



6560-50-P

**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 300**

**EPA-HQ-SFUND-1983-0002; FRL-10010-67-Region 5**

**National Oil and Hazardous Substances Pollution Contingency  
Plan;**

**National Priorities List: Partial Deletion of the Allied  
Chemical & Ironton Coke Superfund Site**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Direct final rule.

**SUMMARY:** The Environmental Protection Agency (EPA) Region 5 is publishing a direct final Notice of Partial Deletion of soil (land), lagoon, and sediment portions of the Allied Chemical & Ironton Coke Superfund Site (Site), in Ironton, Ohio, from the National Priorities List (NPL). The NPL, promulgated pursuant to Section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, is an appendix of the National Oil and Hazardous Substances Pollution Contingency Plan. This direct final partial deletion is being published by EPA with the concurrence of the State of Ohio, through the Ohio Environmental Protection Agency, because all appropriate response actions for these Site media under CERCLA have been completed. However, this partial deletion

does not preclude future actions under Superfund. This partial deletion does not include the OU2 ROD Soils Area 2 or the groundwater portions of the Site, which will remain on the NPL.

**DATES:** This direct final partial deletion is effective [insert date 60 days after date of publication in the Federal Register] unless EPA receives adverse comments by [insert date 30 days after date of publication in the Federal Register]. If adverse comments are received, EPA will publish a timely withdrawal of the direct final partial deletion in the **Federal Register** informing the public that the partial deletion will not take effect.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-HQ-SFUND-1983-0002 by one of the following methods:

*https://www.regulations.gov*. Follow the on-line instructions for submitting comments. Once submitted, comments cannot be edited or removed from Regulations.gov. The EPA may publish any comment received to its public docket. Do not submit electronically any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and

should include discussion of all points you wish to make. The EPA will generally not consider comments or comment contents located outside of the primary submission (i.e. on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit

<https://www.epa.gov/dockets/commenting-epa-dockets>.

*Email: [Deletions@usepa.onmicrosoft.com](mailto:Deletions@usepa.onmicrosoft.com).*

Written comments submitted by mail are suspended and no hand deliveries will be accepted. We encourage the public to submit comments via email or at

<https://www.regulations.gov>.

*Instructions:* Direct your comments to Docket ID no. EPA-HQ-SFUND-1983-0002. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at

<https://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be CBI or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through <https://www.regulations.gov> or e-mail.

The <https://www.regulations.gov> Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through <https://www.regulations.gov>, your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

*Docket:* All documents in the docket are listed in the <https://www.regulations.gov> index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available electronically at <https://www.regulations.gov> and at

<https://www.epa.gov/superfund/allied-chemical-ironton> or you may contact the person identified in the **FOR FURTHER INFORMATION CONTACT** section for additional availability information.

The EPA is suspending its Docket Center and Regional Records Centers for public visitors to reduce the risk of transmitting COVID-19. In addition, many site information repositories are closed and information in these repositories, including the deletion docket, has not been updated with hardcopy or electronic media. For further information and updates on EPA Docket Center services, please visit us online at <https://www.epa.gov/dockets>.

The EPA continues to carefully and continuously monitor information from the Centers for Disease Control and Prevention (CDC), local area health departments, and our Federal partners so that we can respond rapidly as conditions change regarding COVID-19.

**FOR FURTHER INFORMATION CONTACT:** Karen Cibulskis, NPL Deletion Coordinator, U.S. Environmental Protection Agency Region 5, at (312) 886-1843 or via email at [cibulskis.karen@epa.gov](mailto:cibulskis.karen@epa.gov).

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**I. Introduction**

EPA Region 5 is publishing this direct final Notice of Partial Deletion of the Allied Chemical & Ironton Coke Superfund Site (Allied Chemical Site or Site), from the NPL. The Allied Chemical Site covers 129 acres and includes three operable units (OUs). The Goldcamp Disposal Area (GDA) is OU1. The former Coke Plant/Lagoon Area (CPLA) is OU2. The former Tar Plant is OU3. See Figures 1 and 2 in the Docket. Groundwater contamination is present below all three OUs, but is addressed as part of the OU1 and OU2 cleanup remedies.

This partial deletion pertains to the soil (land) portion of OU1 (GDA); the soil (land) and lagoons portion of OU2 (CPLA) except for the OU2 ROD Soils Area 2 located within the bermed area of the East Tank Farm (see Figure 3 in the Docket); and all of OU3 (which only addressed contaminated soil and sediment at the Tar Plant and in the adjacent Ohio River). The OU2 ROD Soils Area 2 located within the bermed area of the East Tank Farm contains components of the groundwater treatment system and will not

be remediated until after the groundwater cleanup is complete. Therefore, the OU2 ROD Soils Area 2 is not being considered for deletion as part of this action. The contaminated groundwater at the Site, which is present below all three OUs but is being addressed as part of the OU1 and OU2 cleanup remedies, is undergoing a long-term cleanup and is also not being considered for deletion as part of this action. The OU2 ROD Soils Area 2 and the groundwater portions of the Allied Chemical Site (i.e., the groundwater portion of OU1 and OU2, which includes the contaminated groundwater below OU3) will remain on the NPL.

The NPL constitutes Appendix B of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), which EPA promulgated pursuant to CERCLA. EPA maintains the NPL as the list of sites that appear to present a significant risk to public health, welfare, or the environment. Sites on the NPL may be the subject of remedial actions financed by the Hazardous Substance Superfund (Fund). This partial deletion of the Allied Chemical Site is proposed in accordance with 40 CFR 300.425(e) and is consistent with the Notice of Policy Change: Partial Deletion of Sites Listed on the National Priorities List. 60 FR 55466 (Nov. 1, 1995). As described in 40 CFR 300.425(e) (3) of the NCP, a portion of a site

deleted from the NPL remains eligible for Fund-financed remedial actions if future conditions warrant such actions.

Section II of this document explains the criteria for deleting sites from the NPL. Section III discusses the procedures that EPA is using for this action. Section IV discusses the soil, lagoons, and sediment portions of OU1, OU2, and OU3 of the Allied Chemical Site included in this partial deletion and demonstrates how these media/areas meet the deletion criteria. Section V discusses EPA's action to partially delete the soil, lagoons, and sediment in OU1, OU2, and OU3 of the Allied Chemical Site (except for the soil in OU2 ROD Soils Area 2) from the NPL unless adverse comments are received during the public comment period.

## **II. NPL Deletion Criteria**

The NCP establishes the criteria that EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(e), sites, or portions thereof, may be deleted from the NPL where no further response is appropriate. In making such a determination pursuant to 40 CFR 300.425(e), EPA will consider, in consultation with the state, whether any of the following criteria have been met:

- i. Responsible parties or other persons have implemented all appropriate response actions required;

ii. all appropriate Fund-financed response under CERCLA has been implemented, and no further response action by responsible parties is appropriate; or

iii. the remedial investigation has shown that the release poses no significant threat to public health or the environment and, therefore, the taking of remedial measures is not appropriate.

Pursuant to CERCLA Section 121(c) and the NCP, EPA conducts five-year reviews to ensure the continued protectiveness of remedial actions where hazardous substances, pollutants, or contaminants remain at a site above levels that allow for unlimited use and unrestricted exposure. EPA conducts such five-year reviews even if a site or a portion of a site is deleted from the NPL. EPA may initiate further action to ensure continued protectiveness at a deleted site if new information becomes available that indicates it is appropriate. Whenever there is a significant release from a site deleted from the NPL, the deleted site may be restored to the NPL without application of the hazard ranking system.

### **III. Partial Deletion Procedures**

The following procedures apply to the deletion of the soil, lagoons, and sediment portions of OU1, OU2, and OU3

of the Allied Chemical Site, excluding the OU2 ROD Soils Area 2:

(1) EPA consulted with the State of Ohio prior to developing this direct final Notice of Partial Deletion and the Notice of Intent for Partial Deletion co-published in the "Proposed Rules" section of the **Federal Register**.

(2) EPA has provided the State 30 working days for review of this notice and the parallel Notice of Intent to Partially Delete prior to their publication today, and the State, through the Ohio Environmental Protection Agency (OEPA), concurred on the partial deletion of the Allied Chemical Site from the NPL on March 6, 2020.

(3) Concurrent with the publication of this direct final Notice of Partial Deletion, an announcement of the availability of the parallel Notice of Intent for Partial Deletion is being published in a major local newspaper, the Ironton Tribune. The newspaper notice announces the 30-day public comment period concerning the Notice of Intent for Partial Deletion of the Allied Chemical Site from the NPL.

(4) The EPA placed copies of documents supporting the partial deletion in the deletion docket and made these items available for public inspection and copying at <https://www.regulations.gov> and at <https://www.epa.gov/superfund/allied-chemical-ironton>.

(5) If adverse comments are received within the 30-day public comment period on this partial deletion action, EPA will publish a timely notice of withdrawal of this direct final Notice of Partial Deletion before its effective date and will prepare a response to comments and continue with the deletion process on the basis of the Notice of Intent for Partial Deletion and the comments already received.

Deletion of a portion of a site from the NPL does not itself create, alter, or revoke any individual's rights or obligations. Deletion of a portion of a site from the NPL does not in any way alter EPA's right to take enforcement actions, as appropriate. The NPL is designed primarily for informational purposes and to assist EPA management. Section 300.425(e)(3) of the NCP states that the deletion of a site from the NPL does not preclude eligibility for further response actions, should future conditions warrant such actions.

#### **IV. Basis for Partial Site Deletion**

The following information provides EPA's rationale for deleting the soil, lagoons, and sediment portions of OU1, OU2, and OU3, except for the soil in OU2 ROD Soils Area 2, of the Allied Chemical Site from the NPL.

#### **Site Background and History**

The Allied Chemical Site (OHD043730217) is 129 acres and is located at 3330 South Third Street in Ironton, Lawrence County, Ohio (see Figure 1 in the Docket). The Site is surrounded by industries, businesses, private residences, waterways, and wetlands. Part of the Site is adjacent to, and includes, a portion of the Ohio River.

The Allied Chemical Site is divided into three OUs (see Figure 2 in the Docket). OU1 is the Goldcamp Disposal Area (GDA) and is 10 acres in size. The GDA is a former sand and gravel pit that was used to dispose waste from the Site's Tar Plant, as well as waste from the Goldcamp Gravel Company and foundry sand from a nearby iron works.

OU2 is the former Coke Plant/Lagoon Area (CPLA). The CPLA covers 91 acres and contained the former Coke Plant and five lagoons. The CPLA is bordered by Ice Creek to the east and south. Ice Creek flows into the Ohio River and portions of the CPLA are within the 100 year floodplain. Eastern portions of the CPLA extend into the adjacent Village of Coal Grove, Ohio.

OU2 includes groundwater below the CPLA and in the former Tar Plant area (OU3). Limited areas of soil contamination in OU3 were also evaluated and addressed as part of OU2.

OU3 is the former Tar Plant area. The Tar Plant OU is 28 acres and consists of two parcels, the Main Parcel and the River Parcel. The Main Parcel is 16 acres and contained the former Tar Plant facility. The River Parcel is 12 acres and includes seven acres of the Ohio River (this varies with river elevation). The Main Parcel and the River Parcel of OU3 are separated by an active railroad track.

Initial operations at the Allied Chemical Site began with the Ironton Solvay Coke Company (Ironton) Coke Plant (OU2). In 1926, Ironton and other companies united to form the Allied Chemical & Dye Corporation (Allied Chemical). From 1981 to 1999, Allied Chemical went through additional name changes, mergers and acquisitions and is currently Honeywell International Inc. (Honeywell).

The Coke Plant operated from 1917 to 1982. Products from the coking operations included: crude tar, coke, light oil, and ammonia. From 1920 through the 1960s, the facility discharged wastewater and solid wastes generated during the coking process into the marshy area east of the plant adjacent to Ice Creek. The waste streams included process wastewater, coke and coal fines, tar decanter sludges, boiler ash, and weak ammonia liquor. Specific constituents present in the waste streams included:

ammonia, benzene, cyanide, metals, naphthalene, phenolics, and polynuclear aromatic hydrocarbons (PAHs).

In the early 1970s, Allied Chemical constructed a wastewater treatment plant (WWTP) and a series of lagoons in the marshy area of the Coke Plant to treat the waste streams from the Coke Plant and the Tar Plant. The treated wastewater discharged to the Ohio River through two permitted outfalls, Outfall 001 and Outfall 002. Outfall 002 was taken out of service in 2001.

In 1977, Allied Chemical sold the Coke Plant to the McClouth Steel Corporation (McClouth Steel). In 1982, McClouth Steel filed for bankruptcy and the Coke Plant was shut down.

Iron City Fuels, Inc. (Iron City Fuels) purchased the Coke Plant property for salvaging after the Coke Plant closed. In 1984, Allied Chemical re-purchased the Coke Plant property, excluding the surface facilities, from Iron City Fuels. Iron City Fuels retained the surface facilities at the Coke Plant for salvaging until 1985.

Iron City Fuels completed their salvage operations and transferred the surface facilities back to Allied Chemical in 1985. In 1987, Allied Chemical entered into a CERCLA Section 106(a) Administrative Order on Consent (AOC) with EPA and OEPA to remove six remaining above-ground storage

tanks, 4,700 cubic feet of tar decanter sludge (a K087 hazardous waste), and the material in the #4 weak liquor storage tank from the CPLA for off-site disposal.

Allied Chemical operated the Tar Plant (OU3) from 1945 until 2000 when the Tar Plant closed. The Tar Plant manufactured products from the crude tar produced at the Coke Plant. The Tar Plant contained 124 above ground storage tanks for various coal tar derivatives and chemicals, and numerous buildings housing administrative, laboratory, storage, and maintenance activities. After the Tar Plant closed, the Tar Plant facilities were demolished. The Tar Plant property demolition was completed in 2003.

Specific products from the Tar Plant included: phthalic anhydride, creosotes, pitches, naphthalene, road tar, driveway sealer, roofing pitch, and anthracene. The Tar Plant disposed the wastes and residues generated during the manufacturing processes to the adjacent GDA (OU1). These wastes included: anthracene residues and salts, coal tar pitch scrap, and phthalic anhydride residues.

The GDA was a former sand and gravel pit that was approximately 40 feet deep. The GDA received waste from the Tar Plant, as well as waste from the sand and gravel company and foundry sand from a nearby iron foundry.

Allied Chemical purchased the GDA property in 1955. In 1961, the construction of the Greenup Dam on the Ohio River raised the water levels of the river and adjacent groundwater, causing the waste at the bottom of the GDA to be in direct contact with the groundwater.

Allied Chemical stopped using the GDA for waste disposal in 1977 and developed a plan for closing the GDA in consultation with OEPA. The closure included: removing standing liquid from the GDA for off-site disposal, filling the GDA to surface grade, and capping the GDA with clay. Allied Chemical completed the GDA closure in 1980.

EPA inspected the Allied Chemical Site and completed a Site Inspection Report in 1980. In 1982, OEPA sampled the five Coke Plant lagoons and collected groundwater samples from the Site. OEPA detected high concentrations of PAHs in the lagoon sludge [total PAH concentrations as high as 148,000 milligrams per kilogram (mg/kg) in Lagoon 5] and high levels of cyanide, arsenic, phenol, and metals in the liquid fractions of the lagoons. OEPA detected arsenic in the groundwater at concentrations as high as 120,000 micrograms per liter ( $\mu\text{g}/\text{l}$ ) and benzene at concentrations as high as 1,200  $\mu\text{g}/\text{l}$ .

EPA completed a Preliminary Assessment Report and a Remedial Action Master Plan for the Site in 1983. EPA

proposed the Site to the NPL on December 30, 1982 (47 FR 58476) due to the potential for groundwater contaminants to affect private well supplies, as well as the Ohio River and Ice Creek, which supply municipal drinking water. EPA finalized the Allied Chemical Site on the NPL on September 8, 1983 (48 FR 40658).

EPA finalized: cleanup remedies for the Allied Chemical Site in Records of Decision (RODs) issued in 1988, 1990, and 2007; ROD Amendments in 1995, 1997, and 1998; and Explanations of Significant Differences (ESD) in 2015 and 2020. Allied Chemical/Honeywell implemented the EPA-selected cleanup actions for the Site from 1993 to 2015. In 2016, EPA issued a Preliminary Close Out Report documenting that Allied Chemical/Honeywell constructed the cleanup remedies consistent with all requirements and that the cleanups were protective of human health and the environment.

The OU1 property (GDA) is currently owned by Honeywell. The majority of the OU1 property is a capped landfill and the perimeter is fenced. There is presently no anticipated future use for the portion of OU1 located over the landfill. Honeywell split approximately 1.4 acres of OU1 near Third Street that is not part of the landfill

from the original parcel, and this property is available for redevelopment.

The OU2 property (Coke Plant/Lagoon Area) is divided into 17 parcels of land. Allied Corporation (i.e., Honeywell) currently owns two of the 17 parcels: Parcel 2, located in the City of Ironton and Parcel 1 located in the Village of Coal Grove (see Figure 2 in the Docket). Parcel 2 contains the former lagoons which were converted into wetlands and the upgraded WWTP that treats the extracted groundwater from the Site prior to discharge to the Ohio River. Parcel 2 is under security and monitoring by a Honeywell contractor stationed at the WWTP seven days a week during business hours and via telemetry 24 hours per day. Parcel 1 contains a portion of the Lagoon Area and a portion of Ice Creek. A section of Parcel 1 has also been converted into wetlands. The entire perimeter of the WWTP and the lagoons is secured by a chain-link fence with posted warning signs maintained by Honeywell's contractors.

Honeywell donated Parcel 4 of OU2 to the Ironton Port Authority in 2008. Honeywell sold the remaining OU2 parcels to the City of Ironton (City) for use as an industrial park in 2002. The City sold various parcels of OU2 for redevelopment.

The two OU3 parcels, the Main Parcel and the River Parcel, are currently owned by Honeywell/Allied Chemical. The Main Parcel is covered by a low-permeability cover and the perimeter is fenced. The River Parcel has a 2-foot soil cover and a sediment cover. The access road is gated to prevent vehicles from entering the area.

In 2011, EPA's contractor performed a reuse assessment to identify future land use considerations and opportunities and to coordinate reuse goals for the Site. On September 22, 2011, EPA and the City hosted a workshop to plan for Site reuse. Participants included Site owners and representatives from local businesses, adjacent properties, local educational and healthcare institutions, and local and state government. During the workshop, participants gave input regarding future uses and priorities for the Site.

In 2012, EPA's contractor completed a "Reuse Framework" report, which summarized the outcomes of the workshop and the findings of a reuse suitability assessment for the Site. This document includes reuse considerations and opportunities for education, workforce development, and Site improvements that can position the Site for productive reuse.

Several of the OU2 Site parcels have been redeveloped. The ownership information for the OU2 parcels is summarized on Figure 2 in the Docket. The active stakeholders, their interests, and their contact information is summarized in Table 1 of the 2020 Institutional Controls Implementation & Assurance Plan, which is available in the Docket.

This partial deletion pertains to the soil (land) portion of OU1 (GDA); the soil (land) and lagoons portion of OU2 (CPLA), except for the OU2 ROD Soils Area 2 located within the bermed area of the East Tank Farm (see Figure 3 in the Docket); and all of OU3 (which only addressed contaminated soil and sediment at the Tar Plant and in the adjacent Ohio River).

The OU2 ROD Soils Area 2 located within the bermed area of the East Tank Farm contains components of the groundwater treatment system and will not be remediated until after the groundwater cleanup is complete. Therefore, the OU2 ROD Soils Area 2 is not being considered for deletion as part of this action. The contaminated groundwater at the Site, which is present below all three OUs but is being addressed as part of the OU1 and OU2 cleanup remedies, is undergoing a long-term cleanup and is also not being considered for deletion as part of this action. The OU2 ROD Soils Area 2 and the groundwater

portions of the Allied Chemical Site (i.e., the groundwater portion of OU1 and OU2, which includes the contaminated groundwater below OU3) will remain on the NPL.

**Remedial Investigation and Feasibility Study (RI/FS)**

Allied Chemical entered into an AOC with EPA and OEPA to conduct a Site-wide Remedial Investigation (RI) and Feasibility Study (FS) at the Allied Chemical Site in 1984. The purpose of the RI was to characterize the nature and extent of contamination associated with the Site and the impact of the contamination on human health and the environment. The purpose of the FS was to develop and evaluate cleanup alternatives to address the unacceptable risks posed by the Site.

Allied Chemical conducted field investigations at the Site in 1984 and finalized the RI Report in 1986. The 1986 RI included: 1) The installation and sampling of over 45 groundwater monitoring wells; 2) collection and analysis of over 200 groundwater samples; 3) collection and analysis of over 200 soil samples; 4) collection and analysis of over ten surface water samples; 5) continuous sampling and analysis of air samples during sampling and excavation; 6) excavation and sampling of waste in over 20 test pits; and 7) collection and analysis of over 1000 samples of fish tissue. The soil and waste samples were analyzed for six

Site-specific indicator chemicals: Phenolics, benzene, naphthalene, cyanide, ammonia, and chloride. The groundwater and municipal water samples were analyzed for the six indicator chemicals and EPA's Target Analyte List (TAL) inorganic and Target Compound List (TCL) chemicals.

The 1986 RI determined that the 4-acre waste pit in the GDA contained approximately 300,000 cubic yards of waste material, including hazardous substances disposed from the Tar Plant and the Coke Plant. The bottom five feet of the waste was below the water table and in direct contact with groundwater. The surface of the GDA was a source of contamination because contaminated substances oozed up through the existing cap and collected on the GDA surface. The contaminants of concern (COCs) in the GDA were: benzene, naphthalene, phenolics, cyanide, ammonia, sulfate, chloride, and the PAHs benz(a)anthracene, benzo(a)pyrene, chrysene, and dibenz(a,h)anthracene.

The groundwater below the GDA was contaminated. The groundwater contamination extended west to the Ohio River and to the production wells located at the Amcast company (formerly Ironton Iron Inc.) located 1,000 feet north of the GDA. Amcast Production Well No. 7 contained benzene at concentrations as high as 36 µg/l. These concentrations were above the Safe Drinking Water Act Maximum Contaminant

Level (MCL) for benzene of 5 µg/l. Dense non-aqueous phase liquid (DNAPL) was present on top of the bedrock below the GDA. Total petroleum hydrocarbon concentrations in the DNAPL were 100 to 250 parts per million. Due to the groundwater contamination, Allied Chemical began providing bottled drinking water to Amcast for its employees in 1986.

The 1986 RI found seven areas of soil contamination in the Coke and Tar Plant areas that required cleanup (see Figures 3 and 4 in the Docket). The soils were contaminated with benzo(a)pyrene, a carcinogenic PAH (PAHc). The maximum concentrations of benzo(a)pyrene detected in the contaminated soil were: 150 mg/kg in Area 1, 60 mg/kg in Area 2, 330 mg/kg in Area 3, 96 mg/kg in Area 4, and 39 mg/kg in Area 5. The total amount of soils requiring cleanup in the Coke Plant area was 38,000 cubic yards. Approximately 2,000 cubic yards of soil required cleanup in the Tar Plant area.

The 1986 RI found that Lagoons 1 through 4 in the CPLA contained waste coal and coke, and general debris, including bricks, pieces of metal, and tar. Lagoons 1 and 3 also contained lime kiln sludge (K060), a listed hazardous waste under the Resource Conservation and Recovery Act (RCRA) based on the content of cyanide, naphthalene, phenolic compounds, and arsenic. The

analytical sampling indicated that the material in Lagoons 1 through 4 was contaminated with widely varying concentrations of PAHs, ammonia, cyanide, phenolics, sulfate, benzene, and arsenic.

Lagoon 5 in the CPLA was used to dispose decanter tank tar sludge (K087), a RCRA listed hazardous waste based on phenol and naphthalene content. Lagoon 5 was also believed to contain waste coal and coke materials. Lagoon 5 was approximately 40 feet deep and contained approximately 122,000 cubic yards of waste. About five to 15 feet of the waste was below the water table. Analytical sampling in Lagoon 5 detected high concentrations of carcinogenic PAHs. Although the solubility and mobility of PAHs is low, the chemicals are potent carcinogens.

The 1986 RI found that the sediments of Ice Creek downstream from the Site were contaminated from the discharge of wastewater from the Coke Plant operations. The sampling indicated that downstream sediments contained Site-related concentrations of phenolics, naphthalene, ammonia, and cyanide. An examination of 214 fish collected from Ice Creek and the Ohio River, however, did not show any neoplastic liver lesions in the fish. Surface water samples collected downstream of the Site contained higher concentrations of chloride and ammonia than upstream

samples, but the concentrations were well below EPA's Water Quality Criteria.

The groundwater in the CPLA and the Tar Plant area was contaminated with several contaminants, including phenolics, ammonia, cyanide, chloride, naphthalene, and benzene. The pattern of groundwater contamination indicated that the contamination was due to a number of localized on-site sources. The data also indicate that DNAPL was present above the surface of the bedrock at some locations.

Groundwater modeling conducted during the RI indicated that the groundwater below the CPLA and Tar Plant flowed toward Ice Creek and the Ohio River. The modeling indicated that the Coal Grove well field located approximately 2,000 feet south of the CPLA, which provides drinking water to about 2,840 residents, obtains approximately 27 percent of its water from Ice Creek leakage, 29 percent of its water from the Ohio River, 41 percent of its water from the aquifer southeast of the well field away from the Site, and three percent of its water from Site groundwater flowing underneath Ice Creek. The modeling and the actual analysis of the Coal Grove municipal water indicated that no drinking water standards

were being exceeded in the Coal Grove wellfield as a result of the Allied Chemical Site.

The 1986 RI concluded that contaminated groundwater from the CPLA and Tar Plant was discharging to the Ohio River, but the discharge was not detectable since the river contained contaminants similar to those found in Site groundwater upstream and downstream of the Site. Contaminant loading modeling indicated that the groundwater contaminants discharging to the Ohio River would not be detectable at the City of Ironton's drinking water intake.

Allied Chemical conducted air sampling during the 1986 RI during worst-case conditions by collecting air samples when the most highly contaminated material at the Site, the tar sludge in Lagoon 5, was disturbed with a backhoe. Allied Chemical did not detect any discernible atmospheric volatile organic emissions at the perimeter of the tar sludge area during this sampling.

After the 1986 RI was complete, EPA, OEPA, and Allied Chemical divided the Site into two OUs to expedite the completion of the FS for the GDA (OU1). Allied Chemical completed an Endangerment Assessment and a FS Report for the GDA in 1988. Allied Chemical completed an Endangerment Assessment and a FS Report for the remaining areas of the Site (OU2) in 1990. The OU2 Endangerment Assessment and FS

addressed the CPLA, contaminated groundwater below the Tar Plant, and limited areas of soil contamination at the Tar Plant.

Allied Chemical's EA for the GDA examined potential contaminant exposure pathways from the GDA including groundwater, surface water (Ohio River contamination via groundwater), soil, and air. The potential receptors included Amcast workers drinking contaminated groundwater from Amcast's wells (if bottled water was not supplied), recreational users in the Ohio River ingesting surface water, and workers at the closest business inhaling airborne contaminants. The GDA was covered and fenced, so direct contact with the wastes was not considered a major exposure pathway.

The OU2 EA for the CPLA (and some portions of the Tar Plant) evaluated potential risks to current Coal Grove residents from: inhalation of downwind dust and vapors; dermal contact with and the incidental ingestion of water in Ice Creek while swimming; using Coal Grove municipal water for drinking and showering; incidental ingestion of contaminated soil while trespassing; and eating fish from Ice Creek. The EA also evaluated potential risks to hypothetical future residents living on the CPLA property and using the contaminated groundwater as a water supply.

The EA for the GDA determined that the contaminated groundwater from the GDA posed an unacceptable risk to people using the groundwater as a source of drinking water. The excess lifetime cancer risk was  $6.7 \times 10^{-3}$ . This risk was greater than EPA's acceptable cancer risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ . The noncancer hazard index (HI) calculated for exposure to the GDA groundwater was 3.0, which is greater than EPA's acceptable noncancer HI of 1.0.

Recreational use of the Ohio River did not pose a risk since sampling results did not indicate a significant increase of Site-related contaminants in the Ohio River downstream of the GDA. Air modeling also indicated that potential air releases from the GDA did not pose a significant risk via the air pathway (an excess lifetime cancer risk of  $1.6 \times 10^{-6}$ ).

The OU2 EA for the CPLA and portions of the Tar Plant identified unacceptable potential future risks to hypothetical residents living on the CPLA property. The potential future cancer risk was  $5.7 \times 10^{-3}$  for children and  $3.4 \times 10^{-3}$  for adults. The unacceptable noncancer HIs were 7.1 for children and 4.0 for adults. The cancer risks were primarily due to the concentrations of PAHs in the soil and to benzene and arsenic in the groundwater. The

unacceptable noncancer risks were primarily due to cyanide contamination in the groundwater.

The CPLA EA did not identify any unacceptable risks to current Coal Grove residents. The total excess lifetime cancer risk calculated for Coal Grove residents from all exposure pathways was  $1.0 \times 10^{-5}$  for children and  $2.6 \times 10^{-5}$  for adults. The calculated noncancer HIs for Coal Grove residents for all pathways were well below 1.0, with a maximum HI of 0.163.

At the time of the OU1 and OU2 RI/FS, the Tar Plant was an operating facility with limited accessibility. In 2003, after the Tar Plant closed and the area could be fully investigated, Honeywell (formerly Allied Chemical) entered into a separate AOC with EPA to conduct a RI/FS for the remaining areas of the Tar Plant (OU3) that were not addressed or remediated as part of OU2. Honeywell completed the Tar Plant OU3 RI/FS in 2007 and issued an OU3 RI Addendum in 2008.

The 2007 OU3 RI included: 1) the collection and analysis of 235 soil samples from 146 soil borings down to the water table; 2) 12 paired soil vapor and ambient air samples at locations of highest contaminant concentrations; 3) the installation and sampling of 48 groundwater monitoring wells installed from 28 to 90 feet below ground

surface (with 21 locations nested) to horizontally and vertically delineate the groundwater contamination; 4) the installation of 12 DNAPL wells to delineate the extent and thickness of the DNAPL and allow for possible future recovery; and 5) the collection and analysis of 37 Ohio River water and 29 sediment samples to evaluate impacts to the river. Honeywell analyzed the 2007 RI samples for VOCs, PAHs, polychlorinated biphenyls (PCBs), cyanide, arsenic, total phenols, and ammonia. The groundwater samples were also analyzed for nitrate.

Honeywell's 2007 RI for the Tar Plant (OU3) found that the shallow and deep soil on the Main Parcel of the Tar Plant was contaminated with high levels of PAHs (as high as 44,100 mg/kg) and benzene, toluene, ethylbenzene, and xylene (BTEX) (a maximum concentration of 406 mg/kg BTEX). The distribution of PAHs and BTEX in the shallow soil was similar to the distribution of the DNAPL. The soil also contained lesser concentrations of arsenic (maximum concentration of 14.4 mg/kg), PCBs (maximum concentration of 7.7 mg/kg total PCBs), phenols (280 mg/kg), cyanide, and ammonia.

Shallow soil in the River Parcel contained high levels of PAHs and BTEX. High levels of PAHs were also detected in sediment samples collected from the Ohio River adjacent

to the Site. The highest concentrations of PAHs in sediment were located downstream of Outfall 001 and ranged from 184 mg/kg to 1,053 mg/kg.

Soil vapor in the Tar Plant OU contained benzene at concentrations as high as 55,000 parts per billion/volume (ppbv) and other VOCs. Benzene (maximum concentration of 0.31 ppbv), toluene, and naphthalene were detected in ambient air.

DNAPL is present in the southern half of the Main Parcel of the Tar Plant and has collected in depressions at the surface of the bedrock. The soil boring data indicates that the DNAPL has not, and is not likely to, migrate toward the Ohio River due to rises in the surface of the bedrock between the Site and the river.

Honeywell completed a Human Health Risk Assessment (HHRA) and a Screening Ecological Risk Assessment (SERA) for the Tar Plant (OU3) in the 2007 Phase 1A RI Report. The HHRA evaluated risks to current trespassers and to future recreational visitors, indoor and outdoor commercial/industrial workers, and construction workers. The HHRA evaluated exposure pathways including dermal contact with and the incidental ingestion of surface and subsurface soil, dust inhalation, the inhalation of ambient air and indoor contaminants via vapor intrusion, dermal

contact with and the incidental ingestion of surface water, dermal contact with sediment, and the ingestion of groundwater. The SERA evaluated potential impacts to ecological receptors from exposure to soil and to surface water and sediment in the Ohio River adjacent to the Site.

Honeywell's 2007 OU3 HHRA indicated that the Tar Plant posed an unacceptable risk to current trespassers, future recreational users, future indoor and outdoor commercial/industrial workers, and future construction workers. The total excess lifetime cancer risks ranged from  $8 \times 10^{-4}$  to  $8 \times 10^{-3}$ . The noncancer HIs ranged from 2 to 1201. The majority of the cancer and noncancer risks were posed by PAHs in the surface and subsurface soil and by concentrations of benzene, toluene, and naphthalene in soil vapor.

The results of the 2007 OU3 SERA indicated that the concentrations of PAHs in the Tar Plant soil posed a hazard to soil invertebrates, worm-eating birds, and predatory birds. Ecological hazard quotients (HQs) greater than or equal to 100 were calculated in scattered areas across the Tar Plant. The SERA also indicated that the concentrations of COCs detected in surface water could cause adverse effects to aquatic receptors. Additionally, the concentrations of Site-related PAHs in sediment could cause

adverse effects to benthic organisms (direct contact) and piscivorous birds (food chain).

Allied Chemical and Honeywell conducted Feasibility Studies (FSs) to develop and evaluate cleanup alternatives to address the unacceptable risks associated with the GDA, the CLPA, and the Tar Plant OUs.

The 1988 OU1 FS evaluated four cleanup alternatives for the GDA: no action; slurry wall and cap with groundwater recovery wells inside and outside of slurry wall; incinerate GDA waste and return residual material to GDA, with slurry wall with groundwater recovery wells inside and outside of slurry wall (no cap); and incinerate GDA waste and subsoils with one groundwater recovery well (no slurry wall or cap). All alternatives except the no-action alternative also included groundwater treatment at the on-site WWTP with discharge to the Ohio River under the existing or a modified NPDES permit, connecting Amcast to the municipal water supply, and a DNAPL investigation.

Allied Chemical completed the OU2 FS for the CPLA in 1990. The OU2 FS evaluated varying combinations of cleanup options for the CPLA. Cleanup options for the lagoons and contaminated Coke Plant and OU2 Tar Plant soils included: no action; on-site incineration and off-site waste fuel recovery; partial bioremediation with on-site incineration;

partial bioremediation and off-site waste fuel recovery; partial off-site waste fuel recovery with solidification/stabilization of residual materials; and partial bioremediation with on-site waste fuel recovery of lagoon materials and an asphalt and plastic layered cap over the Coke Plant and OU2 Tar Plant soils.

Ice Creek sediment cleanup options included: monitoring with trigger levels for accelerated monitoring and groundwater remediation; excavation and bioremediation of Ice Creek sediments with lagoon materials; and solidification/stabilization of Ice Creek sediments. All cleanup alternatives included groundwater collection with treatment at the on-site WWTP with discharge to the Ohio River.

Honeywell completed the Tar Plant OU3 FS in 2007. The 2007 FS evaluated eight cleanup alternatives for the contaminated Tar Plant soils, two cleanup alternatives for air, and five cleanup alternatives for Site-related sediment contamination in the Ohio River. The soil alternatives included: no further action; soil cover; low-permeability cover; limited excavation and off-site disposal with either a soil cover or a low-permeability cover; limited excavation with on-site consolidation and a

soil cover or a low-permeability cover; and extensive excavation and off-site disposal.

The cleanup alternatives evaluated for the contaminated sediment included: no further action; monitored natural recovery; in-situ capping; dredging and off-site disposal; and a combination of dredging, off-site disposal and in-situ capping. The cleanup alternatives evaluated for the air were no further action and institutional controls (ICs).

### **Selected Remedy**

EPA selected cleanup remedies for the Allied Chemical Site in RODs EPA issued in 1988, 1990, and 2007. EPA issued three ROD Amendments modifying the remedy in 1995, 1997, and 1998. EPA documented additional changes to the remedy in ESDs EPA issued in 2015 and 2020.

EPA selected the OU1 GDA cleanup remedy in the 1988 ROD. The remedial action objectives (RAOs) for the GDA are to: mitigate the future generation of contaminated leachate; mitigate the GDA-related contamination of the Amcast potable/sanitary water supply and any other private well supplies located north and northwest of the GDA; mitigate the migration of GDA-related contaminants above applicable Ohio River standards into the Ohio River (Ohio Administrative Code 3745-1-32); and mitigate the potential

for direct or indirect contact by the public with hazardous substances in the buried GDA waste.

The major components of the selected GDA remedy included: constructing a low-permeability slurry wall around the GDA from the ground surface into the low-permeability bedrock; installing a multi-media RCRA hazardous waste cap over the GDA; continuous extraction of groundwater within the containment system with treatment at the existing on-site WWTP located at the CPLA (to be upgraded) to create an inward groundwater gradient within the slurry wall boundaries; extraction and treatment at the on-site WWTP of contaminated groundwater outside the containment system until cleanup standards are achieved; municipal water hook-up for in-plant potable and sanitary uses at the Amcast facility until contaminant levels in groundwater meet the cleanup standards; deed restrictions to limit future uses of the disposal area portion of the property; and a supplemental RI/FS to identify the nature and extent of the DNAPL, develop and evaluate cleanup alternatives, and implement the EPA-approved DNAPL remedy, if different from the currently selected containment alternative.

EPA selected the cleanup remedy for the CPLA in the 1990 ROD. The RAOs for the CPLA cleanup are to: mitigate

the potential for direct or indirect contact of the public with the lagoon area wastes; mitigate the potential for future mobilization of contaminants into the groundwater; mitigate the migration of CPLA-related contaminants into Ice Creek, the Ohio River, and the Coal Grove well field; and remediate all contaminated media to meet ARARs and acceptable risk-based levels for human health and the environment.

The major components of the selected CPLA remedy in the 1990 ROD were: excavate the entire volume of Lagoon 5 (122,000 cubic yards of material); on-site incineration and waste fuel recovery (heat reuse) of Lagoon 5 material and 31,000 cubic yards of waste coal excavated from the coal overburden area, with the ash to be disposed of at a permitted off-site solid waste facility; excavation and bioremediation on a prepared pad of 40,000 cubic yards of Coke and Tar Plant soils (OU2 ROD Soils Areas 1 to 7); in-situ bioremediation of the remaining volume of material in Lagoons 1 through 4 (475,000 cubic yards), the residual soil in Lagoon 5, and the adjacent inner and outer dikes; monitoring the Ice Creek area and developing a contingency plan in the event that contaminant migration is encountered; groundwater collection, on-site treatment with

the groundwater from the GDA, and monitoring; and deed restrictions and fencing.

The 1990 CPLA ROD stated that the cleanup standard for soil was 0.97 mg/kg of PAHc. The standard was based on an excess lifetime cancer risk of  $1 \times 10^{-6}$  assuming a direct contact residential land use exposure. The CPLA ROD also provided for an alternative cleanup standard of 97 mg/kg PAHc (a  $1 \times 10^{-4}$  cancer risk, which is still within EPA's acceptable risk range) if the threat of direct contact from lagoon soils through residential land use was eliminated by flooding Lagoons 1 through 4 to create a wetland. An assessment of Lagoons 1 through 4 indicated that this area was more likely to be an ecological area than a residential area due to its proximity to Ice Creek and the fact that this low-lying area has historically served as a flood water storage area.

EPA issued ROD Amendments in 1995, 1997 and 1998 modifying the cleanup remedies for the GDA and CLPA based on additional information collected during the predesign and design phases of the project. The three ROD Amendments modified the OU1 and OU2 remedies as follows: revised the groundwater clean-up standards for benzo(a)pyrene and dibenz(a,h)anthracene for OU1 and OU2 from 0.005 µg/l total to the new MCLs of 0.2 µg/l for benzo(a)pyrene and 0.3 µg/l

for dibenz(a,h)anthracene; selected excavation and on-site storage for eventual treatment or placement into the lagoon area for 135,000 additional cubic yards of CPLA soil found to be contaminated with PAHs during the design phase; replaced prepared-pad bioremediation of 40,000 cubic yards of CPLA soil with off-site disposal in an approved landfill; replaced in-situ bioremediation of 475,000 cubic yards of material in Lagoons 1 through 4 with excavation of materials above 97 mg/kg PAHc and wetland development; and replaced incineration of Lagoon 5 materials with recycling, treatment, and/or disposal of the K087 listed waste in an approved off-site hazardous waste facility and the use of the remaining material, excluding debris, as an alternative fuel.

In 2020, EPA issued an ESD for the OU2 CPLA remedy. EPA issued the ESD to formally document a previously accepted change in the soil cleanup standard for arsenic from a residential cleanup level of 0.56 mg/kg selected in the 1990 OU2 ROD to a Site-specific background concentration of 15 mg/kg calculated during the remedial design (RD) phase of the project. See the Cleanup Levels section of this notice for additional information.

EPA issued the Tar Plant OU3 ROD in 2007. The OU3 ROD addressed contaminated soil, sediment and air at the Tar

Plant OU. The RAOs for OU3 assumed that future use of the Tar Plant property would be commercial/industrial and may include riverside parks or other recreational use.

The RAOs for the Tar Plant soil are to: prevent human ingestion and direct contact with soil containing PAHs at concentrations that exceed applicable NCP and Ohio EPA risk management criteria for applicable exposure scenarios; prevent terrestrial invertebrates from being exposed to PAHs at concentrations that may be harmful to invertebrates and worm-eating birds; prevent predatory birds from being exposed to unacceptable concentrations of PAHs; and reduce, to the extent practicable, contaminant leaching from soil that may contribute to groundwater contamination above NCP and/or Ohio EPA risk management criteria.

The RAOs for sediment in the adjacent Ohio River are to prevent human direct contact with sediment containing PAHs that exceed applicable NCP and Ohio EPA risk management criteria for future exposure scenarios, and to prevent benthic invertebrates from direct contact with sediment containing PAHs that exceed preliminary remediation goals based on background toxicity levels. The RAOs for air are to prevent the inhalation of vapors in indoor air in future buildings in excess of NCP and Ohio EPA risk management criteria and to prevent the inhalation

of vapors by construction workers during any future grading and/or excavation activities.

EPA's selected cleanup remedy for soil in the 2007 OU3 ROD was the construction of an OEPA-compliant low-permeability solid waste cap over all contaminated portions of the Tar Plant (the entire 16-acre Main Parcel), a geotextile fabric and soil cover over all contaminated portions of the River Parcel (approximately four acres), ICs to protect the integrity of the cap and soil cover, and an IC implementation plan. EPA did not select a low-permeability cap for the River Parcel based on concerns with hydraulic instability caused by hydrostatic pressure differences between the groundwater and surface water which could cause a low-permeability cover to fail.

The selected OU3 remedy for sediment consisted of dredging approximately 3,300 to 5,100 cubic yards of contaminated sediment from the Ohio River using appropriate dredging techniques and turbidity control measures; sediment dewatering and disposal at an approved off-site landfill; evaluating the water from the dewatered sediment during the RD for disposal at the on-site WWTP; and installing an in-situ cap over approximately 0.7 acres of residual sediment contamination using earthen materials (sand, gravel and/or cobbles), engineered materials

(geosynthetics or marine mattresses), or a combination of these materials to be determined during the RD. The exact areas and volume of sediment to be excavated and capped would be determined based on additional data collected and evaluated during the RD and post-dredging confirmation sampling.

The selected OU3 remedy for air was ICs in the form of land use restrictions restricting the land to industrial/commercial use and requiring future buildings to include measures (e.g., physical barriers, venting, monitoring) to protect indoor workers against potential risks from vapor intrusion and outdoor workers during excavation or grading activities.

In 2015, EPA issued an ESD modifying the sediment component of the OU3 remedy based on Honeywell's 2009 and 2011 predesign investigations. The predesign investigations indicated that the volume of sediment requiring excavation increased from 3,300 to 5,100 cubic yards to 50,000 to 60,000 cubic yards, and that the area of sediment requiring capping was 2.3 acres, not 0.7 acres. Due to the significant increase in cost and concerns with potential river bank failure and the destabilization of the adjacent active railroad trackbed, the sediment component

of the OU3 remedy was modified from dredging and capping to capping only.

### **Response Actions**

Allied Chemical completed the RD for the GDA remedy in 1992 and constructed the GDA remedial action (RA) from 1993 to 1995 (see Figures 2 and 5 in the Docket). Allied Chemical constructed a soil-bentonite slurry wall around the GDA waste to provide a low-permeability barrier to ground water in-flow and contaminant migration out-flow. The slurry wall has a permeability of approximately  $1 \times 10^{-8}$  centimeters per second (cm/sec), which exceeds the  $1 \times 10^{-7}$  cm/sec permeability requirement. Allied Chemical did not key the slurry wall into the bedrock due to concerns that the keying efforts would fracture the bedrock and affect its competence and water-bearing capabilities.

After the slurry wall was constructed, Allied Chemical installed a RCRA Subtitle C hazardous waste compliant cap over the GDA. The cap incorporated a geosynthetic clay liner to minimize future exposure of the buried waste and infiltration. The cap has a permeability of less than  $1 \times 10^{-7}$  cm/sec. The cap includes a passive gas venting system with capabilities for adding an emissions control system in the future, if needed.

Allied Chemical installed two groundwater pumping wells inside the slurry wall (PW-3 and PW-4) to maintain an inward hydraulic gradient and prevent groundwater contaminants from migrating beyond the slurry wall, and two groundwater pumping wells outside the slurry wall (PW-1 and PW-2) to intercept and extract contaminated groundwater outside the wall. Based on the 1992 Design Report and Allied Chemical's 1992 Design Report Response, EPA revised the groundwater drawdown required to maintain the inward gradient from ten feet to one foot. The groundwater pumped from inside and outside the slurry wall is treated at the on-site WWTP at the CPLA, which was upgraded to add biological and carbon polishing treatment components to the system. The on-site WWTP was later upgraded again in 1997 during the OU2 RA. The treated groundwater is discharged to the Ohio River in compliance with the technical requirements of a Site-specific National Pollutant Discharge Elimination System (NPDES) permit administered by OEPA.

Allied Chemical installed groundwater monitoring wells to monitor the performance of the GDA containment system and the migration of the dissolved and free phase contaminant plumes to assist with delineating the extent of DNAPL and to evaluate potential technologies to address the

DNAPL. Allied Chemical also constructed a security fence around the perimeter of the GDA to prohibit trespassing. EPA conducted a final inspection of the OU1 GDA remedy on August 2, 1995. Allied Chemical submitted a final Remedial Design/Remedial Action (RD/RA) completion report for the GDA on September 14, 1995.

Allied Chemical conducted preliminary Site preparation activities for the OU2 CPLA RA from 1994-1995. In 1995, Allied Chemical constructed the CPLA Stormwater Collection/Management System to contain stormwater runoff during the RA. Allied Chemical conducted the OU2 CPLA RA construction activities from 1996 to 2002 (see Figures 3, 4 and 6 in the Docket).

Allied Chemical completed the OU2 CPLA groundwater remedy in 1996 and 1997. The RA for the groundwater remedy included: installing five groundwater extraction wells and five new groundwater monitoring wells to supplement the existing system; connecting a sixth groundwater extraction well installed in 1992 to the system; and modifying the on-site WWTP to allow for the handling and treatment of the extracted groundwater from the CPLA, the GDA, and the wastewater from the Tar Plant facility operations and to meet NPDES permit requirements. The WWTP modifications included: installing an iron/suspended solids removal

system consisting of aeration/pH adjustment, clarification, and sand filtration; a cyanide removal system using ultraviolet irradiation/oxidation; and flow modifications to the carbon towers organics treatment system. Formal system start-up of the OU2 CPLA groundwater treatment system occurred in June and July 1997.

Allied Chemical conducted the Lagoon 5 remediation activities from 1998 to 1999. Allied Chemical excavated the material in Lagoon 5 down to the underlying clay layer and removed approximately 120,000 tons of waste from the lagoon. Approximately 85,600 tons of coal/coke fines, 16,000 tons of segregated hard tar, and 500 tons of exempted RCRA-K087 listed waste from Lagoon 5 were shipped off-site to power generation plants for feedstock as part of approved alternative fuels programs. Allied Chemical disposed of the contaminated or unusable hard debris (10,800 tons) and soft debris excavated from Lagoon 5 at an off-site landfill. Allied Chemical stabilized 7,100 tons of soft-tar material (RCRA K087 listed waste) from Lagoon 5 on-site and disposed of it at an off-site landfill. Allied Chemical sent the scrap metal that was recovered from Lagoon 5 to a local recycler.

Allied Chemical backfilled the Lagoon 5 excavation with clean, hard debris from previous Site remediation

activities (e.g., concrete pipe supports, brick, and concrete) to an elevation above the water table. The hard debris was covered with 12,000 tons of crushed hard debris and 27,200 tons of soil having PAHc and arsenic concentrations below the 97 mg/kg and 15 mg/kg cleanup levels excavated from other Site areas. Allied chemical seeded and revegetated Lagoon 5, and placed rip-rap along the sides of the lagoon at the tie-ins with the City of Ironton Floodwall.

Based on the results of additional sampling conducted in Lagoons 1 to 4 in 1997, the Lagoon 2 materials were the only materials with PAHc concentrations above the alternate 97 mg/kg PAHc cleanup standard documented in ROD Amendment #3 that required excavation. Allied Chemical removed 8,300 tons of hard tar and 1,200 tons of coal/coke fine materials from Lagoon 2 in 1999 and shipped the material to off-site energy generators for feedstock. Allied Chemical backfilled the excavated areas in Lagoon 2 with 2,000 tons of clay material excavated from Lagoon 5 that had PAHc concentrations less than 97 mg/kg and arsenic concentrations less than 15 mg/kg. Allied Chemical placed a six-inch layer of imported fill material over the excavated area then tapered and sloped the sidewalls of Lagoon 2 downward into the partially backfilled area to

create a depression to facilitate the collection of standing water to aid in the development of the wetland ecosystem.

Allied Chemical conducted a Reconnaissance Ecological Risk Assessment for Lagoons 1 to 4 in 1999 before the lagoons were converted into wetlands. The assessment evaluated potential ecological impacts from residual PAHc concentrations in the Lagoons 1 to 4 materials after the Lagoon 2 materials were removed. Allied Chemical's 1999 assessment followed EPA's Sediment Quality Triad Approach and included a vegetation study. The assessment indicated that residual concentrations of PAHc in Lagoons 1 to 4 at concentrations less than or equal to the alternate 97 mg/kg cleanup level would not significantly impact the planned wetland ecosystem or the aquatic or vegetative communities of the converted wetland areas.

Allied Chemical completed the conversion of Lagoons 1 to 4 into wetlands in 2002. The wetland conversion included: construction of an overflow weir adjacent to Lagoon 4 and placement of rip-rap (i.e., brick and concrete) in selected areas to minimize erosional effects during flood events; permanent modification of the sluice gate adjacent to Lagoon 3 to permit complete hydraulic connection with Ice Creek to allow for equalized

inflow/outflow during flood events; and adoption of an annual monitoring program to evaluate the re-establishment of vegetation and assess the condition of the biological community.

Allied Chemical completed the OU2 soil remediation of the CPLA and OU2 Tar Plant soils, with the exception of the soil in OU2 ROD Soils Area 2, in 2000 (see Figures 3 and 4 in the Docket). The contaminated CPLA soils (OU2 ROD Soils Areas 1, 3 and 4) were excavated to a maximum depth of ten feet. The OU2 Tar Plant soils (OU2 ROD Soils Areas 5 to 7) were excavated to five feet and were not fully characterized due to the ongoing Tar Plant operations. The remaining Tar Plant soils were later addressed by Honeywell during the OU3 Tar Plant investigation and cleanup.

The CPLA OU2 ROD Soils Area 2 could not be remediated because this area is located within the bermed area of the East Tank Farm which contains components of the WWTP for the long-term OU1 and OU2 groundwater cleanup. The soil within OU2 ROD Soils Area 2 will remain on the NPL and is not included in this partial deletion action. OU2 ROD Soils Area 2 is located within the fenced portion of CPLA Parcel 2 which is owned by Allied Chemical/Honeywell. The area is planned for future characterization and remediation when decreased activity levels in this area will minimize

potential disruption to the operations of the ongoing groundwater cleanup. It is expected that the OU2 ROD Soils Area 2 materials will be characterized, excavated, and disposed of at an off-site landfill.

Allied Chemical disposed the excavated OU2 CPLA and Tar Plant soils as non-hazardous solid waste in an off-site landfill in accordance with ROD Amendment #2. The excavated soils included: 18,100 tons of soil from CPLA ROD Soils Area 1; 4,000 tons of soil from CPLA ROD Soils Area 3 and the active Truck Scale Facility; 2,600 tons of soil from CPLA ROD Soils Area 4; and 4,700 tons of soil from OU2 Tar Plant ROD Soils Areas 5 to 7.

During the OU2 RA, Allied Chemical excavated contaminated soil and materials from additional areas of the CPLA in accordance with the 1995 ROD Amendment #1 (see Figure 3 in the Docket). These included: excavating 44,000 tons of surficial coal fines accumulated from the off-loading of feed materials for the coke oven batteries for off-site use as an approved alternative fuel at cement kiln facilities and power generation plants; excavating 17,700 tons of fuel-grade overburden materials from the western portions of Lagoons 2 and 4 for off-site energy recovery; excavating 6,000 tons of petroleum hydrocarbon-contaminated soil from the former Coke Plant Ammonia

Concentration Building for off-site disposal as a non-hazardous solid waste; excavating 23,500 tons of PAH-contaminated soils west and south of the former coke oven batteries and other Site areas and disposing the soil with PAHc concentrations greater than 97 mg/kg or arsenic concentrations greater than 15 mg/kg at an off-site landfill as a non-hazardous wastes (3,700 tons) and backfilling the remaining soil into the Lagoon 5 excavation; excavating 3,500 tons of contaminated soil from the Trucker's Parking Lot area and an area located adjacent to the East Tank Farm and backfilling the material into Lagoon 5; excavating 35,000 tons of coal and coke fines and 500 tons of hard tar from the slope of the City of Ironton floodwall for off-site use as alternative fuel; excavating 63,000 tons of material with measured concentrations of PAHc less than 97 mg/kg and arsenic less than 15 mg/kg from the East Side Batteries Area for use as backfill along the toe of the City of Ironton floodwall slope and excavating 8,600 tons of material from this area for off-site energy recovery; and disposing 13,000 tons of hard debris (brick and concrete) and 500 tons of soft debris (wood, plastic, trash, etc.,) encountered in excavated areas as a non-hazardous solid waste at an off-site landfill. Allied Chemical completed these cleanup actions in 2000.

Documentation of the OU2 RA construction activities is provided in the October 23, 2002 Interim Remedial Action Report for Coke Plant/Lagoon Area (CPLA) Operable Unit at the Honeywell-Ironton Facility, which is available in the Docket.

Honeywell initiated OU3 construction activities (see Figure 7 in the Docket) in 2014 starting with the River Parcel. Honeywell conducted Site preparation activities and sealed eight groundwater monitoring wells. Honeywell cleaned out and demolished a concrete oil-water separator type structure at the top of the river bank and removed its associated piping and waste material for off-site disposal. Honeywell relocated the CPLA WWTP outfall, Outfall 001, which discharged to the Ohio River near the demolished structure, to a discharge located on Site at the south property boundary. Honeywell constructed a new storm water system for the Main Parcel with direct discharge to the Ohio River using former NPDES outfall structures 001 and 002.

Honeywell stabilized the riverbank at the soil and sediment interface of the River Parcel with 35,150 square feet of one-foot thick stone-filled Polymeric Marine Mattresses (PMMs) and rip-rap mixed with soil staked with live plant stakes. The PMMs were installed from elevation

512 feet to 515 feet. The rip-rap was installed from elevation 515 feet to 519 feet with some overlap on the PMMs. Honeywell placed the live plant stakes in the rip-rap/soil every three feet on center.

Honeywell removed 75 tons of debris from the Ohio River and installed three separate types of subaqueous sediment caps covering a total of 2.3 acres in the river. Cap A covers the majority of the area and consists of a minimum six-inch sand chemical isolation layer covered by a minimum six-inch gravel erosion protection and filter layer. Caps B and C have the same sand and gravel layers as Cap A but are covered with an additional 12-inches (Cap B) and 18-inches (Cap C) of a cobble erosion protection layer.

Honeywell installed a soil cover over the upland portion of the River Parcel (i.e., the riverbank) to prevent direct contact with affected soils by humans and potential ecological receptors. The soil cover consisted of 18 inches of vegetative fill covered by six inches of topsoil. Honeywell installed an orange geogrid layer below the vegetative fill to demarcate the underlying subgrade material.

Honeywell installed coir (coconut fiber) matting over the topsoil from the top of the upland slope to the rip-rap

at the bottom of the slope and coir logs at the base of the slope, between the soil cover and the rip-rap, to prevent erosion until the vegetation was established. Honeywell installed a temporary irrigation system and planted a mixture of native grasses, sedges and forbs on the sloped soil cover from elevation 519 (the top of the rip-rap) to elevation 547 (the bottom of the railroad embankment), and container plants (trees and shrubs) every ten feet on center from elevation 519 to elevation 538. Honeywell installed a gravel access road and gate near the top of the slope just above the 10-year flood elevation (about 535 feet). Honeywell completed the River Parcel remediation and restoration in 2015.

Honeywell conducted the remedial action construction for the OU3 Main Parcel in 2015. Honeywell demolished the remaining buildings and structures on the Main Parcel and sealed 51 groundwater monitoring wells and one pumping well. Honeywell installed a low-permeability solid waste-compliant cap over the entire 16-acre Main Parcel area (see Figure 7 in the Docket). The low permeability cap consists of a six-inch sand cushion layer over the contaminated soil covered by (from the bottom up): a geosynthetic clay liner (GCL), a 40-mil low-density polyethylene (LDPE) geomembrane layer, a 12-inch sand drainage layer with lateral

underground drains to remove water from the top of the LLDPE, a 12-inch protective soil cover layer for vegetative growth, and six inches of topsoil.

Honeywell installed a gas venting system below the cover system to prevent any buildup of gas. The system includes lateral gas collection pipes installed under the six-inch bottom sand cushion layer that are connected to three gas vents along the western edge of the cover. Honeywell installed soil gas monitoring probes around the perimeter of the cap. The gas monitoring probes are spaced approximately 400 feet apart with screens set at 10 feet, 25 feet, and 40 feet below grade.

Honeywell seeded and mulched the topsoil layer of the cover system, constructed a gravel access road along the southern and eastern boundaries of the Main Parcel to provide access to groundwater extraction wells, and constructed a chain-link fence along the perimeter of the Main Parcel, except along South Third Street where an ornamental fence was installed.

EPA, OEPA, and Honeywell conducted a pre-final/final inspection of the River Parcel on November 13, 2014 and a pre-final/final inspection of the Main Parcel on December 16, 2015. Documentation of the OU3 RA construction activities is provided in the March 2016 Final Remedial

Action Completion Report for OU3 which is available in the Docket.

EPA, OEPA, and EPA's contractors provided oversight of the cleanup at the Allied Chemical Site throughout the OU1, OU2, and OU3 RD/RAs. EPA and OEPA conducted a pre-final inspection of the Allied Chemical Site on December 19, 2015. During the inspection EPA verified that all remedial actions were conducted in accordance with the approved RD plans and specifications. A punch list of outstanding activities was prepared during the inspection. Honeywell addressed and completed all of the punch list activities by May 4, 2016. A final OU3 inspection and Site walk-through was conducted on June 1, 2016. EPA completed a Preliminary Close Out Report for the Site documenting that the RA construction activities were complete on September 29, 2016.

### **Cleanup Levels**

The soil (land) remedy for the OU1 GDA is in-situ containment of the waste disposal area; therefore the 1988 OU1 ROD does not establish cleanup levels for the GDA waste.

EPA established the cleanup levels for the OU2 CPLA soil in the 1990 OU2 ROD. The OU2 soil cleanup levels applied to soil, the materials in Lagoons 1 to 4, the soil

remaining in Lagoon 5 after the removal of the Lagoon 5 waste, and the adjacent dikes. The OU2 CPLA soil cleanup levels were a total PAHc concentration of 0.97 mg/kg and an arsenic concentration of 0.56 mg/kg. These cleanup levels are based on a hypothetical residential exposure, with the cumulative cancer risk level not to exceed  $1 \times 10^{-6}$ . The 1990 OU2 ROD also required ICs in the form of deed restrictions to prevent any residential or recreational use of the Site.

In March 1995, Allied Chemical submitted a petition to EPA and OEPA providing a statistical evaluation of arsenic concentrations measured at the Site during the 1994 CPLA predesign investigations compared to regionally established background concentrations of arsenic. This petition resulted in the Agencies' adoption of a revised cleanup level for arsenic in soil of 15 mg/kg. This revised cleanup standard for arsenic was identified in several Site reports including the EPA and OEPA-approved 2002 Interim Remedial Action Report for the Coke Plant/Lagoon Area and EPA's 2004 Five-Year Review report for the Site.

Allied Chemical recorded Environmental Deed Restrictions prohibiting residential and recreational use of the CPLA property with the Lawrence County Recorder's office on August 22, 2002 in Plat Book 10/Page 181. EPA

formally documented the revised soil cleanup standard for arsenic of 15 mg/kg in an ESD EPA issued in May 2020.

EPA revised the PAHc cleanup level for the Lagoons 1 to 4 material in ROD Amendment #3 in 1998. ROD Amendment #3 selected the alternate cleanup level of 97 mg/kg for PAHc provided in the 1990 OU2 ROD. The 1990 OU2 ROD allowed the 97 mg/kg PAHc alternate cleanup level if the threat of direct contact with the lagoon materials through residential use was eliminated by flooding Lagoons 1 to 4 to create a wetland. The 1999 Reconnaissance Ecological Risk Assessment that Honeywell conducted before converting Lagoons 1 to 4 into a wetland further indicated that the residual concentrations of PAHc in Lagoons 1 to 4 at concentrations less than or equal to the alternate 97 mg/kg cleanup level would not significantly impact the planned wetland ecosystem or the aquatic or vegetative communities of the converted wetland areas.

EPA selected cleanup levels for the OU3 Tar Plant soil and Ohio River sediment in the 2007 OU3 ROD. The cleanup level for soil on the Main Parcel and the River Parcel of the Tar Plant is 0.16 mg/kg of benzo(a)pyrene. This cleanup level is based on a cancer risk of  $1 \times 10^{-6}$  under future industrial/commercial and recreational use of the property.

The cleanup level for the Ohio River sediment in the 2007 ROD was total PAH concentrations that are equal to or less than background sediment toxicity levels for aquatic receptors (benthos) in sediment from upstream sources. That is, the ROD required the sum of Environmental Sediment Toxicity Benchmark Units (ESTBUs) for Site-impacted sediment to be less than or equal to 10.0. During the RD process, and as allowed by the OU3 ROD, the ESTBU sediment cleanup values of 10, which are based on direct measurements of PAH concentrations in pore water and may overestimate PAH bioavailability and pore water toxicity, were refined to use an Equilibrium Pore Water Toxic Unit (EPWTU) of 5 instead.

Allied Chemical's OU2 RD/RA for the soil and lagoon remediation was conducted in accordance with the 1992 CPLA Quality Assurance Project Plan (QAPP). The 1992 CPLA QAPP was used as the governing document to guide the field sampling, treatability studies, and analytical activities performed throughout the CPLA RD/RA, including field and laboratory Quality Assurance/Quality Control (QA/QC) procedures and data validation protocols. In addition, task-specific work plans were prepared and followed for each significant activity, including: Pre-Design Investigations for Bioremediation, Groundwater, and Waste

Fuel Recovery; Coal Overburden Characterization and Removal; Site Soils and ROD Soils Characterization and Removal; Lagoon Materials Delineation; Floodwall Slope Restoration; East Side Batteries Characterization and Removal; Ice Creek Monitoring Program; and CPLA Compliance Monitoring Program and Stormwater Collection and Monitoring Program.

QA/QC activities for the OU2 CPLA ROD Soils, including OU2 ROD Soils Area 1 (including the Neal Junkyard portion), Area 3 (including the Truck Scale portion), and Area 4, included field sampling to delineate the areal and vertical extent of the impacted areas, followed by excavation to the agreed upon maximum depth of 10 feet. The OU2 Tar Plant ROD Soils Areas 5 to 7 were similarly delineated and the impacted materials excavated to the agreed upon maximum depth of 5 feet.

Allied Chemical collected soil samples from 0-1.0 foot, 1.0-2.5 feet, and 2.5-5.0 feet below ground surface (bgs) in each of the OU2 ROD Soils Areas to determine the final depth of the excavation. CPLA ROD Soils Areas 1, 3 and 4 were additionally sampled from 5.0-7.5 and 7.5-10.0 feet bgs. The soil samples were analyzed for PAHc and arsenic in accordance with the approved USEPA Contract Laboratory Program (CLP) Statements of Work for Organics

and Inorganics, respectively, which were in effect at the time of analysis.

The most-highly contaminated sample from each of the excavated OU2 ROD Soils Areas underwent additional testing prior to disposal. The additional tests included RCRA toxicity characteristic leaching procedure (TCLP) analysis, a paint filter test, and the RCRA hazardous characteristic tests for reactivity, corrosivity, and ignitability.

Allied Chemical conducted an initial characterization of the additional CPLA soils identified for remediation in the 1995 ROD Amendment #1 in 1994 and 1995. The soil samples were collected in incremental one-foot intervals down to a maximum depth of 10 feet. In areas with coal and other fuel-grade overburden material, the overlying coal or fuel-grade layer was removed down to the "visually-clean" underlying native materials, and afterwards samples were collected from the top foot and then at the 4.0-5.0 feet depth of the native material. In 1997, the sampling protocol was revised to be consistent with the OU2 ROD Soils Areas sampling, with samples collected from 0.0-1.0 foot, 1.0-2.5 feet, 2.5-5.0 feet, 5.0-7.5 feet, and 7.5-10.0 feet bgs. The samples were analyzed for PAHc and arsenic.

The additional CPLA soils that required remediation based on the predesign investigation were excavated to a maximum depth of 10 feet and the materials were stockpiled on-site. Soil containing PAHc concentrations greater than 97 mg/kg or arsenic concentrations greater than 15 mg/kg were disposed off-site following TCLP and hazardous characteristic testing. Before the stockpiled materials were placed in the Lagoon 5 excavation, the materials were sampled again for PAHc and arsenic at a frequency of 1 sample for every 2,000 cubic yards to confirm they were below cleanup standards.

CPLA soil materials in the area adjacent to the East Tank Farm were characterized using samples collected from 0.0-1.0 foot, 1.0-2.5 feet, 2.5-5.0 feet, 5.0-7.5 feet, and 7.5-10.0 feet intervals. Soil in the Truckers' Parking Lot was sampled incrementally at 0.5-foot intervals from the ground surface to the underlying native material (based on visual observations). Samples of the native material were then collected at 0.5-foot intervals until the analytical results indicated that the concentrations of PAHc and arsenic were below 0.97 mg/kg and 15 mg/kg, respectively. The excavated materials from these areas were either disposed off-site or backfilled directly into Lagoon 5 if they were below cleanup levels.

Characterization of the CPLA East Side Batteries Area focused on the materials in the former Coke Plant processing areas and extending east to the City of Ironton Floodwall. Near-surface materials were removed to expose the underlying "visually-clean" native material. Samples were collected from the native material in 0.5-foot intervals until the concentration of PAHc was less than 0.97 mg/kg and arsenic was less than 15 mg/kg. Based on the analytical results, the materials were excavated and sent off-site for disposal (after TCLP and hazardous characteristic testing) or stockpiled to be placed along the toe of the floodwall in the Lagoon Area. The stockpiled materials were subjected to another round of sampling for PAHc and arsenic at a frequency of 1 sample for every 2,000 cubic yards prior to placement along the floodwall.

Allied Chemical discovered soil contamination in the CPLA Ammonia Concentration Building Area during other Site work due to the discoloration of the soil (a green tint) and a petroleum-like odor. This area was not specifically identified in the CPLA ROD or ROD Amendments. Allied Chemical sampled the material and detected elevated levels of total petroleum hydrocarbons (TPHC).

Allied Chemical conducted a focused investigation in the Ammonia Concentration Building Area and collected soil samples at depth intervals corresponding to 0.0-5.0 feet and 5.0-10.0 feet at designated locations. The samples were analyzed for TPHC using EPA Method 418.1. Based on a review of State of Ohio cleanup standards for hydrocarbon-contaminated soils that were in effect at the time, a Site-specific TPHC cleanup level of 100 mg/kg was adopted for the Ammonia Concentration Building Soils. Allied Chemical excavated the sampled material having TPHC concentrations greater than 100 mg/kg and disposed of it at an off-site landfill following TCLP and hazardous characteristic testing.

The 1990 OU2 ROD and subsequent amendments required the entire contents of Lagoon 5 to be removed. Allied Chemical excavated all of the materials in Lagoon 5 (about 120,000 tons) down to the visually encountered clay layer. Allied Chemical then removed about 2,000 tons of the Lagoon 5 clay, sampled the material to confirm that concentrations of PAHc and arsenic were below the cleanup criteria of 97 mg/kg PAHc and 15 mg/kg arsenic, and backfilled the clay into the excavated areas of Lagoon 2.

The materials in Lagoon 2 that required excavation were delineated during Allied Chemical's 1997 Lagoon

Materials Delineation Program. The program involved collecting samples from Lagoons 1 to 4 for PAHc analysis. The PAHc sample data was combined with other existing data for the lagoons and used in a statistical evaluation to determine which materials required removal in order to maintain an overall average concentration of PAHc less than 97 mg/kg to meet the 1998 ROD Amendment #3 requirement for converting the lagoons into a wetland system. The analysis indicated that only certain areas of Lagoon 2 required excavation. Additionally, potential ecological risks posed by the residual PAHc concentrations in the lagoons were evaluated in the 1999 Reconnaissance Ecological Risk Assessment and through the performance of subsequent annual ecological assessments to confirm that the remedial action for the constructed wetlands met objectives.

Honeywell conducted the OU3 Tar Plant RA in accordance with the 2013 Construction Quality Assurance Plan, the 2013 Construction Quality Assurance Plan - Main Parcel, and the 2014 Construction Quality Assurance Plan - River Parcel. The RA for the Main Parcel was a low-permeability solid waste cap containment remedy over the entire 16-acre Main Parcel. The RA for the upland area (riverbank slope) of the River Parcel was a geotextile fabric and soil cover over the entire 4-acre upland area of the River Parcel.

Because these remedial actions were containment/cover remedies over the entire property, confirmation sampling was not required. Instead, surveys were conducted to confirm that the RAOs were attained.

The areas of Ohio River sediment that exceeded the refined cleanup level of the sum of EPWTU of 5 or where tar was observed were identified as areas that required remediation during the RD based on the pre-design investigation studies. Sediment within the design capping area had sums of EPWTU values that ranged from 5 to 40, while values outside the capped area were less than 5.

The final capped area and thickness of the OU3 Ohio River sediment remedy was confirmed by comparing a baseline multi-beam bathymetric survey conducted prior to capping to verification multi-beam bathymetric surveys conducted after each layer of the cap was placed to check for areal extent and material thicknesses. Honeywell's construction managing contractor monitored the surveying results and verified that the quality and coverage of the cap met the specified design. The construction manager contractor notified the construction contractor of any deficiencies to be corrected during construction, and approved the final completion of areas post-construction.

#### **Operation and Maintenance**

Operation and maintenance (O&M) activities at the Allied Chemical Site are extensive and include activities associated with groundwater/wastewater operations, monitoring systems, engineered structure maintenance, landscaping, and security. Honeywell's O&M costs for the period 2014 to 2018 averaged over \$1.1 million annually.

Honeywell conducts the GDA groundwater monitoring in accordance with the 1994 GDA Remedial Action Monitoring Plan. The CPLA groundwater monitoring and Ice Creek monitoring is performed in accordance with the general protocols outlined in the 1995 CPLA Groundwater Compliance Sampling and Analysis Plan. Honeywell monitors and conducts O&M for the lagoons/wetlands in accordance with the 2000 Lagoon Area Wetlands/Floodplain Conversion Plan. Honeywell conducts O&M on the Tar Plant River Parcel in accordance with the 2015 Operation, Maintenance and Monitoring Plan - River Parcel. The Tar Plant Main Parcel O&M is conducted in accordance with the 2016 Draft Main Parcel Operation, Maintenance, and Monitoring Plan.

The O&M program includes comprehensive groundwater monitoring, potentiometric monitoring, chemical analysis, NPDES discharge monitoring, Site inspections, and any necessary repairs. The groundwater monitoring program includes monitoring contaminant concentrations and

groundwater levels to assess the containment of the GDA waste, maintenance of Site-wide hydraulic control, and for the presence of DNAPL. Honeywell also conducts periodic bathymetric surveying in the Ohio River to monitor the performance of the underwater sediment cap.

Honeywell monitors methane gas semiannually at the Main Parcel. In 2002, the Gas Vent Sampling Program at the GDA was terminated based on Honeywell's 2002 Air Emissions Evaluation Report. The 2002 Air Emissions Evaluation Report evaluated the analytical data from 14 consecutive quarterly air monitoring events and determined that the emissions of volatile organic compounds from the four GDA vents was insignificant. The 2002 report also concluded that the ambient impact to the nearest public receptor due to emissions from the vents was orders of magnitude lower than the corresponding Maximum Allowable Ground Level Concentration. As stipulated by EPA and OEPA, Honeywell continues to maintain the gas vents in the event that future sampling is required. At this time, however, no further sampling is anticipated.

Honeywell began annual lagoons/wetland monitoring in 2002. In 2012, Honeywell submitted the Lagoon Area Vegetation and Benthic Macro-invertebrate Monitoring Report, which summarized the activities and findings from

the annual wetlands/ecological assessments conducted within the Lagoon Area (Lagoons 1, 2, 3, 4, and 5). Based on consultation with OEPA, EPA informed Honeywell that the final decision to determine whether the re-establishment of the wetland/floodplain community has been achieved would be made after evaluating the field results using OEPA's Vegetation Index of Biotic Integrity (VIBI) Assessment Process.

Honeywell agreed to perform the VIBI assessment on three categories of observed wetland vegetation - forested, scrub/shrub, and emergent - in order to properly represent and assess each vegetative community. Honeywell completed the VIBI Assessment in 2014. Based on this assessment, OEPA and EPA approved the discontinuation of monitoring in Lagoons 1, 3, 4, and 5. The VIBI assessment, however, identified the need to address Lagoon 2 to control the invasive species Purple Loosestrife.

Honeywell completed three herbicide applications in Lagoon 2 in July 2015, 2016, and 2017. Honeywell conducted a follow-up VIBI Assessment of Lagoon 2 in August 2019. The results of the 2019 VIBI are being evaluated. The Lagoon 2 vegetation will continue to be monitored and maintained as part of ongoing O&M.

The 1988, 1990, and 2007 RODs require ICs at the Site. The ICs are a protective measure used in conjunction with the containment and active treatment methods to restrict property use, maintain the integrity of the cleanup remedies, and to assure long-term protectiveness for Site areas which do not allow for unrestricted use/unlimited exposure (UU/UE). The ICs implemented at the Allied Chemical Site include Environmental Covenants (ECs), Environmental Restrictions, city ordinances, and local zoning requirements. A 1989 Unilateral Administrative Order and a 2010 Consent Decree made the ICs a binding requirement on Allied Chemical/Honeywell. Copies of the ICs for the Allied Chemical Site are available in the February 2020 Updated Institutional Control Implementation and Assurance Plan (ICIAP) in the Docket.

The IC for the 8.5-acre portion of the OU1 GDA that includes the landfill cap and slurry wall (see ID 18 on Figure 2 in the Docket) is an EC that was recorded with the Lawrence County Recorder's office on September 14, 2018. The EC requires isolation and containment of the waste pit and DNAPL, prohibits the use of groundwater, prohibits residential activities and exposure, and prohibits activities that would interfere with the slurry wall, cap and, groundwater extraction remedies.

The EC for the remaining 1.5 acres of the GDA that are outside the boundaries of the cap and slurry wall, but above areas with groundwater contamination (Figure 2, IDs 22 and 23), restricts the land use to commercial/industrial activities, prohibits residential use and other residential-type activities such as schools, hospitals, assisted living and daycare facilities, food stores, restaurants and indoor and outdoor entertainment and recreational facilities, prohibits the consumption of groundwater, and prohibits food chain products, manufacturing, and warehousing. This EC was recorded with the County on September 14, 2018.

Land and groundwater use on the OU2 CPLA (Figure 2, IDs 1 to 17) is restricted by Environmental Deed Restrictions recorded with the Recorder's office on August 22, 2002 in Plat Book 10/Page 181. These deed restrictions: prohibit residential and recreational exposure on the properties; prohibit future use that is incompatible with the remedial actions; prohibit the consumption of groundwater and interference with the remedy; and ensure proper maintenance.

ECs are implemented on two on-site parcels of the Tar Plant OU3 and one off-site parcel (approximately 0.19 acres of the sediment cap on off-site property). The EC for the

Tar Plant Main Parcel property, which consists of the 16-acre landfill cap (Figure 2, ID 19) and the EC for the 12-acre River Parcel property, which includes the soil cap on the river bank and part of the Ohio River sediment cap, permit the properties to be used only for commercial/industrial activities, prohibit residential use and other residential-type use, prohibit the use of groundwater, and prohibit future use that is incompatible with the remedial actions and any interference with the remedy. The EC for the River Parcel also prohibits drilling, dredging, and/or vessel anchoring on the capped sediment area. These ECs were recorded with the Lawrence County Recorder's office on September 14, 2018.

The EC for the off-site sediment parcel in the Ohio River (Figure 2, ID 21) was recorded with the Lawrence County Recorder's office on September 26, 2018. This EC prohibits any activities which would interfere with or adversely affect the integrity or the protectiveness of the sediment cap, and does not permit any drilling, dredging, and/or vessel anchoring on the property.

Land and groundwater use on OU1, OU3, and most of OU2 (the portion of OU2 located within the City of Ironton) is additionally restricted by the City of Ironton Municipal Code Chapter 1272, 1977 and Code 1046.35, 2013. Chapter

1272 prohibits the installation of groundwater wells within the City, with the exception of wells installed on commercial property used exclusively and solely for irrigation. Zoning ordinance Code 1046.35 restricts OU1, OU3 and the OU2 property located in Ironton to General Industrial Use.

Long-term stewardship (LTS) is addressed at the Allied Chemical Site through the implementation of the ICIAP and IC monitoring, the ECs, Environmental Deed Restrictions, and local government controls, in conjunction with engineering controls, O&M, and routine Site inspections, to ensure that the remedy remains protective and continues to function as intended. The Allied Chemical Site achieved EPA's Site-Wide Ready for Anticipated Use designation on October 2, 2018.

#### **Five-Year Reviews**

The Allied Chemical Site requires statutory five-year reviews (FYRs) due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unrestricted use/unlimited exposure (UU/UE). EPA completed FYRs for the Allied Chemical Site in 1999, 2004, 2009, 2014, and 2019.

EPA completed the most recent FYR for the Site in September 2019. EPA's 2019 FYR found that the Site-wide

remedy protects human health and the environment. The exposure pathways that could result in unacceptable risks are being controlled and the cleanup remedies are operating as expected. Site-wide threats have been addressed through: waste containment and isolation (through the slurry wall, low-permeability hazardous waste and solid waste-compliant caps, soil, and sediment covers, and wetlands conversion); excavation with off-site disposal or off-site energy recovery; on-site groundwater containment, extraction and treatment; and ICs that restrict land use, prohibit groundwater use, and prevent activities that could impair the integrity of the engineering controls.

The 2019 FYR concluded that in order for the remedy to be protective in the long-term, an ICIAP needed to be completed and the LTS procedures from the ICIAP need to be incorporated into the O&M plans for OUs 1, 2, and 3. Honeywell submitted a revised ICIAP to EPA on March 11, 2019 and an updated ICIAP to EPA on February 14, 2020. EPA approved Honeywell's updated ICIAP on March 5, 2020. EPA and OEPA are currently evaluating whether the O&M Plans for the Site need to be amended to incorporate the ICIAP, or whether the ICIAP can be implemented as a stand-alone document in conjunction with the current O&M Plans for OU1, OU2 and OU3.

Copies of EPA's 1999, 2004, 2009, 2014, and 2019 FYR Reports are available in the Docket. EPA expects to complete the next FYR for the Allied Chemical Site in 2024.

### **Community Involvement**

EPA satisfied public participation activities for the Allied Chemical Site as required by Sections 113(k) (2) (B) (i-v) and 117 of CERCLA, 42 U.S.C. 9613(k) (2) (B) (i-v) and 9617. In 1986, EPA developed a Community Relations Plan for the Allied Chemical Site. EPA established a local information repository for the Site at the Briggs Lawrence County Public Library in Ironton, Ohio. EPA maintains a copy of the administrative record documents for the Allied Chemical Site at the local information repository, at EPA's Region 5 office in Chicago, Illinois, and on EPA's webpage for the Allied Chemical Site at <http://www.epa.gov/superfund/allied-chemical-ironton>.

EPA distributed fact sheets to the community throughout the Site investigations and cleanups to inform the public about Site activities. In 1986, EPA held a public meeting to present the findings of the OU1 and OU2 RI to the community. EPA released the FS Reports and proposed cleanup plans for the Site to the public in August 1988, September 1990, and July 2007 at the start of the OU1, OU2, and OU3 public comment periods. EPA published

newspaper announcements advertising EPA's proposed cleanup plans for the Site, the 30-day public comment periods, and the availability of public meetings, in the Ironton Tribune. EPA mailed fact sheets summarizing the proposed OU1, OU2 and OU3 cleanup plans to individuals on the Site mailing list.

EPA and OEPA conducted public meetings on August 16, 1988 and October 23, 1990. At the meetings, EPA and OEPA explained the details of the Allied Chemical OU1 and OU2 FSS, discussed the proposed cleanup plans, answered questions from the community, and accepted public comments. A court reporter was present to record the meetings. EPA distributed copies of the Proposed Plan fact sheets at the meetings. EPA offered to hold a public meeting to present and discuss EPA's proposed cleanup plan for OU3, but a meeting was not requested.

EPA received a request to extend the public comment period for the OU2 proposed cleanup plan during the October 23, 1990 meeting. As a result, EPA extended the comment period for 30 days. EPA published a notice of the public comment period extension in the Ironton Tribune. On November 7 and 8, 1990, EPA conducted interviews with local officials, residents, and a local environmental interest group to assess community concerns regarding the Site and

to evaluate past community relations activities. EPA used the information collected during these interviews to update the 1986 Community Relations Plan and EPA's mailing list.

On November 19, 1990, EPA and Ohio EPA appeared before the Ironton City Council and members of the public to answer additional questions about the Site and the proposed OU2 cleanup plan. EPA distributed a "Question & Answer" fact sheet to provide easy-to-understand answers to the questions raised by the community. EPA mailed a copy of the "Question & Answer" fact sheet to all individuals on the updated mailing list for the Site.

EPA received three public comments during the proposed plan public comment period for OU1, 25 public comments and one concern during the comment period for OU2, and two public comments during the comment period for OU3. EPA responded to the comments in Responsiveness Summaries attached to the 1988, 1990, and 2007 RODs.

EPA issued fact sheets summarizing the proposed ROD Amendments #1 (1995), #2 (1997), and #3 (1998), and held thirty-day public comment periods to accept comments on the proposed ROD Amendments. EPA also held a public meeting on March 30, 1995 to discuss EPA's proposed ROD Amendment #1. EPA did not receive any public comments on proposed ROD

Amendments #1 or #2, and only positive comments on EPA's proposed ROD Amendment #3.

EPA placed a copy of the 2015 OU3 ESD and the 2020 OU2 ESD in the information repositories at the Briggs Lawrence Public Library and at EPA's Region 5 office, in the administrative record file, and on EPA's webpage for the Allied Chemical Site at <https://www.epa.gov/superfund/allied-chemical-ironton>.

EPA published advertisements announcing EPA's FYRs for the Allied Chemical Site in the local newspaper, the Ironton Tribune, at the start of the 1999, 2004, 2009, 2014, and 2019 FYRs. The newspaper announcements informed the community about the start and purpose of the FYRs and invited the public to submit comments and concerns about the Site to EPA. EPA placed copies of the FYR Reports in the local information repository at the Briggs Lawrence County Public Library and made them available on EPA's website.

In 2011, EPA and the City hosted a workshop with Site property owners and representatives from local businesses, adjacent properties, local educational and healthcare institutions, and local and state government to plan for Site reuse. In 2018, EPA conducted interviews with the City of Ironton mayor, residents, and businesses as part of

the 2019 FYR process, to document any perceived problems or successes with the remedy.

EPA has satisfied public participation activities for this partial deletion of the Allied Chemical Site as required by CERCLA section 113(k), 42 U.S.C. 9613(k), and CERCLA section 117, 42 U.S.C. 9617. EPA arranged to publish an advertisement announcing this proposed direct final Partial Deletion and the 30-day public comment period in the Ironton Tribune concurrent with publishing this partial deletion in the **Federal Register**. Documents in the deletion docket, which EPA relied on for recommending the partial deletion of the Allied Chemical Site from the NPL, are available to the public at <https://www.regulations.gov>. and at <https://www.epa.gov/superfund/allied-chemical-iron-ton>. Documents in the Docket include maps which identify the Allied Chemical Site; the locations of OU1, OU2 and OU3; areas of contamination and remediation; and the ICIAP, FYRs, and other Site reports.

**Determination That the Criteria for Partial Deletion Have Been Met**

The soil (land) portion of OU1 (GDA); the soil (land) and lagoons portion of OU2 (CPLA), except for the OU2 ROD Soils Area 2 located within the bermed area of the East Tank Farm (see Figure 3 in the Docket); and all of OU3

(which only addressed contaminated soil and sediment at the Tar Plant and in the adjacent Ohio River), meet all of the site completion requirements specified in Office of Solid Waste and Emergency Response (OSWER) Directive 9320.2-22, Close Out Procedures for National Priorities List Sites. All cleanup actions and remedial action objectives for OU1 soil, OU2 soil and lagoons (except for OU2 ROD Soils Area 2), and OU3 set forth in the 1988, 1990, and 2007 RODs, the 1995 to 1998 ROD Amendments #1 to #3, and the 2015 ESD have been implemented for all pathways of exposure. The selected remedial actions, RAOs, and associated cleanup levels for OU1 soil, OU2 soil, and lagoons (except for OU2 ROD Soils Area 2) and OU3 are consistent with EPA policy and guidance. No further Superfund response is necessary to protect human health or the environment from the soil portion of OU1, the soil and lagoons portion of OU2 (except for OU2 ROD Soils Area 2), or from OU3.

Section 300.425(e) of the NCP states that a Superfund site or a portion of a site may be deleted from the NPL when no further response is appropriate. EPA, in consultation with the State of Ohio, has determined that all required response actions have been implemented for the soil portion of OU1, the soil and lagoons portion of OU2 (except for the OU2 ROD Soils Area 2), and all of OU3, and

that no further response action is appropriate for these media/areas.

#### **V. Deletion Action**

EPA, with concurrence of the State of Ohio, through the OEPA, has determined that all appropriate response actions under CERCLA, other than maintenance, monitoring, and five-year reviews, have been completed for the soil (land) portion of OU1 (GDA), the soil (land) and lagoons portion of OU2 (CPLA), except for the OU2 ROD Soils Area 2 located within the bermed area of the East Tank Farm (see Figure 3 in the Docket), and all of OU3 (which only addressed contaminated soil and sediment at the Tar Plant and in the adjacent Ohio River) of the Allied Chemical Site. Therefore, EPA is deleting the soil portion of OU1, the soil and lagoons portion of OU2 except for the OU2 ROD Soils Area 2, and all OU3, of the Allied Chemical Site from the NPL.

Because EPA considers this action to be noncontroversial and routine, EPA is taking it without prior publication. This action will be effective **[insert date 60 days after date of publication in the Federal Register]** unless EPA receives adverse comments by **[insert date 30 days after date of publication in the Federal Register]**. If adverse comments are received within the 30-

day public comment period, EPA will publish a timely notice of withdrawal of this direct final Notice of Partial Deletion before its effective date and the partial deletion will not take effect. EPA will prepare a response to comments and continue with the deletion process on the basis of the notice of intent to partially delete and the comments already received. There will be no additional opportunity to comment.

**List of Subjects in 40 CFR Part 300**

Environmental protection, Air pollution control, Chemicals, Hazardous substances, Hazardous waste, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Superfund, Water pollution control, Water supply.

\_\_\_\_\_  
Dated: June 11, 2020.

\_\_\_\_\_  
Kurt Thiede,  
Regional Administrator,  
Region 5.

For the reasons set out in this document, 40 CFR part 300 is amended as follows:

**PART 300—NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN**

1. The authority citation for part 300 continues to read as follows:

**Authority:** 33 U.S.C. 1251 *et seq.*; 42 U.S.C. 9601-9675; E.O. 13626, 77 FR 56749, 3 CFR, 2013 Comp., p. 306; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; E.O. 12580, 52 FR 2923, 3 CFR, 1987 Comp., p. 193.

2. Table 1 of appendix B to part 300 is amended by revising the entry under "Allied Chemical & Ironton Coke", "OH" to read as follows:

**Appendix B to Part 300—[Amended]**

**TABLE 1--General Superfund Section**

State	Site name	City/County	Notes (a)
	* * * * *		
OH	Allied Chemical & Ironton Coke	Ironton	P
	* * * * *		

(a) \* \* \*

P = Sites with partial deletion(s).

\* \* \* \* \*

[FR Doc. 2020-13302 Filed: 6/23/2020 8:45 am; Publication Date: 6/24/2020]