

Garfield Avenue Group Chrome Sites -
Case Name: Site 114
 G000005480, Activity Number
PI #: RPC000051

IMPORTANT: 1) Do not delete or copy and paste across multiple columns because it can disrupt hidden equations.

2) If pasting from a Word document, use the Paste option: **Match Destination Formatting**

3) If the text turns red you have exceeded the character limit for that column

Case Inventory Document Version 1.4 02/23/17

AOC ID	AOC Type	AOC Description	Confirmed Contamination	AOC Status	Status Date	Incident #	DEP AOC Number	Contaminated Media	Contaminants of Concern	Additional Contaminants of Concern	Additional Contaminants of Concern	Applicable Remediation Standard	Exposure Route	Additional Exposure Route	RA Type	Additional RA Type	Additional RA Type	Was an Order of Magnitude Evaluation Conducted?	Activity
114-1A	Environmental media - Media Soil, including soil vapor pore spaces	Chromate Chemical Production Waste (CCPW)-impacted soil in Site 114 (includes all of Site 114 except AOC 114-1B). Location of former chromite ore processing facility (Hudson County Chromate Site 114).	Yes	RAR	8/8/2019			Soil	Metals			AOC Specific ARS and Remediation Standards	Ingestion/Dermal	Inhalation	Excavation	In situ soil mixing (stabilization)	Other (specify in Activity column)		<p>This AOC includes Site 114, except portions of Grids A5B, A6B, A7B, and B7B within the Western Sliver; the area of exception is AOC 114-1B. Hexavalent chromium (Cr+6) and Chromate Chemical Production Waste (CCPW) metals are the constituents of concern (COCs) in this AOC. Remedial investigation on the Site 114 property was documented in the 2012 Remedial Investigation Report (RIR). Remedial investigation on adjacent properties and roadways was documented in the 2018 Supplemental Soil RIR. Additional delineation beyond adjacent properties, at Halsted and Ten West Apparel, is required and will be addressed separately under the PI numbers for those sites. No additional delineation under the Site 114 PI number G000005480 is proposed.</p> <p>For the Garfield Avenue (GA) Group Sites (including Site 114), the New Jersey Department of Environmental Protection (NJDEP) has approved an Alternative Remedial Standard (ARS) for vanadium (V) of 390 milligrams per kilogram (mg/kg) for use in place of the Residential Direct Contact Soil Remediation Standard (RDSCRS). Because the excavation at AOC 114-1A extended to below the average groundwater table, the Default Impact to Groundwater Soil Screening Levels (DIGWSSLs) do not apply.</p> <p>The April 2012 Draft Remedial Action Work Plan (RAWP) (Soil), Revision 2, for the GA Group, presented the plan for excavation and disposal of accessible source material and impacted soil, in accordance with the Chromium Policy, as the selected remedial action. The Draft RAWP was conditionally approved by the NJDEP. The Final RAWP (Soil) Rev. 4 was submitted in September 2018 and approved by NJDEP on November 9, 2018.</p> <p>The excavation of chromium-impacted soil in Site 114 began in July 2010 and was completed in November 2014. In-situ blending of a soil amendment, FerroBlack®-H, was conducted in partial Grid A13A as proposed in a January 2013 technical memorandum and was conditionally approved by NJDEP in January 2013. Soil concentrations of Cr+6 and CCPW metals remaining in place are in compliance with the Chromium Policy and/or the Soil Remediation Standards (SRSs) with the exception of antimony in Block 21501, Lot 20. Antimony remaining in place at concentrations greater than the RDSCRS is being addressed via an engineering control (Clean Fill Soil Cap of dense-graded aggregate greater than or equal to two-feet thick) and an institutional control (deed notice). Clean fill for a majority of the site was amended with FerroBlack-H. Restoration of Site 114 was completed in January 2018, except in IRM #1 where groundwater remediation is being conducted.</p>
114-1B	Environmental media - Media Soil, including soil vapor pore spaces	CCPW-impacted soil in portions of Grids A5B, A6B, A7B, and B7B within the Western Sliver. Location of former chromite ore processing facility (Hudson County Chromate Site 114).	Yes	RAW	8/8/2019			Soil	Metals			AOC Specific ARS and Remediation Standards	Ingestion/Dermal	Inhalation	Excavation	Chemical Reduction			<p>This AOC includes portions of Grids A5B, A6B, A7B, and B7B within the Western Sliver of Site 114. Cr+6 and CCPW metals are the COCs in this AOC. Remedial investigation on the Site 114 property was documented in the 2012 RIR. Remedial investigation on adjacent properties and roadways was completed, as documented in the 2018 Supplemental Soil RIR. Delineation is complete for Cr+6 and CCPW metals. Remediation is in process for Cr+6.</p> <p>The ARS applicable to AOC 114-1A also applies at AOC 114-1B.</p> <p>Excavation was conducted to elevation 1.2 feet in the North American Vertical Datum of 1988 (ft NAVD88) as the first phase of remedial action (RA). It was determined that soils remaining in place between approximately elevation 1.2 ft NAVD88 and -5.8 ft NAVD88 did not achieve compliance with the Chromium Policy. A second phase of RA consisting of in-situ reductive remediation of remaining soil impacts was proposed in the 2018 PPG Garfield Avenue Group Sites, Remedial Action Workplan Addendum, Site 114 Western Sliver Remediation, approved by NJDEP in October 2018. Results were reported in the May 2019 Western Sliver Post-Injection Sampling Results Memorandum. NJDEP, the City of Jersey City, Hampshire, and PPG conceptually agree with the proposed approach of putting the Western Sliver into an easement that encompasses the future eastern edge of the Garfield Avenue right-of-way, as defined in the Canal Crossing Redevelopment Plan. The Cr+6 impacts remaining in place within the Western Sliver could then be addressed with the contiguous impacts remaining in Garfield Avenue, in accordance with the Remedial Action Work Plan (Soil) – Garfield Avenue Roadway. Documentation of remediation for AOC 114-1B will be reported in a subsequent submittal.</p>
114-2	Environmental media - Media Soil, including soil vapor pore spaces	Manufactured gas plant (MGP)-impacted soil associated with the former MGP in the eastern portion of Site 114 (Phase 2 area)	Yes	RAR	8/8/2019			Soil	VO + PAHs	Metals		Remediation Standards	Ingestion/Dermal	Inhalation	Excavation	Capping	Institutional Control		<p>This AOC includes Phase 2 of Site 114, Grid Rows L through HH, Columns 18A through 15B. The COCs in this AOC are manufactured gas plant (MGP) -related constituents including: certain volatile organic compounds (VOCs) (benzene and 1,4-dichlorobenzene), and certain semi-volatile organic compounds (SVOCs) (1-1'-biphenyl; 2-methylnaphthalene; 3+4-methylphenol; benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; benzo(k)fluoranthene; dibenzo(a,h)anthracene; indeno(1,2,3-cd)pyrene; and naphthalene). PPG and Public Service Electric and Gas Company (PSEG) are jointly responsible for remediation of MGP-related impacts associated with the former Halladay Street Gas Works MGP.</p> <p>PSEG submitted a RAWP and RAWP Addendum in 2011 and 2012 to address MGP impacts by excavation and disposal of accessible source material and impacted soil down to meadow mat (MM) or 20-30 feet (ft) below ground surface (bgs) where MM was not present.</p> <p>PPG conducted the remediation of Phase 2B in conjunction with the CCPW remediation of AOC 114-1A. PSEG conducted the excavation and backfilling of Phase 2A between April 2015 and July 2016, removing most of the MGP-impacted material. Benzene and polycyclic aromatic hydrocarbons (PAHs) remaining in place at concentrations greater than the RDSCRS are being addressed via an engineering control (Clean Fill Soil Cap of dense-graded aggregate greater than or equal to two -feet thick) and an institutional control (deed notice).</p>
114-3	Environmental media - Media Soil, including soil vapor pore spaces	Historic fill material in soil in Site 114 (includes all of Site 114)	Yes	RAR	8/8/2019	16-03-23-1526		Soil	Metals	PAHs		Remediation Standards	Ingestion/Dermal	Inhalation	Excavation	Capping	Institutional Control		<p>This AOC includes Site 114. Historic fill remains in place in Phase 1B. Historic fill may contain ash, cinders, brick, and glass. This historic fill may include, but is not limited to, contaminants such as polycyclic aromatic hydrocarbons (PAHs) and metals at concentrations greater than unrestricted use standards.</p> <p>Most of the historic fill material was removed during the RA excavation at Site 114 conducted by PPG and PSEG between July 2010 and July 2016. Historic fill remaining in place is being addressed via an engineering control (Clean Fill Soil Cap of dense-graded aggregate greater than or equal to two-feet thick) and an institutional control (deed notice).</p>
114-4A	Storage tank and appurtenance - State or Federal Regulated underground storage tank	UST-impacted soil in Site 114. A 2,000-gallon UST (Tank No. 0001) in Grid B1B and a 1,000-gallon UST (Tank No. 0002) in Grids E3B/E4B were identified in 2010/2011.	Yes	RAR	8/8/2019	TMS #: N11-7757. Activity #: UCL110001 under Facility ID # 554479 (Tanks 1 and 2)		Soil	EPH + PAHs			Remediation Standards	Ingestion/Dermal	Inhalation	Excavation				<p>This AOC includes Site 114 Grids B1B, E3B, and E4B. One 2,000-gallon underground storage tank (UST) was identified in Grid B1B and one 1,000-gallon UST was identified in Grids E3B and E4B. These USTs were discovered on Site 114 during the RA excavation for AOC 114-1A. A Notice of Intent (TMS # N11-7757, Facility # 554479) was filed on May 10, 2011.</p> <p>UST closure activities were conducted on June 2, 2012 by an NJDEP-certified UST Contractor in conjunction with the CCPW remediation of AOC 114-1A. The USTs were removed and the tanks were cleaned, cut up, and disposed of off site. Liquid and sludge associated with the tanks were drummed for off-site disposal. Sampling and disposal of the USTs was managed in conjunction with active remediation excavation activities. In lieu of sampling at the frequency described in accordance with the Technical Guidance for Investigation of Underground Storage Tank Systems (NJDEP, 2012-08d), post-excavation samples were collected from the bottom of the excavation within each 30-ft by 30-ft grid in accordance with the PPG RAWP. Samples were analyzed for petroleum hydrocarbons plus contingency analysis in accordance with the requirements of N.J.A.C 7.26E Table 2-1 in effect at the time of sampling. Post-excavation soil sampling results were less than the Extractable Petroleum Hydrocarbon (EPH) Criterion.</p>

Garfield Avenue Group Chrome Sites -
Case Name: Site 114
 G000005480, Activity Number
PI #: RPC000051

IMPORTANT: 1) Do not delete or copy and paste across multiple columns because it can disrupt hidden equations.

2) If pasting from a Word document, use the Paste option: **Match Destination Formatting**

3) If the text turns red you have exceeded the character limit for that column

Case Inventory Document Version 1.4 02/23/17

AOC ID	AOC Type	AOC Description	Confirmed Contamination	AOC Status	Status Date	Incident #	DEP AOC Number	Contaminated Media	Contaminants of Concern	Additional Contaminants of Concern	Additional Contaminants of Concern	Applicable Remediation Standard	Exposure Route	Additional Exposure Route	RA Type	Additional RA Type	Additional RA Type	Was an Order of Magnitude Evaluation Conducted?	Activity
114-4B	Storage tank and appurtenance - State or Federal Regulated underground storage tank	UST-impacted soil in Site 114. A 500-gallon UST (Tank No. 0003) in Grid G1A and a 2,000-gallon UST (Tank 0004) in Grid B10A were identified in 2012.	Yes	RAR	8/8/2019	TMS #: N13-8760, Activity #: UCL130001 under Facility ID # 554479 (Tanks 3 and 4)		Soil	EPH + PAHs			Remediation Standards	Ingestion/Dermal	Inhalation	Excavation				This AOC includes Site 114 Grids G1A and B10A. One 500-gallon UST was identified in Grid G1A and one 2,000-gallon UST was identified in Grid B10A. These USTs were discovered on Site 114 during the RA excavation for AOC 114-1A. A Notice of Intent, (TMS# N13-8760, Facility # 554479) was filed on January 22, 2013. Since the Site was already under NJDEP Direct Oversight and the tanks were not in use and were discovered as part of buried debris/fill, it was later determined that the tanks do not need to be managed through the Licensed Site Remediation Professional (LSRP) Program. UST closure activities were conducted on December 7, 2012 and December 12, 2012 by an NJDEP-certified UST Contractor in conjunction with the CCPW remediation of AOC 114-1A. The USTs were removed and the tanks were cleaned, cut up, and disposed of off site. Liquid and sludge associated with the tanks were drummed for off-site disposal. Sampling and disposal of the USTs was managed in conjunction with active remediation excavation activities. In lieu of sampling at the frequency described in accordance with the Technical Guidance for Investigation of Underground Storage Tank Systems (NJDEP, 2012-08 d), post-excavation samples were collected from the bottom of the excavation within each 30-ft by 30-ft grid in accordance with the PPG RAWP. Samples were analyzed for petroleum hydrocarbons plus contingency analysis in accordance with the requirements of N.J.A.C. 7.26E Table 2-1 in effect at the time of sampling. Post-excavation soil sampling results were less than the EPH Criterion.
114-5	Other areas of concern - Any area suspected of containing contaminants	Soil impacted by other historical operations and land use in Site 114 (includes all of Site 114)	Yes	RAR	8/8/2019			Soil	Metals + PCBs	Pesticides + EPH	VO + PAHs	Remediation Standards	Ingestion/Dermal		Excavation			Yes	This AOC includes Site 114 and specifically addresses other COCs related to other historical operations and land use in Site 114. These COCs include other metals, SVOCs, VOCs, polychlorinated biphenyls (PCBs), pesticides, EPH, and total petroleum hydrocarbons not addressed in another AOC. Remedial investigation on adjacent properties and roadways was completed, as documented in the 2018 Supplemental Soil RIR. Delineation is complete. The excavation of chromium-impacted soil for AOC 114-1A effectively remediated contaminants that are part of AOC 114-5. Clean fill was placed on the Site. Restoration of Site 114 is complete, except in IRM #1, where groundwater remediation is being conducted
GA Group Groundwater	Environmental media - Media Ground water	Groundwater impacted by historical operations and land use at Site 114 and CCPW and MGP groundwater impacts on other GA Group Sites	Yes	RI	8/8/2019			Ground Water	Metals	VO	Other	Remediation Standards	Ground Water	Ingestion/Dermal	Excavation	Chemical Reduction	Bioremediation		Total chromium (Cr) is the primary COC in the area. Other COCs reported at concentrations exceeding the NJDEP Groundwater Quality Standards (GWQS) include CCPW metals, other Target Analyte List (TAL) metals, VOCs, and SVOCs. Concentrations of Cr and CCPW metals greater than the GWQS extend off of Site 114 across Carteret Avenue, Halladay Street, and Forrest Street. This AOC includes both on-site and off-site impacts. Remedial Investigation of groundwater is documented in the 2018 Draft Groundwater Remedial Investigation Report. Delineation of CCPW metals including Cr is complete in the shallow, intermediate, and deep water-bearing zones. Additional delineation of other TAL metals, VOCs, and SVOCs is necessary to the southeast of Site 114. Excavation of chromium-impacted soil was conducted between July 2010 and November 2014. During restoration activities, groundwater engineering controls were installed and/or maintained, including a capillary break, amended backfill, competent meadow mat, and sheet pile. Two in-situ treatment technologies, including a bioprecipitation approach and an abiotic chemical reduction process, were pilot tested at Site 114. Performance monitoring of these pilot tests have been completed, and both technologies were effective in reducing the concentration of Cr and Cr+6 in groundwater in the study areas. To expedite the treatment of groundwater associated with the portion of the GA Group Sites that is impacted with Cr and Cr+6, a phased groundwater IRM approach was developed and Phase 1 is currently being implemented per the 2017 Discharge to Groundwater Permit-By-Rule Authorization Request submitted by ARCADIS. The Phase 1 IRM focuses primarily on the intermediate and deep water-bearing zones, in areas where source removal in the shallow and intermediate zones has been completed and where elevated Cr+6 is present in the groundwater. The Phase 1 IRM also includes a small Cr-impacted area in the shallow water-bearing zone. The Phase 1 IRM began on December 29, 2017. In this Phase, groundwater is recovered (extracted) from the areas of highest Cr and Cr+6 concentrations in the northern portion of Site 114. The extracted groundwater is treated using the on-site water treatment plant, then amended with substrate and reinjected in a step-wise manner into the intermediate and deep water-bearing zones to achieve complete spatial coverage in a portion of Site 114. The Phase 1 IRM also includes a small area in the shallow water-bearing zone on Site 114 where a carbon source is being introduced (injected) to treat elevated Cr concentrations. A Classification Exemption/Exception Area (CEA) was implemented by PPG on June 11, 2018 for groundwater contamination in the intermediate and deep water-bearing zones related to historical operations at Site 114. A separate CEA was implemented by PSEG for this area that covers contaminants related to the former MGP located on the northeastern portion of Site 114.