



January 17, 2020

The Honorable London Breed
Mayor
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102

Dear Mayor Breed,

I am pleased to present to you the final report by a committee of independent scientists at the University of California, San Francisco (UCSF), and the University of California, Berkeley (UCB), on the radiation testing protocols being used at the Hunters Point Shipyard.

In April 2019, you, City Attorney Dennis Herrera, and Supervisor Shamann Walton asked us to review the appropriateness of the testing protocols that the U.S. Navy and the California Department of Public Health are using, and are proposing to use, in their assessment of radiation contamination of Parcels A and G at the Hunters Point Naval Shipyard.

At your request, UCSF Chancellor Hawgood appointed this independent committee of UCSF and UCB scientists to offer an independent, scientific review of the testing protocols, at no charge to the City.

We hope this report supports the City and County of San Francisco as it evaluates the clean-up of the Hunters Point Shipyard and makes land use decisions in the best interest of the communities we all serve and care deeply about.

Sincerely,

John R. Balmes, MD
Chair, Committee to Review Hunters Point Radiation Testing Protocols and Data
Professor of Medicine, UCSF
Professor of Environmental Health Sciences, School of Public Health, UC Berkeley
Director, Northern California Center for Occupational and Environmental Health, UC Berkeley-UC Davis-UCSF
Director, UC Berkeley-UCSF Joint Medical Program

**Report to Mayor Breed, City Attorney Herrera, and Supervisor Walton from
the UC San Francisco-UC Berkeley (UCSF-UCB) Committee to Review
Hunters Point Radiation Testing Protocols and Data**

Members appointed by UCSF Chancellor Sam Hawgood:

John R. Balmes, MD, chair; Thomas E. McKone, PhD; Kirk R. Smith, PhD; Kai Vetter, PhD

Executive Summary: At the request of City and County of San Francisco (CCSF) leadership, UCSF Chancellor Hawgood appointed an independent committee of UCSF and UCB scientists to review the appropriateness of the testing protocols that have been used and are being proposed to assess radiation contamination of Parcels A and G at the Hunters Point Naval Shipyard. The primary findings and recommendations of the committee's review are as follows:

- The committee judges the gamma scanning of the surface soil of Parcel A performed by the Radiological Health Branch of the CDPH to be appropriate as a health and safety survey. The history of development on Parcel A, which was formerly used for naval officer housing and subsequently extensively excavated, suggests that it is unlikely that radioactive materials are buried deeper in the soil of the parcel. The committee recommends that the City and County of San Francisco hold an informational meeting with the residents of Parcel A to discuss the cost and benefits of further radiation testing of the parcel.
- The committee judges the planned approach to retesting of Parcel G to be appropriate if the final plan meets with EPA approval. The committee strongly recommends that CCSF work closely with EPA re: oversight of the Navy's plan for retesting.
- The committee agrees with the EPA that a final protectiveness determination regarding Parcel G should not be made until all of the retesting data are available for review.
- Communications with and engagement of community stakeholders should be improved and the committee is committed to a public presentation of its findings.

Overview: In April 2019, The Mayor and City Attorney of San Francisco and Supervisor Walton asked the UCSF Chancellor, Sam Hawgood, for expert assistance on evaluating the problem of radiation contamination at the former Hunters Point Naval Shipyard that is now being developed for residential construction. Chancellor Hawgood appointed a committee to provide the requested assistance. The Mayor and Chancellor charged the committee to conduct an independent and objective assessment of the appropriateness and sufficiency of the radiation testing of Parcel A (already turned over to the City and County of San Francisco (CCSF)) and the protocol to be used by a contractor for the US Navy to test Parcel G (the next parcel scheduled to be turned over to the CCSF).

Charge:

- A. Review and comment on the effectiveness of the protocol used by the California Department of Public Health (CDPH) to test for radiation contamination in Hunters Point Parcel A;
- B. Review and comment on the results of the CDPH testing, focusing on the quality of the results for decision-making purposes;
- C. Review and comment on the effectiveness of the protocol that is being proposed by the US Navy to test for radiation contamination of soil in Hunters Point Parcel G.

Activities Completed:

- 1. Conducted key interviews with representatives of the SFDPH, US Navy, and US EPA, as well as Professor Kathryn Higley from Oregon State University, a US Navy consultant (Dr. McKone).
- 2. Met with and received materials from Robert Mullaney and his student colleagues of the Golden Gate University School of Law Environmental Law and Justice Clinic.
- 3. Participated (Dr. Balmes) in a special community meeting of the Hunters Point Shipyard Citizens Advisory Committee (CAC) on July 17, 2019.
- 4. Participated (Dr. Balmes) in a conference call with Drs. Ahimsa Porter Sumchai and Ramona Tascoe. Dr. Sumchai also provided materials that were reviewed by the committee.
- 5. Reviewed hard copy materials submitted by Dr. Tomas Aragon of the SFDPH.
- 6. Reviewed slides from the presentation by Dr. Daniel Hirsch, President of the Committee to Bridge the Gap, at the January 29, 2019 meeting of the CAC Environmental and Reuse Subcommittee.
- 7. Participated (Dr. Balmes) in a conference call with Mark Starr and Gonzalo Perez of the Radiological Health Branch of the CDPH about the health and safety survey of Parcel A conducted by the Branch. Reviewed slides from the presentation by the Branch at the February 25, 2019 meeting of the CAC Environmental and Reuse Subcommittee. Reviewed the extensive materials about the health and safety survey of Parcel A posted on the Branch website.
- 8. Toured the Hunters Point Naval Shipyard guided by Derek Robinson, a civilian employee of the US Navy.
- 9. Interviewed (Dr. Smith), and reviewed materials from, Dr. Reza Shirazi, a post-doctoral fellow of the Institute of Urban and Regional Development at UC Berkeley.

Findings:

1. Charges A and B: Parcel A

The committee judges the gamma scanning of the surface soil of Parcel A performed by the Radiological Health Branch of the CDPH to be appropriate as a health and safety survey. The history of development on Parcel A, which was formerly used for naval officer housing and

subsequently extensively excavated, suggests that it is unlikely that radioactive materials are buried deeper in the soil of the parcel. The committee recommends that the City and County of San Francisco hold an informational meeting with the residents of Parcel A to discuss the cost and benefits of further radiation testing of the parcel.

Parcel A was developed without radiation testing based on historical information that no radiation-generating activities were conducted in that area. Parcel A has been divided into two areas: Parcel A-1 and Parcel A-2. The original development occurred on Parcel A-1 with development of Parcel A-2 to follow. The subsequent detection of the radium-containing deck marker in Parcel A-1 undermined public confidence that the historical review was sufficient.

The CDPH Radiological Health Branch scanning of Parcel A-1 was for gamma radiation and was done after the residential development of the site. The CDPH scanning was a health and safety survey rather than testing for remediation of a known radiation-contaminated site. It was successful in uncovering the deck marker. The deck marker was located at the bottom of a slope at the border of Parcel A-1 near a former shipyard gate, not where residential housing has been built. The top layer of the Parcel A-1 hill was excavated for residential development. Because Parcel A-1 has undergone extensive development, including grading and removal of soil that was at depth, it is unlikely that more radioactive materials are present. Parcel A-2 was surveyed because it is planned for development with housing units and because much of the soil at depth excavated during the development of Parcel A-1 was placed on Parcel A-2. Because of concerns expressed by residents of Parcel A-1 that fugitive dust containing fission products from other areas of the shipyard might have blown over Parcel A, the CDPH conducted a voluntary dust wipe survey of some residences and art studios for alpha and beta radiation testing on Parcel A-1 early in 2019. According to the CDPH Radiological Health Branch final report about the dust wipe survey, “The survey did not find dust particles contaminated with alpha or beta radiation and did not find any radiation or health and safety risk to the residents and artists in the 77 units surveyed.”

The committee supports the CDPH conclusion, “that no radiological health and safety hazards to the residents of Parcel A-1 were observed.” Given the low likelihood that additional radioactive materials will be found and the considerable disruption associated with additional excavation and monitoring, any plans for more extensive radiation testing in Parcel A should be considered with input from the current residents in terms of the costs (in terms of disruption) relative to benefits of any small gains in confidence about the absence of radioactive materials.

2. Charge C: Parcel G

The committee judges the planned approach to retesting of Parcel G to be appropriate if the final plan meets with EPA approval. The committee strongly endorses EPA oversight of the Navy’s plan for retesting.

Parcel G is the area where fraudulent testing by Tetra Tech occurred. Under federal Base Realignment and Closure (BRAC) rules, the US Navy is required to submit a retesting plan to the US EPA for review. On June 28, 2019, the Navy released its final work plan for retesting Parcel G. The EPA has approved the collection and analysis methods for radiological background testing of soil samples described in Appendix C to the Navy’s Parcel G Work Plan. The samples were collected in

August/September and data analysis is in process. The committee notes, however, that there are still unresolved issues with regard to EPA concerns (see below).

On July 31, 2019, the Navy released its latest Five-Year Review report for the Hunters Point Naval Shipyard (HPNS) required by the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The Navy stated that “This Five-Year Review Report also reiterates the Navy’s previous discovery and acknowledgement that data from a significant portion of the radiological survey and remediation work completed by Tetra Tech at HPNS was not reliable. The planned retesting of affected parcels will address these issues and enable further evaluation of the cleanup efforts.”

The planned retesting of Parcel G basically follows the originally approved plan for testing that was fraudulently conducted by Tetra Tech. It again focuses on drainage sites because radionuclides were washed down sinks in buildings on Parcel G. The plan calls for re-excavation of 33% of the trench sites used by Tetra Tech for the original testing (21 of 63 sites) and collection of soil samples for laboratory analysis. A decision on the need to excavate the remaining trenches will be dependent on soil sampling results from the initial 33%. If one of the 21 re-excavated sites has a positive laboratory result then all 63 sites will be dug out for laboratory testing of soil samples. If there is no positive result from the soil sampling of the initial 21 sites, soil cores from the other 42 sites will be scanned. Surface radiological scanning will be done for all 63 trench sites and buildings on Parcel G will be scanned as well.

Final EPA approval of the Navy’s plan for Parcel G re-testing has not occurred as of the writing of this report. Based on our discussions with representatives of the US EPA, however, we expect the overall plan described above not to significantly change after the agency’s review. That said, the EPA still has some differences to resolve with the Navy, including over the scanning technology, air monitoring, and dust control during testing. The committee is not clear whether the planned scanning of Parcel G trench sites and buildings will include scanning for alpha and beta radiation as well as gamma radiation.

An additional issue is the appropriateness of the soil remediation goals established by the Navy for Parcel G. In a letter dated November 15, 2019 from the US EPA to the US Navy, the EPA stated the following:

“In the draft addendum, the Navy concludes that the soil radiological remediation goals are protective for all future land uses, including residential. We recognize that the evaluation makes some Site-specific conservative assumptions that may not reflect actual conditions at the Site. However, at this time, EPA cannot verify that the soil radiological remediation goals are protective of human health for long-term protectiveness.”

The committee also notes that a final protectiveness determination regarding Parcel G should not be made until all of the retesting data are available for review

The committee is in general agreement with the concerns that the EPA has expressed regarding both the planned retesting of, and the soil remediation goals for, Parcel G as proposed by the Navy. The committee thinks that the EPA’s evaluation and the Navy’s expected revisions in response to the evaluation should result in very high confidence about the safety of Parcel G for future habitation.

3. Communications

Communications with community stakeholders should be improved.

While working to respond to our formal charges, the committee became aware of the need to improve communications with stakeholders, especially current residents of Parcel A and people living in the Bayview neighborhood. The depth of mistrust toward the US Navy, and increasingly, other government agencies involved, should not be underestimated. Every effort should be made to encourage the Navy to fully inform and engage the community during all stages of the retesting and remediation process. Community access to qualified independent experts would be helpful in this regard.

An additional challenge is created by the information communicated to the public by the Navy in flyers with wording such as "no risk to human health" (rather than "no radioactivity detected above baseline levels"). Rather than minimizing risk, the committee advises that public information about risk should be conveyed in a way that is consistent with what the data actually show.