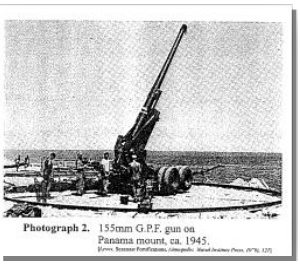
FY 2011 CHIEF OF NAVAL OPERATIONS
ENVIRONMENTAL AWARD COMPETITION

AWARD CATEGORY:
ENVIRONMENTAL RESTORATION, TEAM

INTRODUCTION

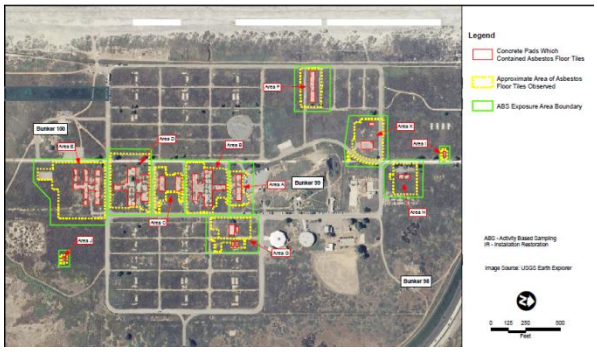
The Silver Strand Training Complex (SSTC) South, Naval Base Coronado, is an ideal location for urban combat training and is currently one of the Navy's premier training facilities for Naval Special Warfare (NSW) forces. The discovery of asbestos contamination at SSTC South forced training at this location to essentially stop in 2009. However, the Navy was able to resume training within 15 months through innovative use of best practices, by implementing a Time Critical Removal Action (TCRA), and conducting Activity Based Sampling (ABS), which mimics activities that occur or are expected to occur at a site to confirm conditions are protective of human health. The remediation approach used at SSTC South leveraged minimal pre-removal investigation, TCRA, and confirmation through ABS. Lessons learned from this removal action can be applied at similar asbestos sites at other Navy installations.

BACKGROUND



Photograph 2. 155mm G.P.F. gun on Panama mount, ca. 1945.

SSTC South is located on the Silver Strand, which bridges Coronado Island and Imperial Beach in southwestern San Diego County. SSTC South encompasses approximately 450 acres and is bordered to the west by the Pacific Ocean and to the east by San Diego Bay. In addition to being a training facility for military special forces, SSTC South is home to a large Wullenweber antenna.



A small Navy radio compass station was established at SSTC South in 1920. Radio communications would later become an integral mission of SSTC South. In 1942, Fort Emory was dedicated in honor of Brigadier General William H. Emory after the Army acquired 412 acres of land from Coronado Heights. As the war wound down in 1944, the Navy took over a portion of Fort Emory and this eventually became the Naval Radio Receiving Facility (NRRF). In 1950, the remainder of Fort Emory was ceded to the Navy, and by 1970 virtually all of the Fort Emory buildings had been demolished. Although the buildings of Fort Emory were demolished, concrete pads (some with intact remnant linoleum floor tiles) remained throughout the site where the buildings were formerly located. The

combined terrain of concrete pads and vegetation made SSTC South an ideal location for urban combat training.

During training exercises at SSTC South in 2009, Navy trainees and instructors came in contact with linoleum tiles which were still attached to the concrete pads. Red dust from red linoleum tiles adhered to the trainees' clothing. The red dust triggered an investigation into the composition of the linoleum tiles, which were determined to be asbestos containing material (ACM). As a result, training exercises were immediately halted and relocated while the Navy researched options for quickly remediating the site. After the determination that ACM existed at portions of SSTC South, the NBC Installation Environmental Program (IEPM) petitioned for the site to be entered into the Navy Installation Restoration (IR) Program and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. The CERCLA process provided the framework for the TCRA at the newly designate IR Site 11.

REDUCING HEALTH RISK

To prevent a release of asbestos to the environment, it was determined that the linoleum tiles, the mastic (used to adhere the tiles to the concrete pads), and the surface soil adjacent to the concrete pads (containing fragments of linoleum tile) needed to be removed. The TCRA was designed by Enviro Compliance Solutions Incorporated (ECS), CDM Federal Programs Corporation (CDM), and SRC Incorporated (SRC) and implemented by Allied Industries Incorporated (Allied). Allied used visual observation to determine when linoleum tiles, mastic, and soils containing tile fragments were removed from the site. Although tiles and mastic are readily visible, asbestos fibers are too small to be seen with the naked eye.

INVESTIGATION AND PREPARATION

A Removal Site Evaluation (RSE) was conducted to determine the number and location of concrete pads with linoleum tiles at the site. Information collected during the RSE was used to:

- Write an Action Memorandum (AM), which documented the risk posed by the linoleum tiles and the need for TCRA;
- Write a Removal Action Work Plan (RAWP), which described the procedures to be utilized during the TCRA;
- Write a Post-Removal Action Sampling Work Plan, which described the confirmation ABS procedures; and
- Plan community involvement.

These four components were performed simultaneously to meet the aggressive schedule needed to quickly resume training activities at SSTC South.

CONFIRMATION OF CLEANUP

To ensure protection of human health, confirmation sampling was required to verify the TCRA removed asbestos from the site. The analysis of asbestos in soil samples lacks the sensitivity to allow reliable quantification of asbestos below 1%. Additionally, there is no agreed-upon concentration of asbestos in soil that can be considered protective of human health because the relationship between asbestos levels in soil and the concentration in inhaled air appears to be highly variable. As a result of these limitations, the U.S. EPA recommends an approach in which risk from asbestos in soil is evaluated on measurements of asbestos in air rather than soil. *Framework for Investigation Asbestos-Contaminated Superfund Sites* (Office of Solid Waste and Emergency Response [OSWER] 2008) is the guidance for this approach which uses ABS as the confirmation sampling methods. ABS is a sampling technique used to collect air samples from the breathing zone of personnel engaging in realistic and representative activities that can release asbestos fibers from soil. The U.S. EPA's framework has been applied at other asbestos contaminated sites such as Libby, Montana and El Dorado Hills, California. ABS was used at SSTC South to confirm removal of asbestos.

CHALLENGES

The site posed several challenges, including preventing asbestos releases during the removal action, implementing the ABS confirmation sampling program, minimizing costs, and meeting the aggressive schedule needed to resume training exercises within 15 months. To overcome these challenges, the team applied lessons learned and experienced staff which helped reduce the steep learning curve associated with the removal of ACM and implementation of ABS.

To ensure no asbestos was released to the environment during the removal, loading, and transportation of ACM, soils, and vegetation, engineering controls for dust suppression and best management practices were used. Perimeter air monitoring was also used to verify that asbestos was not released into the environment.

Implementing ABS required the samplers to mimic the Navy's training exercise, while collecting samples from the breathing zone, to ensure realistic and representative samples were collected during activities that can release asbestos fibers from soil. This was extremely challenging for the samplers because of the strenuous nature of the training and the need for samplers to perform the training exercises in

Level "C" personnel protective equipment (PPE). Team members performing the ABS maintained a positive attitude despite the challenges.

Upon completion of the TCRA, all linoleum tiles, soils with tile chips, and vegetation surrounding the concrete pads had been removed, leaving large portions of the site bare when the confirmation ABS was conducted. Without vegetation, air sampling cassettes collected large volumes of dust during ABS. Air sample cassette filters with excess dust needed an additional preparation step to remove dust prior to laboratory analyses; this additional step is commonly referred to as indirect preparation. Analytical results of the samples that underwent indirect preparation showed higher concentrations of asbestos fibers than samples that did not undergo indirect preparation. An evaluation was conducted to determine whether the increase in concentrations was a result of the indirect preparation and therefore not representative of the actual site conditions. The evaluation consisted of having air sample cassette filters that had previously been analyzed by direct preparation reanalyzed by indirect preparation. The evaluation concluded that a correlation existed between increased concentrations of asbestos with the use of indirect preparation. This information was critical for managing project risks greater than 1×10^{-6}, but below 1×10^{-5} at some locations.

The cost of laboratory analyses was minimized with careful planning of sample collection and analyses. The analytical sensitivity of asbestos analyses on sample cassettes can have substantial cost impact on any project. The team achieved a balance between cost, analytical sensitivity necessary to perform the risk assessment, and duration of sample analyses. This achievement reduced the time that training exercises at SSTC South were suspended, kept the budget within limits, and determined that the TCRA was protective of human health.

To ensure the aggressive schedule was met, it was critical to complete the ABS before the rainy season. Rain prevents asbestos fibers from being released from the soil; therefore, ABS needs to be conducted in dry conditions. Through efficient planning and execution, the ABS was completed only hours before a major multi-day rain event.

STAKEHOLDER INVOLVEMENT

Meeting the project's challenges required a well organized and integrated team composed of experts across various municipal, state, federal and commercial organizations:

- Naval Facilities Engineering Command (NAVFAC) Environmental
- NAVFAC Facility Engineering Acquisition Division
- Navy Region Southwest
- United States Special Operations Command Naval Special Warfare Advanced Training Command (NSWATC)
- California Environmental Protection Agency Department of Toxic Substances Control

- California Regional Water Quality Control Board San Diego Region (RWQCB)
- San Diego County Planning and Land Use
- San Diego Air Pollution Control District
- The ECS Team (ECS, CDM, SRC, and Allied).

The San Diego Regional Water Quality Control Board (RWQCB) was the lead regulatory agency responsible for overseeing the TCRA for this project. In addition to the RWQCB, the citizens of Imperial Beach and Coronado comprised the stakeholders. A community involvement meeting was advertised to inform the public of the removal action at the site.

To maintain community involvement, the AM, RAWP, Post-Removal Action Sampling Work Plan, and Removal Action Completion Report (RACR) were made available to the community for their comment. A common sense approach to implementing the TCRA was taken to prevent disturbing the local residents and the adjacent YMCA youth camp. Access to SSTC South was modified to allow haul trucks direct access to Highway 75, which prevented large truck traffic in the residential neighborhoods adjacent to SSTC South.

MISSION SUPPORT

A Technical Memorandum was written with a human health risk assessment of Navy trainee and instructor ABS scenarios and an evaluation of OSHA occupational exposure. The Technical Memorandum determined that the TCRA was protective of human health. The Naval Medical Center in San Diego concurred with the findings of the Technical Memorandum and approved that training exercises could resume in April 2011. By prioritizing the use of the site for Navy training exercises and not unrestricted use, SSTC South was able to resume training Navy personnel as soon as practicable.

OPPORTUNITIES FOR SMALL DISADVANTAGED BUSINESS

The removal action and confirmation sampling at the site was conducted by Small Disadvantaged Business 8(a) companies (ECS and Allied) in partnership with large businesses including CDM and SRC. This partnering allowed CDM and SRC's previous experience from the Libby, Montana project to be passed to ECS and Allied, and thereby to the Navy.

CONCLUSION

At the conclusion of activities at this project, a single investigation provided information to allow a quick decision to implement a TCRA and confirm that the removal action was protective of human health through ABS; allowing vital NSW training to resume on the site as of April 2011. The recommendation that no further action is necessary at this site for unrestricted mission/land use is currently being evaluated by the RWQCB and expected to be approved. In addition, the lessons learned from this removal action can be applied at other asbestos sites throughout the Navy.