



Technical Memorandum

To: Lisa Strobridge, PG
Department of Environmental
Protection
Southeast Regional Office

From: Kevin Long, Principal Consultant
Nick Scala, PG, LSRP, Principal Geologist
Terraphase Engineering Inc.

cc: Philadelphia Energy Solutions Refining
and Marketing LLC
c/o Joseph Jeray, PE, Vice President
Hilco Redevelopment Partners

Date: May 3, 2023 Project No.: P044.001.002

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC**
AST Closure Work Plan Addendum – Tank Group 09
PADEP Facility ID #51-97890 – Girard Point Refinery
3144 West Passyunk Avenue, Philadelphia, PA 19141

Introduction

On behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), Terraphase Engineering Inc. (Terraphase) has prepared this addendum to the March 2021 *Aboveground Storage Tank Closure Work Plan* for the Former Philadelphia Energy Solutions Refinery located at 3144 West Passyunk Avenue in Philadelphia, PA (the “Site”). This addendum describes the addition of certain aboveground storage tanks (ASTs) located in the Girard Point Refinery to the tank closure program. PESRM proposes that the addition of these tanks be known as Tank Group 09. The location of Tank Group 09 is depicted in **Figure 1**.

This addendum has been prepared to facilitate closure of the ASTs in Tank Group 09 pursuant to the Storage Tank and Spill Prevention Act (Act 32) and 25 Pa. Code 245. Terraphase’s (March 2021) *Aboveground Storage Tank Closure Work Plan* (Work Plan) was approved by the Pennsylvania Department of Environmental Protection (PADEP) on April 23, 2021.

This technical memorandum details the soil and groundwater (if necessary) sampling and analysis proposed for Site Assessment consistent with the approved Work Plan.

Site Assessment

Site Assessment soil sampling will be conducted in general accordance with the Work Plan. The density and locations of soil samples for a given AST (or group of ASTs within the same containment dike) depends on the tank capacity, tank geometry, evidence of release(s) to the environment as noted during infrastructure removal, and the location/condition of piping and/or ancillary equipment associated with the tank.

Table 1 provides a summary of the tank closure details for each tank included in Tank Group 09.

May 3, 2023

Lisa Strobridge, PG, Former Philadelphia Energy Solutions Refinery

AST Closure Work Plan Addendum – Tank Group 09

Sampling Protocol

The scope of Site Assessment sampling for Tank Group 09 has been developed based on the methodology described in the approved Work Plan.

Proposed soil sampling locations for Tank Group 09 are provided in **Figure 2** and summarized in **Table 2**. Samples will be collected in accordance with the procedures described in the Work Plan and submitted for laboratory 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 in Tank Group 09 is noted in **Table 1**. Since the contents of each AST in Tank Group 09 was either benzene or cumene, samples collected from Tank Group 09 will be analyzed for only benzene and cumene via USEPA Method 5035/8260B.

If the concentrations detected during Site Assessment sampling exceed the applicable screening levels described in the Work Plan, site characterization activities, including delineation of soil impacts and the installation and sampling of groundwater monitoring wells may be required.

Documentation and Reporting

Consistent with the other Tank Groups, PESRM expects to submit a single Site Characterization Report or Tank Group Closure Report for Tank Group 09, once Site Assessment and Site Characterization activities are complete.

Closing

If you have any questions or comments regarding this AST Closure Work Plan Addendum, please contact me (kevin.long@terraphase.com; 609-236-8171 x93) or Nick Scala (nick.scala@terraphase.com; 609-236-8171 x92).

Attachments (4):

- Table 1 – Aboveground Storage Tank Details – Tank Group 09
- Table 2 – Proposed Soil Sample Summary Table – Tank Group 09
- Figure 1 – Site Location – Tank Group 09
- Figure 2 – Proposed Site Assessment Soil Sampling Locations – Tank Group 09

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Tables

- 1 Aboveground Storage Tank Details – Tank Group 09
- 2 Proposed Soil Sample Summary Table – Tank Group 09



Table 1
Aboveground Storage Tank Details

Tank Group 09

Philadelphia Energy Systems Refinery and Marketing, Philadelphia, PA

Facility	State Regulation Number	Tank Number	Design Capacity (gal)	Primary Product	Regulatory Status	Facility ID	Status Modification Date	Tank Type	Double Bottom	Diameter (ft)	Height (ft)	Remaining Liquid (gal)	GPS Survey Complete	Demo Complete	Storage Tanks Reg./Permit App Form Submitted
Girard Point	001A	GP R 1205	1,353,492	Benzene	R	51-97890	2/6/2023	IFR	N	60	48		Y	Y	3/2/2023
Girard Point	003A	GP R 1211	462,000	Cumene	R	51-97890	2/7/2023	Cone Roof	N	45	42		Y	Y	3/2/2023
Girard Point	004A	GP R 1213	886,200	Cumene	R	51-97890	2/8/2023	Cone Roof	N	60	42		Y	Y	3/2/2023
Girard Point	005A	GP R 1214	1,205,400	Benzene	R	51-97890	2/7/2023	IFR	N	60	60		Y	Y	3/2/2023
Girard Point	006A	GP R 1218	886,200	Cumene	R	51-97890	2/21/2023	Cone Roof	Y	60	41.1		Y	Y	3/2/2023
Girard Point	007A	GP R 1219	1,890,000	Cumene	R	51-97890	2/16/2023	Cone Roof	Y	90	40		Y	Y	3/2/2023
Girard Point	008A	GP R 1220	651,000	Cumene	R	51-97890	2/17/2023	Cone Roof	N	48	48		Y	Y	3/2/2023
Girard Point	009A	GP R 1215	1,890,000	Cumene	R	51-97890	2/9/2023	Cone Roof	N	90	40		Y	Y	3/2/2023
Girard Point	010A	GP R 1216	450,072	Cumene	R	51-97890	2/2/2023	IFR	N	45	41.5		Y	Y	3/2/2023
Girard Point	011A	GP R 1217	474,600	Cumene	R	51-97890	2/21/2023	IFR	N	45	42		Y	Y	3/2/2023
Girard Point	012A	GP R 1208	474,600	Benzene	R	51-97890	2/6/2023	IFR	N	45	42		Y	Y	3/2/2023
Girard Point	013A	GP R 1209	474,600	Benzene	R	51-97890	2/8/2023	IFR	N	45	42		Y	Y	3/2/2023
Girard Point	014A	GP R 1212	474,600	Cumene Offtest	R	51-97890	2/7/2023	IFR	N	45	42		Y	Y	3/2/2023

Abbreviations:

IFR - Internal Floating Roof

R - Removed

N - No

Y - Yes

Table 2
Proposed Soil Sample Summary Table

Tank Group 09

Philadelphia Energy Systems Refinery and Marketing, Philadelphia, PA

Tank Group	Location Code	Sample Identifier	Sample Location Description
Tank Group 09	GPR1205-01	GPR1205-01-SS01	Grid sample location and pipe valve location.
	GPR1205-02	GPR1205-02-SS01	Grid sample location.
	GPR1205-03	GPR1205-03-SS01	Grid sample location.
	GPR1205-04	GPR1205-04-SS01	Grid sample location and pipe valve location.
	GPR1205-05	GPR1205-05-SS01	Grid sample location and pipe valve location.
	GPR1205-06	GPR1205-06-SS01	Grid sample location and pipe flange location.
	GPR1205-07	GPR1205-07-SS01	Pipe sample location where piping meets the tank.
	GPR1205-08	GPR1205-08-SS01	Pipe sample location and pipe valve location where pipe turns.
	GPR1205-09	GPR1205-09-SS01	Pipe sample location.
	GPR1208-01	GPR1208-01-SS01	Grid sample location and pipe valve location.
	GPR1208-02	GPR1208-02-SS01	Grid sample location and pipe valve location.
	GPR1208-03	GPR1208-03-SS01	Grid sample location.
	GPR1208-04	GPR1208-04-SS01	Grid sample location and pipe valve location.
	GPR1208-05	GPR1208-05-SS01	Grid sample location.
	GPR1208-06	GPR1208-06-SS01	Pipe sample location and pipe valve location.
	GPR1208-07	GPR1208-07-SS01	Pipe sample location where pipe turns.
	GPR1209-01	GPR1209-01-SS01	Grid sample location.
	GPR1209-02	GPR1209-02-SS01	Grid sample location and pipe valve location.
	GPR1209-03	GPR1209-03-SS01	Grid sample location.
	GPR1209-04	GPR1209-04-SS01	Grid sample location and pipe valve location.
	GPR1209-05	GPR1209-05-SS01	Pipe sample location and pipe valve location.
	GPR1209-06	GPR1209-06-SS01	Grid sample location.
	GPR1209-07	GPR1209-07-SS01	Pipe valve location where pipe turns.
	GPR1209-08	GPR1209-08-SS01	Pipe sample location and pipe valve location.
	GPR1209-09	GPR1209-09-SS01	Pipe sample location and pipe valve location.
	GPR1209-10	GPR1209-10-SS01	Pipe sample location and pipe valve location.
	GPR1211-01	GPR1211-01-SS01	Grid sample location.
	GPR1211-02	GPR1211-02-SS01	Grid sample location and pipe flange location where piping meets the tank.
	GPR1211-03	GPR1211-03-SS01	Grid sample location.
	GPR1211-04	GPR1211-04-SS01	Grid sample location.
	GPR1211-05	GPR1211-05-SS01	Grid sample location and pipe valve location.
	GPR1211-06	GPR1211-06-SS01	Pipe sample location
	GPR1211-07	GPR1211-07-SS01	Pipe sample location and pipe flange location where pipe turns.
	GPR1211-08	GPR1211-08-SS01	Pipe sample location and pipe valve location.
	GPR1211-09	GPR1211-09-SS01	Pipe sample location and pipe valve location.
	GPR1212-01	GPR1212-01-SS01	Grid sample location and pipe valve location.
	GPR1212-02	GPR1212-02-SS01	Grid sample location.
	GPR1212-03	GPR1212-03-SS01	Pipe sample location and pipe flange location.
	GPR1212-04	GPR1212-04-SS01	Pipe sample location and pipe valve location.
	GPR1212-05	GPR1212-05-SS01	Grid sample location.
	GPR1212-06	GPR1212-06-SS01	Grid sample location.
	GPR1212-07	GPR1212-07-SS01	Grid sample location and pipe valve location.
	GPR1212-08	GPR1212-08-SS01	Pipe sample location and pipe valve location.
	GPR1212-09	GPR1212-09-SS01	Pipe sample location and pipe flange location.
	GPR1212-10	GPR1212-10-SS01	Pipe sample location and pipe valve location.
	GPR1213-01	GPR1213-01-SS01	Grid sample location.
	GPR1213-02	GPR1213-02-SS01	Grid sample location where piping meets the tank.
	GPR1213-03	GPR1213-03-SS01	Grid sample location.
	GPR1213-04	GPR1213-04-SS01	Grid sample location.
	GPR1213-05	GPR1213-05-SS01	Grid sample location.
	GPR1213-06	GPR1213-06-SS01	Pipe sample location where pipe turns.
	GPR1213-07	GPR1213-07-SS01	Pipe sample location where pipe turns.
	GPR1214-01	GPR1214-01-SS01	Grid sample location.
	GPR1214-02	GPR1214-02-SS01	Grid sample location.
	GPR1214-03	GPR1214-03-SS01	Grid sample location and pipe valve location.
	GPR1214-04	GPR1214-04-SS01	Grid sample location.
GPR1214-05	GPR1214-05-SS01	Grid sample location and pipe valve location.	
GPR1214-06	GPR1214-06-SS01	Pipe sample location where piping meets the tank.	
GPR1214-07	GPR1214-07-SS01	Pipe sample location and pipe valve location.	
GPR1214-08	GPR1214-08-SS01	Pipe sample location where pipe turns.	
GPR1214-09	GPR1214-09-SS01	Pipe sample location.	
GPR1215-01	GPR1215-01-SS01	Grid sample location.	
GPR1215-02	GPR1215-02-SS01	Grid sample location and pipe valve location where piping meets the tank.	
GPR1215-03	GPR1215-03-SS01	Sample location for tanks > 90 ft in diameter.	
GPR1215-04	GPR1215-04-SS01	Sample location for tanks > 90 ft in diameter.	
GPR1215-05	GPR1215-05-SS01	Grid sample location and pipe valve location.	
GPR1215-06	GPR1215-06-SS01	Grid sample location and pipe valve location.	

Table 2
Proposed Soil Sample Summary Table
Tank Group 09

Philadelphia Energy Systems Refinery and Marketing, Philadelphia, PA

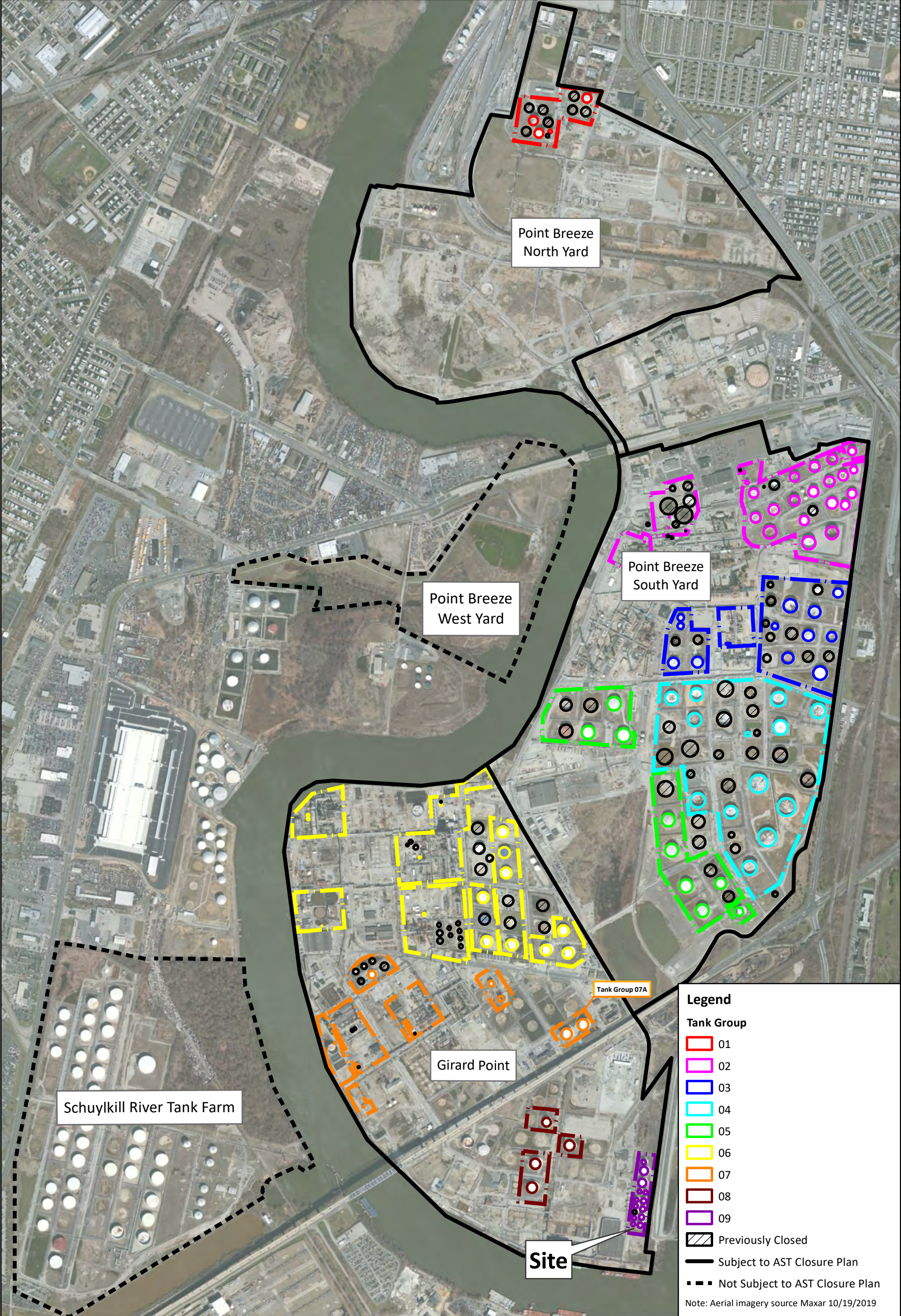
Tank Group	Location Code	Sample Identifier	Sample Location Description
Tank Group 09	GPR1215-07	GPR1215-07-SS01	Grid sample location.
	GPR1215-08	GPR1215-08-SS01	Pipe sample location.
	GPR1215-09	GPR1215-09-SS01	Pipe sample location.
	GPR1216-01	GPR1216-01-SS01	Pipe sample location.
	GPR1216-02	GPR1216-02-SS01	Pipe sample location and pipe flange location.
	GPR1216-03	GPR1216-03-SS01	Pipe sample location and pipe valve location.
	GPR1216-04	GPR1216-04-SS01	Grid sample location and pipe flange location.
	GPR1216-05	GPR1216-05-SS01	Grid sample location where piping meets the tank.
	GPR1216-06	GPR1216-06-SS01	Grid sample location.
	GPR1216-07	GPR1216-07-SS01	Grid sample location.
	GPR1216-08	GPR1216-08-SS01	Grid sample location.
	GPR1217-01	GPR1217-01-SS01	Pipe sample location.
	GPR1217-02	GPR1217-02-SS01	Pipe sample location and pipe valve location.
	GPR1217-03	GPR1217-03-SS01	Pipe sample location and pipe valve location.
	GPR1217-04	GPR1217-04-SS01	Grid sample location.
	GPR1217-05	GPR1217-05-SS01	Grid sample location and pipe valve location.
	GPR1217-06	GPR1217-06-SS01	Grid sample location.
	GPR1217-07	GPR1217-07-SS01	Grid sample location.
	GPR1218-01	GPR1218-01-SS01	Grid sample location.
	GPR1218-02	GPR1218-02-SS01	Grid sample location where piping meets the tank.
	GPR1218-03	GPR1218-03-SS01	Grid sample location.
	GPR1218-04	GPR1218-04-SS01	Grid sample location.
	GPR1218-05	GPR1218-05-SS01	Grid sample location.
	GPR1218-06	GPR1218-06-SS01	Pipe sample location and pipe valve location.
	GPR1218-07	GPR1218-07-SS01	Pipe sample location.
	GPR1219-01	GPR1219-01-SS01	Grid sample location.
	GPR1219-02	GPR1219-02-SS01	Pipe sample location and pipe valve location where piping meets the tank.
	GPR1219-03	GPR1219-03-SS01	Grid sample location and pipe valve location.
	GPR1219-04	GPR1219-04-SS01	Sample location for tanks > 90 ft in diameter.
	GPR1219-05	GPR1219-05-SS01	Sample location for tanks > 90 ft in diameter.
	GPR1219-06	GPR1219-06-SS01	Grid sample location.
	GPR1219-07	GPR1219-07-SS01	Grid sample location.
	GPR1219-08	GPR1219-08-SS01	Pipe sample location and pipe flange location where pipe turns.
	GPR1220-01	GPR1220-01-SS01	Grid sample location.
	GPR1220-02	GPR1220-02-SS01	Grid sample location.
	GPR1220-03	GPR1220-03-SS01	Grid sample location.
	GPR1220-04	GPR1220-04-SS01	Grid sample location and pipe valve location.
	GPR1220-05	GPR1220-05-SS01	Grid sample location where piping meets the tank.
	GPR1220-06	GPR1220-06-SS01	Pipe sample location and pipe flange location.
	GPR1220-07	GPR1220-07-SS01	Pipe sample location where pipe turns.
GPR1220-08	GPR1220-08-SS01	Pipe sample location.	
GPR1220-09	GPR1220-09-SS01	Pipe sample location.	

Figures

- 1 Site Location – Tank Group 09
- 2 Proposed Site Assessment Soil Sampling Locations – Tank Group 09



File: N:\GIS\Prj\P044_001_PESRM-PES\WXDS\AST\Work\Tank Group 09\ForWorkPlanAddendum\20230424\Figure 1 - Site Location.mxd 4/24/2023 Created by: Mia Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



0 500 1,000 1,500
Feet

1 inch = 1,000 feet

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

Legend

Tank Group

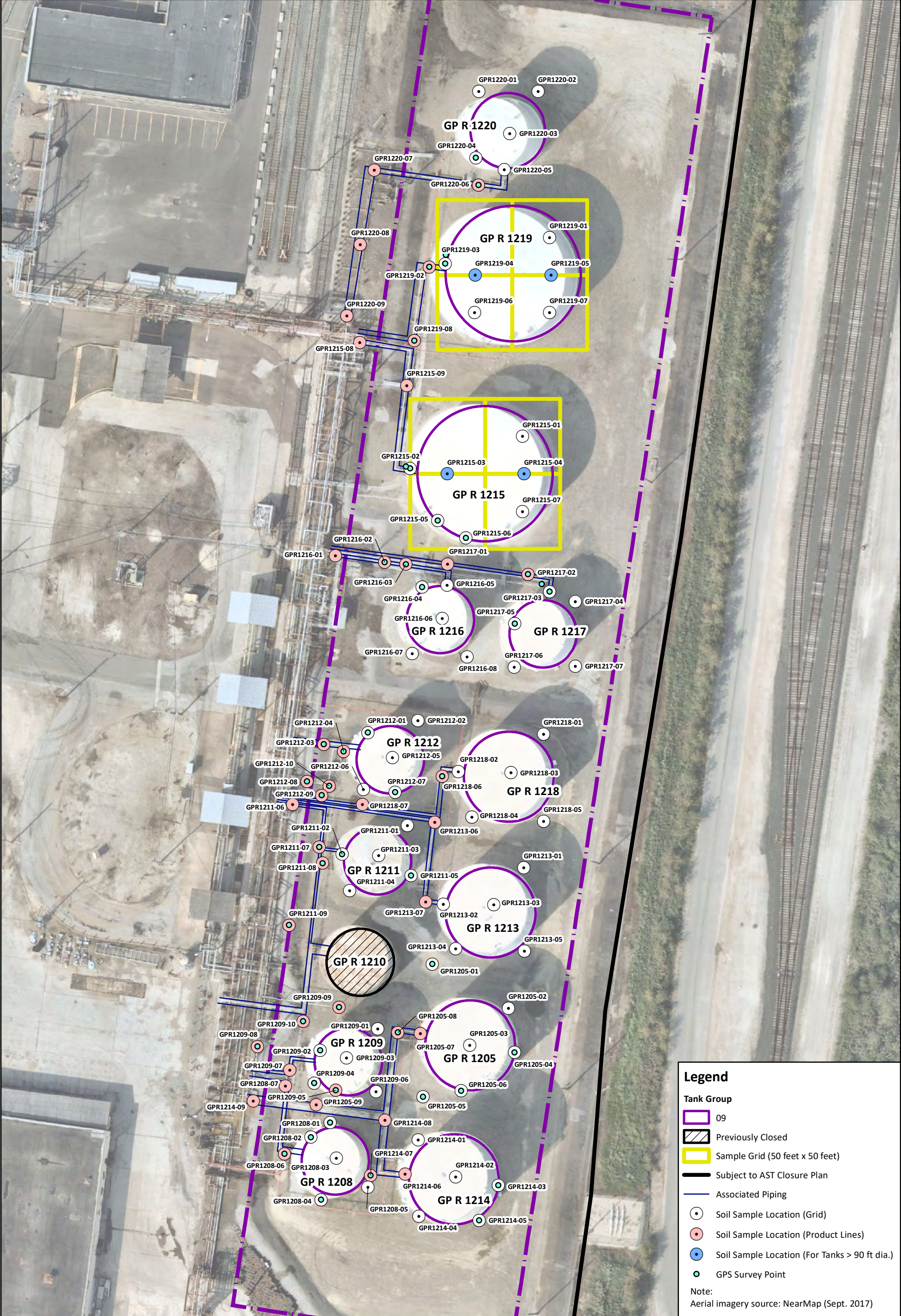
- 01
- 02
- 03
- 04
- 05
- 06
- 07
- 08
- 09
- Previously Closed
- Subject to AST Closure Plan
- Not Subject to AST Closure Plan

Note: Aerial imagery source Maxar 10/19/2019

Site Location

Figure 1

File: N:\GIS\Prj\044_001_PESRM-PES\MXDs\AST Work\Tank Group 09\ForWorkPlanAddendum\20230424\Figure 3 - Proposed SA Soil Sampling Locations.mxd Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

Tank Group

- 09
- Previously Closed
- Sample Grid (50 feet x 50 feet)
- Subject to AST Closure Plan
- Associated Piping
- Soil Sample Location (Grid)
- Soil Sample Location (Product Lines)
- Soil Sample Location (For Tanks > 90 ft dia.)
- GPS Survey Point

Note:
Aerial imagery source: NearMap (Sept. 2017)

0 30 60

Feet

1 inch = 60 feet

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terraphase
engineering

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

**Proposed Site Assessment
Soil Sampling Locations
Tank Group 09**

Figure 2