Health Consultation

METRO CONTAINER NATIONAL PRIORITIES LIST SITE

TRAINER, DELAWARE COUNTY, PENNSYLVANIA

EPA FACILITY ID: PAD044545895

Prepared by
Pennsylvania Department of Health

FEBRUARY 8, 2013

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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Summary

Introduction

The Agency for Toxic Substances and Disease Registry (ATSDR) and the Pennsylvania Department of Health (PADOH) prepared this health consultation (HC) for the Metro Container Site ('the site') in Trainer, Delaware County, Pennsylvania. The site was proposed to the Environmental Protection Agency (EPA) National Priorities List (NPL) in September 2011 and finalized to the NPL in March 2012. ATSDR and PADOH prepared this HC to evaluate whether the public has been or is being exposed to levels of contaminants from historical site activities that could harm their health. Based on historical sampling data and EPA investigations, the on-site sub-surface soil, on-site groundwater, and adjacent creek sediments, are contaminated with polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs) and metals. In this HC, PADOH reviewed the on-site sampling data and offered recommendations for additional residential environmental sampling. PADOH's purpose is to serve the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent or mitigate exposures to harmful substances. PADOH worked under a cooperative agreement with ATSDR to complete this HC document.

Conclusions

Pennsylvania Department of Health (PADOH) reviewed the available environmental sampling data for the site and conclude/recommend the following:

Conclusion 1

Exposures to on-site soil contamination **are not expected to harm people's health.** Because access to the site is controlled the public is not being exposed to on-site contamination.

Basis for Conclusion

Sampling collected from on-site soil, the adjacent Stoney creek sediment, and groundwater have detected volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), metals and polychlorinated biphenyls (PCBs). However, public exposures via trespassing are unlikely because a fence and controlled access gate is present. The potential for workers' exposures is limited because a gravel and stone surface cover along with existing structures limits direct contact with the heavily contaminated sub-surface soils and groundwater. The site uses the public water drinking water and not groundwater for a drinking water source. Therefore, there is no completed exposure pathway.

Conclusion 2

PADOH **cannot conclude whether ingestion and inhalation of possible contaminants in off-site residential soil could harm people's health**.

Basis for Conclusion

No environmental sampling data has been collected in the adjacent community to characterize potential off-site exposures. Surface soil in the residential community could potentially be contaminated from historical site activities.

Next Steps

Given the extensive past environmental violations at the site, historical operations, and on-site sampling data showing significant sub-surface contamination, PADOH recommends that EPA collect off-site soil samples to determine the potential for residential exposure to contaminants. PADOH will review additional environmental sampling data, if available, and issue a public health conclusion.

Conclusion 3

PADOH **cannot conclude whether residential or on-site inhalation from vapor intrusion is occurring and if indoor air levels could harm people's health.**

Basis for Conclusion

Groundwater on the site is highly contaminated with VOCs. Groundwater off-site could also be contaminated with VOC's, but currently there is no off-site groundwater sampling data. If VOC levels are high enough in groundwater and the groundwater is close enough to the ground surface, VOCs can off gas from the groundwater up through the soil and through cracks or gaps in the sub-surface into the overlying building. Vapor intrusion from groundwater contaminated with VOCs into off-site and on-site structures remains a potential exposure pathway of concern. However, currently there is no indoor air data to determine if vapor intrusion is occurring.

Next Steps

PADOH recommends that EPA collect vapor intrusion samples in the on-site buildings, both sub-slab and indoor air, to investigate the vapor intrusion

pathway. If groundwater data collected as part of the Remedial Investigation/Feasibility Study indicate high levels of VOCs in the groundwater beneath residential areas or the potential for migration, PADOH recommends EPA consider collecting vapor intrusion samples, both sub-slab and indoor air, to investigate the vapor intrusion pathway. PADOH will evaluate this data, if available, and issue a public health conclusion.

Conclusion 4

PADOH does not have fish tissue sampling data to evaluate and **cannot determine site-related contaminant levels in fish tissue in the Delaware River.** However, given the potential for bioaccumulation of some site contaminants and the current fish consumption advisories, **the public should follow the fish consumption advisories.**

Basis for Conclusion

Several of the contaminants detected in site investigations, were also found in sediments of the adjacent Delaware River, such as benzo(a)anthracene, benzo(a)pyrene, cadmium, mercury, PCBs and pyrene. These contaminants persist in the environment and can bioaccumulate in fish. As a result of contamination, in particular mercury and PCB contamination, from industrial properties along the Delaware River, the Pennsylvania Fish and Boat Commission has issued fish consumption for the area. There currently is a no-eat fish advisory for American eel and carp in the lower Delaware River from Trenton, New Jersey, to the Pennsylvania/Delaware border. Consumption of other fish such as white perch, channel catfish, flathead catfish and striped bass are advised to be eaten in limited quantities of one meal per month.

Next Steps

If fish tissue sampling data becomes available, PADOH will evaluate this data and provide a public health conclusion.

For More Information

If you have concerns about your health, you should contact your health care provider. For questions or concerns about the site, please contact the PADOH, Division of Environmental Health Epidemiology at (717) 346-3285 or via e-mail at chlloyd@pa.gov

Background and Statement of Issues

Background

The Pennsylvania Department of Health (PADOH) and the Agency for Toxic Substances and Disease Registry (ATSDR) prepared this Health Consultation (HC) document for the Metro Container site ('the site'). In March 2012, the site was proposed to the Environmental Protection Agency (EPA) National Priorities List (NPL), also known as Superfund, in September 2011 and finalized to the NPL in March 2012. Based on historical environmental sampling and EPA's site removal investigations, on-site sub-surface soil, groundwater and creek sediments are contaminated with polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs) and metals. [1] There is a potential for on-site contamination to migrate off-site, to the adjacent community and Delaware River. In this HC, PADOH reviewed the available environmental sampling data and recommends the need for additional environmental sampling on-site and in off-site residential areas.

Site Description

The Metro Container site is located in Trainer, Delaware County, Pennsylvania, approximately 10 miles northeast of Wilmington, Delaware, 15 miles southwest of Philadelphia, Pennsylvania, and 0.17 mile upstream and north of the confluence of a small tributary known as Stoney Creek, and the Delaware River. (Appendix 1, Figures 1-2) The boroughs of Trainer and Marcus Hook, and Chester City, are heavily industrialized. Historical information indicates that various industries have operated in the area since the mid-1800s. The Delaware River waterfront area has maintained numerous industrial complexes, including shipbuilding and dry docks, several oil refineries, locomotive works, an automobile assembly plant, paper mills, and various manufacturing facilities. Site access is restricted by a chain link fence to the east, north, and west, and by Stoney Creek to the South. Stoney Creek is located between the Metro Container Site and former Conoco Phillips property, and access is restricted to this area. The site is surrounded by industrial facilities, including a scrap metal yard, railroad yard, and waste water treatment plant to the east, and the former Conoco Phillips refinery to the south and west. A mixed commercial and residential area is located north of the site, directly across West Second Street. Both the railroad yard and a portion of the former Conoco Phillips property are located between the Delaware River and the site. [2]

The site is a graded, industrial property of approximately 10.41 acres (Appendix 2). Two buildings are currently located on the site. The larger building is 40,000-square-feet (ft^2) and is currently used by Trainer Industries, LLC, as a chemical storage and painting area. The smaller building is approximately 6,000-ft^2 and is used for office space. The open area located west of the building is used for sand blasting of pipes and vessels prior to repainting. By agreement with the current property owner, most of the site was graded by the neighboring property, ConocoPhillips, and was used in 2006 for overflow parking. Currently, the gravel and stone cap, along with on-site structures, covers a majority of the site eliminating direct contact with sub-surface contamination. The northwest portion of the site is characterized by trees and shrubs and ground cover vegetation. Some areas of the site, including between the two structures, are covered with asphalt. An elevated, recently graded area south of the gravel-covered parking lot is the former location of a concrete holding tank. [2]

Geological investigations of the site's sub-surface have shown that a large portion of the site is fill material, with some areas of fill extending to a depth of 17 feet below grade. Large areas of the site, especially along the banks of Stoney Creek are composed entirely of fill materials. These fill materials include chemical wastes, sludge, demolition debris from buildings and tanks, flyash, metal piping, and contaminated crushed drums. [2] Some areas of the site, which were formally low lying areas along

the bank of Stoney Creek, have been completely filled in with waste materials and debris to create a larger and more evenly graded site. [2]

Site History and Operations

The site has a long industrial history. At the end of the 19th century, the property was used by the Delaware Oil Works. By 1913, the property was occupied by an expansive operation of the Manufacturers Paraffin Company, which included dozens of iron storage tanks, refinery stills, an agitator house, a boiler house, open water condensers, finished product storage facilities, and a packing shed and barreling house for the finished wax products. From 1920 until 1959, the Stauffer Chemical Company, Inc. (Stauffer) operated a chemical manufacturing plant on the property. In the 1950's, Stauffer constructed a waste disposal lagoon in the southwest corner of the property, adjacent to Stoney Creek and west of the former drum reconditioning building. Historical maps also indicate that the waste disposal lagoon might have been converted from a pond that fed into Stoney Creek. In 1963, after standing idle for 4 years, the property was purchased by the Joseph A. Reis Company and converted into a steel drum reconditioning facility. The Joseph A. Reis Company filed for bankruptcy sometime prior to January 1969, when the Universal Container Corporation took ownership of the property from a bankruptcy trustee. Universal Container continued the drum reconditioning operations even though the property itself was conveyed to the Delaware County Industrial Development Authority in December 1970. In 1983, the property was owned by the First Union Commercial Corporation and then by the Metro Container Corporation. Drum reconditioning operations at the facility ended in December 1987 when Metro Container filed for bankruptcy. [2]

At the height of site operations, the site received approximately 450,000 to 500,000 drums per year, some empty but many were allegedly filled or partially filled with hazardous materials, paints, solvents, petroleum products, and other substances. The drums would arrive at the facility and were stored in stacked rows on the western end of the facility just north of the converted drum reclaiming building. The drums would be moved into the building and emptied into tanks/vessels and pre-flushed prior to caustic being applied to the exterior to strip off the paint. The outside of the drums were then rinsed before interior cleaning using caustic. Following the caustic cleaning, interior metal stripping was performed using hydrochloric acid followed by two cycles of cold rinsing. Storage tanks were distributed throughout the property to support treatment of the generated rinsate water and the recovering of product and sludges from the drums themselves, including storage of acid, alum, caustic, toluene, No. 5 fuel oil, waste oil, spent caustic, wastewater, chemicals, and paints. [2]

The contents of the drums and the fluids generated in the drum cleaning process were reportedly treated to remove oil and grease. The treated wastewater was decanted and reused as rinse water in the drum cleaning operations. During each day of operation, about 10% of the reused rinse water was removed and replaced by fresh water to control the build-up of chlorides. This removed wastewater was reportedly discharged to the Delaware County Regional Water Quality Control Authority (DELCORA) sewer system after additional treatment and pH adjustment. Sludge from the wastewater operation was thickened with lime and transported off-site to the Sumptor Landfill in Sumptor, Michigan, although site investigations have shown that sludge was also buried on site. After DELCORA shut off the facility's access to the sewer system, Metro Container operators dumped waste directly into Stoney Creek. [2]

The Metro Container facility has a long history of environmental impacts and regulatory involvement related primarily to the drum reconditioning operations conducted at the facility by the Joseph A. Reis Company, Universal Container, and Metro Container, dating back to 1965. In addition to discharging polluted water into Stoney Creek, wastewater was discharged into the sewers of DELCORA that

exceeded pollution effluent limits specified in the facility permit. Other violations included dumping hazardous waste and discharging contaminated water into Stoney Creek; storing hazardous waste; disposing of hazardous waste on the property illegally (particularly burying the waste outside, dumping it inside the former drum reconditioning building and covering it with concrete to conceal the waste); and walling-up a room where hundreds of drums containing hazardous chemicals were stored. [2]

In the late 1980s, EPA conducted a removal action at the site due to the lack of responsiveness from responsible parties (RPs). In addition to establishing a presence to control waste handling activities by the RPs, EPA installed a fence to restrict site access, constructed a temporary retaining wall to limit off-site migration, conducted sampling and analysis of waste materials, and removed over 130,000 gallons of oil-contaminated rain water from the lagoon and secondary containment structures. The RPs assumed control of the removal action on June 1989 through the issuance of an Administrative Consent Order. As part of the Consent Order, over 6,000 tons of sludge, drums, and contaminated soils were removed by the RPs. [1]

Demographics

PADOH assessed the demographic data near the site to identify the population(s) potentially exposed to contaminants (Appendix 1, Figure 3). By looking at the land use in the area, PADOH can identify activities that could expose people to contaminants, as well as the rate of those activities. The site is located in an area of southeastern Pennsylvania which is densely populated. The site is located in a mixed use area with industrial facilities, especially the areas along the Delaware River waterfront, and neighboring residential communities. To the east of the site on former industrial land along the Delaware River is a large soccer stadium, PPL Park, designed as a catalyst for economic revitalization for the area. Two oil refineries are west of the facility along the Delaware River: , the former Conoco Phillips refinery and Sunoco Marcus Hook refinery. In 2012, the former Conoco Philips refinery was sold and a new owner will likely restart refinery operations. The Marcus Hook Elementary School is located within a half-mile of the site.

Based on 2010 Census data, the population within one-square mile of the site is 10,253 with 4,382 total housing units. Approximately 54% of the population is black, 38% white, 8 % Hispanic, and the remainder other races. The population density closest to the site, based on census tract data, range from under 1,000 people per square mile to over 2,000 people per square mile.

Site Visit

In November 2011, the PADOH Health Assessment Program and ATSDR Region 3 staff conducted a site visit with EPA and the current site owner (Appendix 2: Site Photographs). PADOH viewed the property, current operations, and adjacent Stoney Creek. In addition, PADOH discussed site background information and community concerns and conducted a tour of the surrounding community.

Exposure Pathway Analysis

An exposure to a chemical and the possibility of adverse health effects requires persons to come into contact with the chemical through [3]:

- ingestion (eating the chemical),
- inhalation (breathing the chemical), or
- dermal exposure (absorbing the chemical through the skin)

Having contact with a chemical does not necessarily result in adverse health effects. A chemical's ability to result in adverse health effects is influenced by a number of factors in the exposure situation, including [3]:

- how much of the chemical a person is exposed to (the dose);
- how long a time period a person is exposed to the chemical (the duration);
- how often the person is exposed (the frequency); and,
- the amount and type of damage the chemical can cause in the body (the toxicity of the chemical).

To result in adverse health effects, the chemical must be present at concentrations high enough and exposures to the chemical must be long enough to cause harm. Knowing or estimating the frequency with which people have contact with hazardous substances is essential to assessing the public health importance of these contaminants. Health effects from exposure to potentially harmful substances may vary with the individual or particular groups of individuals, such as children, the elderly, and persons with weakened immune responses or other chronic health issues. These susceptible populations may have different or enhanced responses compared to most persons exposed at the same chemical concentration. Reasons for these differences may include genetic makeup, age, health status, nutritional status, and exposure to other substances (like cigarette smoke or alcohol). These factors may limit that person's ability to detoxify or eliminate the harmful chemicals from their body, or may increase the effects of damage to their organs or physiological systems.[3]
Exposure pathways (how people may come into contact with substances contaminating their environment) are evaluated to determine if people have come into contact with site contaminants, or if they may in the future. A completed exposure pathway contains the following elements [3]:

1. A **source** of chemical of concern (contamination), such as a hazardous waste site or contaminated industrial site,
2. Movement **(transport)** of the contaminant through **environmental media** such as air, water, or soil,
3. A **point of exposure** where people come in contact with a contaminated medium, such as drinking water, soil in a garden, or in the air,
4. A **route of exposure**, or how people come into contact with the chemical, such as drinking contaminated well water, eating contaminated soil on homegrown vegetables, or inhaling contaminated air, and
5. An **exposed population** of persons that can come into contact with the contaminants

The elements of an exposure pathway may change over time, so the time frame of potential exposure (contact) is also considered. Exposure may have happened in the past, may be taking place at the present time, or may occur in the future. A **completed pathway** is one in which all five pathway components exist in the selected time frame (the past, present, or future). If one of the five elements is not present, but could be at some point, the exposure is considered a **potential exposure pathway**. The length of the exposure period, the concentration of the contaminants at the time of exposure, and the route of exposure (skin contact, ingestion, and inhalation), are all critical elements considered in defining a particular exposure event. If one of the five elements is not present and will not occur in the future, it is considered an **eliminated exposure pathway**. Suspected or possible exposure pathways can be ruled out if the site characteristics make past, current, and future exposures extremely unlikely. If people do not have access to contaminated areas, the pathway is eliminated from further evaluation.

Groundwater and surface water near the site are not used for potable water supply for the borough of Trainer, therefore this exposure pathway is eliminated. The nearest drinking water inlet is located on the Delaware River, approximately 30 miles upstream from the site. Trainer Borough and other nearby municipalities get their drinking water from the Octorara Creek Reservoir, part of the Susquehanna River Basin, which is located 30 miles west of the site and in a different watershed from the Delaware River Watershed. Groundwater is widely utilized as a drinking water supply in New Jersey. The Delaware River, which is 1.25 miles wide near the site, could affect the drinking water quality in New Jersey and serve as a potential exposure pathway. [2] However, at this time, PADOH does not have hydrogeology information or sampling data to review this potential exposure pathway.

Trespassing and trespasser exposures to contaminants in on-site soils and sediments are unlikely because a fence and controlled gate access is present and thereby eliminates this exposure pathway. PADOH do not expect the public to be exposed to contaminants along the Metro Container banks of Stoney Creek, since the former Conoco Phillips property borders Stoney Creek and access is restricted. The banks of the Delaware River near the site are heavily industrialized and therefore sediment is generally unavailable for direct human exposure, unless the sediments are disturbed and ingested while engaging in recreational activities at the creek. At the site, there was no information provided to indicate that recreational activities occur, except for recreational fishing along the Delaware River. The following is a summary of the **eliminated exposure pathways** at the site:

Eliminated exposure pathways

Source	Medium	Exposure Point	Route of Exposure	Exposed Population
Contaminated groundwater at/near the site	Groundwater near the site in PA	Residential drinking water	Ingestion	The public is currently not using the groundwater as a drinking water supply, and this pathway is eliminated
Contaminated surface soil and sediments from site activities	Soil	On-site soil and sediments	Ingestion of contaminated sediment and soil	The site is covered with a layer of clean fill and the public does not have access to the site, therefore this pathway is eliminated

Residents living near the site may come into contact with contaminated soils on their property due to the migration of contaminants from historic site activities. Soil ingestion could occur by: the inadvertent ingestion of soil particles on a person's hands, especially children or tracked into the home; incidental ingestion of soil particles on fruits and vegetables grown in home gardens; mouthing objects with soil particles such as children's toys; or intentional ingestion of soil (soil-pica behavior). Another potential exposure pathway is inhalation of airborne soil outside or via soil that is tracked into the home. It is also important to note that vegetative covers (e.g. lawns) exist above the surface soil contamination acts as a buffer and limits exposure to the contamination. Conversely, people residing on parcels with areas of exposed soils with no vegetation will have an increased likelihood and frequency of exposures to potentially contaminated soils. Currently, there is no off-site residential soil sampling data to evaluate these potential exposures.
Another potential exposure pathway is inhalation of VOCs via vapor intrusion, from contaminated groundwater into residential structures and on-site buildings. Given the composition of the sub-surface

materials, the direction of groundwater and soil vapor migration is not easily discernible. Ground penetrating radar (GPR) studies on-site have identified underground piping and waste stream channels. These underground anomalies can create preferential vapor and groundwater pathways which are difficult to characterize. [2] VOCs could be migrating into on-site and off-site structures; however, currently there is no indoor air sampling data to evaluate.

Seeps have been identified from the site migrating via Stoney Creek to the Delaware River. Several of the contaminants detected in site investigations were also found in sediments of the Delaware River, such as benzo(a)anthracene, benzo(a)pyrene, cadmium, mercury, PCBs and pyrene. These contaminants are persistent in the environment and can bioaccumulate in fish. People are exposed if they consume contaminated fish. [2] PADOH does not have fish sampling data to evaluate, but offer recommendations based on the current fish advisories for the area.

Potential exposure pathways

Source	Medium	Exposure Point	Route of Exposure	Exposed Population
Contaminated groundwater at the site	Groundwater via vapor intrusion	Residential indoor air	Inhalation of VOCs in residential indoor air	Persons in the past, present and future located near the site with VOCs in indoor air
Contaminated groundwater at the site	Groundwater via vapor intrusion	On-site indoor air	Inhalation of VOCs in the indoor air of on-site structures	Workers in the past, present and future in buildings where VOCs are present in indoor air
Contaminated surface soil from site activities	Soil	Residential soil	Ingestion of contaminated soil, outside or tracked into the home	Persons in the past, present and future with contaminated residential soil
Contaminated surface soil from historical site activities	Soil	Residential soil	Inhalation of airborne soil, outside or tracked into the home	Persons in the past, present and future with contaminated residential soil
Contaminated sediment and surface water from historical site activities	Surface water/fish	Fish	Ingestion of contaminated fish	Persons in the past, present and future consuming contaminated fish
Contaminated groundwater, via the Delaware River	Groundwater in New Jersey	Residential drinking water	Ingestion	Groundwater in New Jersey is used as drinking water source and could be affected by contaminants in the adjacent Delaware River.

Historical Site Sampling Investigations

Since the 1980s, a number of environmental site investigations have been performed by EPA and various private parties. These investigations have shown the sub-surface soils of the site to be heavily contaminated with a wide range of hazardous wastes, including metals (e.g. lead and arsenic), PCBs, and numerous organic compounds, both volatiles (e.g. benzene, toluene, ethylbenzene, and xylenes (BTEX), vinyl chloride, and trichloroethylene) and semi-volatiles (e.g. PAHs). Many of the chemical contaminants, at the concentrations detected in the sub-surface soils, would be acutely hazardous if direct contact were to occur. However, as stated in the previous section, the public does not have access to on-site soils and therefore this is not a completed or potential exposure pathway. [2]

Numerous Comprehensive Environmental Response Compensation and Liability Act (CERCLA) Removal and Site Assessment actions have been conducted related to the Metro Container facility, including a Preliminary Assessment, three Removal Assessments, a Potentially Responsible Party (PRP) search, two EPA Removal Actions, a PRP Removal Action, and an Administrative Order Consent. In December 1987, EPA performed a site inspection and environmental sampling to determine if contaminants posed an immediate health threat. The following observations were made during the inspection: (1) approximately 60,000 preconditioned drums were estimated to be on site; (2) shutdown of the facility's wastewater treatment system resulted in the build-up of untreated sludge, which was stored in the concrete holding tank and thousands of unsecured drums throughout the facility; and (3) the property was unfenced and drums containing sludge were in extremely poor condition, many of which were leaking. Sampling during the assessment included an ash pile, sludge in drums and in the concrete holding tank, and liquid discharge from a drain-pipe leading into nearby Stoney Creek. Results from the sampling showed a variety of contaminants in the sludge, including benzene, toluene, several chlorinated hydrocarbons, phenols, and lead; however, none of the characteristics exhibited a threat to public health and therefore EPA determined that a Removal Action was not warranted at that time. [2]

In February 1988, the U.S. Coast Guard, due to material migration from the site into the Delaware River, requested EPA Emergency Response to assess the potential threat of this migration. EPA initiated a Removal Action in September 1988 to secure and stabilize the site. Removal Action activities included installing a fence around the perimeter of the property to limit public contact with on-site materials. A 300-foot long plywood retaining wall was constructed along Stoney Creek to serve as a barrier to material migration into Stoney Creek in the event of a catastrophic release of wastewater, oil, and sludge from the concrete holding tank or its secondary containment, both of which had overflowed and impacted Stoney Creek on previous occasions. In addition, 136,700 gallons of oil-contaminated rain water from the concrete holding tank and its secondary containment was removed for off-site disposal. [2]

In June 1989, Removal Action activities at the site included the removal and off-site disposal of approximately 6,000 tons of waste, including sludge, tanks, drums, and contaminated soil. The concrete holding tank was decommissioned and closed, which included removal of the liquids and sludge from the holding tank and secondary containment. The upper 1-foot of soil within the secondary containment area was removed and the area was backfilled. Visually impacted soils in the areas west and northwest of the drum reconditioning building were scrapped down to an approximate depth of 1 to 1.5 feet, resulting in approximately 6,500 cubic yards of soil being excavated. [2] In July 1991, owners and operators of Metro Container plead guilty in Federal court to charges of violating Federal environmental statutes. [2]

In 1998, Pennoni Associates, Inc. (Pennoni) conducted an environmental site assessment on behalf of Service Painting, Inc. (presently, Trainer Industries) who were considering the purchase of the abandoned property. In 1999, based on the findings of the ESA, Pennoni conducted on-site sampling. Results of soil samples indicated the presence of VOCs, PAHs, PCBs, and metals. Analysis of sediment samples collected from Stoney Creek indicated the presence of PAHs, PCBs, and metals. On-site monitoring wells indicated the presence of VOCs, PAHs, PCBs, and metals in ground water samples [2].

In 2000, Pennoni collected additional samples to address PADEP comments on the Remedial Investigation and Risk Assessment Report, including several sediment and seep samples in Stoney Creek. Analytical results found PAHs and PCBs at concentrations in excess of PADEP Surface Water Human Health Criteria. Based on the seep analytical results and the quality of the emerging ground water from the Stoney Creek seeps, Pennoni recommended the removal of impacted soils, in the location of what they called Seep-3, which was located directly downgradient of the former waste disposal lagoon. [2]

In 2005, as part of a potential site purchase, Conoco Phillips performed a site characterization. The site characterization report included a summarization of historical activities including environmental sampling and the disposal waste material, tanks and drums. Results showed elevated levels of contaminants in the former on-site waste disposal lagoon, including, but not limited to, VOCs (benzene, tetrachloroethylene, toluene, trichloroethylene); PAHs (anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)pyrene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, naphthalene, pyrene); PCBs (Aroclor-1248, Aroclor-1254, Aroclor Additional environmental samples were also collected including on-site soil, sediment and groundwater samples. The majority of soil samples were performed to investigate the sub-surface contamination. A total of 5 of 130 samples were collected from 0 to 2 feet in depth. Six sediment samples were collected from Stoney Creek, biased toward potential seep locations where contaminated groundwater would most likely discharge. [4]

The Conoco Phillips investigation revealed that the western end of the property (adjacent to Stoney Creek) underwent filling with demolition debris, fly ash, metallic debris, and crushed drums over time that channelized Stoney Creek farther to the west and brought the property up to a consistent grade with the eastern end of the property. Sludge deposits were mixed in with fill material in the western and southwestern property areas. Based on the geophysical survey results, four test trenches were excavated to areas of anomalies suggestive of metallic objects. Temporary groundwater wells were installed at 84 of the 130 soil sampling locations. Analytical results of ground water samples indicate a VOCs, PAHs, PCBs, and metals contaminant plume underlying most of the western end of the Metro Container property. Well-defined areas of high concentrations include locations downgradient of the former concrete holding tank, south and downgradient of the former waste disposal lagoon, and southeast and downgradient of the former drum reconditioning building. [4]

EPA Removal Environmental Sampling Investigation

In addition to the large body of historical on-site sampling data described above, EPA conducted additional site investigations (Appendix 1, Figure 4-6). EPA conducted a Removal Site Evaluation in 2007, sediment sampling in 2008, and additional soil and sediment sampling in 2010. The site was listed to the EPA NPL in March 2012. A Remedial Investigation/Feasibility Study (RI/FS) will be performed. During RI/FS, EPA will collect additional environmental data, and may include off-site

locations. The purpose of EPA's RI/FS process for the Metro Container site includes the following [5]:

- Gather data to determine the type and extent of contamination at the site
- Establish criteria for cleaning up the site
- Identify and screen cleanup alternatives for remedial action
- Analyze the technology and cost of the alternative clean-up actions

During the March 2007 EPA removal investigation, EPA collected surface soil, sub-surface soil, ground water, on-site soil gas, and on-site surface water and sediment samples from Stoney Creek and analyzed for VOC's SVOCs, PCBs, pesticides, and metals. VOCs, SVOCs, PCBs, pesticides, and metals were detected in various matrices at concentrations exceeding applicable EPA Region 3 risk-based concentrations (RBCs). Specifically, the PCB's Aroclor-1248, Aroclor-1254, and Aroclor-1260 were detected at concentrations exceeding their applicable RBCs in surface soil samples, including maximum concentrations up to 15,000, 39,000, and 62,000 micrograms per kilogram (µg/kg) or parts per billion (ppb), respectively. Analytical results from sediment samples collected from Stoney Creek adjacent to the property indicated Aroclor-1248, Aroclor-1254, and Aroclor-1260 at concentrations exceeding applicable RBCs, including maximum concentrations up to 2,000, 9,500, and 9,400 µg/kg, respectively. PCB congeners reported in the sediment samples from Stoney Creek were compared to congeners detected in ground water samples collected from on-site monitoring wells. EPA concluded that the PCBs detected in the Stoney Creek sediment samples had migrated from the site. [6]

During the 2007 removal evaluation, only one sediment sample (where Stoney Creek discharges into the Delaware River) was collected. To determine the potential impacts from the site to the Delaware River, in August 2008 EPA collected seven (including 1 duplicate sample) surface sediment samples from 0 to 6 inches, targeting an inlet of the Delaware River near Stoney Creek. This area is bordered by the site/railroad yard to the north, the former Conoco Phillips site to the west, and the water treatment plant to the east, thereby, making trespassing in this area highly unlikely. The analytical results obtained from this sampling event indicate that sediments (from the channel of Stoney Creek to the peninsula of undeveloped land to the northeast) are contaminated with PAHs and PCBs at concentrations significantly exceeding corresponding EPA's Freshwater Sediment Screening Benchmarks. Sub-surface sediment samples were also collected, where EPA noted in some parts an oil-saturated sub-surface layer. EPA compared the PCB congeners detected to the concentration of congeners detected in the groundwater samples collected from on-site. EPA found a correlation with 93 PCB congeners but also detected concentrations of PCB congeners significantly higher than on-site or adjacent to the site. This indicated PCBs are also entering this area from other sources, in addition to the site. [7]

In June 2010, EPA collected five surface soil and three sub-surface soil samples from on-site locations In addition, 15 sediment samples were collected from Stoney Creek and the Delaware River. Sample analytical results indicate the presence of PCBs and/or heavy metals in Stoney Creek and Delaware River sediments and sub-surface soils at elevated concentrations (i.e., significantly above background concentrations) downstream of Metro Container source areas. [8]

Discussion

Onsite

There is a large amount of on-site environmental sampling data for the Metro Container site, as described above. These data show very high concentrations of hazardous wastes on-site, particularly in the sub-surface soil and groundwater. Chemical seeps along the Stoney Creek banks have also been identified. A fenced perimeter with a controlled gate for access reduces the likelihood for trespasser

exposures. Graffiti and signs of vandalism are present, which indicates trespassing occurred when the site was inactive prior to the current tenant's occupancy. The risk of workers being exposed to sub-surface contamination has been reduced by the gravel and stone cover placed on much of the surface of the site, and because current worker activities onsite require hazardous chemicals awareness and other Occupational Safety and Health Administration (OSHA) worker safety requirements. Vapor intrusion into onsite structures from heavily contaminated sub-surface soils and groundwater is still a potential worker exposure pathway which has not been assessed, due to lack of sampling data.
In EPA's 2007 sampling, VOCs, PAHs, PCBs, pesticides, and metals were detected in various matrices. Analytical results from sediment samples collected from Stoney Creek adjacent to the property indicated Aroclor-1248, Aroclor-1254, and Aroclor-1260. The following is a summary of the data:

Surface soil (0 to 6"):

Metals: arsenic was detected in 20 of the 25 surface soils ranging from 2.3 to 23 mg/kg and in all 10 sediment samples from 2.1 to 8.9 mg/kg; lead was found in 5 of 25 surface soil ranging from 1,220 mg/kg to 2,340 mg/kg.

VOCs: cyclohexane and 4-methyl-2-pentanone were present in surface soils.

PAHs: benzo(a)pyrene was found in 15 of 25 surface soil samples ranging from 400 to 3,300 µg/kg and in 6 of 10 sediment sampling ranging from 460 to 3,700 µg/kg, dibenzo(a,h)anthracene from 450 to 630 µg/kg in 4 of the surface samples, benzo(a)anthracene was detected in 1 surface sample at 4,100 µg/kg and one sediment sample at 490 µg/kg.

Pesticides: dieldrin was found in 8 of 25 surface samples ranging from 180 to 770 µg/kg, and in 1 sediment sample at 330 µg/kg.

PCBs: aroclor 1248 was found in 2 surface samples ranging from 3,100 to 15,000 µg/kg and 1 sediment sample at 2000 µg/kg, aroclor 1254 ranged from 1500 to 39000 in 10 surface samples and 1 sediment sample at 9,500 µg/kg, aroclor 1260 ranged from 9,200 to 37,000 µg/kg, in 4 surface samples and in one sediment sample at 9400 µg/kg.

Groundwater and surface water data:

Metals: arsenic was found in 8 of 19 groundwater samples ranging from 6.8 to 291 µg/L and in 2 of 9 surface water samples at 5.6 and 6.2 µg/L, vanadium found in 3 samples between 436 to 3150 µg/L, and antimony in 3 samples from 166 to 282 µg/L.

VOCs: trichloroethylene was present in 6 of 19 groundwater samples between 0.72 to 410 µg/L, tetrachloroethylene in 3 samples from 42 to 340 µg/L, benzene at max of 180 µg/L was detected and in one surface water sample at 52 µg/L. Several other VOCs were detected in the groundwater (maximum values) including 1,4-dichlorobenzene 17 µg/L, bromomethane at 50 µg/L, carbon disulfide at 200,000 µg/L, chloroform at 4.5 µg/L, methylene chloride at 25 µg/L, and vinyl chloride at 71 µg/L.

PAHs: 6 of 19 groundwater samples contained one or more SVOCs including 4-methylphenol, pentachlorophenol, benzo(a)pyrene, dibenzo(a,h)anthracene, ideno (1,2,3-dc) pyrene, benzo(k)fluoranthene, benzo(b) fluoranthene, and chrysene.

Pesticides and PCBs: 7 of 19 groundwater samples contained one or more pesticides and/or PCBs including heptachloroepoxide, dieldrin, aldrin, 4,4'-DDE, alpha-BHC, aroclor 1254, and arochlor 1260.

Soil Gas:

Four soil gas samples were collected on-site along the property perimeter. In all samples contained ethanol, trichlorofluoromethane, isopropyl alcohol, acetone, carbon disulfide, hexane, 2-butanone, cyclohexane and benzene. However, samples were only collected for a 10 minute timeframe in summa canisters. These samples were collected to give an indication of potential contaminants and does not represent a vapor intrusion investigation since they were collected in open area of the site (i.e. not gases accumulating under a building) and for a short duration.

Offsite

Residential Community

The extensive on-site environmental sampling data set and additional environmental assessment reports define a site that had been used for years as a waste and debris disposal area. Site characterization efforts indicate groundwater in the uppermost aquifer flows toward the south and away from the residential community. In addition, groundwater samples collected in the northern portion of the site closest to the residential community during EPA's 2007 Removal Assessment activities did not show VOC's above EPA's maximum contaminant level (MCL). Soil gas samples collected along the property border (Price Street) during this sampling event do not suggest this area is impacted by volatilization of organic compounds. However, control of contaminant migration, whether groundwater infiltration, riverbank seepage or surface runoff, is a current concern and potentially could be a public health concern. However, off-site community data is not available. . Underground anomalies have been identified through geologic investigations, including GPR studies. The anomalies appear to be buried pipes and former disposal ditches, in addition to large metal debris fields which were identified as buried drum carcasses during excavation trenching operations. Preferential pathways for groundwater and vapor migration exist but have not been fully characterized. [4] These pathways may direct hazardous wastes and vapors from the site to the residential community to the north.

No data has been collected north of the site in the nearby residential community. Environmental sampling data including residential soil and indoor air are needed to determine whether contaminants have migrated from the site into the residential area. This data will allow PADOH to assess whether exposures to contamination are occurring at levels of health concern. It is PADOH's understanding, that EPA will consider investigating the potential groundwater contamination and the vapor intrusion pathway as part of the site RI/FS.

Stoney Creek and Delaware River

Based on past site investigations, seeps along the banks of Stoney Creek and the presence of contaminated sediment in Stoney Creek confirm that hazardous wastes are migrating offsite to the Delaware River. A number of seeps are visible along the banks and contaminant plumes have been photographically documented in the Creek itself. Sediment samples from Stoney Creek and soils along its banks show that site contaminants are being released from the site into the environment. PADOH does not expect the public to be exposed to contaminants along the Metro Container banks of Stoney Creek. The former Conoco Phillips property borders Stoney Creek and the steep banks and heavy vegetation along Stoney Creek make access to these areas very difficult and highly unlikely. In

addition, it is highly unlikely the public would be exposed to contaminated sediments along the Delaware River because the area is heavily industrialized. [6-8]

Site investigations have reported the presence of leachate seeps immediately downgradient of the waste disposal lagoon flowing into Stoney Creek. In August 2008, EPA collected composite and grab sediment samples from an area of Delaware River tidal mudflats located in the vicinity of Stoney Creek's mouth. Four PCBs (Aroclor-1248, Aroclor-1254, Aroclor-1260, and Aroclor-1262), six PAHs (benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, pyrene), one VOC (carbon disulfide), and three metals (cadmium, chromium, mercury) were detected in sediment samples of Stoney Creek and the Delaware River. [2] These contaminants were also detected at elevated concentrations in soil samples collected from on-site source areas and the leachate seeps. [6-8] Therefore, the presence of these contaminants in sediment samples downstream of the facility indicates contaminants have migrated from the site into Stoney Creek and the Delaware River. [2] The following is a summary of the surface sediment (0 to 6") data:

> PAH's (detected in 2 of the 7 surface sediment samples) at a maximum of: Phenanthrene 400 µg/kg, fluoranthene 420 µg/kg, pyrene 350 µg/kg, benzo(a)anthracene 270 µg/kg, chrysene 320 µg/kg, benzo(a) fluoranthene 230 µg/kg, benzo(k) fluoranthene 300 µg/kg, bis(2-ethylhexyl) phthalate 810 µg/kg, ideno(1,2,3 cd) pyrene 200 µg/kg, and benzo(g,h,i) pyrene 260 µg/kg;
>
> Pesticides (detected in 1 of 7 surface sediment samples): 4,4'-DDE at a maximum of 3.6 µg/kg;
>
> PCB's (detected in 2 of 7 surface sediment samples) at a maximum of: Aroclor 1248 at 57 µg/kg and Aroclor 1260 at 62 µg/kg;
>
> Metals (detected in 2 of 7 surface sediment samples): Arsenic 7.6 µg/kg, cadmium 1.6 µg/kg, lead 133 µg/kg, mercury 0.82 µg/kg, and zinc 341 µg/kg.

Fish consumption

Some environmental contaminants found in surface waters and sediments may ultimately be taken up by organisms from the water, sediments, or from contaminated food sources (this uptake process is called "bioaccumulation"). Some chemicals can be passed from one organism to another as smaller organisms are eaten by larger organisms. Contaminants can accumulate in the tissues of aquatic organisms at concentration much higher than concentrations in the water and persist for many years in the sediments, where they accumulate by bottom-dwelling organisms. Bottom-dwellers are lower on the food chain and then pass the contaminants to fish that are higher on the food chain. As a result, top predators in the food chain (i.e. largemouth bass, walleye) may have concentrations of bioaccumlative contaminants in their tissues. [9] This process is called biomagnification. The manner in which a chemical moves between the water, sediments, and aquatic organisms is related to its structure and chemical properties. Chemicals that accumulate in fish may ultimately be ingested by animals or people. Some of these chemicals may be harmful. If a person eats enough contaminated fish, and the contaminant concentrations in the fish are high enough, adverse health effects may result. [10]

Seeps have been identified from the site migrating via Stoney Creek to the Delaware River. Several contaminants detected in site investigations have a high potential for persistence and bioaccumulation. These include benzo(a)anthracene, benzo(a)pyrene, cadmium, mercury, PCBs, and pyrene. These contaminants do not readily break down and therefore remain in the environment for long periods of time and can bioaccumulate in aquatic organisms present in the Delaware River. The area near the site along the Delaware River is heavily industrialized. The Delaware River is a tidally influenced surface

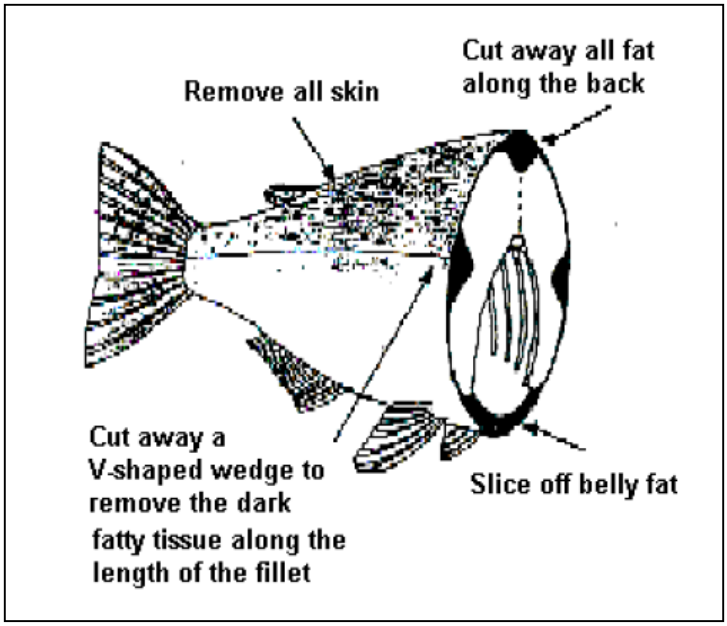
water body at its confluence with Stoney Creek, and has a tidal influence reaching as far north as the vicinity of Morrisville, Pennsylvania and Trenton, New Jersey, approximately 50 miles upstream of Stoney Creek. The Delaware Estuary is fished for human consumption, via shore and boating on both the New Jersey and Pennsylvania sides. Species that inhabit the Delaware River that are targeted by anglers in Pennsylvania, New Jersey, and Delaware include largemouth bass, striped bass, American eel, channel catfish, white catfish, and white perch. [11]

Currently, PADOH do not have fish tissue data to evaluate. However, PADOH recommend the public follow the current fish consumption advisories, in order to reduce the potential for exposure to contamination, from the site and other industrial properties. As a result of contamination, in particular, mercury and PCB contamination, the estuary states of New Jersey, Pennsylvania, and Delaware have issued fish consumption advisories. The following is a summary of the current area fish advisories:

- For the PA Fish and Boat Commission the American eel and carp are subject to no-eat fish advisories in the lower Delaware River, from Trenton, New Jersey to the Pennsylvania/Delaware border. Consuming other fish such as white perch, channel catfish, flathead catfish and striped bass should be restricted to one meal per month.
- One meal is assumed to be one-half pound of fish (8 oz. before cooking) for a 150-pound person. The meal advice is equally protective for larger people who eat larger meals and smaller people who eat smaller meals, people who regularly eat sport fish, women of childbearing age and children are particularly susceptible to contaminants that build up over time. [11]
- The New Jersey Department of Environmental Protection (NJDEP) has fish advisories for sensitive individuals in this area. These include a do not eat advisory for striped bass, white perch, American eel, channel and white catfish, and blue. Only one meal per month is advised for weakfish. [12]

The best way to reduce the potential health risks is to eat only the safest fish and using the proper cleaning and cooking procedures to reduce potential contamination. Some examples include [11]:

- Choose lean, smaller and younger fish. Generally, panfish and fish just over the legal size will have fewer PCBs and other chemicals.
- Release predator fish that are very large, like walleye, northern pike, and muskie. These fish tend to have more PCBs. Bass have different advisories. Carp and catfish also tend to accumulate more chemicals.
- Women of childbearing age, pregnant women, nursing mothers and young children must select their catch or meals carefully.
- Properly trimming fish reduces the concentration of PCBs and other chemicals, as describes in the figure below. About half of the PCBs can be removed by trimming away the fatty parts of the fish through filleting the fish and removing the skin before cooking. Cook the fish in ways, such as baking, broiling or grilling, that allow fat (that contain the unwanted chemicals) to drip away. [13]



- Other chemicals such as methyl mercury are stored throughout the fish and cannot be reduced by filleting. The greatest exposure of humans to methylmercury is for those subsistence fishers, recreational fishers and others who regularly eat non-commercial fish from mercury-polluted waters. Of this group, pregnant women and women who may become pregnant, in particular, should pay careful attention to the state advisories that warn people against eating fish caught in mercury-polluted waters. [14]

Child Health

In communities faced with potential exposure to contaminants, the many physical differences between children and adults may require special emphasis. Because children play outdoors and exhibit behaviors that increase their exposure potential, they could be at greater risk than are adults from certain kinds of exposure to hazardous substances. A child's lower body weight and higher relative intake rate results in a greater dose of hazardous substance per unit of body weight. If toxic exposure levels are high enough during critical growth stages, the developing body systems of children can sustain permanent damage. Also, children are dependent on adults for access to housing, for access to medical care, and for risk identification. [3] Thus adults need as much information as possible to make informed decisions regarding their children's health.

PADOH also recognize that the unique vulnerabilities of children demand special attention. Windows of vulnerability (critical periods) exist during development, particularly during early gestation, but also throughout pregnancy, infancy, childhood and adolescence periods when toxicants may permanently impair or alter structure and function. Unique childhood vulnerabilities may be present because, at birth, many organs and body systems (including the lungs and the immune, endocrine, reproductive, and nervous systems) have not achieved structural or functional maturity. These organ systems continue to develop throughout childhood and adolescence. Children may exhibit differences in absorption, metabolism, storage, and excretion of toxicants, resulting in higher biologically effective doses to target tissues. [15] However, at this time, PADOH do not have residential environmental sampling data to evaluate whether children might be exposed to contaminants that could harm their health. It is PADOH understanding that as part of EPA's RI/FS, EPA will collect residential sampling. PADOH will review the sampling data, when available.

Community Concerns

In September 2011, prior to being finalized on the NPL, EPA community involvement staff went door-to-door in the community adjacent to the site. EPA distributed a community factsheet and solicited any concerns from the community. PADOH's community assessment for the site found there is not a high level of concern about past and potential health effects from the site. However, the community is ready and eager to receive information about the site and future public health assessments.

Conclusions

PADOH reviewed the available environmental sampling data for the site and conclude the following:

Exposures to on-site soil, adjacent Stoney Creek sediment, and groundwater contamination **are not expected to harm people's health,** because access to the site and adjacent areas are controlled so the public is not being exposed to on-site contamination as long as access remains restricted. The potential for workers' exposures is limited because a gravel and stone surface cover along with existing structures limits direct contact with the heavily contaminated sub-surface soils and groundwater. Therefore, there is no completed exposure pathway.

PADOH **cannot conclude whether ingestion and inhalation of off-site residential soil and wind-blown dust could harm people's health**. No environmental sampling data has been collected in the adjacent community to characterize potential off-site exposures. Surface soil in the residential community could potentially be contaminated from historical site activities.

PADOH **cannot conclude whether residential or on-site inhalation of contaminated groundwater via vapor intrusion into indoor air could harm people's health.** Groundwater on the site has been shown to be highly contaminated with VOCs. Currently there is no off-site groundwater sampling data. If VOC levels are high enough in groundwater and the groundwater is close enough to the surface, they can move through the soil above the water table and/or through cracks or gaps in the sub-surface up into overlying buildings. Vapor intrusion from groundwater contaminated with VOCs into off-site and on-site structures remains a potential exposure pathway of concern. However, currently there is no indoor air data to determine if vapor intrusion is occurring. PADOH recommends that EPA collect vapor intrusion samples in the on-site buildings, both sub-slab and indoor air, to investigate the vapor intrusion pathway. If groundwater data collected as part of the RI/FS indicate high levels of VOCs in the groundwater beneath residential areas or the potential for migration, PADOH recommends EPA consider collecting vapor intrusion samples, both sub-slab and indoor air, to investigate the vapor intrusion pathway.

PADOH do not have fish tissue sampling data from the Delaware River to evaluate. However, given the potential for bioaccumulation of some site contaminants detected in the sediments and the current fish consumption advisories, the public should follow the current fish consumption advisories. Several of the contaminates detected in site investigations have a high potential for persistence and bioaccumulation in fish including benzo(a)anthracene, benzo(a)pyrene, cadmium, mercury, PCBs and pyrene. As a result of contamination from industrial properties along the Delaware River in particular, mercury and PCB contamination, The Pennsylvania Fish and Boat Commission has issued fish consumption advisories.

Recommendations

Based on a review of the available environmental sampling data and site information, PADOH recommends the following actions be taken for the site:

1. Given the historical activities at the site, the past environmental violations by the site, on-site sampling data showing significant sub-surface contamination and the lack of off-site sampling data, PADOH recommends EPA collect offsite sampling data for surface soil in the residential areas north of the Metro Container Site

2. If residential groundwater data collected as part of the RI/FS indicate high levels of VOC's or the potential for migration to indoor air, PADOH recommends EPA consider collecting vapor intrusion samples, both sub-slab and indoor air, to address the vapor intrusion pathway.

3. PADOH recommends EPA collect vapor intrusion samples in the on-site building, both sub-slab and indoor air, to address the vapor intrusion pathway.

4. Given the significant sub-surface concentrations of multiple contaminants, on-site excavations have the potential for off-site migration. PADOH recommends sub-surface excavation activities only be performed following OSHA hazardous waste operations guidelines and after a health and safety plan and briefing has been conducted, which is required under 29 CFR 1910.120 by EPA for all field activities. EPA should conduct air sampling at the site perimeter to ensure soil dust does not migrate off-site to the adjacent community.

5. Although not specific to the site alone, the public should follow the PA Fish and Boat Commissions' current fish advisories for the lower Delaware River due to PCB and mercury contamination.

    a. The American eel and carp are subject to no-eat fish advisories in the lower Delaware River, from Trenton, New Jersey to Pennsylvania/Delaware border
    b. Consumption of other fish such as white perch, channel catfish, flathead catfish and striped bass are advised to be eaten in limited quantities of one meal per month. One meal is assumed to be one-half pound of fish (8 oz. before cooking) for a 150-pound person. The meal advice is equally protective for larger people who eat larger meals and smaller people who eat smaller meals.
    c. In addition, properly trimming and cooking of fish can reduce the concentration of PCBs and other chemicals.

Public Health Action Plan

The public health action plan for the site contains a description of actions that have been or will be taken by PADOH. The purpose of the public health action plan is to ensure that this health consultation both identifies public health hazards and provides a plan of action designed to mitigate and prevent harmful human health effects resulting from exposure to hazardous substances.

Public health actions that have been taken include:

In 2013, PADOH produced this HC for the site.

In 2011, PADOH, along with staff from EPA Region 3, visited the site and the surrounding community.

In 2011, PADOH, along with PADEP and EPA, attended a public availability session to discuss any community concerns related to the site.

Public health action that currently or will be implemented:

PADOH will:

- Provide education and outreach to the community;
- Inform people living near the site of ways to avoid exposures, especially for children that might eat contaminated soil;
- Remain available to discuss any public health questions or concerns related to the site with community members and local authorities; provide and discuss this HC with community members;
- Attend meetings with the community, as well as state and local government agencies; and
- Review additional environmental sampling data, if available.

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Report Preparation

This Health Consultation for the Metro Container site was prepared by the Pennsylvania Department of Health (PADOH) under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with the approved agency methods, policies, procedures existing at the date of publication. Editorial review was completed by the cooperative agreement partner. ATSDR has reviewed this document and concurs with its findings based on the information presented. ATSDR's approval of this document has been captured in an electronic database, and the approving agency reviewers are listed below.

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Appendix 1: Figures

Figure 1 – Topographic map of the Metro Container site.

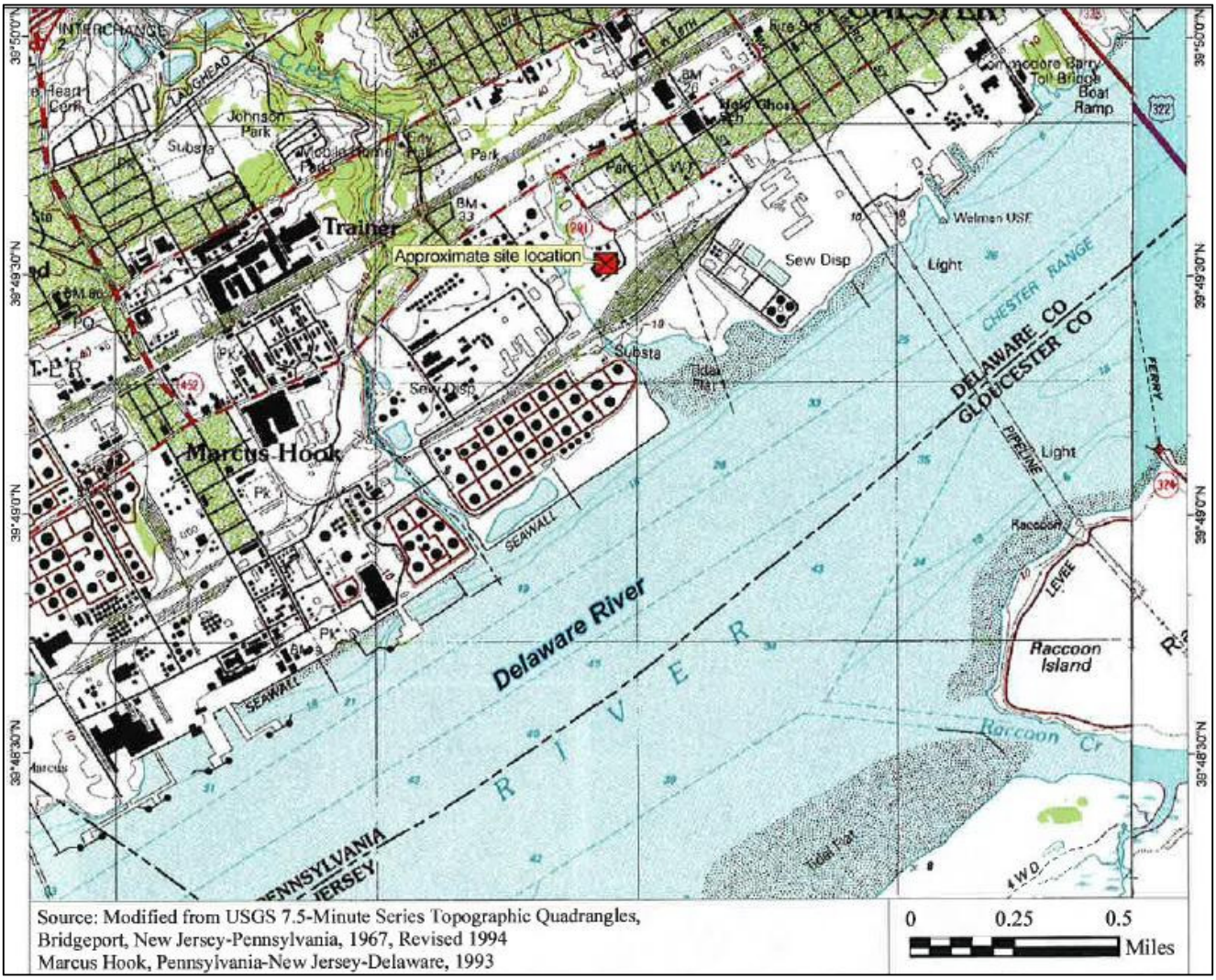


Figure 2 – Site map of the Metro Container site.

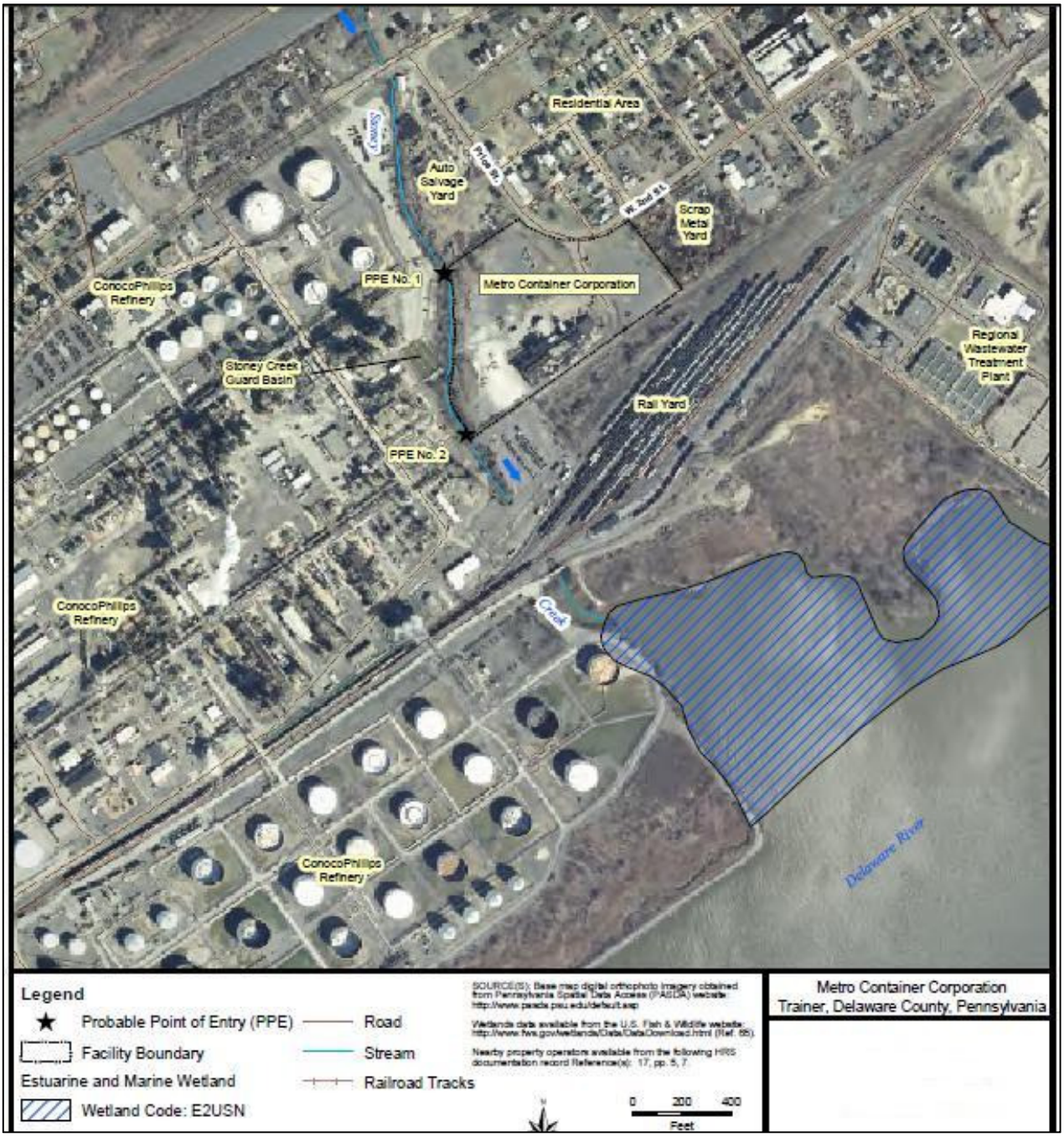


Figure 3 - Demographic map for the community near the Metro Container site.

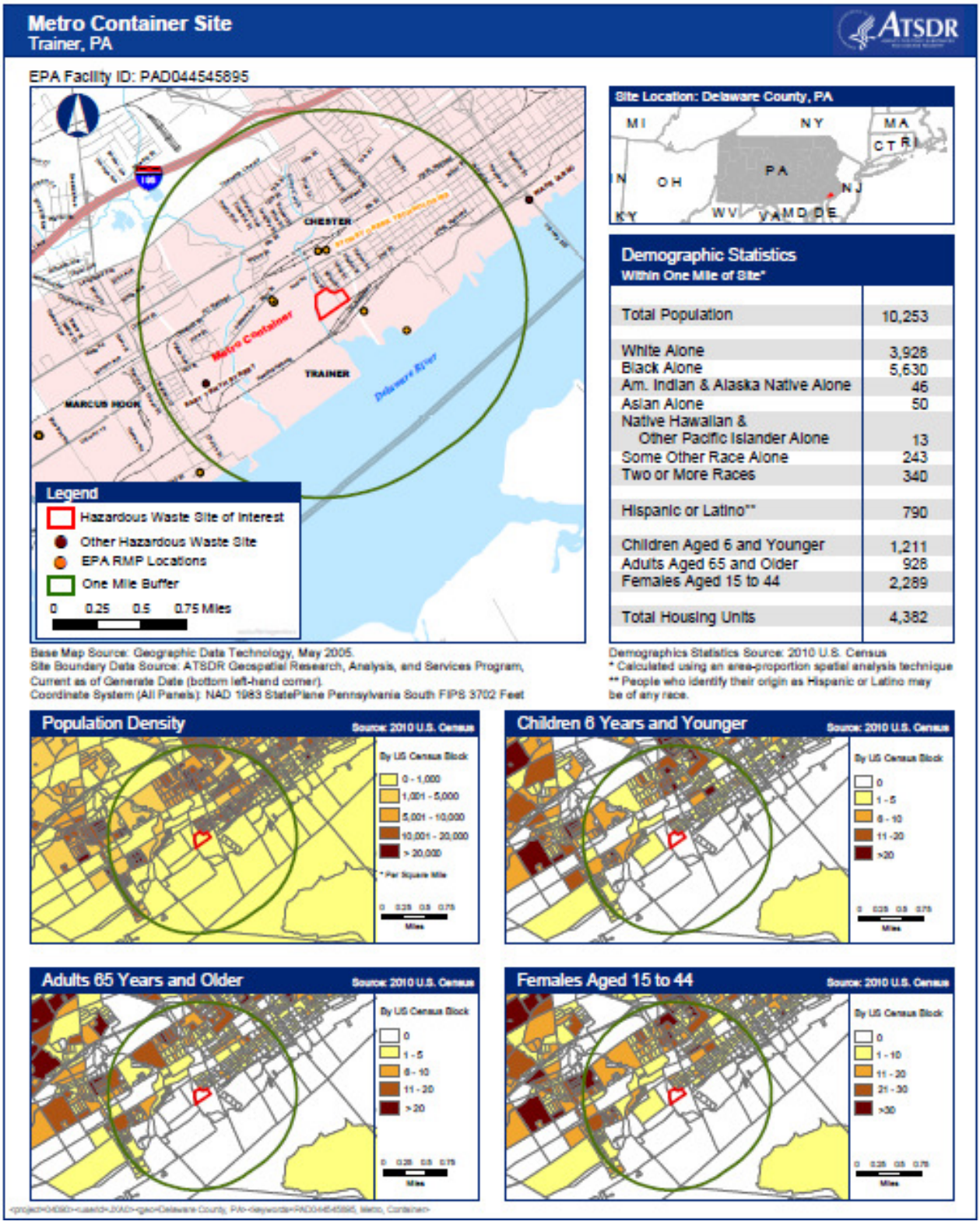


Figure 4- Map of EPA's 2007 sampling for groundwater, soil, sediment and soil gas for Metro Container site.

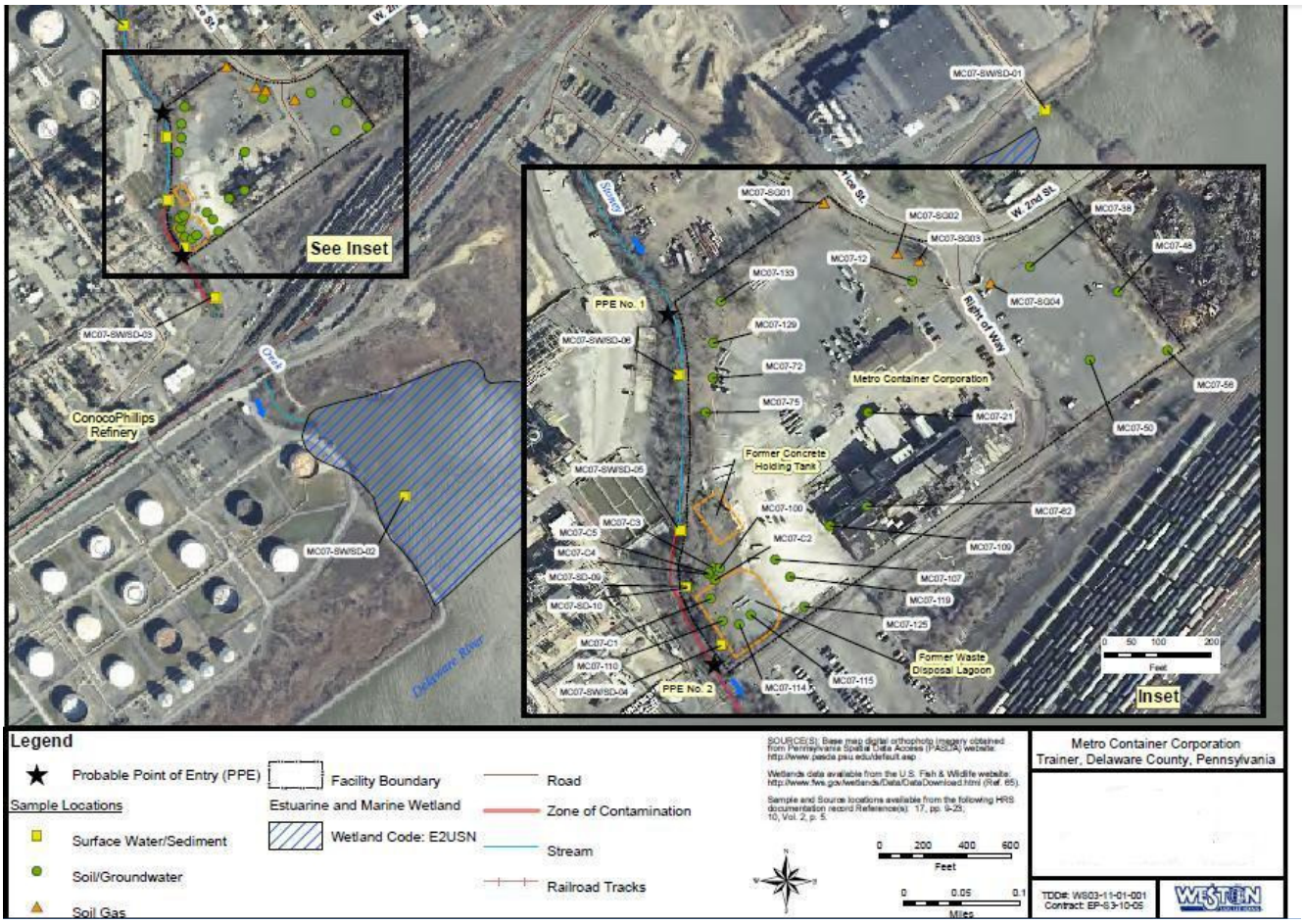
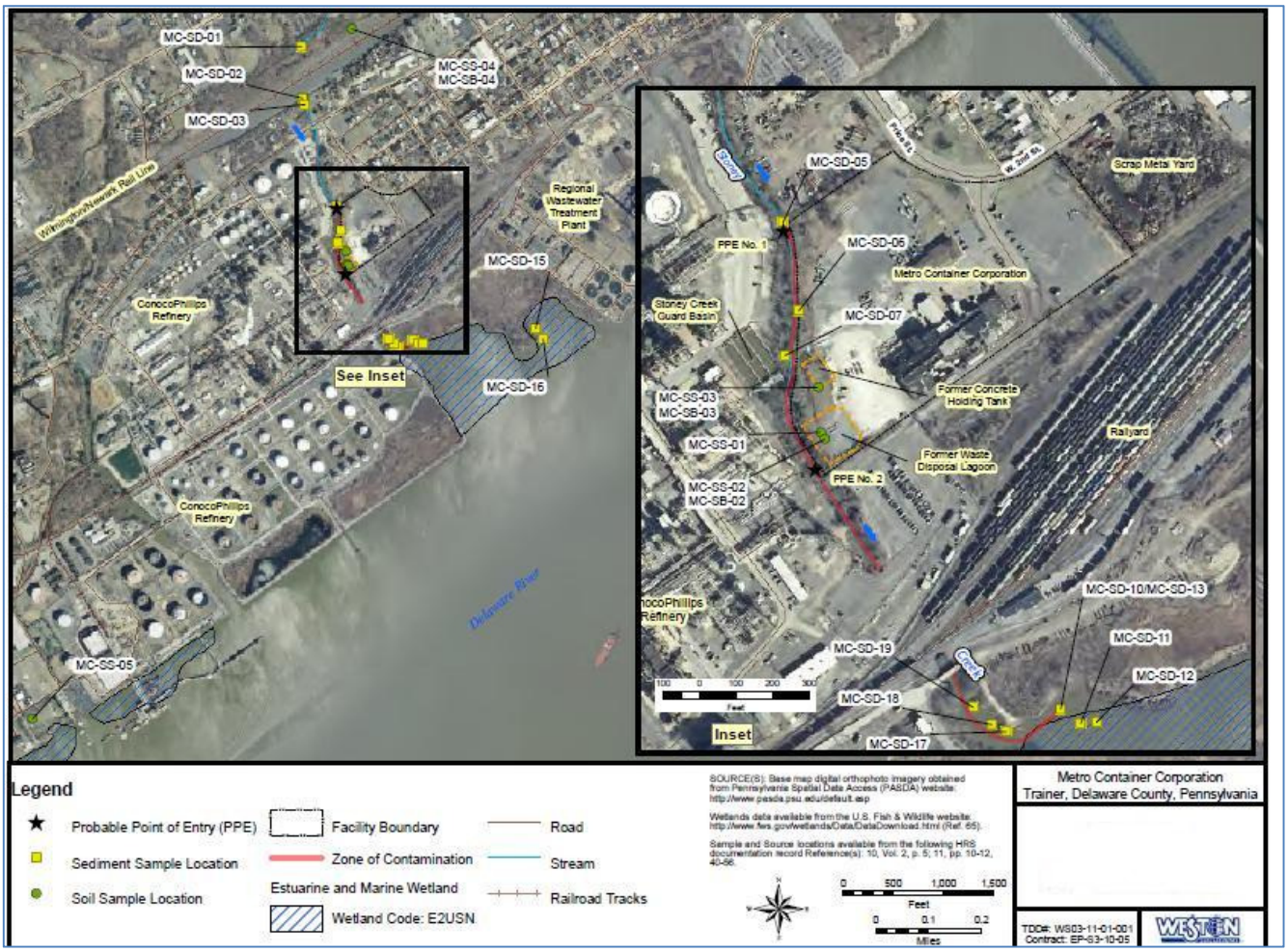


Figure 5- Map of EPA's 2008 and 2010 sediment sampling for the Metro Container site.

Figure 6- Map of EPA's 2008 and 2010 additional sediment sampling collected along Stoney Creek for the Metro Container site.



Appendix 2: Site Photographs

Photo #1 – View of current on-site building, used by Trainer Industries, the current property occupant, as a chemical storage and painting area. In the foreground is a paved parking lot used by the adjacent site office.

Photo #2 – Additional view of current on-site building, used by Trainer Industries as storage for chemicals and paints.

Photo #3 – Additional view of current on-site building on the site with adjacent area to the west currently used for blasting of pipes and vessels prior to repainting.

Photo #4 – Current site operations, includes an area used for blasting of pipes and vessels prior to repainting.

Photo #5 – Graded overflow parking lot on the Metro Container site and an adjacent industrial property, which operates a scrap metal business

Photo #6 - Groundwater monitoring well, located on the western portion of the Metro Container property near the former lagoons.

Photo #7 – View of adjacent former Conoco Phillips property

Photo #8 – Former Conoco Phillips cooling tower, adjacent to the Metro Container site.

Photo #9 - On-site Stoney creek, located between Metro Container and the former Conoco Philips property.

Appendix 3:
Glossary of Terms

Absorption
The process of taking in. For a person or an animal, absorption is the process of a substance getting into the body through the eyes, skin, stomach, intestines, or lungs.

Acute
Occurring over a short time [compare with chronic].

Acute exposure
Contact with a substance that occurs once or for only a short time (up to 14 days) [compare with intermediate duration exposure and chronic exposure].

Adverse health effects
A change in body functions or cell structure that might lead to disease or health problems

Background level
An average or expected amount of a substance or radioactive material in a specific environment, or typical amounts of substances that occur naturally in an environment.

Bioaccumulation
Accumulation of chemicals in the tissue of organisms through any route, including respiration, ingestion, or direct contact with contaminated water, sediment, and pore water in the sediment

Biological Uptake
The transfer of substances from the environment to plants, animals, and humans.

Biomagnification
Related to bioaccumulation and is the process whereby the tissue concentrations of a contaminant increase as it passes up the food chain through two or more trophic levels, such as aquatic organisms

Carcinogen
A substance that causes cancer.

Chronic exposure
Contact with a substance that occurs over a long time (more than 1 year) [compare with acute exposure and intermediate duration exposure]

Comparison value (CV)
Calculated concentration of a substance in air, water, food, or soil that is unlikely to cause harmful (adverse) health effects in exposed people. The CV is used as a screening level during the public health assessment process. Substances found in amounts greater than their CVs might be selected for further evaluation in the public health assessment process.

Completed exposure pathway [see exposure pathway].

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)
CERCLA, also known as Superfund, is the federal law that concerns the removal or cleanup of hazardous substances in the environment and at hazardous waste sites. ATSDR, which was created by CERCLA, is responsible for assessing health issues and supporting public health activities related to

hazardous waste sites or other environmental releases of hazardous substances. This law was later amended by the Superfund Amendments and Reauthorization Act (SARA).

Concentration
The amount of a substance present in a certain amount of soil, water, air, food, blood, hair, urine, breath, or any other media.

Contaminant
A substance that is either present in an environment where it does not belong or is present at levels that might cause harmful (adverse) health effects.

Environmental media
Soil, water, air, biota (plants and animals), or any other parts of the environment that can contain contaminants.

EPA
United States Environmental Protection Agency.

Exposure
Contact with a substance by swallowing, breathing, or touching the skin or eyes. Exposure may be short-term [acute exposure], of intermediate duration, or long-term [chronic exposure].

Exposure pathway
The route a substance takes from its source (where it began) to its end point (where it ends), and how people can come into contact with (or get exposed to) it. An exposure pathway has five parts: a source of contamination (such as an abandoned business); an environmental media and transport mechanism (such as movement through groundwater); a point of exposure (such as a private well); a route of exposure (eating, drinking, breathing, or touching), and a receptor population (people potentially or actually exposed). When all five parts are present, the exposure pathway is termed a completed exposure pathway.

Feasibility Study
A study by EPA to determine the best way to clean up environmental contamination. A number of factors are considered, including health risk, costs, and what methods will work well.

Groundwater
Water beneath the earth's surface in the spaces between soil particles and between rock surfaces [compare with surface water].

Hazard
A source of potential harm from past, current, or future exposures.

Hazardous waste
Potentially harmful substances that have been released or discarded into the environment.

Health consultation
A review of available information or collection of new data to respond to a specific health question or request for information about a potential environmental hazard. Health consultations are focused on a specific exposure issue. Health consultations are therefore more limited than a public health

assessment, which reviews the exposure potential of each pathway and chemical [compare with public health assessment].

Health education
Programs designed with a community to help it know about health risks and how to reduce these risks.

Ingestion
The act of swallowing something through eating, drinking, or mouthing objects. A hazardous substance can enter the body this way [see route of exposure].

Inhalation
The act of breathing. A hazardous substance can enter the body this way [see route of exposure].

Intermediate duration exposure
Contact with a substance that occurs for more than 14 days and less than a year [compare with acute exposure and chronic exposure].

mg/kg
Milligram per kilogram, equal to parts per million (ppm).

µg/kg
Micrograms per kilogram, equal to parts per billion (ppb).

National Priorities List for Uncontrolled Hazardous Waste Sites (National Priorities List or **NPL)**
EPA's list of the most serious uncontrolled or abandoned hazardous waste sites in the United States. The NPL is updated on a regular basis.

Plume
A volume of a substance that moves from its source to places farther away from the source. Plumes can be described by the volume of air or water they occupy and the direction they move. For example, a plume can be a column of smoke from a chimney or a substance moving with groundwater.

Point of exposure
The place where someone can come into contact with a substance present in the environment [see exposure pathway].

Polyaromatic hydrocarbons (PAHs)
Semi-volatile compounds which include benzo[a]anthracene, benzo[a]pyrene, and naphthalene.

Polychlorinated biphenyls (PCBs)
Polychlorinated biphenyls are mixtures of up to 209 individual chlorinated compounds (known as congeners or aroclors).

Population
A group or number of people living within a specified area or sharing similar characteristics (such as occupation or age).

ppb
Parts per billion.

ppm
Parts per million.

Public health action
A list of steps to protect public health.

Risk
The probability that something will cause injury or harm.

Route of exposure
The way people come into contact with a hazardous substance. Three routes of exposure are breathing [inhalation], eating or drinking [ingestion], or contact with the skin [dermal contact].

Sample
A portion or piece of a whole. A selected subset of a population or subset of whatever is being studied. For example, in a study of people the sample is a number of people chosen from a larger population [see population]. An environmental sample (for example, a small amount of soil or water) might be collected to measure contamination in the environment at a specific location.

Sediment
Particles of clay, silt and sand, created by the weathering of rocks and soil, and is present in streams and rivers.

Source of contamination
The place where a hazardous substance comes from, such as a landfill, waste pond, incinerator, storage tank, or drum. A source of contamination is the first part of an exposure pathway.

Substance
A chemical.

Surface water
Water on the surface of the earth, such as in lakes, rivers, streams, ponds, and springs [compare with groundwater].

Volatile organic compounds (VOCs)
Organic compounds that evaporate readily into the air. VOCs include substances such as benzene, toluene, methylene chloride, and methyl chloroform.