

FINAL

Semi-Annual Remediation Status Report August 2025 to February 2026

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

Prepared for

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Acronyms and Abbreviations

Act 2	<i>Land Recycling and Environmental Remediation Standards Act</i>
Act 32	<i>Storage Tank and Spill Prevention Act</i>
AST	aboveground storage tanks
BDH	Bellwether District Holdings, LLC
bgs	below ground surface
CO&A	Consent Order and Agreement
the Facility	Former Philadelphia Energy Solutions Refinery, 3144 West Passyunk Avenue, Philadelphia, Pennsylvania
ft	foot or feet
Langan	Langan Engineering and Environmental Services, Inc.
LNAPL	light non-aqueous phase liquid
MSC	Medium Specific Concentrations
NIR	Notice of Intent to Remediate
PADEP	Pennsylvania Department of Environmental Protection
PES	Philadelphia Energy Solutions
ROW-3	Right-of-Way-3
SHS	Statewide Health Standard
SRTF	Schuylkill River Tank Farm
SSS	Site-Specific Standard
Stantec	Stantec Consulting Services, Inc.
Status Report	<i>Semi-Annual Remediation Status Report</i>
SVE	soil vapor extraction
Terraphase	Terraphase Engineering Inc.



1 Introduction

On behalf of Bellwether District Holdings, LLC (BDH), Terraphase Engineering Inc. (Terraphase) has prepared this *Semi-Annual Remediation Status Report* (Status Report) to document the progress of activities being completed by BDH to characterize and remediate certain areas of the Former Philadelphia Energy Solutions Refinery (former PES; the Facility). The Facility, which is undergoing redevelopment, is located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania.

The releases discussed in this *Status Report* do not include those which are associated with “Pre-Existing Contamination” as defined in the 2012 Consent Order and Agreement (CO&A)¹ among the Pennsylvania Department of Environmental Protection (PADEP), Evergreen,² and BDH, which are being addressed by Evergreen. In accordance with the CO&A, BDH has assumed responsibility for releases of hazardous or regulated substances from the Facility which have been identified to have occurred after September 8, 2012. The releases discussed herein are:

1. Releases that occurred during refinery operation (i.e., between September 2012 and June 2020) that BDH plans to close under the *Land Recycling and Environmental Remediation Standards Act* (Act 2) Program:
 - A 2019 release of light naphtha from an aboveground line near 136 process unit at the former refinery (136 Naphtha Release);
 - A 2013 release from a process sewer near the No. 3 Separator at the former refinery (No. 3 Separator Release);
 - A 2018 release from the UDEX feed line at the former refinery (UDEX Feed Release);
 - A 2016 release east of former tank PB 253 (Release East of Former Tank PB 253);
 - A Post-2012 release of light non-aqueous phase liquid (LNAPL) near the Former Point Breeze Tank Farm (Post-September 2012 LNAPL near Former Point Breeze Tank Farm);
 - A Post-2012 release of LNAPL South of Former 870 Unit (Post-September 2012 LNAPL South of Former 870 Unit); and
 - A Post-2012 release of LNAPL near Tank 37 in the Schuylkill River Tank Farm (SRTF) (Post-2012 LNAPL Near Tank 37, SRTF).
2. More recent releases (i.e., after June 2020) that occurred during decommissioning and demolition of the former refinery:

¹ August 14, 2012 CO&A as amended June 26, 2020 and referred to as the “Buyer-Seller Agreement”.

² Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC (“Evergreen”) is managing the legacy remedial work for Sunoco (R&M), LLC. For clarity, Sunoco, Inc. n/k/a ETC Sunoco Holdings LLC, Sunoco, Inc. (R&M) f/k/a Sunoco (R&M), LLC n/k/a Energy Transfer (R&M), LLC effective 4/19/2021 and Evergreen shall be referred to collectively as “Evergreen” in this Report.



- A 2021 release from overhead piping near the 860 Unit Cooling Tower and Hartranft Street (860 Unit and Hartranft Street Release);
 - A 2021 release from piping along the Dike Roadway near PB 881 (PB 881 Dike Roadway Release);
 - A 2022 release from an underground containment structure caused by a water main break along River Road (August 2022 River Road Release Area);
 - A 2022 overflow release from the No. 4 Separator due to a check valve failure and backflow from Tank 1136 to the No. 4A Separator (No. 4 Separator Release); and
 - A 2023 release from subsurface pipe within Right-of-Way-3 (ROW-3) approximately 0.45 miles south of Frontage Road (ROW-3 Release on June 22, 2023 Area).
3. Potential releases identified during the decommissioning and closure of aboveground storage tanks (ASTs) which are being completed in accordance with the *Storage Tank and Spill Prevention Act* (Act 32) and 25 PA Code §245 (Subchapter D).

BDH has or plans to remediate the releases identified above in accordance with applicable portions of Act 2, 25 PA Code §250, Act 32, and Subchapter D. The locations of these release areas are shown on **Figures 1** and **2**. The status of the characterization and remediation of each release area is discussed and summarized below.

This is the ninth *Status Report*. It discusses remedial activities completed during the period from August 1, 2025 through February 1, 2026. The next semi-annual *Status Report* will cover activities completed from February 1, 2026 through August 1, 2026.

2 Releases During Refinery Operation

This section summarizes the status of prior releases that BDH plans to close under the Act 2 Program.

2.1 136 Naphtha Release

On February 22, 2019, approximately 53,000 gallons of petroleum-product, identified as light naphtha, was released to the ground surface from defects in above-ground piping associated with former Process Unit 137, near the location of the former Unit 136. A Notice of Intent to Remediate (NIR) was submitted to PADEP on June 2, 2021 (eFacts PF No. 850105) by Langan Engineering and Environmental Services, Inc. (Langan) to address the soil-related impacts associated with the release under the non-residential Statewide Health Standards (SHS). A copy of the NIR was also submitted to the local municipality (City of Philadelphia) and a legal notification was published in the *Philadelphia Inquirer*.

The release was observed by Stantec Consulting Services, Inc. (Stantec) while on-site performing routine monitoring. The response actions included the removal of water and product from a nearby storm sewer and culvert and from test pits installed along the compromised product line via a vacuum truck. Between November 25 and December 12, 2019, BDH conducted an excavation of the soil impacted by



the release. The excavation was guided by visual observations of soil impacts and excavation depths ranged from approximately 2 to 6 feet (ft) below ground surface (bgs). Approximately 377 tons of soil were excavated and transported off-site for disposal. Post-excavation soil sample results identified no chemicals at concentrations greater than the applicable PADEP SHS Medium Specific Concentrations (MSCs).

Langan subsequently submitted a *Combined Remedial Investigation Report/Final Report* to PADEP on June 29, 2021, to document the remediation of the release area. PADEP identified technical deficiencies in the report in a letter dated August 26, 2021.

BDH submitted a *Remedial Investigation and Final Report* to PADEP on April 17, 2025 to document the additional efforts performed by BDH to address the deficiencies identified by PADEP. PADEP identified technical deficiencies in the report in a letter dated June 9, 2025. BDH addressed the technical deficiencies identified by PADEP within the 60-day review period and submitted a *Revised Remedial Investigation and Final Report* to PADEP on August 7, 2025. PADEP issued a *Disapproval of Final Report* Letter on October 3, 2025. BDH is currently preparing a revised NIR and Remedial Investigation and Cleanup Plan to obtain closure under the Site-Specific Standard (SSS) for the 136 Naphtha Release area.

2.2 No. 3 Separator Release

The No. 3 Separator Remediation System was a 10-well total fluids recovery system installed in 2012 to address LNAPL from a prior release in the area of the property along the Schuylkill River near the No. 3 oil-water separator. BDH took over operation of the recovery system from Evergreen in 2013 after additional LNAPL was found to be impacting the area. A NIR was submitted to PADEP on March 1, 2022 (eFacts PF No. 856439) to address the soil and groundwater-related impacts associated with the release under the non-residential SHS. An updated NIR was submitted to PADEP on April 17, 2025 (eFACTS No. 856439). The updated NIR indicated that BDH intended to remediate groundwater and LNAPL at the Site to attain the SSS, via pathway elimination.

The recovery system operated until it was decommissioned in November 2021 due to a lack of recoverable LNAPL. After the shutdown of the plant air, skimmer pumps were used to remove measurable LNAPL from the monitoring and recovery wells associated with the No. 3 Separator Remediation System. Terraphase conducted site characterization activities in the No. 3 Separator area in March and April 2025.

LNAPL is residual and no longer mobile or recoverable and therefore, the LNAPL has been remediated to the maximum extent possible (MEP). BDH submitted a *Remedial Investigation Report and Cleanup Plan* for this release to PADEP on August 8, 2025. PADEP issued approval of the *Remedial Investigation Report and Cleanup Plan* on November 5, 2025. BDH is currently preparing a Final Report and environmental covenant for the No. 3 Separator area.

2.3 UDEX Release

In the summer of 2018, Stantec (on behalf of Evergreen) performed a routine annual well gauging event across the Facility. During their review and analysis of the data, Stantec identified LNAPL in two



monitoring wells where LNAPL had not been previously identified (i.e., S-414 and S-283) and an increased LNAPL thickness in an additional well (i.e., S-382). LNAPL analysis and fingerprint comparison indicated that the LNAPL from the well with increased LNAPL thickness was chemically similar to the other samples, but also contained smaller amount of extremely weathered middle petroleum distillate. Based upon the results, comingled LNAPL plumes appeared to be present in this area.

In late July 2018, BDH identified a leak from an underground portion of a product line that conveyed reformat (a feed for the UDEX unit). A NIR was submitted to PADEP on March 1, 2022 (eFACTS No. 856431) to address the soil and groundwater-related impacts associated with the release under the SHS. BDH has retained Stantec to characterize and remediate the release area. Over 96,000 gallons of free product was recovered from the subsurface by skimmer pumps operated at three recovery wells between September 2018 and November 2021, and over 24,000 gallons of free product was converted to vapor, extracted, and combusted during a pilot test of soil vapor extraction (SVE) technology between April 2021 and January 2022. A full-scale SVE system, consisting of six internal combustion engines (two double-engine units and two single-engine units) began operation in May 2022. Targeted air sparge treatment has been used to augment the SVE system since September 2024. The combined air sparge and SVE remedy continued to operate for the first six months of 2025, with one unit running until July 31, 2025. A total of 294,027 gallons of LNAPL were recovered/destroyed as a result of remediation activities in this area between 2018 and 2025.

BDH submitted a *Remedial Investigation Report* for this release to PADEP on October 2, 2025. PADEP issued approval of the *Remedial Investigation Report* on December 26, 2025. BDH anticipates the Cleanup Plan for this release will be submitted in 2026.

2.4 Release East of Former Tank PB 253

In July 2016, PES personnel discovered product-soaked soil at the ground surface just outside of the emergency containment berm for AST PB 253. As part of immediate response actions, the area around the product-soaked soil was excavated and removed. In addition, an underground product line which ran north-south along the access road adjacent to the area was suspected by PES personnel to have leaked as well. The north-south pipe was unearthed and repaired. It is unknown how much product was released from the pipeline or for how long before remedial actions were initiated. A NIR was submitted to PADEP on March 5, 2024 (eFacts PF No. 874428) to address the soil-related impacts associated with the release under the SSS.

BDH anticipates that a *Remedial Investigation Report and Cleanup Plan* for this release will be submitted in 2026.

2.5 Post-September 2012 LNAPL near Former Point Breeze Tank Farm

In April and July 2019, Evergreen identified changes in measurements of apparent LNAPL thickness in two monitoring wells near the Former Point Breeze Tank Farm. The contamination consists of oil of varying compositions. The specific mechanism of release is unknown. The LNAPL has a potential release



date after September 8, 2012. LNAPL that was released prior to September 8, 2012 is also present in the area and is being addressed by Evergreen as Pre-Existing Contamination (e.g. was released prior to September 8, 2012). A NIR was submitted to PADEP on November 27, 2024 (eFacts PF No. 883479) to address the release under the non-residential SHS.

BDH completed initial LNAPL and soil investigations in April and August 2023 in the area. Based on the results of the 2023 investigations, BDH installed a monitoring well in the area and completed additional LNAPL characterization in May 2025. Characterization results indicate that LNAPL remains in the area and appears to be from multiple historical sources. LNAPL identified in the unsaturated zone perched on a clay layer (~4-10 ft bgs), is associated with Post-September 2012 Contamination, while LNAPL present at groundwater table is Pre-Existing Contamination.

A collection trench has been installed as an engineering control to prevent migration of Post-September 2012 Contamination to adjacent stormwater features. BDH is performing additional investigation to confirm the extent of the Post-September 2012 Contamination-related LNAPL in the area and to evaluate whether additional recovery efforts are warranted to remediate the LNAPL to the MEP. As part of this evaluation, BDH installed a recovery trench in August 2025 and five recovery wells between September and November 2025. BDH is continuing to monitor the LNAPL collection infrastructure and will conduct supplemental field investigations, as needed, to support the preparation of the *Remedial Investigation Report*. BDH anticipates that the *Remedial Investigation Report* for this release will be submitted in 2026.

2.6 Post-September 2012 LNAPL South of Former 870 Unit

In June 2019, Evergreen identified changes in measurements of apparent LNAPL thickness in one monitoring well south of Former 870 Unit. The specific mechanism of release is unknown. The LNAPL has a potential release date after September 8, 2012. LNAPL that was released prior to September 8, 2012 is also present in the area and is being addressed by Evergreen as Pre-Existing Contamination (e.g. was released prior to September 8, 2012). A NIR was submitted to PADEP on April 28, 2025 (eFacts PF No. 883479) to address the release under the non-residential SHS. BDH submitted a revised NIR to PADEP on January 23, 2026 (eFacts PF No. 883479). The updated NIR indicated that BDH intended to remediate soil and groundwater at the Site to attain the SSS, via pathway elimination.

BDH completed initial LNAPL and soil investigations in April and August 2023 in the area. Based on the results of the 2023 investigations, BHD installed a monitoring well in the area and completed additional LNAPL characterization in May 2025. The extent of the remaining Post-2012 release-related contamination is limited to benzene in soil and benzene and naphthalene in groundwater. The subsurface investigation demonstrated that LNAPL is no longer present at the Site and additional LNAPL remediation to the MEP is not warranted.

BDH anticipates that a *Remedial Investigation Report and Cleanup Plan* for this release will be submitted in 2026.



2.7 Post-2012 LNAPL near Tank 37, SRTF

In February 2019, Evergreen identified changes in measurements of apparent LNAPL thickness in well S-122SRTF, located east of Tank 37. The specific mechanism of release is unknown. The LNAPL has a potential release date after September 8, 2012. LNAPL that was released prior to September 8, 2012 is also present in the area and is being addressed by Evergreen as Pre-Existing Contamination. A NIR was submitted to PADEP on July 1, 2025 (eFacts PF No. 885457) to address the release under the non-residential SHS.

In June 2024, BDH collected a LNAPL sample from 122SRTF for forensic evaluation. Results indicated that LNAPL remains in the area and appears to be from multiple historical sources. In October 2025, four soil samples were collected for forensic evaluation and Dakota Technologies, on behalf of BDH, completed an LNAPL investigation using Ultra-Violet Optical Screening Tool (UVOST®), combined with the Hydraulic Profiling (HP) sensor, to characterize and differentiate LNAPL within and in proximity to S-122SRTF. It is anticipated that Dakota will provide their conclusions of the UVOST investigation in the first quarter of 2026. Based on the results of the UVOST investigation, BDH will conduct supplemental field investigation, as needed, to support the preparation of the *Remedial Investigation Report* for the Post-2012 LNAPL Near Tank 37 release area.

3 Releases During Decommissioning and Demolition

Below is a summary of the status of releases that have occurred during the decommissioning and demolition of the former refinery.

3.1 860 Unit Cooling Tower and Hartranft Street Release

As discussed in the August 2024 *Status Report*, the 2021 release from overhead piping near the 860 Unit Cooling Tower achieved regulatory closure in April 2024.

3.2 PB 881 Dike Roadway Release

As discussed in the August 2024 *Status Report*, the 2021 release from piping along Dike Roadway near PB 881 achieved regulatory closure in April 2024.

3.3 August 2022 River Road Release Area

As discussed in the August 2025 *Status Report*, the 2022 subsurface water line leaks along River Road achieved regulatory closure in June 2025.



3.4 No. 4 Separator Release

As discussed in the February 2025 *Status Report*, the 2022 release from the No. 4 Separator achieved regulatory closure in September 2024.

3.5 ROW-3 Release on June 22, 2023 Area

As discussed in the February 2025 *Status Report*, the 2023 release that occurred during demolition activities and removal of a subsurface pipe within ROW-3 achieved regulatory closure in January 2025.

4 Releases Identified during AST Closure

Removal of the ASTs and associated infrastructure began in December 2020. In accordance with Terraphase's (2021) *Aboveground Storage Tank Closure Work Plan*, which was approved by the PADEP on April 23, 2021, Site Assessment sampling was initiated in May 2021 for tanks that had been adequately decommissioned and demolished to facilitate sampling. Monthly status summary reports³ and monthly teleconference calls have occurred since early May 2021 to document for PADEP the work performed as part of the AST Closure effort.

As detailed in the *Aboveground Storage Tank Closure Work Plan*, the work is progressing in a phased approach and instead of submitting individual Site Assessment results, closure reports, and closure forms for individual tanks, the Site Assessment and Site Characterization results for tank groupings will be documented in Tank Group Closure reports. The property has been divided into nine Tank Groups⁴ (**Figure 2**). To date, demolition has been performed in all nine tank groups (Tank Groups 01 through 09). Additional details relating to AST Closure progress are available in Terraphase's *Monthly Status Summary Reports*, and updates to the AST Closure program are in each Semi-Annual Status Report. *Site Characterization Reports* (SCRs) were submitted for Tank Groups 01, 02, 03, 04, 06, and 07. As discussed with PADEP, since Site Assessment and Site Characterization work associated with the Tank Groups demonstrated that elevated chemical concentrations greater than the applicable MSCs identified in each area are a result of Pre-Existing Contamination (e.g. was released prior to September 8, 2012), BDH subsequently submitted Release Investigation Reports instead of SCRs.

A summary of the closure status of each Tank Group is provided below.

³ As of December 13, 2024, status reporting transitioned from biweekly to monthly.

⁴ In December 2022, aboveground storage tanks GP R 250 and GP R 251 were re-assigned to Tank Group 07A due to inaccessibility for Site Assessment sampling and were evaluated separately from Tank Group 07. However, as requested by PADEP, Tank Group 07A was included in the Tank Group 07 report. In March 2023, Tank Group 09, located in the southern portion of the Girard Point Refinery, was added to the AST Closure scope of work.



Tank Group Closure Status

Tank Group	Incident Number	Report Type	Submittal Date	Notes
01	56446	Release Investigation Report	1/22/26	Awaiting PADEP comment or approval
02	56377	Release Investigation Report	7/22/2024	Closure approval received on 2/21/2025.
03	56663	Release Investigation Report	6/10/2025	Closure approval received on 8/11/2025.
04	57976	Release Investigation Report	6/26/2025	Closure approval received on 8/26/2025.
05	57203	Site Characterization Report; Closure Report Addendum; Subsurface Investigation Report	12/23/2022; 8/14/2023; 3/26/2024	Closure approval received on 5/23/2024.
06	58434	Release Investigation Report	11/14/2025	Awaiting PADEP comment or approval.
07/07A	57973			
08	60059	Release Investigation Report	10/8/2024	Closure approval received on 4/28/2025.
09	60221	Release Investigation Report	12/16/2024	Closure approval received on 5/7/2025.

5 Closing

Should you have any questions, please contact Amy Piccone (apiccone@hrpgroup.com) and Julianna Connolly (jconnolly@hrpgroup.com) at HRP Group.

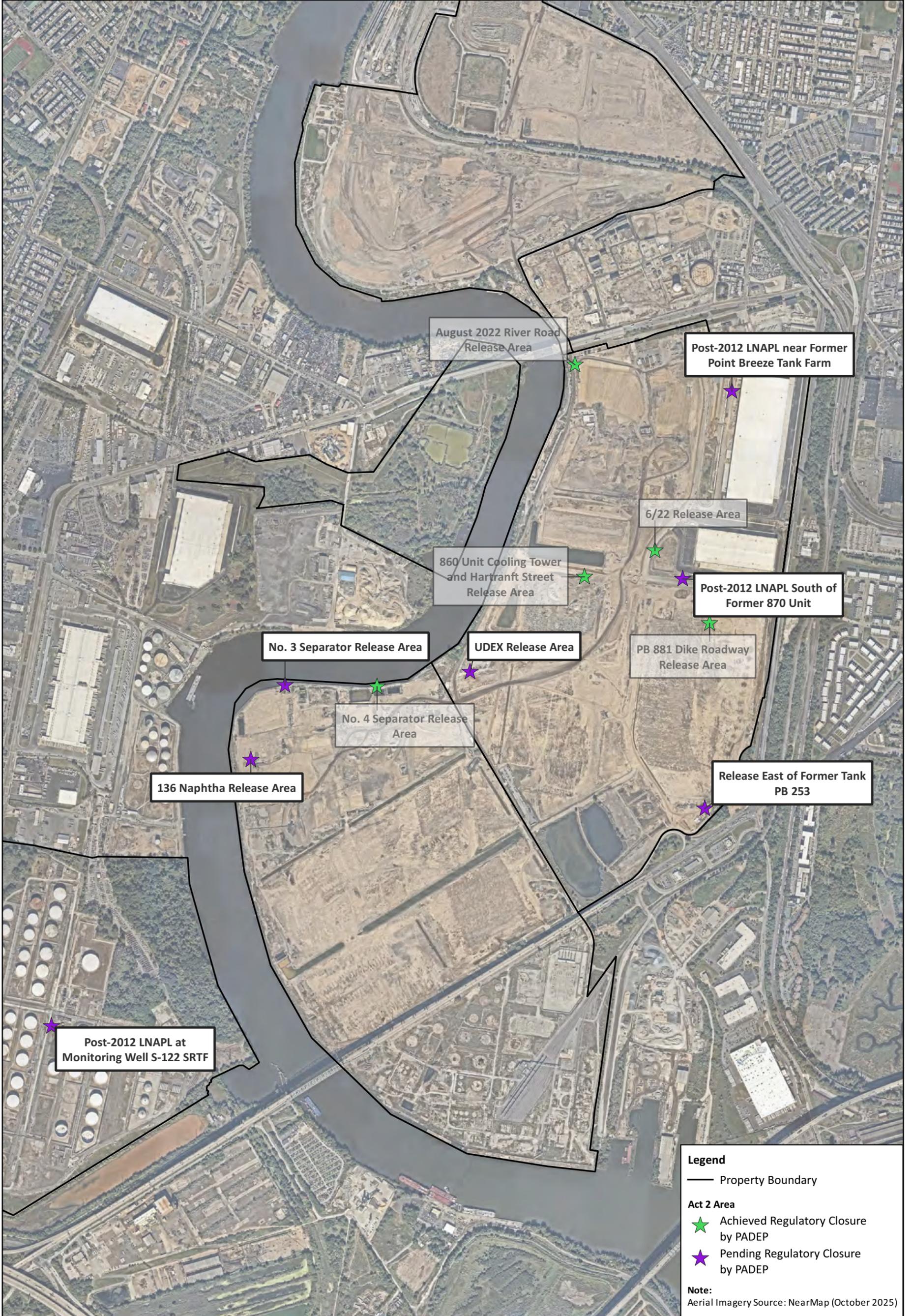


Figures

- 1 Post-2012 Release Areas Pursuing Act 2 Closure
- 2 Tank Groups



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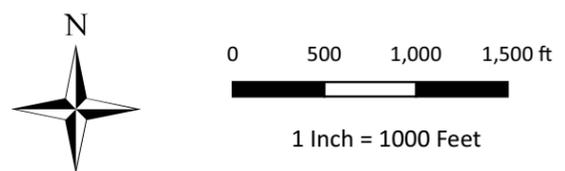
Legend

- Property Boundary

Act 2 Area

- ★ Achieved Regulatory Closure by PADEP
- ★ Pending Regulatory Closure by PADEP

Note:
Aerial Imagery Source: NearMap (October 2025)

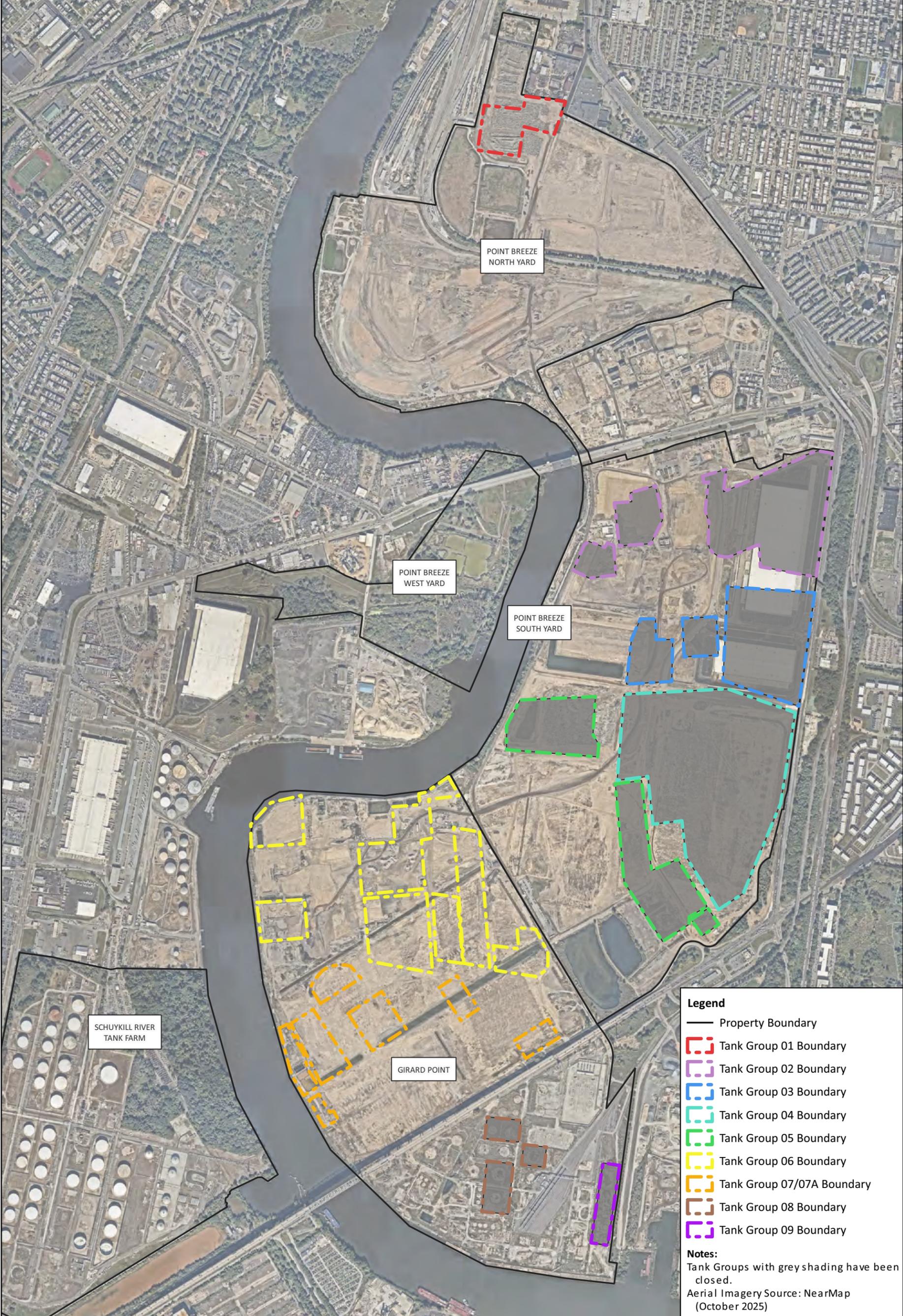


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Post-2012 Release Areas Pursuing Act 2 Closure

FIGURE 1

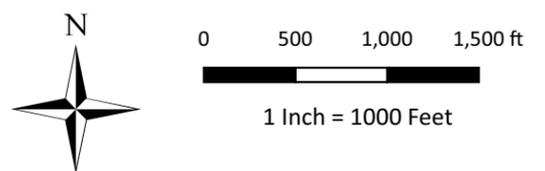
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Legend

- Property Boundary
- ▭ Tank Group 01 Boundary
- ▭ Tank Group 02 Boundary
- ▭ Tank Group 03 Boundary
- ▭ Tank Group 04 Boundary
- ▭ Tank Group 05 Boundary
- ▭ Tank Group 06 Boundary
- ▭ Tank Group 07/07A Boundary
- ▭ Tank Group 08 Boundary
- ▭ Tank Group 09 Boundary

Notes:
 Tank Groups with grey shading have been closed.
 Aerial Imagery Source: NearMap (October 2025)



SAFETY FIRST

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Tank Groups

FIGURE 2