

INDUSTRIAL HYGIENE TEAMS WITH PWC TO EXPEDITE RAILCAR RESTORATION AT NWS EARLE

Naval Weapons Station (NWS) Earle, at Colts Neck, New Jersey, warehouses railroad cars that are used to move Navy ordnance to its ships at sea. During high military activity conditions such as *Operation Iraqi Freedom*, there is a need to get additional cars back into use. The older cars are ideal for transporting ordnance, because of their wooden floors. Unlike newer metal floors, the wooden floors have a lower chance of causing a spark, which could lead to an explosion when transporting ordnance. Before being restored and put back into service, the old railcars are subjected to a safety inspection by the NWS Public Works Transportation Superintendent to look for defects such as flaking surfaces.

There are approximately 280 railroad cars at NWS Earle. Sixty-five of the railcars needed repair work before being returned to service to move ordnance to the fleet during *Operation Iraqi Freedom*. The retired railcars had failed the safety



Ordnance being transferred to hangar deck aboard USS Harry S. Truman (CVN 75), on deployment in support of Operation Iraqi Freedom



Railcars await repair outside PWC building, NWS Earle

inspection due to deterioration of their ceilings. The ceilings had originally been covered with an adhesive tar material that, over time, had begun to crack and corrode. Since the work involved surface repair, Public Works recognized that before restoring those railcars, NWS Earle needed an industrial hygiene assessment to determine whether the ceiling materials contained asbestos, which could present a health hazard if disturbed. Industrial

hygiene is the scientific discipline dedicated to prevention of occupational diseases and injuries through recognition, evaluation, and elimination or control of over-exposures to physical and chemical hazards in the work environment.

The railcar repairs were a high priority, so National Naval Medical Center (NNMC) industrial hygienists stationed at NWS Earle were contacted by Public Works to assist with the restoration project. The work had to be done quickly, and the goal of the industrial hygienists was to ensure the workers were



Damaged ceiling tiles in railcar in need of repair

properly protected with controls that would not slow the job down. The NNMC industrial hygienists took samples of railcar ceiling materials and sent them to the Navy Environmental Health Center (NEHC), in Norfolk, Virginia for analysis. NEHC has a laboratory that is certified by the National Institute for Occupational Safety and Health (NIOSH) to determine the presence of asbestos in samples of materials submitted to them. NEHC's laboratory examined the samples of railcar ceiling materials and confirmed that the adhesive tar material contained significant amounts of asbestos.



Aviation Ordnanceman pushes a Guided Bomb Unit on the flight deck of USS Nimitz (CVN 68), deployed in support of Operation Iraqi Freedom

Asbestos was a widely used and very effective component in insulating, fireproofing, and soundproofing materials until it was found to be an inhalation health hazard. Asbestos does not present a health hazard when it remains bonded in an undamaged material. However, cutting, disintegration, or tearing of an asbestos-containing material releases very small asbestos fibers that create an inhalation hazard, which could lead to various lung diseases or certain kinds of cancer.

Protecting PWC employees from overexposure to asbestos fibers during railcar restoration is as important as expediting the refurbishment of railcars. Thus, NNMC industrial

hygienist Gil Clouser and NNMC industrial hygiene technician, Candy Velleri were very much involved in assessing the risk of occupational



Aviation Ordnancemen assigned to the “Top Hatters” of Strike Fighter Squadron Fourteen load laser guided munitions onto an F/A-18E Super Hornet on flight deck of USS Nimitz (CVN 68), during deployment in support of Operation Iraqi Freedom

exposure to airborne asbestos fibers during removal of railcar ceiling materials and managing risk factors so that workers and others in the area received maximum protection from inhalation of asbestos fibers.

Understanding the level of risk was essential in determining how best to protect workers from overexposures to asbestos. Mr. Clouser and Ms. Velleri reviewed extensive air monitoring data on airborne asbestos that had been collected during a previous railcar restoration project they had been involved with at NWS Earle. The data indicated that the previous operation, had released relatively few asbestos fibers. The impending project to restore 65 railcars was similar, and no additional damage of the ceiling material was expected, so the risk of release of asbestos fibers was anticipated to be very low. This was confirmed through additional new air samples.

Although sample data indicated that relatively few asbestos fibers would be released, the NNMC industrial hygiene team ensured that site workers and the work environment were maximally protected from contact with airborne asbestos fibers and dust. Candy Velleri monitored continually for airborne asbestos in the work environment throughout railcar restoration to verify that the risk of overexposure remained very low. Ms. Velleri monitored the workers and collected air samples during all work shifts to determine the amount of asbestos in the air within the railroad cars. She made arrangements with the Navy laboratory (NEPMU-2) to ensure that she had asbestos monitoring results as quickly as possible. The laboratory results confirmed that the workforce was safe from overexposure to asbestos.

Repairing 65 railcars was extremely labor-intensive; it sometimes took the three-man PWC team an entire day to repair one car. The first team, Tom Buble, Mike Bottone, and Gary Emerick, was from the Public Works

Maintenance and Utilities Branch at NWS Earle. They maximized their efficiency by working out of a building adjacent to the train tracks.

When the train cars pulled up at the building, the workers, wearing full-body protective clothing and respiratory protection, vacuum cleaned the cars with industrial vacuum cleaners fitted with special filters that prevent the release of asbestos fibers into the environment. After vacuuming, the workers placed protective plastic sheeting on the floor of the car and sprayed water onto the ceiling, soaking it thoroughly to saturate any



PWC clean up team members, wearing protective clothing, scrape railcar ceiling tiles in preparation for painting

asbestos, minimizing the risk of releasing asbestos fibers into the air. Then, they scraped the damaged ceiling area clean. At the end of each work shift, the workers sealed the plastic sheeting and other materials and debris that could be contaminated with asbestos into thick-walled plastic bags that were labeled and disposed of as hazardous waste. The workers also wet-cleaned and vacuumed the entire railroad car to



String of boxcars awaits asbestos removal before return to service

contain the dust and prevent it from becoming airborne. Next, Mr. Clouser visually inspected the worksite to make sure that all potentially hazardous wastes had been labeled, sealed, and removed for proper disposal.

The Navy also contracted with an impartial, third-party industrial hygiene consulting firm to monitor

the worksite for airborne asbestos fibers alongside the NNMC industrial hygiene team. This was done to avoid any appearance of a conflict of interest on the part of the Navy and to confirm that asbestos levels in the air were within safe limits. After the NNMC and consulting industrial hygienists verified that the railcars were clear of asbestos fibers, the clean up team began preparing to spray paint the scraped area of the

railcars with an encapsulating paint, which would contain any remaining asbestos from flaking in the future.

It was important that the restoration work be done within 30 days. A second clean up team, Cliff Campbell, Larry Rock and Paul Haasz, from Public Works Detachment Philadelphia, arrived at NWS Earle to help speed up the railcar renovation project. The Philadelphia team repaired railcars at a second location at NWS Earle. Candy Velleri also monitored the second repair site for airborne asbestos fibers. The monitoring results again verified that work procedures and protective measures were effective in preventing asbestos overexposures.

In addition to monitoring for asbestos, Ms. Velleri coordinated industrial hygiene team assignments with PWC management and the consulting industrial hygienist. Her management skills and resourcefulness helped to keep the project on track and within time restraints. PWC insulator supervisor Michael Roberts agreed, "Ms. Velleri kept the project going as smoothly as anyone could expect."

Three Navy groups - Public Works Earle, Public Works Detachment Philadelphia, and NNMC industrial hygiene - worked together to successfully complete the urgent railcar restoration project in time to meet the needs of the Navy during *Operation Iraqi Freedom*. The NNMC industrial hygiene team's support and effectiveness in protecting PWC employees from occupational illness ensured that the restoration project was completed without compromising the health or safety of the PWC workforce.

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Aviation Ordnanceman transfers an AIM-9 Sidewinder to a weapons elevator in the hanger bay aboard USS Nimitz (CVN 68) while deployed in support of Operation Iraqi Freedom.

