9.0 RECOMMENDATIONS

Based on the results and conclusions of the Phase II RI at WBG, it is recommended that an FS be performed to evaluate potential remedial options. In addition to the conventional scope of an FS, the following components are recommended:

- An Ordnance and Explosive (OE) survey of the entire WBG is recommended to locate and designate for removal all potentially remaining OE. Any remedial activity should be preceded by an OE sweep, to identify potential explosive hazards.

  (Involve the U.S. Army Ordnance and Explosives Center of Expertise in the project to recommend appropriate procedures to locate and mitigate all potentially remaining OE waste, as well as any UXO. Incorporate OE provisions into ongoing hazardous, toxic, and radioactive waste activities to increase overall efficiency and cost effectiveness.)

- Installation and sampling of 6 to 8 additional groundwater monitoring wells, in addition to another round of sampling of existing groundwater wells at WBG, is recommended to further characterize the AOC and to augment the current groundwater chemical data set. The exact locations of 6 to 8 additional wells shall be determined in the course of the FS.

- Following the collection of additional groundwater characterization data, soil leachate modeling and groundwater flow and contaminant transport modeling are recommended to facilitate decision-making regarding potential remedies for groundwater contamination.

  (If significant groundwater contamination is found, consider conducting soil leachate modeling and groundwater flow and contaminant transport modeling prior to completion of the FS.)

- Re-characterization of groundwater risk is recommended following the additional groundwater characterization and modeling efforts.

- A statistical grid-sampling approach should be considered as a means of evaluating surface soils in areas of the WBG where burning activities were not known to occur.

- Due to the non-uniform, sporadic distribution of contaminants in soils at burning pads at WBG, it is recommended that the horizontal distribution of selected pads, i.e., those with highest risk, be evaluated during remedial action using field screening-level analyses for metals and explosives and confirmatory laboratory analysis.

- A ground-truthing approach to better defining ecological risk should be considered rather than continuing with conventional HQ computations. The screening ERA has shown ecological risk (high HQs) at some pads. Following EPA guidance, a baseline ERA is the next step. In lieu of traditional computations using less and less conservative exposure and effects data, USACHPPM is developing a needed field-observed effects approach to facilitate faster and better recommendations and decisions about cleanup to protect ecological receptors. Replacement of the traditional re-computation approach with real observations of potentially stressed plants and animals in the field serves to "ground truth" the results of the screening ERA. Because this is a relatively innovative approach, development of methods and thresholds is necessary to implement it.

Additional recommendations for the evolution of the IRP at RVAAP are as follows:

- A facility-wide risk assessment work plan and methodology is highly recommended as a means to establish agreed-upon exposure scenarios, technical assumptions, and methods and reporting of computations for evaluating both human health and ecological risk in this and other AOCs. The facility-wide plan would also incorporate new methods, such as the "field truthing" approach to evaluating ecological risk. Water is the connection between and beyond the AOCs, and it would be prudent to acknowledge the integration of groundwater in the establishment of a facility-wide approach to risk.

- In addition, an integrated environmental management system is recommended to provide RVAAP a means to capitalize upon data collected across space and time at WBG and other AOCs. An electronic, web-based data system would allow for more efficient management of the growing RVAAP data base, provide a means for the regulators and the public to access the document, and permit the best use of data shared between, for example, the OHARNG and the Army.

- Long-term land use and natural resource management at the facility in conjunction with environmental restoration will be determined, to a large extent, by the OHARNG, as they are projected to assume responsibility for AOCs that are remediated. In light of this, it is recommended that the Army and the OHARNG share all data gathered and communicate through existing channels.