Manasota Plating

Greg Powell, Environmental Scientist, US EPA / Environmental Response Team: We're at the Manasota Plating site in Sarasota, Florida supporting EPA Region IV during emergency removal of contaminated soil. What's unique about this removal operation is generally; contaminated soils are just excavated and hauled off to either a hazardous waste landfill or a non-haz landfill. In this case the water table is so close to the surface that we're having to do a de-watering operation and water treatment in support of the soil removal. Once we've accomplished the dewatering we'll excavate the soils and backfill it with clean material.

Narrator: The electroplating company that occupied this site utilized a variety of acid baths, inorganic and organic compounds for the plating of copper, brass, chrome, and other metals. Many of these elements were found throughout the site.

Matthew B. Monsees, On-Scene Coordinator, US EPA Region IV: Well this plant operated for about 40 years as an electroplater. They went out of business in the late 80s. There were 61 vats of various sizes, oh, hundreds of drums, and hundreds and hundreds of other smaller containers, 3 to 6 inches of sludge on the floor. You know, the kind of waste that you expect to find in a plating shop that's been in business for 40 years. We found it here. And of course all that has been removed, the building's been torn down and we're at this final phase.

Where we are right now in the project is that we are in the process of installing our dewatering system, which is comprised of a horizontal system. We were running 4 lines across the length of the site, 3-inch perforated pipelines that are installed to a depth of below 6 feet, or limit of excavation will be 6 feet.

Narrator: Four runs of pipe approximately 120 feet in length, spaced 25 to 30 feet apart, were used to dewater this site. At the end of each run, a piece of non-perforated pipe or header is attached and plugged above ground so that it can be used as a clean out or access port. The other ends of each run are attached to an aboveground T-shaped manifold, which is in turn attached to a skid-mounted vacuum system. Each of the 4 runs hooked into the manifold is valved so that it can be pumped at different flow rates if necessary. The system can be in effect fine-tuned to achieve the overall site dewatering level required for excavation.

The machine used to trench and place the pipe is a modified caterpillar backhoe that was originally designed to place pipe at depths of 12 feet or less for farm irrigation. This machine installs a polyester fabric sock encased HDPE pipe in a straight path as it cuts a 14-inch wide trench approximately 6 feet deep. The trench is then backfilled with clean sand.

Much of the debris found on site was contaminated with cyanide, volatile organic compounds, and various heavy metals. A process known as debris washing was employed to remove or neutralize those contaminants so that the debris could then be disposed of at a Subtitle D non-hazardous waste landfill. The

government saved a substantial amount of money as a result of not having to dispose of the debris at a hazardous waste facility.

In order to determine groundwater contamination levels, upper aquifer monitor wells were installed throughout the site. Samples were drawn and tested from each well in order to map out the contaminant levels of volatile organic compounds, cadmium, chromium, copper, and zinc. Additional samples were drawn from the most contaminated well so that a treatability study could be performed for the removal of volatile organics such as trichloroethylene, trichloroethane, and dichloroethylene.

An aquifer test was also performed to determine the aquifer's characteristics. The results of this test were applied to a 2-dimensional model of the site in order to determine the most efficient placement of the horizontal wells. After water treatability studies were performed, it was determined that an on-site water treatment facility would be the most cost-effective way to treat the approximately 400,000 gallons of groundwater that was to be drawn from the site.

Matthew B. Monsees, On-Scene Coordinator, US EPA Region IV: We had 2, 20,000-gallon holding tanks at the front end of the treatment system where the groundwater will be pumped into. They'll serve as a surge and equalization tanks.

Narrator: The water will be pumped from the holding tanks to an air stripper to remove volatile organic compounds. It will then pass through a series of treatment chambers in which the hexavalent chrome is reduced to trivalent chrome, which is then precipitated out. The water then proceeds through a

clarifier and a series of filters and carbon polishers before being pumped into a 20,000-gallon holding. Random samples are drawn and analyzed by the field lab. When the water passes POTW treatment standards it will be batch discharged.

Greg Powell, Environmental Scientist, US EPA / Environmental Response Team: Within the ERT phase of the contractor's support we have a site geologist on-site to monitor monitoring wells as we dewater to make sure that we're reaching the capture zone that we want for the dewatering operation. We also have on-site engineering support for the water treatment to provide troubleshooting. They also are providing on-site analytical support for metals and volatile organics.

Narrator: Water samples are taken periodically throughout various stages of the treatment process to determine efficiency levels through the system. Each sample is tested by the lab chemist so that the necessary adjustments can be made to the system. Because the lab is on-site samples can be evaluated quickly without interrupting the treatment process. Once it is determined that the water meets the local utility's pretreatment standard, it will be discharged to the local POTW.

Sediment, soil, and surface water samples were collected from several down gradient locations around the site perimeter. Water samples were also taken from Pierce Creek and a retention pond on the northeast corner of an RV park adjacent to the site. No significant off-site contamination was found that could be traced back to the site.

Matthew B. Monsees, On-Scene Coordinator, US EPA Region IV: The soil will be removed for off-site disposal. We have approximately 3,000 yd^3 of soil that is non-hazardous that will be going to an industrial landfill or a landfill here in the state. We have also anywhere from 3 to 350 yd^3 of soil that's contaminated above the regulatory thresholds to make it a hazardous waste and that will be going for off-site disposal for stabilization and then landfill in accordance with the land restrictions.

Narrator: The Manasota Plating project was completed in only 3 years as a result of teamwork and cooperation among individual from a broad range of organizations and disciplines. The effective solutions such as on-site lab and water treatment facilities help to expedite the process of dealing with unique challenges. The results are a project that was finished in a timely and cost-efficient manner.