

PROJECT NOTE NO. PN-0249/250-05 CLE-C01-01F249/250-I2-0003	PROJECT NO. 01-F249/250-YS
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CONFIRMATION OF:	CONFERENCE X TELECOM OTHER	DATE HELD 17 December 1992 DATE ISSUED 28 December 1992 RECORDED BY Kathy Brewer/CH2M HILL PLACE Santa Ana
SUBJECT	Conceptual Model Review Meeting Naval Complex Long Beach Remedial Investigation/Feasibility Study (RI/FS) Work Plans	
		N60258.000751 NSY LONG BEACH SSIC # 5090.3

PARTICIPANTS: (* DENOTES PART-TIME ATTENDANCE)

A. Muckerman/Code 1823.AM	K. Masden/LBNSY	M. Pumford/RWQCB
K. Brewer/CH2M HILL	C. O'Rourke/DTSC	B. Kanter/Port of Long Beach
P. Torrey/CH2M HILL	A. Rege/DTSC	D. Liu/Tetra Tech
D. Shelton/CH2M HILL	J. Christopher/DTSC	
J. Friedman/IT Corp.	J. Woodling/DTSC	
LtCdr J. Snyder/NAVSTA Long Beach		

ACTION REQ'D. BY	ITEM
	<p>A meeting was held on 17 December 1992 at 0915 hours to review the conceptual models that have been developed for the Naval Station (NAVSTA) Long Beach and the Naval Shipyard Long Beach (LBNSY) and to discuss the approach to the screening risk assessment and the preliminary Applicable or Relevant and Appropriate Requirements (ARARs) evaluation. This project note summarizes the discussion.</p> <p><u>Introductions</u></p> <p>Participants who were not present at the last meeting were introduced: John Christopher, California Department of Toxic Substances Control (DTSC) toxicologist; John Woodling, DTSC hydrogeologist; Bob Kanter, manager of environmental planning for the Port of Long Beach (POLB); and David Liu of Tetra Tech, POLB consultant.</p> <p><u>Items from Last Meeting</u></p> <p>The rationale for the operable unit (OU) designations was included in the advance materials for the meeting. Anand Rege said that the current designations are satisfactory to DTSC.</p> <p>The schedule for the Site 6B preliminary assessment (PA) was discussed briefly. Andrea Muckerman said that the contracting for that work has not been completed. A. Rege repeated DTSC's request that it be included with the Draft RI/FS Work Plans to be submitted on 30 April 1993 if possible. A. Muckerman said that she will get back to DTSC by 15 January 1993 on the schedule for the PA.</p> <p>Craig O'Rourke questioned whether Reeves Field had been addressed in the Initial Assessment Study (IAS). If not, then he feels that the part of it that is on NAVSTA Long Beach should be addressed along with the Site 6B PA. A. Muckerman said that the part of Reeves Field that is not on NAVSTA Long Beach is being addressed by the</p>



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Port of Los Angeles and is currently at the PA stage. She will follow up on whether the IAS addressed Reeves Field at NAVSTA Long Beach.

The Jacobs Engineering group (Jacobs) Team has contacted Kristin Anderson at DTSC to schedule the community interviews. C. O'Rourke said that Claire Best is now the community relations contact at DTSC for NC Long Beach.

The meeting that had been scheduled between the Jacobs Team and Port Services has been postponed. It has been rescheduled for 5 January 1993.

Facility-Wide Conceptual Model

Jeff Friedman presented a brief overview of the facility-wide conceptual model. It appears that the dewatering being done by Southern California Edison (SCE) is influencing flow in the shallow groundwater zone over a large portion of Terminal Island, including NC Long Beach. Mark Pumford had brought data regarding that pumping project to the meeting and copies were made for the Jacobs Team. These data, along with data from the project being conducted by the Port of Long Beach on Terminal Island, will be used to evaluate the zone of influence of the SCE pumping. Since discharge to surface water is the primary exposure pathway for the shallow groundwater contamination, establishing the capture zone of the dewatering system is of primary importance for the risk assessment.

For areas at NC Long Beach within the zone of influence of the dewatering system, non-point-discharge of contaminated groundwater to surface water is virtually eliminated. The exposure assessment then involves estimating what the expected contaminant concentrations would be at the point of discharge for the SCE system. This can be done using groundwater transport models and comparing them to information obtained from monitoring done for the SCE permitted discharge. There was generally agreement that this is an acceptable approach; however, Bob Kanter said that other sites on Terminal Island also have groundwater contamination that could be showing up in the SCE discharge, so those data should be used cautiously.

The likely continuity of the aquitard between the shallow zone and the Gaspar aquifer was discussed. John Woodling said that the level of effort that will be required to confirm the effectiveness of the aquitard as a contaminant barrier will depend on the level of protection required for the Gaspar Aquifer. Two things that potentially may compromise the aquitard are the sand drains around the dry dock and any abandoned petroleum exploration wells in the area. The Jacobs Team will be receiving further information on the drydock wells soon, and will be evaluating the effect of the pumping there on flow in the shallow zone and the Gaspar Aquifer. B. Kanter commented that, because Terminal Island historically was a minor land mass, he doubts that there are many oil exploration wells in the area. Dennis Sullivan, of the Department of Oil Properties at the City of Long Beach, should be able to provide further information. K. Brewer said that it is doubtful that there is sufficient information to actually locate these abandoned wells; therefore, the best that the RI/FS investigation can do is to consider the possibility of their existence and look for an effect (i.e., contamination in the Gaspar).



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Background Data

Background data used for the Site Inspection (SI) were discussed next. John Christopher said that he was initially concerned about the sediment sample used as background (S-66), since it was taken directly off of the Mole and could be influenced by dredged material disposed of there; however, after reviewing the data, the sample appears to be clean and he said that it would be acceptable for background.

J. Christopher asked what the criteria are for the background soil samples. Peter Torrey said that the samples were collected from residential and office areas where no reported waste disposal had occurred. J. Christopher said that, given the occupational exposure scenario that will be used, these locations are probably acceptable. He said the rationale for selection of background sampling locations should be documented in the Work Plan.

K. Brewer asked what should be done if the background samples show an unacceptable risk level for some constituents. J. Christopher said that contaminants of concern should not be eliminated based on background samples, since this is a highly impacted area; instead, the risk from background should be compared to the site risk.

J. Woodling commented that it is not clear that the shallow wells used for background (B-11 and B-22) would not be impacted by groundwater flow from Site 5, since he did not see any information regarding groundwater flow directions in that part of the facility. A. Muckerman said that there are several wells in that area from a gas station investigation that could be used to establish flow direction. The appropriateness of B-11 and B-22 for background groundwater quality will be examined in the Work Plan. Since it is likely that these wells are influenced by surface water recharge, another way of determining whether they are background is to compare groundwater quality there to seawater.

J. Christopher noted that detection limits for organics in some of the background samples are high. P. Torrey said this may be due to the presence of naturally occurring compounds of high molecular weight and corrections for moisture in the samples. These detection limits should be compared to the preliminary remedial goals (PRGs) to determine whether these data are acceptable for risk evaluations.

The need for background for surface water was discussed. K. Brewer said that the general approach for the RI will be to focus on sediment quality and shallow groundwater quality, and to estimate their effects on surface water quality instead of measuring it directly. However, there may be a need to determine ambient surface water quality in the area to have a basis of comparison for potential impacts. B. Kanter said that POLB will be starting a surface water sampling program in the area as part of their stormwater monitoring. A monitoring plan has been approved by the Regional Water Quality Control Board (RWQCB). We may be able to choose a couple of appropriate stations (those that are not targeted to particular discharge points) to use for ambient surface water quality determinations. The Jacobs Team will get a copy of the monitoring plan from POLB and evaluate it for the RI/FS Work Plans.



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Site-Specific Conceptual Models

The potential exposure pathways and key issues for each of the sites included in the RI/FS were briefly reviewed. Discussion items for some of the sites are summarized below. There were no specific comments on Sites 3, 5, 6 and 13. Site 8 is not currently included in the scope of work for the RI/FS Work Plans but will be added.

Sites 1 and 2. The recreational use of areas at Sites 1 and 2 was discussed. LtCdr John Snyder said that all recreational uses will cease when NAVSTA Long Beach closes in 1996. The occupational exposure scenario is appropriate for these areas for current use, since it balances the increased intake levels of the recreational scenario with increased exposure times. J. Christopher agreed with this approach.

Site 4. Site 4 is in the contracting process to be added to the scope of work for the RI/FS Work Plans. J. Christopher said that it looks like a likely disposal area for dredge spoils. J. Snyder said that currently there is no known history of dredge spoil disposal at that site, but that the Jacobs Team is in the process of obtaining the dredge disposal permits to confirm that. The main concern right now for that area is sandblast grit disposal. Sediment sampling in that area is difficult because of the riprap. Since that area is used for recreational fishing, J. Christopher said that the need for sediment sampling around the Mole should be evaluated in the RI/FS Work Plan.

Site 7. J. Christopher said that he felt that the main pathway driving risk at NC Long Beach will be sediment to aquatic organisms to people; therefore, careful evaluation of contaminated sediments in the harbor is required. K. Brewer said that the Jacobs Team is currently evaluating physical transport mechanisms in the harbor, including dredging and ship traffic. However, given that the primary source of contamination to the harbor was through the stormwater outfalls, it is likely that the sediment sampling locations in the SI were from the most impacted areas and provide an upper end estimate of sediment contamination. J. Christopher agreed that was a valid assumption, but said that the concentration gradient should be confirmed during the RI. B. Kanter said that chemical data obtained from other routine dredging operations in the area should be considered when setting remedial goals for sediments at NC Long Beach. J. Christopher agreed, and said that the aim is not to force NC Long Beach to achieve a cleanup level that is more stringent than ambient conditions in the area.

Site 9. The primary concern at this site is the possibility of contamination from dense nonaqueous-phase liquids (DNAPLs) (e.g., trichloroethylene). J. Woodling said that this is an area where he feels we should concentrate on confirming the integrity of the aquitard, possibly through some stratigraphic borings. Characterizing the groundwater concentrations at the interface with the aquitard was also mentioned as a data need. The other exposure pathway to be considered is volatilization of contaminants from soils under the building into the enclosed space and subsequent worker inhalation. D. Shelton commented that both ends of the building were open when we visited the site, so it is likely well ventilated. The Jacobs Team will visit Site 9 to inspect the floor and evaluate ventilation to determine if this exposure pathway warrants further consideration. If quantification of this pathway is required, J. Christopher said that he should be contacted to discuss appropriate models.

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Site 10. It is not clear yet how drydock pumping operations may be influencing groundwater flow at Site 10. When the water level elevation measurements were taken there during the SI, only one well was pumping, so they may not be indicative of the groundwater gradient when all of the wells are pumping. The Jacobs Team will be receiving further information on the drydock wells and will evaluate their likely radius of influence.

Site 11. J. Christopher commented on whether stormwater runoff should be considered a major pathway here (it is currently included as such). K. Brewer said that, if the information is available, the stormwater collection system for that part of LBNSY will be reviewed to determine if transport to the harbor is likely.

Site 12. The need to determine the exact location of the disposal pit with tributyltin-contaminated sandblast grit was discussed. Unless the pit can be located from aerial photographs, a rigorous statistical sampling program would be necessary to locate it. K. Brewer suggested that the approach that should be taken is to evaluate the likely risk of this sandblast grit based on available information, and then determine the importance of finding it based on that. J. Christopher agreed that this is a valid approach.

C. O'Rourke said that, based on aerial photographs, it looks like sandblast grit may have been disposed of over a wide area of the eastern portion of LBNSY, and asked whether the whole area should be included in the RI/FS for characterization. K. Brewer suggested limiting the evaluation to known disposal areas (such as Site 11) for right now, and expanding the investigation only if the sandblast grit is shown to present a significant risk. There was general agreement on this point.

B. Kanter commented that the exposure pathway diagrams show many pathways that have a very low likelihood of being complete, making them difficult to interpret. J. Christopher said that he would not object if only the major pathways of concern for each site are shown, and the others were addressed more qualitatively in one part of the Work Plan. The recreational exposure pathway for surface water and sediment can be removed, since the harbor is not routinely used for recreational swimming.

Screening Risk Assessment

J. Christopher was in agreement that an occupational exposure scenario is appropriate for the facility. He said that DTSC will consider, in addition to the standard risk calculations, Monte Carlo or stochastic distributions for purposes of comparison.

J. Christopher said that if only the ingestion pathway for soils is considered, then the target hazard quotient should be 0.1 instead of 1 to take into account the inhalation exposure component. D. Shelton said that the occupational exposure scenario he is going to use (as per Risk Assessment Guidance for Superfund, Part B) considers ingestion and inhalation. J. Christopher said that in that case a target hazard quotient of 1 is acceptable.

J. Christopher said that the California Environmental Protection Agency (Cal-EPA) has some preferences regarding how exposures from fugitive dusts are assessed; D. Shelton should contact him regarding the appropriate models. Cal-EPA also has its

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	<p>own lead exposure model (LeadSpread). Unlike the federal model that considers only children, Cal-EPA's also includes adults and would be more appropriate for the occupational exposure scenario. Cal-EPA is also considering a slope factor for lead; lead is classified as a probable human carcinogen, but currently only noncarcinogenic effects are quantifiable. J. Christopher did not know the schedule for adoption of the slope factor, but said that the Navy should be prepared for it.</p> <p>K. Brewer asked what procedure should be followed if there is a disagreement between Cal-EPA and federal EPA exposure parameters or toxicity values; J. Christopher said that Cal-EPA's position is that its guidance should be used. A. Muckerman said that, in cases where there is a discrepancy, the Navy would like to see the risk calculated both ways so that a risk management decision can be made.</p> <p><u>Sediment Criteria</u></p> <p>Methods for evaluating potential impacts from contaminants in sediment were discussed at length. DTSC had reviewed the summary of approaches to sediment criteria prepared by the Jacobs Team, and Jim Policini, a DTSC toxicologist, had prepared comments (attached). He questioned the usefulness of the Washington criteria for NC Long Beach and recommended instead use of the National Oceanographic and Atmospheric Administration (NOAA) criteria developed from the National Status and Trends Program.</p> <p>M. Pumford said that the RWQCB does not have a position on sediment criteria. Its likely approach is to extrapolate from sediment quality to pore water quality, then use water quality criteria to evaluate.</p> <p>B. Kanter questioned the use of nationwide standards for NC Long Beach, and stressed the need for a tiered approach that incorporates bioassays when determining cleanup criteria. The approach that POLB uses is consistent with dredge material evaluation put together by EPA and the U.S. Corps of Engineers, commonly referred to as "The Green Book". J. Christopher agreed that such a tiered approach should be used, and that the decision criteria should be outlined in the RI/FS Work Plans.</p> <p>No final decision on the appropriate screening criteria for sediment was made. It was agreed that they should be consistent with the tiered approach chosen for the RI/FS, but may be more conservative as is appropriate at the screening stage. The Jacobs Team will evaluate the available criteria and develop a set of reference values to use for work planning. They will also prepare a draft of the tiered approach proposed for the Work Plan for discussion at the next meeting.</p> <p><u>Preliminary ARARs</u></p> <p>M. Pumford distributed a copy of the ARARs guidance prepared by the RWQCB for federal facilities. He said that the point of compliance for the enclosed bay and estuary standards would be where tidal influence and, presumably, exchange are observed (this is an interpretation and is not stated in the plan). B. Kanter asked about areas where there is tidal influence, but no real exchange. M. Pumford said that he would assume that in those cases that groundwater standards apply. The RWQCB issued a policies and procedures document (92-49) in June 1992 that discusses</p>



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cleanup issues for groundwater; he will forward a copy of this to the Navy and to the Jacobs Team. ARARs for federal facilities will be reviewed by the State Water Quality Control Board for consistency across the state.

The Jacobs Team has reviewed the proposed Resource Conservation and Recovery Act (RCRA) Subpart S requirements for soils. J. Christopher said that it is his understanding that these requirements will never be made final. They are based on a residential exposure scenario so it is questionable whether they should even be a to-be-considered requirement. J. Christopher said that the PRGs that the Jacobs Team would be developing would be far superior as reference values for risk; A. Rege concurred.

J. Christopher and M. Pumford both said that they had heard rumors of sediment criteria being promulgated under the Clean Water Act (CWA); if so, they may be an ARAR. J. Christopher will look into this before the next meeting.

M. Pumford asked if either the City of Long Beach or Los Angeles County had been contacted regarding their regulations that may apply. A. Muckerman said that at the TRC meeting representatives from the City and the County said that they would defer to DTSC and other agencies for ARARs. The only possible exception is for underground storage tank (UST) sites; no UST sites are currently included in the RI/FS.

Action Items and Next Meeting

Action items from this meeting are listed in the attached table. The next meeting will be at DTSC Long Beach on 26-27 January 1993. The Jacobs Team will provide advance review materials and an agenda to meeting participants by 20 January.

The meeting concluded at 1400 hours.

Nonattendee Distribution

- | | |
|-------------------------|-------------------------|
| R. Green - Code 0232.RG | D. Heinle/CH2M HILL |
| M. Nuzum - Code 1813.MN | S. Costa/CH2M HILL |
| K. Tomeo - CH2M HILL | File - CTO Notebook/PMO |
| B. Margolis - JEG/Pas | File - PMO |
| R. Udabe - JEG/Pas | File - CH2M HILL |
| B. Mitchell/POLA | |

**Follow-up Actions from Conceptual Model Review Meeting
Long Beach Naval Complex
RI/FS Work Plans**

17 December 1992

Action Required by	Description
A. Muckerman	Check whether the portion of Reeves Field on NAVSTA Long Beach was included in the IAS, or whether it should be included in the Site 6B PA.
A. Muckerman	Contact DTSC regarding schedule for Site 6B PA by 15 January 1993.
Jacobs Team	Obtain and review information on dredging operations, drydock well operations, and SCE dewatering operations, and present it at the next meeting.
Jacobs Team	Contact Dennis Sullivan at the Department of Oil Properties at the City of Long Beach to obtain information on previous oil exploration activities at NC Long Beach.
Jacobs Team	Prepare draft proposal for sediment toxicity evaluation for review at the next meeting.
Jacobs Team	Provide meeting participants with agenda for next meeting and advance review materials by 20 January 1993.
Jacobs Team	Meet with J. Snyder and Port Services on January 5 to discuss dredging records and information on shipping operations needed for the development of a conceptual model for sediment transport.
J. Christopher	Check whether sediment criteria are being promulgated under the CWA.
M. Pumford	Send a copy of RWQCB 92-49, Policies and Procedures, to the Navy and the Jacobs Team.

M e m o r a n d u m

To : John Christopher
HERS

Date December 15, 1992

From : James Polisini
HERS

Subject: Long Beach Naval Complex
CH2M Hill Proposed Sediment Criteria Memorandum for December 17,
1992 Project Meeting

There is no precedent that I am aware of for using the State of Washington sediment quality standards at any site currently under DTSC/HERS oversight. The San Francisco Regional Water Quality Control Board (SFRWQCB) is adamant that Washington sediment quality standards not be used in San Francisco Bay. The Los Angeles RWQCB, or the appropriate regional water board might feel just as strongly about the use of these standards.

The National Oceanic and Atmospheric Administration (NOAA) has developed a set of effect level sediment concentrations based on analysis of the National Status and Trends database. Two effect levels are available from this analysis. The Effect Range-Low (EF-L) is that sediment concentration where 10 percent of the ranked Status and Trends data showed some effect. The Effect Range-Median (ER-M) is that sediment concentration where 50 percent of the ranked Status and Trends data show some effect. DTSC/HERS has used the ER-L concentrations at other sites as a sediment concentration which might be associated with a risk and the ER-M concentration as a sediment concentration which has a high probability of potential risk to ecological receptors. I would recommend that the NOAA ER-L and ER-M be used, in addition to any other sediment criteria, to evaluate potential risk at the Long Beach Naval Complex.

The possibility of using either pore water comparisons to surface water effect concentrations or the simultaneously extracted metals to acid volatile sulfide ratio (SEM/AVS) to evaluate metal contamination of sediments should be considered. Sediment pore water concentrations have been shown potential for predicting effect concentrations for some contaminants when compared with surface water effect concentrations. Excess mole fraction of acid volatile sulfide may be a contributing factor in determining the portion of total sediment metal which is bioavailable.

Additivity may need to be considered, depending on the chemicals of concern. Many heavy metals are commonly considered



to have additive effects on benthic communities.

Hope this is useful.

A handwritten signature in black ink, appearing to read 'J.M. Polisini', with a large, stylized initial 'J'.

James M. Polisini, Ph.D.
Associate Toxicologist
Human and Ecological Risk Section

Attachment: NOAA references.

NOAA Technical Memorandum NOS OMA 52

**THE POTENTIAL FOR BIOLOGICAL EFFECTS OF
SEDIMENT-SORBED CONTAMINANTS TESTED IN
THE NATIONAL STATUS AND TRENDS PROGRAM**

Edward R. Long
and
Lee G. Morgan



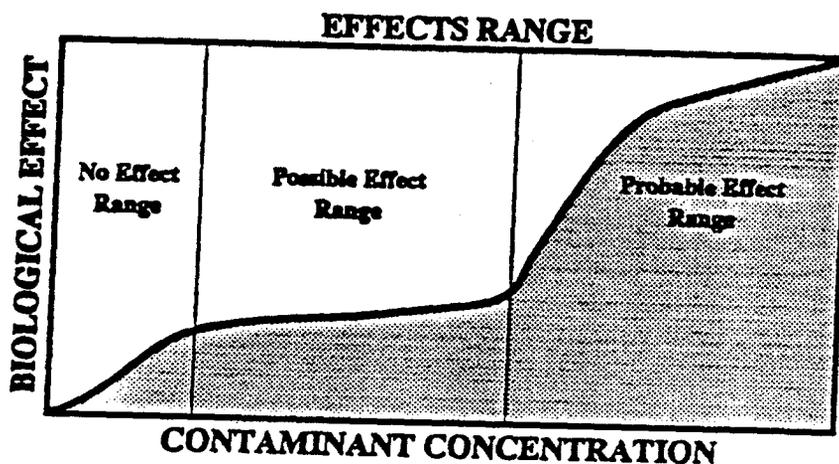
Seattle, Washington

United States
Department of Commerce
Robert A. Mosbacher
Secretary

National Oceanic and
Atmospheric Administration
John A. Knauss
Assistant Secretary and
Administrator

National Ocean Service
Virginia Tipple
Assistant Administrator
for Ocean Services and
Coastal Zone Management

THE POTENTIAL FOR BIOLOGICAL EFFECTS OF SEDIMENT-SORBED CONTAMINANTS TESTED IN THE NATIONAL STATUS AND TRENDS PROGRAM



Seattle, Washington

March 1990

noaa

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

National Ocean Service

Table 70. Summary of ER-L, ER-M, and overall apparent effects thresholds concentrations for selected chemicals in sediment (dry weight).

Chemical Analyte	ER-L Concentration	ER-M Concentration	ER-L:ER-M Ratio	Overall Apparent Effects Threshold	Subjective Degree of Confidence in ER-L/ER-M Values
Trace Elements (ppm)					
Antimony	2	25	12.5	25	Moderate/moderate
Arsenic	33	85	2.6	50	Low/moderate
Cadmium	5	9	1.8	6	High/high
Chromium	80	145	1.8	Nb	Moderate/moderate
Copper	70	390	5.6	300	High/high
Lead	36	110	3.1	300	Moderate/high
Mercury	0.16	1.3	8.7	1	Moderate/high
Nickel	30	50	1.7	NSD*	Moderate/moderate
Silver	1	2.2	2.2	1.7	Moderate/moderate
Tin	NA	NA	NA	NA	NA
Zinc	120	270	2.2	260	High/high
Polychlorinated Biphenyls (ppb)					
Total PCBs	50	400	7.8	370	Moderate/moderate
DDT and Metabolites (ppb)					
DDT	1	7	7	6	Low/low
DDD	2	20	10	NSD	Moderate/low
DDE	2	15	7.5	NSD	Low/low
Total DDT	3	350	117	Nb	Moderate/moderate
Other Pesticides (ppb)					
Lindane	NA	NA	NA	NSD	NA**
Chlordane	0.5	6	12	2	Low/low
Heptachlor	NA	NA	NA	NSD	NA
Dieldrin	0.02	8	400	Nb	Low/low
Aldrin	NA	NA	NA	NSD	NA
Endrin	0.02	45	2250	NSD	Low/low
Mirex	NA	NA	NA	NSD	NA
Polynuclear Aromatic Hydrocarbons (ppb)					
Acenaphthene	150	650	4.3	150	Low/low
Anthracene	85	960	11.3	300	Low/moderate
Benzo(a)anthracene	230	1600	7	550	Low/moderate
Benzo(a)pyrene	400	2500	6.2	700	Moderate/moderate
Benzo(e)pyrene	NA	NA	NA	NSD	NA
Biphenyl	NA	NA	NA	NSD	NA
Chrysene	400	2800	7	900	Moderate/moderate
Dibenz(a,h)anthracene	60	260	4.3	100	Moderate/moderate
2,6-dimethylnaphthylene	NA	NA	NA	NSD	NA
Fluoranthene	600	3600	6	1000	High/high
Fluorene	35	640	18.3	350	Low/low
1-methylnaphthalene	NA	NA	NA	NSD	NA
2-methylnaphthalene	65	670	10.3	300	Low/moderate
1-methylphenanthrene	NA	NA	NA	NSD	NA
Naphthalene	340	2100	6.2	500	Moderate/high
Perylene	NA	NA	NA	NSD	NA
Phenanthrene	225	1380	6.1	260	Moderate/moderate
Pyrene	350	2200	6.3	1000	Moderate/moderate
2,3,5-trimethylnaphthalene	NA	NA	NA	NSD	NA
Total PAH	4000	35000	8.8	22000	Low/low

* NSD = not sufficient data

** NA = not available