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Remedial Investigation Work Plan

Non-Residential Chromate Chemical Production Waste Sites – Site 016 (SRI-PI G000008791) Jersey City, New Jersey

Final - CID

Case Inventory Document
PPG Non-Residential Chromium Remediation Project
Remedial Investigation Work Plan - Site 016

I. Area(s) of Concern, Receptor and Emergency Response Tracking	*Impacted Media*	*Contaminants of Concern*	*Exposure Route^*	*Receptors*		*Current Status/Outcome*
				Existing	*Potential*	
Soil	Soil	Hexavalant Chromium ("Cr^{+6}") , antimony ("Sb"), chromium ("Cr"), nickel ("Ni"), thallium ("Tl"), and vanadium ("V")	Inhalation and Direct Contact (if soils are excavated)	Soil	Building employees, however IRMs are in place to prevent contact and/or inhalation of CCPW-impacted soil and dust and are inspected quarterly.	In May 1987, a sampling program was initiated by NJDOT, the results of which were prepared by L. Robert Kimball and Associates in September, 1988. One hundred soil samples were analyzed for total Cr, only 11 were also analyzed for Cr^{+6}. Total Cr concentrations ranged from 5 mg/kg to 6,790 mg/kg with the higher concentrations encountered near the eastern side of the easement along the drainage ditch (Claremont Ditch). Hexavalent chromium concentrations ranged from 0.01 mg/kg to 0.20 mg/kg. ES&E conducted a soil sampling program on behalf of NJDEP at Site 016 on January 19 and 20, 1987. Sixteen borings were advanced to 6 feet bgs; Hach methodology was used to analyze 47 soil samples for total Cr. Twenty seven samples were also submitted for laboratory analysis for total Cr. Of the 47 samples analyzed by the Hach method, 13 had total Cr concentrations > 200 mg/kg; of the 27 samples analyzed in the laboratory, 11 contained concentrations of total Cr > 500 mg/kg. Nine soil samples were submitted for Cr^{+6} analysis; the concentration of Cr^{+6} in all but one of these samples was <10 mg/kg. There was no indication in the ES&E report that this data had been formally validated. Based on visual and analytical evidence, ES&E reported that Site 016 had been partially filled with CCPW and/or CCPW-impacted material and was contaminated with Cr to a depth of about three feet below ground surface ("bgs"). In January 1992, ICF Kaiser initiated RI activities on behalf of PPG at the HCC Group 4 Sites, which includes Site 016. A total of 582 soil samples were analyzed for total Cr; 462 were also analyzed for Cr^{+6}. ICF created maps to show delineation areas of 500 mg/kg for total Cr and 10 mg/kg for Cr^{+6}. These areas primarily include the near-surface soils (fill) above the water table. CCPW and/or CCPW-related material was not encountered in any of the borings advanced within the Levy Warehouse, and only one soil sample from beneath the floor exceeded the delineation criteria. A sample collected from 4 - 6 feet bgs from the northeast corner of the Levy Warehouse had a total Cr concentration of 594 mg/kg but Cr^{+6} was not detected above the MDL. Interim remedial measures ("IRMs") implemented at Site 016 have included fencing and paving of the access road to the north of the Site. This IRM was conducted by PPG to reduce potential exposure to CCPW-impacted soils. PPG began implementing additional IRMs at Site 016 in 2008 to achieve clean closure in an area to be converted to loading docks by the occupant. CCPW-impacted soils were excavated in two areas along the east side of the warehouse building between December 19, 2008 and February 13, 2009. Approximately 3,140 cubic yards of material were removed and disposed of off-site. The two areas were then backfilled with certified clean dense graded aggregate and/or clean crushed stone. Additionally, Claremont Ditch, the drainage ditch immediately to the north of Site 016, was remediated prior to the construction of the Liberty National Golf Course and received an NFA determination from the NJDEP on August 3, 2004. Therefore, additional investigation is not proposed in this area. CCPW was not encountered in any of the borings advanced inside of the Site 016 warehouse building. However, CCPW and CCPW-impacted materials were identified on the Site outside of the building. Although extensive investigation has been conducted at the Site, additional investigation is required to the north and east of the Levy Warehouse building to accurately determine the extent of CCPW and CCPW-impacted material in those areas. To the south and west of the building, Cr^{+6} concentrations have not exceeded an estimated concentration of 5.9 mg/kg.

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Groundwater	Groundwater	Hexavalant Chromium ("Cr^{+6}") , antimony ("Sb"), chromium ("Cr"), nickel ("Ni"), thallium ("Tl"), and vanadium ("V")	Direct Contact (during groundwater sampling events)	Groundwater	Groundwater sampling crews. Groundwater is not used for potable purposes.	In May 1987, a sampling program was initiated by NJDOT, the results of which were prepared by L. Robert Kimball and Associates in September, 1988. Total Cr was detected in all three groundwater samples and concentrations ranged from 0.4 to 0.5 ppm. Hexavalent chromium was only detected in one groundwater sample at a concentration of 0.18 ppm. Investigation of the surface water and sediments along the banks of the drainage ditch were undertaken because of the potential for Cr to migrate to the ditch via groundwater and/or surface water run-off. One surface water sample was analyzed for total Cr and the concentration reported was 2,029 mg/kg, however it appears there was a quality control problem during sampling and/or analysis of that sample. ES&E conducted a surface water/sediment sampling program on behalf of NJDEP at Site 016 on January 19 and 20, 1987. Two surface water samples were collected at mid-depth and mid-stream in the drainage ditch. Surface water samples were analyzed for total Cr, Cr^{+6}, and total dissolved solids ("TDS"). Total Cr concentrations reported by the analytical laboratory for these samples were 48 µg/L and 55 µg/L. Hexavalent chromium concentrations were less than the 10 µg/L MDL. One sediment sample was collected from the drainage ditch at the same location as the downstream surface water sample. Total Cr in that sample was detected at a concentration of 1,200 mg/kg and Cr^{+6} was detected at a concentration of 0.1 mg/kg. In January 1992, ICF Kaiser initiated RI activities on behalf of PPG at the HCC Group 4 Sites, which includes Sites 016 and 112A. Total Cr was not detected in surface water samples collected upstream of the Route 185 Easement Area. Total Cr was detected at a concentration of 12 µg/L in the surface water sample collected adjacent to and just downstream of the easement, and at a concentration of 39 µg/L in the farthest downstream location. Hexavalent chromium was not detected in any of the surface water samples, indicating that the drainage ditch was minimally impacted by CCPW and/or CCPW-related material. Total Cr concentrations in filtered samples from the shallow water bearing zone were generally low or below the MDL in all but two samples. Hexavalent chromium was detected at concentrations >100 µg/L in unfiltered samples collected. Hexavalent chromium concentrations exceeded 100 µg/L in the filtered samples collected from two locations. These results indicate that CCPW had impacted the shallow groundwater zone at the site, specifically at Site 112A. The decrease in concentrations of total and Cr^{+6} from the first round to the second was attributed to the removal of the CCPW-impacted tank berms from Site 112A. Total Cr concentrations were either very low or below the MDL during both sampling rounds in the deep groundwater zone. Hexavalent chromium was detected at minimal concentrations in deep groundwater zone wells during the first sampling event but was not detected in any of the samples collected from the deep water-bearing zone during the second sampling event in October of 1992. ICF Kaiser concluded that there were no CCPW-related impacts in the deep groundwater zone (ICF Kaiser, 1993). Groundwater has been characterized across Site 016 through the installation of seven groundwater monitoring wells. Six of these wells were installed in the shallow water-bearing zone and one was installed the intermediate water-bearing zone (previously called the Deep Groundwater Zone by ICF Kaiser). Two rounds of groundwater samples were collected during the 1992 RI. During the October 1992 sampling event, filtered groundwater samples collected from the Site 016 groundwater monitoring wells reported total Cr concentrations ranging from non-detect to 7.09 µg/L. Hexavalent chromium was not reported above the MDL in any of these filtered samples.

Note:
^ Any CCPW and/or CCPW-impacted material remaining on the site is buried and only accessible during intrusive field work or excavation.