Naval Facilities Engineering Systems Command

Former Naval Air Station (NAS) Alameda 2024 State of the Station

Restoration Advisory Board Meeting

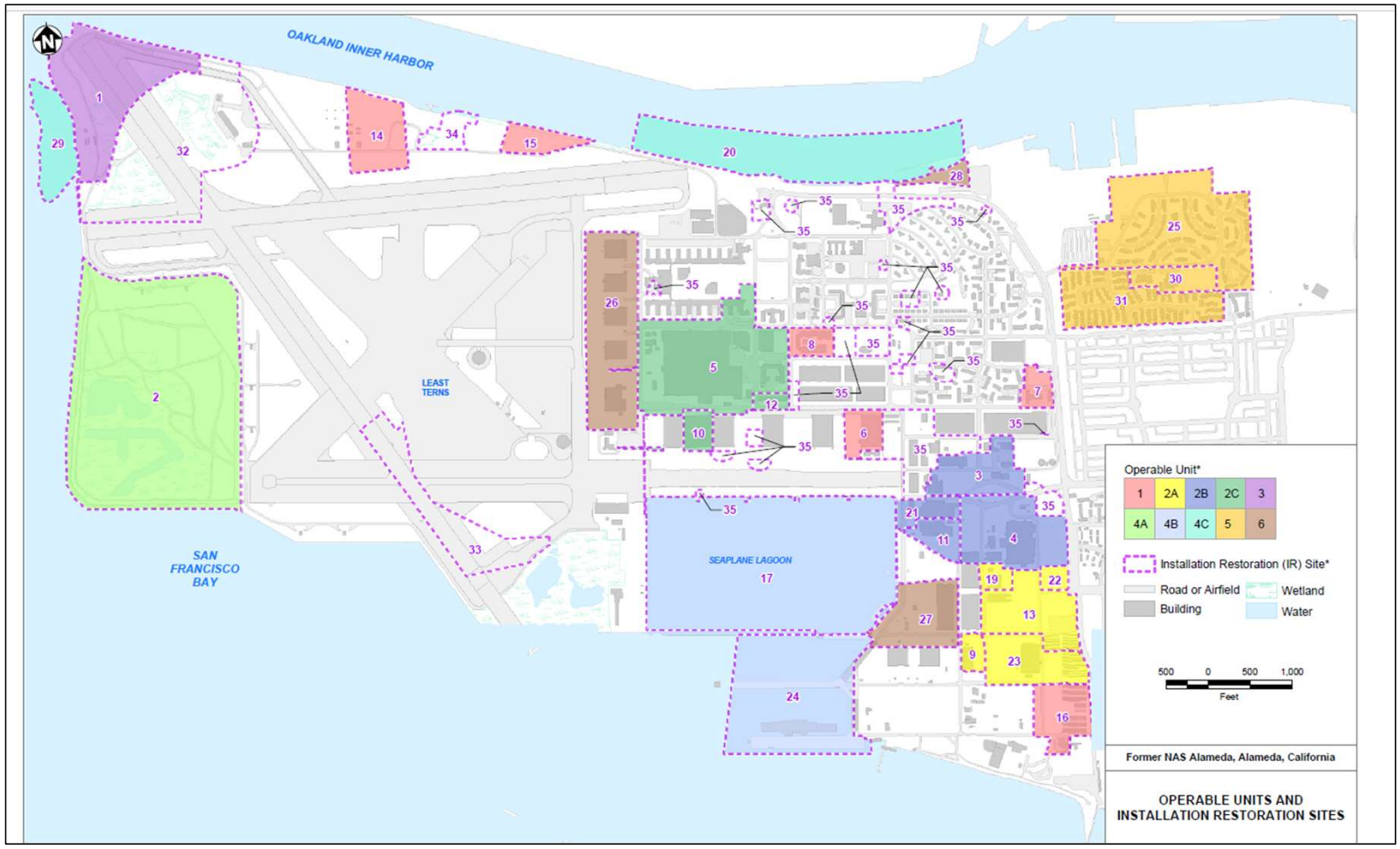
07 March 2024

CUI

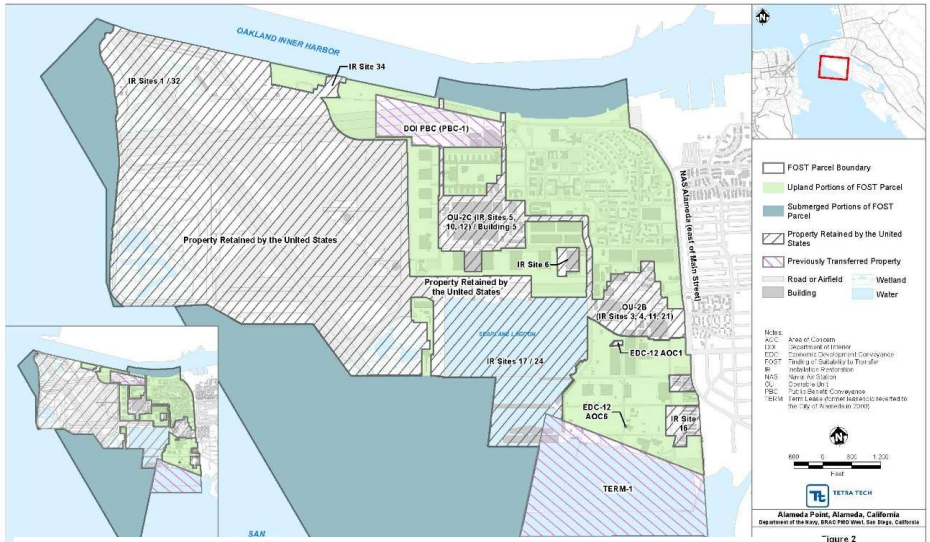
Presentation Objectives

- Overview of Operable Units and Installation Restoration Sites
- Transfer Update
- Review:
  - Operable Unit (OU) 3, Installation Restoration (IR) Site 1
  - IR Site 32
  - Basewide Groundwater Monitoring Program
  - OU 2B, IR Sites 4, 11, and 21
  - IR Site 14 Per- and Polyfluorinated Substances (PFAS) Pilot Test
  - IR Site 14 PFAS Remedial Investigation
  - Petroleum Program Status
  - 2024 Planned Documents

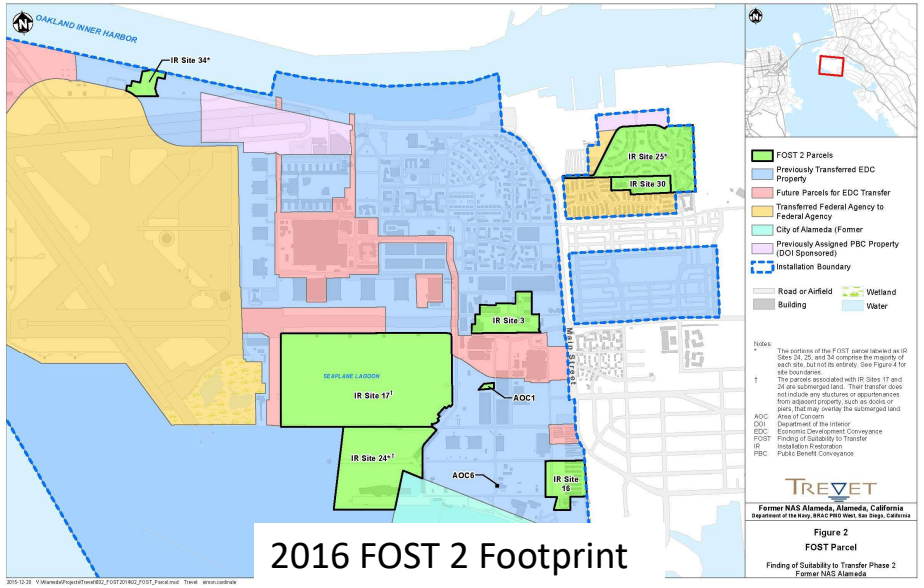
Alameda Point Operable Units (OUs) and Installation Restoration (IR) Sites



Alameda Transfers and Current Status

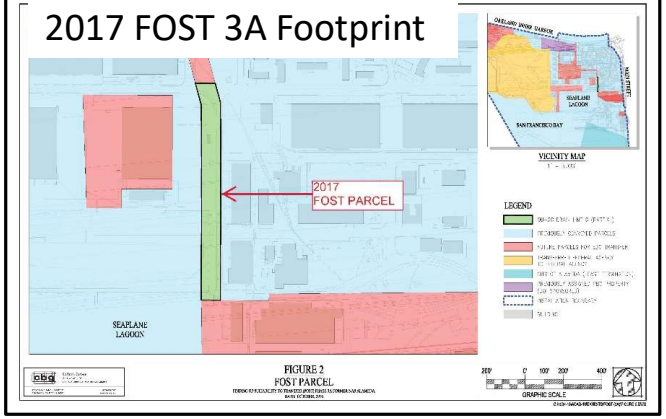


2013 Finding of Suitability to Transfer 1 (FOST)

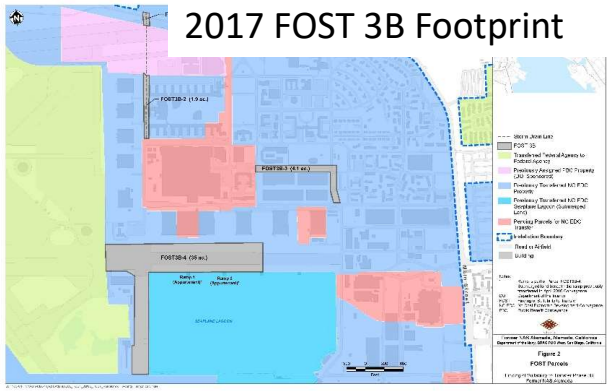


2016 FOST 2 Footprint

2017 FOST 3A Footprint



2017 FOST 3B Footprint



Proposed 2018 FOST 3C Footprint

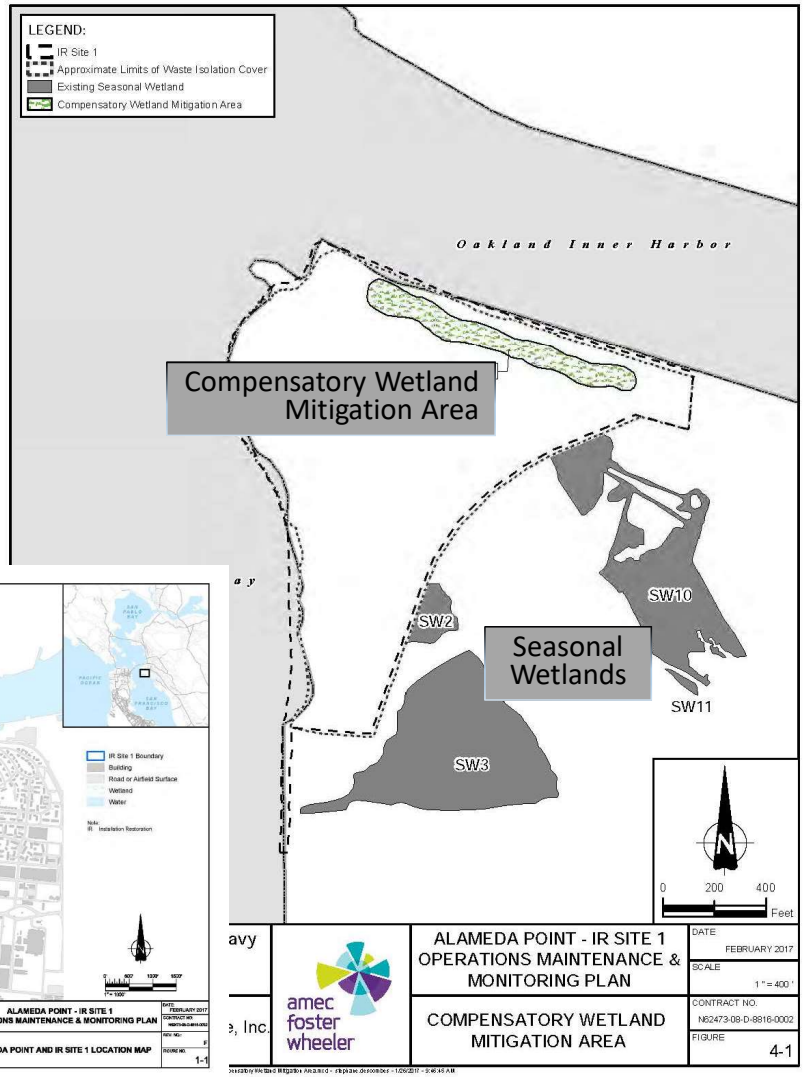
Operable Unit (OU) 3, Installation Restoration (IR) Site 1

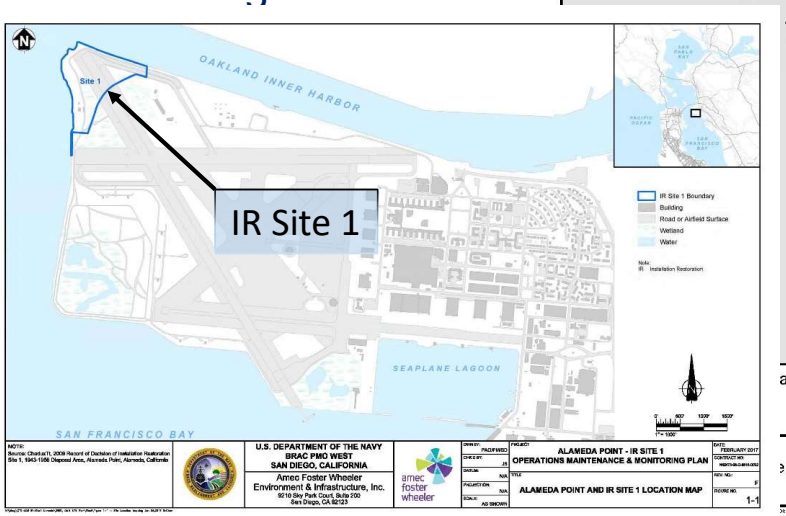
2023 and 2024

2023: OU 3, IR Site 1

Ongoing operations, maintenance and monitoring (OM&M) of the soil and groundwater remedy and associated remedy features:

- Performed routine inspections of the Waste Isolation Barrier/Bulkhead (WIB) in northwest point of IR Site 1, Waste Isolation Cover (WIC), and Compensatory Mitigation Wetlands (CMW)
- Implemented adaptive management measures to support establishment of native wetland vegetation within the CMW (2.25 acres)
- Refurbished the site access roadway and repaired and regraded areas where ponding was identified on the WIC during rains in 2022





2023: OU 3, IR Site 1

- Performed groundwater optimization study for the Treatment Area Well Network (TAWN), including collection of supplemental groundwater data and in-depth review of site historical and current data to further assess performance of groundwater remedy and progress towards meeting groundwater Remedial Goals (RGs)

2024: OU 3, IR Site 1

- Continue OM&M of soil remedy and associated remedy features (WIB, WIC, CMW, and associated remedy systems)
- Present results and findings of the TAWN Groundwater Optimization Study in 2024
- Continue to implement adaptive management measures in the CMW to support establishment of native wetland vegetation and evaluate progress towards meeting success criteria


Routine Field Groundwater Monitoring


Waste Isolation Barrier (WIB)


Waste Isolation Barrier (WIB)

IR Site 32

2023 and 2024

2023: IR Site 32

The Final Record of Decision (ROD) for IR Site 32 issued September 1, 2023

The selected remedy Includes:

- Scan of the surface soil and removal of radiological contaminants
- Installation of a 3-foot thick soil cover
- Shoreline stabilization
- Installation and establishment of erosion control vegetative cover across the cover
- Institutional Controls
- Wetland Mitigation
- Routine Operations and Maintenance (O&M) of site and soil stockpiles


Site 32 Stockpiles and BMPs

2024: IR Site 32

Remedial Design (RD) Preparation:

- Perform and update the jurisdictional wetland delineation – March and July 2024
- Perform a Pre-Design Wetland Mitigation Study following the wetland delineation
  - The Study will be presented ahead of the RD and will identify the most practical, obtainable, and preferred wetland mitigation approaches for IR Site 32
- Prepare the RD which will present the conceptual design for the remedy implementation, accounting for all remedy components to include a Wetland Mitigation Plan based on the findings of the Pre-design Wetland Mitigation Study

Basewide Groundwater Monitoring Program (BGMP)

2023 and 2024

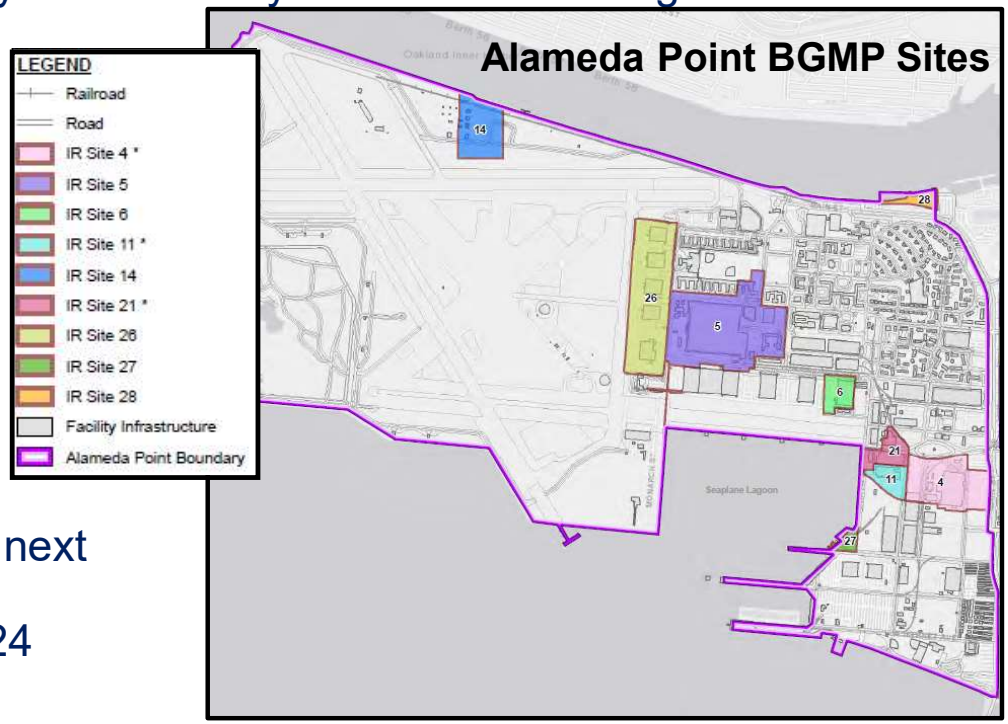
2023/2024: BGMP (Basewide)

The BGMP monitors groundwater conditions at Alameda Point for long-term monitoring (LTM) sites, including sites under monitored natural attenuation (MNA) and operating properly and successfully (OPS), and provides supplemental data to support proposed and ongoing Comprehensive Environmental Response, Cleanup, and Liability Act (CERCLA) actions.

BGMP sampling is performed quarterly and variously includes monitoring at:

- OU 2B (IR Sites 4, 11 and 21)
- IR Site 5
- IR Site 6
- IR Site 14
- IR Site 26
- IR Site 27
- IR Site 28

Results are reported annually. The next BGMP Report is the 2023 Annual Report and will be submitted in 2024



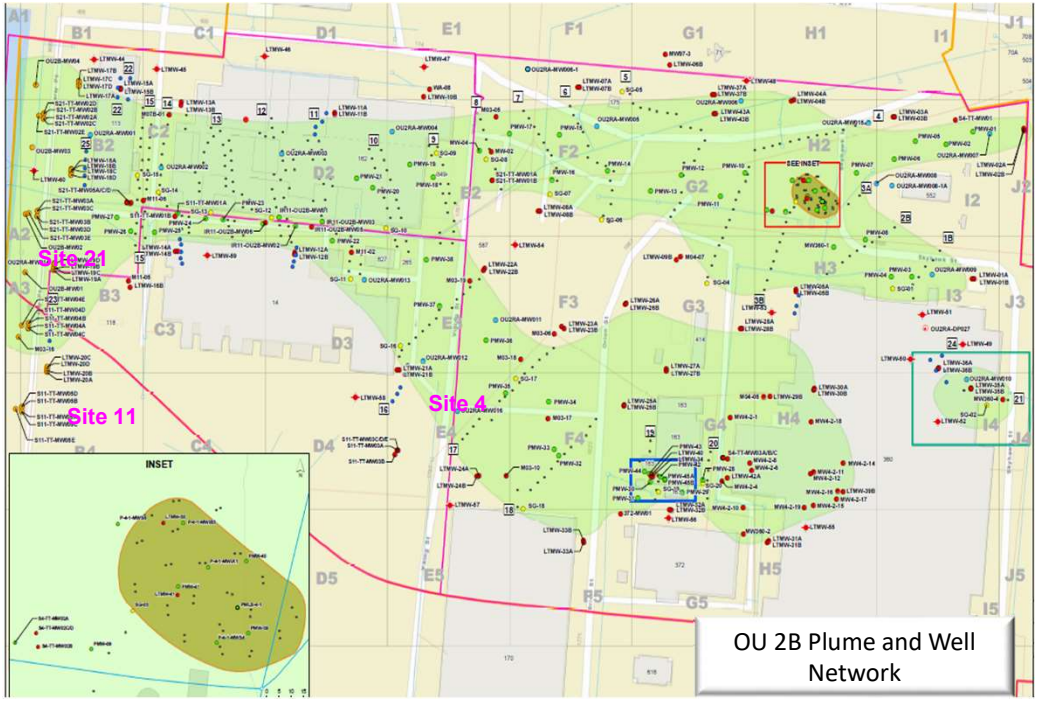
OU 2B, IR Sites 4, 11, and 21

2023 and 2024

2023: OU 2B (IR Sites 4, 11, and 21)

OU 2B groundwater and soil gas monitoring is performed under the BGMP (since 2022). Monitoring data documents the remedy's progress towards meeting the Remedial Action Objectives (RAOs) and evaluates overall effectiveness of ongoing In-situ Bioremediation (ISB) treatment.

- The selected remedy for groundwater at OU 2B includes treatment of hot spots and shallow groundwater by ISB along with ongoing monitoring and institutional controls (ICs)
- Groundwater Chemicals of Concern (COCs):
  - 1,1-Dicholoroethene (DCE)
  - 1,2-Dichloroethane (DCA)
  - Benzene
  - Chlorobenzene
  - cis-1,2-DCE
  - methylene chloride
  - Perchloroethene (PCE)
  - trans-1,2-DCE
  - Trichloroethene (TCE)
  - Vinyl Chloride (VC)



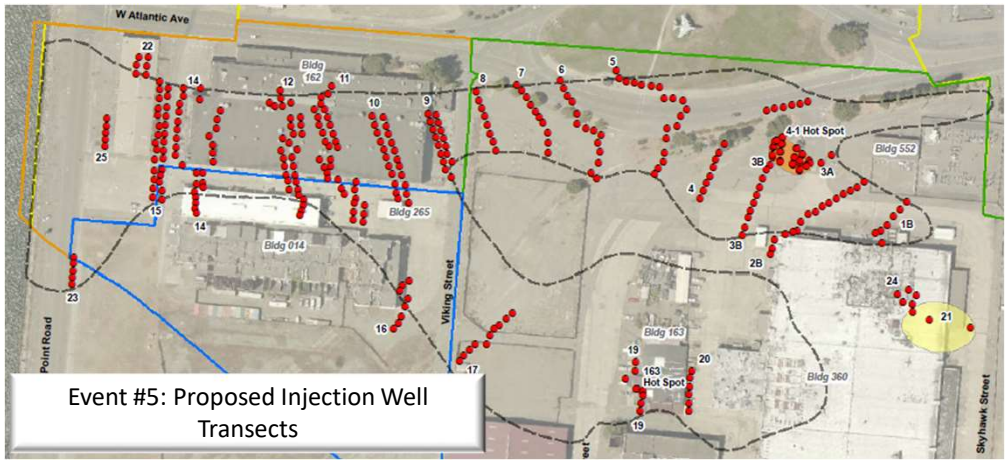
- Most recent ISB treatment event (Injection Event #4) was completed in 2021. The next treatment event (#5) is planned for 2024
- Remedy performance will take an estimated 25 to 40 years to achieve Remedial Goals (RGs)

2024: OU 2B (IR Sites 4, 11, and 21)

Remedial Action (RA), groundwater treatment, is ongoing at OU 2B. The next ISB treatment event (Injection Event #5) is planned for Summer 2024:

- Injection Event #5 will target “hot spot” areas as well as the larger diffuse plume
- Treatment network includes 348 injection wells grouped into transects distributed across the entire OU 2B plume
- The ISB substrate is a solution of emulsified vegetable oil (EVO) and lactose
- Monitoring data collected from OU 2B will continue to evaluate ongoing remedy performance

Typical Treatment Event Field Set-up



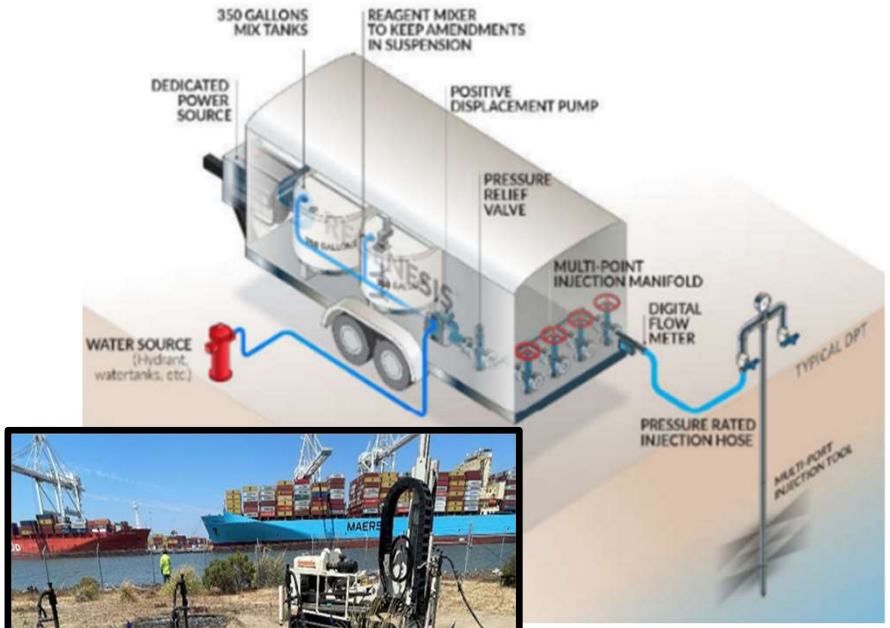
Event #5: Proposed Injection Well Transects

IR Site 14:
2023 PFAS Pilot Test

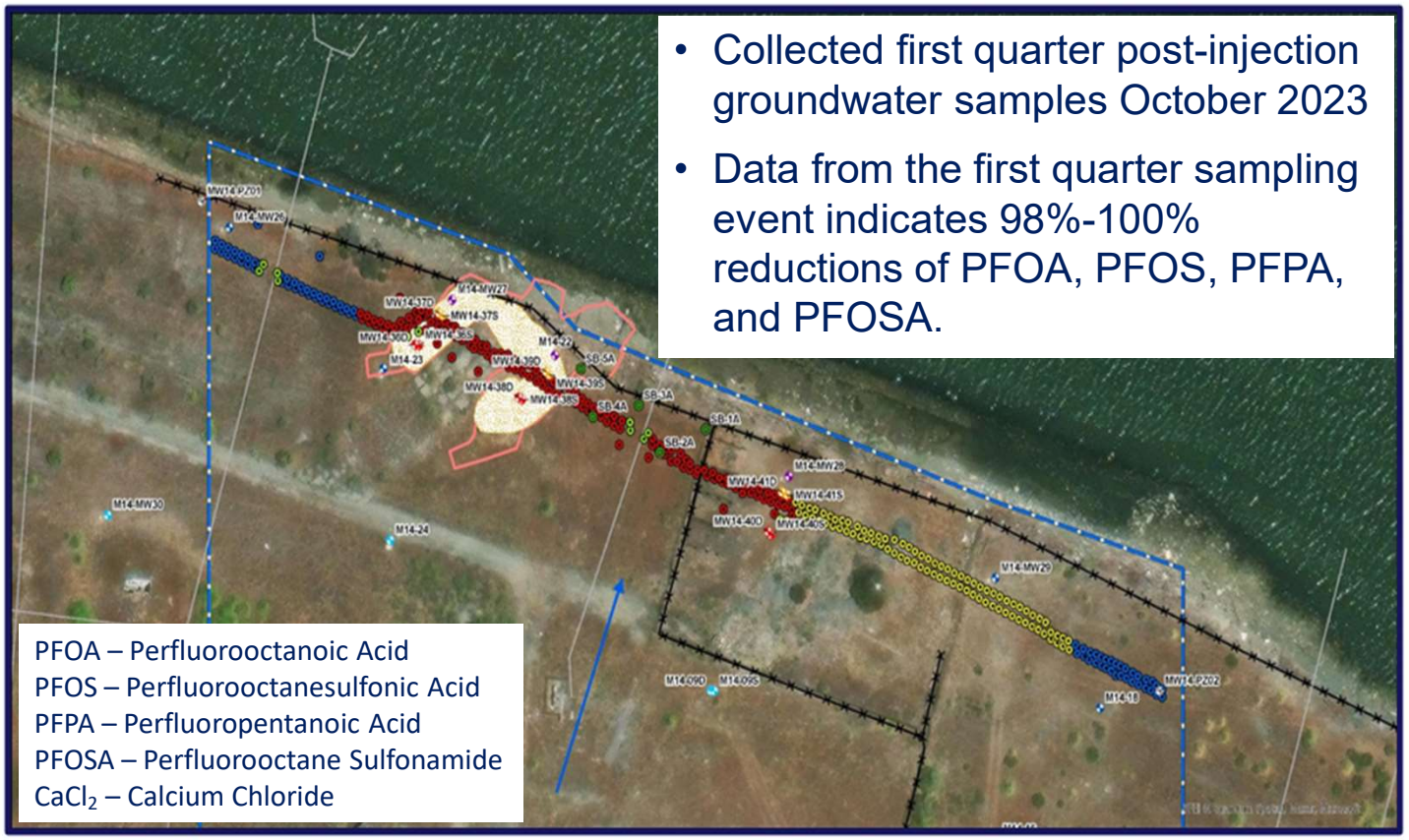
Per- and Polyfluorinated Substances (PFAS)

IR Site 14: 2023 PFAS Pilot Test

- The Pilot Test Work Plan for treatment of PFAS impacted groundwater was completed in April 2023.
- Prior to implementation, monitoring wells were installed and sampled and the collected data was used to refine the design in the work plan.
- In June and July 2023, colloidal activated carbon (CAC) was installed in 290 injection points to form a 720 feet long barrier along the Oakland Inner Harbor shoreline to treat PFAS as shown on the next slide.



IR Site 14: 2023 PFAS Pilot Test



- Collected first quarter post-injection groundwater samples October 2023
- Data from the first quarter sampling event indicates 98%-100% reductions of PFOA, PFOS, PFPA, and PFOSA.

IR Site 14: 2024 Planned Events for PFAS Pilot Test

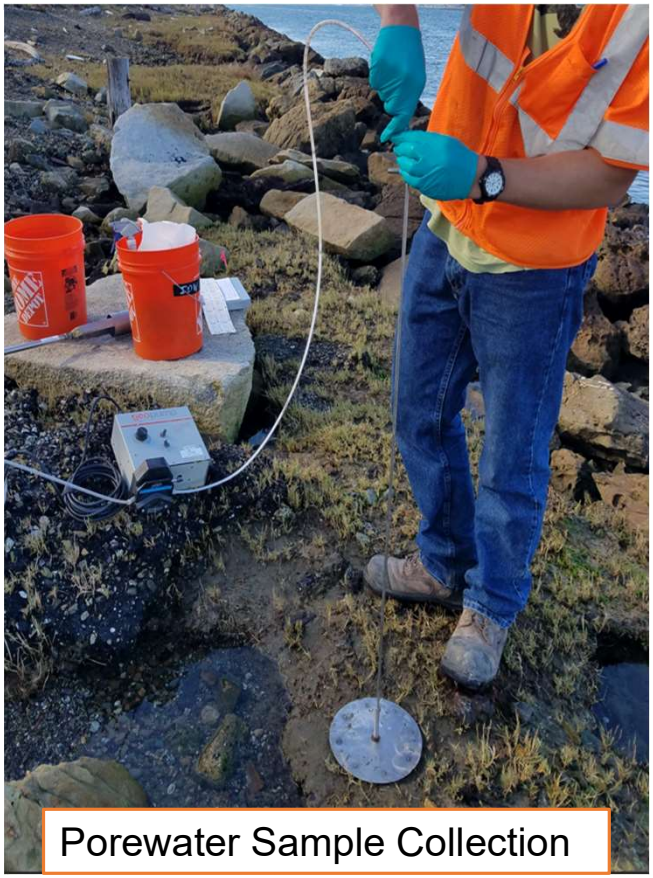
- Quarterly Groundwater Sampling
  - January 2024 – Year 1, 2nd Quarterly event (completed)
  - April 2024 – Year 1, 3rd Quarterly event
  - July 2024 – Year 1, 4th Quarterly event
  - October 2024 - Year 2, 1st Quarterly event
- Install Passive Flux Meters
  - October 2024 - 1 Year Post-Injection
- Prepare Pilot Test Completion Report with results of the pilot test
- Submit Draft Pilot Test Completion Report for review: November 2024. Data validation backlog may delay schedule.

IR Site 14
PFAS Remedial Investigation

Per- and Polyfluorinated Substances (PFAS)

IR Site 14: 2021-2023 PFAS Remedial Investigation

- Focused Per- and Polyfluorinated Substances (PFAS) Remedial Investigation (RI) for soil, groundwater, sediment, porewater, and surface water at IR Site 14.
- Installed 41 borings, 11 wells, and 8 intertidal sampling locations to investigate soil, groundwater, and sediment/porewater/ surface water.



Porewater Sample Collection

Sediment Sample Collection

IR Site 14: 2021-2023 PFAS Remedial Investigation

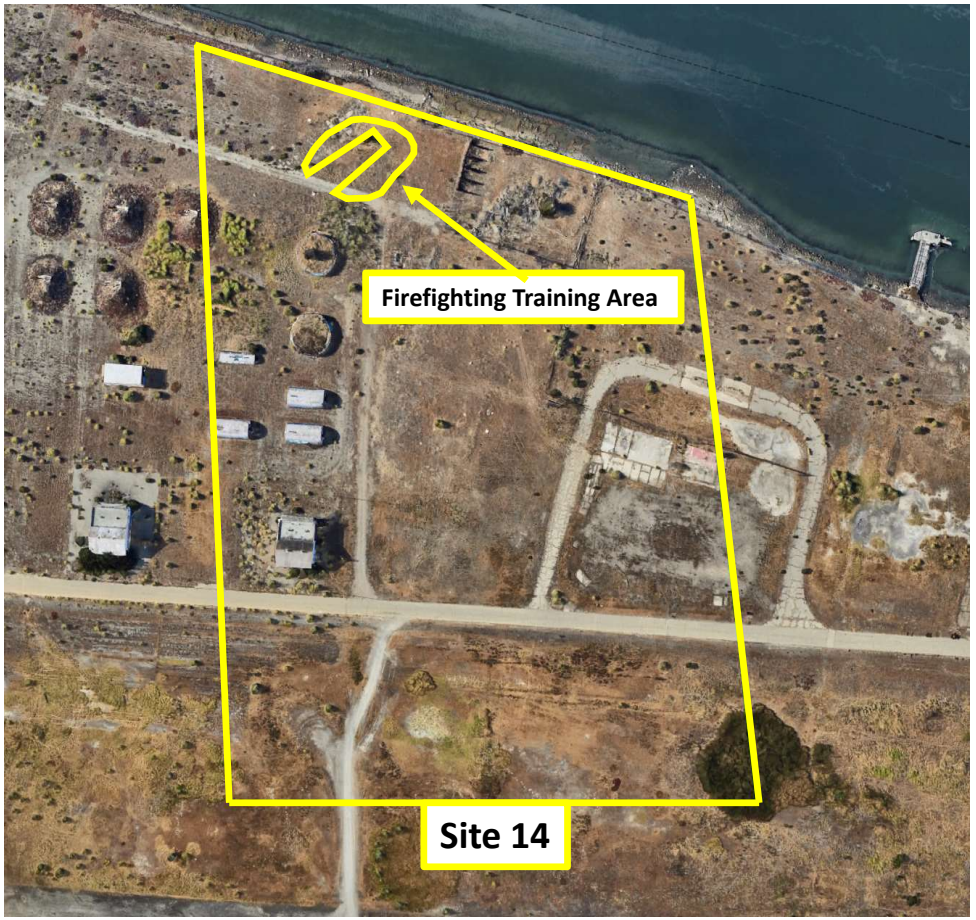
- To investigate the hydraulic connection between the IR Site 14 groundwater and the Oakland Inner Harbor a tidal study was conducted by sampling groundwater during wet and dry seasons.
- Human Health and Ecological Risk Assessments identified that a second phase of RI was needed to better define the nature and extent of PFAS concentrations at Site 14.

Groundwater Sample Collection

Sampling Activities-Site 14

IR Site 14: 2024 Planned Phase II PFAS RI Work

- The second phase of the PFAS RI will collect additional soil, groundwater, sediment, porewater, and surface water samples to further evaluate the horizontal and vertical extent of PFAS concentrations on Site 14.
- Data collected during the second phase will inform revisions to the site conceptual model and the human health and ecological risk assessments will be updated.
- Milestones (Approximate Dates):
  - Submit Draft Work Plan - May 2024
  - Submit Final Work Plan - Oct 2024
  - Begin RI field work - Nov 2024 (for ~ 1 yr.)

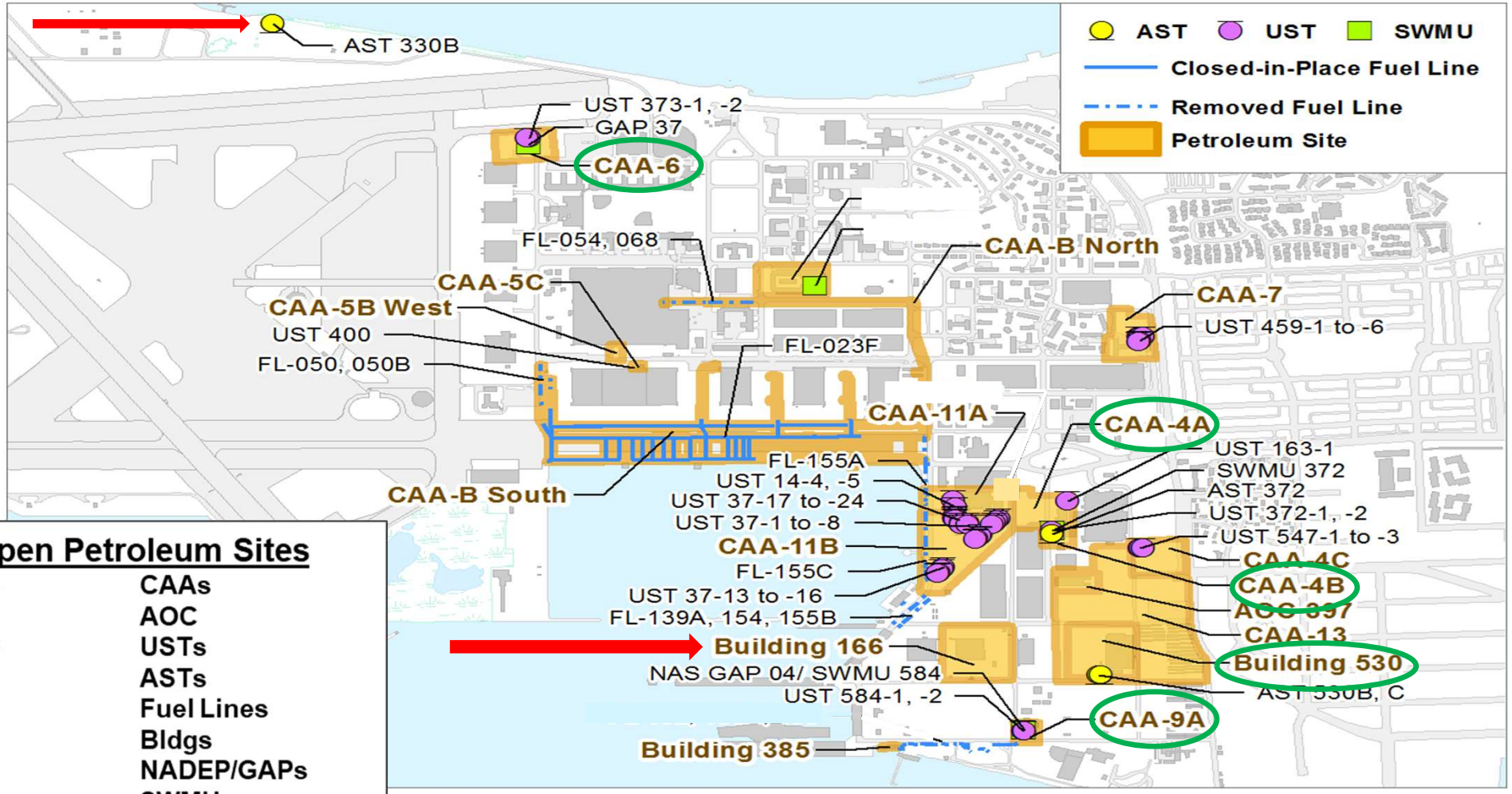


Petroleum Program Status

Basewide Petroleum Sites

- Corrective Action Areas – CAAs
- Fuel Lines – FLs
- Underground Storage Tanks – UST
- Aboveground Storage Tanks – ASTs
- Buildings with residual petroleum impacts – Bldgs or just “B”

2023 & 2024 Petroleum Program Status



Open Petroleum Sites	
13	CAAs
1	AOC
36	USTs
4	ASTs
8	Fuel Lines
2	Bldgs
2	NADEP/GAPs
1	SWMU

2023 Petroleum Program Summary & 2024 Look Ahead

Contracts/Deliverables

Corrective Action Plan (CAP) Implementation:

- CAA 5C, CAA 11, and CAA 13: Period of Performance (POP) Ends 3/27/2024
  - CAA 5C – No Further Action Request
    - March 2024 – Request restricted closure for CAA 5C/UST 400-1 (commercial/industrial use).
  - CAA 11 – Scope Complete
    - Final Report 9/2023 (evaluated field work and GWM) concludes addendum to the 2017 PCAP and further investigation is warranted
  - CAA 13 – Scope Complete
    - Final Report 10/2022 (evaluated field work and GWM) concludes additional GWM and further GW delineation required.
    - Recommended additional GWM wells.
      - ✓ Four GWM wells were installed in May 2023.
      - ✓ Will be sampled under future contracts.

Contracts/Deliverables – cont'd

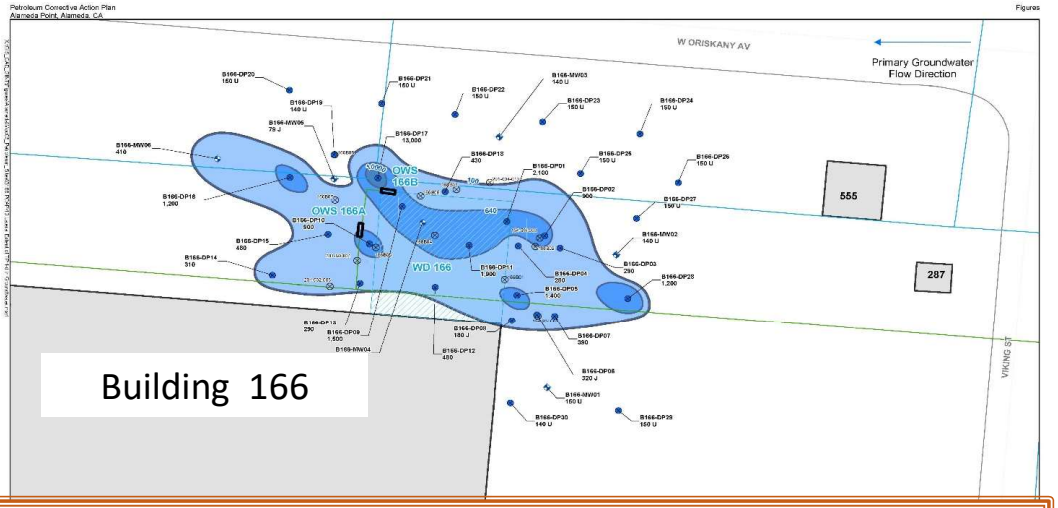
- CAA 5B West, FL-139A and FL-154: POP Ends 3/9/2024
  - Preparing Tech Memos for CAA 5B West and FLs to evaluate PCAP implementation – due 3/8/2024
- CAA 4A, CAA 4B, CAA 6, CAA 9A, and Bldg. 530: POP Ends 9/21/2025
  - As previously updated in 2022 and 2023:
    - GWM Well installations (all sites) – 2021
    - ISCO injections (all Sites) – 10/2021 & 3/2022
    - Excavations (CAA 4A and CAA 4B) – 2021 & 2022
  - Remaining Scope Includes
    - Interim Field Activities Report to document well installations, excavations, ISCO Injections, and 1st year of post remediation GWM
    - GWM - June 2024 and December 2024
    - Draft Evaluation and Completion Report - 2025

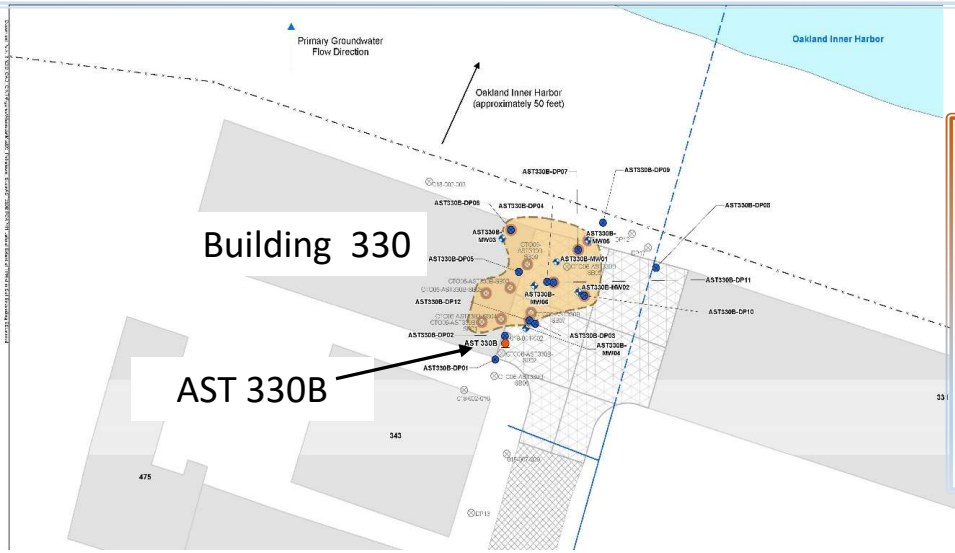
2023 Petroleum Program Summary & 2024 Look Ahead

Contracts/Deliverables

Bldg 166 CAP Implementation: POP ends 2028

- B166 2020 Corrective Action
  - Excavation, GWM well installation, enhanced In-situ bioremediation, and GWM
  - Work Plan – March 2024
  - Field Work – Summer 2024





Contracts/Deliverables

AST 330B CAP Implementation: POP ends 2028

- AST 330B Corrective Action
  - Excavation, GWM well installation, biosparging & GWM
  - Work Plan – Summer 2024
  - Field Work – Winter/Spring 2025

2024 Planned Documents

Planned Documents

- Draft and Draft Final PFAS Pilot Test Completion Reports
- Draft, Draft Final and Final Site 14 Phase II PFAS RI Work Plans
- Final Field Change Request OU 2B, IR Sites 4, 11, and 21 Groundwater Injection Event #5
- Draft and Final Report OU 2B, IR Sites 4, 11, and 21 Groundwater Injection Event #5
- Draft, Draft Final, and Final OU 3, IR Site 1 Groundwater Treatment and Optimization Study Report
- Draft, Draft Final, and Final OU 3, IR Site 1 Annual 2023 OM&M Report
- Draft and Final Site 32 Pre-Design Wetland Mitigation Study
- Draft and Final 2023 Annual Basewide Groundwater Monitoring Report

Questions?

Acronyms and Abbreviations

AST – aboveground storage tank
BGMP – Basewide Groundwater Monitoring Program
Bldg - building
CAA – corrective action area
CAC – colloidal activated carbon
$CaCl_2$ – Calcium Chloride
CERCLA – Comprehensive Environmental Response, Compensation and Liability Act
CMW – compensatory mitigation wetlands
COC – chemical of concern
DCA – Dichloroethane
DCE – Dichloroethene
EVO – emulsified vegetable oil
FL – fuel line
FOST – finding of suitability to transfer
IC – institutional control
IR – Installation Restoration
ISB – in-situ bioremediation
LTM – long-term monitoring
MNA – monitored natural attenuation
NAS – Naval Air Station
OM&M – operations, maintenance and monitoring
O&M – operations and maintenance
OPS – operating properly and successfully
OU – Operable Unit
PCE – Perchloroethene
PFAS – Per- and Polyfluorinated Substances
PFAS – Per- and Polyfluorinated Substances
PFOA – Perfluorooctanoic Acid
PFOS – Perfluorooctanesulfonic Acid
PFOSA – Perfluorooctane Sulfonamide
PFPA – Perfluoropentanoic Acid
RA – remedial action
RACR – remedial action completion report
RAO – remedial action objective
RD – remedial design
RG – remedial goal
RI – remedial investigation
ROD – Record of Decision
TAWN – treatment area well network
TCE – Trichloroethene
UST – underground storage tank
VC – Vinyl Chloride
WIB – waste isolation barrier/bulkhead
WIC – waste isolation cover