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NAVSTA LONG BEACH  
SSIC NO. 5090.3.A

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MAY 19 2014

Mr. Alan Hsu  
California Environmental Protection Agency  
Department of Toxic Substances Control  
5796 Corporate Avenue  
Cypress, CA 90630

Mr. Robert Ehe  
California Regional Water Quality Control Board  
Los Angeles Region  
320 W. 4<sup>th</sup> Street, Suite 200  
Los Angeles, CA 90013

Dear Mr. Hsu:

SUBJECT: FINAL SUPPLEMENTAL RADIOLOGICAL ASSESSMENT OF  
INSTALLATION RESTORATION SITES 1 AND 2, LONG BEACH  
NAVAL COMPLEX, LONG BEACH, CALIFORNIA

Enclosed for your use is the Final Supplemental Radiological Assessment Report for Installation Restoration (IR) Sites 1 and 2, former Long Beach Naval Complex, Long Beach, California. The primary goal of this radiological assessment was to evaluate potential radiological risk to industrial workers from exposure to surface soil at IR Sites 1 and 2; a secondary goal was acquiring additional site characterization data for refining the Conceptual Site Model and assigning levels of impact to Survey Units (SUs). This Final Radiological Assessment Report incorporates, as appropriate, responses to Agency comments (RTCs) on the Draft version of the Report from California Department of Public Health (CDPH) and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC); RTCs are included in Appendix F.

You will note that the Final Report also includes additional evaluations of the total effective dose equivalents (TEDEs) and human health risks (HHRs) based on the on-site laboratory results for the Radium-226 (<sup>226</sup>Ra) gamma peak (at 186 Kilo-electronvolts [keV]) and the off-site laboratory results using Bismuth-214 (<sup>214</sup>Bi), adjusted for decay loss to approximate the <sup>226</sup>Ra activity. These evaluations showed that both methods for determining TEDE and HHRs provided similar results.

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Using results from both methods described above, under an industrial worker scenario, TEDEs were found to be less than 5 millirems per year (mrem/yr) in 31 of the 33 (SUs). Maximum potential doses were estimated at 12.6 mrem/yr in SU 31 (using <sup>214</sup>Bi data) and 6.05 mrem/yr in SU 11 (using <sup>226</sup>Ra peak data). The total maximum excess lifetime cancer risks under an industrial worker scenario were estimated at 10<sup>-6</sup> in all 33 SUs using <sup>226</sup>Ra peak data and in 32 of the SUs using <sup>214</sup>Bi data. These results for excess lifetime cancer risk in the 10<sup>-6</sup> range for 32 of the 33 SUs and at 10<sup>-5</sup> range for one SU (SU 31 at the Sea Launch Facility) indicate a low exposure risk for the industrial worker at Sites 1 and 2.

Any comments you may have on this Final Radiological Assessment Report will be addressed in future project documents. If you have any questions, please contact me or Mr. James Whitcomb, Lead Remedial Project Manager, at (619) 532-0936 or james.h.whitcomb@navy.mil.

Sincerely,



JAMES T. CALLIAN  
BRAC Environmental Coordinator  
By direction of the Director

Enclosure: 1. Final Supplemental Radiological Assessment of Installation Restoration Sites 1 and 2, Long Beach Naval Complex, Long Beach, California

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