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New England District

New Bedford Harbor Superfund Site Status Update on Ambient Air Monitoring

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JACOBS

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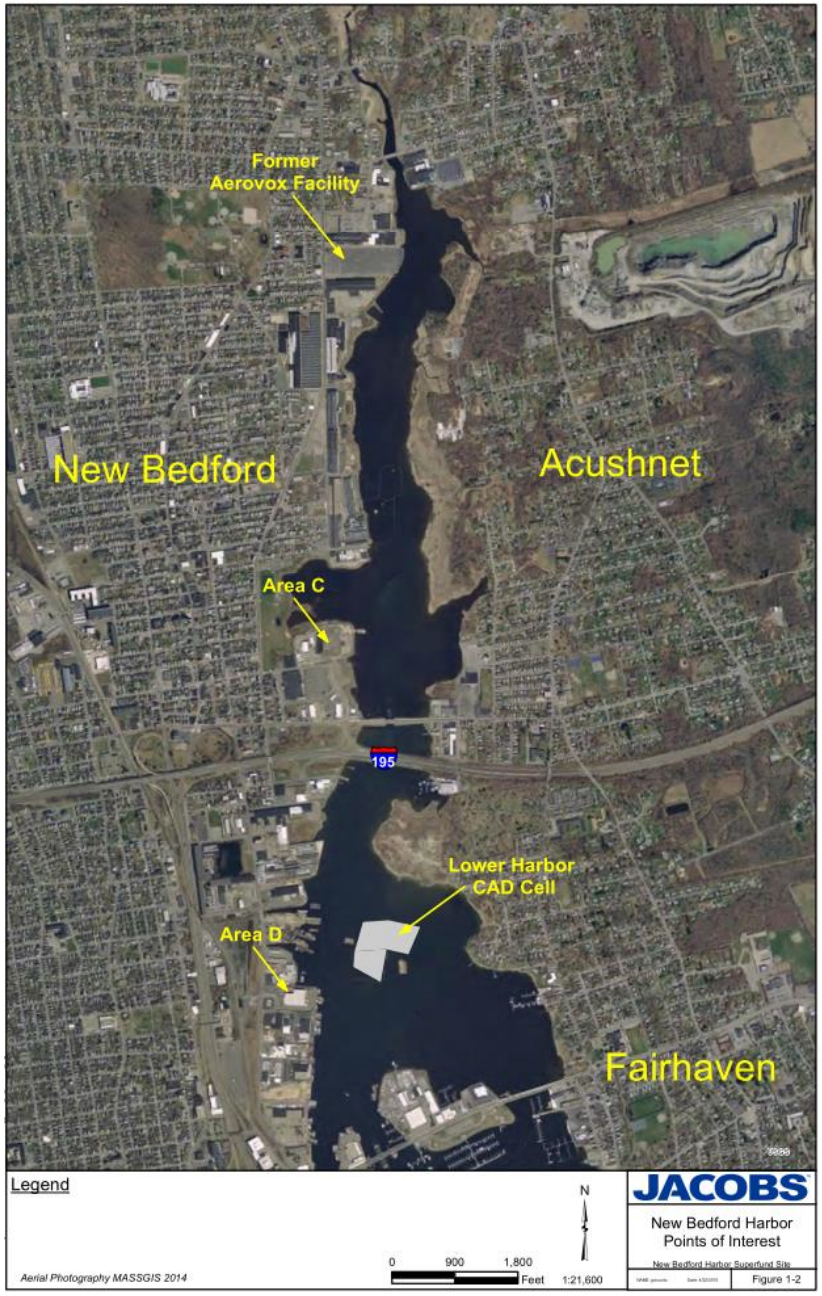
AECOM

Overview of Presentation

- Purpose of air monitoring at New Bedford Harbor
- Summary of past air monitoring
  - Approach
  - Results and findings
- Why the air monitoring plan is being updated
- Overview and objectives of updated program
  - Expanded monitoring network
  - Risk-based goals
  - Reporting and trigger system

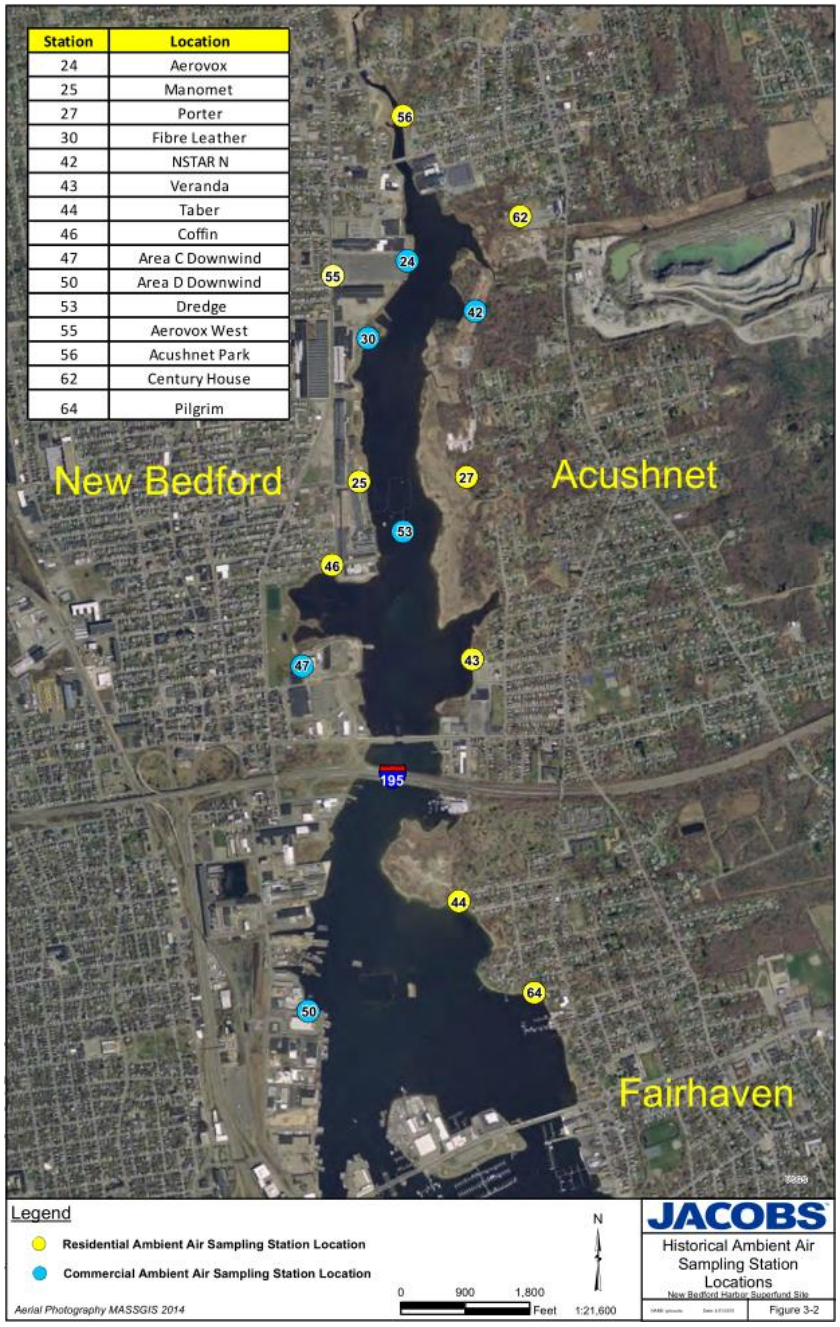
Purpose of Air Monitoring Program

- **Monitor** ambient levels of PCBs in air during harbor remediation, as well as periods of inactivity
- **Minimize** impact of remediation activities on the community
- **Track** exposure for comparison to health-protective levels



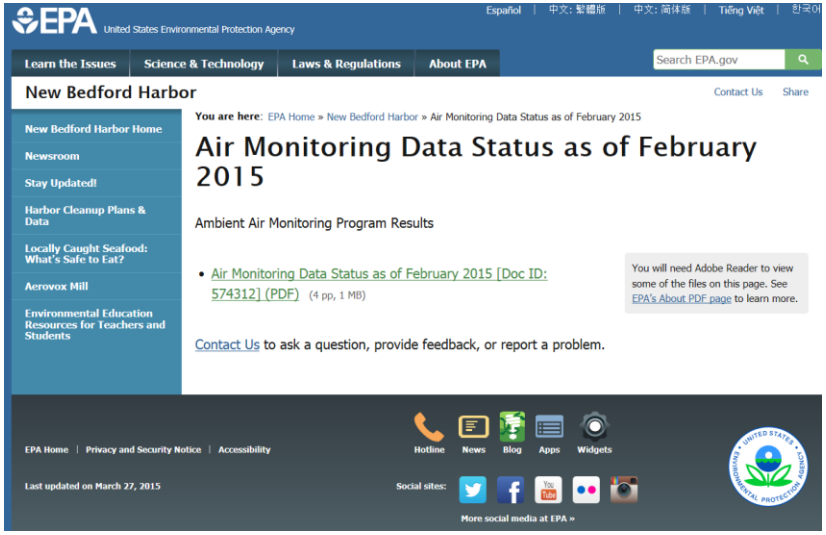
Historical Air Monitoring Network

- Monitoring stations are strategically located around harbor
- 15 stations in network
  - 10 residential (includes mixed use areas)
  - 5 commercial (including 1 dredge)
- Sample monthly during dredging, as well as pre-dredge and post-dredge
- Compiled extensive air monitoring data set



Risk-Based Goals for Air

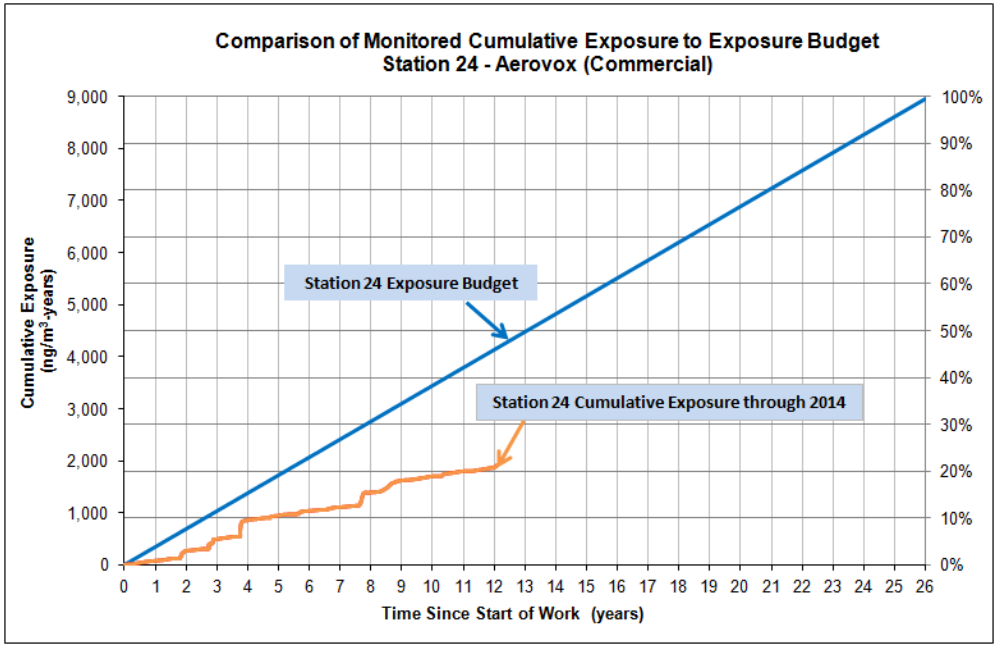
- Track cumulative exposure at each monitoring station to safeguard community health
- Use *risk-based goals* protective of health effects, including cancer, from long-term exposure to PCBs:
  - Residential = 202 ng/m^3
  - Commercial = 344 ng/m^3
- Derived assuming exposure is:
  - 24 hours per day
  - 350 days per year (residential)
  - 250 days per year (commercial)
  - 26 years
- Target risk level of 1 chance in 100,000

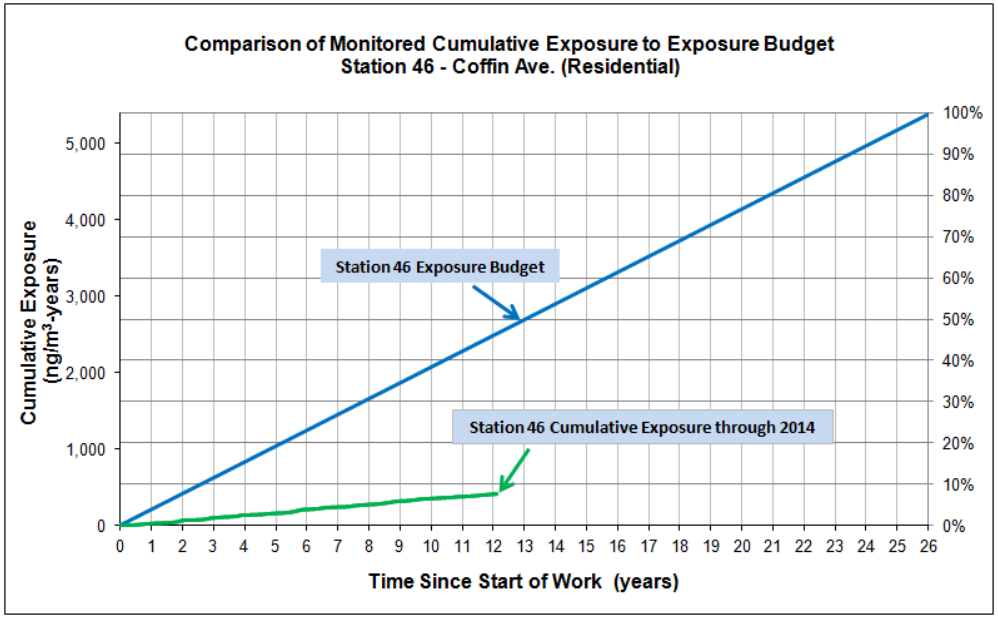


http://www2.epa.gov/new-bedford-harbor/air-monitoring-data-status-february-2015

Cumulative Exposure Budgets

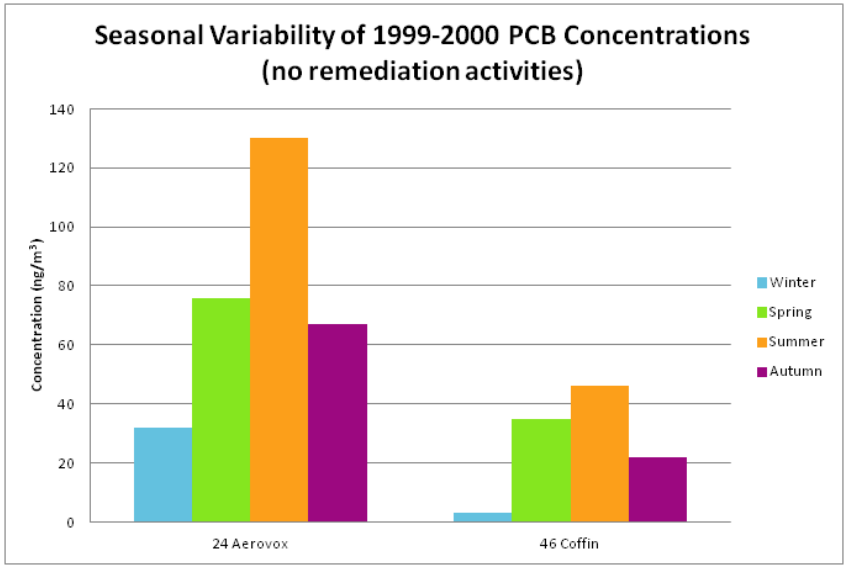
- What is the cumulative exposure budget?
  - *Total dose of PCBs over the exposure period that does not exceed the acceptable risk level*
- Cumulative exposures to date are well below the budgets established for the project
- Based on the long-term air data, potential risks posed by PCBs are well below the target risk level established by EPA

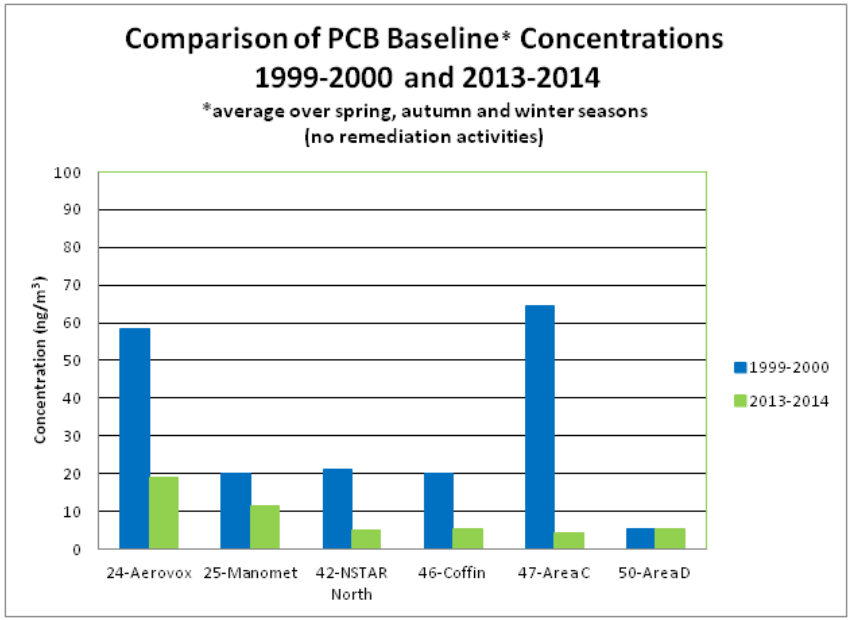




Baseline Conditions are Improving

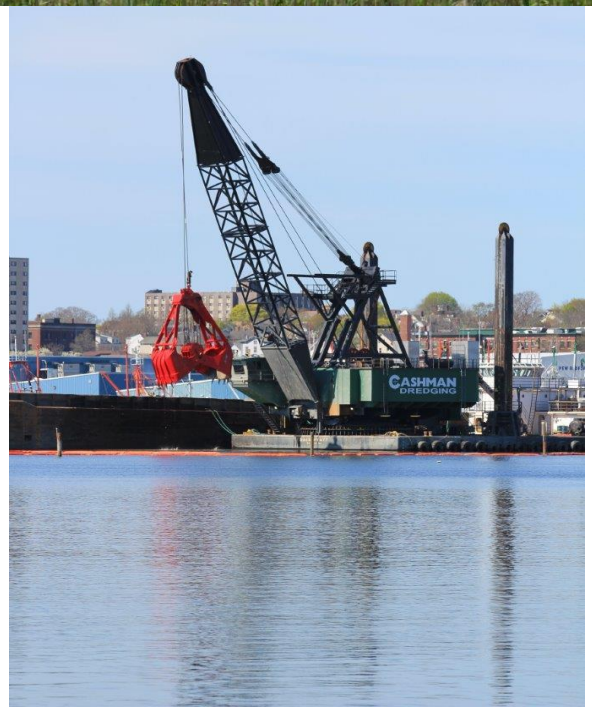
- Baseline conditions represent ambient concentrations ***in the absence of active remediation***
  - Seasonal variation
  - Range from 2 to 75 ng/m^3 (annual average)
- Major source is unremediated sediments
- Baseline concentrations have declined over the past decade since full-scale dredging began
- Cumulative exposure budgets include contribution from baseline





Why is Air Plan Being Updated?

- Expedited remediation schedule from prior plan
- Longer dredge season
- Multiple simultaneous operations in the upper and lower harbors

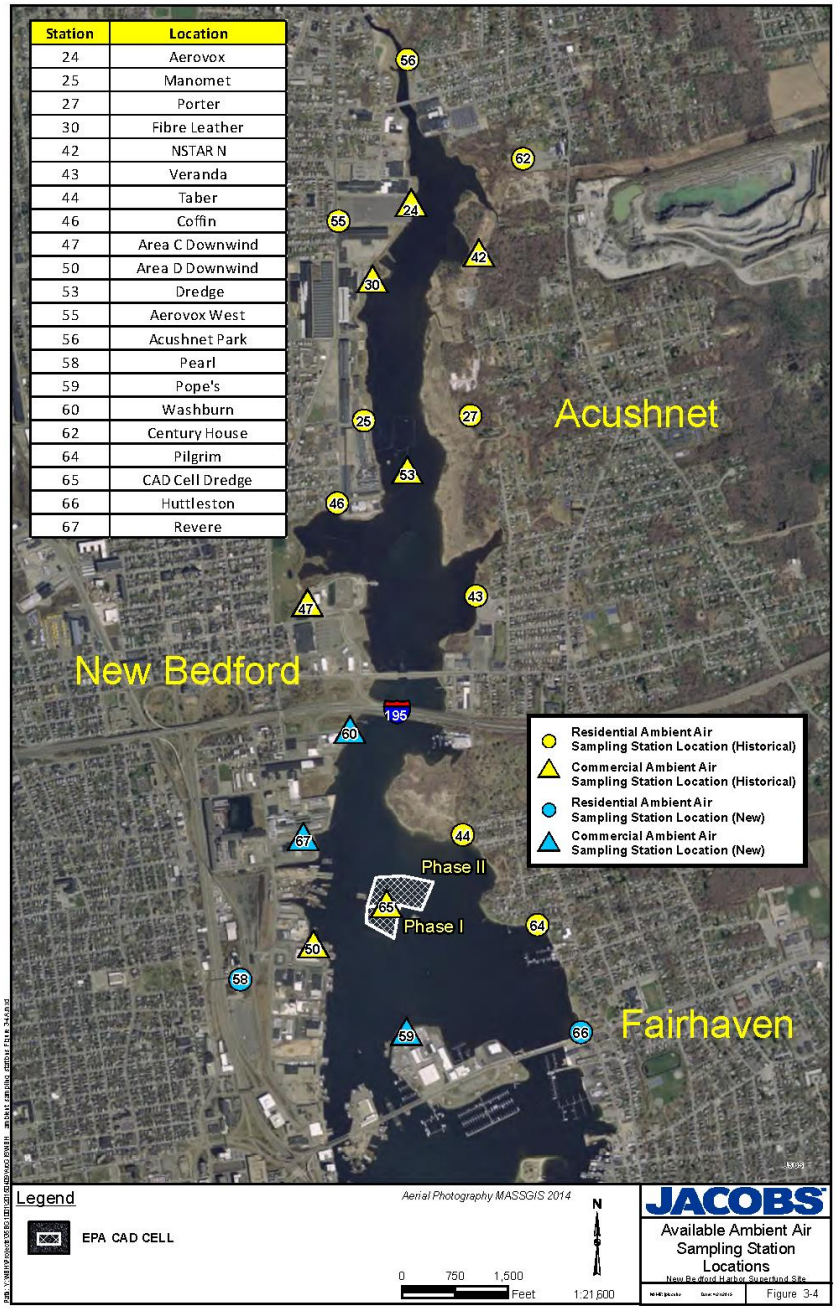


Air Monitoring for Next Phase of Remediation

- Preview of *2015 Air Plan Update (Jacobs)*
  - Provide additional coverage in Lower Harbor and other areas where remediation has not yet taken place
  - Update risk-based goals for non-cancer effects
  - Clarify procedures for reporting and determining need for re-sampling and/or modification of operations
  - Specify best management practices (BMPs)

Expanded Air Monitoring Network

- Future remediation activities include:
  - Upper Harbor - Hydraulic and mechanical dredging
  - Lower Harbor – mechanical dredging and CAD filling
  - Land-based intertidal remediation and restoration
- Expanded network includes 5 new stations in the Lower Harbor and Station 65 on the Lower Harbor dredge



Summary of Risk-Based Goals

Receptor	Cancer * (ng/m^3)	Non-cancer (ng/m^3)
Child Resident	202	110
Adult Resident		256
Commercial Worker	344	1022

- Cumulative exposure budgets will be calculated to match time periods used to derive the risk-based goals:
  - *Cancer* = 26 years (all receptors) (*under review)
  - *Non-cancer* = 6 years (child resident), 20 years (adult resident), and 6-25 years (worker)

Reporting and Trigger System

- Post monthly air data on EPA's website
- Compare monthly results to applicable risk-based goals and update cumulative exposure budgets
- Evaluate results against set of trigger levels to determine need for action, including:
  - Review of operational and meteorological conditions during sampling
  - Operational changes or actions to reduce emissions
  - Expedited re-sampling

Summary

- Air monitoring program provides spatial and temporal coverage necessary to ensure protection of public health
- Remediation has not resulted in airborne PCB concentrations above risk-based goals
- Baseline (background) concentrations of PCBs have declined over the past decade
- 2015 Plan Update provides additional measures to ensure safe operations during the next phase of accelerated remediation activities

Questions?