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Northern Alameda County Regional Group
(Alameda-Albany-Berkeley-Emeryville-Oakland-Piedmont-San Leandro)

May 6, 2003

Mr. Steven Edde
Navy Western Division

Mr. Edde:

On behalf of the 30,000 Sierra Club members in the San Francisco Bay area I am submitting comments on the Draft Remedial Investigation of the Seaplane Lagoon at Alameda Point, dated January of 2003. The Sierra Club appreciates the opportunity you have provided to comment on this important remedial project, especially the box and bubble plots that were so useful for quickly reviewing the data on the distribution and concentrations of contaminants.

The remediation footprint identified in the document, with the addition of the sediments at the outlet of the Seaplane Lagoon, is

1) adequate for an Interim Remedial Action, and
2) inadequate to support a feasibility study for a final Record of Decision for the site.

The reasons supporting these findings are explained in the attached comments.

We disagree in the strongest possible terms with your implied claim that the remedial footprint includes "all areas of the lagoon where surface sediments pose an unacceptable risk." Your misleading portrayal of the remedial footprint could encourage citizens to eat shell fish or conduct other activities within areas of the Seaplane Lagoon that are unsafe. Currently the site is posted with signs in several languages warning citizens not to eat fish caught within the lagoon, and would be even if your remedial footprint was treated.

The remedial footprint specifically excludes areas that pose an unacceptable risk, but are at or below risks posed by sediments in the reference areas. The draft RI shows that, as do reference sediments, all sediments in the lagoon to a depth of 5 feet pose an unacceptable risk for arsenic. Chromium is also a risk to a depth of two feet. Hence all sediments in the Seaplane Lagoon must be included in the remedial footprint.

Sincerely,

William J. Smith, Ph.D., P.E.
Co-Chair, Sierra Club Northern Alameda County Regional Group

Comments of Sierra Club
on
Draft Remedial Investigation Report

Prepared By
William J. Smith

May 2, 2003

General Comments

The Draft Remedial Investigation Report provided an excellent and focused overview of site history, previous investigations, and the significant assumptions. The box and bubble plots were especially useful for quickly reviewing the data on concentrations of contaminants.

The remediation footprint identified in the document, with the addition of the sediments at the outlet of the Seaplane Lagoon, is

1) adequate for an Interim Remedial Action, and
2) inadequate to support a final Record of Decision for the site.

The document also repeatedly makes misleading claims that it proposes PRG's and remedial footprints that are protective of ecological and human health.

The fundamental flaw that renders the RI Report inadequate for a final record of decision, and leads to overstating the degree of protection offered by the Navy's approach, is the author's confusion regarding the purpose of the reference areas cited in the report. The authors repeatedly, and falsely, imply that sediments in the reference areas present no risks to the environment or human health. For example, on page 265, the authors state that "Of the COPEC's evaluated, only cadmium, lead, DDx, and PCBs have significant incremental risk above reference conditions," implying that reference risks could be neglected, as was done in the conclusions of this report.

Arsenic and chromium also pose significant hazards or risks in sediments from both the Seaplane Lagoon and from the reference areas. These risks posed by the reference areas are ignored by the authors in their conclusion on page iv of the Executive Summary that "risks through direct contact pathways showed no significant incremental increase in risk to the recreational user as compared to reference." The hazards and risks posed by the reference areas are alarming to the sports and subsistence fishers included in the upper 5% tail of the RME.

The RME scenario in Table 6.6 shows that the hazards to this subpopulation posed by these reference sediments exceed by at least 10 fold the upper limit of EPA's acceptable

range and that cancer risks also exceed the upper limit by at least ten times. Note that when presented as the CTE scenario, hazards barely exceed the upper limit and the risks are within the upper limit. The EPA and the State of California have recently proposed to lower the acceptable level of arsenic in drinking water. How does the ERM for arsenic in Figure A.2 compare to the new or proposed standard?

The methodology employed by the authors systematically tends to minimize the concentrations and risk. Some examples include, 1) choice of a 95% percentile in the RME exposure scenario rather than an exposure scenario based on subsistence fisherman and then presentation of the risk drivers based on the even less protective CTE scenario in Tables 6.8 and 6.9, 2) focus on incremental risks above those in reference areas rather than a straightforward comparison with health standards, and 3) use of the effects range median quotient, ERM-Q. If one constituent has a much larger effects range quotient than any other, the ERM-Q will reduce the reported value by a factor equal to the number of compounds included in the quotient, in this document apparently 29 (see page 29).

Proper Background for Remedial Footprint

The proper background for the remedial footprint is the native materials a few feet below the bottom of the SPL. These are most representative of the bottom of the lagoon at the time the Navy dug out the SPL. If the materials collected from more than 5-feet below the bottom of the SPL are representative of this material, a review of the box and bubble plots in Appendix A suggests that the background of nearly every COPEC, including arsenic, was very low at the time the Navy completed excavation of the SPL. With this native material as a background, ecological and health effects would determine the remedial footprint, as the Navy states, but does not achieve, in the current draft.

In the RI, the Navy builds a convincing case that sediments, especially from near the more toxic outfalls, are not transported throughout the Lagoon. Therefore it is reasonable to assume that toxic sediments from outside of the Lagoon are unlikely to migrate into the lagoon and that toxics in the sediments are the result of Navy activities since the Lagoon was built.

Detailed comments on each section follow.

Executive Summary

1. pg. iii. "A screening-level dose assessment was conducted using a food-chain model for all constituents detected in tissue and hazard quotients were estimated from all COPECs with toxicity reference values."

   Comment: Were there any constituents found in soil or water that were neither detected in tissue nor had a toxicity reference value? If so, please identify these constituents.

Introduction

Site Setting

Nature and Extent of Sediment Contamination

1. pg. 29: Regarding Effects Range-Median Quotients "If an individual or summed (i.e., total) result is not detected, set the results to zero for the ERM-Q calculation.

   Comment: By setting the sum of non-detected chemicals to zero but not excluding the chemical from the sum, the impact of other chemicals on the median will be greatly reduced. This procedure is acceptable only if the COPECs included in the sum have been customarily included at other sites. Otherwise there is no basis for comparison. If the ERM-Q came out high, the Navy could add another 10 toxic chemicals that were not found at the site to the ERM-Q calculation and reduce the ERM-Q by almost a factor of 2.

2. Figure A.6: The figure shows that average lead concentrations for the three sampling events were between 50 and 80 mg/kg, or 50 to 80 ppm. Many toxicologists have concluded that the ERM-Q of over 200 mg/kg lead is too high. What are the latest indoor lead cleanup levels?

3. Figure A.7: The figure shows that mercury is present above ambient concentrations. Again, the Effects Range-Median concentration for mercury is above levels where measurable effects have been shown to occur in sensitive populations.

Human Health Risk Assessment

1. pg. 190. In accordance with U.S. EPA guidance (1989, 1992b) both a reasonable maximum exposure (RME) and a central tendency exposure (CTE) were evaluated. The RME is based on conservative exposure factors to focus on the maximum exposure that is reasonably expected to occur, whereas the CTE attempts to describe a more typical or "average" exposure, using a combination of average exposure

parameters. It should be noted that the RME scenario is conservative because it is based on a combination of 95th percentile values for each exposure factor in the dose equation ...

Comment: A normal distribution does not adequately represent the population who eat fish from the Bay. The distribution is multi-modal. This approach greatly underestimates the risk to the subsistence fishers who depend on the Bay for a majority of their protein. As has been done within EPA Region X for risk assessments at Umatilla, Oregon (Chemical Weapons Incinerator), Richland, Washington for the ATG Mixed Waste Treatment Facility, and the Advanced Treatment Unit near Idaho Falls, Idaho, the risk assessment should have included a separate scenario for subsistence fishermen. How many subsistence fishermen are there in the Bay area? During certain seasons, I see the same three or four fishermen fishing along the Ravenscove shoreline in Alameda nearly every night of the week. Some nights, especially when the Sea Bass are running, there may be as many as 20 fishermen.

Development of the FS Footprint

1. pg. 207: "The remedial footprint will include areas of the lagoon where surface sediments pose an unacceptable risk as determined through the ecological and human health risk assessments, and will be based on clearly identified sediment-associated risk drivers so that a direct, quantitative relationship between contaminants and risk are developed."

   Comment: The Navy has not actually used the basis described in the above statement and so the tightly targeted remedial footprint justified by the RI unacceptable to use as the sole basis for the feasibility study.

   The targeted remedial footprint excludes some areas that pose an unacceptable risk as determined by the above criteria. The actual criteria used to develop the footprint is that the remedial footprint includes only those areas that also exceed risk in the reference areas. Many of the risks in the reference areas would be unacceptable by the standards of EPA's ecological and human health risk assessments. If the area poses an unacceptable risk, it should be included in the remedial footprint irregardless of how it compares to reference areas the have been adversely impacted by over a century of industrial activity around the Bay.

2. pg. 208: "Based on an evaluation of the historical and present benthic toxicity data, it was concluded that there is a low potential for risk to the benthic community. Therefore, the development of a FS footprint based on benthic invertebrate toxicity is not considered relevant for SPL."

   Comment: The conclusion that there is a low potential for risk to the benthic community is unwarranted based on an evaluation of the historical and present benthic toxicity data. That data set is very limited and incapable of supporting such a

sweeping conclusion. For instance, near the beginning of the 20th Century collection of oysters from beds surrounding Alameda was a multi-million dollar industry, and one of the City's largest. Today there are almost no oysters. No one knows why as the "historical and present benthic toxicity" data have proven inadequate to provide the reason despite ongoing, and largely unsuccessful, attempts to reintroduce the oysters around the Bay. A more accurate statement would be that the available benthic toxicity data fails to allow the results for one species to be extrapolated to those of another and hence the data set is inadequate to develop a remedial footprint for species other than those specifically included in the RI testing program. Therefore the data is not relevant for the SPL. Rather, toxicity to fish, birds and others higher up on the food chain is taken as "prima facie" evidence that the chemicals can be toxic to some invertebrate species. Unlike these higher animals, the benthic organisms are likely more sensitive to toxic chemicals as they are continuously exposed to the chemicals in the water and food they ingest.

3. pg. 211: "In order to identify the primary risk drivers for AE(3), COPECs for each receptor whose HQ exceeded 1.0 in the BERA dose assessment were evaluated in more detail with a focus on identifying the COPECs with the greatest incremental risk from the SPL."

   Comment: Since estimation of the incremental risk is based on inappropriate reference points (See General Comments), this analysis omits some COPECs with significant incremental risk. The following COPECs present significant risks at the reference points and, based on the results of sediment sampling from more than 5 feet below the sediment surface, appear not to have been present at the base of the seaplane lagoon after it was constructed: arsenic and chromium. Any area where these reference point COPECs pose significant risks should also be included in the remedial footprint.

4. pg. 226: "Because of the uncertainty associated with the bioavailability and toxicity of lead to avian receptors, the development of quantitative PRGs protective of avian receptors will be limited to cadmium, PCBs, and DDx."

   Comment: How was lead handled?

Summary and Conclusions

1. pg. 263: The HQ for lead decreased dramatically as the SUF declined, but was still greater than 1.0 using a SUF of zero.

   Comment: The decrease in lead HQ demonstrates that remediation of lead has the potential to dramatically reduce the lead hazards at the site. Areas with lead should be included in the footprint area for the feasibility study.

2. pg. 264: "The primary risk drivers were arsenic, chromium and total PCBs, which accounted for more than 90% of the total risks."

Comment: A remedial footprint addressing arsenic and chromium would include the sediments in the entire lagoon. In the case of arsenic, the top 5 feet, and in the case of chromium, the top 5 feet.

3. pg. 264: In reference to the hazard quotients, "The primary drivers include total PCBs, arsenic, chromium, mercury and cadmium."

   Comment: These hazard quotients are extremely high, many times that of the benchmark of 1 for the RME scenario. As the reference areas in the Bay also exceed the benchmarks, footprints should be based on exceeding the benchmarks and not on exceeding the reference areas as the Navy has proposed. Anything less will not be protective of human health as the levels of toxics in the reference areas are clearly not protective of human health.

4. pg. 264: "Using the results of the ecological and human health risk assessments, the FS footprint included areas of SPL where surface sediment posed an unacceptable risk."

   Comment: As the reference areas pose an unacceptable risk, the FS footprint should be based on exceeding the ecological and health benchmarks rather than exceeding the reference areas.

5. pg. 265: "Of the COPEC's evaluated, only cadmium, lead, DDx, and PCBs have significant incremental risk above reference conditions."

   Comment: Reference conditions that exceed ecological and health benchmarks are unacceptable as a standard of comparison for establishing the footprint. The reference conditions do not represent natural background. Rather they are the represent the accumulated impacts of more than one century of man's release of toxic chemicals into the Bay, going back at least as far the gold miners releasing enormous quantities of mercury into the rivers that feed the Bay.

6. pg. 266: "The primary objective of the RI was to identify the area of the sediment that poses an unacceptable risk and requires evaluation in the FS.

   Comment: This statement is misleading and inaccurate. By the EPA's own standards, the reference areas used by the study pose unacceptable risks. Therefore the primary objective of the RI was to identify the area of the sediment that both poses an unacceptable risk and exceeds risks posed by the reference areas."

7. pg. 266: "The proposed final footprint based on cadmium, PCBs, and DDx also addresses potential risks from other compounds that were not addressed quantitatively in this RI, including other compounds not quantitatively evaluated (e.g., radionuclides, chromium, lead, and silver).

Comment: This footprint does not address hazards and risk for arsenic, nor from chromium using an RME scenario. Figures A-62 to A-64 show that all of the sediment throughout the lagoon to a depth of 5 feet would be included in a remedial footprint that addressed arsenic. Figures A-78 to A-79 show that the top two feet of sediment throughout the lagoon would in included in a remedial footprint that addressed chromium.