

Case Study: Radiological Remediation, Seaplane Lagoon Sediment, former Naval Air Station Alameda, Alameda, California

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This case study on successful remediation of sediment containing radium (Ra)-226 and other contaminants at a former Navy installation will highlight efficiencies related to good management practices, optimization, operation layout, and re-use of the removed sediment and Seaplane Lagoon. From the 1940s to 1975, industrial wastewater from maintenance operations and storm water generated at the former NAS Alameda were discharged directly into a network of storm sewer drains and pipes and carried into Seaplane Lagoon via outfalls. Radiological constituents associated with the application and removal of radioluminescent paints, containing radium (Ra)-226, were discharged into the lagoon. The Navy's investigation and assessment of sediments in Seaplane Lagoon (Site 17) showed unacceptable risk to human health and/or ecological receptors. Contaminants in the sediment included Ra-226, cadmium, chromium, lead, PCBs, and DDX (the pesticides dichlorodiphenyltrichloroethane [DDT]), dichlorodiphenyl-dichlorethane [DDD], and dichlorodiphenyl-dichloroethene [DDE]). Several source control measures were implemented, including using the surface contamination monitor (SCM) in Building 5. The remediation was conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The sediment remediation included the following: 1) pre-work plan sediment sampling, 2) work plan preparation and regulatory agency concurrence, 3) design and construction of dewatering pads and associated facilities, 4) dredging of contaminated sediments, 5) post-remediation sediment sampling to confirm the effectiveness of the remedial action, and 6) on-shore dewatering of the dredged sediments, surveying, sampling, and re-use or disposal of the sediments. In April 2016 the Navy's Base Realignment and Closure (BRAC) Office in San Diego, California transferred Seaplane Lagoon to the City of Alameda for beneficial re-use.