

Hunters Point Naval Shipyard Superfund Site
Second Email Responses on Recommendations from August 24, 2021
Meeting with OLEM, PEER, and Others

#1: Fix the Soil Cleanup Standards

Part one of your first request asks that EPA direct the Navy to set soil cleanup standards for the Hunters Point Naval Shipyard (HPNS) at 10^{-6} for unrestricted residential use, based on the EPA PRG Calculator using the EPA defaults and consistent with Proposition P.

CERCLA remedies must be protective of human health and the environment. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) describes a cancer risk range of 10^{-6} to 10^{-4} to be protective of human health. Superfund decisions provide cleanup goals that are generally developed to be within that acceptable cancer risk range after considering multiple factors at a site. Soil cleanup levels for HPNS were selected in several decision documents that were determined to be protective, at the time the remedies were selected. However, as part of the soil radiological rework that is currently underway to address the unreliable data submitted by Tetra Tech, EPA asked the Navy to re-evaluate the protectiveness of the soil radiological cleanup levels. EPA's request also stems from the Navy's fourth Five Year Review, which EPA concurred with the Navy that the site does not present an unacceptable risk in the short-term but that there is insufficient information for EPA to verify that the selected soil goals will be protective in the long-term. EPA and the Navy will make protectiveness determinations, as rework data becomes available. Therefore, at this point in time, EPA does not have sufficient and complete information to direct the Navy to modify the existing soil radiological cleanup goals.

As you know in 2017, the Navy, EPA, and state regulatory agencies determined the radiological data collected by Tetra Tech EC, Inc. in implementing the cleanup were unreliable, and that additional sampling and analysis would need to be conducted to confirm the work that had been performed. This resampling and analysis are on-going and are expected to continue through 2025. As part of that radiological rework, EPA requested the Navy evaluate whether the selected soil radiological cleanup goals remain protective of human health using the most recent science on radiological risk assessment.

In response to EPA's request to re-evaluate the selected soil radiological levels in August 2019 the Navy submitted a draft Addendum to the Five-Year Review. The Navy's draft Addendum provided the assessment of the remediation goals using both the EPA's PRG Calculator and the U.S. Department of Energy's RESRAD-ONSITE. In November 2019, EPA completed its review of the Navy's Addendum, considering comments made by several independent reviewers, including the *Committee to Bridge the Gap*. In our [letter to the Navy](#), EPA concluded that we could not verify that the selected radiological soil cleanup goals are protective of human health for the long-term for several reasons including, lack of confirmatory sampling of residual radiological contamination concentrations, confirmation of background radiological concentrations and actual co-location of radionuclides of concern related to cumulative risk. The Region recommended that the long-term protectiveness determination be made after the soil radiological retesting and other data are available.

You also requested that the soil cleanup goals be based on the EPA's PRG Calculator using EPA defaults as inputs to the risk modeling. In our review of the Navy's August 2019 Addendum, EPA relied on risk estimates from the PRG Calculator using site-specific assumptions. In our [November 2019 letter to the](#)

[Navy](#), the Region explained the appropriateness of using site-specific assumptions to provide risk values more representative of site conditions. This is consistent with EPA guidance^{1, 2} on Superfund risk assessments and the use of the PRG Calculator. Using site-specific exposure assumptions with EPA's PRG Calculator the selected radiological remediation goals for nine of the eleven radionuclides of concern are more stringent than 1×10^{-4} and some more stringent than 1×10^{-6} (see Table A and its notes below). The selected radiological remediation goals for thorium-232 and radium-226 are in the upper end of the CERCLA risk range but are still protective. Concentrations for thorium-232 and radium-226 are also close to background concentrations and remediation goals generally are not set below background.³ Therefore, were we to establish new remediation goals at this time, they would not be significantly different than the existing remediation goals. Any cumulative risk will be evaluated following the collection of new radiological data during the soil retesting work.

¹ For more information, see "Radiation Risk Assessments at CERCLA sites: Q&A", "Q12. Should exposure pathways be added or deleted based on site-specific conditions?" on page 13 and "Q14. To what extent should generic and site-specific factors and parameter values be used in exposure assessments?" page 16 <https://semspub.epa.gov/work/HQ/176329.pdf>

² The PRG calculator Users Guide, see section "2.6 PRGs in Context of Superfund Modeling Framework" https://epa-prgs.ornl.gov/radionuclides/users_guide.html

³ For more information, see "Role of Background in the CERCLA Cleanup Program" at <https://www.epa.gov/risk/role-background-cercla-cleanup-program>, in the Risk Assessment Q&A "Q40. How should background levels of radiation be addressed?" on page 31 at <https://semspub.epa.gov/work/HQ/176329.pdf>, and in "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" in the section "Background Contamination" on pages 5-6 at <https://semspub.epa.gov/work/HQ/176331.pdf>.

TABLE A

HPNS Soil ROCs, Best Estimate of Risk Associated with RGs (2019)

Radionuclide of Concern (ROC)	Soil RGs, residential, (pCi/g)	Estimated Cancer Risks, PRG Calculator, 2019 (1)
Americium (Am)-241 (²⁴¹ Am)	1.36	5.95E-07
Cesium (Cs)-137 (¹³⁷ Cs)	0.113	1.98E-06
Cobalt (Co)-60 (⁶⁰ Co)	0.0361	1.09E-06
Europium (Eu)-152 (¹⁵² Eu)	0.13	3.36E-06
Eu-154 (¹⁵⁴ Eu)	0.23	4.87E-06
Plutonium (Pu)-239 (²³⁹ Pu)	2.59	6.71E-07
Radium (Ra)-226 (²²⁶ Ra)	1.0 above background =1.86 ⁴	1.5E-4
Strontium (Sr)-90 (⁹⁰ Sr)	0.331	7.87E-08
Thorium (Th)-232 (²³² Th)	1.69	1.72E-04
Tritium, H-3 (³ H)	2.28	9.61E-06
Uranium (U)-235 (²³⁵ U)	0.195	1.00E-06

(1) "Estimated Cancer Risks, PRG Calculator, 2019" from "Estimated Excess Cancer Risks and Dose Equivalent Rates, from Resident Exposures to Radionuclide-Containing Soils Report," prepared by Battelle for the Navy, August 7, 2019. This report also explains which site-specific input parameters were used in the risk assessment and the rationale for the change from the default.

Regarding your recommendation that soil radiological cleanup goals be based on an unrestricted use scenario consistent with the City/County of San Francisco's Proposition P, broadly, EPA's policy is to achieve protective remedies consistent with reasonably anticipated future land use. Institutional controls, like land use restrictions, are a common component of Superfund remedies nationwide to ensure protection of human health but also to ensure the integrity of remedies in the long term.

EPA continues to work with and oversee the Navy to protect human health and the environment in the Bayview Hunters Point community. During the HPNS radiological rework, the Navy plans to collect and analyze tens of thousands of samples for radiological constituents. These data will inform the Navy's next Five-Year Review process and the determination of whether the remedies at the site are and will be protective of human health. If the next Five-Year Review, scheduled to be completed in 2023, concludes that the remedies are no longer protective for the anticipated future use, EPA will work with the Navy to develop and evaluate options that may include modifying soil cleanup goals and/or the site remedies. If changes to the remedies are needed, we expect the Navy to follow the CERCLA remedy selection process, including the appropriate community involvement and input activities.

The second part of your first request asks EPA to include the garden pathway for chemicals to the national Regional Screening Levels (RSLs) including the RSL calculator. EPA developed an RSL calculator and generic screening RSL tables to assist in the investigation of Superfund and RCRA sites. The RSL

⁴ According to a survey of historical documents, the Navy established background levels of Ra-226 between 0.435 and 1.057pCi/g. Most recently the Navy established a Background Threshold Value for Ra-226 at 0.861 pCi/g.

calculator and the RSL tables have over 800 contaminants including metals, volatile organic compounds, persistent organic pollutants (e.g., polycyclic aromatic hydrocarbons, polychlorinated biphenyls), and pesticides. Both the RSL calculator and the process to develop the RSL tables are based on existing EPA Office of Land and Emergency Management (OLEM) human health chemical risk assessment regulations and guidance policies to use conservative national default exposure parameters when modeling risk. (For more information, see <https://www.epa.gov/risk/regional-screening-levels-frequent-questions>.)

EPA believes including gardening and agricultural scenarios could be a valuable addition to the RSL calculator. OLEM is currently conducting a compilation and review of state and international gardening and agricultural exposure scenario models for chemical contaminants. Based on the results of this review, EPA will evaluate existing information to potentially identify exposure recommendations for inclusion in the RSL calculator and gaps. Building from there OLEM continues to work with other EPA programs, including EPA's Office of Research and Development, to determine what chemical contaminants could be added to the current RSL calculator based on the gardening and agricultural exposure scenarios. While EPA's OLEM works on updating the RSL calculator, EPA regions are encouraged to continue to use gardening and agricultural scenarios for site-specific risk assessments, where appropriate.

6: Top-to-Bottom Review of Oversight Failures

Your final request asks EPA to undertake a top-to-bottom review of EPA's oversight of the Navy at HPNS.

CERCLA, its implementing regulations in the NCP, and Executive Order 12580 delegate CERCLA response authority at Federal Facility Superfund sites to the responsible Federal agency or department while EPA retains oversight authority and jointly selects remedies. At HPNS, the Navy is the lead agency and executes its CERCLA cleanup obligations with EPA oversight.

We know that the data fraud at HPNS caused a major breach of trust between the government and those in the community who rely on us to protect them. Community support is vital to effectively cleanup Superfund sites, and rebuilding trust in cleanup data is an EPA and Navy top priority. Both Agencies have committed to additional oversight of the radiological rework, and the Navy has been providing EPA additional resources to carry out this work since 2017. The Navy has also hired an independent contractor to provide third-party quality assurance review. EPA Region 9 and California state regulatory partners are providing independent field oversight to monitor Navy compliance with its Parcel G Soil Radiological Rework Work Plan finalized in July 2020. In addition, EPA and the state are independently analyzing soil samples to compare with Navy results. EPA will document these efforts in a future report.

EPA and the Navy are also working hard to rebuild trust and confidence in HPNS cleanup decisions. In December 2021, EPA and the Navy established an interagency working group to identify and resolve issues affecting remediation activities. The working group includes senior leadership from EPA headquarters and Region 9, the Navy, and California state regulators. This group meets on a regular basis to track site cleanup progress and resolve outstanding issues. Region 9 has also assigned senior staff to provide oversight of the Navy's cleanup work and continues to focus considerable resources on the re-examination of areas impacted by the fraudulent data. To further enhance these resources, EPA senior leadership in headquarters offices, including the Offices of Land and Emergency Management, Enforcement and Compliance Assurance and General Counsel, are engaged on key elements of the work at HPNS to ensure consistency with EPA policies and guidance intended to result in protective remedies.

EPA is committed to working with the Navy and other stakeholders to strengthen engagement with the Hunters Point community. In May, August, October, and December 2021, EPA leadership met virtually and in person with community representatives, including your group, to hear first-hand about community experiences and concerns. While we cannot undo the past, EPA will continue to work with the Navy using the tools and resources at our disposal to regain the community's trust by protecting their health and the environment where they live and work.