DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE 33000 NIXIE WAY, BLDG 50 STE 207 SAN
DIEGO, CA 92147

Mr. Enrique Manzanilla
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street, SDF-8
San Francisco, CA 94105-3901

Dear Mr. Manzanilla:

Thank you for your agency's letter of August 20, 2020 that reviewed the Department of the Navy's (DON's) "Evaluation of Radiological Remedial Goals for Buildings at Hunters Point Naval Shipyard (HPNS)" prepared as part of the Five-Year Review. We also received a follow-up email from Mr. Praskins on August 20, 2020 that proposed using the Building Preliminary Remediation Goal (BRPG) calculator and included cleanup levels for buildings.

Several technical exchanges between DON staff and EPA Region 9 (EPA) personnel over the past few months have brought greater clarity regarding EPA's reluctance to support use of RESRAD for risk evaluation at HPNS. Following these extensive technical discussions and the evaluation of the risk estimating tools, the DON has determined the tool proposed by the EPA (BPRG calculator) includes assumptions that are inconsistent with, and not supported by, the conceptual site model for HPNS. Specifically, the BRPG calculator evaluates risk assuming that a contaminated layer of dust will remain on building surfaces for 26 years after remediation is complete and site activities have ceased. With remediation complete and no known sources of contamination remaining at HPNS, this assumption is not consistent with current or future site conditions. The RESRAD evaluation prepared by the DON does not contain this assumption and is a more appropriate tool for risk evaluations at HPNS.

Commented [WS1]: As explained to the Navy over several years, if there is no contamination outside that can be tracked in, then a dissipation rate can be determined which allows for source removal. The Navy proposed just using the dissipation rate from the World Trade Center incident cleanup, then one based on using a remediation technology on a weekly basis. They have never attempted to justify a credible number.

Commented [WS2]: If true, then the Navy should come up with a credible argument for changing the default vale of zero dissipation rate. This is discussed in Section 4.3.8 Dissipation Rate Constant (k) of the BPRG User Guide. We have discussed this with the Navy before in meetings.

Commented [WS3]: Considering most buildings at contaminated sites will still have soil outside with some level of contamination that people can track into the building. RESRAD BUILD assuming this is not the case is not a conservative assumption and makes me wonder how often their default is used while some contaminated dirt continues to be tracked indoors at other sites.

Similarly, the DON's radiological experts have completed a technical review of the BPRG screening values that the EPA provided and find the proposed values not technically implementable. The BPRG screening values that the EPA proposed are below background levels, which are indistinguishable from building materials, and cannot be detected with state of the art instrumentation. Of specific concern are the proposed removable-contamination values for radium (1.2 dpm/100cm^2) and thorium (4.2 dpm/100cm^2). The DON appreciates the EPA's continued efforts to adjust site specific assumptions in your BPRG evaluation; however, after a year of discussions, those efforts have not resulted in a workable model to be applied beyond an experimental level or suitable to be employed in the field. Continuing to try to modify the BPRG evaluation, particularly when the RESRAD Build evaluation is refined, complete and appropriate, will cause unnecessary and unacceptable delays in the remediation effort.

Commented [WS4]: If by "screening values" the Navy means 10-6, the risk range can go up to 10-4. If they mean 10-4, then if they can argue background exceeds 10-4 for a contaminant Superfund policy is to cleanup to background.

Commented [WS5]: Based on previous discussion, the Navy is talking about field measurements for the BPRG default (not using a dissipation rate) runs for settled dust. Swipe samples of dust being taken to a lab should be measurable. If there are questions on how to do this, I recommend engaging EPA HQ radiation survey and lab analysis experts such as David Kappelman of OSRTI/ERT and John Griggs of ORIA Montgomery lab director.

Commented [WS6]: Does this mean the Navy has no issue with the EPA proposed BPRG values for fixed contamination? I don't think RESRAD Build could be used for risk assessment for fixed building contamination since it has the incorrect slope factors (only soil instead of different depths such as ground plane, 1 cm, 5 cm). EPA also provided BPRG runs that were modified post processing to simulate the splash scenario of fixed contamination on the floor only going up the wall 6 feet.

For more than 15 years, RESRAD Build has been the tool that the DON, EPA Region 9, and the California Department of Public Health have used to develop and evaluate building radiological remediation goals at HPNS and many other installations. RESRAD Build has proven that it can successfully evaluate radiation exposure and associated risks, and model how radiation may reach an exposed individual or group. It is the most extensively tested, verified, and validated tool used for the science of radiological risk assessment and radiological cleanup.

Commented [WS7]: RESRAD Builds verification reports are from 2001 and 2003. The risk assessment capability was added in 2005 so it is has not undergone external verification. The BPRG has gone through independent external verification [HYPERLINK "https://epa-bprg.ornl.gov/bprg_external_verification.html"] and periodic internal verification [HYPERLINK "https://epa-bprg.ornl.gov/bprg_internal_verification.html"]

Commented [WS8]: I don't see a validation report on RESRAD BUILD on DOE's website, but since the transport portions of the code are not relevant for Superfund risk assessment this would likely be irrelevant if true since EPA uses steady state models for Superfund risk assessments not transfer dynamic models. Validating the source transfer portions of RESRAD Build which should be turned off for a CERCLA risk assessment does not add anything to the Navy's argument.

Commented [WS9]: RESRAD Build has never undergone an external peer review. The BPRG has had one independent and two non-independent external peer reviews [HYPERLINK "https://epa-bprg.ornl.gov/bprg_peer_review.html"]. The settled dust portion of the BPRG that the Navy is criticizing is taken from the risk assessment for chemically dust in buildings for final cleanup values after the World Trade Center incident which represented the state of the art for addressing Superfund sites. The World Trade Center risk assessment protocols went through an extensive panel peer review. [HYPERLINK "https://www.tera.org/Peer/WTC/welcome.htm"]

Commented [WS10]: RESRAD BUILD is using the wrong set of slope factors for fixed contamination risk assessment. It uses the infinite depth soil slope factors for surface contamination rather than the ground plane slope factor like the BPRG, or the ground plane dose conversion factor used in the BDCC and RESRAD BUILD.

The DON and other State and Federal agencies trust RESRAD Build to develop and evaluate remedial goals for radiological cleanup at installations across the country. More importantly, RESRAD Build can evaluate risk at HPNS consistent with the conceptual site model. DON is fully confident in our evaluation of remedial goals using RESRAD Build and has contracts in place to initiate building retesting immediately.

Commented [WS11]: Most uses of RESRAD BUILD would be under NRC or NRC Agreement State regulatory authority. This would be for dose assessment, not risk assessment, and NRC would not be concerned with addressing indoor settled radioactively contaminated dust in a similar manner as chemically contaminated dust.

Commented [WS12]: Since the Navy has never come up with a justification for the default source removal rate in RESRAD BUILD, and the dust intake rates are inconsistent with the values from the Exposure Factors Handbook that EPA uses as defaults that were updated from the World Trade Center incident, I would argue that the Navy's RESRAD BUILD runs are inconsistent with a CERCLA RME and the conceptual site model.

The DON does not have a viable path forward for remediation of the buildings at HPNS using the cleanup values provided by the EPA. Remediation using the proposed BPRG values would require the DON to demolish all subject buildings, including useable, non-radiologically impacted buildings, at a cost of $300M or more, depending on the waste characterization. It will also delay progress for many years, impacting the City of San Francisco's development efforts. Until this issue is resolved, the DON may need to consider pausing all ongoing remediation work in order to assess how our collective inability to move forward with resurveying the buildings impacts the remaining property cleanup and transfers. The DON requests that the EPA reconsider evaluation of building remedial goals using RESRAD Build to allow the rescanning of buildings to proceed. This work has been contracted, planned, and mobilization could start in January 2021.

Commented [WS13]: If they are non-radiologically impacted they would be cleared. That is the whole point of screening out under the CERCLA process.

Sincerely,

LAURA DUCHNAK
Director

Copy to: (via email)
Nina Bacey, California Department of Toxic Substances Control
Terry Han, California Department of Public Health
Tina Low, Regional Water Quality Control Board
Amy Brownell, San Francisco Department of Public Health