

Arc Ecology

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Mr. Jim Sullivan
Base Environmental Coordinator
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410 Palm Ave. Code 00E
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RE: Comments of Draft Remedial Investigation for Treasure Island

Dear Mr. Sullivan,

This letter transmits my comments on the Draft Remedial Investigation for Naval Station Treasure Island, dated October 1996. Unfortunately, this report falls far short of my expectations. After all the comments (both verbal and written) that the technically-sophisticated Treasure Island Restoration Advisory Board (RAB) has submitted over the years, I find this report to be particularly disappointing. For not only is this report incomplete and unclear, it also disregards early advice from, and tacit agreements with, the Treasure Island RAB.

Incomplete and Unclear

Recommendations lack credibility

While I am happy to see some results reported from the ongoing remedial investigations at Treasure Island, the report was produced and circulated prior to the Navy completing the sampling at Sites 12 and 17, groundwater modeling, and petroleum hydrocarbon toxicity tests. As a result of these data gaps, the proposed recommendations lack credibility. It would have been better if the recommendation sections were left out entirely until the Navy compiled all the necessary information. Unfortunately, as it is now, I must conclude that the Navy tried to fit the data to a preconceived set of recommendations rather than crafting ones that respect the message of the data. Until the Navy makes available all necessary information, I withhold my comments on the recommendations.

Sampling rationale poorly explained

Even with the missing information, however, it may be difficult to evaluate the recommendations. The Navy does a poor job in the RI of explaining the rationale behind the sampling strategy. How did sampling support the RI objectives of characterizing the nature and extent of contamination? What does the Navy know about TI/YBI geology, hydrology,

and other physical features? How was this learned? How do physical conditions at TI/YBI influence contaminant fate and transport? In short, *what hypothesis is the sampling intended to support or refute? What information led to the formulation of the hypothesis? What are the consequences of the hypothesis being supported or refuted?* Early in 1995, the RAB asked the Navy similar questions during our review of the Phase IIB Work Plan. According to Navy responses to these comments on February 7, 1995, "The Navy and BCT examined all existing data and used it to develop a rationale for selection of sampling locations and analysis." If this is the case, please articulate the rationale in the RI document.

Interaction among sites ignored

Furthermore, the RI report needs to be modified to consider interactions among IR sites, especially when these sites abut one another. I suggest that the Navy combine or group sites 6 and 12, sites 5 and 17, and sites 9 and 3. Alternatively, sites can be grouped according to the drainage area in which they are located. Using this scheme, sites 6 and 12, sites 5 and 17 and sites 3, 9, 21 would be combined into three sections.

Too much repeated boiler plate

The site-specific sections of RI report seem muddled with boiler plate. Why is it necessary to repeat the same, tired, uninformative boiler plate in each site-specific section? These sections ought to focus on how the site-specific hypothesis, sampling results, site conditions and relationships, and data gaps inform the recommended action.

Poorly referenced statements of fact

I found the RI report to be poorly referenced. All sentences that refer to a result, decision, or fact must be referenced. For example, on page 11-5, what geophysical survey results indicated appropriate placement of a test pit?

Specific Issues of Concern

Immunoassay Test Results

I have profound concerns about the Navy's strategy of screening TPH sampling sites using the immunoassay test kits. At site 12, for example, the Navy screened soil samples using the immunoassay test. However, according to Table 12-3, the rate of false positives for TPH in soil at site 12 was 40 percent. Other sites show similarly high error rates. This means that sample locations on site 12, such as 12HP01, that show negative immunoassay test results for soil have a 40 percent chance of being wrong. And in the case of 12HP01, a site surrounded by TPH-contaminated groundwater, it seems likely that the soil indeed is contaminated. The high rate of false positives and false negatives demonstrated at Treasure Island indicate that the immunoassay results should not be considered when making recommendations for further (or no) action. I suggest removing all discussion of the immunoassay results to an appendix. The body of the RI might then explain how this screening strategy was tested as a means to save money, but that in the end the test failed, leaving some significant data gaps.

The Navy must explain in the RI report that the RAB expressed serious doubts about this strategy for screening when it was first proposed. After lengthy negotiation with the RAB, the Navy performed a field test. Results of this test, reported to the RAB on June 27, 1995,

indicated an error rate of 23 percent for TPH in soil and a 6 percent for PAH. (It should be noted that of the 20 out of the 23 percent error rate for TPH was for false positives.) Groundwater tests predicted a 25 percent false positive error rate. As a field screening technique, because the tests erred on the conservative side, the RAB and BCT agreed that this was an "acceptable" error rate. Unfortunately, data tabulated in the RI shows a far higher failure rate for soil-- 45 percent -- most of which most were false *negative* errors. This false negative error rate surely would have been deemed unacceptable by the RAB and BCT (based on the fact that the BCT rejected the immunoassay test for BTEX because of a 50 percent false positive error rate). The Navy's continued reliance on this faulty data seems nothing short of a breach of contract with the RAB and BCT.

While on the subject of the immunoassays, I was dismayed to learn upon studying the report, that the Navy changed the immunoassay test results reported on the figures when confirmation sampling detected false positive or false negative test results. The Navy changed the color of the box if the confirmation sample tested in the lab showed a different result from the test kit. This misleads the reader since not all of the immunoassay results were verified with a laboratory sample and it is highly likely that additional false positives and false negatives exist among the untested data. I suggest that all figures that purport to show immunoassay test results show the in-field results. If the Navy is aware that the in-field result may be inaccurate this should be noted *in addition without modifying the actual reporting of results*.

Bias toward defining extent of contamination during remedial actions

The Navy's bias toward defining the extent of contamination during remedial activities shines through the Draft RI report. In a letter to RAB Community Members dated June 24, 1995, the Navy explained that the immunoassay test kits would serve as a screening tool, and that confirmation sampling will be required (during any remedial action or removal action) to ensure that all soils above the cleanup level are remediated or removed. Besides making it very difficult to estimate remediation costs, this strategy places an enormous burden on the remediation process to define the extent of contamination. And it assumes that soils will be excavated. The nature and extent of contamination must be defined during the Remedial Investigation phase of the project.

Inappropriate screening for inorganics

Given that background concentrations of inorganics were estimated using data collected from suspected contaminated sites, I think it inappropriate that site concentrations be screened from further analysis if less than 10 percent exceed estimated background concentrations. I suggest this screen be removed.

Beryllium contamination should be investigated

The Navy should not dismiss beryllium simply because no source can be identified. According to ATSDR Toxicity Profile for Beryllium the concentration range of beryllium in 15 soil samples obtained from six states in the United States ranged from 0.13 - 0.88 mg/kg. It was not reported whether these samples were collected in urban or rural areas. Although TI/YBI ambient levels fall below this reported range (mean of 0.11 mg/kg for YBI and 0.01 mg/kg for TI), ATSDR also reports that pure beryllium is used in aircraft disc brakes, x-ray transmission

windows, space vehicle optics and instruments, missile parts, precision instruments, and other highly technical devices. Beryllium alloys are used for electrical connectors and relays, springs, precision instruments, aircraft engine parts, nonsparking tools, submarine cable housings and pivots, wheels and pinions, and other industrial, automotive, and consumer products. Given the types of products listed, it seems likely that beryllium contamination at TI may have resulted from military activities.

Spot Review Chapter 11

Although these comments refer to chapter 11, many apply to all site-specific chapters.

TPH/PAH Correspondence

Please explain how the detection of PAHs corresponds to the detection of TPH-d and TPH-m detected in soil borings. Was such a correspondence actually detected at TI/YBI?

Analysis of Unfiltered Groundwater Samples

Page 11-30 states that naturally flowing groundwater does not typically contain significant amounts of particulates. This statement is confusing and misleading. It might be better to explain the differing philosophies at work when groundwater samples are analyzed filtered or unfiltered, who required the Navy to analyze unfiltered samples, what data unfiltered samples provide, and what data gaps such an analysis might introduce.

Site 11 Leachate Samples

Explain why leachate samples were not collected at site 11, especially given the statement on page 11-33 of the Draft RI that "leaching of contaminants caused by infiltration of precipitation will be occurring from soils to the groundwater." Also, please reference this conclusion.

Clarification on page 11-22

What is meant by the statement (emphasis added), "Levels of barium, beryllium, cadmium, cobalt, copper, lead, silver, thallium, PAHs, and DDT exceeded background levels *in a large enough proportion of the samples* as to be of concern to ecological receptors."

Error of page 11-32, last paragraph

How can a chemical show both "low bioaccumulation" and a "tendency to bioaccumulate?"

Error of Table 11-3.

Sample number 199KK003A is reported as FP. In fact it is a FN.

Ecological Assessment

Strange conclusions

Page 11-25 states that, "The deer mouse is the most abundant and widespread animal in California and North America (Zeiner and others 1990b). Thus any adverse effects due to contamination at this location will not likely affect the population as a whole." I find this statement ridiculous -- akin to saying that since there are plenty of canaries in the world the fact that this one in the mine died is of no significance. The paragraph goes on to say that,

"Given the rapid generation time of mice (50 days (Jameson 1953)) and the long duration of potential contamination at this site, it is likely that adverse chronic effects would have severely impacted this population many years ago." However, the paragraph does not go on to say if, in fact, the population of deer mice at TI is adversely affected by contamination at TI. Also, I don't understand how "potential" contamination can have an historical impact on deer mouse population.

Misunderstanding representativeness

What is even more disturbing, however, is that I understand that deer mouse is meant to represent a guild of small omnivorous mammals potentially found at YBI and these animals are an important source of food for raptors (and other carnivores not found at TI). The Navy selected the deer mouse as a representative species -- deer mice are not individual receptors of concern such as is the Peregrine falcon. Somehow this part of the story became lost in an attempt to conduct an ecological risk assessment. In summary, the site-specific descriptions in the Draft RI that address ecological risks must be changed so that the deer mouse, American kestrel, and Peregrine falcon are evaluated as representative species. Lists of affiliated species must be provided. Second, regardless of their local and national populations, the effects on populations at TI/YBI must be addressed. The Peregrine falcon, in addition, must be evaluated as an individual receptor of concern.

I think you agree that we all share a common goal of achieving the most effective and timely environmental cleanup of Naval Station Treasure Island. We can not achieve this goal by moving forward with a seriously flawed remedial investigation. Unfortunately, I don't believe the flaws can be corrected simply by rewriting the report. Instead, we (the Navy, the regulators, and the RAB) must work together to review the data and embark on a corrective course of action.

Sincerely,



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Environmental Analyst

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