

Environmental Assessment and Soil Removal

Metal Hardware Manufacturing Facility, Mauldin, South Carolina

PROJECT DESCRIPTION

Rogers & Callcott Environmental conducted an environmental assessment and remediation project at an active manufacturing facility in Mauldin, SC. The assessment was conducted to determine if a plating line had impacted soil underlying the concrete floor. The plating line was located inside the facility and the project was fast-tracked to allow the client to resume a capital construction project without delay. The field investigation included phased sampling events of soil and groundwater related to soil removal. Field investigation began in May 2007, and soil removal was completed in September 2007.

ROGERS & CALLCOTT SERVICES

After coring holes in the concrete floor, underlying soil samples were collected and analyzed for metals, cyanide, and VOCs. Elevated concentrations of nickel were present in an area where nickel plating had occurred. Nickel concentrations were initially compared to the US EPA Region 9 Risk Based Concentration/Soil Screening Level of 130 mg/kg. However, a review of the calculations used to determine the SSL revealed an inconsistency. The calculations used the former Maximum Contaminant Level (MCL) for nickel of 0.100 mg/L as the applicable groundwater target. Since this MCL was remanded by EPA in 1995, the tap water PRG listed in the Region 9 RBC table (0.730 mg/L) was used as a more appropriate groundwater target, resulting in a revised SSL for nickel of 952 mg/kg.

Soil removal began in July 2007 in an area approximately 20 feet by 15 feet. Based on TCLP results, the removed concrete was recycled. The vertical extent of the soil removal was guided by additional soil sampling, including samples collected using direct push equipment. Rapid turnaround from the Rogers & Callcott laboratory resulted in no delays during soil removal. Based on the direct push sample results, soil was removed down to the water table within the target area.

The final depth of the excavation was approximately 15 feet. Approximately 315 tons of soil were removed and disposed of at a local subtitle D landfill. The excavation was backfilled with washed no. 57 stone and then capped with 1 foot of crusher run.



A groundwater assessment was conducted to determine if elevated concentrations of nickel in soil had impacted groundwater. Four temporary monitoring wells were installed at locations topographically upgradient, downgradient, and within 10 feet of the soil removal. Sample results indicated groundwater at the facility had been only minimally impacted by the nickel release in the source area at a level below the tap water standard. The absence of nickel in the downgradient samples further indicated that the areal extent of affected groundwater was not widespread. On November 6, 2007, we requested SCDHEC respond with a letter indicating no further action is required. SCDHEC provided a No Further Action letter on November 8, 2007.

Prior to this activity, a similar sampling program was conducted beneath an adjacent plating line. No elevated concentrations were found. Since the closeout of the two plating lines, the plant's wastewater treatment system was decommissioned and soil samples were collected from below four in-ground basins. Once again, no elevated constituent concentrations were detected and SCDHEC approved backfilling of the basins.