



OU1 and PRS441 Removal Action

Miamisburg Mound/DOE, Miamisburg, OH - \$8.8 million

Overview: The final cleanup for the landfill at OU1 for DOE Miamisburg Mound facility was an extremely complex project with close scrutiny by the Ohio EPA, USEPA, and Department of Energy. This project was a high profile project on a national level; because it was funded directly by a congress line item. The landfill had to be moved and capped according to the requirements set forth by the Ohio EPA and USEPA, RCRA, and CERCLA rules and regulations. We co-authored the final design of the cap, the work plan, and the health and safety plan.

The removal was much more complicated than a standard removal action because the site had radioactive waste both in the landfill and below the landfill creating a mixed waste. The removal process required the temporary staging of approximately 60% of the waste on temporary liners adjacent to the site waiting for the analytical to profile the waste. This temporary liner system was designed and constructed by WQSi and was approved by all the regulators. It included a leachate collection system, daily cover during movement of the waste, and long term cover during the construction of the different phases of the project. The waste removed under the landfill included Thorium drums, Plutonium contaminated soil, Uranium contaminated soil, lab grade Chlorinated Solvents containers and associated contaminated soils, and PCB contaminated soils and debris. As an extra safety measure, WQSi designed a misting system mounted to the heavy equipment to eliminate the production of the extremely dangerous radioactive dust, but limited the water usage to avoid the potential ponding and contaminated water runoff. We also incorporated fog cannons to reduce dust generation. Once the waste profile was approved, the waste was taken to the rail spur staging area to be loaded in the rail cars. Once the rail cars were full, we would install the special cap for the rail cars and move it into place using the rail shuttle wagon. All activities were performed utilizing many levels of protection including LEVEL "B" SCBA protection, Level "C" respiratory protection, and modified level "D".

WQSi utilized six tracked excavators, six articulated dump trucks, two track dozers, large compaction equipment, hydroseeder, four loaders, water truck, backhoes, large 2nd member shear, concrete crusher, telescoping forklift, shuttle wagon, drill rig, direct push rig, scissor lift, and a skid steer to perform the work on this project.

The final stage of the project after the landfill was removed was removing the rail spur loading area. This area was the main loadout area for the entire waste disposition by rail car throughout the many years of waste shipping. This required the removal of the rail lines and any offsite migration of waste.

A couple of smaller side project required the removal of waste along a pipe line and a stream bank. We also filled in a large 3 acre sedimentation pond by removing, drying, and stabilizing the soft sediments at the bottom of the pond and importing soil from a borrow source.

DOE has also added scope to the project by including the demolition and removal of the waste water treatment plant and all the corresponding waste water piping. All of these systems were contaminated with Plutonium and other radioactive isotopes. The entire project, including options, was completed without any lost time injuries.

Project Challenges and Innovative Technical Solutions resulting in benefits to the client:

Maintenance of safe work activities Dust Control
Solution: As an extra safety measure, WQS designed a misting system on the heavy equipment to eliminate the production of the extremely dangerous radioactive dust, but limited the water usage to avoid the potential ponding, hydraulic loading of the groundwater, and contaminated water runoff.

Description of Management Approach:

WQSi implemented a very stringent safety program to prevent or minimize any potential safety issues. Daily (and change of task) tool box safety meetings were held with the safety personnel and all personnel were required to

sign off on Job Safety Analysis (JSA's) sheets. The safety information was presented in both written and verbal formats.

Because the project was so high profile with a fixed budget, a detailed cost and schedule tracking system was implemented to provide real time daily information as to cost and schedule performance. Senior level management was on site at all times to monitor site activities and to provide engineering support immediately when changes in conditions presented themselves, which happened frequently.

Performance Issues and Risks:

Due to the discovery of unexpected (mixed waste with PCB's, VOC's and Rad) contaminants, waste was required to be placed in 7 CY bags and shipped by rail for disposal. The bagging operation was a change in scope and required detail planning prior to implementation. A system of transporting waste to a staging area, an elaborate loading operation, transfer of loaded bags to the rail spur and loading of rail cars had to be established. The system required planning, approval from the DOE and regulators, training of personnel, and safe implementation.

Changes in waste characteristics and increased volumes dictated extension of the schedule and increase in cost. WQSi worked with the aRc (the main contractor) to minimize cost and limit schedule extension employing value engineered solutions.

Innovative Management Solutions:

Because the project was funds limited, the scope of work had priorities to be completed as funds allowed. Working with aRc, a web based cost tracking system was developed to capture cost on a daily basis. WQSi management inputted man hours, equipment hours, and materials purchased at the end of each work day, so the end client (DOE) could see the funds already spent. This system was shared on a secure website for the DOE to be able to view the real time costs on a daily basis and compare it with schedule performance. We had a management reserve to finish the projects that was adjusted monthly as the scope of work was being

completed; however, as the project was coming to completion, the reserve was adjusted weekly.



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