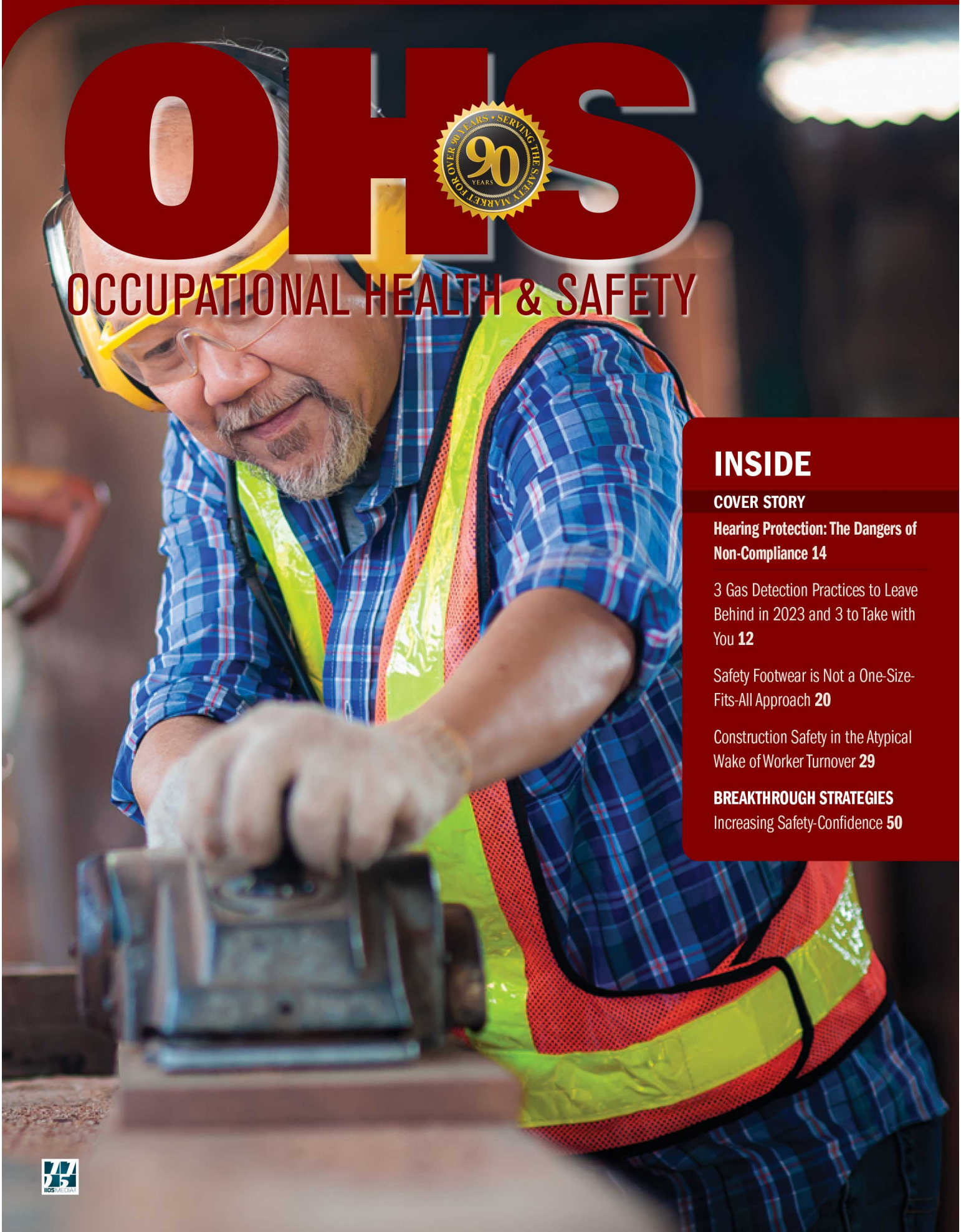
www.ohsonline.com FEBRUARY/MARCH 2023 | VOL. 92 NO. 1

OHS

OCCUPATIONAL HEALTH & SAFETY



INSIDE

A Leader in Worker Safety: A Case Study on a New Jersey Environmental Cleanup Project

The team, which achieved one million man-hours without a lost time accident, shares their best safety practices.

By JoAnne Castagna | Mar 17, 2023

It's the 1940s in Maywood, New Jersey. A new residential community has sprouted up and the homeowners want to beautify their front lawns, so they go to a nearby property to gather some fresh topsoil. Little did they know that they were helping to plant the seeds for one of the largest and most high-profile environmental cleanup projects in the nation.

The soil they gathered was from the grounds of Maywood Chemical Works, a company that disposed of radioactive waste on their property, as well as on a nearby wetland that's the headwaters for the Lodi Brook. This waterway carried contamination downstream and spread it onto its floodplains where these new residential communities were being built during the construction boom following World War II.

Decades ago, these residents and the company were unaware of what they were starting, but today, the U.S. Army Corps of Engineers, New York District, is resolving it.

The agency in cooperation with partners is cleaning up the community to make it safe for residents, while at the same time keeping their own workers safe. They've been so successful that they achieved one million man-hours without a lost time accident. This is a significant milestone for the Army Corps and not often achieved in the industry and something especially important on environmental cleanup projects. The team reached this success by carrying out safety best practices that will be shared here.

Worker Safety Best Practices

Not only is the health of the community important, but also the safety of the project's workers, especially when it comes to Formerly Utilized Sites Remedial Action Program (FUSRAP) projects. Michael Johnson, team leader, New York District, U.S. Army Corps of Engineers said, "Safety is very important for all construction projects and especially for FUSRAP projects because these projects introduce the workers to potential exposures to contaminants above and beyond your typical construction project hazards."

Because of this, the team has implemented a series of worker safety best practices for its workers. The team has been so successful in doing this that they achieved one million man-hours without a lost time accident. "This type of achievement is rare. This is the only project that I have worked on in the Army Corps that has achieved this milestone," said Johnson, who has worked on this project for 15 years. Following are some of the key worker safety best practices the team is performing that make this project a leader in worker safety.

A.M. Safety Counseling. Every morning, the workers take part in a short Daily Tailgate Meeting. According to Johnson, this 30-minute meeting sets the day for the team. During the meeting, they discuss several things including the project's safety analyses, which can include discussing the steps needed to get through the potential hazards of a specific job. They also discuss a safety topic of the day, which can include near misses or accidents that happened in the construction industry recently. Following this, they hold a Q&A session. and last, the workers get up and take to the floor for some stretching exercises before heading out to the job site.

Worker Empowerment. Workers are encouraged to have open dialogue to reduce workplace accidents. Johnson said, "For example, the workers have Stop Work Authority which means anyone on the job has the authority to stop the project [if] they observe unsafe conditions or behavior."

Safety Incentive Award Program. Each month, workers receive safety incentive awards for proactively taking steps to ensure safety on the project. According to Johnson, this program is a way to ensure inclusion for the project's safety commitment. The program is designed to have targeted goals that empower personnel to have "skin in the game" and encourages workers to proactively take ownership of the project safety culture by meeting those safety-oriented goals. In addition, each quarter, workers are selected by their peers as the "Quarterly Safety Performer," recognizing exemplary safety performance and achievement.

Bill Lorenz, vice president of Cabrera Services, Inc.— headquartered in East Hartford Connecticut—a contractor who plays an integral part in the project's safety measures, said, "We are recognizing and rewarding our employees, not only for noticing and taking actions to eliminate hazards from the job site, but also for making positive observations that illustrate a commitment to safety for everyone on the project."

Out of Sight, but not Out of Mind

Johnson said that hazardous waste projects and this one in particular have a unique danger – radiological hazards that are not visible to the naked eye.

According to Dan Kennedy, project manager, Environmental, Interagency & International Services Branch, New York District, U.S. Army Corps of Engineers, another hazard of radioactive materials is that they emit ionizing radiation, which means that a person can be exposed to radiation without even coming into contact with the material.

Because of this, specific precautions are being taken to protect workers through how the project is designed and through the use of personal protective equipment.

The project site is designed to minimize safety hazards. This includes making sure there is ventilation in all work areas and misting water on the soils during excavation to suppress dust and contaminants from becoming airborne.

In addition, zones are set up on the site to limit workers' exposure and reduce or eliminate potential cross-contamination. The Exclusion Zone is where the workers are performing the remediation work and dealing with the contaminated material; the Contamination Reduction Zone supports the workers in the Exclusion Zone; and the Support Zone supports the Reduction Zone workers and it's where workers prepare themselves to enter the Exclusion Zone.

To further limit worker exposure, workers wear PPE to protect their skin including an outer layer of protective disposable clothing, hard hats, safety glasses and shields and steel-toe safety.

At the end of the day, before workers leave the site, their hands, feet and clothing are monitored using radioactive detection instruments to ensure that radioactive materials have not adhered to a person before they leave the work site.

Although contaminated soils were accidentally placed onto Maywood, New Jersey's residential properties, it is no accident that the Army Corps workers who are cleaning up the community have done so without harming the residents or themselves in the process. This can be directly attributed to the safety best practices the workers perform every day that other project managers and engineers can learn from.

Lorenz added, "Our team's ability to achieve one million man-hours without a lost time accident while working on a FUSRAP project is remarkable. There is constantly some sort of high-risk, high-hazard type of activity occurring. We developed, emphasized, and implemented our approach to safety from the start and have routinely engaged

employees so that they know they have direct involvement in the program, and its success. With these employees, we've been able to create, and sustain a safety culture where our people actively care for one another, and everyone is looking out for each other, to make sure we all go home at the end of the day, safely."

FUSRAP Maywood Superfund Site

This project is being addressed by the Army Corps under FUSRAP, which is responsible for cleaning up radioactive waste generated during the early years of the nation's atomic energy program.

The Army Corps' New York District is the lead agency implementing the cleanup effort at the Maywood site and has four other active sites in the greater New York City area that it leads.

Kennedy said, "The FUSRAP has some of the most technically challenging remedial projects in the nation and doing it safely is the most important factor during any remedial action."

For over 50 years, Maywood Chemical Works processed monazite sand to extract thorium and other rare earth minerals used in industrial products, including mantles for gas lanterns, as well as processed lithium ores for use of lithium in commercial products. The chemical and radioactive thorium waste that resulted from this production was stored, treated or disposed of on the site into pits, piles and manmade lagoons.

During flooding events, this waste ran into Lodi Brook and was carried downstream into other waterways, contaminating sediment and soils over a large area near the brook. Fortunately, the groundwater was not contaminated. The primary way the contamination spread in the community was through Lodi Brook, but some residents also used soil from the site as fill on their properties, which added to the contamination.

Since this waste contained radioactive thorium, a potential human carcinogen, this posed a threat to human health and the environment.

The Army Corps is addressing the radioactive portions of the contamination under FUSRAP in collaboration with the EPA Region II, the New Jersey State Department of Environmental Protection, the contractor, Cabrera Services, Inc. and Stakeholders such as the Stepan Company, a current owner of a portion of the site that is responsible for removing the non-radioactive material from, in and around its property.

Radioactive material and soil are being remediated and potential groundwater contamination is being treated. All residential contaminated remediation has been

completed.

In addition, on the former Maywood Chemical Work's site, the Army Corps safely removed radioactive soil, contaminated buildings and metal drums that contained remnants of harmful solvents and degreasers.

Presently, the Army Corps is removing contaminated soil from underneath highways and roads that include hard-to-reach areas around utilities, including beneath the streets in the Borough of Lodi.

To date, over 830,130 cubic yards of contaminated soil and debris have been safely removed from the site. "This is equivalent to more than 11,000 railcars that we used to transport the material to landfills designed to safely contain these materials," said John Canby, project engineer, New York District. He added, "One hundred thirty-five million gallons of groundwater has been treated, which is equivalent to five oil supertankers!"

The project is expected to be completed in three years and includes the restoration of the wetland that is the headwaters of the Lodi Brook that carried much of the contamination downstream and throughout the region.

Throughout the project's progress, public safety measures have been in place for the community. These measures include continuous air monitoring, disposing of contaminated material to approved offsite locations, decontaminating the trucks that are transporting waste material off the properties, dust suppression measures, and traffic controls. In addition, regular community meetings are held to keep the public informed about the progress of the project and to address their concerns.

Photo caption: The team working on the FUSRAP Maywood Superfund Site in New Jersey in February 2023.

Photo credit: Nayelli Guerrero, Public Affairs, New York District.

About the Author

Dr. JoAnne Castagna is a public affairs specialist and writer for the U.S. Army Corps of Engineers, New York District. She can be reached at joanne.castagna@usace.army.mil.