

# Aboveground Storage Tank Closure Work Plan

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Former Philadelphia Energy Solutions Refinery  
3144 West Passyunk Avenue, Philadelphia, PA

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March 2021

Project Number P044.002.001



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## Acronyms and Abbreviations

Act 32	Storage Tank and Spill Prevention Act
AFR	Aboveground Field Constructed Storage Tank Removal
AOI	Area of Interest
AST	Aboveground Storage Tank
COC	chain of custody
DOT	Department of Transportation
ft	feet or foot
GPS	global positioning system
in	inch or inches
L&I	Philadelphia Department of Licenses and Inspection
MSCs	Media Specific Concentrations
“P”	Permanently Closed-in-Place
PADEP	Pennsylvania Department of Environmental Protection
PES	Philadelphia Energy Solutions
PESRM	Philadelphia Energy Solutions Refinery and Marketing LLC
PID	photoionization detector
Plan	Work Plan
PVC	polyvinyl chloride
QAQC	quality assurance/quality control
Site	3144 West Passyunk Avenue, Philadelphia, PA
SVOC	semi-volatile organic compound
TDS	total dissolved solids
VOC	volatile organic compound



# 1 Introduction

This Work Plan (Plan) has been prepared on behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM) for consideration by the Pennsylvania Department of Environmental Protection (PADEP). This Plan describes the approach that will be used to complete site assessment, in accordance with the Storage Tank and Spill Prevention Act (Act 32) and 25 Pa. Code 245, for the aboveground storage tanks (ASTs) that will be emptied, cleaned, dismantled, and removed during the demolition and redevelopment of the Point Breeze Terminal (Facility ID 51-33620) and Girard Point (Facility ID 51-33624) at the former Philadelphia Energy Solutions (PES) Refinery located at 3144 West Passyunk Avenue, Philadelphia, PA (Site) (Figure 1.1).

## 1.1 Background

The Site is a 1,300-acre former refinery that is being repurposed and redeveloped into a state of the art, multimodal industrial park with ancillary rail infrastructure, energy infrastructure, marine capabilities, and commercial uses. To facilitate redevelopment, existing infrastructure at the Site, including the ASTs, will be demolished. Demolition is anticipated to progress generally from north to south with AST removal to be completed for Point Breeze and Girard Point between 2020 and 2024 (see Figure 1.2).

Each AST will be emptied, cleaned, and dismantled and the infrastructure (e.g., containment structures, piping, etc.) associated with the ASTs will be removed under the supervision of a Pennsylvania certified Aboveground Field Constructed Storage Tank Removal (AFR) contractor. The infrastructure removal will generally follow the processes outlined in PADEP's 2017 *Closure Requirements for Aboveground Storage Tank Systems*. However, due to the large number of tanks being removed and the large area requiring assessment, PESRM is proposing a site-specific approach for the site assessment activities (see **Section 3**). The roster of tanks covered under this plan is provided in Table 1.1. Tanks that were previously closed-in-place, and for which the tank status in the PADEP storage tank database is Permanently Closed-in-Place ("P"), will be demolished and removed from the Site but do not require sampling under this plan. A list of Permanently Closed-in-Place tanks is provided in Table 1.2.

## 1.2 Purpose and Objective

The purpose and objective of this Plan is to describe the detailed activities that will be performed to complete the site assessment associated with closure of the ASTs. The AST closure effort will include decommissioning each tank, filing the applicable documentation to allow PADEP to amend the registration/record for each tank, completing the site assessment process, documenting sampling results associated with the site assessment process, and identifying areas that may require corrective action.

## 1.3 Work Plan Organization

This Work Plan is organized as follows. **Section 2** provides a summary of tank and infrastructure removal. **Section 3** discusses how the site assessments will be performed. **Section 4** details what



documentation and reporting will be produced to facilitate AST closure. **Section 0** provides a list of references considered in preparing this Work Plan.

## 2 Tank Infrastructure and Removal

This section discusses the tanks and associated infrastructure that are the subject of this Work Plan. It documents the current information available for each tank and what additional information will be gathered during the decommissioning process.

### 2.1 Aboveground Storage Tank Inventory

The ASTs subject to this Plan include the regulated AST systems (including regulated piping and/or ancillary equipment) registered in the PADEP storage tank database. The tanks have been categorized for the purposes of this Work Plan based on their capacity. Tanks with capacities less than or equal to 21,000 gallons have been assigned to Category 1, and tanks with capacities greater than 21,000 gallons have been assigned to Category 2. A third category (Category 3) is reserved for tanks where evidence of a release to the environment is identified during demolition or the site assessment. The sampling protocol that will be used to complete the site assessment depends on the tank category as described in **Section 3**.

As summarized on Table 1.1, and as shown on Figures 2.1 through 2.3, the inventory of ASTs at Point Breeze that will be closed and assessed under this plan includes 84 ASTs. Of these, 24 have been assigned to Category 1 and 60 to Category 2. The inventory of ASTs at Girard Point that will be closed and assessed under this plan includes 65 ASTs. Of these, 16 have been assigned to Category 1 and 49 to Category 2. Table 1.1 provides more details regarding each tank including its State regulation number, tank number, closure phase, regulatory status, primary contents, tank type, and dimensions.

While the AST closure process will generally proceed in phases from the north to the south, groups of tanks in the same general area (e.g., tank farm) will be demolished, removed, and evaluated at about the same time. Figures 2.1 through 2.3 provide an illustration of how tanks are anticipated to be grouped during the completion of this work.

### 2.2 Tank Demolition Activities

PESRM has retained a Demolition Contractor to perform tank demolition and handling, including: 1) hazard recognition and abatement, 2) removal and handling of vapors, product, wastewaters, and accumulated sludges, 3) overseeing or verifying cleaning of the storage tank system, 4) dismantling the AST, and 5) removal of ancillary equipment and piping system. Tank handling activities will be conducted or directly supervised by a PADEP-certified AFR contractor. The AFR Contractor will submit the required notification forms and tank registration amendments (**Section 2.3**), observe and document the demolition activities, and provide/submit notification to PADEP should contamination be identified during AST removal (**Section 2.4**).



Prior to and during the infrastructure removal, the Demolition Contractor and the AFR Contractor will collect detailed data regarding the historical tank contents, tank capacity, tank geometry, tank condition, condition and extents of containment areas, and evidence of releases. The Demolition Contractor will use global positioning system (GPS) survey equipment to record the coordinates of the corners of the foundation pad or containment structure for each tank or group of tanks, as well as the locations of key infrastructure features. The Demolition Contractor will collect the following data for each tank during the infrastructure removal:

- Tank capacity (gallons)
- Tank geometry
- Evidence of a release(s) to the environment
- Type of secondary containment (if any)
- Condition of tank and secondary containment
- GPS coordinates for:
  - Corners of the tank foundation and/or containment structure
  - Locations of visible contamination or evidence of release
  - Alignment and connection points of above grade and subsurface piping

These data will be used to develop the scope for site assessment sampling based on the logic described in **Section 3**.

## 2.3 AST System Closure Documentation

In August and September 2020, the AFR Contractor notified PADEP of PESRM's intent to close the ASTs included on Table 1.1 by completing and submitting *Aboveground Storage Tank System Closure Notification* forms ([2630-FM-BECB0513](#)) for the ASTs. Copies of these forms were provided to the Philadelphia Department of Licenses and Inspection (L&I).

As the removal of physical infrastructure is completed, the AFR Contractor will submit *Storage Tanks Registration/Permitting Application* forms ([2630-PM-BECB0514](#)) to amend the status of registered tanks to indicate that the tanks have been removed.

With regards to final closure documentation, PESRM will not be submitting individual site assessment results, closure reports, and closure forms for every tank. Instead, the site assessment results for tank groupings will be documented in a Tank Group Closure reports as described in Section 4.

## 2.4 Notification of Releases

Should visual evidence of contamination<sup>1</sup> be identified during tank removal, the AFR Contractor will notify the PADEP as soon as practicable in accordance with 25 Pa Code § 245.305(a). This will include

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<sup>1</sup> Includes but is not limited to product-stained or product saturated soil, ponded product in an excavation, or free product/sheen on water in an excavation (PADEP 2017).



telephone notification and submittal of a *Notification of Release/Notification of Contamination* form ([2630-FM-BECB0082](#)) to the PADEP regional office. Consideration will also be given to implementing Interim Remedial Action to remove obvious contamination prior to performing verification sampling.

Waste generated during this process (e.g., pipes, remnants from concrete slabs, etc.) will be managed in accordance with Section VI.A of PADEP's (2017) *Closure Requirements for Aboveground Storage Tank Systems*.

## 3 Site Assessment

Site assessment soil sampling will be conducted after AST system infrastructure has been removed. Due to the large number of tanks being removed and the large area requiring assessment, PESRM will be using a site-specific procedure for identifying the number and location of soil samples for each tank or group of tanks. The density and locations of soil samples for a given AST (or group of ASTs within the same tank farm or containment dike) depends on the tank capacity, tank geometry, evidence of release(s) to the environment as noted during infrastructure removal (see **Section 2**), and the location/condition of piping and/or ancillary equipment associated with the tank.

Prior to sampling, each tank will be assigned to one of the three categories described below:

- Category 1 tanks are those that are less than or equal to 21,000 gallons and have no evidence of a release to the environment
- Category 2 tanks are those that are greater than 21,000 gallons and have no evidence of a release to the environment
- Category 3 tanks are those that have evidence of a release to the environment<sup>2</sup> identified during infrastructure removal

As presented in Table 1.1, each of the ASTs subject to this Plan have been initially assigned to Category 1 or Category 2. Tanks may be reassigned to Category 3 if evidence of a release to the environment is identified during infrastructure removal.

### 3.1 Sampling Protocol

The scope of site assessment sampling for a given tank will be based on the tank category as described below.

#### 3.1.1 Category 1 - ASTs (Visual Inspection Only)

Consistent with PADEP's (2017) *Closure Requirements for Above Ground Storage Tank Systems*, confirmatory soil sampling will not be conducted for ASTs that have a capacity less than or equal to 21,000 gallons unless visual evidence of a release to the environment is observed during demolition.

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<sup>2</sup> Evidence of a release to the environment includes obvious contamination observed visually during AST removal or the identification of contamination based upon a comparison of soil sampling results to applicable Action Levels.





Table 1.1 identifies the ASTs that have been initially assigned to Category 1. During AST removal, should evidence of a release to the environment be identified at a given tank, the tank will be reassigned to Category 3 and subject either to Interim Remedial Action or to the sampling protocol noted in **Section 3.1.3**.

### 3.1.2 Category 2 - ASTs (No Evidence of Release)

ASTs which do not meet the requirements for inclusion in Category 1 (i.e., have a capacity greater than 21,000 gallons) have been initially assigned to Category 2. During AST removal, should evidence of a release to the environment be identified, these tanks will be reassigned to Category 3 and subject either to Interim Remedial Action or to the sampling protocol noted in **Section 3.1.3**. Should there be no evidence of a release to environment identified during AST removal, these tanks will be subject to site assessment sampling using a grid-based approach.

For ASTs with a foundation greater than 50 feet (ft) by 50 ft in area, a 50-ft square grid spacing will be overlain on the footprint of the AST foundation, and a soil sampling location will be assigned to the center of each 50-ft grid square. For tanks with a diameter greater than 90-ft, two additional samples will be added from below the tank footprint. For tank foundations less than 50 ft by 50 ft in area, samples will be collected from the center and corners of the foundation footprint. Additional sample locations will be assigned based upon GPS coordinates collected by the AFR and Demolition Contractors for key points of interest (e.g., connection points) along the piping or ancillary components of the related piping system. At a minimum, one sample will be collected for every 50 linear feet of piping, but the spacing will be biased to target connecting locations identified during the GPS survey. Overall, the number of additional sample locations (i.e., non-grid locations) will be based on the specific layout of each tank group and where connection points are identified. Draft sampling plan figures showing proposed soil sampling locations for individual tanks or tank groups will be provided to PADEP in bi-weekly status reports for the tanks demolished in the prior two weeks (**Section 4**). **Section 3.2** describes the sampling depth intervals which will be targeted at each sampling location.

Figures 3.1 through 3.3 provide conceptual illustrations of the application of the sampling protocol for Category 2 tanks to different AST groupings. The sampling locations noted on these figures are examples and subject to change based upon information gathered during the AST removal. Specific sampling locations will be provided to PADEP in bi-weekly status reports.

### 3.1.3 Category 3 - ASTs (Evidence of Release)

Tanks where evidence of a release to the environment is identified during the infrastructure removal will be recategorized from either Category 1 or Category 2 to Category 3. Release reporting and notification to PADEP will be performed by the AFR Contractor, pursuant to the reporting requirements in 25 Pa. Code §245.305 and the PADEP's (2017) *Closure Requirements for Aboveground Storage Tank Systems*.



Should evidence of a release for a given AST be identified, a focused sampling approach will be used to characterize the nature and extent of contamination, determine whether contamination is localized<sup>3</sup> or extensive<sup>4</sup>, and generate information that can be used to determine whether Interim Remedial Action or Corrective Action will be performed.

The scope of sampling will be developed on a case-by-case basis but will generally include collecting 'step-out' samples at increasing distances in each direction from the release location(s) until concentrations have been adequately characterized to implement Interim Remedial Action and/or develop a Remedial Action Plan for the AST or AST grouping. Vertical delineation will be completed by collecting soil samples from progressively deeper intervals until concentrations are (1) less than Action Levels (defined in **Section 3.4**), (2) adequately characterized to support Corrective Action decision-making, or (3) until the water table is encountered.

If the soil concentrations immediately above the water table exceed an applicable Soil-to-Groundwater Action Level, a groundwater sample will be collected at the location to directly assess groundwater impacts. Groundwater concentrations will also be compared to Action Levels (defined in **Section 3.4**), and additional samples may be collected to adequately characterize the nature and extent of contamination. If the release is not adequately characterized based on the initial sampling results, additional sampling and remediation, if needed, will be conducted as part of Corrective Action.

## 3.2 Sample Collection Methods

Prior to the initiation of the sampling activities, the Pennsylvania One Call System (811 Dig Safe) will be contacted to identify underground utilities at the Site. In addition, a review of available information provided by Site representative regarding the presence/absence of underground utilities will be utilized in the selection of sampling locations. Finally, a private locate will be performed using geophysical and electromagnetic techniques to identify potential utilities or subsurface structures at proposed drilling locations.

Soil borings will be completed using direct-push (i.e., Geoprobe) drilling or hand auger methods and advanced through the top 5-feet of soil. Continuous soil cores will be collected and field screened using a photoionization detector (PID) to identify potentially impacted zones. Soil sampling intervals will be based on the results of field screening (i.e., staining, odors, and elevated PID readings). If potentially impacted materials are not encountered, discrete samples will be collected from native soil at a depth of 3.0-3.5 feet below ground surface consistent with the Confirmatory Sampling Protocol detailed in PADEP's (2017) *Closure Requirements for Aboveground Storage Tank Systems*. Where backfill is observed, samples of the backfill may be collected if it consists of soil or soil-like material (e.g., samples will not be collected from pea gravel).

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<sup>3</sup> Localized contamination is defined as contamination that does not extend more than 3-ft beyond the tank system in any direction and does not contaminate water in the excavation at concentrations which exceed applicable Action Levels (PADEP 2017).

<sup>4</sup> Extensive contamination is defined as contamination that extends more than 3-ft beyond the tank system in any direction or has contaminated water to concentrations which exceed Action Levels (PADEP 2017).



If groundwater is encountered within 5-ft of the ground surface at a given tank location, a groundwater sample will be collected from a temporary monitoring well installed in one soil boring. Temporary monitoring wells will be constructed of 1-inch diameter polyvinyl chloride (PVC) risers and screened across the water table using 0.010-inch slotted screen. A small amount of water will be purged from each temporary monitoring well prior to sample collection.

The proposed sample analyte list is dependent on the AST contents as discussed in **Section 3.3** below.

### 3.3 Sample Analysis

The analysis selected for each soil and groundwater (if necessary) sample will be based on the AST contents. The analyte list for each AST is noted in Table 1.1. For each AST, as applicable, PADEP's Short List of Petroleum Products inventory (Table III-5 of the *Land Recycling Program Technical Guidance Manual* [January 2019])) was used to identify an appropriate analyte list as follows:

- **Short List 1.** *Leaded Gasoline, Aviation Gasoline and Jet Fuel:* benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, and lead.
- **Short List 2.** *Unleaded Gasoline:* benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 3.** *Kerosene, Fuel Oil No. 1:* benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 4.** *Diesel Fuel and Fuel Oil No. 2:* benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethyl benzene, and 1,3,5-trimethyl benzene.
- **Short List 5.** *Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids:* benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and benzo(g,h,i)perylene.

If the tank product is not included in the categories of petroleum related products identified for PADEP's Short Lists, a specific analyte (or analyte group) has been assigned and noted on Table 1.1<sup>5</sup>. For AST contents that are petroleum related (e.g., gasoline components), a combination of PADEP's Short Lists was selected. The analytes on the PADEP Short Lists are a subset of volatile organic (VOC) or semi-volatile organic compounds (SVOCs) and where leaded gasoline is suspected, lead analysis will also be included. Samples for the VOCs will be analyzed via USEPA Method 5035/8260B. Samples for SVOCs will be analyzed via Method 8270C. Samples for lead analysis will be analyzed via USEPA Method 6010B.

There are several ASTs that have acid or caustic contents. Soil samples collected near these tanks will be submitted for laboratory analysis of pH via USEPA Method 9045D to evaluate for evidence of a release to the environment.

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<sup>5</sup> There are several Category 1 ASTs with primary products that are unique. This includes corrosion inhibitors, amines, and coagulants. Table 1.1 provides information regarding what analytes (or analyte groups) are currently being considered should releases to the environment be identified during their removal. These analyte lists may be refined or modified should additional information regarding the AST contents be identified during the removal.



## 3.4 Applicable Action Levels

Screening levels based upon the applicable PADEP Media Specific Concentrations (MSCs) will be used as Action Levels to evaluate the results of soil sampling conducted during the AST Closure program. Specifically, concentrations in soil at levels above the following MSCs will be further evaluated as potential evidence of a release to the environment:

- Non-Residential Direct Contact Numeric Values for Surface Soil (0-2 ft bgs)
- Non-Residential Direct Contact Numeric Values for Subsurface Soil (2-15 ft bgs)
- Non-Residential Soil-to-Groundwater Numeric Values for Used Aquifers [TDS<2,500]

The results of soil pH measurements will be compared to the thresholds used by USEPA for identifying corrosivity of wastes (i.e., less than or equal to 2 SU or greater than or equal to 12.5 SU).

If groundwater is sampled as part of the program, concentrations in groundwater greater than the following MSCs will be further evaluated:

- Non-Residential Groundwater MSCs for Used Aquifers [TDS<2,500]

Groundwater sampling results will also be compared to groundwater concentrations that are representative of historical and current groundwater conditions for the Area of Interest (AOI) based on data collected by Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC as part of their activities under Act 2.

## 3.5 Evaluation and Decision-Making

Decisions regarding implementation of Interim Remedial Actions and Corrective Action will be made based upon the information gathered during demolition of the tanks, and the results of soil (and groundwater) sampling performed during the site assessment.

If no visual evidence of a release is identified during demolition of Category 1 tanks and if the results of soil sampling indicate that concentrations are less than or equal to Action Levels for Category 2 and 3 tanks, the site assessment for that tank will be considered complete. The sampling results will be summarized in a Tank Group Closure Report (as described in **Sections 2.3 and 4.3**). For completeness, this summary report will also include copies of the *Aboveground Storage Tank System Closure Report* form ([2630-FM-BECB0514](#)) for the individual tanks.

If the results from sampling of a Category 2 tank indicate that soil or groundwater concentrations exceed Action Levels, the PADEP will be notified via telephone. The tank will be identified in the Tank Group Closure report as requiring Corrective Action, and a *Notification of Release/Notification of Contamination* form ([2630-FM-BECB0082](#)) will be included as an attachment to the Tank Group Closure report. The identified release will be addressed through the Corrective Action process (i.e., preparation of a Site Characterization Report and Remedial Action Plan, implementation of Remedial Action, and preparation of a Remedial Action Completion Report).



If the results from sampling of a Category 3 tank<sup>6</sup> indicate that the release is localized and fully delineated, an Interim Remedial Action may be conducted to address the release and the results will be summarized in the Tank Group Closure report. If the results from sampling of a Category 3 tank indicate that the release is extensive (i.e., not fully delineated), the area will be identified in the Tank Group Closure report as requiring Corrective Action, and the identified release will be addressed through the Corrective Action process, initially with Interim Remedial Actions and additional site characterization. The results will also be compared to past available sampling results in order to assess whether identified releases are new or historical.

## 3.6 Equipment Decontamination

When possible, single-use, dedicated sampling equipment will be used to minimize the need for decontamination procedures. Such equipment includes, but may not be limited to, disposable acetylene liners inside direct-push, macro-core drilling equipment, disposable polyethylene sample scoops to collect soil samples and tubing and disposable bailers to collect groundwater samples.

Consistent PADEP's (2019) *Land Recycling Program Technical Guidance Manual*, all non-disposable and non-dedicated sampling equipment will be decontaminated after each sample is collected. Generally, the level of decontamination is dependent on the level and type of suspected or known contaminants. Care will be taken to avoid decontamination product being introduced into a soil or groundwater sample.

The decontamination area, if needed, will be established upwind of sampling activities and implemented on a layer of polyethylene sheeting to prevent surface soils from contacting the equipment. The following steps summarize anticipated decontamination procedures:

- Wash with non-phosphate detergent and potable water using bristle brush made from inert material to remove visible soil;
- Rinse with potable water pressure spray;
- If collecting samples for metals analysis, rinse with 10% hydrochloric or nitric acid;
- Rinse liberally with deionized/distilled water pressure spray;
- If collecting samples for organics analysis, rinse with solvent-grade isopropanol, acetone, or methanol (should not be a solvent of potential interest to the investigation);
- Rinse liberally with deionized/distilled water pressure spray;
- Air-dry; and
- Wrap with inert material (such as aluminum foil) if equipment is not being used promptly.

Disposable gloves will be worn during sample collection and will be discarded following collection of each sample. Decontamination fluids, if used, will be contained and treated at the on-site wastewater treatment plant or disposed off-Site under manifest together with other investigation derived waste (see **Section 3.7**).

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<sup>6</sup> Category 3 tanks are those where obvious contamination was observed during AST removal.



### 3.7 Investigation Derived Waste

It is anticipated that soil cuttings from drilling or hand-augering will be returned to the boreholes as backfill. Groundwater generated from development and sampling of temporary monitoring will be containerized in Department of Transportation (DOT)-approved containers with tight-fitting lids, labeled, and left on-site until arrangements can be made for testing and disposal or treatment through the on-site wastewater treatment plant.

### 3.8 Quality Control

Quality Assurance/Quality Control (QAQC) procedures will include the following:

- Samples will be properly labeled, immediately placed in a cooler with ice, and submitted to the laboratory within 48 hours using standard chain-of-custody procedures.
- Encore soil samples will be received by the laboratory and preserved within 48 hours of collection.
- Clean sample containers will be obtained from the laboratory performing the analyses. The container type and cleaning procedure will depend upon the sample matrix, potential contaminants to be encountered, analytical methods requested, and the laboratory’s quality assurance protocols. In selecting the proper container, the following will also be considered: (a) reactivity of container material with sample; (b) volume of container; (c) color of container, and (d) container closure.
- An adhesive label will be attached to each bottle. Each label will have the following information written with a waterproof, non-volatile marker: (a) date of sample; (b) time of sample; (c) sample identification; (d) sampler initials; and (e) analytical parameters.

Additional QAQC samples will be collected in accordance with the frequency in the table below. Applicable information on the procedures to obtain the field QAQC samples is provided below.

QAQC Sampling Frequency	
Sample Type	Frequency
Duplicate	One per 20 samples, per matrix
Trip Blank	Once per day when volatile organic compound (VOC) samples are collected
Field Blank	Once per day for aqueous matrix; 10% of the total number of samples for non-aqueous matrix

#### Duplicate Samples

To provide an indication of analytical precision and accuracy, a minimum of 5 percent of all samples, or at least one sample of every 20 samples collected, are to be collected in duplicate. Duplicate samples will be analyzed for the same parameters as the samples. The duplicate samples will receive a sample identification number different from the actual sample location. The chain-of-custody record will note



the unique number and describe the sample as "duplicate", without revealing the actual sampling location.

Duplicate soil samples will be collected by dividing sampled material before placing in duplicate sample containers. Duplicate groundwater (if collected) samples will be sent for laboratory analysis to evaluate the reproducibility of the sampling technique used.

### **Trip Blanks**

Trip blanks will be used to assess whether site samples have been exposed to non-site-related volatile constituents during storage and transport. Trip blanks will be analyzed at a frequency of once per day, per cooler containing samples to be analyzed for VOCs. A trip blank will consist of a container filled with analyte-free water (supplied by the laboratory) which remains unopened with field samples throughout the sampling event. Trip blanks will be analyzed only for VOCs.

### **Field Blanks**

Field blanks are used to monitor the cleanliness of the sampling equipment and the effectiveness of the cleaning procedures. Field blanks will be prepared and submitted for analysis at a frequency of one per day (when sample equipment cleaning occurs) or once for every 20 samples collected, whichever is more. Field blanks will be prepared by filling sample containers with deionized water (supplied by the laboratory) which has been routed through a cleaned sampling device.

Field blanks will be prepared by pouring analyte-free water over decontaminated sampling equipment as a check that the decontamination procedure has been adequately performed and that cross contamination of samples will not occur due to the equipment. One field blank will be collected for each type of equipment used each day a decontamination event occurs. Field blanks will be performed on sampling equipment and other equipment such as water level sensors during groundwater monitoring. The same aliquot of field water may be used on all equipment coming into contact with a particular matrix for analysis for inorganic constituents. A separate field blank must be collected for each piece of decontaminated equipment used for a particular sample matrix. Field blanks will be collected at the beginning of the day before the sampling event and must accompany the samples collected that day.

### **Sample Handling**

One member of the field sampling crew will be designated as sample manager. It will be the responsibility of this person to perform sample labeling, packaging, and shipping. The sample manager will also be responsible for ensuring that samples are handled and preserved in the proper manner.

Sample containers will be separated from any potential outside source of contamination between the time they are received from the laboratory, and the time the samples are delivered to the laboratory for analysis. Sample handling will be performed to guard against outside contamination being introduced to the sample containers before and after sample collection. If the containers are not used immediately, they will be stored in a suitable area, and kept cool. Following sample collection, the outer surfaces of the containers will undergo any necessary non-submersive decontamination. The samples will then be preserved on ice until they are shipped to the laboratory.





### Sample Packaging

Samples that will be collected as part of this project are anticipated to be "low hazard" samples, based on a review of the analytical results for samples already collected. Therefore, no special packaging requirements are anticipated to be necessary. The samples will be packaged in coolers and appropriately cushioned during transport. The samples will be cooled to approximately 4 degrees Centigrade, using bagged ice.

### Chain of Custody Procedures

The custody record for each sample will be documented using a chain of custody form ("COC"). This form accompanies the sample containers to the Site and will remain with the samples, including during sample collection, transport, and analysis. The COC bears the name of the person(s) assuming responsibility for the samples and the person who collected the sample. The COC will also specify the following information: project name, project client, laboratory conducting analyses, sample matrix, sample identification number, sample time and date, number of containers, analyses to be performed, sampler's name, dates, name, and signatures, printed names and times of personnel relinquishing samples, signature, printed name, date, and time of personnel receiving samples.

When collecting a sample, if applicable, personnel will record the seal number associated with each sample cooler and record whether the seal was intact upon arrival in the field. This assures that the sample containers were not tampered with in the time between their preparation and their arrival on-site. After sample collection, the bottles will again be placed in the cooler. The cooler will be sealed on-site (if such seal is provided by the laboratory) and the number will be recorded in the field book.

## 4 Documentation and Reporting

PESRM will document the AST site assessment activities as outlined below. From a reporting standpoint, PESRM expects to submit single characterization reports for the groups of tanks to help streamline the preparation of documentation and help facilitate PADEP's review.

### 4.1 Bi-Weekly Summary Status Reports

Terraphase, on behalf of PESRM, will prepare bi-weekly status reports for PADEP during the implementation of the tank infrastructure removal and the site assessment work described in this Plan. Each status report will include:

- (1) An updated version of Table 1.1 indicating the current status<sup>7</sup> of each tank
- (2) Updated figures showing the tank farms (or groupings) with color coding to indicate the status of the tanks in each farm/group
- (3) A summary of decommissioning, demolition, and sampling work completed in the last two weeks

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<sup>7</sup> Specifically, (1) sampling status, (2) sampling results received, and (3) interim remedial action/corrective action required.





- (4) A summary of releases to the environment identified from the ASTs in the last two weeks
- (5) A summary of work anticipated to be completed in the next two weeks
- (6) For each tank identified as demolished and ready for sampling, a figure<sup>8</sup> showing the anticipated soil sampling locations

The first status report will be submitted to PADEP 14 days after the approval of this Plan.

Terraphase will also facilitate bi-weekly conference calls with PESRM and PADEP to review the content of the bi-weekly reports and provide an opportunity for discussion. The first conference call will be scheduled for approximately 2 weeks following PADEP approval of this Plan.

## 4.2 Release Reporting

As discussed above, release reporting will be based on both visual observations (see **Section 2.4**) and a comparison of site assessment analytical results to the Action Levels (see **Section 3.5**). Obvious contamination and/or exceedances of Action Levels are reportable to PADEP and will likely trigger requirements for Corrective Action in accordance with 25 Pa. Code, Chapter 245, Subchapter D. Release reporting to PADEP will be provided by the AFR Contractor for releases identified based on visual observation and by Terraphase for releases identified based on comparison of analytical results to Action Levels.

## 4.3 AST System Closure Reporting

The following section summarizes the anticipated AST closure reporting for each AST Category. The AFR Contractor will be responsible for: 1) AST closure notification form, 2) AST status amendments, 3) initial release notification should obvious contamination be identified during AST removal. On behalf of PESRM, Terraphase will prepare tank closure reports for tank farms or groups of tanks as they are removed and as the site assessments are completed. These closure reports will include copies of Aboveground Storage Tank System Closure Report forms (2630-FM-BECB0514) as appendices. When a reportable release is identified, thus triggering the Corrective Action process requirements, Terraphase will support PESRM in assessing the need for Interim Remedial Action, preparing Site Characterization Reports, Remedial Action Plans, and Remedial Action Completion Reports. If there are releases to the environment that can't be confirmed as localized and addressed through Interim Remedial Action, they will be identified in the Tank Group Closure report and moved into Corrective Action.

# 5 References

Pennsylvania Department of Environmental Protection (PADEP). 2016. Site Assessment Sampling Requirements at Regulated Storage Tank System Closures. November 1.

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<sup>8</sup> To the extent practical, figures showing the planned sampling scope will be provided at least one week prior to the start of sampling for a given tank or tank group.



Pennsylvania Department of Environmental Protection (PADEP). 2017. Closure Requirements for Aboveground Storage Tank Systems. Doc No. 263-4200-001. July 8.

Pennsylvania Department of Environmental Protection (PADEP). 2019a. Land Recycling Program Technical Guidance Manual. January 19.

Pennsylvania Department of Environmental Protection (PADEP). 2019b. Regulated Storage Tanks Corrective Action Process Interim Remedial Actions. June.

Pennsylvania Department of Environmental Protection (PADEP). 2019c. Regulated Storage Tanks Corrective Action Process Release Reporting. June.

Pennsylvania Department of Environmental Protection (PADEP). 2019d. Regulated Storage Tanks Corrective Action Overview. June.



# Tables



**Table 1.1**  
**Aboveground Storage Tank Inventory**  
**Tank Closure Details**  
**Philadelphia Energy Systems Refinery and Marketing, Philadelphia, PA**

Facility	Tank Group	State Regulation Number	Tank Number	AST Closure Category	Design Capacity (gal)	Primary Product	Proposed Analyte List <sup>x</sup>	Regulatory Status as of 2/12/2021	Status Modification Date	Tank Type	Diameter (ft)	Height (ft)	Remaining Liquid (gal)	Sampling Status	Sampling Results Received	Int. Remedial/ Corrective Action Required
Point Breeze	1	008A	PB 668	2	449,400	Light Cycle Oil	Short List 1-5	TOOU	1/20/2021	Cone Roof	40	48				
Point Breeze	1	043A	PB 666	2	2,818,200	Heavy Gas Oil	Short List 1-5	TOOU	1/19/2021	Cone Roof	100	48				
Point Breeze	1	044A	PB 672	2	2,818,200	Vacuum Gas Oil	Short List 1-5	Active	1/27/2021	Cone Roof	100	48				
Point Breeze	1	074A	PB 663	2	2,935,800	Heavy Gas Oil	Short List 1-5	Active		Cone Roof	102	48				
Point Breeze	2	001A	PB 26	2	2,142,000	Ethanol	Ethanol	Removed	1/12/2021	IFR	90	51.17				
Point Breeze	2	002A	PB 33	2	2,935,800	Gasoline	Short List 1,2	TOOU	1/10/2019	EFR	102	49				
Point Breeze	2	003A	PB 38	2	3,410,400	Gasoline	Short List 1,2	TOOU	11/22/2019	EFR	110	48				
Point Breeze	2	004A	PB 83	2	3,288,600	15MV1, Distillate	Short List 4	TOOU	3/28/2020	Cone Roof	100	56				
Point Breeze	2	019A	PB 27	2	3,410,400	Gasoline Components	Short List 1,2	TOOU	1/15/2021	EFR	110	48				
Point Breeze	2	020A	PB 28	2	3,414,432	Alkylate	Short List 1-5	TOOU	1/25/2021	EFR	110	49				
Point Breeze	2	021A	PB 29	2	2,935,800	Heavy Reformate	Short List 1-5	TOOU	2/9/2021	EFR	102	49				
Point Breeze	2	022A	PB 34	2	3,285,996	Gasoline	Short List 1,2	TOOU	6/28/2019	EFR	110	47				
Point Breeze	2	023A	PB 35	2	3,410,400	Gasoline	Short List 1,2	TOOU	12/23/2019	EFR	110	48				
Point Breeze	2	024A	PB 37	2	3,200,400	Gasoline Components	Short List 1,2	TOOU	1/29/2020	IFR	110	48				
Point Breeze	2	025A	PB 39	2	3,410,400	Gasoline	Short List 1,2	TOOU	11/25/2019	EFR	110	48				
Point Breeze	2	026A	PB 40	2	5,527,200	Gasoline	Short List 1,2	TOOU	4/10/2018	EFR	140	48				
Point Breeze	2	027A	PB 42	2	2,818,200	#2 Fuel Oil	Short List 4	Active		Cone Roof	100	48	222			
Point Breeze	2	028A	PB 43	2	3,385,200	15MV1, Distillate	Short List 4	Active		Cone Roof	120	40				
Point Breeze	2	029A	PB 84	2	3,288,600	15MV1, Distillate	Short List 4	TOOU	7/30/2019	Cone Roof	100	56				
Point Breeze	2	030A	PB 85	2	1,806,000	15MV2, Distillate	Short List 4	Active		Cone Roof	80	48				
Point Breeze	2	032A	PB 128	2	6,447,000	Gasoline Components	Short List 1,2	TOOU	3/11/2021	EFR	140	55.75				
Point Breeze	2	033A	PB 129	2	6,447,000	Heavy Reformate	Short List 1-5	TOOU	2/12/2020	EFR	140	55.2				
Point Breeze	2	041A	PB 204	2	340,200	Recovered Oil	Short List 1-5	TOOU	11/11/2019	IFR	40	36				
Point Breeze	2	071A	PB 7316	1	3,990	Acid, Phosphoric	pH	Active		Dome Roof	7.75	11.25				
Point Breeze	2	087A	PB 36	2	3,410,400	Gasoline	Short List 1,2	TOOU	1/13/2020	IFR	110	47.5				
Point Breeze	3	005A	PB 126	2	1,381,800	Heavy Naphtha	Short List 1-5	TOOU	9/20/2017	EFR	70	49				
Point Breeze	3	006A	PB 162	2	3,385,200	Cat Gasoline	Short List 1,2	TOOU	1/25/2020	EFR	120	40				
Point Breeze	3	007A	PB 190	2	5,817,000	Heavy Naphtha	Short List 1-5	TOOU	10/25/2019	IFR	150	48				
Point Breeze	3	013A	PB 16V 137	2	42,000	Acid, Sulfuric, Spent	pH	Active	5/1/2005	Cone Roof	20	18				
Point Breeze	3	031A	PB 121	2	2,751,000	Udex Feed	Short List 1-5	TOOU	2/25/2021	IFR	102	48				
Point Breeze	3	034A	PB 151	2	4,032,000	Vacuum Gas Oil	Short List 1-5	Active		EFR	120	47.6				
Point Breeze	3	035A	PB 152	2	4,032,000	Resid Vacuum Bottoms	Short List 1-5	TOOU	9/24/2014	Cone Roof	120	48				
Point Breeze	3	036A	PB 172	2	3,721,200	Cat Gasoline	Short List 1,2	TOOU	3/24/2020	IFR	120	48				
Point Breeze	3	037A	PB 176	2	2,524,200	Heavy Naphtha	Short List 1-5	TOOU	11/10/2008	EFR	100	43				
Point Breeze	3	038A	PB 178	2	6,346,200	Heavy Naphtha	Short List 1-5	TOOU	12/12/2019	EFR	150	48				
Point Breeze	3	039A	PB 179	2	4,620,000	Light Naphtha	Short List 1-5	TOOU	3/21/2020	EFR	128	48				
Point Breeze	3	063A	PB 16V 135	2	42,000	Acid, Sulfuric, Fresh	pH	Active	5/1/2005	Cone Roof	20	18				
Point Breeze	3	072A	PB 144	2	1,353,030	Main Frac Bottoms	Short List 1-5	Active		Cone Roof	70	48				
Point Breeze	3	073A	PB 145	2	1,353,030	Main Frac Bottoms	Short List 1-5	Active		Cone Roof	70	48				
Point Breeze	4	011A	PB 881	2	8,568,000	Crude	Short List 1-5	Active		EFR	160	56				
Point Breeze	4	012A	PB 886	2	13,158,600	Crude	Short List 1-5	Active		IFR	200	56				
Point Breeze	4	040A	PB 191	2	634,200	Recovered Oil	Short List 1-5	Active		EFR	52	41				
Point Breeze	4	049A	PB 826	2	8,568,000	Crude	Short List 1-5	Active		EFR	160	57				
Point Breeze	4	053A	PB 840	2	5,758,200	Crude	Short List 1-5	Active		EFR	140	50				
Point Breeze	4	054A	PB 841	2	5,758,200	Crude	Short List 1-5	Active	10/16/2009	EFR	140	49				
Point Breeze	4	055A	PB 847	2	6,346,200	Crude	Short List 1-5	Active	10/13/2013	IFR	150	49				
Point Breeze	4	056A	PB 882	2	8,421,000	Crude	Short List 1-5	TOOU	3/12/2018	EFR	160	56				
Point Breeze	4	057A	PB 883	2	8,568,000	Crude	Short List 1-5	Active		EFR	160	56.5				
Point Breeze	4	058A	PB 884	2	13,158,600	Crude	Short List 1-5	Active		EFR	200	56				
Point Breeze	4	059A	PB 885	2	13,158,600	Crude	Short List 1-5	Active	9/2/2016	IFR	200	56				
Point Breeze	4	086A	PB 843	2	6,346,200	Crude	Short List 1-5	Active	10/31/2006	EFR	150	48				
Point Breeze	4	116A	PB 848	2	5,640,852	Light Cycle Oil	Short List 1-5	Active	10/20/2018	EFR	140	50				
Point Breeze	5	009A	PB 824	2	5,846,400	15MV2, Distillate	Short List 4	Active		Cone Roof	144	48				
Point Breeze	5	010A	PB 835	2	5,359,200	Distillate, Untreated	Short List 3-5	TOOU	5/22/2020	IFR	144	48				
Point Breeze	5	042A	PB 253	2	2,818,200	15MV2, Distillate	Short List 4	Active		Cone Roof	100	48				
Point Breeze	5	045A	PB 821	2	5,359,200	Light Cycle Oil	Short List 1-5	Active		IFR	144	48				

**Table 1.1**

Aboveground Storage Tank Inventory  
 Tank Closure Details  
 Philadelphia Energy Systems Refinery and Marketing, Philadelphia, PA

Facility	Tank Group	State Regulation Number	Tank Number	AST Closure Category	Design Capacity (gal)	Primary Product	Proposed Analyte List <sup>x</sup>	Regulatory Status as of 2/12/2021	Status Modification Date	Tank Type	Diameter (ft)	Height (ft)	Remaining Liquid (gal)	Sampling Status	Sampling Results Received	Int. Remedial/ Corrective Action Required
Point Breeze	5	046A	PB 822	2	5,359,200	Light Cycle Oil	Short List 1-5	TOOU	9/27/2019	IFR	144	48				
Point Breeze	5	047A	PB 823	2	5,846,400	Limited Slip Differential (LSD)	Short List 5	Active		Cone Roof	144	48				
Point Breeze	5	048A	PB 825	2	3,985,632	15MV2, Distillate	Short List 4	TOOU	4/29/2019	Cone Roof	120	48				
Point Breeze	5	051A	PB 833	2	5,817,000	Vacuum Gas Oil	Short List 1-5	Active		Cone Roof	150	48				
Point Breeze	5	052A	PB 836	2	5,817,000	Distillate, Untreated	Short List 3-5	Active	9/17/2015	IFR	150	48				
Point Breeze	NA	014A	PB 3V 37	1	1,764	Methanol	Methanol	Active		Horiz, Elev	5	12				
Point Breeze	NA	015A	PB 11V 11	1	9,996	Pour Depress (Infinium R500)	Short List 4	Active		Horiz, Elev	6	32				
Point Breeze	NA	016A	PB 78	1	11,928	Corr Inhib (DCI6A)	Nitrate	TOOU	10/6/2020	Vert, Elev	10	20	3,920			
Point Breeze	NA	017A	PB 12V 11	1	462	Methanol	Methanol	Active	4/1/2003	Vert, Elev	3	9				
Point Breeze	NA	018A	PB 14V 11	1	2,982	Amine	Gas Treatment Amines	Active	10/15/2008	Horiz, Elev	8	8				
Point Breeze	NA	060A	PB 9V 2	1	12,600	Caustic	pH	Active		Vert, Elev	10	22				
Point Breeze	NA	062A	PB 9V 14	1	2,604	Methanol	Methanol	Active		Horiz, Elev	5	18				
Point Breeze	NA	064A	PB 8T 204	1	1,680	Lube Oil	Short List 1-5	Active		Cone Roof	6	8				
Point Breeze	NA	066A	PB V 46	1	630	Methanol	Methanol	Active		Vert, Elev	4	9				
Point Breeze	NA	067A	PB 1V 120	1	12,600	Amine	Gas Treatment Amines	Active		Cone Roof	12	15				
Point Breeze	NA	069A	PB 1V 20	1	1,890	Lube Oil	Short List 1-5	TOOU	10/9/2009	Vert, Elev	6	9				
Point Breeze	NA	069A	PB 2V 20	1	1,890	Lube Oil	Short List 1-5	TOOU		Vert, Elev	6	9				
Point Breeze	NA	075A	PB 21T 3109	1	504	Methanol	Methanol	Active	9/15/2000	Horiz, Elev	4	6				
Point Breeze	NA	076A	PB 100	1	2,982	Corr Inhib (DGS-132)	Methanol, pH, nitrate	TOOU		Vert, Elev	7	12	2,220			
Point Breeze	NA	077A	PB 101	1	2,982	Corrosion Inhibitor	Methanol, pH, nitrate	TOOU		Vert, Elev	7	12				
Point Breeze	NA	078A	PB 3126	1	4,494	Light Naphtha	Short List 1-5	Active		Horiz, Elev	8	12				
Point Breeze	NA	079A	PB 11V 9	1	8,400	Corr Inhib (DCI6A)	Nitrate	Active	4/1/2003	Horiz, Elev	8	20				
Point Breeze	NA	080A	PB 8T 1004	1	1,008	Methanol	Methanol	Active	4/16/2004	Horiz, Elev	5.33	6				
Point Breeze	NA	081A	PB 18T 1011	1	2,016	Methanol	Methanol	Active	11/10/2004	Horiz, Elev	5.33	12				
Point Breeze	NA	082A	PB 16V 122	1	1,806	Lube Oil	Short List 1-5	Active	5/13/2005	Cone Roof	6	8.5				
Point Breeze	NA	083A	PB 12V 12	1	1,596	Lube Oil	Short List 1-5	Active	10/15/2008	Vert, Elev	5	10				
Point Breeze	NA	084A	PB 82 102	1	2,982	Corrosion Inhibitor	Methanol, pH, nitrate	Active	10/15/2008	Horiz, Elev	5	16				
Point Breeze	NA	196A	PB 18T 1010	1	546	Recovered Oil	Short List 1-5	Active	4/14/2004	Horiz, Elev	4	6				
Girard Point	6	--	GP R 1051	2	914,760	Potassium Fluoride Brine	Short List 1-5, pH	TOOU	4/6/2020	EFR	60	43.25				
Girard Point	6	--	GP R 291	2	840,000	Sour Water w/Oil	Short List 1-5	TOOU	3/31/2020	IFR	60	40				
Girard Point	6	003A	GP R 273	2	3,385,200	Vacuum Gas Oil	Short List 1-5	Active	2/9/2015	Cone Roof	120	40				
Girard Point	6	004A	GP R 284	2	3,385,200	Vacuum Gas Oil	Short List 1-5	Active	10/16/2009	Cone Roof	120	39.75				
Girard Point	6	011A	GP R 1047	2	158,340	Caustic, Fresh	pH	TOOU	1/30/2020	Open Top	30	30				
Girard Point	6	021A	GP R 270	2	3,078,012	Recovered Oil	Short List 1-5	TOOU	10/24/2013	IFR	120	40				
Girard Point	6	022A	GP R 272	2	3,045,000	Recovered Oil	Short List 1-5	Active		IFR	120	40				
Girard Point	6	023A	GP R 276	2	3,045,000	Light Naphtha	Short List 1-5	TOOU	11/13/2019	IFR	120	40				
Girard Point	6	025A	GP R 281	2	3,385,200	Vacuum Gas Oil	Short List 1-5	TOOU	7/21/2016	Cone Roof	120	40				
Girard Point	6	026A	GP R 282	2	3,385,200	Vacuum Gas Oil	Short List 1-5	Active	7/26/2006	Cone Roof	120	40				
Girard Point	6	027A	GP R 285	2	3,045,000	Light Naphtha	Short List 1-5	TOOU	2/1/2020	IFR	120	40				
Girard Point	6	028A	GP R 286	2	3,045,000	Heavy Naphtha	Short List 1-5	TOOU	10/17/2019	IFR	120	40				
Girard Point	6	047A	GP R 1101	2	84,000	Recovered Oil	Short List 1-5	TOOU	1/15/2009	IFR	25	24				
Girard Point	6	049A	GP R 1039	2	126,000	#6 Fuel Oil	Short List 5	TOOU	6/1/2016	Cone Roof	25	36				
Girard Point	6	050A	GP R 1038	2	126,000	Alky Slurry	Short List 1-5, pH	TOOU	5/6/2010	Cone Roof	25	36				
Girard Point	7	005A	GP R 1117	2	1,016,400	Udex Feed	Short List 1-5	TOOU	2/6/2014	EFR	60	48				
Girard Point	7	006A	GP R 791	2	84,000	Benzene	Benzene	TOOU	11/14/2019	IFR	25	24				
Girard Point	7	007A	GP R 798	2	84,000	Benzene	Benzene	TOOU	11/22/2019	IFR	25	24				
Girard Point	7	019A	GP R 250	2	3,045,000	Light Cycle Oil	Short List 1-5	Active	7/7/2010	IFR	120	40				
Girard Point	7	020A	GP R 251	2	3,045,000	Distillate, Untreated	Short List 3-5	Active		IFR	120	40				
Girard Point	7	029A	GP R 494	2	1,260,000	Main Frac Bottoms	Short List 1-5	Active		Cone Roof	85	30				
Girard Point	7	030A	GP R 1116	2	1,016,400	Udex Feed	Short List 1-5	TOOU	12/18/2019	EFR	60	48				
Girard Point	7	034A	GP R 790	2	84,000	Benzene	Benzene	TOOU	12/3/2019	IFR	25	24				
Girard Point	7	035A	GP R 792	2	105,000	Cumene	Cumene	TOOU	4/22/2020	Cone Roof	25	30				
Girard Point	7	036A	GP R 793	2	105,000	Cumene	Cumene	TOOU	4/24/2020	Cone Roof	25	30				
Girard Point	7	037A	GP R 794	2	84,000	Tetraethylene Glycol	TEG, Short List 1-5	Active		IFR	25	24				
Girard Point	7	038A	GP R 796	1	16,800	Glycol	Glycol, Short List 1-5	Active		Cone Roof	14	16				
Girard Point	7	039A	GP R 799	2	84,000	Benzene	Benzene	TOOU	7/28/2017	IFR	25	24				

**Table 1.1**

Aboveground Storage Tank Inventory  
 Tank Closure Details  
 Philadelphia Energy Systems Refinery and Marketing, Philadelphia, PA

Facility	Tank Group	State Regulation Number	Tank Number	AST Closure Category	Design Capacity (gal)	Primary Product	Proposed Analyte List <sup>x</sup>	Regulatory Status as of 2/12/2021	Status Modification Date	Tank Type	Diameter (ft)	Height (ft)	Remaining Liquid (gal)	Sampling Status	Sampling Results Received	Int. Remedial/Corrective Action Required
Girard Point	7	046A	GP U 767	2	42,000	Recovered Oil	Short List 1-5	Active		IFR	20	21				
Girard Point	8	001A	GP R 219	2	1,665,720	Light Cycle Oil	Short List 1-5	Removed		Cone Roof	114	30				
Girard Point	8	015A	GP R 225	2	3,360,000	Light Cycle Oil	Short List 1-5	TOOU	12/8/2017	Cone Roof	117	42				
Girard Point	8	016A	GP R 227	2	3,385,200	Main Frac Bottoms	Short List 1-5	Active		Cone Roof	120	40				
Girard Point	8	017A	GP R 1205	2	1,353,492	Benzene	Benzene	TOOU	4/2/2020	IFR	60	48				
Girard Point	8	027A	GP R 1210	2	462,000	Cumene	Cumene	TOOU	10/11/2006	Cone Roof	45	42				
Girard Point	8	031A	GP R 1211	2	462,000	Cumene	Cumene	TOOU	9/24/2018	Cone Roof	45	42				
Girard Point	8	040A	GP R 1213	2	886,200	Cumene	Cumene	TOOU	4/2/2020	Cone Roof	60	42				
Girard Point	8	043A	GP R 1214	2	1,205,400	Benzene	Benzene	TOOU	1/15/2020	IFR	60	60				
Girard Point	8	052A	GP R 1218	2	886,200	Cumene	Cumene	TOOU	3/25/2020	Cone Roof	60	41.1				
Girard Point	8	053A	GP R 1219	2	1,890,000	Cumene	Cumene	TOOU	1/8/2020	Cone Roof	90	40				
Girard Point	8	054A	GP R 1220	2	651,000	Cumene	Cumene	TOOU	1/8/2020	Cone Roof	48	48				
Girard Point	8	055A	GP R 1215	2	1,890,000	Cumene	Cumene	TOOU	3/24/2020	Cone Roof	90	40				
Girard Point	8	056A	GP R 1216	2	450,072	Cumene	Cumene	TOOU	3/17/2020	IFR	45	41.5				
Girard Point	8	057A	GP R 1217	2	474,600	Cumene	Cumene	TOOU	7/18/2017	IFR	45	42				
Girard Point	8	059A	GP R 217	2	1,359,162	Benzene	Benzene	TOOU	2/26/2017	IFR	95	30				
Girard Point	8	071A	GP R 1208	2	474,600	Benzene	Benzene	TOOU	12/5/2019	IFR	45	42				
Girard Point	8	072A	GP R 1209	2	474,600	Benzene	Benzene	TOOU	12/11/2019	IFR	45	42				
Girard Point	8	073A	GP R 1212	2	474,600	Cumene Offtest	Cumene	TOOU	2/5/2020	IFR	45	42				
Girard Point	*	033A	GP R 1088	2	26,418	Caustic, Fresh	pH	Active		Dome Roof	15	20				
Girard Point	*	066A	GP R 973	2	53,004	Caustic, Fresh	pH	Active	3/28/2007	Cone Roof	19	25				
Girard Point	NA	008A	GP C2 941	1	2,016	Corr Inhib (DCI6A)	Nitrate	Active		Horiz, Elev	4	20				
Girard Point	NA	010A	GP R 2000	1	3,570	Caustic, Fresh	pH	Active		Horiz, Elev	6	15				
Girard Point	NA	014A	GP U 1158	1	4,410	Acid, Phosphoric	pH	Removed	8/13/2018	Dome Roof	10	10				
Girard Point	NA	041A	GP R 1091	1	14,070	Pour Depress (Infinium R500)	Short List 4	TOOU		Cone Roof	10	24				
Girard Point	NA	042A	GP R 2982	1	7,014	Furnace Oil Stabilizer	Short List 4	TOOU		Horiz, Elev	8	18				
Girard Point	NA	044A	GP U 894	1	8,022	Caustic, Fresh	pH	TOOU	12/19/2019	Open Top	12	10				
Girard Point	NA	058A	GP R 304	1	2,982	Methanol	Methanol	Active		Vert, Elev	7	9				
Girard Point	NA	060A	GP R 3003	1	8,022	Caustic	pH	Active		Dome Roof	12	10				
Girard Point	NA	061A	GP R 3103	1	9,996	Sodium Hypochlorite	pH	Active		Dome Roof	10	18				
Girard Point	NA	062A	GP R 3102	1	504	Caustic	pH	Active		Vert, Elev	4.33	5				
Girard Point	NA	063A	GP R 3104	1	9,996	Coagulant	Al, Fe, Sulfate	Active		Dome Roof	10	18				
Girard Point	NA	064A	GP R 3101A	1	5,586	Sodium Hypochlorite	pH	Active	1/21/2004	Flat Roof	8	14.83				
Girard Point	NA	065A	GP R 2500	1	6,006	Corr Inhib (EC 1024C)	Methanol, pH, nitrate	Active	10/25/2006	Cone Roof	10	10.5				
Girard Point	NA	069A	GP U 1221	1	2,016	Acid, Sulfuric, Fresh	pH	TOOU	4/17/2015	Horiz, Elev	6	12				
Girard Point	NA	070A	GP R 2501	1	4,074	Sodium Hypochlorite	pH	Active	8/8/2016	Dome Roof	8.5	10				

**Notes:**

Regulatory status based upon information (1) provided by Mr. Ron Estel of the PADEP in an email dated 8/21/2020 and (2) PADEP's Active and Inactive Storage Tank databases as accessed on February 12, 2021.

\* - Location of tank to be verified during program.

<sup>x</sup> - Analyte list may be refined or modified if additional information regarding AST contents is identified/learned during removal.

Gray shaded tanks indicate tank has been demolished.

**PADEP Short List Analytical Suites per Table III-5:**

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead
2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene
5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

**Abbreviations:**

- CIP - Closed in Place
- EFR - External Floating Roof
- IFR - Internal Floating Roof
- IS - In Service
- TEG - Tetraethylene glycol
- NA - Not Applicable
- OOS - Out of Service
- TOOU - Temporarily Out of Use
- DM - Demolished

**Table 1.2**

Closed-in-Place Aboveground Storage Tank Inventory  
 Philadelphia Energy Systems Refinery and Marketing, Philadelphia, PA

Facility	State Regulation Number	Tank Number	Design Capacity (gal)	Primary Product	Regulatory Status as of 2/12/2021	PADEP Tank Status Databases	Facility ID	Status Modification Date	Tank Type	Diameter (ft)	Height (ft)
Point Breeze	017A	PB 44	2,818,200	Jet	CIP	P	51-19781	10/31/2006	Cone Roof	100	48
Point Breeze	019A	PB 67	42,000	Corrosion Inhibitor	CIP	P	51-19781	12/29/2003	Cone Roof	15	32
Point Breeze	024A	PB 119	2,751,000	Heavy Naphtha	CIP	P	51-19781	7/14/2006	IFR	102	48
Point Breeze	030A	PB 139	16,800	Additive	CIP	P	51-19781	2/13/2008	Vert, Elev	10	30
Point Breeze	031A	PB 140	600,600	Plant Fuel	CIP	P	51-19781	2/14/2008	Cone Roof	54	35
Point Breeze	032A	PB 141	617,400	Main Frac Bottoms	CIP	P	51-19781	12/29/2003	Cone Roof	54	36
Point Breeze	036A	PB 150	2,045,400	Light Gas Oil	CIP	P	51-19781	7/14/2006	EFR	90	43
Point Breeze	047A	PB 181	2,818,200	Light Naphtha	CIP	P	51-19781	11/15/2006	EFR	100	49
Point Breeze	048A	PB 182	823,200	Recovered Oil	CIP	P	51-19781	7/14/2006	IFR	60	42
Point Breeze	050A	PB 831	3,553,200	Jet, Untreated	CIP	P	51-33620	12/29/2016	EFR	120	42
Point Breeze	051A	PB 201	37,800	Recovered Oil	CIP	P	51-19781	11/15/2006	Cone Roof	20	16
Point Breeze	053A	PB 237	163,800	Wash Oil	CIP	P	51-19781	12/29/2003	Cone Roof	28	36
Point Breeze	059A	PB 279	529,200	Main Frac Bottoms	CIP	P	51-19781	12/29/2003	Cone Roof	50	36
Point Breeze	060A	PB 298	760,200	Recovered Oil	CIP	P	51-19781	12/29/2003	Cone Roof	60	36
Point Breeze	070A	PB 7312	5,670	Caustic	CIP	P	51-33620	3/1/2017	Vert, Elev	8	15
Point Breeze	084A	PB 662	2,935,800	(Unknown)	CIP	P	51-19781	12/29/2003	Cone Roof	102	48
Point Breeze	085A	PB 664	2,935,800	Main Frac Bottoms	CIP	P	51-19781	12/29/2003	Cone Roof	102	48
Point Breeze	088A	PB 667	449,400	Light Cycle Oil	CIP	P	51-19781	12/29/2003	Cone Roof	40	48
Point Breeze	104A	PB 834	5,359,200	Jet, Untreated	CIP	P	51-19781	3/5/2007	IFR	144	48
Point Breeze	112A	PB 844	6,346,200	Crude	CIP	P	51-19781	11/15/2006	EFR	150	48
Point Breeze	118A	PB 850	6,346,200	Crude	CIP	P	51-19781	12/29/2003	EFR	150	49
Point Breeze	119A	PB 880	6,346,200	Crude	CIP	P	51-19781	7/14/2006	EFR	150	49
Point Breeze	148A	PB 8T 206	2,604	Antimony	CIP	P	51-19781	11/15/2006	Horiz, Elev	5	18
Point Breeze	149A	PB 8T 208	2,310	Acid, Sulfuric	CIP	P	51-19781	2/13/2008	Vert, Elev	7	8
Point Breeze	152A	PB V 48	1,470	Lube Oil	CIP	R	51-19781	2/1/2006	Vert, Elev	5	10
Point Breeze	154A	PB V 51	504	TCE	CIP	R	51-19781	2/1/2006	Vert, Elev	4	5
Point Breeze	175A	PB 14V 415	1,512	Acid, Sulfuric	CIP	R	51-19781	9/11/2007	Vert, Elev	7	13
Point Breeze	177A	PB 14V 3	1,050	Caustic	CIP	R	51-19781	9/11/2007	Vert, Elev	6	5
Point Breeze	178A	PB 14V 10	15,540	Caustic, Fresh	CIP	R	51-19781	9/11/2007	Vert, Elev	11	22
Point Breeze	194A	PB 11V 10	8,400	Red Dye	CIP	P	51-19781	2/13/2008	Horiz, Elev	8	20
Girard Point	009A	GP U 768	42,000	Recovered Oil	CIP	P	51-33624	12/21/2016	IFR	22	19
Girard Point	012A	GP U 401	882	Acid, Sulfuric	CIP	P	51-33624	3/1/2017	Cone Roof	5	6
Girard Point	013A	GP R 3107	10,500	Sodium Hypochlorite	CIP	P	51-33624	3/1/2017	Dome Roof	12	13
Girard Point	024A	GP R 280	3,385,200	Heavy Gas Oil	CIP	P	51-33624	12/29/2016	Cone Roof	120	40
Girard Point	045A	GP U 676	5,846,400	#6 Fuel Oil	CIP	P	51-33624	12/29/2016		30	0
Girard Point	048A	GP U 1152	3,990	Caustic, Fresh	CIP	P	51-33624	3/1/2017	Open Top	7	14
Girard Point	051A	GP R 1203	4,704	Caustic, Fresh	CIP	P	51-33624	12/12/2018	Cone Roof	10	8
Girard Point	097A	GP C2 797	42,000	Benzene	CIP	P	51-36558	12/29/2003	IFR	21	16
Girard Point	120A	GP R 1046	21,000	Red Dye	CIP	P	51-36558	2/13/2008	Cone Roof	12	25
Girard Point	131A	GP U 677	158,340	#6 Fuel Oil	CIP	P	51-36558	8/1/2011	Cone Roof	30	30
Girard Point	132A	GP U 693	8,820	Caustic, Fresh	CIP	P	51-36558	2/13/2008	Vert, Elev	10	15
Girard Point	138A	GP U 1001	21,000	Plant Fuel	CIP	P	51-36558	2/13/2008	Cone Roof	12	25
Girard Point	139A	GP U2 1002	21,000	Recovered Oil	CIP	P	51-36558	12/29/2003	Cone Roof	12	25
Girard Point	140A	GP C1 1100	23,730	Recovered Oil	CIP	P	51-36558	9/20/2006	Cone Roof	15	18
Girard Point	162A	GP U 896	2,982	Acid, Sulfuric	CIP	P	51-36558	11/23/2005	Vert, Elev	7.5	9
Girard Point	166A	GP R 719	27,090	Alum Sulfate	CIP	P	51-36558	12/29/2003	Horiz, Elev	11	43
Girard Point	168A	GP R 111	210	Mercox	CIP	P	51-36558	2/13/2008	Vert, Elev	3	4

**Table 1.2**

Closed-in-Place Aboveground Storage Tank Inventory  
Philadelphia Energy Systems Refinery and Marketing, Philadelphia, PA

Facility	State Regulation Number	Tank Number	Design Capacity (gal)	Primary Product	Regulatory Status as of 2/12/2021	PADEP Tank Status Databases	Facility ID	Status Modification Date	Tank Type	Diameter (ft)	Height (ft)
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**Notes:**

Regulatory status based upon information (1) provided by Mr. Ron Estel of the PADEP in an email dated 8/21/2020 and (2) PADEP's Active and Inactive Storage Tank databases as accessed on February 12, 2021.

\* - Regulatory status for Tank 022A (GP R 271) suspected to be CIP, however, to be verified with PADEP.

Gray shaded tanks indicate tank has been demolished.

**Abbreviations:**

CIP - Closed in Place

EFR - External Floating Roof

IFR - Internal Floating Roof

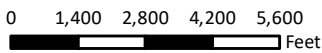
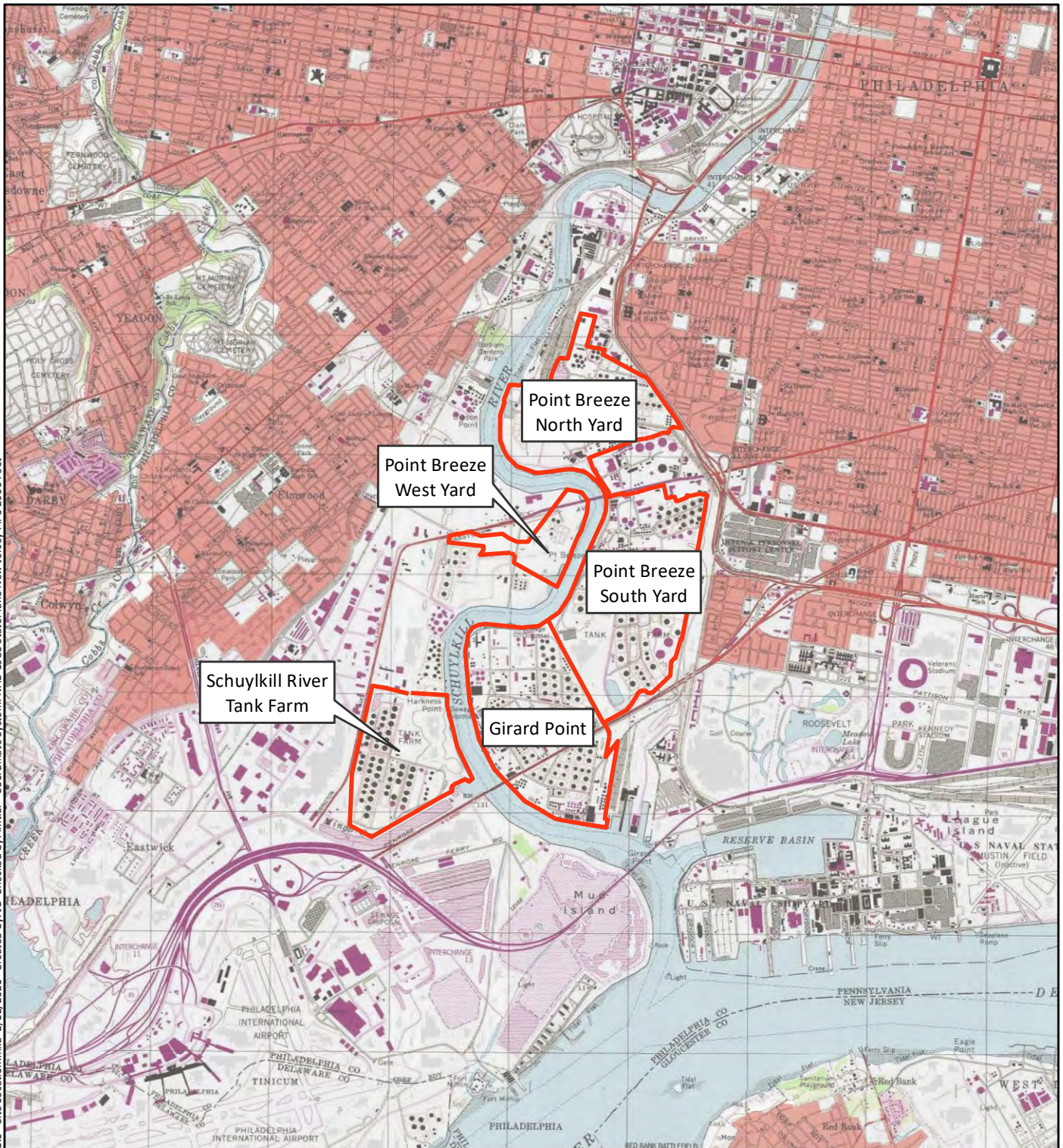
P - Permanently Closed in Place



# Figures



File: N:\GIS\Proj\044.001\_PESRM-PE5\MXDS\AST\Work\Figure 1.1 - Site Location.mxd Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet



1 inch = 4,000 feet



**Legend**

— Property Boundary

Base Map: USGS Philadelphia 1994 7.5 Minute Quadrangle.

**SAFETY FIRST**



CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

**Site Location**

**FIGURE 1.1**



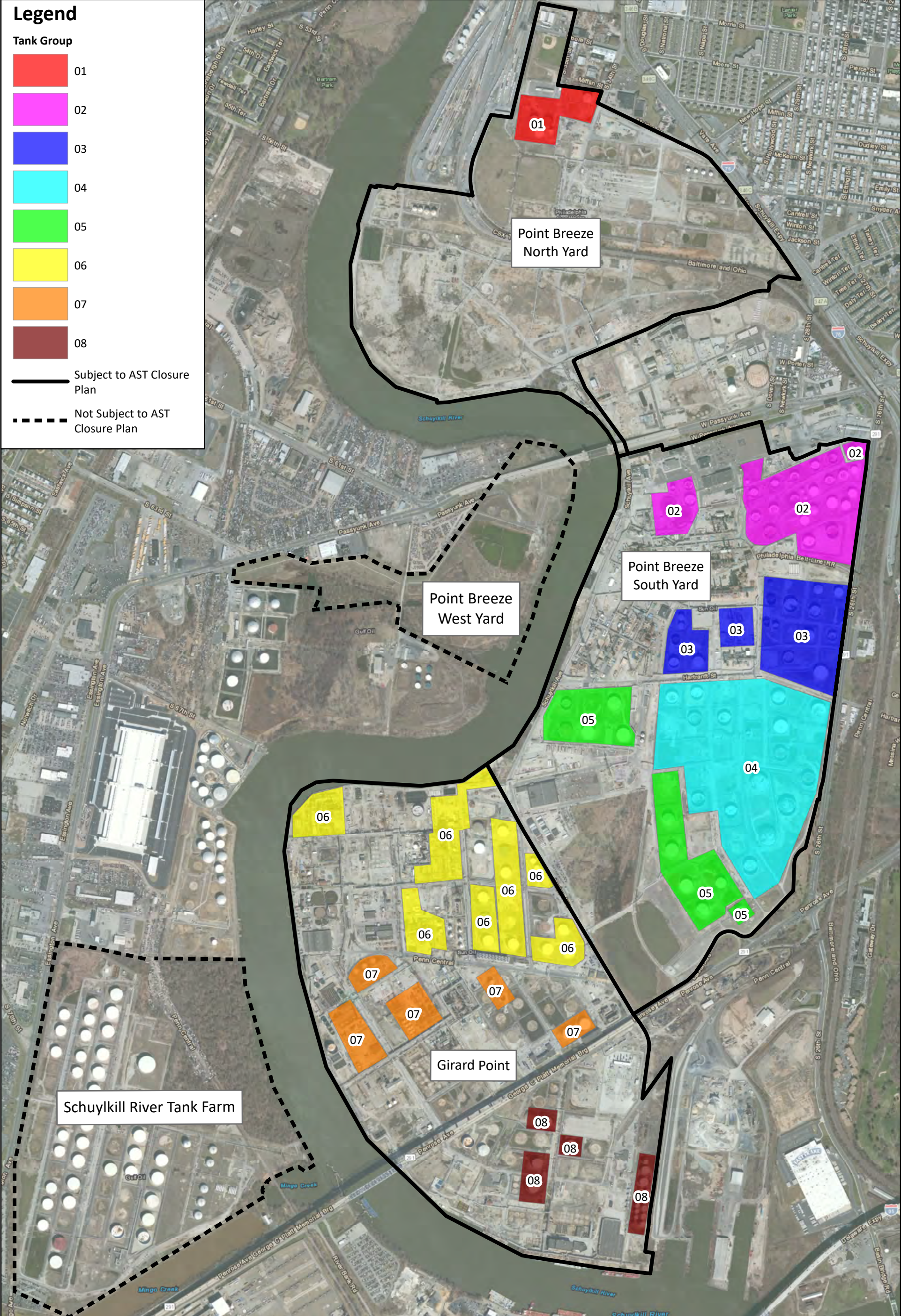
# Legend

## Tank Group

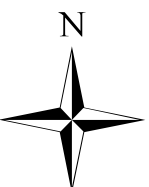
- 01
- 02
- 03
- 04
- 05
- 06
- 07
- 08

Subject to AST Closure Plan

Not Subject to AST Closure Plan



File: N:\GIS\Prj\0404\_001\_PESRM-PES\MXD\AST Work\Figure 1.2 - Site Layout.mxd 2/26/2021 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Notes: Aerial imagery source Maxar 10/19/2019

0 300 600 900 1,200  
Feet

1 inch = 1,000 feet

**DRAFT**

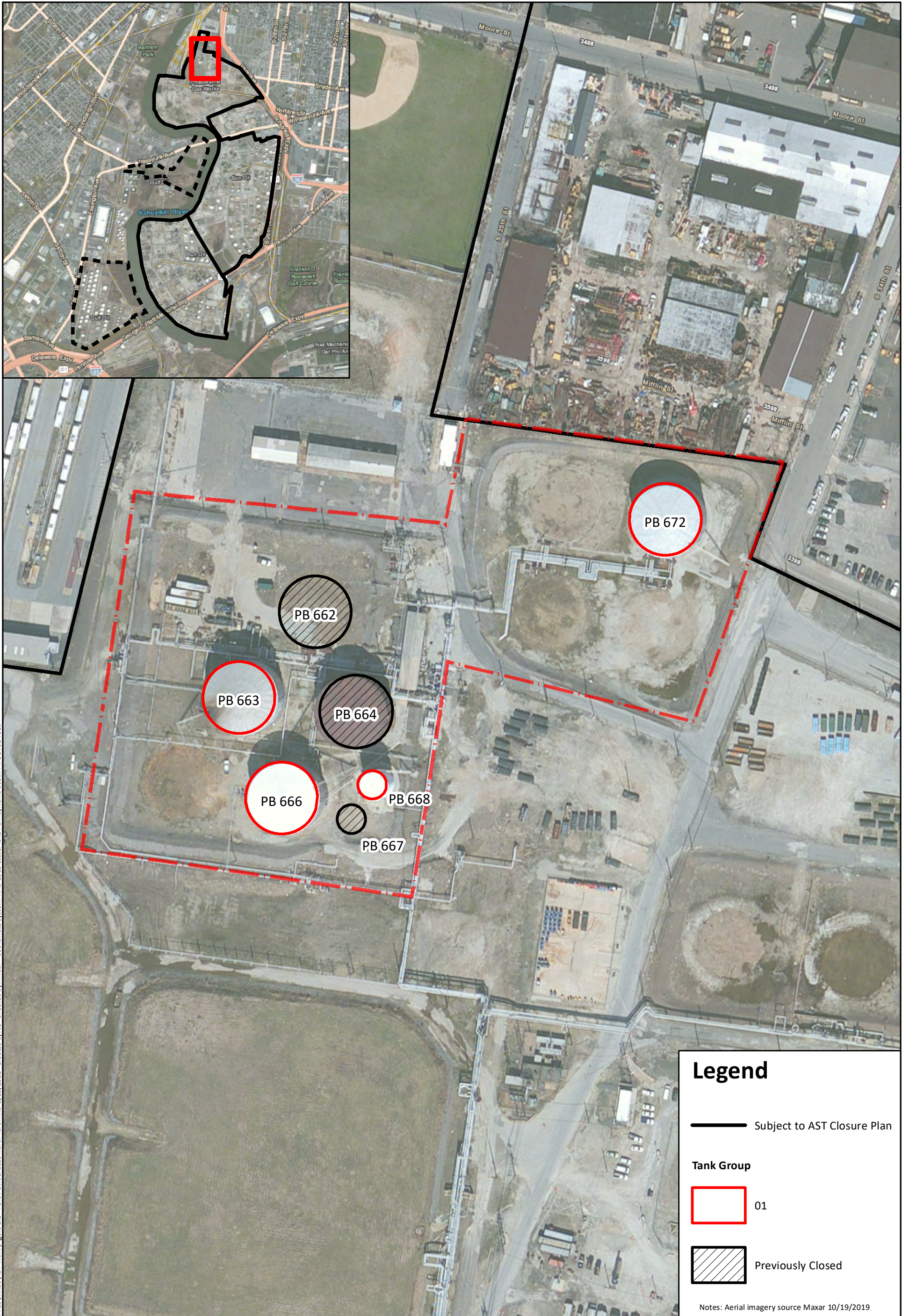
**SAFETY FIRST**

CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002



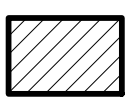
**Site Layout and AST Closure Phase**

**FIGURE 1.2**

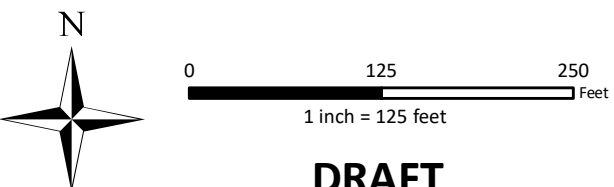




**Legend**

-  Subject to AST Closure Plan
- Tank Group**
-  01
-  Previously Closed

Notes: Aerial imagery source Maxar 10/19/2019



**DRAFT**

**SAFETY FIRST**



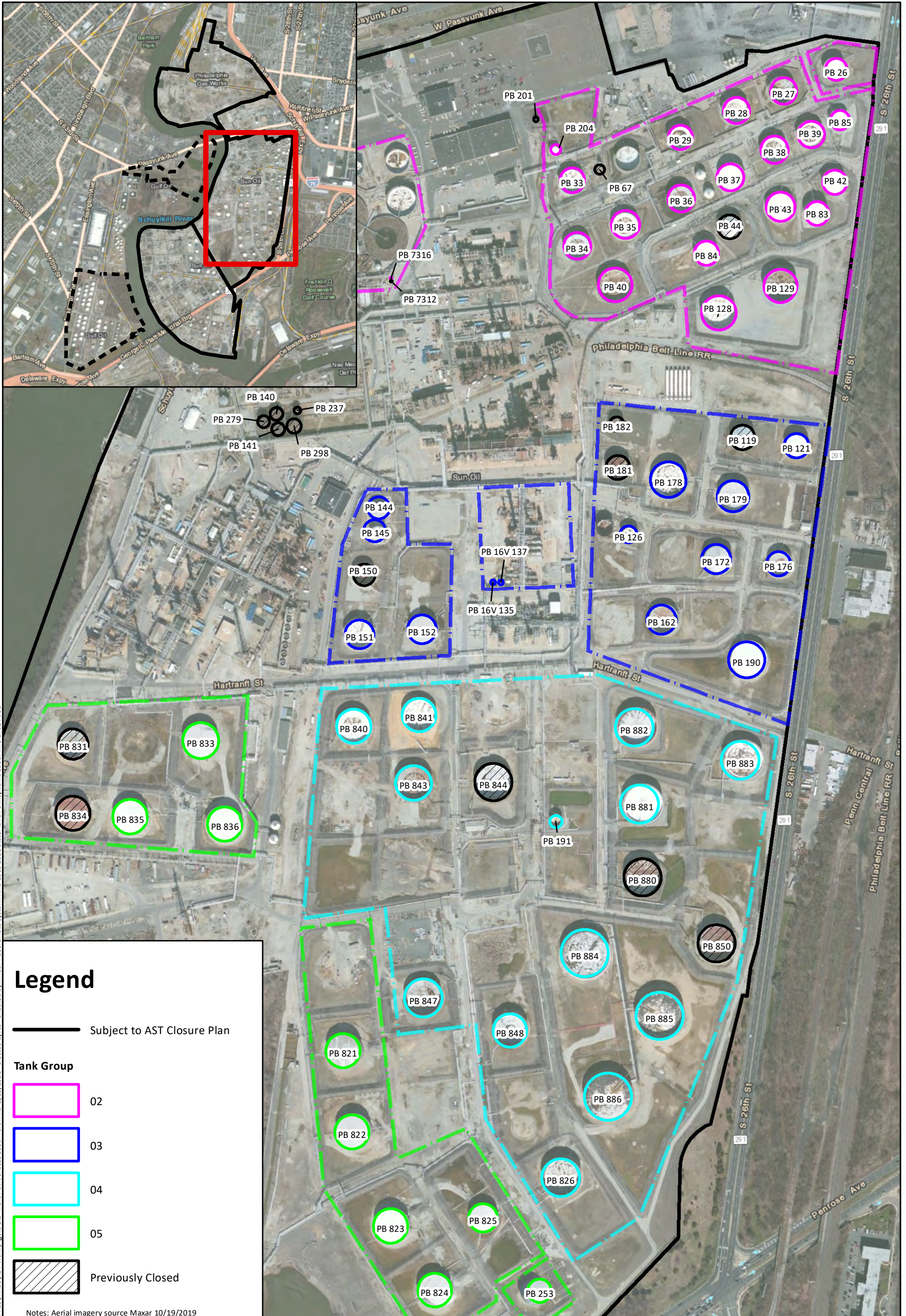
CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

**Aboveground Storage Tanks  
Point Breeze North Yard**

**FIGURE 2.1**

File: N:\GIS\Proj\044\_001\_PESRM-PES\MXDs\AST Work\Figure 2.1 - ASTs Point Breeze North Yard.mxd 2/19/2021 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet





### Legend

- Subject to AST Closure Plan
- Tank Group**
- 02
- 03
- 04
- 05
- Previously Closed

Notes: Aerial imagery source Maxar 10/19/2019



0 125 250 375  
Feet

1 inch = 375 feet

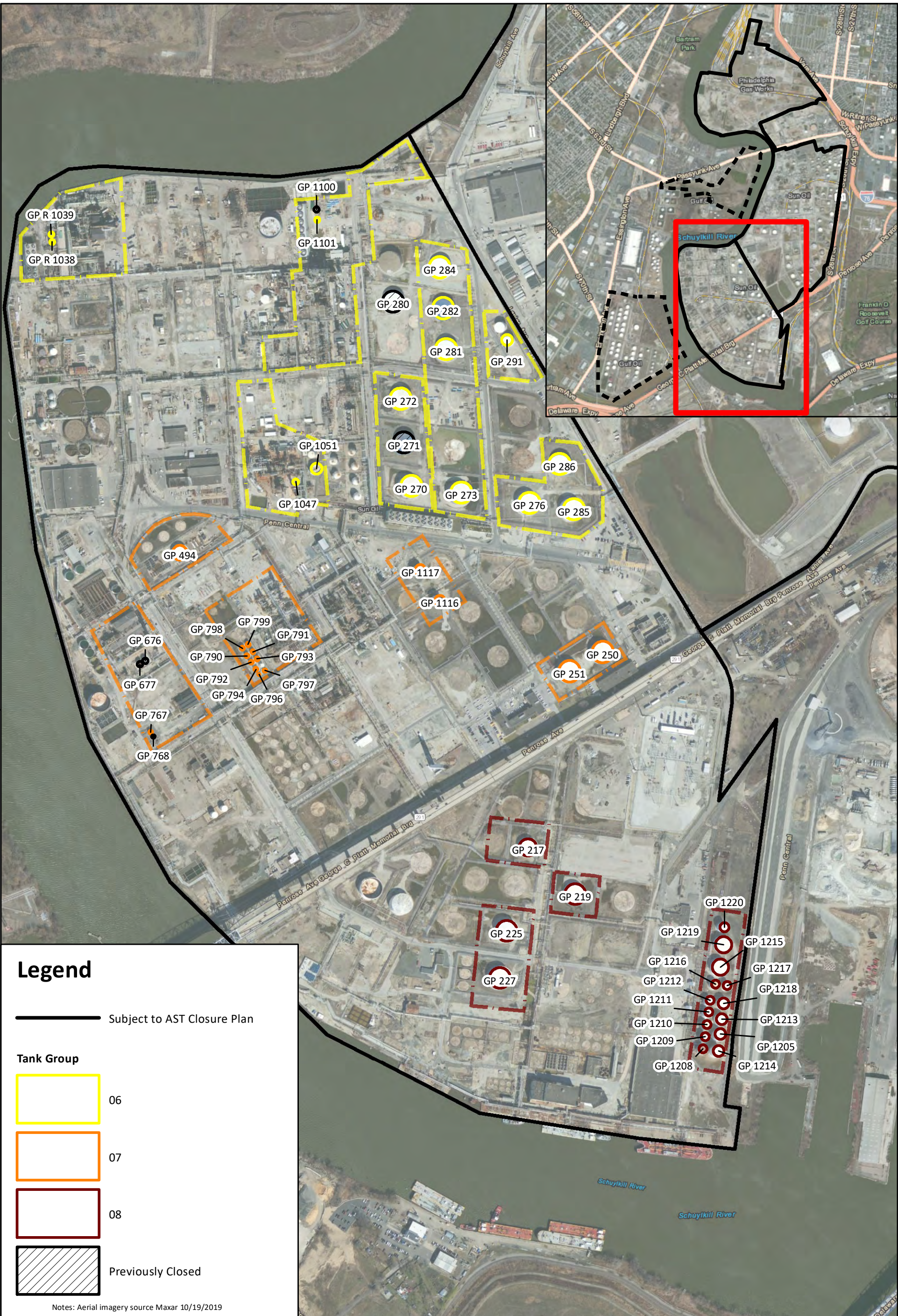
**DRAFT**

	SAFETY FIRST	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	<b>Aboveground Storage Tanks Point Breeze South Yard</b>
		PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	FIGURE 2.2	

File: N:\GIS\Proj\044\_001\_PESRM-PES\MXDs\AST Work\Figure 2.2 - ASTs Point Breeze South Yard.mxd - 2/19/2021 - Created by: JD - Checked by: initial - Coordinate System: NAD 1983 2011 StatePlane Pennsylvania South FIPS 3702 FUS



File: N:\GIS\Proj\044.001\_PESRM-PES\WXDS\AST Work\Figure 2.3 - ASTs Girard Point.mxd 2/19/2021 - Created by: JD, Checked by: Initial - Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



### Legend

— Subject to AST Closure Plan

#### Tank Group



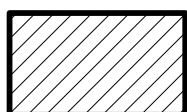
06



07



08



Previously Closed

Notes: Aerial imagery source Maxar 10/19/2019



0 250 500 Feet

1 inch = 500 feet

**DRAFT**

**SAFETY FIRST**



CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

**Aboveground Storage Tanks  
Girard Point**

**FIGURE 2.3**



File: N:\GIS\PI\P044.001\_PESRM-PES\WXDs\AST Work\20210322\Figure 3.1 - Proposed Sample Locations - AST 672.mxd 3/22/2021 Created by: JD Checked by: JD Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



**Legend**

- Soil Sample Location (Grid)
- Soil Sample Location (Product Lines)
- Soil Sample Location (For Tanks > 90 ft dia.)
- Sample Grid (50 feet x 50 feet)

**Tank**

- 01

Associated Piping

Subject to AST Closure Plan

**Notes:**  
 Proposed sample locations are for conceptual purposes only.  
 Aerial imagery source Maxar 10/19/2019



0 10 20 30 40 50  
 Feet  
 1 inch = 50 feet

**DRAFT**

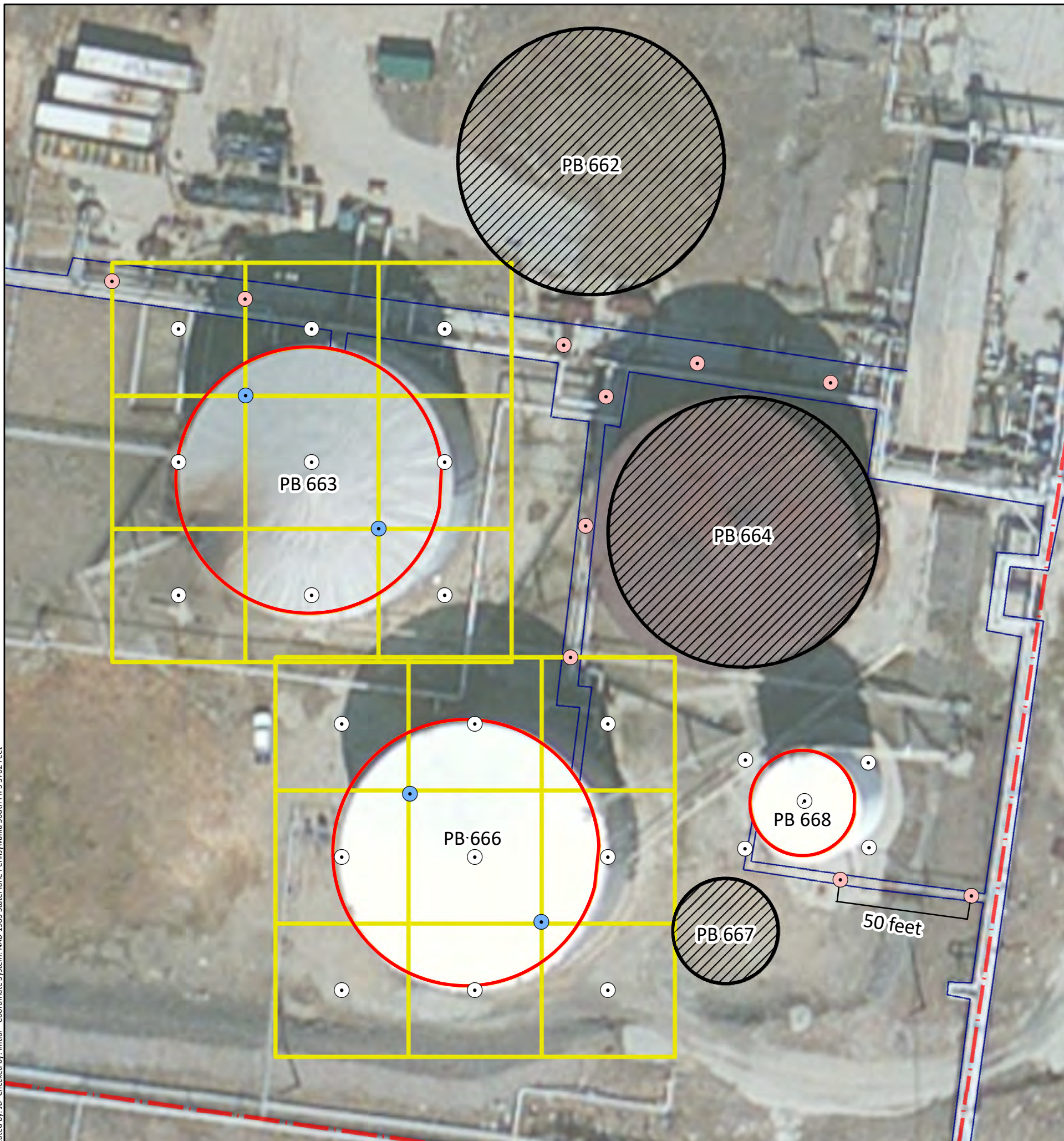
<b>SAFETY FIRST</b>	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC
	PROJECT: Aboveground Storage Tank Closure
	PROJECT NUMBER: P044.001.002

**Conceptual Sample Layout  
 Point Breeze North Yard (AST 672)**

**FIGURE 3.1**



File: N:\GIS\PI\P044.001\_PESRM-PES\WXDs\AST Work\20210322\Figure 3.2 - Proposed Sample Locations - ASTs 663, 666, 668.mxd 3/22/2021 Created by: JD Checked by: Initial Coordinate System: NAD\_1983\_StatePlane\_Pennsylvania\_South\_FIPS\_3702\_Feet



**Legend**

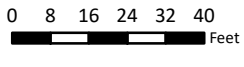
- Soil Sample Location (Grid)
- Soil Sample Location (Product Lines)
- Soil Sample Location (For Tanks > 90 ft dia.)
- Sample Grid (50 feet x 50 feet)

**Tank**

- 01
- Previously Closed

Associated Piping

**Notes:**  
Proposed sample locations are for conceptual purposes only.  
Aerial imagery source Maxar 10/19/2019



1 inch = 40 feet

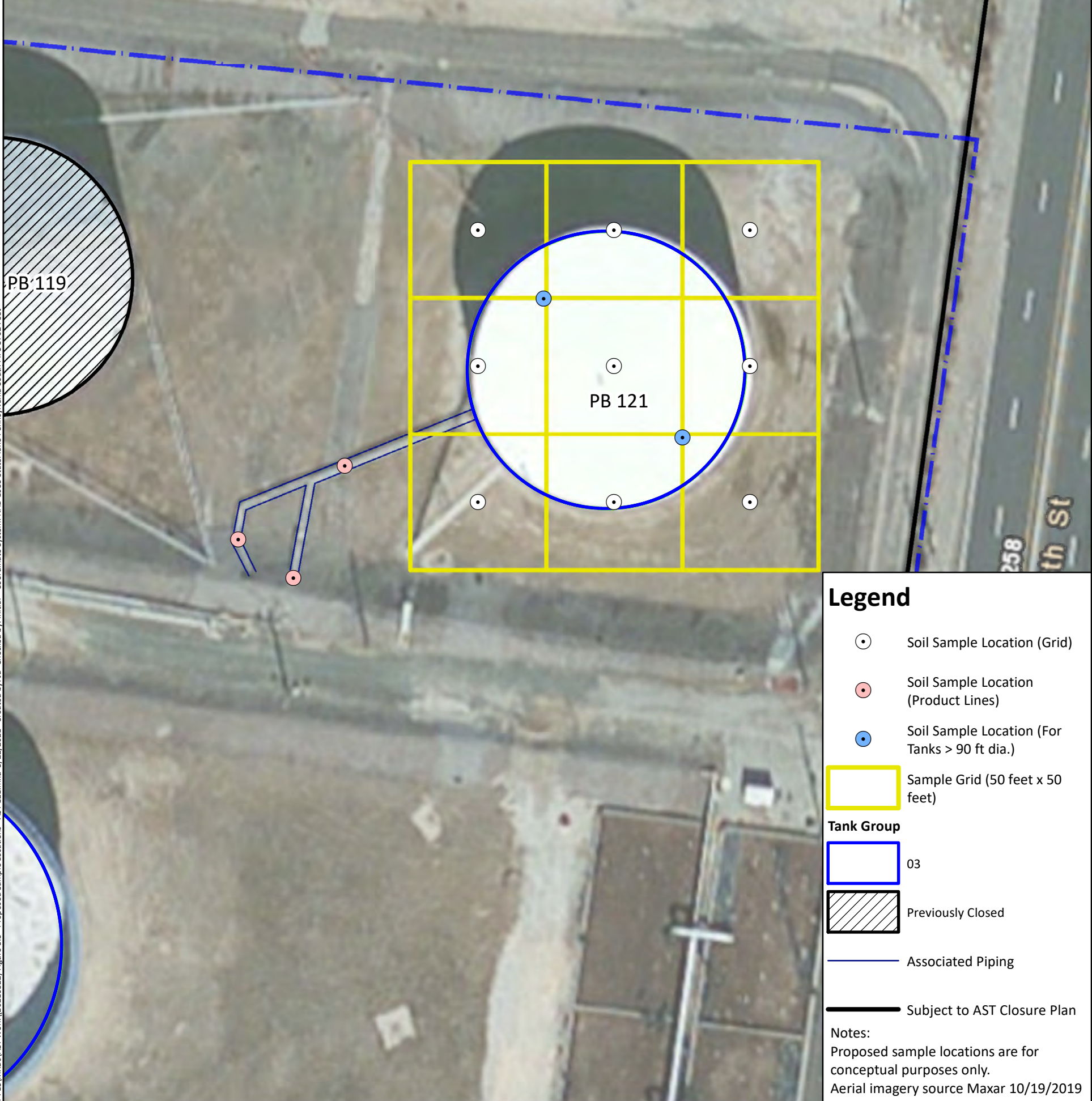
**DRAFT**

 	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC
	PROJECT: Aboveground Storage Tank Closure
	PROJECT NUMBER: P044.001.002

**Conceptual Sample Layout  
Point Breeze North Yard  
(ASTs 663, 666, 668)**

**FIGURE 3.2**





**Legend**

- Soil Sample Location (Grid)
- Soil Sample Location (Product Lines)
- Soil Sample Location (For Tanks > 90 ft dia.)
- Sample Grid (50 feet x 50 feet)

**Tank Group**

- 03
- Previously Closed
- Associated Piping
- Subject to AST Closure Plan

**Notes:**  
 Proposed sample locations are for conceptual purposes only.  
 Aerial imagery source Maxar 10/19/2019

File: N:\GIS\PI\P044.001\_PESRM-PES\WXDS\AST Work\20210322\Figure 3.3 - Proposed Sample Locations - AST 121.mxd 3/22/2021 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

N

0 10 20 30 40  
Feet

1 inch = 40 feet

**DRAFT**

	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC
	PROJECT: Aboveground Storage Tank Closure
	PROJECT NUMBER: P044.001.002

**Conceptual Sample Layout  
Point Breeze South Yard (AST 121)**



**FIGURE 3.3**




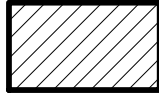
File: N:\GIS\PI\P044.001\_PESRM-PES\WXDS\AST Work\Figure 3.4 - Proposed Sample Locations - AST 767.mxd / 2/19/2021 - Created by: JD, Checked by: Initial - Coordinate System: NAD\_1983 StatePlane Pennsylvania South FIPS 3702 Feet




### Legend

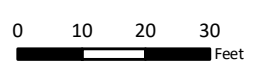
-  Soil Sample Location (Grid)
-  Soil Sample Location (Product Lines)

**Tank Group**

-  07
-  Previously Closed

 Associated Piping


**Notes:**  
 Proposed sample locations are for conceptual purposes only.  
 Aerial imagery source Maxar 10/19/2019



1 inch = 30 feet

**DRAFT**

**SAFETY FIRST**



CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

**Conceptual Sample Layout  
Girard Point (AST 767)**

**FIGURE 3.4**