Comments
by the
Committee to Bridge the Gap

Regarding the Navy's
Parcel F Proposed Plan for Offshore Sediment Cleanup
Hunters Point Naval Shipyard Superfund Site

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Background: The Navy's Proposal to Walk Away from Most Cleanup Obligations for Parcel F in the Context of the Current Hunters Point Crisis

The Hunters Point Naval Shipyard is one of the nation's most contaminated sites. Decades of poor environmental practices resulted in extensive pollution with radioactive materials and toxic chemicals. Navy ships that had been exposed to high levels of nuclear fallout by being placed near hydrogen bomb explosions in the Pacific were brought back to Hunters Point for "decontamination." Because radioactivity cannot be neutralized by such mechanical means, decontamination in practice meant moving the contamination from the ships to Hunters Point, contaminating soil, groundwater, and offshore sediments. Additional pollution was caused by years of experimentation with radioactive materials at the Naval Radiological Defense Laboratory based also at Hunters Point. In addition to releases of radionuclides such as plutonium-239, cesium-137, strontium-90, and radium-226, among many others, a wide array of very toxic chemicals were also released, including polychlorinated biphenyls (PCBs) and heavy metals.

Unfortunately, the poor environmental practices by the Navy that led to the contamination in the first place have now been repeated during the last couple of decades in what was supposed to be the cleanup of the damage that had been done to Hunters Point. The most visible of these problems has been the extraordinary set of revelations that the Navy's contractor at the site, Tetra Tech, engaged in significant fabrication or falsification of sampling results. The Navy itself now estimates nearly half of the measurements are suspect and will need to be done again. The US EPA, in its independent review of those findings with the state Department of Toxic Substances Control (DTSC) and Department of Public Health (DPH), has concluded that only 10% of measurements at one parcel and 3% at another are free of falsification. In other words, for two parcels making up 40% of Hunters Point, the first parcels reviewed by EPA, 90-97% of the readings are suspect and need to be done again.

The Navy itself has stated, in filings with the court that issued the first convictions in the scandal, that the fabrication of results by Tetra Tech has caused other agencies to lose confidence in the Navy and set back the cleanup by a decade. The loss of confidence among the public is, of course, even greater. And indeed, the oversight failures by the Navy and

the regulatory agencies that allowed this environmental fraud to go on for so long goes far beyond just the actions of Tetra Tech. Fundamental questions are being asked as to whether the Navy sent signals, implicitly or otherwise, perceived by Tetra Tech as wanting reports that low-balled the amount of contamination, as a way of reducing the amount of cleanup mandated and thus saving considerable money, albeit at the expense of increased risk to the health of the public. Additionally, serious questions arise out of the failure of EPA, DTSC, DPH and other agencies to have fulfilled their oversight functions and caught these extraordinary failures years ago.

Given the current crisis, one would think that this is the last moment the Navy would propose walking away from most of its cleanup obligations for a Hunters Point parcel. Yet that is, as discussed below, precisely what the Navy has now done with regards Parcel F.

The Parcel F Proposal: Undertake *No* Cleanup of Radionuclide or Chemical Contamination in Parcel F, with the Exception of Removal of a Fraction of the PCB Contamination

Parcel F consists of the areas immediately offshore contaminated Hunters Point land. These offshore areas were potentially contaminated by numerous means: discharges of toxic and radioactive materials via sewer pipes and storm drains, sandblasting and other steps to get contamination off the berthed ships, runoff from contamination on Hunters Point land, "underwater experimentation, and accidental radioactive waste disposal activities from Navy ships."[1]

Despite the controversy swirling about the unreliable radiation measurements throughout Hunters Point and the use of non-protective cleanup standards, the Navy has now proposed to *take no action whatsoever to cleanup any radioactivity in Parcel F*.[2] And despite acknowledgment of contamination by copper, lead and mercury, the Navy proposes to *take no specific action remove any of them.*[3]

The Plan thus ignores all other contaminants and only directly addresses PCBs. However, most of the preferred alternative identified involves leaving most of the PCB contaminated sediments, taking no action to remove or otherwise clean up the PCBs.

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[1] Final Addendum to the Feasibility Study Report for Parcel F, January 2016, p. ES-2

[2] It does propose to take steps to dispose of radiological objects like radium gauges it might encounter in the dredging of some parcel F areas for PCB contamination. Plan, p. 14

[3] If any of those metals is also present in sediment that is to be removed because of PCB contamination, it will of course be dug up at the same time. But the only cleanup actions proposed in the Plan are for PCBs, and no heavy metal contamination in areas where PCBs aren't to be removed will be cleaned up. Furthermore, much of the remedial approach for PCBs is not cleanup, but rather leaving them in place and dumping some activated carbon on top, in the hope that that slows the uptake of the PCBs by benthic organisms. But that is not aimed at the heavy metal contamination that may also be present.

Instead, for much of the PCB contamination, it is proposed to either put a thin layer of sand or similar substance on top. Other PCB contamination would have some activated carbon placed on it, in the extremely theoretical hope that the uptake of PCBs by benthic organisms like clams would be slowed. And for much of the PCB contamination, the Navy proposes not even doing that, but instead just leaving it in place, a process euphemistically called Monitored Natural Recovery (MNR). There is no pretense that MNR involves the PCBs disappearing (PCBs are extremely persistent in the environment). Instead, the premise is that over time particulates in the water will settle on the contaminated sediment. By this illusion, talking only about the thin sediment layer that will fall onto the contaminated layer and calling the thin new layer "clean" while ignoring the toxic stuff just below it, the Navy makes the remarkable claim that in about 5 years, doing nothing, those PCB areas will be below background. Obviously if this were so, there would be no PCB contamination in Parcel F to begin with, because many multiples of 5 years have passed since the bulk of the contamination got there.

And to make matters even worse, the Parcel F Plan proposes that no cleanup action whatsoever be taken for eight of the eleven areas within Parcel F. This is not a cleanup plan. It is, for most of the areas and almost all the contaminants, a no-cleanup plan.

Discussion

The Refusal to Undertake Any Cleanup of Radionuclides is Inappropriate

It has now been recognized that the great majority of radionuclide samples taken to date at Hunters Point—for all practical purposes, essentially all of them—are suspect and need to be done again, with far tighter controls. Additionally, there are significant questions about the propriety of the cleanup standards employed. It is difficult to comprehend, therefore, why the Navy is proposing to do no radioactive cleanup in Parcel F. Indeed, some of the Parcel F work was done by Tetra Tech (in a former iteration) and its contractor. But the underlying problems that the Tetra Tech situation revealed raise fundamental questions about the Navy oversight generally.

The minimal analyses upon which the Navy is relying for its decision to do no radioactive cleanup in Parcel F are questionable and do not support such a decision. For example, the Parcel F Plan asserts that all measurements were at or below background. (p4) It is, of course, not possible to be below background. But even so, the documents upon which the Navy relies for this assertion do not demonstrate this. They purport to show that the radionuclide levels in Parcel F may be above background, but below the Project Action Limits (PALs) that the Navy has proposed, above background. PALs are levels below which the Navy says no cleanup need occur, that the risk is "acceptable."

Furthermore, those PALs, in themselves, are extremely suspect. Table 4-3 of the Final Feasibility Study Addendum shows, for example, the PAL for strontium-90 is about 50 times background. For plutonium 239/240, the PAL is nearly 4000 times background. None of this is disclosed in the Parcel F Plan. The public would be deeply dismayed to learn

that the Navy is proposing no cleanup of plutonium, for example, until its concentration is thousands of times higher than background.

The claims that there is no radionuclide contamination above background is belied also by the actual data in the underlying reports. The same table mentioned above shows plutonium levels 44 times background, and strontium-90 at 26 times background. The subtidal median values for cesium-137 and plutonium-239/240 exceeded the median background values. p. 4-4, ibid. And the measurements for radium in the initial sampling exceeded not just background but background plus the hugely non-protective PAL for multiple samples.[4]

The data suggest radionuclide contamination in Parcel F, despite implications to the contrary in the Plan. The cleanup standards proposed are inflated and non-protective. And the measurements, their interpretation, and standards are under a cloud of credibility. It is difficult to assert that there is massive PCB contamination and no radioactive contamination. How could the PCBs get there and not radioactivity? And given the sandblasting and other radioactive decontamination of the ships berthed there, and the radioactive contamination on land that must have migrated through stormwater runoff, airborne deposition, and release through sewer lines, it simply isn't credible to assert no radioactive contamination in Parcel F. The decision to do no cleanup for radioactivity cannot be defended.

The Proposed Approach to PCB Contamination is Inadequate, Leaving Most of it Not Cleaned Up

The Parcel F Plan proposes to take no action for contamination in Parcel F at levels up to 1240 µg/kg, more than six times the asserted background level. By contrast, DTSC's Risk Based Screening Levels (RBSLs) for individual PCBs are in the 10^{-4} µg/kg range, ten million times lower (more protective). For PCBs up to 1240 µg/kg, the Plan proposes to just let them sit there, under the euphemism of Monitored Natural Recovery. As indicated above, the PCBs, which are very persistent in the environment, don't cease to exist under this scenario. One just leaves them there under this proposal.

For PCBs from 1240 to 12,400 µg/kg, the Plan also proposes to not clean them up. Instead, one might put a layer of sand and rocks on them, or something similar. Again, the PCBs remain, not cleaned up.

Additionally, it is proposed for other areas to add some activated carbon, not to get rid of the PCBs (which it can't), but to hopefully make it harder for benthic organisms to take up as much of the PCBs. This is based on a pilot study that is badly misrepresented in

[4] Not liking the results, the Navy had those samples re-tested, with results that came in lower but still apparently above background and with a significant risk level. The lower values were subsequently substituted for the higher ones. It is troubling that one re-tests high concentrations but not low ones, and when there is a disagreement between two tests, chooses the more favorable.

the Plan. The actual study, which had only gone 14 months by the time it was released, produced extremely modest reductions in uptake of PCBs. The Plan implies 90 or 95% reductions, but these aren't in the clams that were being studied and which is what matters. "Laboratory testing showed an approximate 50 percent reduction in clam tissue concentrations during the 8-month monitoring event and an approximate 30 percent reduction during the 14-month monitoring event."[5] That is not much of a reduction, and it was going down over time, raising serious questions about whether there would be any long-term effect at all. And what small effect was seen over a short time was admitted to be "uncertain because only a single baseline composite clam tissue sample was available for comparison due to high mortality of the white sand clams."[6]

Nowhere does the Plan indicate whether what is contemplated is a single application of activated carbon, or dumping new loads every couple of years, and if the latter, for how long they plan to keep doing that, and what the effect on the environment would be. One notes that the study found substantial injury to the clams from the initial application of carbon, so in one's effort to help them one would appear to be hurting them. Although there was recovery after awhile, it is not clear what repeated applications of carbon would do. And if it isn't reapplied routinely, over long periods of time, no evidence is provided as to any lasting benefit in terms of PCB uptake. But none of this really matters, as the effect purported, a 1/3 reduction in uptake at 14 months, is quite marginal, even if true.

No Cleanup of Any Other Contaminant, and Not Even a Cleanup Level for Lead is Identified

As indicated above, the only cleanup proposed is for PCBs, and only for a small fraction of the sediment contaminated with PCBs. No cleanup at all is proposed for radionuclides. No cleanup whatsoever is proposed for 8 of the 11 Areas in Parcel F. And for the other contaminants – including the mercury, copper, and lead admitted to contaminate Parcel F—no cleanup is proposed for them. If they happen to be in an spot where PCBs are to be removed, they will of course be carried along in the removed sediment. But if they are in places where PCBs aren't, or where PCBs exist but are to be merely covered with sand or activated carbon and just left alone for MNR, nothing will be done to remove those other contaminants. There is no showing attempted that activated carbon, even if it has a marginal effect on PCBs, would be of any use for mercury or copper, for example.

Lead is treated in a very curious additional way. No cleanup level, PAL, is even put forward for it. This is said to be because of "uncertainties." If there are uncertainties, that argues for strict standards, not no standard at all.

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[5] FINAL TECHNICAL MEMORANDUM, Optimized Remedial Alternative for Parcel F, p. 3-6

[6] ibid.

Admitted Risk Levels Are Very High; True Risks Are Likely Even Higher

The Parcel F Plan grossly understates potential cancer risks from the contamination and non-cancer hazards. But even so, the admitted risks are huge. Table 1 estimates cancer risks from eating fish, from PCBs alone, as 9×10^{-5}. That is 90 times the main risk goal for Superfund, 1×10^{-6} (one in a million). It is exceedingly close to the upper limit EPA will permit under unusual circumstances, 10^{-4}. Indeed, the figure is so close to 1×10^{-6} that it raises questions whether assumptions were tweaked to get in just under the very uppermost limit. But as pointed out, it is nonetheless anyway 90 times higher than what should be the risk goal. And note that it doesn't include the risk from any other contaminant (e.g., lead, mercury, radionuclides); under Superfund rules one is supposed to sum the risks from all the contaminants. Furthermore, it appears that this estimate is the "incremental" risk, i.e., the risk not of the full level of the contaminant but rather that level minus background. Under Superfund rules, one is supposed to consider the full measurement and the full risk.

The Hazard Index admitted to for just the fish consumption pathway and just the PCBs is 8—eight times the level that is considered acceptable. Again, one should sum all the contaminants and not subtract out background.

But even these very high admitted risks, found in the Parcel F Plan, understate the true risks admitted to in the underlying documents. The Final Addendum to the Feasibility Study for Parcel F states, "Combined cancer risks were calculated in this FS addendum to estimate the overall potential human health risk associated with recreational user exposure to both ROCs and chemicals in sediment at Parcel F. *The combined risk for the recreational user is $4x10^{-4}$ for both the intertidal and subtidal CSM exposure scenarios. The combined risk for the intertidal and subtidal CSM exposure scenarios exceeds 10^{-4}, the upper end of the USEPA range of 10^{-4} to 10^{-6} for management of cancer risks*." ES-4, emphasis added

The document goes on to estimate cancer risks from radionuclides alone as 2×10^{-5}, twenty times the normal risk goal of 1×10^{-6}. (Even when just estimating the radionuclide risk without background—and that isn't how one is supposed to make the estimate—the risk if four times the 10^{-6} goal.) It must be reiterated that the Navy misstates the EPA "acceptable risk range" as being anywhere in the range of 1×10^{-4} to 1×10^{-6}. Under Superfund law, one is to aim for 1×10^{-6}. If one has strong reasons why one can't meet that level, one can request to fall back, the minimum amount necessary, but never over 10^{-4}. 10^{-4} is not a *de facto* acceptable level; just the opposite. 10^{-6} or below is *de facto* considered acceptable.

The methods used by the Navy and its contractors understate risk in numerous ways. But even so, their own estimate of risk far exceeds the primary risk goal one is supposed to aim at.

Conclusion

The Navy, its contractors and its regulators, are under a cloud, facing a significant loss of confidence in the wake of the Tetra Tech scandal. The current proposal for Parcel F, rather than being a cleanup plan, is in fact a proposal to not clean up most of Parcel F's contamination. Given the current situation, the Parcel F Plan should be withdrawn. Substantial and deep reform needs to occur, and then thorough and reliable new measurements conducted, defensible cleanup standards established in a transparent fashion, and a completely redrawn proposal put forward, one that involves true cleanup and real protection of public health and the environment.

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