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Americans Committed to Conservation • A Chapter of the National Audubon Society

February 10, 2006

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Program Management Office West
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San Diego, CA 92108

RE: December 8, 2005 Draft Remedial Investigation Report IR Site 2, West Beach Landfill and Wetlands, Alameda Point, California

Dear Mr. Andrew Baughman,

Thank you for this opportunity to comment on the Draft Remedial Investigation Report for IR Site 2, West Beach Landfill and Wetlands, Alameda Point, California, dated December 8, 2005 (the "RI Document"). Golden Gate Audubon has over 6,000 members who care deeply about the protection of birds, other wildlife and their habitat in the San Francisco Bay area. Our members, staff and Board use and enjoy the open spaces of the East Bay and have a sincere interest in protecting the outstanding wildlife and habitat at the Alameda Naval Air Station for future generations.

For over a decade, Golden Gate Audubon has played a lead role in supporting the effort to create the Alameda National Wildlife Refuge, which will be central to protecting the northernmost population of the federally Endangered California Least Tern. This is also one of the most critical roosting sites for the federally Endangered Brown Pelican, as well as many other wildlife species. Sufficient cleanup of toxics at the Alameda Naval Air Station—a Superfund site—will be essential for both wildlife and the people that will use this site. A comprehensive RI Document is critical to ensuring that this occurs.

We applaud the U.S. Navy's effort to integrate some of Golden Gate Audubon's previous comments, dated 2001, in drafting the new RI Document for Site 2. However, we are concerned about several serious deficiencies of the new draft. It lacks historical data to predict future contamination trends, underestimates exposure to chemicals, and does not resolve uncertainties in the Risk Assessment, but rather puts this critical element of the RI off until the Feasibility Study. For this reason, we urge the Navy to revise the report to address these and other deficiencies.

Golden Gate Audubon has contracted two well-respected scientists, Dr. June A. Oberdorfer and Patrick G. Lynch, P.E. of Clearwater Revival Company, in preparing these comments. This document is an integration of their comments, as adapted by and on behalf of Golden Gate Audubon. For substantive questions on any of the following comments, please feel free to reach me.

A. IMPROVED INVESTIGATION

A number of significant improvements have been made in the investigation at the site, compared to the investigative work reported on in the previous RI. There were lower Method Detection Limits (MDLs) for many of the analyses (with some exceptions noted in later comments). Risk calculations were performed using the results from unfiltered water samples. Background concentrations appear to have been reevaluated, including for sediment. The chemical analytical data were presented in Excel data files so that data could be easily searched and manipulated, making the concentration data easier to review. An additional monitoring well (442-MW1) was installed to north of landfill in a location where there had been a data gap previously. Maps showing contaminant distribution were provided. The current RI provides an improved evaluation of the site over that provided in the previous RI.

B. DOCUMENT CONTENT

1. INCOMPLETENESS OF REPORT

A Remedial Investigation Report (RI) should be a relatively complete and self-standing document, with all the supporting information for the conclusions of the report. During the public review period, an undue burden should not be placed on the public to track down previous documents. This comment was made five years ago about the preceding RI (December 2000); for example, that comment noted that the geologic and well completion logs were not provided and they are not provided in the current RI either. This document is missing much of the supporting information (logs, derivation of background values for soil and groundwater, seismic evaluation, tidal study, radiological study, etc.). With the ability to put well logs and earlier reports onto CDs these days, it would have been easy to include this information in the RI so that a thorough review could be made. Documents are available at the Alameda Point library during business hours, however, that arrangement is frequently not convenient for members of the public who work or who live at significant distances from Alameda Point. Field data (logs, water levels, etc.) as well as supporting reports should be provided on a CD.

2. LACK OF DICUSSION OF APPLICABLE OR RELEVANT AND APPORPRIATE REGULATIONS (ARARS)

There is no discussion of the ARARs that apply to this site, other than a brief mention of CERCLA. This discussion is needed in order to put the site in regulatory context. For instance, does the site need to meet requirements of Title 27 under the supervision of the Regional Water Quality Control Board? Are there specific requirements for wetlands under Fish and Wildlife regulations? If the correct regulations are not identified, the solution proposed in the FS may not satisfy those regulations. A discussion of ARARs should be added to the RI.

3. LACK OF HISTORICAL DATA

A decision was made to start a new RI at Site 2 and ignore environmental data collected prior to 2003. At a minimum, historical data should be compared to data collected for the new RI Document, to ensure any historically identified chemical of potential concern at Site 2 has not been screened out.

4. POOR PRESENTATION

Figures E-1 through E-16 depict the sample analysis results for each sampling location at Site 2. These figures present this information poorly. On some of these figures a 5-point text size (example: Benzo(a)pyrene 0.05J) is used. The information shown on these figures in the Final RI should be made legible.

C. GROUNDWATER/SOIL CONTAMINATION

1. LACK OF IN-DEPTH ASSESSMENT OF GROUNDWATER MIGRATION PATHWAY

The discussion of the groundwater flow at the site is very superficial in Section 2.8.2, particularly considering that groundwater is a potentially significant contaminant transport pathway. No supporting data in terms of geologic logs, well completion information, contoured water levels for each water-bearing zone, or an analysis of vertical hydraulic gradients is provided. There appears to have been no hydraulic testing of the aquifer materials. This information is essential to be able to evaluate the potential for groundwater transport of contaminants. The geologic materials at the site are quite sandy which makes them permeable so there is a significant potential for groundwater transport.

2. LACK OF EVALUATION OF TRANSPORT TO THE SECOND WATER-BEARING ZONE (SWBZ)

Many of the contaminants identified in the First Water-bearing Zone (FWBZ) have also been detected in the SWBZ. No discussion of the potential for downward migration of dissolved constituents is provided. The report refers to the Bay Sediment Unit (BSU) as providing vertical isolation for the SWBZ, however the cross-sections shown in Figures 2-4 through 2-9 show large amounts of permeable sand within the Bay Sediment Unit. This unit does not appear to provide significant vertical isolation between the two water-bearing zones.

3. DEFINITION OF BACKGROUND FOR SOIL/SEDIMENT

Background concentrations of metals in soil have been determined for Alameda Point (TtEMI, 2001). Comparisons (Sec. 9.0) of concentrations of metals within IR Site 2 to concentrations of metals at China Camp State Park (CCSP) are completely inappropriate since local background values exist and since there is no supporting evidence that the geology at CCSP is very similar to the geology at Alameda Point. There are no sediment background concentrations for Alameda Point, however, comparisons (Sec. 9.0) to metals concentrations in sediment at CCSP are inappropriate without supporting evidence that the sediment deposition processes and source areas at CCSP are very similar to the those at Alameda.

4. LIMITED TEMPORAL DATA SET FOR WATER QUALITY

While the spatial distribution of water quality sampling seems adequate, the temporal distribution is too small (one to two sampling events) to understand anything about temporal variations or contaminant concentration trends. While some of the earlier water quality data were plagued by high detection limits, there should be enough usable data to evaluate how concentrations have changed with time in the surface water of the ponds and in the groundwater (particularly at the downgradient edge of the landfill). The two surface water sampling events (one in the dry season and the other in the wet season) allow examination of one instance of seasonal variability, but do not permit looking at variations between successive dry seasons or successive wet seasons. The one groundwater sampling event reported does not allow for an analysis of any of the variability frequently observed in groundwater data. There is usable data from earlier studies that should be incorporated into a temporal analysis. It would be important to know for both groundwater and surface water if concentrations have been increasing, decreasing, or remaining constant with time.

6. UNKNOWN BOUNDARY OF LANDFILL

Two test pits (2-7 and 2-12) were excavated outside the current IR Site 2 boundary (Figure 3-1). According to Table 3-1, refuse was encountered in both pits. The depth of the bottom of the refuse is not known. The extent of landfill beyond the current IR Site 2 boundary needs to be established so that any proposed remedy for the landfill (ex., an impermeable cap) will extend to cover the entire landfill region. In addition, Test Pit 2-11 was excavated within the IR Site 2 boundary at the northwest corner but outside of the boundary of the landfill. This test pit also contained refuse; this would indicate that the boundary of the landfill has not been drawn correctly within the site. A berm was constructed around the site in 1978; it is unclear if the berm was constructed atop landfill waste. The presence of waste beneath the berm should be investigated.

7. OTHER LANDFILL COMMENTS

The RI Report describes a cut-off wall 820-foot long and 20 to 30 feet deep. The location of the cutoff wall is not shown on site figures. No groundwater elevation data appears to have been collected to demonstrate that the cut-off wall is acting as an effective waste containment barrier. Details on the cut-off wall should be provided in the final RI.

The RI Report describes a "partial-clay" cover on the landfill. With the exception of measuring low clay contents in surface soils, no other engineering data (e.g., permeability) on the cap has been provided in the RI Report.

Landfill vents were reportedly installed at Site 2. There is no information on whether these vents have or continue to emit toxins or other landfill gases. Appendix D-2 includes results of soil gas sampling at Site 2 that shows methane concentrations in excess of the lower explosive limit.

The RI Report does not indicate the current condition of the seawall along the southern and western boundaries of Site 2. This information should be included in the final RI Report.

There is a lack of information in the RI Report that can be used to demonstrate that the unlined and uncapped landfill is containing waste material. The extent of contamination has not been determined laterally or vertically.

8. NEED TO LINK OFFSHORE STUDIES

The Navy has an ongoing study into potential contamination offshore of IR Site 2. This offshore area is highly linked to the site with potential contaminant transport pathways being groundwater discharge to the offshore or transport of impacted sediment or surface water during water exchange through the culvert to the Bay. These two areas should not become separated in developing solutions to impacts at IR Site 2, because of the probable interconnection between the two areas. The report refers to a slurry wall that was built along the Bay side of the landfill in the early 1980s and says that this slurry wall will prevent impacted groundwater from flowing into the Bay. There is at least one other example of a slurry wall built elsewhere during this time period at a Bay Area landfill that had to be replaced later because it was inadequate to provide isolation. No data are provided in the report to substantiate that the slurry wall is acting as an adequate barrier to groundwater migration. Results of the offshore study should be carefully reviewed in determining probable impact from the landfill activities and the optimal approach to minimizing impacts from IR Site 2 to offshore areas.

9. HOTSPOT NORTHEAST OF LANDFILL

An area located outside of the landfill area to the north and immediately adjacent to San Francisco Bay near Well MO24A contains significant concentrations of chlorinated volatile organic compounds (VOCs), benzene, gasoline and diesel in groundwater. High concentrations of mercury, PCBs, and pesticides are also present in soils in this area. This area appears to have a separate source which may be within IR Site 2 or have its origin in the unit to the north. The source needs to be defined. In the planning of remedial action, this region should not be neglected just because it lies outside of the defined boundary of the landfill.

10. SPECIFIC COMMENTS RELATED TO GROUNDWATER AND SOIL CONTAMINATION

Downward Hydraulic Gradient at North Pond (p. 2-6, top; Sec. 2.7.1): The text states that there is a consistent, downward, vertical hydraulic gradient in the vicinity of the North Pond. What is the basis for this statement (i.e., which wells and water levels were used for what periods of time)? Were corrections made for density differences between different water-bearing zones when the vertical gradient calculations were made? How did the vertical gradient vary with tidal stage since presumably there would be significant tidal variations in the lower, confined water-bearing zone? Since there is a flow of water from the pond into the surrounding groundwater and the pond water is contaminated (metals, VOCs, SVOCs, pesticides), does this mean that the pond is contaminating the groundwater? What is the spatial extent of the area where groundwater is being recharged by the pond? Elsewhere in the report, arrows on maps representing flow directions from the landfill to the North Pond and descriptions in the text indicate that groundwater within the landfill is discharging to the pond; what is the extent of the area where groundwater is discharging to the pond instead of the other way around?

Tidal Influence on Groundwater (p. 2-6, Sec. 2.7.3): The tidal study was not available for review in this document, however, the description provided here makes the study sound inadequate. Water levels in the ponds should have been included in the analysis as should have well water level response to tidal loading in the SWBZ.

Bay Sediment Unit Composition (p. 2-7, Sec. 2.8.1): The Bay Sediment Unit (BSU) is described as consisting of clay with silty and clayey sand layers. No geologic logs are available in the report to confirm the accuracy of that description. Since this unit is described later as being an aquitard (p. 2-7, Sec. 2.8.2) providing vertical isolation between water-bearing zones, it is important that it be described accurately. Reviewing the geologic cross-sections (Fig. 2-4 through 2-9), it can be observed that much of the BSU consists of thick sections of clean (poorly-graded) sands that would provide little vertical isolation between contaminated shallow groundwater and the SWBZ.

Shallow Gradients and Low Hydraulic Conductivities (p. 2-7, Sec. 2.8.2): There is no supporting data (such as a groundwater elevation contour map) to support the statement that hydraulic gradients are relatively low at this site. This lack of data is also true for determining the direction of groundwater flow at the site, which is only indicated by arrows on maps with no supporting data. Maps of groundwater elevations (for several time periods) should be included and gradients should be quantified. There are no aquifer test results to substantiate that the hydraulic conductivities at the site are low as stated in the text. It is important to determine the hydraulic conductivities of the geologic materials so that the potential for groundwater transport of contaminants can be quantified. The materials in the shallow aquifer are generally described as sandy and often depicted as clean sands on the cross-sections. This type of geologic material could be expected to be moderately to highly permeable, not to have a low hydraulic conductivity.

Bay Mud beneath Landfill (p. 2-8, Sec. 2.9): The description of the geology in this section contradicts the earlier Geology section (Sec. 2.8.1) in its use of nomenclature for the units. This makes it confusing to the reader and should be corrected. What is referred to as the BSU in the earlier section is referred to here as the Bay Mud. In the earlier section, Bay Mud was given as another name for the Yerba Buena Mud, which occurs at much greater depth. Please correct the discussion.

Saturated Waste (p. 2-8, Sec. 2-9): The text is misleading. It states that the waste material is present to approximately the depth to groundwater. This would indicate that the waste is not saturated. On the other hand, on the geologic cross-sections that show landfill material, the waste appears to be about 50% submerged. Please state correctly.

Seismic Hazards (p. 2-9, Sec. 2.9): The seismic hazards due to liquefaction-induced lateral spreading or slope failure during an earthquake are high at the site. Predictions involved significant failure of the landfill structure, most likely exposing waste and releasing waste and impacted water to the wetlands and adjacent San Francisco Bay. This risk must be taken into account during the FS for the site. The text states that more sophisticated analysis will be performed during the FS; that analysis should be included within the FS as an appendix and be carefully reviewed.

Data Not Used (Sec. 3, specifically p. 3-4): This section spends a lot of time describing previous investigations, including surface water, sediment and pore water investigations. These are data that could be used to extend our understanding of how water quality and sediment quality has changed over time. These data are completely ignored in the RI which almost exclusively bases its analyses on data from October 2004 through March 2005. In the case of groundwater, a single round of sampling was all that was analyzed. The historic data should be incorporated into the report to provide more than a snapshot view of contamination.

Ordinance and Explosives Waste (OEW) and Radiological Investigations (p. 3-3, Secs. 3.1.2.3 and 3.1.2.4): The lateral extent of these investigations is not specified. If they stopped at the IR Site 2 boundary, they did not extend far enough since waste has been found in test pits outside of the landfill boundary and outside of the IR Site 2 boundary. If these investigations did not have sufficient step-outs beyond the defined boundaries, additional data should be collected in those areas beyond the boundaries until they have extended to regions clearly beyond the extent of waste.

Background Concentration Determination (p. 3-11, Sec. 3.1.12): The background concentration study was not available for review in the RI; it should be available because the establishment of background concentrations for metals in soils and groundwater is a crucial part of evaluating risk. Based on the 2001 date on the background study, it would appear that the study is a reworking of previously (pre-2001) collected soil and groundwater data. That earlier data was plagued by high detection limits and some issues related to the location of samples collected. The background document should be carefully reviewed to determine that appropriate methods have been used for establishing background.

Groundwater Background (p. 3-12, Sec. 3.1.12.2): It should have been feasible to determine background concentrations for the SWBZ. The reason given for not developing them is that the high salinity prevents detecting trace levels of metals. This statement is certainly not true for the SWBZ groundwater metals data reported in the RI, many of which are well above detection limits. SWBZ background values should be developed.

Extent of Radiological Survey (p. 4-2, Sec. 4.2.3): Why was the radiological survey (performed separate from the RI investigation) not carried out in the wetlands? Waste and contamination is present in that area, so it is possible that there is radiological contamination as well. Three surface/subsurface soils sampling locations within the wetlands were sampled as part of the RI investigation and some of those had elevated radioactivities relative to background. The extent of those elevated activities needs to be defined in the wetlands so that they can be addressed in the FS.

Wet Season Bioassays (p. 4-3, Sec. 4.3): It is unexplained and unclear why the wet season was the appropriate time to conduct the toxicity tests. Rainfall accumulation in the ponds decreased salinity in both ponds (p. 2-6) which would dilute concentrations of contaminants in surface water and, most likely, in sediment. The higher salinity, dry season water and sediment would have been a more conservative evaluation of toxicity and bioaccumulation.

Figure 5-1 Missing Colors (p.5-85): The radiological survey results were not given on this figure as the colors were missing. It was not possible to determine which areas had greater levels of radioactivity. Correct the figure.

Figure 5-6 Has Wrong Data (p.5-91): This figure is labeled as displaying groundwater concentrations for 1,4-dichlorobenzene, but it actually displays the chlorobenzene results. The proper data need to be shown and contoured on this figure.

Number of Arsenic Detects in FWBZ (p. 5-35 and Table 5-7, p. 5-111): Both the text and the table state that there was only one detection of arsenic in FWBZ groundwater. According to the data in Appendix D-3, there were *no* non-detects for arsenic in FWBZ, rather many detects. This statement and table need to be corrected.

Detections in the SWBZ (Sec. 5.3.1.6, p. 5-40 to 5-43): The detection of contaminants in the SWBZ raises concerns about their continued downward migration from source areas in the FWBZ. There is no analysis of vertical hydraulic gradients or permeabilities in the BSU that would allow for evaluation of vertical migration of contaminants; such an analysis should be provided.

Tritium Non-detect in SWBZ (p.5-43): The lack of detections of tritium are due to the high detection limit, which should be acknowledged in the text.

Lack of Subsurface Samples at CCSP (p. 5-54): Only surface soil samples were collected at China Camp State Park for evaluation of "ambient" concentrations. No subsurface samples were collected. Since the likely source of SVOCs/PAHs in surface soils is aerial deposition, it is not valid to compare subsurface concentrations of SVOCs/PAHs at IR Site 2 to surface concentrations at CCSP. Subsurface samples should have been collected and analyzed.

Source of Metals in Wetlands Ponds (p. 5-71): The elevated metals concentrations in the ponds are not attributed to any source. The logical source is the waste disposed of at IR Site 2, with transport to the pond occurring by overland flow and groundwater flow.

Radium Non-detects in Surface Water (p. 5-76): The statement in the text that radium was not detected in the wet season pond water samples is misleading. The reason that it wasn't detected was because the detection limit was about 4 times greater in the wet season than in the dry season. This explanation needs to be included. The high detection limits of both Radium-226 (some sampling events) and tritium (all sampling events) raise questions about the quality of the analytical work on radiological contaminants and the accuracy of the values used in the risk assessment.

Vapor Intrusion Screening (Sec. 6.3.3): The evaluation was performed to determine if institutional controls would be needed to preclude building in areas with the potential for VOC flux into buildings. Three VOCs were retained by the screening but they are dismissed as being unlikely to pose risk at the site. This dismissal seems inconsistent with the purpose of the screening. Either an in-depth evaluation of this pathway and risk are needed or else institutional controls to prevent building in impacted areas should be instituted. Structures may be built on the site as part of the planned recreational use. It is important to assure that those structures can be safely occupied.

Background Risk (p. 6-37, Sec. 6.4.7.3): The discussion of background indicates that arsenic, benzo(a)pyrene (tentatively), and radium-226 should not be considered as potential risk drivers since they are found at concentrations below background values. It is important to examine the statistics by which background concentrations and Exposure Point Concentrations (EPCs) were calculated to see if the two methods are compatible. There are a number of statistical approaches to calculating background. Some statistical methods (particularly log-normal) can create unreasonably high estimates of background concentrations. If these constituents are going to be removed as risk drivers, this should be done in this RI instead of waiting for the FS. There should be agreement between the interested parties on what risks need to be addressed by the FS before designing a remedial alternative. What are the remaining risks if the "uncertain" risks are removed?

Radioactive Decay Discussion (p. 8-6): The statement that radioactive decay depletes sources of radioactive material is misleading. The example given is for radium which decays to form radon gas. Radon gas is itself radioactive and highly mobile. Thus radioactive decay transforms the substance into a new form with which radioactive risks are still associated.

Sediment Transport (p. 8-7): The text discounts the importance of overland flow as a transport mechanism of contaminants to the wetland, based on the fact that precipitation is episodic and of short duration. These latter two factors do not limit the amount of sediment that may be transported to being insignificant; streams and bays are full of sediment that has been transported by overland flow to channels. The intensity of the rainfall and the related velocity of the overland flow exert strong control over how much sediment will be transported. Contaminants appear in wetland sediments and overland flow is almost certain to be a contributor to those elevated concentrations, particularly when there are elevated concentrations in surface soils.

D. RISK ASSESSMENT

1. INAPPROPRIATE POSTPONEMENT OF EVALUATING RISK UNCERTAINTIES

The place for evaluating risks associated with the site is in the RI, not the Feasibility Study (FS). This RI has quanitified risk (without removing risks associated with background or ambient concentrations), but then qualifies that quantification as unreliable for several reasons (exceedance of background, exceedance of ambient concentrations at CCSP, the use of unfiltered samples). The RI then states (Executive Summary, Sec. 8.0, Sec. 9.0) that these uncertainties will be taken into account in the FS. The place for a thorough evaluation of risk is in the RI, not in the FS. If the Navy considers some of the risk numbers invalid, they need to establish reasonable and defensible risks numbers prior to commencing the FS process. You have to know what risks need to be addressed before you can address them. The evaluation of risks to be addressed should not be postponed to the FS but should be formalized in the RI. In the conclusions (Sec. 9.0, p. 9-4) arguments are put forth that the use of water quality data from unfiltered samples could be overly conservative. If this argument is going to be pursued in the future and used to re-evaluate risk, that should be done now in the RI, before the examination of ways to minimize risk in the FS.

2. HUMAN HEALTH RISK ASSESSMENT

The US EPA's 1995 Hazard Ranking Score Documentation Record evaluated the wetland area at Site 2 and concluded that the PCBs found in wetland sediments warranted the placement of Alameda Point on the National Priorities List (NPL). The two pathways evaluated by the US EPA were overland runoff and human food chain impacts. Neither of these pathways that placed Alameda Point on the NPL is addressed quantitatively in the human health risk assessment or ecological risk assessment. The final RI should include a quantitative evaluation of the risk posed by these exposure pathways.

The human health risk assessment did not address petroleum hydrocarbons found in soil and groundwater.

The RI did not investigate the extent of asbestos contamination in surface soils and the Human Health Risk Assessment and Ecological Assessment did not address exposure to asbestos. This exposure risk should be evaluated in the final RI.

The risk assessment did not address exposure to unexploded ordnance.
ATSDR has found this to be a potential risk throughout Alameda Point. Site 2 would be an area of Alameda Point where a higher probability to find ordnance exists. By identifying this risk in the RI, the later Feasibility Study would be able to identify institutional controls (e.g., warning signs) that can be implemented to reduce these risks to acceptable levels.

Previous risk assessments conducted at Alameda Point have evaluated exposure risks to carcinogenic PAHs using a benzo(a)pyrene equivalent concentration. For consistency, it is recommended that the human health risk assessment at Site 2 use a similar approach.

The human health risk assessment fails to reach any conclusions about site risks, stating that is a risk management decision to be made at a later date.

3. RECREATIONAL EXPOSURE SCENARIO

Human health risks were evaluated at Site 2 under a recreational use scenario. According to the US EPA Risk Assessment Guidance[1]:

> "Sites present different opportunities for recreational activities. The RPM or risk assessor is encouraged to consult with the local community to determine whether there is or could be recreational use of the property along with the likely frequency and duration of any activities."

Common recreational activities within Alameda include mountain biking and jogging. These activities would result in different exposure assumptions (more skin exposure, higher breathing rate, greater fugitive dust emissions) than those considered in the risk assessment. The local climate provides for outdoor activities 12 months of the year and the proximity of the site to San Francisco Bay ensures Site 2 will be a frequent destination for bird watching, sight-seeing and fishing, activities that are likely to result in greater exposure durations than considered in the RI report. The final RI report should document input from the community on what type of recreational activities will occur at the site to support the exposure assumptions used in the risk assessment.

It is unreasonable to think the site visitors will only engage in walking tours. If there is an educational component to the reuse of this site, children may be present who could come in contact with soil and water, particularly in the wetland area. Generally, exposures to the site visitor have probably been underestimated.

According to US EPA risk assessment guidance[2]:

> "Consumption of locally caught fish. This pathway should be evaluated when there is access to a contaminated water body large enough to produce a consistent supply of edible-sized fish over the anticipated exposure period."

Site 2 provides access to San Francisco Bay. This pathway should be evaluated in the Final RI Report.

The Final RI should also evaluate risks from subsistence fishing as a sensitive sub-population.[3]

4. RANGER/TOUR GUIDE EXPOSURE SCENARIO

The exposure duration and frequency used for the Park Ranger/Tour Guide exposure scenario are not consistent with similar local sites that employ ranger/tour guides. The East Bay Regional Park District's Crab Cove Visitor Center in Alameda employs

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[1] P.12, US EPA, 1991, "Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual, Supplemental Guidance, "Standard Default Exposure Factors," Interim Final," March 25.
[2] P. 12, US EPA, 1991.
[3] P. 13, US EPA, 1991.

fulltime, year-round employees. The Final RI should therefore evaluate a full-time employee at Site 2.

Additionally, our previous statement, which says that the exposure assumptions in this RI Document are conservative, does not apply to the Park Ranger/Tour Guide scenario. The assumption is that the individual will be present at the site only two hours per day, with one of those hours spent indoors. This would appear to be an underestimation of the exposure time and is therefore not conservative.

5. TOXIC AIR HOT SPOT NOTIFICATION[4] CHEMICALS

The results of 1,1,1-trichloroethane and methylene chloride are presented in tables and figures but are not included in all of the Appendix D tables.

No soil sampling was conducted for 1,4-dioxane, so the risk from exposure to 1,4-dioxane from volatilization from soil was not calculated. No soil gas sampling was conducted for 1,4-dioxane despite a Department of Toxic Substance Control (DTSC) advisory[5] to include 1,4-dioxane in soil gas investigations at sites suspected of chlorinated solvent contamination. Groundwater sample results indicated 1,4-dioxane was detected in 13 of 13 filtered samples. These results were not used to model potential indoorair impacts despite the fact the 1,4-dioxane is a volatile organic compound. (The boiling point of 1,4-dioxane is less than tetrachloroethylene that was considered a VOC in the RI report.) Surface water also reported 1,4-dioxane in 12 of 12 wet weather samples and one of six dry-season samples. The risk from 1,4-dioxane exposure has been underestimated in the draft RI Report.

6. RADIATION RISKS

Several radionuclides found in soil samples at Site 2 were not included in the risk assessment. Since Alameda Point was used to decontaminate ships used in atomic bomb tests in the Pacific Ocean, as a berth for nuclear powered warships, stored nuclear weapons and used and maintained depleted-uranium ballasts and munitions, it is not a conservative assumption that radionuclides are present as natural soil components when the Navy may be source of these materials.

The Radium-226 concentrations found in surface soils at location SOC24and nearby locations SOC63 and SOC61, are three to five times the reported background level. This appears to be a localized area of concern.

The final RI should include a figure showing the locations used to establish background concentrations for radionuclides.

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[4] On January 20, 1993, the Bay Area Management District sent a notice to residents near Alameda Naval Air Station about the toxic levels of hexavalent chromium, methylene chloride, and 1,4-dioxane (a component of 1,1,1-trichloethane) in the air they breathe. As a result of the BAAQMD notice, these toxins are of particular local concern.

[5] 2003, DTSC et al., "Advisory, Active Soil Gas Investigations," January 28.

7. LEADSPREAD 7 MODEL

A value of 0.008 µg/m3 was used in the LEADSPREAD model as the input for "lead in air." The RI Report states that in the California Air Resources Board (CARB) Annual Toxics Summary, Fremont-Chapel Way was the monitoring station nearest the site that measured lead in recent years. Actually, the closest monitoring station to Site 2in the CARB report is located at Arkansas Street in San Francisco (a portion of Site 2 is located in San Francisco). The SF-Arkansas Street monitoring station the 90th percentile "lead in air" concentration is 0.016 µg/m3. The Final RI Report should reevaluate lead exposure risks using this more conservative data.

The LEADSPREAD model requires an input for "respirable dust." The RI Report used PM10 concentrations at Bay Area Air Quality Management District (BAAQMD) monitoring stations in San Pablo and Fremont. The Port of Oakland is conducting PM10 monitoring according to the BAAQMD program at several sites in close proximity to Site 2 and typically these monitoring sites report PM10 values well above those observed in San Pablo and Fremont. The Final RI Report should reevaluate lead exposure risks using this more conservative data.

8. AIR MODELING

No estimate of indoor air concentrations of methane have been made despite this volatile organic compound being sampled in both groundwater and soil gas. Municipal landfills are required to keep methane concentrations in structures below 1.25 percent by volume (25 percent of the lower explosive limit) and below 5 percent by volume (lower explosive limit) at the facilities property line. Estimates of indoor air concentrations of methane should be included in the final RI Report.

The risk assessment estimated exposure point concentrations using diffusion based contaminant-in-air models. These models do not account for the effects of landfill gas generation and flux. The contaminant-in-air diffusion coefficients ignore that some soil gas samples from Site 2 showed soil gas consisted of 25 percent by volume methane rather than air. The RI should justify the use of these models at the Site 2 landfill.

9. GROUNDWATER PATHWAY

No potentiometric maps were included in the RI Report. No estimates of hydraulic gradient, hydraulic conductivity or rate of groundwater flow were made. The potential risk of groundwater entering surface water should be addressed quantitatively in the final RI Report. Groundwater sample results should be screened against surface water criteria in the final RI report.

Current federal regulations would require any release to groundwater from a municipal waste landfill that exceeds a maximum contaminant level (MCL) to initiate corrective action. Groundwater sample results should be screened against MCLs in the final RI Document.

10. SURFACE WATER PATHWAY

This pathway was screened using tap water preliminary remediation goals (PRGs). The California Toxics Rule (40 CFR 131.138), a potential ARAR for the north and south ponds, contains concentrations limits for surface water some of which are based on human consumption of organisms from the surface water body. In some instances the California Toxics Rule has established much more conservative values than the PRGs criteria used in the risk screening. Screening surface water data against the water quality criteria in the California Toxics Rule would provide much more conservative results.

The potential for overland run-off was discussed in the RI Report but not analyzed quantitatively. An estimate should be made for the precipitation run-off from a design storm, to determine if significant erosion and surface water quality impacts could occur.

11. ECOLOGICAL ASSESSMENT

It would be more conservative to screen the surface soils in the wetland area using the screening criteria for benthic invertebrates rather than the criteria used for upland soils. The Regional Water Quality Control Board uses the Long & Morgan screening criteria in their policy on the reuse of dredged sediments for wetland cover soils. These criteria were used for evaluating contamination in the Litigation Area Five Year Report at the Concord Naval Weapons Station.

E. CONCLUSION

In conclusion, Golden Gate Audubon would again like to commend the Navy for its efforts and thank you for this opportunity to comment. Sufficient cleanup of toxics at the Alameda Naval Air Station is essential not only for the special-status species and other wildlife that rely on it for habitat, but also for the people that will use this site. A comprehensive RI Document is critical to ensuring that this occurs. For this reason, we encourage the Navy to carefully consider and incorporate our comments in drafting the final RI Document.

Thank you for considering these comments.

Sincerely,

Samantha Murray
Conservation Director