

Preassessment Screen and Determination for the Lower Darby Creek: Folcroft Landfill and Annex Site, Philadelphia, PA



Prepared by:
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Lower Darby Creek: Folcroft Landfill and Annex Site NRDAR

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I. Introduction and Purpose

The United States Fish and Wildlife Service (USFWS) acting on behalf of the U.S. Department of the Interior (DOI) and the Commonwealth of Pennsylvania, acting through the Department of Environmental Protection (PADEP) (collectively, the “Trustees”) may pursue claims for natural resource damages under section 107(f) of the Comprehensive Environmental Response, Compensation, and Liability Act, (CERCLA) 42 U.S.C. § 9601 et seq., in Pennsylvania.

This document is a preassessment screen and determination (PAS) prepared by the Trustees pursuant to 43 C.F.R. Part 11 for the Folcroft Landfill and Annex Site within the Lower Darby Creek Area (LDCA) Superfund site. Before pursuing further natural resource damage assessment (NRDA) efforts the Trustees complete a preassessment screen to make a determination as to whether an assessment shall be carried out. The purpose of the PAS is to provide a rapid review of readily available information that focuses on resources and services for which the Federal, State agency or Indian tribe may assert trusteeship under section 107(f) or section 126(d) of CERCLA. This review should ensure that there is a reasonable probability of making a successful claim before monies and efforts are expended in carrying out an assessment (43 C.F.R. § 11.23(b)).

II. Description of Site and Hazardous Substances and/or Oil Released

The Lower Darby Creek Area (LDCA) Superfund site (Figure 1) is located in the Coastal Plain Province in southeastern Delaware County and southwestern Philadelphia County, Pennsylvania. The LDCA consists of two former landfills, the Clearview Landfill and the Folcroft Landfill and Annex, that border Darby Creek. The PAS focuses on the Folcroft Landfill and Annex Site (“Site”). The Folcroft Landfill operated from the 1960's to the 1970's during which time a variety of waste including municipal, demolition, and hospital waste, was disposed. The Site is approximately two miles downstream of Clearview Landfill and on the west side of Darby Creek. The main stem of Darby Creek originates in Easttown Township, Chester County and is joined by a number of tributaries as it flows downstream. Cobbs Creek, the major tributary of Darby Creek, converges with Darby Creek north of Clearview Landfill. Darby Creek is then joined by Hermesprot Creek in John Heinz National Wildlife Refuge (JHNWR). The confluence of Darby Creek and the Delaware River is approximately 3.5 miles downstream of Clearview. Darby Creek collects water from the approximately 80 square miles Tinicum watershed.

The 64-acre Site (Fig. 1) is part of the 1,200-acre JHNWR which includes Tinicum Marsh, the largest freshwater marsh (350 acres) in Pennsylvania and is managed by the United States Fish and Wildlife Service (USFWS). The Site consists of two non-contiguous sections, the Landfill and Annex. The Landfill is approximately 47.5 acres in size and is bordered by Darby Creek to the east, Thoroughfare Creek to the southeast, Hermesprot Creek to the west, a tidal marsh to the southwest, and the Delaware County Emergency Services Training Center and an Action Concrete facility to the north. The Annex is approximately 17 acres in size and is bordered by Hermesprot Creek to the east and northeast, a business park to the north and northwest, an unnamed tributary to the west and southwest, and a tidal marsh to the south. There are no available records that

the Annex was leased or permitted for landfill operations (Golder, 2018). The Site is a peninsula of land bordered by the Lower Darby Creek to the east and southeast, Hermesprota Creek to the west, tidal marsh to the southwest, and the north by the former Delaware County incinerator (currently the Delaware County Emergency Services Training Center) and the former Darby Creek Joint Authority Sewage Treatment Plant (CDM, 2020).

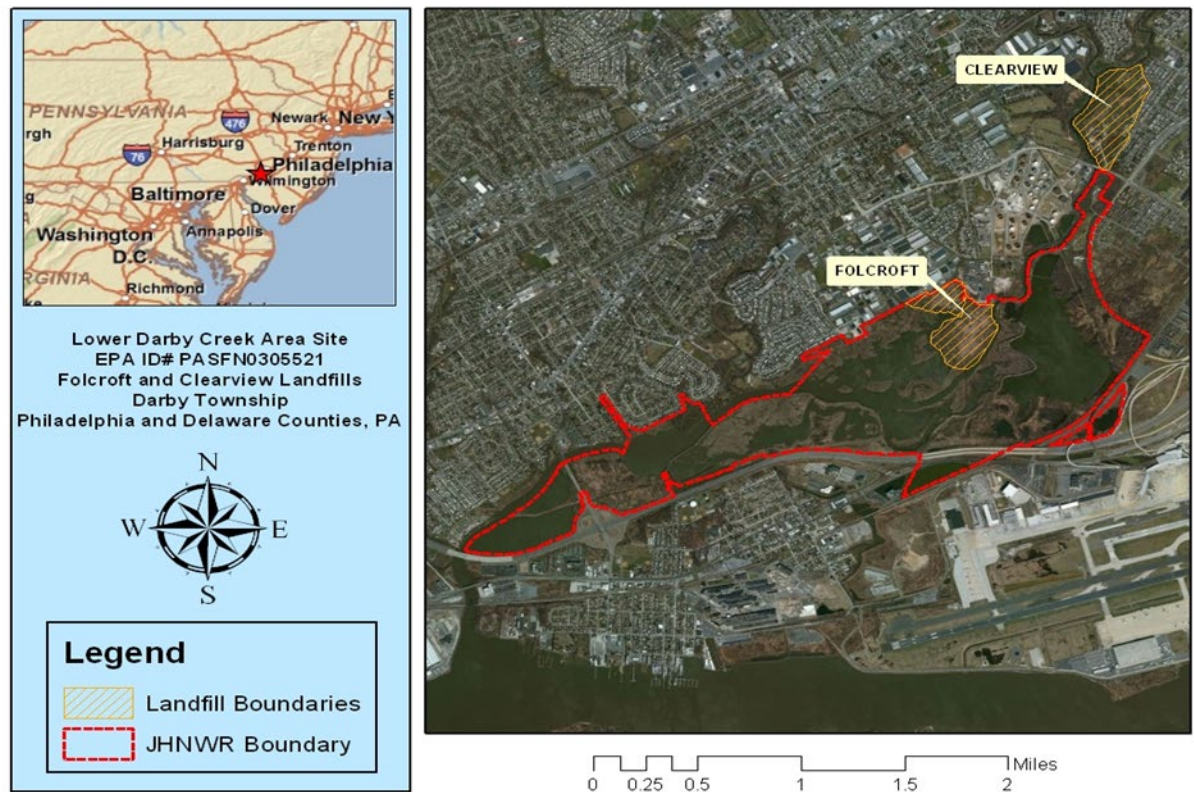


Figure 1. Lower Darby Creek Area Site, Philadelphia, PA. Location Map.

A timeline of historic activities at the Site is presented in Table ES-1 in the Remedial Investigation Report prepared by Golder (2018) with major events summarized here. It was permitted to accept municipal, demolition, and hospital wastes. Reports prepared by Pennsylvania Department of Environmental Resources (PADER, now PADEP) indicate that the landfills were not used for solely municipal dumping (Tetra, 2000). The Commonwealth Court of Pennsylvania ordered Folcroft Landfill Corporation to cease landfill operations at the Site and to close the landfill on August 29, 1973. Landfill operations ceased and closure actions began in 1974 under PADER supervision. By 1977, closure activities were completed, including the application of a 2-foot soil cover (soil cover thickness was thought to range between 2 to 10-feet deep) and grading requirements, with the PA Attorney General's Office issuing a letter (dated 10/27/1977) stating that the landfill was closed in substantial compliance with the order issued by the Commonwealth Court of Pennsylvania.

During these closure activities, in 1976, the House Committee on Merchant Marine and

Fisheries approved legislation to extend the boundary of JHNWR (formerly known as the Tinicum National Environmental Center) to include the Site. According to the House Committee Report, the purpose of the legislation is to further the preservation of the last true tidal marshland in the Commonwealth of Pennsylvania. John Heinz National Wildlife Refuge was established by Congress in 1972 to preserve diverse fish and wildlife habitat for natural and educational purposes. Although the Department of the Interior initially opposed the acquisition, the House Committee concluded that "the preservation of the Folcroft Dump area was of primary importance in order to prevent further decimation of the marshland within the [Tinicum National Environmental] Center." Tidal influence exists throughout the lower portion of Darby Creek and upstream as far as the confluence of Darby Creek and Cobb Creek, located near the northern portion of Clearview, but the extent of tidal influence changes depending on climate conditions. The purchase of the properties within the geographic boundaries of the Site to be incorporated into JHNWR was completed in 1980 (Golder, 2018).

Numerous investigations of Site contamination have been conducted spanning from the late 1960s to present. Between 1969 and 1973, PADER and Pennsylvania Department of Health inspected the Site and determined operations to be in violation of its permit. During these inspections, it was found that oily sludge, sewage sludge, refuse, and industrial wastes with oily material were being disposed of in and around the landfill. In addition, PADER also found several leaking drums with liquid flowing toward Tinicum Marsh. Aqueous and waste samples collected from the Folcroft Landfill were analyzed and found to contain elevated levels of heavy metals such as cadmium, copper, chromium, nickel, zinc, and lead (USEPA, 2001).

In 1980, three years after the Site met state landfill closure requirements, USEPA conducted a site inspection and identified oily waste, halogenated solvents, aromatic compounds, pesticides, metals, fly ash, asbestos, radioactive materials, municipal waste, hospital waste, and demolition waste disposed in the Folcroft Landfill (USEPA 2001). In July of 1983, a fire burned over 11 acres of the Annex, with material burning both on and beneath the surface. This fire exposed multiple 55-gallon drums, many of which were classified as hazardous wastes (including resin, flammable solids, water soluble lead, and asphalt) that were shipped off-site for disposal. After the fire, the portion of the Annex property disturbed during the response action or having exposed waste was covered with 6 to 8 inches of fly ash and then covered with compacted soil (USEPA, 1983).

Another site inspection was conducted by USEPA in September of 1983. Water was observed seeping from the bank of the landfill and discharging into Hermesprot and Darby Creeks. Water and sediment samples collected from Darby Creek, Hermesprot Creek, and the tidal marsh area showed elevated levels of inorganic pollutants including metals and cyanide (USEPA, 2001).

In February of 1986, the USEPA, in coordination with the USFWS, conducted a joint investigation of the Site. The report concluded that the Site "may be a notable source of aluminum, cyanide, copper, lead, and zinc to the Wildlife Refuge." Toxicity testing indicated leachate from the Site contained levels of inorganic compounds that were toxic to organisms (USEPA, 1986). In 1988, another joint investigation was conducted that

included sampling of soil, sediment, surface water, seeps, and groundwater (with the installation of 5 monitoring wells) at and adjacent to the Site. Results indicated that groundwater samples collected from the monitoring wells contained metals and volatile organic compounds (VOCs) at elevated concentrations, and the surface soil samples contained heavy metals and polycyclic aromatic hydrocarbon (PAHs) at concentrations up to three times the background level (USEPA, 2001).

From 1988 to 2002, the USFWS sampled the groundwater monitoring wells on an annual basis. The groundwater sampling showed detections of VOCs and metals, but none for pesticides or polychlorinated biphenyls (PCBs). Low concentrations of semi-volatile organic compounds (SVOCs), including PAHs, were found. An investigation in 1998 identified several springs and seeps on the southeastern edge of the Site along Thoroughfare Creek, and erosion of the toe of slope, which was attributed to surface runoff and tidal influences (Golder, 2018). In 1990 at the request of PADEP, the USFWS excavated two underground storage tanks each 1,000 gallons in capacity containing heating oil and gasoline from the Landfill. It was later discovered, during the 2007 RI, that the soil cover placed on the Landfill during closure operations was less than 2-feet thick in many areas (CDM, 2020). Materials for the cover were obtained from borrow sources that included dredge spoils, soils excavated for construction of Interstate 95, and soils excavated from a construction project at the Sun Oil refinery in Marcus Hook, PA (Ecology and Environment, 1980).

Given the degree of contamination, the USEPA placed LDCA on the National Priorities List in June 2001. In examining LDCA, the USEPA has determined that the two landfills, Clearview and the Site, were the primary sources of contamination at the LDCA site¹. Based on the results of the remedial investigation of the Site, the soil cover is greater than 1 foot thick for only about 30% of the surface area with areas of waste/debris visible at the surface where the cover is missing or thin. The soil is contaminated with metals, SVOCs, dioxins, pesticides, and PCBs; seeps are contaminated by metals, SVOCs, VOCs, and pesticides; and groundwater is contaminated by metals, pesticides, SVOCs, and VOCs (Golder, 2018). Ecological risk to terrestrial biota has been demonstrated in 18 of 20 sampling units on the landfill and 9 of 10 sampling units on the annex (WSP, 2023). As described above, the Trustees have obtained and reviewed readily available information concerning releases of heavy metals, PAHs, VOCs, pesticides and PCBs to the terrestrial and aquatic resources of the Site.

III. Potentially Responsible Party

The properties within the boundaries of the Site were owned at various times in the past by the Folcroft Landfill Corporation, Philadelphia Electric Company, Wilbur C. Henderson, and/or the Henderson Columbia Corporation and is currently owned by the United States and managed by the US Department of the Interior. To date, the USEPA, as lead response agency, has identified fifteen Potentially Responsible Parties for the Site:

¹ The Clearview Landfill is a spatially distinct area upstream where soil and groundwater have no influence on the Site.

- Boeing Company
- Browning-Ferris Industries, Inc.
- ConocoPhillips Company
- Delaware County Solid Waste Authority
- E.I. DuPont de Nemours and Company
- FMC Corporation
- General Electric Company
- Wilbur C. Henderson, Jr. / Henderson Columbia Corporation
- Kimberly Clark Corporation
- M.A. Bruder, Inc.
- PECO Energy Company
- PPG Industries, Inc.
- Rohm and Haas Company
- Waste Management Disposal Services of Pennsylvania, Inc. f/k/a SCA Services of Pennsylvania, Inc.
- U.S. Department of the Interior

Additional entities may be identified during the course of the NRDA.

IV. Damages Excluded From Liability

Pursuant to Section 11.24(b) of the CERCLA natural resource damage assessment and restoration (NRDAR) regulations, the Trustees have evaluated the potential for any exclusion or defense to liability under applicable laws and have determined that the potential injuries referred to herein do not meet one or more of the criteria, nor are they subject to the exceptions to liability provided in sections 107(f), (i), and (j) and 114(c) of CERCLA, and sections 311 (a)(2) or (b)(3) of the Clean Water Act, 33 U.S.C. §§1251 et seq.. The Trustees must determine whether:

- i. the damages resulting from the discharge or release were specifically identified as an irreversible and irretrievable commitment of natural resources in an environmental impact statement or other comparable environmental analysis, that the decision to grant the permit or license authorizes such commitment of natural resources, and that the facility or project was otherwise operating within the terms of its permit or license, so long as, in the case of damages to an Indian Tribe occurring pursuant to a Federal permit or license, the issuance of that permit or license was not inconsistent with the fiduciary duty of the United States with respect to such Indian Tribe; or
- ii. the damages and the release of a hazardous substance from which the damages resulted occurred wholly before the enactment of CERCLA; or
- iii. the damages resulted from the application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. section 135-135k; or
- iv. the damages resulted from any other Federally permitted release, as defined in section 101 (10) of CERCLA; or
- v. the damages resulted from a release or threatened release of recycled oil from a service station dealer described in section 107(a)(3) or (4) of CERCLA if such recycled oil is not mixed with any other hazardous substance and is stored, treated, transported, or otherwise

managed in compliance with regulations or standards promulgated pursuant to section 3014 of the Solid Waste Disposal Act and other applicable authorities.

The Trustees are unaware of any other exclusion or defense to liability under CERCLA, the Oil Pollution Act (OPA), or other applicable laws.

V. Preliminary Identification of Resources at Risk

The area around the Site, while heavily industrialized, supports a wide variety of wildlife, habitats, and recreational opportunities. There are a number of resources and associated services under the trusteeship of the Commonwealth of Pennsylvania and DOI that may have been or were impacted by the release of heavy metals, VOCs, SVOCs, PAHs, pesticides, and PCBs from the landfill operations, which include, but are not limited to:

- Migratory birds (See, e.g., Appendix A)
- Mammals (See e.g., Appendix B)
- Reptiles and amphibians (See e.g., Appendix B)
- Aquatic invertebrates and fish
- Surface water, ground water, soil, and sediments
- Supporting habitat including food, shelter, breeding, foraging, and other factors essential for survival
- Recreational services

Habitats within the vicinity of the Site include old field, forest, re-vegetated dredge spoil, open water, and marsh providing forage and nesting requirements for a variety of wildlife. The public is currently prevented from accessing the Site because of the presence of contamination and exposed waste, and there are restrictions on ground disturbance. The Site has been determined to be a threat to the public, preventing the Site from being available for Congressionally mandated purposes and preventing the JHNWR from working toward the wildlife and recreational standards set forth in the Refuge Act, its enabling legislation, and its Comprehensive Conservation Plan (CCP). Currently, public access is prohibited by a locked gate enclosing the Site, signage warning visitors of hazardous conditions, and concrete barriers. The current state of contamination at the Site prevents the Refuge from using the land encompassing the Folcroft Landfill and Annex as intended.

VI. Determination

The Site has documented releases of PAHs, hazardous substances, and other chemicals that may have and may be currently posing a threat to natural resources and impacting the services they provide. The purpose of the PAS is to determine if the release(s) of these hazardous materials at and from the Site pose a significant enough threat to natural resources and the services they provide to warrant further investigation. The Trustees have evaluated the existing data against the screening criteria in 43 C.F.R. §11.23 and determined to proceed with a NRDA.

Criterion 1: A discharge of oil or a release of a hazardous substance has occurred.

It has been documented that quantities of various heavy metals, VOCs, pesticides, PCBs, and PAHs, which are classified as hazardous substances, were released at and from the Site (CDM, 2020; Golder, 2018; Tetra, 2000). A comprehensive summary of sampling prior to the RI at the Site was completed by Tetra (2000) and a complete list of the hazardous substances detected from these data sets are presented in Appendix C. The Site is a known source of contaminant transport to Tinicum Marsh via groundwater transport and surface runoff within the refuge. Heavy metals have also been found in the Hermesprota Creek water column adjacent to the Site. Leachate from the Site was found to contain copper, lead, nickel, and zinc. Creek sediments are contaminated by cyanide, chromium, chlordane, nickel, and PCBs. Levels in Darby Creek water and sediments are highest in the Tinicum/Folcroft area (Gannett, 1989/ USEPA, 1986). Additional on-going releases contributing contamination to the environment may occur as the fill material continues to degrade in the future (Gannett, 1989).

Criterion 2: Natural resources for which the Trustees may assert trusteeship under CERCLA have been or are likely to have been adversely affected by the discharge or release.

In accordance with the National Contingency Plan, 40 CFR §§ 300.600- 300.605, and 42 U.S.C. 9607(f)(2)(B), DOI and the Commonwealth of Pennsylvania have trusteeship over the natural resources and services² identified in Section V, which have or potentially have been injured, lost, or destroyed by exposure to the releases of metals, PAHs, VOCs, pesticides, and PCBs at and from the Site. Specific affected areas of trusteeship include: land, soil, plants, surface water, biotic resources, and recreation.

Contamination emanating from the Site has migrated through numerous pathways with the potential to adversely affect the ecological system. Primary sources through which resources may have been exposed to hazardous substances from the contaminants include seep water, sediment, and soil. Potential contaminant pathways into ecological receptors include direct uptake and indirect exposure. Direct uptake mechanisms include dermal contact, absorption, ingestion, or inhalation of contaminated sediment and surface water. In addition to these direct uptake mechanisms, ecological receptors may be indirectly exposed by consuming contaminated food or prey items or due to reduced food supply. Upper trophic level receptors are primarily expected to be exposed by dietary ingestion, making them vulnerable to bioaccumulation of certain compounds.

Hundreds of acres of the JHNWR have been impacted due to releases at and from

² Services is defined in 43 C.F.R. § 11.14(nn) as the “physical and biological functions performed by the resource including the human uses of those functions. These services are the result of the physical, chemical, or biological quality of the resource.”

the Site. Numerous acres have accumulated contaminants that exceed background concentrations. Studies have concluded that the following natural resources, belonging to, managed by, controlled by, or appertaining to the Trustees have been adversely affected by the releases: aquatic ecosystems, Tinicum Marsh and associated organisms and soil/upland ecosystems, associated biota, and the services they provide (Gannett, 1989; USEPA, 1986; CDM, 2020; Tetra, 2006/2011; and Golder, 2018).

The USEPA has concluded that an unacceptable risk exists to human health from groundwater, sediments, and fish within Darby and Cobbs Creek. The USEPA recommends that the public avoid consuming fish from Darby Creek and the JHNWR and Pennsylvania Fish and Boat Commission has a consumption advisory in this creek due to PCB contamination. The USFWS has posted signs in and around the refuge warning people against consuming fish and trespassing on the Landfill and Annex properties. Future remedial efforts may include sections of the JHNWR, so there is potential for future impacts to recreational users in these areas. Future maintenance and management costs may also be increased because of the existing contamination and/or remedial actions.

Although the Site is located within a highly urbanized industrial region, there are several significant and unique habitat areas adjacent to the Site. The JHNWR supports a variety of wildlife species. Birdwatchers have recorded more than 280 species of birds in and around JHNWR (Appendix A). Many bird species nest on JHNWR where they are exposed to contaminated surface water, soil, sediment and prey. In addition, JHNWR supports numerous reptile, amphibian, and fish species that are exposed to contaminated surface water, sediment, and prey including several species of concern highlighted in the JHNWR Comprehensive Conservation Plan (Appendix B). It is one of the few places in Pennsylvania where the state-endangered red-bellied turtle and southern leopard frog can be found. Cobbs and Darby Creeks are listed as warm-water fishing streams by the Pennsylvania Fish and Boat Commission (PFBC). Bioaccumulative chemicals detected at the Site pose a risk to upper trophic level birds, mammals, reptiles, and fish potentially impacting survival, growth, and reproduction (Golder, 2018). A study conducted on Darby Creek within JHNWR clearly demonstrated a significantly greater incidence of carcinogenic liver tumors than in a Maryland reference stream at a rate indicative of a highly contaminated area (Pinkney et al. 2004).

The Trustees believe that the contamination may have reduced recreational opportunities in the JHNWR, including both consumptive and non-consumptive activities such as recreational fishing, environmental education, photography, hunting, hiking, bicycling, canoeing, and wildlife viewing.

Criterion 3: The quantity and concentration of the discharged oil or released hazardous substance is sufficient to potentially cause injury, as that term is used in this part, to those natural resources.

The Screening Level Ecological Risk Assessment (SLERA) identified potential risk to several receptor species based on maximum concentrations of contaminants measured in the groundwater, soil, and seeps. Inorganics, SVOCs, PCBs, pesticides, and Dioxins/Furans were all identified as chemicals of potential concern (COPC) for the Site (Golder, 2018; Appendix D). Similarly, the Baseline Ecological Risk Assessment (BERA) assessed unacceptable risk due to contaminants measured in the sediment, snapping turtle, and fish tissue at the Site. The BERA concluded that site contaminants pose unacceptable risks to the macroinvertebrate community, the game fish community, the aquatic plant community, the piscivorous mammal and bird community, the carnivorous bird community, and the invertivorous mammal community. Concentrations of PAHs, methoxychlor, 4,4'-DDE, 4,4'-DDD, total PCBs, dioxins and furans, aluminum, antimony, arsenic, chromium, cobalt, copper, lead, manganese, nickel, selenium, vanadium, and zinc were sufficiently elevated to cause adverse effects in one or more of the selected receptors. The contaminants 4,4'-DDD, 4,4'-DDE, total PCBs, aluminum, selenium, and zinc were the most commonly identified source of unacceptable exposure to the affected receptors or receptor groups (CDM, 2020). In addition, levels of copper, lead, and zinc in Darby Creek have exceeded USEPA water quality criteria.

Criterion 4: Data sufficient to pursue an assessment are readily available or likely to be obtained at reasonable cost.

Significant amounts of data relevant to impacts to natural resources resulting from metals, PAHs, VOCs, Pesticides, and PCBs exposure on the Site are available from the published literature, government agencies (USFWS, NOAA, and USEPA), and other sources. These data include information on contaminant releases, concentrations in the environment, and the effect of contamination on natural resources. Table 1 presents a summary of the data available for the listed resources.

Table 1: Summary of data collected on natural resources for the Site.

Resource	Data Collected (Y/N)	Collection Pre RI or During RI	COCs Identified
Groundwater	Y	During RI	Dioxins/furans, Inorganic compounds (including heavy metals), Pesticides, SVOCs, VOCs
Surface/Seep water	Y	Both	Inorganic compounds (including heavy metals), Pesticides, SVOCs, VOCs
Soil	Y	Both	Dioxins/furans, Inorganic compounds (including heavy

Resource	Data Collected (Y/N)	Collection Pre RI or During RI	COCs Identified
			metals), Pesticides, PCBs, SVOCs, VOCs
Sediment	Y	Both	Inorganic compounds (including heavy metals), PAHs, PCBs
Plants	N	N/A	N/A
Mammals	N	N/A	N/A
Birds	N	N/A	N/A
Reptiles	Y	During RI	Dioxins/furans, Inorganic compounds (including heavy metals), Pesticides, PCBs, SVOCs
Fish	Y	Pre RI	Dioxins/furans, Inorganic compounds (including heavy metals), Pesticides, PCBs
Aquatic Invertebrates	Y	Pre RI	Inorganic compounds (including heavy metals), Pesticides, PAHs, PCBs
Recreational Services	N	N/A	N/A

Given the volume of available information, additional data useful for an assessment could be obtained at a reasonable cost.

Criterion 5: Response actions, if any, carried out or planned do not or will not sufficiently remedy the injury to natural resources without further action.

The Trustees expect remedial actions will reduce exposure to hazardous substances. However, the full extent of such reduction cannot be assessed until the remedial action is completed. Remediation likely will not address lost natural resource services or the loss associated with any residual contamination. Remediation will also cause a temporary disturbance to the refuge properties. Therefore, the Trustees have determined that additional assessment is warranted.

VII. Summary of Determination

Following the review of information described in this Preassessment Screen, the Trustees have made a preliminary determination that the criteria specified in 43 CFR Part 11 (Natural Resource Damage Assessments) have been met. The Trustees have further determined that there is a reasonable probability of making a successful claim for damages with respect to natural resources over which the Trustees have trusteeship. Accordingly, the DOI and Commonwealth of Pennsylvania, acting on behalf of the public, in accordance with 42 U.S.C. § 9607(f) of CERCLA, find sufficient cause to proceed with an NRDA of the Folcroft Landfill and Annex at the Lower Darby Creek Superfund site and anywhere released hazardous substances and oil have come to be located.

VIII. References

- CDM Federal Programs Corporation (CDM). 2020. Final Baseline Risk Assessment Report Lower Darby Creek Area Superfund Site. Delaware and Philadelphia Counties, Pennsylvania. Contract No. EP-S3-07-06. Work Assignment No.: 013-RSBD-D366. Prepared for the U.S. Environmental Protection Agency.
- Ecology and Environment, Inc. 1980. An On-Site Inspection of Folcroft Dump Site, Field Investigations of Uncontrolled Hazardous Waste Sites, FIT Project, Technical Directive Document No. F3-8008-01, EPA# PA-34.
- Gannett Fleming Environmental Engineers Inc. (Gannett). 1989. Site investigation report for the Folcroft Landfill and Tinicum Marsh. Prepared for the U.S. Environmental Protection Agency.
- Golder Associates Inc. (Golder) 2018. Revised Final Remedial Investigation Report Folcroft Landfill and Annex Site. Folcroft, Pennsylvania. Project No.: 023-6134.007. Prepared for the U.S. Environmental Protection Agency.
- PADER, Bureau of Water Quality Management (PADER). 1972a. Water or Waste Quality Report, Sample Number 682268. October 26, 1972. (1 page).
- PADER, Bureau of Water Quality Management (PADER). 1972b. Water or Waste Quality Report, Sample Number 682267. October 26, 1972. (2 pages).
- PADER, Bureau of Water Quality Management (PADER). 1972c. Water or Waste Quality Report, Sample Number 689753. December 12, 1972. (2 pages).
- PADER, Bureau of Water Quality Management (PADER). 1973a. Water or Waste Quality Report, Sample Number 689754. May 7, 1973. (2 pages).
- PADER, Bureau of Water Quality Management (PADER). 1973b. Water or Waste Quality Report, Sample Number 689752. May 7, 1973. (2 pages).
- PADER, Bureau of Water Quality Management (PADER). 1973c. Water or Waste Quality Report, Sample Number 686505. February 13, 1973. (7 pages).
- PADER, Bureau of Water Quality Management (PADER). 1973d. Water or Waste Quality Report, Sample Number 686503. February 13, 1973. (2 pages).
- Pinkney, A.E., J.C. Harshbarger, and M.R. Roberts. 2004. Tumor prevalence in brown bullheads (*Ameiurus nebulosus*) from Darby Creek, John Heinz National Wildlife Refuge at Tinicum, Philadelphia, PA. CBFO-C04-03 and PAFO-C04-02 . 25 pp.
- Tetra Tech/Black & Veatch Joint Venture (Tetra), 2006. Ecological Risk Assessment Report. Prepared for the U.S. Environmental Protection Agency.
- Tetra Tech EM Inc. (Tetra), 2000. Final Hazard Ranking System Documentation Record

Lower Darby Creek Area. EPA Contract # 68-S5-3002. Technical Directive Document: 03-9908-0002. Prepared for the U.S. Environmental Protection Agency.

Tetra Tech NAS, Inc. (Tetra), 2011. Final Remedial Investigation Report Volume 1. Remedial Action Contract (RAC) # EP-S3-07-04.f Prepared for the U.S. Environmental Protection Agency.

U.S. Environmental Protection Agency. 1983, CERCLA-EPA Region III Immediate Removal Action, Tinicum National Environmental Center, Folcroft, PA, On-Scene Coordinator's Report, U.S. Environmental Protection Agency, 1983

U.S. Environmental Protection Agency. 1986. An Investigation of Potential Environmental Hazards at Tinicum National Environmental Center.

U.S. Environmental Protection Agency. 2001. NPL Listing Package for the Lower Darby Creek Area, Delaware and Philadelphia Counties, Pennsylvania. June.

U.S. Environmental Protection Agency /U.S. Department of the Interior/U.S. Fish and Wildlife Service. 1986. An Investigation of Potential Environmental Hazards at Tinicum Environmental Center. Prepared jointly with USFWS. September.

WSP USA Inc (WSP). 2023. Draft Feasibility Study for Folcroft Landfill and Annex Site Operable Unit 2 (OU2) Lower Darby Creek Area Site. Prepared for the U.S. Environmental Protection Agency.

IX. Appendices

	Sp	S	F	W
Kinglets				
___ Golden-crowned Kinglet	u		c	c
___ Ruby-crowned Kinglet	c		c	u
Thrushes				
___ Eastern Bluebird	o	r	o	r
___ Veery	u	r	o	
___ Gray-cheeked Thrush	o		o	
___ Swainson’s Thrush	u		o	
___ Hermit Thrush	u		u	r
___ Wood Thrush•	c	c	o	
___ American Robin•	a	a	a	a
Mockingbirds & Thrashers				
___ Gray Catbird•	a	a	a	o
___ Brown Thrasher•	u	u	u	r
___ Northern Mockingbird•	u	u	u	u
Starlings				
___ European Starling•	a	a	a	a
Pipits				
___ American Pipit	*		r	*
Waxwings				
___ Cedar Waxwing•	c	a	a	o
Longspurs & Snow Buntings				
___ Snow Bunting	*		*	*
Wood Warblers				
___ Ovenbird	c	r	u	
___ Worm-eating Warbler	o		r	
___ Louisiana Waterthrush	r	r	r	
___ Northern Waterthrush	c	r	c	*
___ Golden-winged Warbler	*			
___ Blue-Winged Warbler	u		u	
___ Black-and-white Warbler	c	r	c	
___ Prothonotary Warbler	r	r		
___ Tennessee Warbler	o		u	
___ Orange-crowned Warbler	*		r	r
___ Nashville Warbler	u		u	
___ Connecticut Warbler			r	
___ Mourning Warbler	r		*	
___ Kentucky Warbler	*	*		
___ Common Yellowthroat•	c	c	c	r
___ Hooded Warbler	o	*	r	
___ American Redstart•	c	c	c	
___ Cape May Warbler	o		u	
___ Cerulean Warbler	r		*	
___ Northern Parula	c	r	c	*
___ Magnolia Warbler	c		c	
___ Bay-breasted Warbler	o		o	
___ Blackburnian Warbler	u		u	
___ Yellow Warbler•	a	a	c	
___ Chestnut-sided Warbler	u	r	u	
___ Blackpoll Warbler	c		c	
___ Black-throated Blue Warbler	c		c	
___ Palm Warbler	c		c	r
___ Pine Warbler				
___ Yellow-rumped Warbler				
___ Yellow-throated Warbler				
___ Prairie Warbler				
___ Black-throated Green Warbler				
___ Canada Warbler				
___ Wilson’s Warbler				
Sparrows & Towhees				
___ American Tree Sparrow	o		o	u
___ Chipping Sparrow	u	u	u	o
___ Clay-colored Sparrow				*
___ Field Sparrow	u	o	u	o
___ Fox Sparrow	u		u	u
___ Dark-eyed Junco	u		u	u
___ White-crowned Sparrow	o		o	r
___ White-throated Sparrow	a	r	a	a
___ Vesper Sparrow	*		*	
___ Savannah Sparrow	o		o	r
___ Song Sparrow•	a	a	a	a
___ Lincoln’s Sparrow	o		o	
___ Swamp Sparrow•	c	u	c	u
___ Eastern Towhee•	c	u	c	o
Yellow-breasted Chat				
___ Yellow-breasted Chat	r	r	r	
Cardinals & Tanagers				
___ Summer Tanager	*		*	
___ Scarlet Tanager	c	o	u	
___ Western Tanager	*			
___ Northern Cardinal•	a	a	a	a
___ Rose-breasted Grosbeak	u		u	
___ Blue Grosbeak	*	r	r	
___ Indigo Bunting•	u	u	u	
___ Painted Bunting				*
___ Dickcissel			*	*
Blackbirds				
___ Bobolink	o	r	c	
___ Red-winged Blackbird•	a	a	a	a
___ Eastern Meadowlark	*	*	*	
___ Rusty Blackbird	u		u	u
___ Common Grackle•	c	c	c	u
___ Brown-headed Cowbird•	c	c	c	o
___ Orchard Oriole•	c	c	o	
___ Baltimore Oriole•	c	c	u	
Finches				
___ House Finch•	c	c	c	c
___ Purple Finch	r		o	r
___ Red Crossbill			*	
___ White-winged Crossbill			*	
___ Common Redpoll			*	*
___ Pine Siskin	*		r	*
___ American Goldfinch•	c	a	a	c
___ Evening Grosbeak				*
___ House Sparrow•	u	u	u	u

Historical Records (pre-2000)	
New World Quail	
___ Northern Bobwhite	
Partridges, Turkey & Quail	
___ Ring-necked Pheasant	
Grebes	
___ Eared Grebe	
Gannets	
___ Northern Gannet	
Rails, Gallinules & Coots	
___ Yellow Rail	
___ Black Rail	
Stilts & Avocets	
___ Black-necked Stilt	
___ American Avocet	
Plovers	
___ Piping Plover	
Sandpipers & Phalaropes	
___ Whimbrel	
___ Black-tailed Godwit	
___ Ruff	
___ Curlew Sandpiper	
___ Buff-breasted Sandpiper	
___ Willet	
Gulls, Terns & Skimmers	
___ Glaucous Gull	
___ White-winged Tern	
___ Royal Tern	
___ Black Skimmer	
Typical Owls	
___ Short-eared Owl	
Woodpeckers	
___ Black-backed Woodpecker	
Tyrant Flycatchers	
___ Western Kingbird	
___ Scissor-tailed Flycatcher	
Shrikes	
___ Loggerhead Shrike	
Wrens	
___ Sedge Wren	
Sparrows	
___ Grasshopper Sparrow	
___ Nelson’s Sparrow	
___ Lark Sparrow	
___ Golden-crowned Sparrow	
___ Harris’s Sparrow	
Blackbirds	
___ Brewer’s Blackbird	



Bill Moses

Least bittern

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Updated September 2017



U.S. Fish & Wildlife Service

John Heinz

National Wildlife Refuge at Tinicum

Bird List

eBird (ebird.org) is the best method to record bird your sightings at John Heinz NWR.

Birding Seasons

Sp	Spring	March – April – May
S	Summer	June – July
F	Fall	Aug. – Sept. – Oct. – Nov.
W	Winter	Dec. – Jan. – Feb.

Relative Abundance (since calendar year 2000)

Indicates how frequently you might see the bird in its favored habitat.
a Abundant: very numerous
c Common: likely to be seen or heard
u Uncommon: present, not certain to be seen
o Occasional: seen no more than a few times during a season
r Rare: not recorded every year, 6-20 records
***** Very Rare: recorded 1-5 times

- Confirmed nesting on the refuge.

	Sp	S	F	W
Ducks, Geese & Swans				
___ Snow Goose	o	r	u	u
___ Ross’s Goose			*	
___ Brant			r	
___ Cackling Goose			*	*
___ Canada Goose•	a	a	a	a
___ Mute Swan•	c	u	c	u
___ Trumpeter Swan			*	
___ Tundra Swan	o		o	o
___ Wood Duck•	a	a	a	o
___ Gadwall	c		c	c
___ Eurasian Wigeon	*			*
___ American Wigeon	u		u	o
___ American Black Duck•	c	u	c	c
___ Mallard•	a	a	a	c
___ Blue-winged Teal•	u		c	

	Sp	S	F	W
___Cinnamon Teal		*		
___Northern Shoveler	c		c	c
___Northern Pintail	c		c	u
___Green-winged Teal	c		c	u
___Common (Green-winged) Teal	*		*	*
___Canvasback	o		*	*
___Redhead	o		r	r
___Ring-necked Duck	c	r	u	u
___Greater Scaup	o		o	
___Lesser Scaup	u		u	u
___Surf Scoter			*	
___White-winged Scoter			*	
___Black Scoter			*	
___Long-tailed Duck				*
___Bufflehead	c	r	c	c
___Common Goldeneye	o		o	o
___Hooded Merganser	u	r	u	u
___Common Merganser	c	r	c	c
___Red-breasted Merganser	o		o	o
___Ruddy Duck	u	r	c	u
Partridges, Turkey & Quail				
___Wild Turkey•	u	u	u	u
Loons				
___Red-throated Loon	*			
___Common Loon	u	r	o	r
Grebes				
___Pied-billed Grebe	u	r	u	o
___Horned Grebe	u		o	r
___Red-necked Grebe	r			r
Cormorants				
___Great Cormorant	r		r	r
___Double-crested Cormorant	c	c	c	u
Snakebirds/Darters				
___Anhinga	*		*	
Pelicans				
___American White Pelican			*	
Bitterns & Herons				
___American Bittern	o	r	o	r
___Least Bittern•	u	u	u	
___Great Blue Heron	c	a	a	c
___Great Egret	c	a	a	r
___Snowy Egret	r	o	o	
___Little Blue Heron	r	o	o	
___Tricolored Heron	*	*	*	
___Cattle Egret	*	*	*	
___Green Heron•	c	c	c	r
___Black-crowned Night-Heron	o	o	o	r
___Yellow-crowned Night-Heron	r	*		
Ibises				
___White Ibis			*	*
___Glossy Ibis	o	o	o	r
New World Vultures				
___Black Vulture	u	u	u	u

	Sp	S	F	W
___Turkey Vulture	c	c	c	c
Ospreys				
___Osprey	c	c	c	r
Hawks & Eagles				
___Golden Eagle			*	
___Northern Harrier	o	r	u	o
___Sharp-shinned Hawk	u		c	u
___Cooper’s Hawk•	c	u	c	c
___Northern Goshawk	*		*	*
___Bald Eagle•	c	c	c	c
___Red-shouldered Hawk	u	r	u	u
___Broad-winged Hawk	o		o	
___Red-tailed Hawk•	c	c	c	c
___Rough-legged Hawk				*
Rails, Gallinules & Coots				
___King Rail	*			
___Virginia Rail	o	o	o	r
___Sora	o	o	u	
___Purple Gallinule			*	
___Common Gallinule•	o	o	o	r
___American Coot	c	r	c	u
Cranes				
___Sandhill Crane	*			
Plovers				
___Black-bellied Plover	r		r	
___American Golden-Plover			r	
___Semipalmated Plover	o	o	u	
___Killdeer•	u	u	c	o
Sandpipers & Phalaropes				
___Upland Sandpiper			*	
___Hudsonian Godwit			*	
___Marbled Godwit			*	
___Ruddy Turnstone	*		*	
___ <i>Red Knot</i>			*	
___Stilt Sandpiper		o	u	
___Sanderling			r	
___Dunlin	r	r	o	r
___Baird’s Sandpiper			*	
___Least Sandpiper	u	u	c	
___White-rumped Sandpiper	r	r	o	
___Pectoral Sandpiper	o	o	u	
___Semipalmated Sandpiper	u	u	c	
___Western Sandpiper		r	o	
___Short-billed Dowitcher	r	r	o	
___Long-billed Dowitcher		*	*	
___Wilson’s Snipe	u		u	u
___American Woodcock	u	r	r	r
___Wilson’s Phalarope			r	
___Red-necked Phalarope		*	*	
___Red Phalarope			*	
___Spotted Sandpiper	c	u	c	r
___Solitary Sandpiper	c	o	c	
___Greater Yellowlegs	c	c	c	r
___Lesser Yellowlegs	u	c	c	r

	Sp	S	F	W
Gulls, Terns & Skimmers				
___Bonaparte’s Gull	o		o	o
___Black-headed Gull				*
___Laughing Gull	u	o	c	r
___Ring-billed Gull	a	u	a	a
___Herring Gull	c	u	c	c
___Iceland Gull	*			
___Lesser Black-backed Gull	r			r
___Great Black-backed Gull	u	o	u	u
___Least Tern		r	*	
___Gull-billed Tern			r	
___Caspian Tern	u	u	c	
___Black Tern	r		o	
___White-winged Tern			*	
___Common Tern	r		r	
___Forster’s Tern	u	u	c	
Doves				
___Rock Pigeon	c	c	c	c
___Mourning Dove•	c	c	c	c
Cuckoos				
___Yellow-billed Cuckoo•	u	r	o	
___Black-billed Cuckoo	o	r	r	
Barn Owls				
___Barn Owl				*
Typical Owls				
___Eastern Screech-Owl	*		*	
___Great Horned Owl•	u	r	o	u
___Barred Owl	*			*
___Long-eared Owl	r			r
___Northern Saw-whet Owl	o		r	o
Goatsuckers				
___Common Nighthawk	u	r	u	
___Chuck-wills-widow	*			
___Eastern Whip-poor-will	*			
Swifts				
___Chimney Swift	c	c	c	
Hummingbirds				
___Ruby-throated Hummingbird•	c	c	c	
Kingfisher				
___Belted Kingfisher•	u	u	c	u
Woodpeckers				
___Red-headed Woodpecker	*		r	
___Red-bellied Woodpecker•	c	c	c	c
___Yellow-bellied Sapsucker	u		u	o
___Downy Woodpecker•	c	c	c	c
___Hairy Woodpecker•	u	u	u	u
___Northern Flicker•	c	c	c	u
___Pileated Woodpecker	r	r	r	r
Falcons				
___American Kestrel	u	r	u	o
___Merlin	u		u	o
___Peregrine Falcon	u	u	u	u

	Sp	S	F	W
Tyrant Flycatchers				
___Olive-sided Flycatcher	*	*	*	
___Eastern Wood-Pewee•	c	c	c	
___Yellow-bellied Flycatcher	r		o	
___Acadian Flycatcher•	u	u	o	
___Alder Flycatcher	r	*	*	
___Willow Flycatcher•	c	c	c	
___Least Flycatcher	o		o	
___Eastern Phoebe•	c	u	c	u
___Great Crested Flycatcher•	c	c	u	
___Eastern Kingbird•	c	c	c	
Shrikes				
___Northern Shrike	*		*	*
Vireos				
___White-eyed Vireo	u	o	u	
___Yellow-throated Vireo	o		o	
___Blue-headed Vireo	u		u	
___Philadelphia Vireo	*		o	
___Warbling Vireo•	c	c	c	
___Red-eyed Vireo•	c	c	c	
Jays & Crows				
___Blue Jay•	c	c	c	c
___American Crow•	c	c	c	c
___Fish Crow•	c	u	u	u
___Common Raven	r	*	r	*
Larks				
___Horned Lark	*		*	*
Swallows				
___N. Rough-winged Swallow	c	c	c	r
___Purple Martin	o	o	o	
___Tree Swallow•	a	a	a	r
___Bank Swallow	u	o	c	
___Barn Swallow•	a	a	a	
___Cliff Swallow	r	r	r	
___Cave Swallow			*	
Chickadees & Titmice				
___Carolina Chickadee•	c	c	c	c
___Black-capped Chickadee	r		r	r
___Tufted Titmouse•	c	c	c	c
Nuthatches				
___Red-breasted Nuthatch	r		o	r
___White-breasted Nuthatch•	c	u	c	c
Creepers				
___Brown Creeper	u		u	u
Wrens				
___House Wren•	a	a	a	r
___Winter Wren	o		u	u
___Marsh Wren•	c	a	a	r
___Carolina Wren•	c	c	c	c
Gnatcatcher				
___Blue-gray Gnatcatcher•	c	c	c	

Appendix B: John Heinz Known Species of Conservation Concern Presented in the JHNWR Comprehensive Conservation Plan



Frank Miles/USFWS

A pine warbler in the refuge's coastal plain forest habitat

Known Species of Conservation Concern

Species	Seasons/Abundance at John Heinz NWR ¹				Nesting ¹	Federal T&E ²	PA T&E ³	BCR 30 ⁴	PIF 44 ⁵	USFWS North Atlantic LCC Priority List ⁶	USFWS Birds of Conserv. Concern ⁷	Federal Trust Fish	PA SWAP Priority ⁸	North Atlantic Shorebird Plan ⁹	North American Waterbird Plan ¹⁰	Waterfowl Management Plan ¹¹
	Spr	Sum	Fall	Win												
WATERBIRDS																
American Bittern	c	r	o	r	Y		PE	M	2		X		HC			
American Coot	c	o	c	o	Y								MC			
Black Tern	o	r	o				PE								M	
Black-crowned Night Heron	a	a	a	o	Y		PE	M					V		M	
Bonaparte's Gull	o	r	o	r											M	
Caspian Tern	o	r	o						5						L	
Cattle Egret	o	o	r												NR	
Common Moorhen	u	u	u	r	Y				5				MC			
Common Tern	r	r	r				PE	M					V		L	
Double-crested Cormorant	c	r	c	r											NR	
Forster's Tern	r	o	c						5						M	
Glaucous Gull	r		r	r											NR	
Glossy Ibis	o	o	o					H	5						L	
Great Blue Heron	a	c	a	c					5				MC		NR	
Great Egret	a	a	a	r	Y		PE		5				V		NR	
Gull-billed Tern			r					HH	2	X	X				H	
Herring Gull	c	o	c	c											L	
Horned Grebe	r		r	r				H			X					
Iceland Gull	r		r	r											L	
King Rail	o	o	o	r	Y		PE	M	1B				V			
Laughing Gull	o	o	c	r											NR	
Least Bittern	o	c	o		Y		PE		2		X		V			
Least Tern	r	r	r					H	2		X				H	
Little Blue Heron	o	c	c					M	5						H	
Northern Gannet			r	r				H							NR	

Species	Seasons/Abundance at John Heinz NWR ¹				Nesting ¹	Federal T&E ²	PA T&E ³	BCR 30 ⁴	PIF 44 ⁵	USFWS North Atlantic LCC Priority List ⁶	USFWS Birds of Conserv. Concern ⁷	Federal Trust Fish	PA SWAP Priority ⁸	North Atlantic Shorebird Plan ⁹	North American Waterbird Plan ¹⁰	Waterfowl Management Plan ¹¹
	Spr	Sum	Fall	Win												
WATERBIRDS (cont.)																
Pied-billed Grebe	c	r	c	o	Y				5		X		MC			
Red-throated Loon			r	r				HH			X					
Ring-billed Gull	c	o	c	c											NR	
Royal Tern			r					M	5						M	
Snowy Egret	a	a	a		Y			M			X				H	
Sora	o	o	o	r	Y			M					MC			
Tricolored Heron	o	o	o					M	5						H	
Virginia Rail	o	o	o	r	Y								HC			
White Ibis	r		r												M	
Yellow-crowned Night Heron	r	r	r				PE	M	5				V		M	
WATERFOWL																
American Black Duck	a	c	a	c	Y			HH	1B	X			MC			D
American Wigeon	o		o	o				M								I
Blue-winged Teal	c	c	c	r	Y											I
Brant	r		r	r						X						
Bufflehead	o		o	r				H								I
Canada Goose	a	a	a	c	Y					X						
Canvasback	o		o	r				H								I
Common Goldeneye	r	r	r	r				M								
Common Merganser	o		o	o												I
Gadwall	o	r	o	o				M								I
Greater Scaup	c	r	o	o				H								I
Green-winged Teal	c	o	a	c	Y			M					V			I
Hooded Merganser	o	r	o	r	Y			M								I
Lesser Scaup	o		o	o				H								D
Mallard	a	a	a	c	Y			H								NT

Species	Seasons/Abundance at John Heinz NWR ¹				Nesting ¹	Federal T&E ²	PA T&E ³	BCR 30 ⁴	PIF 44 ⁵	USFWS North Atlantic LCC Priority List ⁶	USFWS Birds of Conserv. Concern ⁷	Federal Trust Fish	PA SWAP Priority ⁸	North Atlantic Shorebird Plan ⁹	North American Waterbird Plan ¹⁰	Waterfowl Management Plan ¹¹
	Spr	Sum	Fall	Win												
WATERFOWL (cont.)																
Northern Pintail	c	o	c	c	Y			M								D
Northern Shoveler	c	r	c	o	Y											I
Red-breasted Merganser	o		r	r				M								I
Redhead	r	r	r	r												NT
Ring-necked Duck	o	r	o	o												I
Ruddy Duck	c	o	c	c				M					MC			I
Tundra Swan	r		r	r				H					R			
Wood Duck	a	c	a	o	Y			M								I
LANDBIRDS																
Acadian Flycatcher	r	r	u						1B				MC			
Alder Flycatcher	o	o	u		Y								MC			
American Kestrel	c	c	c	c	Y				2							
Bald Eagle	u	r	u	u	Y		PT	M	5		X		HC			
Bank Swallow	c	o	c						5				MC			
Barn Owl	c	c	c	c	Y		CR		2				MC			
Barred Owl	r	r	r	r					5							
Bay-breasted Warbler	c	r	c					H		X	X					
Black-and-white Warbler	c	r	c	r				H								
Black-billed Cuckoo	o	o	o		Y								MC			
Blackburnian Warbler	c	r	c					M					MC			
Blackpoll Warbler	c	r	c				PE						V			
Black-throated Blue Warbler	c	r	c										MC			
Black-throated Green Warbler	c	r	c										MC			
Blue-winged Warbler	o	o	o					HH	1B	X	X		R			
Bobolink	o	r	c						5							
Brewer’s Blackbird			r	r												

Species	Seasons/Abundance at John Heinz NWR ¹				Nesting ¹	Federal T&E ²	PA T&E ³	BCR 30 ⁴	PIF 44 ⁵	USFWS North Atlantic LCC Priority List ⁶	USFWS Birds of Conserv. Concern ⁷	Federal Trust Fish	PA SWAP Priority ⁸	North Atlantic Shorebird Plan ⁹	North American Waterbird Plan ¹⁰	Waterfowl Management Plan ¹¹
	Spr	Sum	Fall	Win												
LANDBIRDS (cont)																
Broad-winged Hawk	o	o	c	r				H					MC			
Brown Creeper	c		c	c												
Brown Thrasher	c	c	c	o	Y			H	2				MC			
Canada Warbler	c	r	c					M		X	X		MC			
Cerulean Warbler	r	r	r					M	1B		X		HC			
Chimney Swift	c	c	c					H	2				MC			
Cliff Swallow	o	r	o						5							
Common Nighthawk	c	o	c										MC			
Cooper's Hawk	o	r	o	o					5							
Dickcissel	r	r	r	r					3				HC			
Eastern Kingbird	c	c	c		Y			H								
Eastern Meadowlark	o	r	o	r									MC			
Eastern Wood Pewee	o	r	o						1B							
Field Sparrow	c	o	c	c	Y			H	2							
Golden Eagle	r		r	r									V			
Golden-winged Warbler	r	r	r					M			X		HC			
Grasshopper Sparrow	r		r					M					MC			
Gray Catbird	c	c	c	o	Y			M	2							
Great Crested Flycatcher	o	r	o		Y			H								
Henslow's Sparrow	r		r						1B		X		HC			
Kentucky Warbler	r	r	u					H	1B		X		MC			
Loggerhead Shrike	r	r	r	r			PE		5		X		IC			
Long-eared Owl	r		r	r									HC			
Louisiana Waterthrush	r	r	u					H	1B				R			
Marsh Wren	c	c	c	r	Y		CR	H					HC			

Species	Seasons/Abundance at John Heinz NWR ¹				Nesting ¹	Federal T&E ²	PA T&E ³	BCR 30 ⁴	PIF 44 ⁵	USFWS North Atlantic LCC Priority List ⁶	USFWS Birds of Conserv. Concern ⁷	Federal Trust Fish	PA SWAP Priority ⁸	North Atlantic Shorebird Plan ⁹	North American Waterbird Plan ¹⁰	Waterfowl Management Plan ¹¹
	Spr	Sum	Fall	Win												
LANDBIRDS (cont)																
Northern Bobwhite	r	r	r	r				H	2				IC			
Northern Flicker	c	c	c	o	Y			H								
Northern Goshawk	r		r	r									V			
Northern Harrier	c	o	c	c	Y		CA		5				HC			
Northern Oriole	c	o	c	r	Y			H								
Olive-sided Flycatcher	r		u								X		IC			
Osprey	o	o	o				PT		5				V			
Peregrine Falcon	r	r	r	r			PE		5		X		HC			
Pine Siskin	r	r	o	o									V			
Prairie Warbler	c	r	c					HH	1B	X	X		MC			
Prothonotary Warbler	r	r	u					H	1B				HC			
Red Crossbill				r									V			
Red-headed Woodpecker	r	r	r					M	2		X					
Red-shouldered Hawk	o	r	o	o					5				MC			
Rusty Blackbird	c	r	c	o				H			X					
Savannah Sparrow	c	r	c	r	Y				5							
Scarlet Tanager	c	r	c					H	2				R			
Sedge Wren	r	r	r		Y		PE	M	1B		X		IC			
Sharp-shinned Hawk	o	r	o	r									MC			
Short-eared Owl	o		o	o			PE	M	5		X		IC			
Summer Tanager	r	r	r										HC			
Swainson’s Thrush	c	o	c								X		V			
Vesper Sparrow	c	o	o	o					5							
Whip-poor-will	r	r	r					H			X		MC			
White-eyed Vireo	c	c	c		Y				1B							

Species	Seasons/Abundance at John Heinz NWR ¹				Nesting ¹	Federal T&E ²	PA T&E ³	BCR 30 ⁴	PIF 44 ⁵	USFWS North Atlantic LCC Priority List ⁶	USFWS Birds of Conserv. Concern ⁷	Federal Trust Fish	PA SWAP Priority ⁸	North Atlantic Shorebird Plan ⁹	North American Waterbird Plan ¹⁰	Waterfowl Management Plan ¹¹
	Spr	Sum	Fall	Win												
LANDBIRDS (cont)																
Willow Flycatcher	c	c	u		Y								MC			
Winter Wren	o		c	r									MC			
Wood Thrush	c	c	c	r	Y			HH	1B	X	X		R			
Worm-eating Warbler	r	r	u					H	1B		X		R			
Yellow-bellied Flycatcher	r	r	u				PE						V			
Yellow-breasted Chat	c	c	c	r	Y				2				MC			
Yellow-throated Vireo	o	r	o					H	1B				MC			
SHOREBIRDS																
American Woodcock	c	c	c	r	Y			HH		X			MC	X		
Black-bellied Plover	o	r	c	r				H								
Buff-breasted Sandpiper			r					H			X					
Common Snipe	c	r	c	o				M								
Dunlin	o		o	r				H								
Greater Yellowlegs	c	o	c	r				H								
Hudsonian Godwit			o					H			X					
Killdeer	a	a	a	o	Y			M								
Least Sandpiper	o	o	o	r				M								
Lesser Yellowlegs	o	o	0	r				M			X					
Marbled Godwit			r					H			X					
Piping Plover	r		r			E		HH	1A	X				X		
Red Knot	r		r					HH		X	X			X		
Red-necked Phalarope	r		r							X						
Ruddy Turnstone	r	r	r					HH								
Sanderling	r		r					HH		X						
Semipalmated Plover	c	r	c					M								

Species	Seasons/Abundance at John Heinz NWR ¹				Nesting ¹	Federal T&E ²	PA T&E ³	BCR 30 ⁴	PIF 44 ⁵	USFWS North Atlantic LCC Priority List ⁶	USFWS Birds of Conserv. Concern ⁷	Federal Trust Fish	PA SWAP Priority ⁸	North Atlantic Shorebird Plan ⁹	North American Waterbird Plan ¹⁰	Waterfowl Management Plan ¹¹
	Spr	Sum	Fall	Win												
SHOREBIRDS (cont.)																
Semipalmated Sandpiper	c	o	c	r				H		X	X					
Short-billed Dowitcher	o	r	o	r				H			X					
Solitary Sandpiper	c	o	c								X		MC			
Spotted Sandpiper	c	c	c		Y			M								
Upland Sandpiper	r	r	r				PT	M	1B		X		IC			
Western Sandpiper		r	o	r				M								
Whimbrel	r		r					HH		X	X			X		
White-rumped Sandpiper	o	o	o					H								
Willet	r		r					H	3							
Wilson’s Phalarope	r	r	r					H								
MAMMALS																
Marsh rice rat	nc	nc	nc	nc			SX									
Northern river otter	nc	nc	nc	nc			CA						MC			
AMPHIBIANS																
Southern leopard frog	c	c	c	c	Y		PE						V			
REPTILES																
Eastern mud turtle	nc	nc	nc	nc	Y		PX									
Eastern redbelly turtle	u	u	u	u	Y		PT						HC			
FISH																
American eel	p	p	p	p								X	MC			
Alewife	p	p	p	p						X		X				
Blueback Herring	p	p	p	p								X				
Eastern mudminnow	p	p	p	p			CR									
Hickory shad	p	p	p	p			PE					X				
Striped Bass	p	p	p	p						X		X				
Shortnose sturgeon	nc	nc	nc	nc		E	PE			X		X	IC			

Species	Seasons/Abundance at John Heinz NWR ¹				Nesting ¹	Federal T&E ²	PA T&E ³	BCR 30 ⁴	PIF 44 ⁵	USFWS North Atlantic LCC Priority List ⁶	USFWS Birds of Conserv. Concern ⁷	Federal Trust Fish	PA SWAP Priority ⁸	North Atlantic Shorebird Plan ⁹	North American Waterbird Plan ¹⁰	Waterfowl Management Plan ¹¹
	Spr	Sum	Fall	Win												
PLANTS																
Waterhemp Ragweed	p	p	p	p			PR					X	MC			
Field Dodder	p	p	p	p			PT									
Walter's Barnyard-grass	p	p	p	p			PE									
A Eupatorium	p	p	p	p												
Forked Rush	p	p	p	p			PT									
Shrubby Camphor-weed	p	p	p	p						X		X				

Sources

¹ U.S. Fish and Wildlife Service. John Heinz NWR at Tinicum Web site. Available online at <http://www.fws.gov/heinz/index.html>; accessed January 2012.

a—abundant; c—common; u—uncommon; o—occasional; r—rare; nc—not confirmed on refuge, but potential habitat;
p—present (from surveys) but seasonal abundance unknown

² U.S. Fish and Wildlife Service. Endangered Species Program Web site. Available online at http://ecos.fws.gov/tess_public/pub/listedAnimals.jsp; accessed January 2012.

E—Endangered; T—Threatened; R—Rare

³ Pennsylvania Fish and Boat Commission. The Pennsylvania Code, Chapter 75: Endangered Species. Available online at <http://www.pacode.com>; accessed March 2012.

Pennsylvania Game Commission. Threatened and Endangered Species Web site. Available online at <http://www.portal.state.pa.us>; accessed March 2012.

Natural Heritage Program. Pennsylvania Natural Heritage Program Web site. Available online at <http://www.naturalheritage.state.pa.us>; accessed March 2012.

PE—Endangered; PT—Threatened; PR—Rare; PX/SX—Extirpated; CA—Candidate at Risk; CR—Candidate Rare

⁴ U.S. Fish and Wildlife Service. 2008. New England Mid-Atlantic Coast Bird Conservation Region (BCR 30) Implementation Plan. Atlantic Coast Joint Venture, Hadley, MA: Region 5, Fish and Wildlife Service, U.S. Department of the Interior. http://www.acjv.org/BCR_30/BCR30_June_23_2008_final.pdf; accessed January 2012.

HH—Highest Priority; H—High Priority; M—Moderate Priority

⁵ Partners in Flight. April 1999. Partners in Flight: Mid-Atlantic Coastal Plain Bird Conservation Plan (Physiographic Area #44) Version 1.0. Williamsburg, VA.

Prioritization Rankings = 1 (Highest)—5 (Lowest)

⁶ U.S. Fish and Wildlife Service. December 2009. North Atlantic Landscape Conservation Cooperative Development and Operations Plan. U.S. Department of Interior, U.S. Fish and Wildlife Service, Northeast Region. Hadley, MA. 38 pp.

⁷ U.S. Fish and Wildlife Service. 2008. Birds of conservation concern 2008. Division of Migratory Bird Management, Arlington, Virginia. 93 pp. Online version available at <http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf>; accessed January 2012.

⁸ Pennsylvania Game Commission/Pennsylvania Fish and Boat Commission. Accessed December 2008. State Wildlife Action Plan. Available online at <http://www.portal.state.pa.us/portal/server.pt?open=514&objID=622722&mode=2>; accessed January 2012.
IC—Immediate Concern (Tier 1); HC—High Level Concern (Tier 2); R—Responsibility Species (Tier 3); V—Vulnerable Species (Tier 4); MC—Maintenance Concern (Tier 5)

⁹ Clark, K.E., L.J. Niles, and the North Atlantic Shorebird Habitat Working Group. 2000. U.S. Shorebird Conservation Plan: North Atlantic Regional Shorebird Plan Version 1.0. <http://www.fws.gov/shorebirdplan/RegionalShorebird/downloads/NATLAN4.pdf>; accessed January 2012.

¹⁰ Kushlan, J.A., M.J. Steinkamp, K.C. Parsons, J. Capp, M.A. Cruz, M. Coulter, I. Davidson, L. Dickson, N. Edelson, R. Elliot, R.M. Erwin, S. Hatch, S. Kress, R. Milko, S. Miller, K. Mills, R. Paul, R. Phillips, J.E. Saliva, B. Sydeman, J. Trapp, J. Wheeler, and K. Wohl. 2002. Waterbird Conservation for the Americas: The North American Waterbird Conservation Plan, Version 1. Waterbird Conservation for the Americas. Washington, DC. Online version available at: http://www.waterbirdconservation.org/pdfs/plan_files/complete.pdf; accessed January 2012.

¹¹ Atlantic Coast Joint Venture. February 2007. North American Waterfowl Management Plan: Continental Progress Assessment. Population Trend Data = I—Increasing; D—Decreasing; NT—No Trend

Appendix C: Hazardous substances detected in samples collected prior to the RI compiled in the Tetra (2000) hazardous ranking report

Class of COC	Hazardous Substance	Medium Sampled	Data Source
Volatile Organic Compounds	Chlorobenzene	Leachate	Gannett, 1989
Semi-Volatile Organic Compounds	Anthracene	Soil	Gannett, 1989
Semi-Volatile Organic Compounds	Acenaphthene	Drum Soil	USEPA, 1983
Semi-Volatile Organic Compounds	Benzo(a)anthracene	Drum Soil	USEPA, 1983
Semi-Volatile Organic Compounds	Benzo(b)fluoranthene	Drum Soil	USEPA, 1983
Semi-Volatile Organic Compounds	Benzo(k)fluoranthene	Drum Soil	USEPA, 1983
Semi-Volatile Organic Compounds	Benzo(a)pyrene	Drum Soil	USEPA, 1983
Semi-Volatile Organic Compounds	Benzo(g,h,i)perylene	Soil	Gannett, 1989
Semi-Volatile Organic Compounds	Chrysene	Drum Soil	USEPA, 1983
Semi-Volatile Organic Compounds	Dibenzofuran	Soil	Gannett, 1989
Semi-Volatile Organic Compounds	Fluoranthene	Drum Soil	USEPA, 1983
Semi-Volatile Organic Compounds	Fluorene	Drum Soil	USEPA, 1983
Semi-Volatile Organic Compounds	Indenopyrene	Drum	USEPA, 1983
Semi-Volatile Organic Compounds	Naphthalene	Drum Soil	USEPA, 1983
Semi-Volatile Organic Compounds	2-Methyl Naphthalene	Soil	Gannett, 1989
Semi-Volatile Organic Compounds	Phenanthrene	Drum Soil	USEPA, 1983

Class of COC	Hazardous Substance	Medium Sampled	Data Source
Semi-Volatile Organic Compounds	Pyrene	Drum Soil	USEPA, 1983
Inorganic Compounds	Antimony	Soil	Gannett, 1989
Inorganic Compounds	Arsenic	Leachate	See table 10
Inorganic Compounds	Barium	Drum Leachate	USEPA, 1983
Inorganic Compounds	Cadmium	Waste	USEPA, 1983
Inorganic Compounds	Copper	Leachate Waste Soil	PADER, 1972a,b,c; PADER, 1973a,b,c,d; Gannett, 1989; Tetra, 2000
Inorganic Compounds	Chromium	Leachate Waste Drum	PADER, 1972a,b,c; Tetra, 2000
Inorganic Compounds	Iron	Leachate Waste	PADER, 1972a,b,c; PADER, 1973a,b,c,d; Tetra, 2000
Inorganic Compounds	Lead	Leachate Waste Drum Soil	PADER, 1972a,b,c; PADER, 1973a,b,c,d; USEPA, 1983; Gannett, 1989; Tetra, 2000
Inorganic Compounds	Magnesium	Soil	Gannett, 1989; Tetra, 2000
Inorganic Compounds	Manganese	Leachate	Tetra, 2000
Inorganic Compounds	Mercury	Drum Soil	USEPA, 1983; Gannett, 1989; Tetra, 2000
Inorganic Compounds	Nickel	Leachate Waste	PADER, 1972a,b,c; PADER, 1973a,b,c,d; Tetra, 2000
Inorganic Compounds	Selenium	Soil	Gannett, 1989; Tetra, 2000
Inorganic Compounds	Silver	Drum Soil	USEPA, 1983; Gannett, 1989; Tetra, 2000

Class of COC	Hazardous Substance	Medium Sampled	Data Source
Inorganic Compounds	Zinc	Leachate Waste Soil	PADER, 1972a,b,c; PADER, 1973a,b,c,d; Tetra, 2000; Gannett, 1989
Inorganic Compounds	Vanadium	Leachate Soil	Tetra, 2000; Gannett, 1989

Appendix D: COPCs Identified in the RI for Folcroft Annex and Landfill Soil, Groundwater, and Seep Water

Table D1. Landfill and Annex Soil COPCs

Inorganic Compounds	Pesticides/PCBs	SVOCs	VOCs
Antimony	Dieldrin	Benzo(a)anthracene	2,3,7,8-TCDD Equivalents
Arsenic	Aroclor-1248 ²	Benzo(a)pyrene	
Beryllium	Aroclor-1254	Benzo(b)fluoranthene	
Cadmium	Aroclor-1260	Benzo(k)fluoranthene	
Chromium ¹		Carbazole	
Cobalt ¹		Dibenzo(ah)anthracene	
Copper		Indeno(1,2,3-cd)pyrene	
Iron		Naphthalene ²	
Lead			
Manganese ¹			
Mercury			
Nickel			
Vanadium			
Zinc			

¹ – Identified for the soil to ambient air pathway (as fugitive dust)

² – Identified as COPC for inhalation pathway as well

Table D2. Landfill and Annex Groundwater COPCs

Inorganic Compounds	Pesticides	SVOCs	VOCs
Antimony	Aldrin	1,4-Dioxane	1,1,2,2,-Tetrachloroethane
Arsenic	Beta-BHC	2-Methylnaphthalene	1,1-Dichloroethene
Barium	Delta-BHC	Acenaphthene	1,2-Dichloroethane
Cadmium	Gamma-Chlordane	Benzo(a)anthracene	1,4-Dichlorobenzene
Chromium	Heptachlor	Benzo(a)pyrene	2-Hexanone
Cobalt	Heptachlor Epoxide	Benzo(b)Fluoranthene	Benzene
Iron		Biphenyl	Chlorobenzene
Lead		Bis(2-ethylhexyl)phthalate	Cis-1,2-Dichloroethene
Manganese		Carbazole	Ethylbenzene
Mercury		Dibenzofuran	Methylene Chloride
Nickel		Fluorene	Trichloroethene
Thallium		Naphthalene	Vinyl Chloride
Vanadium		Phenanthrene	Xylenes

Table D3. Landfill and Annex Seep Water COPCs

Inorganic Compounds	Pesticides	SVOCs/VOCs
Arsenic	Aldrin	Naphthalene
Chromium	Dieldrin	Benzene
Cobalt		Vinyl Chloride
Iron		
Lead		
Manganese		
Vanadium		

**PREASSESSMENT SCREEN FOR THE
Lower Darby Creek: Folcroft Landfill and Annex Site
December 2023**

PREPARED BY

The Commonwealth of Pennsylvania – Pennsylvania Department of
Environmental Protection

The United States Department of the Interior – U.S. Fish and Wildlife Service

**REGARDING NATURAL RESOURCE DAMAGE ASSESSMENT &
RESTORATION**

**Commonwealth of Pennsylvania
Acting by and Through**

Pennsylvania Department of Environmental Protection:

By: Jessica L Shirley
Jessica Shirley, Interim Acting Secretary
400 Market Street
Harrisburg, PA 17101

Date: 2/7/24

Approved as to legality and form

Douglas White

Douglas White
Supervisory Counsel
Pennsylvania Department of Environmental Protection

**PREASSESSMENT SCREEN FOR THE
Lower Darby Creek: Folcroft Landfill and Annex Site
November 2023**

PREPARED BY
The Commonwealth of Pennsylvania – Pennsylvania Department of
Environmental Protection
The United States Department of the Interior – U.S. Fish and Wildlife Service

**REGARDING NATURAL RESOURCE DAMAGE ASSESSMENT &
RESTORATION**

**The United States Department of the Interior
Acting by and Through**

U.S. Fish and Wildlife Service:

By: **WENDI WEBER** Digitally Signed by WENDI WEBER
Date: 2023.12.27 09:57:33 -05'00'
Wendi Weber, Regional Director
300 Westgate Center Drive
Hadley, MA 01035

Date: _____

Approved as to legality and form

**AMY HORNER
HANLEY** Digitally signed by AMY
HORNER HANLEY
Date: 2023.12.05 12:35:43
-05'00'

Amy Horner Hanley
Senior Attorney-Advisor
U.S. Department of the Interior