be present in excess of the ERL for Total PCBs.

The quotients were calculated based on the following assumptions/criteria:

Table 1

- For analytes not detected at the reference stations, the detection limit value was used in the calculation of the quotients. For analytes not detected at a station, the quotients were not calculated and are represented in Table 1 by a blank cell.
- Total LPAHs and and Total PCBs were not detected at reference stations. A representative detection limit value from analytes belonging to these groups were used when calculating quotients.
- The chemical analyte concentrations at each West Basin station were divided by the maximum reference concentration (maximum of reference stations 40018.1, 40018.2, 40018.3, and 40032), ERL, and ERM values. For each station, the three quotients are listed as C/Ref, C/ERL, and C/ERM, respectively.
- The Total Cumulative Quotients shown in Table 1 include all individual analyte quotients (both less than or greater than unity), but do not include Total HPAHs, Total LPAHs, Total PAHs, and Total DDTs values. There were a total of 31 possible chemistry quotients, and 19 possible ERM quotients.
- Quotients shown in Table 1 are rounded to one decimal place; therefore, numbers shown as 1.0 in the table may actually be between 0.95 and 1.05 whereas numbers shown as 0.0 are less than 0.05.

Table 2

- The toxicity and benthic community data at each West Basin station were divided by the minimum reference value.
- The Number Exceeding Reference Maximum (number of analytes) and Number Exceeding ERM (number of analytes) include all individual analytes and Total PCBs values but do not include Total HPAHs, Total LPAHs, Total PAHs, and Total DDTs values. The numbers are shown with no decimal place.

PRELIMINARY

- The Number Exceeding Reference Maximum and the Number Exceeding ERM shown in Table 2 are not related; i.e., an analyte exceeding the ERM value may not necessarily be exceeding the Reference Maximum.
- Number Below Reference Minimum (number of endpoints/measurements) were calculated for toxicity and benthic data based on quotients to reference only (not including the polychaete growth to laboratory control quotient).
- Quotients shown in Table 2, except for toxicity quotients, are rounded to one decimal place; therefore, numbers shown as 1.0 in the table may actually be between 0.95 and 1.05 whereas numbers shown as 0.0 are less than 0.05. Toxicity quotients are rounded to two decimal places.

The resulting quotients and totals are displayed in the following tables:

- Table 1 shows quotients for chemistry. Table 1 - Basin Stations and Table 1 - Pier Stations show the quotients for basin and pier stations, respectively.
- Table 2 shows summary information from Table 1 and biology quotients, [station response] / [reference minimum response]. Table 2 - Basin Stations and Table 2 - Pier Stations show the quotients for basin and pier stations, respectively.

PRELIMINARY

ENCLOSURE 2
STATION-BY-STATION COMPARISON WITH REFERENCE, ER-Ls AND ER-Ms

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Table 1 - Basin Stations

		Metals										PAHs																		PCBs	Pesticides							SVOCs				
Station ID	Quotient	ARSENIC, TOTAL	CADMIUM, TOTAL	CHROMIUM, TOTAL	COPPER, TOTAL	LEAD, TOTAL	MERCURY, TOTAL	NICKEL, TOTAL	SILVER, TOTAL	ZINC, TOTAL	Cumulative Metals Quotient	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	INDENO(1,2,3-CD)PYRENE	PYRENE	TOTAL HPAH	Cumulative HPAHs Quotient	ACENAPHTHYLENE	ANTHRACENE	PHENANTHRENE	TOTAL LPAH	Cumulative LPAHs Quotient	TOTAL PAH	TOTAL PCB	ALDRIN	LINDANE (GAMMA-BHC)	4,4'-DDD	4,4'-DDE	4,4'-DDT	TOTAL DDT	Cumulative Pesticides Quotient	BIS(2-ETHYLHEXYL)PHTHALATE	DI-N-OCTYLPHTHALATE	PHENOL	Cumulative SVOCs Quotient	Total Cumulative Quotients
1	C/Ref	1.4	0.3	0.9	2.6	0.6	3.1	0.9	1.0	1.2	11.9	1.9	6.0	7.0	3.3	7.0	4.7		1.4	3.6	1.1	5.5	35.9	1.3	2.2	1.6	5.0	5.0	6.3	8.5		0.6	0.7	0.3		0.4	1.7		0.8		0.8	64
	C/ERL	1.2	0.2	0.4	3.2	0.8	4.1	1.0	2.0	1.0	14.0	0.1	0.3				0.2		0.0		0.1	0.4	0.8	0.6	0.5	0.1	0.2	1.2	0.2	7.5				15.5		29.7	15.5					39
	C/ERM	0.1	0.0	0.1	0.4	0.2	0.9	0.4	0.5	0.4	3.0	0.0	0.1				0.0		0.0		0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.9				1.3		1.0	1.3					5
2	C/Ref	1.0	0.6	0.8	3.0	0.7	3.0	0.7	1.2	1.2	12.3	0.8	3.2	4.8	2.4	4.0	1.6		0.8	1.6	0.8	3.1	20.0		1.6		1.6	1.6	3.4	14.5			0.4	0.5		0.5	0.8		0.6		0.6	50
	C/ERL	0.9	0.4	0.4	3.8	1.0	3.9	0.8	2.6	1.1	14.8	0.1	0.1				0.1		0.0		0.0	0.2	0.4		0.4		0.1	0.4	0.1	12.8				20.9		33.5	20.9					49
	C/ERM	0.1	0.0	0.1	0.5	0.2	0.8	0.3	0.7	0.4	3.2	0.0	0.0				0.0		0.0		0.0	0.0	0.1		0.0		0.0	0.0	0.0	1.6				1.7		1.1	1.7					7
3	C/Ref	1.7	0.6	1.0	3.0	0.8	4.3	1.0	1.2	1.3	15.0	3.0	10.0	12.0	6.0	15.5	4.0			6.0		8.5	56.4	1.0	2.0	2.0	4.9	4.9	9.2	12.0			0.4	0.7		0.7	1.1		1.2		1.2	91
	C/ERL	1.5	0.4	0.5	3.8	1.1	5.7	1.1	2.6	1.1	17.8	0.2	0.5				0.2					0.7	0.9	0.5	0.5	0.2	0.2	1.1	0.3	10.6				30.5		46.9	30.5					61
	C/ERM	0.2	0.0	0.1	0.5	0.2	1.2	0.5	0.7	0.4	3.8	0.0	0.1				0.0					0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	1.3				2.5		1.6	2.5					8
4	C/Ref	1.7	0.5	1.0	2.8	0.9	3.6	1.1	1.3	1.3	14.2		11.0	16.0		12.5						5.9	39.5						5.9	12.5			0.5	0.7		0.8	1.3					67
	C/ERL	1.5	0.3	0.5	3.5	1.1	4.8	1.3	2.7	1.1	16.9		0.5									0.5	0.5						0.2	11.0				32.7		51.9	32.7					61
	C/ERM	0.2	0.0	0.1	0.4	0.2	1.0	0.5	0.7	0.4	3.7		0.1									0.1	0.1						0.0	1.4				2.7		1.8	2.7					8
5	C/Ref	0.8	0.2	0.6	1.3	0.3	1.1	0.5	0.6	0.7	6.1	3.0	5.0	7.5	3.8	9.0	5.0			3.8		5.6	37.0	1.5	3.0	2.3	6.8	6.8	6.6	3.4			0.1	0.1		0.1	0.2		0.9		0.9	54
	C/ERL	0.7	0.1	0.3	1.6	0.4	1.5	0.6	1.3	0.6	7.1	0.2	0.2				0.3					0.4	0.7	0.7	0.7	0.2	0.2	1.6	0.2	3.0				5.9		9.4	5.9					18
	C/ERM	0.1	0.0	0.1	0.2	0.1	0.3	0.3	0.4	0.2	1.6	0.0	0.1				0.0					0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.4				0.5		0.3	0.5					3
6	C/Ref	0.7	0.3	0.7	1.6	0.4	1.2	0.8	0.7	0.8	7.1	2.3	6.0	7.5	2.3	9.0	4.6		1.5	2.3	0.8	5.6	36.2	0.8	2.3	1.5	4.6	4.6	6.2	5.5				0.2		0.2	0.2		0.6		0.6	54
	C/ERL	0.6	0.2	0.3	2.0	0.6	1.5	0.9	1.5	0.7	8.2	0.2	0.3				0.2		0.1		0.0	0.4	0.8	0.3	0.5	0.1	0.2	1.0	0.2	4.8				9.5		13.3	9.5					24
	C/ERM	0.1	0.0	0.1	0.2	0.1	0.3	0.3	0.4	0.3	1.9	0.0	0.1				0.0		0.0		0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.6				0.8		0.5	0.8					4
7	C/Ref	1.0	0.2	0.8	1.7	0.6	2.1	0.7	1.1	0.8	8.9	3.3	9.0	9.0	6.5	13.0	7.5		4.1	6.5	1.7	9.3	60.5	1.6	3.3	1.6	6.5	6.5	10.3	7.5			0.5	0.3		0.4	0.8					84
	C/ERL	0.8	0.1	0.4	2.1	0.8	2.7	0.8	2.3	0.7	10.8	0.2	0.4				0.4		0.1		0.1	0.7	1.3	0.7	0.8	0.1	0.2	1.6	0.3	6.6				14.1		25.4	14.1					34
	C/ERM	0.1	0.0	0.1	0.3	0.2	0.6	0.3	0.6	0.3	2.4	0.0	0.1				0.1		0.0		0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.8				1.1		0.9	1.1					5
8	C/Ref	0.7	0.3	0.7	1.3	0.7	1.7	0.7	0.6	0.8	7.5		4.1	4.9	2.5	6.5	2.5		1.7	2.5	0.9	3.9	25.4		1.7	0.8	2.5	2.5	4.3	4.9			0.2	0.3		0.3	0.5		1.0		1.0	42
	C/ERL	0.6	0.2	0.3	1.6	0.9	2.3	0.8	1.3	0.7	8.7		0.2				0.1		0.1		0.0	0.3	0.4		0.4	0.1	0.1	0.5	0.1	4.3				11.4		18.4	11.4					25
	C/ERM	0.1	0.0	0.1	0.2	0.2	0.5	0.3	0.4	0.3	2.0		0.1				0.0		0.0		0.0	0.1	0.1		0.0	0.0	0.0	0.0	0.0	0.5				0.9		0.6	0.9					4
9	C/Ref	1.3	0.5	1.0	2.2	0.8	3.0	1.0	1.1	1.2	12.2	0.9	2.7	2.7	1.8	3.6	2.7		0.9	1.8	0.5	2.7	17.4		0.9		0.9	0.9	2.8	7.5			0.4	0.5		0.5	0.9		0.7		0.7	40
	C/ERL	1.1	0.3	0.5	2.8	1.0	3.9	1.2	2.3	1.1	14.3	0.1	0.1				0.1		0.0		0.0	0.2	0.4		0.2		0.0	0.2	0.1	6.6				20.9		34.4	20.9					42
	C/ERM	0.1	0.0	0.1	0.4	0.2	0.8	0.5	0.6	0.4	3.2	0.0	0.0				0.0		0.0		0.0	0.0	0.1		0.0		0.0	0.0	0.0	0.8				1.7		1.2	1.7					6
10	C/Ref	1.7	0.4	1.4	4.9	1.3	2.9	1.3	1.6	1.9	17.4	10.0	27.0	25.0	17.0	33.0	19.5		8.0	18.0	8.9	26.2	166.4	3.4	8.0	5.5	16.9	16.9	28.8	27.0		6.8	1.1	0.9		1.0	8.8		1.8		1.8	238
	C/ERL	1.5	0.3	0.7	6.2	1.6	3.8	1.5	3.4	1.7	20.6	0.8	1.3				1.0		0.3		0.5	2.1	3.8	1.5	1.9	0.5	0.6	3.9	1.0	23.8				40.0		68.4	40.0					92
	C/ERM	0.2	0.0	0.1	0.8	0.4	0.8	0.6	0.9	0.6	4.4	0.1	0.3				0.1		0.0		0.1	0.4	0.8	0.1	0.1	0.1	0.1	0.3	0.1	3.0				3.3		2.3	3.3					12
11	C/Ref	1.7	0.4	1.1	2.8	1.0	3.5	0.9	1.0	1.5	14.1	4.6	15.5	18.5	10.0	18.5	7.5		4.6	10.0	2.9	14.2	92.1	1.9	3.7	3.7	9.2	9.2	15.6	15.5				0.6		0.5	0.6		1.5		1.5	133
	C/ERL	1.5	0.3	0.5	3.5	1.3	4.7	1.1	2.2	1.3	16.4	0.4	0.7				0.4		0.2		0.2	1.1	1.8	0.8	0.9	0.3	0.3	2.0	0.5	13.7				25.9		36.1	25.9					60
	C/ERM	0.2	0.0	0.1	0.4	0.3	1.0	0.4	0.6	0.5	3.5	0.1	0.2				0.1		0.0		0.0	0.2	0.4	0.1	0.1	0.0	0.1	0.2	0.0	1.7				2.1		1.2	2.1					8
12	C/Ref	1.1	0.3	0.9	1.6	0.6	1.9	0.9	1.0	1.0	9.4	1.8	5.5	7.5	4.6	9.0			2.8	4.6	1.4	5.8	37.1	0.9	1.8	1.8	4.5	4.5	6.5	5.5			0.4	0.4		0.4	0.7		1.5		1.5	59
	C/ERL	1.0	0.2	0.4	2.0	0.8	2.5	1.1	2.0	0.9	10.9	0.1	0.3						0.1		0.1	0.5	0.6	0.4	0.4	0.2	0.2	1.0	0.2	4.8				16.4		27.3	16.4					34
	C/ERM	0.1	0.0	0.1	0.3	0.2	0.5	0.4	0.5	0.3	2.5	0.0	0.1						0.0		0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.6				1.3		0.9	1.3					5
13	C/Ref	1.1	0.3	1.0	3.5	1.0	3.4	0.9	1.1	1.2	13.5		8.0	10.0	4.7	8.0						4.6	30.7						4.6	18.5			0.8	0.5		0.6	1.4					64
	C/ERL	1.0	0.2	0.5	4.4	1.2	4.5	1.1	2.3	1.1	16.2		0.4									0.4	0.4						0.2	16.3				22.7		41.8	22.7					56
	C/ERM	0.1	0.0	0.1	0.6	0.3	1.0	0.4	0.6	0.4	3.5		0.1									0.1	0.1						0.0	2.1				1.9		1.4	1.9					7
14	C/Ref	0.9	0.2	0.7	1.1	0.3	1.1	0.7	0.8	0.7	6.3	1.6	4.8	6.5	3.2	7.0	3.2	0.8		3.2		4.5	30.1		1.6	1.6	3.2	3.2	5.0	3.2				0.2		0.2	0.2		0.6		0.6	44
	C/ERL	0.7	0.1	0.3	1.4	0.4	1.4	0.8	1.6	0.6	7.4	0.1	0.2				0.2	0.3				0.4	0.8		0.4	0.1	0.1	0.5	0.2	2.8				7.7		10.8	7.7					19
	C/ERM	0.1	0.0	0.1	0.2	0.1	0.3	0.3	0.4	0.2	1.7	0.0	0.1				0.0	0.1				0.1	0.2		0.0	0.0	0.0	0.1	0.0	0.4				0.6		0.4	0.6					3
15	C/Ref	1.1	0.5	1.1	2.0	0.7	2.6	1.0	1.2	1.2	11.5		2.7	3.6		3.6						1.5	9.9						1.5	6.0			1.1	0.4		0.6	1.5					29
	C/ERL	1.0	0.3	0.5	2.6	1.0	3.4	1.2	2.5	1.1	13.5		0.1									0.1	0.1						0.0	5.3				19.5		39.9	19.5					38
	C/ERM	0.1	0.0	0.1	0.3	0.2	0.7	0.5	0.7	0.4	3.1		0.0									0.0	0.0						0.0	0.7				1.6		1.4	1.6					5
16	C/Ref	1.4	0.4	1.1	2.1	0.8	2.7	1.1	1.2	1.2	12.1																			7.5			2.2	0.6	34.0	1.3	36.8					56
	C/ERL	1.2	0.3	0.5	2.7	1.0	3.6	1.2	2.6	1.1	14.2																			6.6				27.3		86.1	27.3					48
	C/ERM	0.1	0.0	0.1	0.3	0.2	0.8	0.5	0.7	0.4	3.2																			0.8				2.2		3.0	2.2					6
17	C/Ref	2.7	1.3	2.3	12.3	3.0	9.0	1.5	1.8	3.7	37.5	7.5	25.0	34.0	19.0	24.0	19.0		7.5	20.0	4.7	24.8	160.7						24.8	44.0			1.7	1.8		2.0	3.6					246
	C/ERL	2.3	0.8	1.1	15.6	3.9	12.0	1.7	3.8	3.2	44.4	0.6	1.2				1.0		0.3		0.3	1.9	3.2						0.8	38.8				81.8		134.8	81.8					168
	C/ERM	0.3	0.1	0.2	2.0	0.8	2.5	0.7	1.0	1.2	8.8	0.1	0.3				0.1		0.0		0.1	0.3	0.6						0.1	4.9				6.7		4.6	6.7					21
18	C/Ref	1.6	0.7	1.1	2.6	0.8	2.9	1.1	1.1	1.3	13.1	6.0	12.0	13.0	11.0	16.0	11.0	6.0	6.0	11.0	3.2	14.7	95.2						14.7	10.0			0.4	0.6		0.6	1.0					119
	C/ERL	1.3	0.4	0.5	3.2	1.0	3.8	1.2	2.4	1.1	15.2	0.5	0.6				0.6	1.9	0.2		0.2	1.2	3.9						0.5	8.8				25.9		41.1	25.9					54
	C/ERM	0.2	0.1	0.1	0.4	0.2	0.8	0.5	0.6	0.4	3.3	0.1	0.2				0.1	0.5	0.0		0.0	0.2	0.8						0.0	1.1				2.1		1.4	2.1					7

Refer to the attached "NOTES FOR TABLES 1 AND 2" for additional explanation and assumptions.

L:\CTO26\RI\PREFINAL\STATS\SSRATIOS.XLS Table 1

PRELIMINARY

Table 1 - Basin Stations

		Metals										PAHs																		PCBs	Pesticides							SVOCs				
Station ID	Quotient	ARSENIC, TOTAL	CADMIUM, TOTAL	CHROMIUM, TOTAL	COPPER, TOTAL	LEAD, TOTAL	MERCURY, TOTAL	NICKEL, TOTAL	SILVER, TOTAL	ZINC, TOTAL	Cumulative Metals Quotient	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	INDENO(1,2,3-CD)PYRENE	PYRENE	TOTAL HPAH	Cumulative HPAHs Quotient	ACENAPHTHYLENE	ANTHRACENE	PHENANTHRENE	TOTAL LPAH	Cumulative LPAHs Quotient	TOTAL PAH	TOTAL PCB	ALDRIN	LINDANE (GAMMA-BHC)	4,4'-DDD	4,4'-DDE	4,4'-DDT	TOTAL DDT	Cumulative Pesticides Quotient	BIS(2-ETHYLHEXYL)PHTHALATE	DI-N-OCTYLPHTHALATE	PHENOL	Cumulative SVOCs Quotient	Total Cumulative Quotients
19	C/Ref	1.4	0.5	1.0	1.6	0.6	1.6	1.0	1.0	1.0	9.6		4.4			6.0						1.6	10.4						1.6	2.8			0.2	0.4		0.4	0.6					23
	C/ERL	1.2	0.3	0.5	2.0	0.8	2.1	1.1	2.1	0.9	10.9		0.2									0.1	0.2						0.1	2.5				17.3		26.9	17.3					31
	C/ERM	0.1	0.0	0.1	0.3	0.2	0.4	0.4	0.6	0.3	2.5		0.1									0.0	0.1						0.0	0.3				1.4		0.9	1.4					4
20	C/Ref	1.2	0.5	1.1	1.8	0.7	1.6	1.0	1.2	1.2	10.2		5.0	5.0		4.3	4.3					2.8	18.5						2.8	3.8			0.3	0.4		0.4	0.6					33
	C/ERL	1.0	0.4	0.5	2.2	0.9	2.1	1.2	2.5	1.0	11.8		0.2				0.2					0.2	0.5						0.1	3.3				16.8		26.5	16.8					32
	C/ERM	0.1	0.0	0.1	0.3	0.2	0.4	0.5	0.7	0.4	2.7		0.1				0.0					0.0	0.1						0.0	0.4				1.4		0.9	1.4					5
21	C/Ref	2.3	1.3	1.8	5.1	1.3	3.7	1.5	1.4	2.3	20.7	14.0	22.0	25.5	15.0	27.5	27.5		16.0	15.0	9.2	27.1	171.7		9.0	8.0	17.0	17.0	29.6	11.5			0.6	0.9		1.0	1.5					222
	C/ERL	2.0	0.8	0.8	6.5	1.7	4.9	1.8	3.0	2.0	23.5	1.1	1.0				1.4		0.5		0.5	2.1	4.6		2.1	0.7	0.6	2.8	1.0	10.1				41.8		65.2	41.8					83
	C/ERM	0.2	0.1	0.2	0.8	0.4	1.0	0.7	0.8	0.7	5.0	0.2	0.3				0.2		0.1		0.1	0.4	0.8		0.2	0.1	0.1	0.3	0.1	1.3				3.4		2.2	3.4					11
22	C/Ref	2.4	1.2	1.9	4.9	1.5	2.4	1.7	1.7	2.3	19.9	6.5	15.0	20.5	7.5	15.0	14.0		3.8	7.5	3.9	14.6	93.7		2.6	3.8	6.4	6.4	15.6	20.5			0.8	1.3		1.4	2.2	0.8			0.8	143
	C/ERL	2.1	0.8	0.9	6.2	1.9	3.2	2.0	3.5	2.0	22.5	0.5	0.7				0.7		0.1		0.2	1.1	2.3		0.6	0.3	0.2	0.9	0.5	18.1				59.1		92.4	59.1					103
	C/ERM	0.2	0.1	0.2	0.8	0.4	0.7	0.8	0.9	0.7	4.9	0.1	0.2				0.1		0.0		0.1	0.2	0.4		0.0	0.1	0.0	0.1	0.0	2.3				4.8		3.2	4.8					12
23	C/Ref	1.2	0.5	1.1	1.9	0.6	1.6	0.9	1.0	1.1	9.8	5.5	9.0	11.0	7.0	14.5	11.5		6.5	7.0	3.7	11.9	75.7						11.9	8.0			0.4	0.6		0.6	1.0					95
	C/ERL	1.0	0.3	0.5	2.4	0.8	2.1	1.1	2.2	0.9	11.3	0.4	0.4				0.6		0.2		0.2	0.9	1.9						0.4	7.0				27.7		43.0	27.7					48
	C/ERM	0.1	0.0	0.1	0.3	0.2	0.4	0.4	0.6	0.3	2.5	0.1	0.1				0.1		0.0		0.1	0.2	0.3						0.0	0.9				2.3		1.5	2.3					6
24	C/Ref	0.7	0.1	0.3	0.3	0.1		0.3		0.3	2.0																							0.1		0.1	0.1					2
	C/ERL	0.6	0.1	0.1	0.4	0.1		0.4		0.2	1.8																							2.7		3.8	2.7					5
	C/ERM	0.1	0.0	0.0	0.0	0.0		0.2		0.1	0.4																							0.2		0.1	0.2					1
25	C/Ref	0.2	0.3	0.6	0.7	0.3	0.6	0.7	0.6	0.6	4.5																							0.2		0.2	0.2					5
	C/ERL	0.2	0.2	0.3	0.9	0.3	0.7	0.8	1.3	0.5	5.2																							8.2		11.4	8.2					13
	C/ERM	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.4	0.2	1.3																							0.7		0.4	0.7					2
26	C/Ref	1.9	0.6	1.3	2.8	0.9	2.4	1.4	9.0	1.5	21.7	1.9	4.8	6.5	2.9	6.0	2.9	1.0	1.9	2.9	1.0	4.9	31.8						4.9	6.5		2.5	0.5	0.7		0.7	3.7		0.8		0.8	64
	C/ERL	1.6	0.4	0.6	3.5	1.2	3.2	1.6	19.0	1.3	32.3	0.1	0.2				0.2	0.3	0.1		0.1	0.4	0.9						0.2	5.7				29.5		47.3	29.5					69
	C/ERM	0.2	0.0	0.1	0.4	0.3	0.7	0.6	5.1	0.5	8.0	0.0	0.1				0.0	0.1	0.0		0.0	0.1	0.2						0.0	0.7				2.4		1.6	2.4					11
27	C/Ref	1.9	0.6	1.7	5.1	1.2	4.4	1.4	1.6	1.8	19.8		2.4	2.4		3.6	2.4		1.2		1.3	2.2	13.3			1.2	1.2	1.2	2.3	21.5			0.6	1.0		1.0	1.7					57
	C/ERL	1.6	0.4	0.8	6.5	1.6	5.8	1.6	3.4	1.6	23.3		0.1				0.1		0.0		0.1	0.2	0.3			0.1	0.0	0.1	0.1	18.9				45.5		70.9	45.5					88
	C/ERM	0.2	0.1	0.2	0.8	0.3	1.2	0.7	0.9	0.6	5.0		0.0				0.0		0.0		0.0	0.0	0.1			0.0	0.0	0.0	0.0	2.4				3.7		2.4	3.7					11
28	C/Ref	1.7	0.5	1.0	2.6	0.7	1.7	1.1	2.5	1.2	13.1		1.8	1.8		1.8	1.8		0.9		0.5	1.4	8.6						1.4	7.0	2.3		0.4	0.6		0.6	3.2					32
	C/ERL	1.5	0.3	0.5	3.2	0.9	2.3	1.3	5.2	1.1	16.3		0.1				0.1		0.0		0.0	0.1	0.2						0.0	6.2				24.5		38.6	24.5					47
	C/ERM	0.2	0.0	0.1	0.4	0.2	0.5	0.5	1.4	0.4	3.7		0.0				0.0		0.0		0.0	0.0	0.0						0.0	0.8				2.0		1.3	2.0					7
29	C/Ref	0.7	0.4	0.9	1.2	0.5	0.7	1.0	0.9	0.8	7.1		1.0	1.0		1.9						0.6	3.8						0.6					0.4		0.4	0.4					11
	C/ERL	0.6	0.3	0.4	1.5	0.6	0.9	1.1	1.9	0.7	8.1		0.0									0.0	0.0						0.0					19.5		27.2	19.5					28
	C/ERM	0.1	0.0	0.1	0.2	0.1	0.2	0.5	0.5	0.3	2.0		0.0									0.0	0.0						0.0					1.6		0.9	1.6					4
30	C/Ref	1.1	0.4	0.9	1.2	0.5	1.2	0.9	1.0	0.9	8.0		1.7	1.7		1.7	1.7		0.8		0.9	1.4	8.3						1.4	2.6			0.3	0.3		0.4	0.6					19
	C/ERL	1.0	0.3	0.4	1.5	0.7	1.5	1.0	2.0	0.8	9.2		0.1				0.1		0.0		0.0	0.1	0.2						0.0	2.2				15.0		24.6	15.0					27
	C/ERM	0.1	0.0	0.1	0.2	0.1	0.3	0.4	0.5	0.3	2.1		0.0				0.0		0.0		0.0	0.0	0.0						0.0	0.3				1.2		0.8	1.2					4
31	C/Ref	0.7	0.2	0.6	0.7	0.3	0.7	0.7	0.7	0.5	5.0																						0.2	0.3		0.3	0.5			1.9	1.9	7
	C/ERL	0.6	0.1	0.3	0.9	0.4	0.9	0.8	1.4	0.5	5.8																							14.1		22.0	14.1					20
	C/ERM	0.1	0.0	0.1	0.1	0.1	0.2	0.3	0.4	0.2	1.4																							1.1		0.8	1.1					3
32	C/Ref	0.7	0.2	0.6	0.6	0.3	0.6	0.7	0.7	0.5	4.7																						0.2	0.3		0.3	0.4					5
	C/ERL	0.6	0.1	0.3	0.8	0.4	0.7	0.8	1.4	0.4	5.5																							12.3		19.0	12.3					18
	C/ERM	0.1	0.0	0.1	0.1	0.1	0.2	0.3	0.4	0.2	1.3																							1.0		0.7	1.0					2
33	C/Ref	1.3	0.3	0.9	1.2	0.5	1.3	1.1	1.0	0.8	8.4																			1.6			0.3	0.4		0.4	0.7					11
	C/ERL	1.1	0.2	0.4	1.5	0.6	1.7	1.2	2.2	0.7	9.7																			1.4				18.6		29.0	18.6					30
	C/ERM	0.1	0.0	0.1	0.2	0.1	0.4	0.5	0.6	0.3	2.3																			0.2				1.5		1.0	1.5					4
41	C/Ref	1.6	0.9	1.2	2.8	1.2	5.5	0.8	1.1	1.7	16.8	7.0	17.0	22.0	8.0	20.0	11.0	4.0	7.0	8.0	3.7	16.7	107.7	2.0	4.0	3.0	9.0	9.0	18.0	11.0			1.1	1.1		1.2	2.2					147
	C/ERL	1.3	0.6	0.5	3.5	1.6	7.3	1.0	2.4	1.5	19.8	0.5	0.8				0.6	1.3	0.2		0.2	1.3	3.6	0.9	0.9	0.3	0.3	2.1	0.6	9.7				50.0		82.3	50.0					85
	C/ERM	0.2	0.1	0.1	0.4	0.3	1.5	0.4	0.6	0.5	4.3	0.1	0.2				0.1	0.3	0.0		0.1	0.2	0.8	0.1	0.1	0.0	0.1	0.2	0.1	1.2				4.1		2.8	4.1					10

PRELIMINARY

Refer to the attached "NOTES FOR TABLES 1 AND 2" for additional explanation and assumptions.

L:\CTO26\RI\PREFINAL\STATS\SSRATIOS.XLS Table 1

Table 1 - Pier Stations

		Metals										PAHs																					PCBs	Pesticides					SVOCs				
Station ID	Quotient	ARSENIC, TOTAL	CADMIUM, TOTAL	CHROMIUM, TOTAL	COPPER, TOTAL	LEAD, TOTAL	MERCURY, TOTAL	NICKEL, TOTAL	SILVER, TOTAL	ZINC, TOTAL	Cumulative Metals Quotient	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	BENZO(K)FLUORANTHENE	CHRYSENE	DIBENZO(A,H)ANTHRACENE	FLUORANTHENE	INDENO(1,2,3-CD)PYRENE	PYRENE	TOTAL HPAH	Cumulative HPAHs Quotient	ACENAPHTHENE	ACENAPHTHYLENE	ANTHRACENE	FLUORENE	METHYLNAPHTHALENES	PHENANTHRENE	TOTAL LPAH	Cumulative LPAHs Quotient	TOTAL PAH	TOTAL PCB	4,4'-DDD	4,4'-DDE	4,4'-DDT	TOTAL DDT	Cumulative Pesticides Quotient	BIS(2-ETHYLHEXYL)PHTHALATE	DI-N-OCTYLPHTHALATE	PHENOL	Cumulative SVOCs Quotient	Total Cumulative Quotients
42	C/Ref	1.2	0.6	1.3	2.8	0.9	1.4	1.4	1.0	1.5	12.0																								1.1		1.0	1.1					13
	C/ERL	1.0	0.4	0.6	3.5	1.2	1.8	1.6	2.1	1.3	13.5																								50.0		69.6	50.0					64
	C/ERM	0.1	0.1	0.1	0.4	0.3	0.4	0.6	0.6	0.5	3.1																								4.1		2.4	4.1					7
43	C/Ref	1.6	1.2	1.5	6.0	1.3	3.1	1.2	1.2	2.3	19.5	80.0	49.0	65.0	9.0	55.0	85.0		180.0	11.0	73.7	101.4	607.7	9.0		32.5			25.5	67.0	67.0	111.4			0.1		0.1	0.1					694
	C/ERL	1.3	0.8	0.7	7.6	1.7	4.1	1.4	2.5	2.0	22.2	6.1	2.3				4.4		6.0		4.2	7.9	23.0	11.3		7.6			2.1	2.4	21.0	3.7			5.9		8.2	5.9					72
	C/ERM	0.2	0.1	0.2	1.0	0.4	0.9	0.6	0.7	0.7	4.6	1.0	0.6				0.6		0.7		1.1	1.4	4.0	0.4		0.6			0.3	0.4	1.3	0.3			0.5		0.3	0.5					10
44	C/Ref	1.4	0.8	1.5	3.7	1.3	2.5	1.3	1.2	1.9	15.7		11.5	16.0	10.0	13.0	10.0		7.5	10.0	4.7	13.1	82.7									13.1			1.0		0.9	1.0					99
	C/ERL	1.2	0.5	0.7	4.7	1.7	3.3	1.5	2.6	1.7	18.0		0.5				0.5		0.3		0.3	1.0	1.6									0.4			45.0		62.7	45.0					65
	C/ERM	0.1	0.1	0.2	0.6	0.4	0.7	0.6	0.7	0.6	4.0		0.1				0.1		0.0		0.1	0.2	0.3									0.0			3.7		2.1	3.7					8
45	C/Ref	1.6	1.0	1.2	3.0	1.1	1.9	1.0	1.1	1.6	13.4		12.0	13.5		12.0	8.5					6.9	46.0									6.9			1.1		1.0	1.1					61
	C/ERL	1.3	0.6	0.5	3.8	1.4	2.5	1.1	2.4	1.4	15.2		0.6				0.4					0.5	1.0									0.2			50.0		69.6	50.0					66
	C/ERM	0.2	0.1	0.1	0.5	0.3	0.5	0.5	0.6	0.5	3.3		0.2				0.1					0.1	0.2									0.0			4.1		2.4	4.1					8
46	C/Ref	1.2	0.9	1.2	2.8	1.0	2.3	1.3	1.0	1.5	13.2																								0.9		0.9	0.9					14
	C/ERL	1.0	0.6	0.6	3.5	1.3	3.1	1.4	2.2	1.3	15.0																								41.8		58.2	41.8					57
	C/ERM	0.1	0.1	0.1	0.4	0.3	0.6	0.6	0.6	0.5	3.3																								3.4		2.0	3.4					7
47	C/Ref	1.1	0.8	0.9	4.2	0.9	4.4	0.8	0.7	1.6	15.4	7.5	14.5	16.5	5.5	18.0	16.5		12.5	5.5	6.6	16.4	103.1			7.5			3.9	11.4	11.4	18.1	17.0	0.8	1.1		1.2	1.9			4.2	4.2	153
	C/ERL	0.9	0.5	0.4	5.3	1.2	5.9	0.9	1.5	1.4	18.0	0.6	0.7				0.9		0.4		0.4	1.3	2.9			1.8			0.3	0.4	2.1	0.6	15.0		50.0		79.1	50.0					88
	C/ERM	0.1	0.1	0.1	0.7	0.2	1.2	0.4	0.4	0.5	3.7	0.1	0.2				0.1		0.0		0.1	0.2	0.5			0.1			0.1	0.1	0.2	0.1	1.9		4.1		2.7	4.1					10
48	C/Ref	2.1	0.8	8.7	7.7	1.5	2.6	1.2	1.0	3.0	28.7	95.0	75.0	90.0	22.0	65.0	105.0	16.5	220.0	27.5	86.8	132.5	802.8	18.0	25.0	70.0	27.5	4.2	135.0	279.7	279.7	174.5		1.9	1.1		1.4	3.0		3.8		3.8	1118
	C/ERL	1.8	0.5	4.1	9.7	2.0	3.5	1.3	2.2	2.6	27.8	7.3	3.5				5.5	5.2	7.3		5.0	10.4	33.7	22.5	11.4	16.4	28.9	1.2	11.3	10.1	91.7	5.8			50.0		92.4	50.0					203
	C/ERM	0.2	0.1	0.9	1.2	0.4	0.7	0.5	0.6	1.0	5.6	1.2	0.9				0.8	1.3	0.9		1.3	1.8	6.3	0.7	0.8	1.3	1.0	0.1	1.8	1.8	5.7	0.5			4.1		3.2	4.1					22
49	C/Ref	1.9	0.7	1.6	5.3	1.3	3.6	1.3	1.3	2.3	19.1	25.0	55.0	70.0	17.0	48.0	41.0	13.5	26.0	18.0	52.6	62.2	366.1		5.5	15.0	2.3		12.5	35.3	35.3	67.5	19.5	0.7	0.9		0.9	1.6		4.6		4.6	446
	C/ERL	1.6	0.5	0.7	6.8	1.6	4.7	1.4	2.7	2.0	22.1	1.9	2.6				2.1	4.3	0.9		3.0	4.9	14.7		2.5	3.5	2.4		1.0	1.3	9.5	2.2	17.2		39.5		63.3	39.5					103
	C/ERM	0.2	0.1	0.2	0.9	0.4	1.0	0.6	0.7	0.7	4.7	0.3	0.7				0.3	1.0	0.1		0.8	0.9	3.2		0.2	0.3	0.1		0.2	0.2	0.7	0.2	2.2		3.2		2.2	3.2					14
50	C/Ref	1.6	1.7	1.1	4.0	1.4	1.7	1.5	2.0	4.8	19.5	50.0	43.5	60.0	11.0	43.5	60.0		100.0	12.0	47.4	70.7	427.4		4.1	60.0	9.5		40.5	114.1	114.1	87.8			0.7		0.6	0.7		4.4		4.4	566
	C/ERL	1.3	1.1	0.5	5.0	1.8	2.2	1.7	4.1	4.1	21.9	3.8	2.0				3.1		3.3		2.7	5.5	15.0		1.8	14.1	10.0		3.4	4.1	29.3	2.9			31.8		44.3	31.8					98
	C/ERM	0.2	0.1	0.1	0.6	0.4	0.5	0.7	1.1	1.5	5.2	0.6	0.5				0.4		0.4		0.7	1.0	2.7		0.1	1.1	0.4		0.5	0.7	2.1	0.3			2.6		1.5	2.6					13
51	C/Ref	1.9	1.9	1.3	4.9	1.2	2.0	1.2	1.2	2.0	17.6		25.5	31.0	7.0	31.0	29.0		12.5	9.0	22.9	28.3	167.9		3.6	14.5	1.8		12.5	32.4	32.4	33.2			0.9		0.8	0.9		4.4		4.4	223
	C/ERL	1.6	1.3	0.6	6.2	1.5	2.7	1.4	2.5	1.7	19.5		1.2				1.5		0.4		1.3	2.2	4.4		1.6	3.4	1.9		1.0	1.2	8.0	1.1			41.4		57.6	41.4					73
	C/ERM	0.2	0.2	0.1	0.8	0.3	0.6	0.6	0.7	0.6	4.0		0.3				0.2		0.0		0.3	0.4	0.9		0.1	0.3	0.1		0.2	0.2	0.6	0.1			3.4		2.0	3.4					9
52	C/Ref	1.4	1.2	1.7	6.0	1.5	2.5	1.4	1.4	2.6	19.6		21.5	27.0	7.0	25.5	13.0		4.3	7.0	12.9	19.5	118.2		1.5	5.5			4.3	11.3	11.3	21.2			1.0		0.9	1.0		3.4		3.4	153
	C/ERL	1.2	0.8	0.8	7.6	1.9	3.3	1.6	2.9	2.3	22.4		1.0				0.7		0.1		0.7	1.5	2.6		0.7	1.3			0.4	0.4	2.3	0.7			42.7		59.5	42.7					70
	C/ERM	0.1	0.1	0.2	1.0	0.4	0.7	0.7	0.8	0.8	4.7		0.3				0.1		0.0		0.2	0.3	0.6		0.0	0.1			0.1	0.1	0.2	0.1			3.5		2.0	3.5					9

PRELIMINARY

Table 2 - Basin Stations

	Chemistry				Toxicity								Benthos						
Station ID	No. Exceeding Reference Maximum	No. Exceeding ERM	Total Cumulative Max Reference Quotient	Total Cumulative ERM Quotient	AMPHIPOD REBURIAL	AMPHIPOD SURVIVAL	ECHINODERM NORMAL DEVELOPMENT	ECHINODERM SURVIVAL	POLYCHAETE GROWTH	POLYCHAETE GROWTH / LAB CONTROL	POLYCHAETE SURVIVAL	No. Below Reference Minimum	Community Dominance index	Community Number of species	Community Total abundance	CRUSTACEANS Total abundance	MOLLUSCS Total abundance	POLYCHAETES Total abundance	No. Below Reference Minimum
1	17	1	64	5	0.99	1.02	0.01	1.36	2.39	0.68	1.09	2	1.0	1.5	3.4	16.3	2.1	4.4	0
2	13	2	50	7	0.99	1.10	0.00	0.48	2.07	0.59	1.09	3	0.9	2.0	4.6	5.0	2.6	7.7	1
3	17	3	91	8	0.95	1.12	1.05	1.42	1.34	0.38	1.03	1	0.9	1.1	1.5	1.7	2.3	2.1	1
4	11	3	67	8	1.06	1.08	0.00	0.92	1.21	0.38	1.09	2	1.0	1.5	3.8	9.0	0.7	6.5	1
5	13	0	54	3	1.04	1.05	0.09	0.45	2.36	0.67	1.00	2	0.1	2.7	37.1	70.3	3.4	67.3	1
6	13	0	54	4	1.00	1.05	0.00	0.74	1.75	0.50	1.04	2	1.1	1.7	3.5	23.3	1.7	3.7	0
7	16	1	84	5	1.06	1.05	0.00	0.94	1.84	0.58	1.00	2	1.2	1.5	2.1	7.7	1.3	3.0	0
8	11	0	42	4	0.99	1.05	0.01	0.91	1.86	0.53	1.00	3	0.9	1.2	1.7	1.3	1.9	2.8	1
9	14	1	40	6	1.07	1.06	0.14	1.36	1.70	0.54	1.00	1	0.6	0.4	0.3	0.3	0.3	0.6	6
10	24	2	238	12	1.05	1.10	1.12	1.42	1.80	0.57	1.04	0	0.4	0.4	0.5	0.0	0.1	1.0	6
11	21	2	133	8	1.05	1.19	1.09	1.39	1.89	0.60	0.96	1	1.2	1.0	1.1	0.3	0.7	1.8	2
12	15	1	59	5	1.06	1.06	0.00	1.38	1.70	0.54	1.09	1	0.8	0.5	0.3	0.0	0.3	0.5	6
13	11	2	64	7	1.06	1.11	0.00	0.60	1.55	0.49	1.00	2	1.6	1.7	2.3	10.7	2.0	2.8	0
14	12	0	44	3	1.05	1.16	0.00	0.91	2.20	0.63	1.09	2	1.6	1.6	2.8	6.0	1.1	4.6	0
15	12	1	29	5	1.04	1.12	0.71	1.30	1.59	0.50	1.04	1	0.7	0.4	0.3	0.3	0.0	0.5	6
16	10	1	56	6	1.04	1.10	0.84	1.28	1.66	0.53	1.00	1	0.8	1.0	1.2	0.7	0.3	2.2	3
17	21	6	246	21	1.05	1.06	0.00	0.66	1.20	0.55	1.04	2	1.6	1.8	2.7	6.3	1.0	4.4	0
18	18	2	119	7	1.05	1.11	1.08	1.38	1.73	0.55	1.04	0	1.1	1.0	1.0	0.0	0.6	1.9	3
19	6	1	23	4	1.07	1.07	1.08	1.38	1.57	0.50	1.09	0	0.9	0.9	0.8	1.3	0.1	1.5	4
20	12	1	33	5	1.05	1.05	1.15	1.23	1.38	0.64	1.00	0	1.2	1.0	1.1	2.0	0.6	1.8	1
21	21	3	222	11	1.01	1.02	1.15	1.41	1.18	0.55	0.91	1	1.3	1.4	1.7	1.7	0.9	3.0	1
22	22	2	143	12	0.96	1.08	1.11	1.26	1.52	0.70	1.04	1	1.1	1.4	1.9	1.3	1.0	3.4	0
23	16	1	95	6	1.04	1.14	1.16	1.24	1.66	0.53	1.09	0	1.4	1.6	2.3	1.7	1.3	3.8	0
24	0	0	2	1	1.07	1.11	0.00	0.86	2.39	0.68	0.91	3	1.4	2.0	3.5	5.3	0.7	5.7	1
25	0	0	5	2	1.04	1.12	0.00	0.72	1.80	0.83	1.09	2	1.7	2.4	4.3	9.7	2.1	6.6	0
26	17	2	64	11	1.02	1.08	1.14	1.30	1.59	0.74	1.04	0	0.9	1.1	1.6	7.7	1.4	1.9	1
27	17	3	57	11	1.02	0.98	1.17	1.24	1.36	0.63	1.09	1	1.3	1.4	1.5	1.0	0.7	2.7	1
28	13	2	32	7	0.97	1.08	1.17	1.20	1.18	0.55	1.09	1	1.3	1.3	1.4	1.0	1.6	2.1	0
29	2	1	11	4	1.00	1.00	1.20	1.39	1.64	0.47	1.00	1	1.9	1.8	1.8	9.3	0.1	2.4	1
30	8	1	19	4	1.03	1.01	1.16	1.31	1.20	0.55	1.04	0	1.7	1.9	2.7	12.0	1.4	3.6	0
31	1	1	7	3	1.02	1.04	0.00	0.35	1.68	0.78	1.00	2	2.4	2.2	2.7	11.7	2.0	3.0	0
32	0	0	5	2	1.05	1.10	0.50	1.17	1.96	0.91	0.96	2	2.8	2.8	3.7	6.7	2.4	4.5	0
33	6	1	11	4	1.02	1.00	0.01	0.65	1.86	0.86	1.04	2	2.3	2.3	3.2	10.7	4.4	3.1	0
41	23	3	147	10	0.84	0.69	0.64	1.23	1.38	0.30	1.09	3	1.1	1.2	2.2	3.7	1.0	2.5	0

Refer to the attached "NOTES FOR TABLES 1 AND 2" for additional explanation and assumptions.

L:\CTO26\RI\PREFINAL\STATS\SSRATIOS.XLS Table 2

PRELIMINARY

Table 2 - Pier Stations

	Chemistry				Toxicity								Benthos						
Station ID	No. Exceeding Reference Maximum	No. Exceeding ERM	Total Cumulative Maximum Reference Quotient	Total Cumulative ERM Quotient	AMPHIPOD REBURIAL	AMPHIPOD SURVIVAL	ECHINODERM NORMAL DEVELOPMENT	ECHINODERM SURVIVAL	POLYCHAETE GROWTH	POLYCHAETE GROWTH / LABORATORY CONTROL	POLYCHAETE SURVIVAL	No. Below Reference Minimum	Community Dominance index	Community Number of species	Community Total abundance	CRUSTACEANS Total abundance	MOLLUSCS Total abundance	POLYCHAETES Total abundance	No. Below Reference Minimum
42	7	1	13	7	0.66	0.35	0.00	0.73	2.38	0.98	1.00	4	nc	nc	nc	nc	nc	nc	nc
43	21	1	694	10	1.03	0.94	0.00	1.22	2.93	0.88	1.00	2	nc	nc	nc	nc	nc	nc	nc
44	17	1	99	8	0.26	0.20	0.00	1.16	2.46	1.01	1.04	3	nc	nc	nc	nc	nc	nc	nc
45	12	1	61	8	0.68	0.64	0.00	0.51	2.36	0.97	1.00	4	nc	nc	nc	nc	nc	nc	nc
46	7	1	14	7	0.49	0.25	0.00	0.72	2.82	1.16	1.00	4	nc	nc	nc	nc	nc	nc	nc
47	18	3	153	10	0.98	1.00	0.00	1.03	1.48	0.61	0.91	3	nc	nc	nc	nc	nc	nc	nc
48	25	7	1118	22	0.58	0.28	0.00	1.29	3.34	0.72	0.83	4	nc	nc	nc	nc	nc	nc	nc
49	23	3	446	14	0.84	0.88	0.00	1.10	2.68	0.58	0.91	4	nc	nc	nc	nc	nc	nc	nc
50	22	4	566	13	1.00	0.90	0.00	1.07	2.46	1.01	1.09	3	nc	nc	nc	nc	nc	nc	nc
51	21	1	223	9	0.99	0.83	0.00	1.03	2.59	1.07	0.96	4	nc	nc	nc	nc	nc	nc	nc
52	21	1	153	9	0.99	1.00	0.00	1.02	2.30	0.95	0.87	3	nc	nc	nc	nc	nc	nc	nc

Note: nc = quotient not calculated

L:\CTO26\RI\PREFINAL\STATS\SSRATIOP.XLS Table 2

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Contract No. N-68711-92-D-4670 **Document Control No.** CTO-0026/0452

File Code: 0218.1

TO: Commanding Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 57CS.RS
Building 127, Room 110
1220 Pacific Highway
San Diego, CA. 92132-5187

DATE: 08 April 1997
CTO #: 0026
LOCATION: LBNC, Long Beach, CA

FROM: Krish Kapur
Program / Project Manager

Operations Manager

DESCRIPTION: Preliminary Results of Additional Analyses; Station-by-Station Comparison with Reference, ER-Ls and ER-Ms; Installation Restoration Site 7 (West Basin), Naval Station Long Beach ; Long Beach, California

TYPE: Contract Deliverable (Cost) _____ CTO Deliverable (Technical) _____ Other: X

VERSION: Preliminary (e.g., Draft, Draft Final, Final, etc.) REVISION No: N/A

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8 April 1997

Commanding Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 57CS.RS
Building 127, Room 110
1220 Pacific Highway
San Diego, CA 92132-5187

Subject: Transmittal of Preliminary Results of Additional Analyses
Station-by-Station Comparison with Reference, ER-Ls and ER-Ms
Installation Restoration Site 7 (West Basin), Naval Station Long Beach
Long Beach, California

Dear Mr. Selby:

Attached please find five (5) copies of preliminary results of additional analyses performed in support of the Remedial Investigation (RI) being conducted at the Installation Restoration Site 7 (West Basin), Naval Station Long Beach, Long Beach, California. These analyses were performed in response to joint Agency and Trustee memorandum of 4 March 1997 and pursuant to the discussions of the 1 April 1997 technical workshop with the Agencies and Trustees. The results of analyses enclosed are being transmitted to individual Agencies and Trustees (DTSC, USEPA, USFWS, NOAA and CDFG) for their review, and for discussion at a technical workshop scheduled for 28 April 1997.

If you have any questions and/or comments, please feel free to contact Omer Kadaster at (562) 807-2178.

Very truly yours,

K.K. Kapur
Project Manager

Attachments