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Bill Radzevich
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San Bruno, CA 94066-2402

Dear Bill,

Please find enclosed one copy of ARC's comments on the **Draft Final, Parcel D Site Inspection, Naval Station Treasure Island, Hunters Point Annex**. After reviewing the comments submitted by the other agencies, I find we have a good deal in common. The Navy's response to those comments was such that ARC's current questions and concerns are essentially no different from those that addressed the previous draft.

It has come to my attention that the Navy has started and by now possibly completed the removal of sediment from the storm sewer system in Parcel A. To the best of my knowledge, the Restoration Advisory Board (RAB) as a whole and a number of the agencies that may be interested in this information (e.g. U.S. Fish and Wild Life; National Oceanic and Atmospheric Administration) did not receive notification. Notification was not received for the other removal actions that have taken place in the last few months. It seems to me that it is difficult for the RAB and the community to participate in the restoration process if they are unaware of the activities taking place on the base. I submitted a request to Ray Ramos on June 6th, that the Navy keep the RAB informed regarding imminent and ongoing removal and remediation activities, but received no reply. I would very much like to improve the lines of communication between the Navy and the RAB and I will be raising the issue at our next meeting.

If you have any questions regarding the Parcel D comments or other matters, please contact me at (415) 495-1786.

Yours Sincerely,

Donald Meyers, Ph.D.

cc:

U.S. Environmental Protection Agency (Attn. Alydda Mangelsdorf)
California Regional Water Quality Control Board, San Francisco Bay Region
(Attn. Richard Hiett)
City and County of San Francisco, Department of Public Health (Attn. Amy Brownell)
San Francisco Lawyers Committee for Civil Rights (Michael Harris)
Chair, Citizens Advisory Committee (Attn. Shirley Jones)
California Environmental Protection Agency, Region II (Attn. Chien Kao)
Citizens Advisory Committee/Chair, Environmental Committee (Attn. Willie McDowell)
The New Bayview Committee (Attn. Sam Murray)
San Francisco Redevelopment Agency (Attn. Byron Rhett)
California Department of Toxic Substances Control, Site Mitigation Branch
(Attn. Cyrus Shabahari)
Board of Supervisors, San Francisco/ Chair, Base Closures Committee (Attn. Kevin Shelley)
Bay Conservation and Development Commission (Attn. Jennifer Ruffolo)
Naval Facilities Engineering Command, Western Division (Attn. Richard Powell)
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Comments on Draft Final, Parcel D Site Inspection Report

Naval Station Treasure Island, Hunters Point Annex

San Francisco, California

General Comments

1) Non detect (ND) levels. There are numerous instances in which the ND levels for samples vary by more than an order of magnitude and several cases where the levels vary by two or more orders of magnitude (e.g. vinyl Chloride at PA50CB401 and 402 where ND levels are 15 and 5000 ppb respectively). In some cases, typically those for the common ions (Fe, Ca etc.) this is not particularly disturbing. In other cases, however, such as those involving potentially very toxic substances (e.g. vinyl Chloride as noted above and benzo(a)pyrene in samples taken at PA49TA05 and 06 where ND levels vary by about three orders of magnitude), acceptance of substantially higher ND levels requires a supporting rationale.

2) Health Based Levels (HBLs). Harding Lawson Associates are to be commended for the considerable effort that they have expended in compiling the comparisons of sample levels, HBLs, IALs and MCLs (Appendix I). In examining this and other similar documents, however, the reader cannot help but become curious as to what the actual cutoff values are for the sampled chemicals. As the site-specific terms in the equation used to calculate HBLs have been determined, it would be a simple matter to compile a table for each risk level/type, receptor and major exposure pathway, indicating the value (i.e. ppm, ppb) at which a chemical is assigned an HBL label . As this information would be relevant to the site as a whole, it could be published as an single addendum. Relevant Interim Ambient Levels (IALs) and Maximum Contaminant Levels (MCLs) could also be included.

3) Interim Ambient Levels (IALs). A section dealing with the derivation of IALs or a citation referring to the document containing the necessary information should be provided. Appendix I includes IALs only for inorganic contaminants. Presumably, IALs for some organic compounds will be zero. Have IALs been determined for organic contaminants? If so, a citation indicating the source document should be provided or better still, the material should be included in the SI report.

4) Possible Resource Conservation and Recovery Act (RCRA) compliance issues. Table 2 indicates the presence of a large number of storage containers in a variety of conditions (open, leaking, etc.) holding known and unknown liquids. While this inventory is useful, there is no indication that this material/waste is being stored/handled correctly or that there is any site-wide program dealing with this problem. It seems likely that in many instances compliance with the requirements of RCRA is lacking.

5) Soil and ground water samples under buildings. In a number of cases, there has been inadequate investigation for contamination under building floors and foundations. Floors, concrete pads and asphalt should not be considered as caps. As it cannot be assumed that floors will not be breached in the future or that demolition and new construction will not occur, the value of knowing the level of contamination under buildings at this stage of the closure process should not be under estimated.

6) Pursue origins of contamination reaching storm drains and catch basins. While removal of contaminated sediment and further sampling near some catch basins has been recommended, failure to determine and eliminate the source of contamination will result in a reoccurrence of storm water contamination.

7) Asbestos. Table 2 shows that many buildings contain friable asbestos. Recommendations rarely mention asbestos mitigation. If asbestos is not friable, it should be stated explicitly or a blanket statement should be made early on in the report to the effect that the use of the word "asbestos" is equivalent to "unfriable asbestos". The former is preferred. If remediation is required, the extent and locations of the problems should be summarized and the report in which this information is available referenced in the text of the SI report.

8) Hydrogeological Investigation. There is a corridor some 1,400 ft long (and about 600 ft wide at its minimum) starting at PA-44 and heading approximately SSE, finishing at berth 21 which lacks groundwater data. In view of this, at least one of the soil boring/Hydropunches proposed in the PA-55 work plan should be made a permanent monitoring well.

Visualizing the hydrogeological conditions and the spatial distribution of contamination would be greatly assisted by the inclusion of cross sections showing the lithology.

A summary of hydrogeological parameters should be included or at a minimum, the document in which these can be found should be cited.

9) Free Product. If the phrase "free product" refers to non aqueous phase liquids (NAPLs), then the latter term is preferred. NAPLs may be mobile or residual and lighter or denser than water. None of these descriptions equates to "free". Characterization of NAPL properties is essential for the formulation of successful groundwater remediation strategies.

10) Total Petroleum Hydrocarbons (TPH). Identification of contamination as TPH or as some fraction of TPH is only useful as a screening tool. Neither a solubility nor a molecular weight can be assigned to TPH making most calculations involving contaminant petroleum hydrocarbons impossible. In addition, any risk assessment

based on TPH concentrations is essentially meaningless. Presumably RI phase analysis will specify the petroleum hydrocarbons involved.

11) Sandblast Grit. It appears that sandblast grit has not been tested for radioactivity. As repair and maintenance of vessels exposed to radioactive fission products or which produced radioactive materials as part of their normal operation was conducted at Hunters Point, it stands to reason that sandblast grit at certain locations may be radioactive. If this problem has been addressed in another investigation, the report in question should be cited.

12) Risk Assessment. In general, people will be exposed to mixtures of toxic agents at this site. It appears that the underlying approach to this problem has been to consider that toxic affects of mixtures of chemicals is equal to the sum of the toxic effects of each chemical alone (i.e. the toxic effects are additive). One group of chemicals for which this approach may be inappropriate is the polycyclic aromatic hydrocarbons (PAHs). Although Appendix F of the Parcel A SI report states, "In all cases, however, animal experiments have shown that most PAH mixtures are much less potent than benzo(a)pyrene or individual PAHs (ATSDR 1989a).", reference to ATSDR 1993 (Toxicological Profile for Polycyclic Aromatic Hydrocarbons (PAHs), Update) offers a number of examples of toxicologic synergy and potentiation as well as antagonism. It therefore appears necessary to reexamine the original assumptions underlying the toxic effects of exposure to mixtures of PAHs and highlights the need to update the risk assessment as new information comes to hand.

Section 3.1, Appendix H (Exposure to Groundwater). It is not clear why the particular method for calculating exposure point concentrations in water (EPC_w) was used, when this can be measured directly in both soil and groundwater. In the second paragraph, a method is given for estimating "leachate concentration" which consists of dividing the soil concentration by the "soil-water sorption coefficient", K_d. Concentrations in the vadose zone are then estimated by dividing the leachate concentration by the environmental attenuation factor (EAF). The question then arises as to what the original soil concentration used to estimate leachate concentration represents. Apparently it cannot be the vadose zone concentration or there would be no need to estimate it from leachate concentration. If it is the concentration from solids sampled near or in the saturated zone, then the leachate concentration is actually the pore water concentration and the EAF should not be applied. It follows that all risk estimates calculated from equations using EPC_w (Table H-5) may be in error. Clarification is required.

The use of an EAF of 100 is also questionable. As this figure has been adopted by the Central Valley Division of the California Regional Water Quality Control Board, it presumably reflects conditions and contaminants found in that region. No case has been made for such similarities at Hunters Point.

There is additional confusing language toward the end of the second paragraph where it is stated "...sorption coefficient values normalized for organic carbon (Koc)...". The sorption coefficient is usually normalized for the fraction of organic carbon in the soil, f_{oc}, yielding the parameter K_{oc} which is the organic carbon partition coefficient. Further, an f_{oc} of 0.02 is used with no data to suggest that this is a reasonable figure. In view of the lithology seen in boring logs, the fraction of organic carbon is probably quite low which would result in higher-than-expected contaminant mobility.

"Chemical-specific" K_ds for certain metals are listed in Table H-6 but it is not clear how these were derived. In addition to the citation, a brief summary of the method used to derive these figures would be most helpful.

13) Sanitary Sewer System. The sewer system appears to be in poor condition and is continuing to deteriorate. While there are various recommendations for further sampling and monitoring, there is no plan for repair or overhaul. As it will be some years before these parcels will be transferred, a plan that addresses this problem seems necessary.

It is not clear whether there is any co-localization of water, sewer and electrical systems. A clear statement on this matter is required as it may have a significant impact on remediation options.

14) Pesticide Contamination. Relatively high levels of pesticide (including 4,4'-DDD and 4,4'-DDT at 50 and 19 ppb at PA36BO19) were found in the north western section of Parcel D, most notably in the north/south corridor formed by the PA-36 area. There are two points of concern here. First, it follows that as a large number of pesticides have been identified and are relatively confined to PA-36, some form of release must have occurred here. Efforts should be made to identify the source of the contamination. Second, most of the samples in which pesticide was found were from soil borings and groundwater samples. As the main exposure route is via ingestion and dermal contact with contaminated soil and dust, HBL values should also be calculated from pesticide levels in surface soil samples and indoor dust samples.

15) Investigation of Fenced Areas. There are two fenced areas that appear not to have been examined. One of these is associated with Building 365 (west of PA-44) and a large area south of PA-44. The exclusion of these areas from investigation requires a supporting rationale.

Specific Comments

PA 45, Steam Lines. Overall, investigation of the steam line system has been adequate. Three areas of concern remain. First, no samples were taken at test pits PA45TA14, 15 and 16, no doubt because of the lack of visible contamination. As there is no other analytical data on the soil along this reach of the system, soil samples should be taken

from these pits for laboratory analysis. Second, there is no plan to sample the sand blocking access to a portion of the steam line system along Manseau Street. As there is a good chance that the sand is actually sandblast material, there is also a good chance that it is contaminated. This material should be analyzed and if necessary added to the grit-fixation program. Third, there are several portions of the system which have not been investigated. Of particular interest are the short segments serving Buildings 323, 324 and 364, and Building 411. Past and present activities in Buildings 323 and 324 are not listed. Building 364, is the former National Radiological Defense Laboratory and is known to contain "potentially very dangerous" chemicals. Building 411 is also known to contain a variety of dangerous contaminants. These sections of the steam line warrant further inspection.

Plate 10 is cited incorrectly as showing the PA-45 work plan. This should be Plate 9.

PA-48, Suspected Steam Line. The structure detected in this investigation is a long length (approximately 2,500 ft) of corrugated and perforated steel pipe which appears to be part of the storm drain system. It parallels part of the drainage system in areas A and H. A number of points remain to be clarified. First, is the pipe capable of conducting any significant flow? Second, as the pipe was traced to a storm drain near PA48TA01, what is the likelihood for transfer of contaminants (in either direction)? It should be noted that the point of connection is not marked on Plate 10 or the Plates showing the storm drain system. What area is drained by this system and what is the potential for contaminants in these areas to reach the system? Finally, as the pipe is perforated, waterborne contaminants will tend not to travel any great distance before migrating into surrounding soils. Can a single test-pit sample be used to characterize this 2,500 ft length of the storm-water drainage system?

PA-50, Storm Drain and Sanitary Sewer System. Investigation of the storm-drain system has been adequate and the work plan addresses the problems uncovered during this phase of the work. What is lacking in the recommendations is an indication of the importance of the order in which the work is be performed to ensure the success of any remedial action. Establishing the configuration of the system, removal of contaminant sources and separation of the storm-drain and sewer systems prior to sediment removal is essential if the build up of contaminated sediment in the future is to be prevented. Sediment removal appears first in the work plan summary.

It appears that the H and Cochrane Street reaches of the sanitary sewer system have not been sampled. A statement to the effect that no sampling was necessary for whatever reason(s) should be included in the text. It also appears that the outflow from Pump Station A is not monitored. The value of being able to demonstrate the levels of contaminants in the sewage leaving the site should be considered.

The work plan contains no recommendation to overhaul or replace the sewer system. As the main migration path for contaminants involves entry and exit to and from the

system via breaks in the pipes and pipe joints, overhaul or replacement of the system seems the only viable remediation option.

The legend for Plate 19 does not include reaches other than those colored blue.

PA-32, Regunning Pier and Building 383. There are two main concerns with the investigation of this area. First, there has been no soil sample taken under Building 383. If this is the result of the building being in use, it should be stated explicitly. Second, it appears that the mock submarine missile launch tube has been overlooked. It does not appear on site maps and is not mentioned in the text. A physical inspection of the tube and any associated pipe work or equipment should be conducted to ensure that it is contaminant free.

PA-33 North Portion, Buildings 302, 302A and 304. Investigation of these buildings and the immediate area has been adequate and the work plan addresses all of the problem areas identified. The work plan and the groundwater monitoring system would be improved, however, by the addition of a monitoring well just to the west of building 302A, roughly equidistant from wells PA55MW11A and IR09MW31A. This would provide hydrogeologic information in an area where no monitoring is currently performed.

Clarification of the fate of the various liquids stored in these buildings and the state of the asbestos is required.

PA-33 South Portion, Buildings 364, 411 and 418. The investigation of these buildings has been thorough and the work plan addresses the identified problems. If possible, a foundation boring should be made in Building 418.

As analyitical data IR-9 have been retained in the Draft Final, the original Plate 27 showing the work plan for this area should also have been retained. A rationale for its removal should be given.

Again, clarification of the action to be taken on the large volume and variety of stored liquids in Buildings 411 and 418 is required. The form of asbestos present in these buildings is not stated. ARC eagerly awaits completion of the report on Building 364.

PA-34, Buildings 351 and 366. No foundation borings have been performed in Building 366 despite the presence of oil stains on the floor, the presence of leaking drums and floor drains with unknown termination points and a highly contaminated storm drain PA34SW07 immediately to the north. The text should contain a statement giving reasons why investigation of contamination under Building 366 is unnecessary.

Clarification is required regarding the fate of stored liquids, adhesives and debris and the form of asbestos in Building 366.

PA-35, Buildings 274 and 306 and Area Bounded by Manseau, Morell and E Streets. Investigation of contamination under Building 274 should be conducted. Table 2 lists the presence of a sump but there is no mention of this in the text. The form of asbestos present in Building 274 is not stated. The valence state of the Cr found in the floor drain samples is not stated.

An inventory of the types of compounds stored in the area bounded by Manseau, Morell and E Streets is lacking. It is therefore difficult to determine whether this area has been adequately investigated. Efforts should be made to establish what was stored and how it was stored. The fact that part of the area is fenced suggests the storage of hazardous waste or materials.

Plate 31 indicates that Building 372 and surrounds has also been investigated. There is no description of this in the text and it is not listed in Table 2. The type of information supplied on the other buildings investigated should also be supplied for Building 372.

PA-36, Buildings 371, 704 and Surrounding Area. Further description of the inspections conducted in Buildings 371 and 704 are necessary to justify the absence of sampling in and under these structures. The presence of petroleum hydrocarbons in soil and groundwater in close proximity to Building 371 highlights the need to define the extent of this contamination. As maximum concentrations of TPH occur at around 11 ft, soil boring/Hydropunches should go at least to this depth. It should be noted that boring PA36BO24 reached only 6.75 ft but that the TPH concentration was double that seen in samples taken at the same depth in PA36SB23 some 100 ft to the north west. Samples from the latter boring at 11.75 ft proved highly contaminated (2.4 g/Kg). No indication is given as to the extent of paving in the Building 371/704 area.

The Building 371 area appears to be a local groundwater high, raising the possibility of contaminant migration to the south anywhere between 090 and 270. In view of the TPH contamination it is important to place a monitor well to the west. Soil boring/Hydropunch BO67 would be adequate for this purpose.

A notable feature of the soil borings taken throughout the PA-36 region is the presence of a large variety pesticides. As the main pathway for these compounds to exert toxic effects is via ingestion and dermal contact with contaminated dust, analysis of surface soil samples, dust samples from buildings and air flux chamber measurements are required to establish the health risk. The possibility that the various compounds may act in synergy, should be investigated as it will affect the HBL.

Clarification regarding the fate of stored liquids and batteries in Building 704 is required.

PA-36, Buildings 400, 404A, 405 and Area West of Building 405. Overall, the investigation in this area has been thorough. There are, however, a few areas of concern. First, the area west of Building 405 contains a building labelled 710 which is not discussed in the text or listed in Table 2. Second, clarification is required regarding the contents and fate of the open and damaged drums and cans in this area.

As noted above, further sampling of pesticides should be undertaken.

Clarification regarding the fate of stored liquids in all buildings and leaking oil containers and transformers in Building 400 is required.

PA-36, Buildings 406, 413 and 414. Investigation of this area has been thorough. Foundation borings should be performed to establish the level of contamination under each building. Again, the work plan needs to be expanded to establish the health risk associated with exposure to pesticide-contaminated dust.

Clarification is required regarding the fate of the various stored liquids and damaged drums in all three buildings and the form of the asbestos in Building 406.

PA-37, Buildings 401, 435 and 436. It is not clear whether a thorough physical inspection of Buildings 401 and 435 has taken place. Table 2 notes the possibility of a sump in Building 435 but the work plan makes no mention of further investigation. Given the level and variety of contaminants that have reached the storm drains in this area and the presence of USTs and contaminated soil immediately to the east of Building 435, investigation in and under these buildings is warranted. Soil boring/Hydropunches would also provide information on groundwater levels which is lacking for the entire PA-37 area.

Clarification is required regarding the form of asbestos in Building 401.

PA-39, Building 505 and Area West of IR13. Investigative and proposed work for soil and ground water in this area is thorough. There appears, however, to have been little investigation of Building 505. Considering past activities and the presence of tennis courts, it is not unreasonable to imagine reuse of this building. Thus, investigation should include some statement as to the buildings general state of repair and analysis for lead (from paint) and PCBs (there are 3 transformers present) should be conducted.

Clarification regarding the form of asbestos present and the fate of the 55 gallon drum containing an unknown liquid is required.

PA-44, Buildings 408, 409, 410, 438 and Metal Shed. Sampling and description of this area appears to be inadequate. From the text, it is difficult to determine what type of structures are in this area (e.g. are they fully enclosed buildings?). In addition, there has been no sampling in Buildings 408, 409, 410 or the metal shed. If there is any

possibility that these buildings may be occupied in the future, then sampling must be performed. In addition, the south west area of PA-44 contains contaminated sumps and floor vaults and Pb-contaminated groundwater and is immediately adjacent to PA-33. As the direction of groundwater flow cannot be determined from the present data, migration of contaminants from adjacent regions into PA-44 cannot be excluded. Thus soil and ground water samples in the north west portion of PA-44 should be performed.

PA-53, Buildings 525 and 530. Two areas of concern remain in PA-53. First, high levels of PCBs and Pb were found at PA53SS09 adjacent to Building 530 and yet no investigation of soil or ground water under the building was conducted. Second, there is no apparent source for the high levels of 4,4'-DDT found at PA53SS11 in Building 525. As ingestion and inhalation of DDT-contaminated dust constitutes the main exposure pathway, surface soil samples should be taken at the south west corner of Building 525.

All statements concerning the presence of Sb at PA 16 have been removed from this section of the Draft Final in spite of the fact that Sb exceeded HBL_ns in all borings. To confuse the issue further, Plate 45 of the Draft Final shows three proposed soil borings with the IR prefix in the PA 16 area. The original draft showed only one proposed boring (Plate 46). The Discussion and Recommendations section of this part of the text wold benefit from further clarification.

Clarification is also required regarding the form of asbestos in Building 525 and the fate of waste oil stored in Building 530.