

BRAC - Subbase New London and Portsmouth Naval Shipyard
Radiological Information

July 1, 2005

This is to provide information regarding potential radiological cleanup costs were Submarine Base New London or Portsmouth Naval Shipyard to be closed under BRAC.

Historical Radiological Assessment (HRA): The Navy began preparing HRAs in 1993, following the EPA's Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Preliminary Assessment process, to document historical radiological control practices and environmental monitoring for radioactivity. The HRAs are exhaustive in detail. The level of effort to prepare one greatly exceeded that expected by the EPA for a Preliminary Assessment per their guidance document. The HRA for Subbase New London was finalized in 1997; the HRA for Portsmouth in 1998.

The HRAs identified past and current radiological work activities, the results of extensive Navy radiological environmental monitoring, and the results of EPA overcheck surveys. No further action was warranted within the CERCLA process to address radioactivity at either site. Following review by EPA and the state, and resolution of their comments, the finalized HRA was presented to the Restoration Advisory Board (RAB), and copies were placed in local libraries along with all references and regulatory correspondence.

The Navy began preparation of an update to the Subbase HRA in late 2004. There is no regulatory or BRAC requirement that HRAs be updated. The update is being prepared solely at the Navy's direction, and the decision to prepare an update long predates the BRAC process. This decision applies to all the Navy's operating nuclear-capable bases and shipyards where HRAs have previously been completed. Since updates are discretionary, they are being prepared as personnel are available.

The intent of the update is simply to document in one convenient place an additional 10 years of radiological environmental results, all of which continue to reflect the same conclusion as the original HRA -- that Navy activities have had no adverse impact on the human population or ecosystem of the region. The reason this continues to be the case is the result of how the Navy does business on a day-to-day basis, using very high standards for radiological controls, training, and close oversight of work.

Each year the Navy provides to host states, and their Congressional delegations, brief summaries of environmental monitoring results in the annual Navy booklet, *Environmental Monitoring and Disposal of Radioactive Wastes from U.S. Naval Nuclear-Powered Ships and Their Support Facilities*. For Subbase, as noted in the June 8, 2005 op-ed article from RDML Mark W. Kenny in *The Day* (New London), the barely detectable traces of radioactivity still present in the river sediment today, less than 1 percent of the levels of naturally-occurring radioactivity, require no further action either by U.S. or international standards. At Portsmouth, neither Navy nor EPA surveys detect Navy-related radioactivity in the sediment.

Base Closure Radiological Costs: Base closure radiological costs were included in the total one-time costs associated with base closure, as part of the BRAC analysis.

The Navy's standard for radiological closure of a nuclear-capable facility is to perform surveys and sampling to "prove the negative." We have substantial knowledge of existing site conditions due to our extensive routine monitoring. We perform closure surveys to verify these conditions to the satisfaction of all parties so the site can be radiologically released for *unrestricted future use*. For example, the Navy has extensive and relatively recent experience in closing facilities that performed complex radiological work, including nuclear refuelings, and releasing them for unrestricted future use with respect to radioactivity: Charleston and Mare Island Naval Shipyards between 1993 and 1996, and the former SIC Prototype nuclear reactor plant (used for training sailors) in Windsor, Connecticut (completed in 2001). EPA and the states were fully involved throughout these processes. An example of how the Navy does business is the fact that during the verification survey, sample, and remediation process to release Charleston and Mare Island Naval Shipyards, the total amount of Naval Nuclear Propulsion Program radioactivity found in the environment that required cleanup was only two to three microcuries at each facility, about the amount of radioactivity in a single home smoke detector.

Our experience provides a firm basis for developing estimates to close facilities that did similar radiological work and which have similar radiological histories. Actual costs for radiologically closing Charleston and Mare Island are most relevant for closing shipyards and Naval bases, and were used for comparison to determine realistic closure cost estimates for other potentially closing facilities. The resulting one-time costs were included in the BRAC totals that were used in the decision-making process.

For Subase New London, the total was \$9.95M: \$3.44M for surveys and sampling, \$3.28M for facility dismantlement, and \$3.23M for radiological waste disposal. The survey total was based on release of 624,832 square feet for the Naval Nuclear Propulsion Program (NNPP), and 269,073 square feet for general radioactive material (G-RAM; all Navy non-NNPP applications of radioactivity, such as medical or historical radium use).

For Portsmouth Naval Shipyard, the total was \$150M: \$26M for surveys and sampling, \$83.7M for facility dismantlement and shipping reusable equipment elsewhere, and \$40.3M for waste disposal. The survey total was based on release of 4,859,068 square feet for the Naval Nuclear Propulsion Program, and 51,202 square feet for general radioactive material (G-RAM).

These costs were included in the one-time cost estimates for BRAC, not in the waste management and environmental compliance cost estimates, since they are related to shutdown costs and confirming the facility is acceptable for unrestricted use.

Compliance with FFA: The Subase Federal Facility Agreement (FFA) would be readily satisfied with respect to radioactivity, by completion of the above closure process, should it be selected for closure.