



Installation Restoration Program



Air Force Civil Engineer Center

Remedial Action Completion for Former Groundwater Plumes (Site Closures)

JBCCCT Meeting

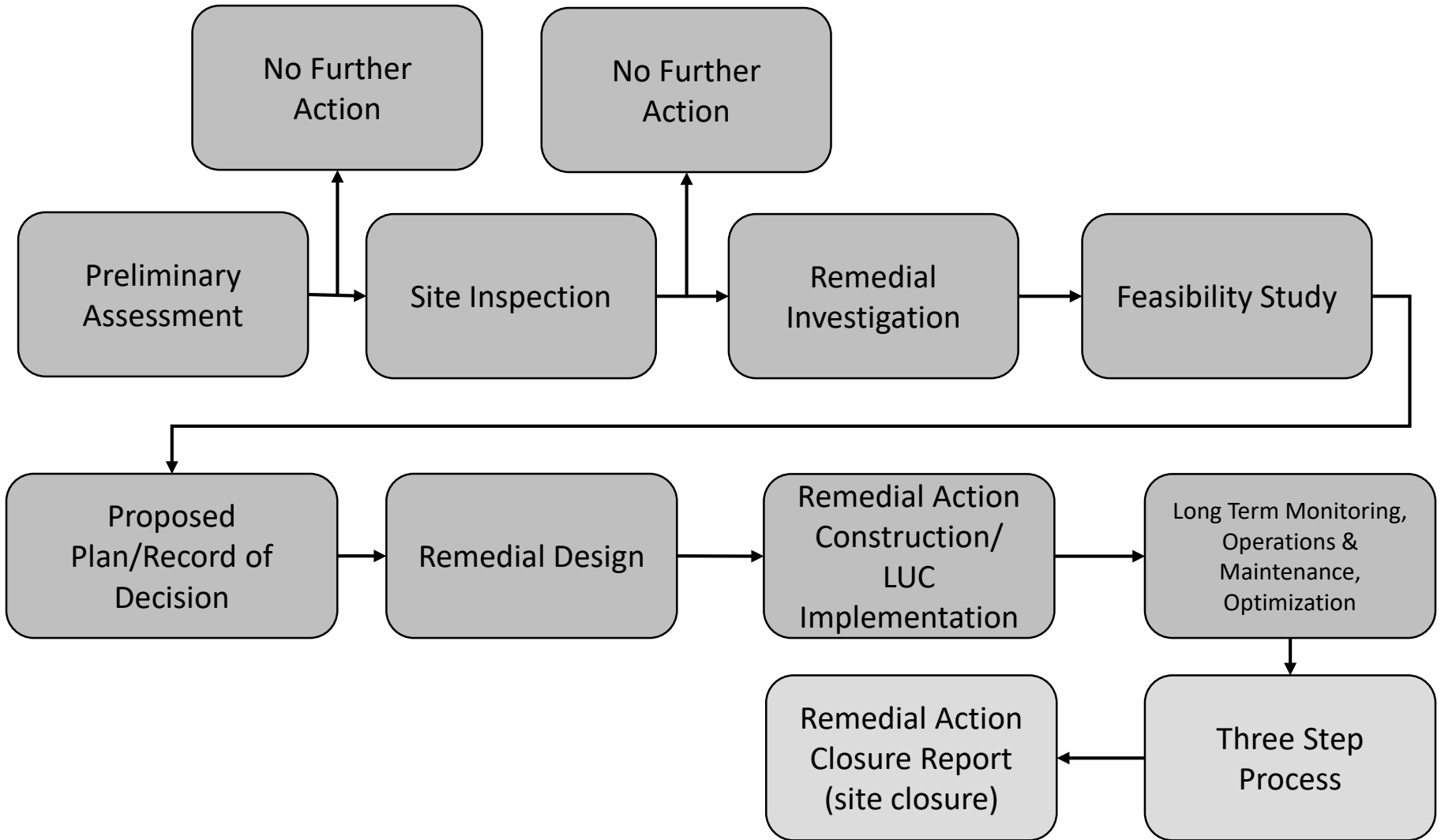
24 Mar 2021

Rose Forbes, Remediation Program Manager

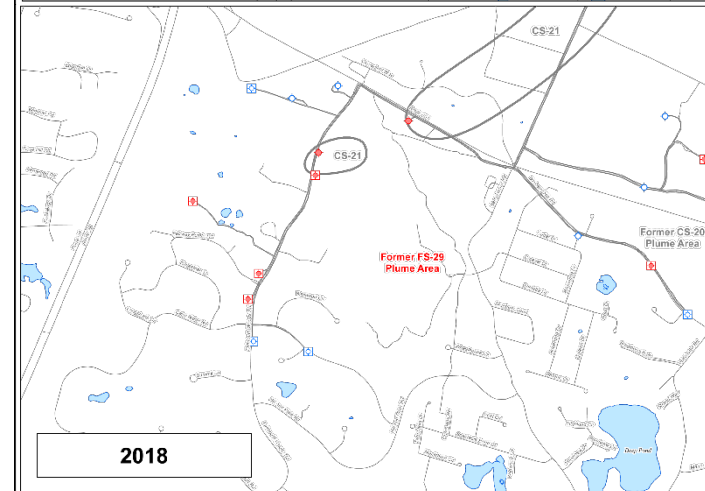
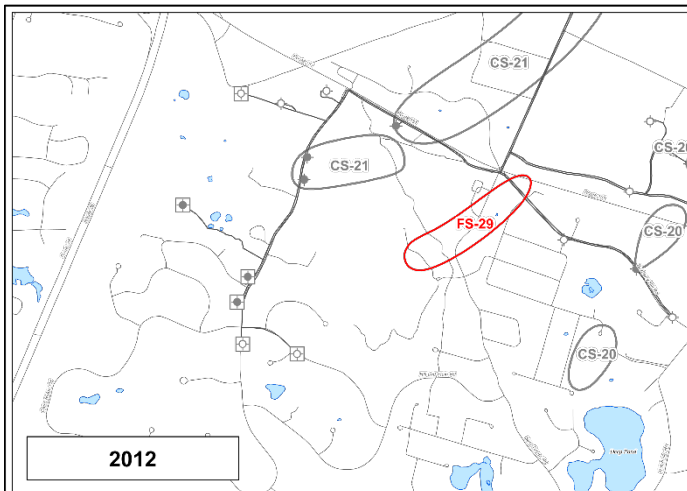
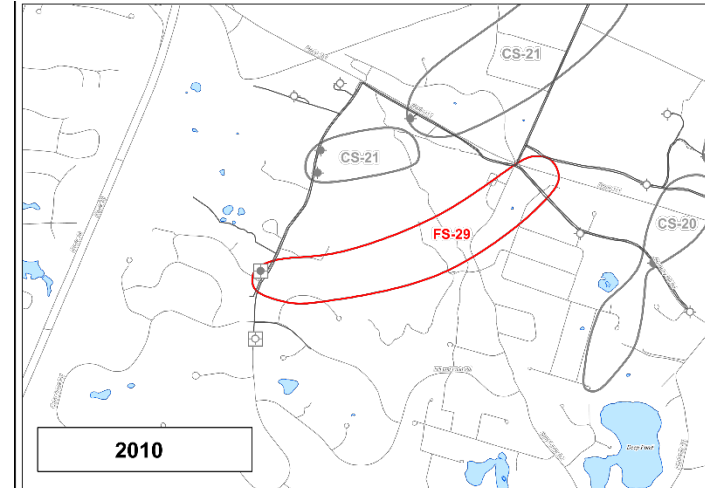
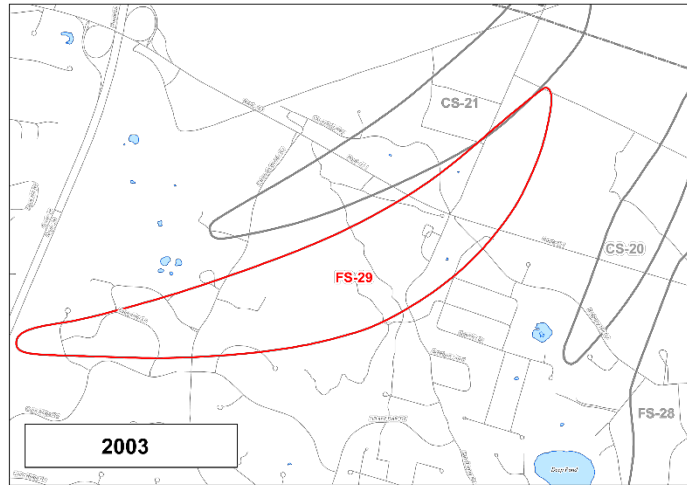
Outline

- Fuel Spill-29 (FS-29)
- Chemical Spill-20 (CS-20)
- Chemical Spill-23 (CS-23)
- Fuel Spill-1 (FS-1)

Review of the CERCLA - IRP Process



Fuel Spill-29 (FS-29) Cleanup Ethylene Dibromide (EDB) Plume



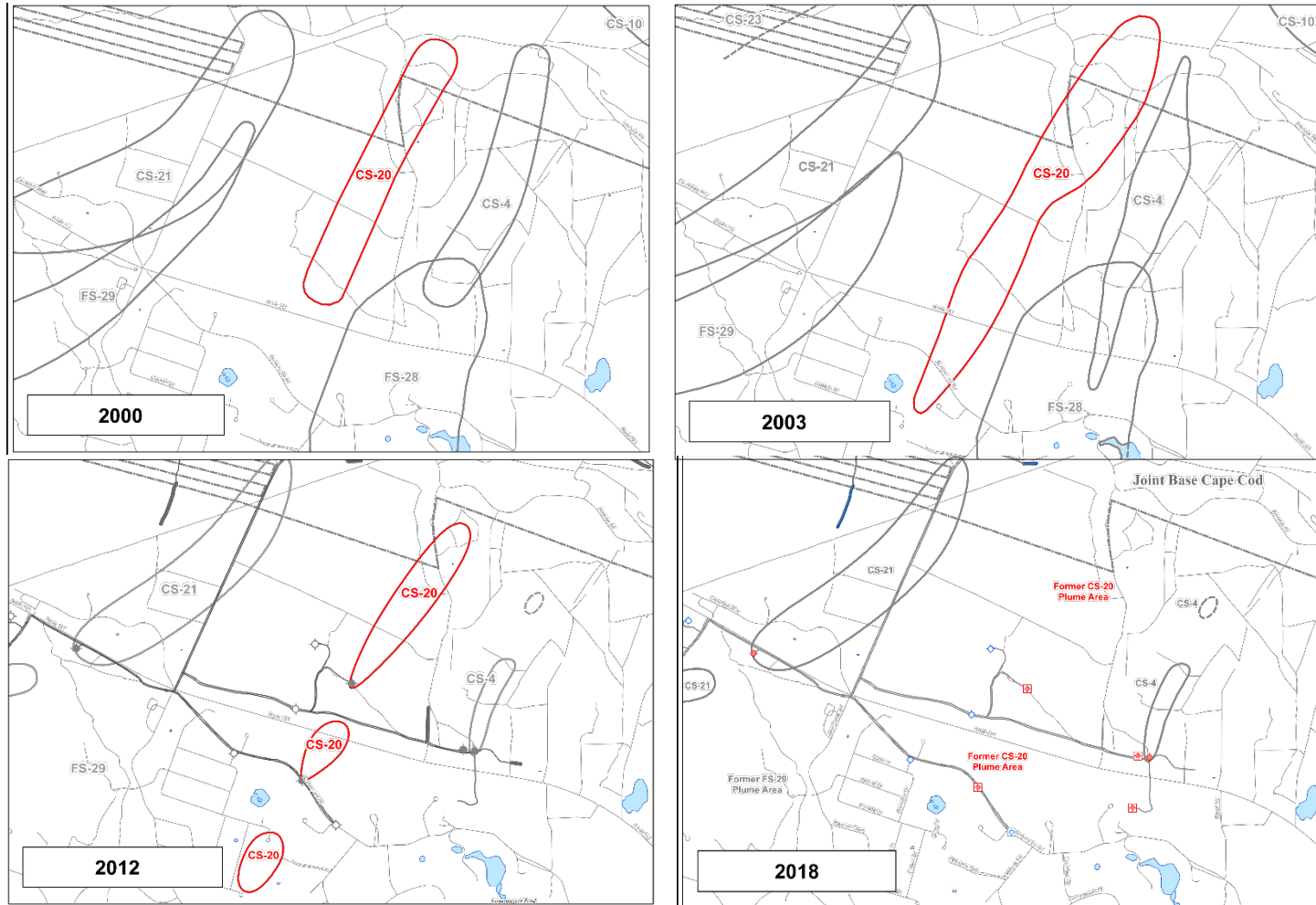
Fuel Spill-29 (FS-29)

- Plume originated from an unknown source area on JBCC
- 1998: Investigations/sampling conducted as part of Southwest Operable Unit (SWOU) Remedial Investigation (RI)
- 2000: Record of Decision signed; selected remedy was plume capture and containment via active treatment with monitored natural attenuation (MNA) and land use controls (LUCs).

Contaminant of Concern	Standard	Highest Concentration
Ethylene Dibromide (EDB)	0.02 ug/L Massachusetts Maximum Contaminant Level (MMCL)	0.32 ug/L (2001)
Carbon Tetrachloride	5 ug/L MCL	10.3 ug/L (2002)

- 2006: Two extraction wells began operation at 525 gallons per minute (gpm) with carbon treatment at the Hunter Avenue Treatment Plant
- 2010: Last extraction well shut down; monitoring continued
- 2015: Three Step Process toward site closure initiated
- 2020: Three Step Process documented in the Remedial Action Completion Report (RACR)
- 2020: Letters sent to Town agencies and residents lifting groundwater restrictions
- Jan 2021: Final RACR issued with EPA/AF signatures and MassDEP concurrence

Next Up: Chemical Spill-20 (CS-20) Cleanup



Plume defined based on chlorinated solvents; 1,4-dioxane was detected but at low and sporadic concentrations and determined to not be a concern

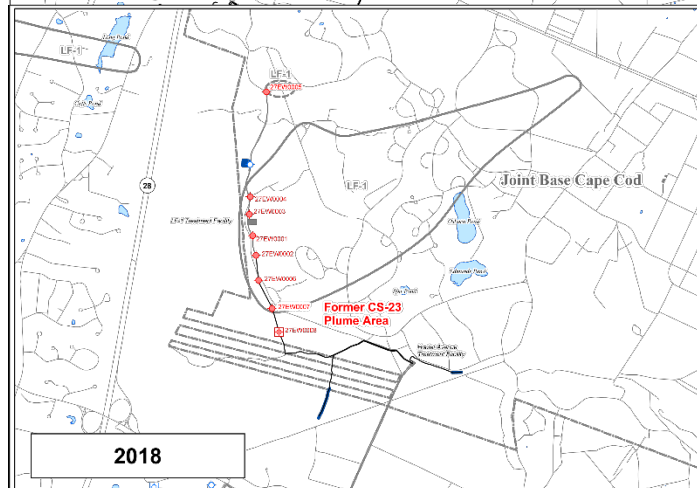
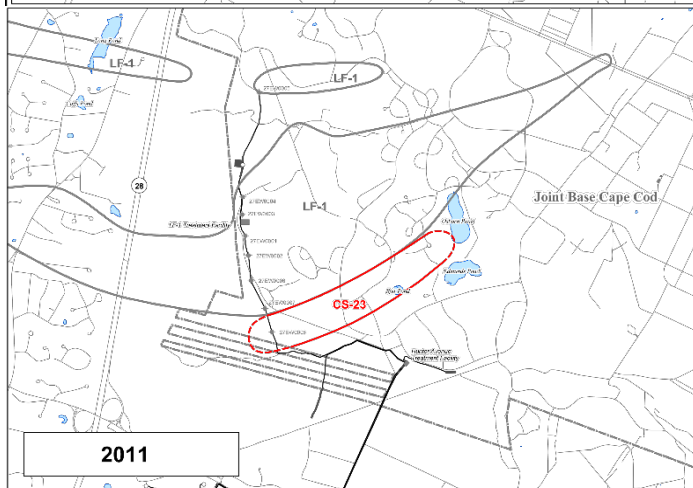
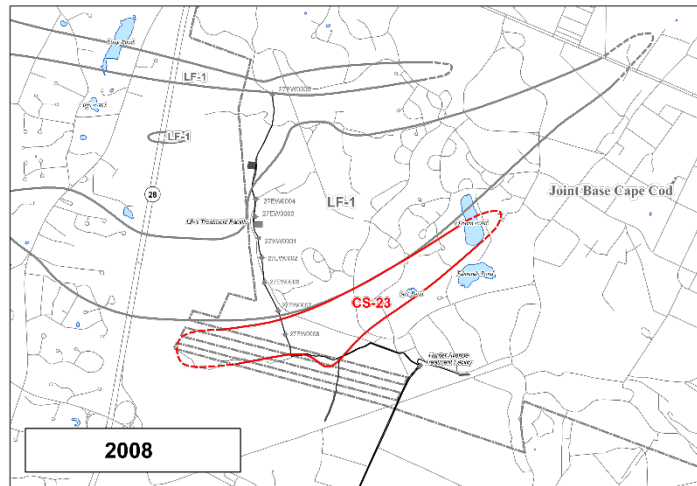
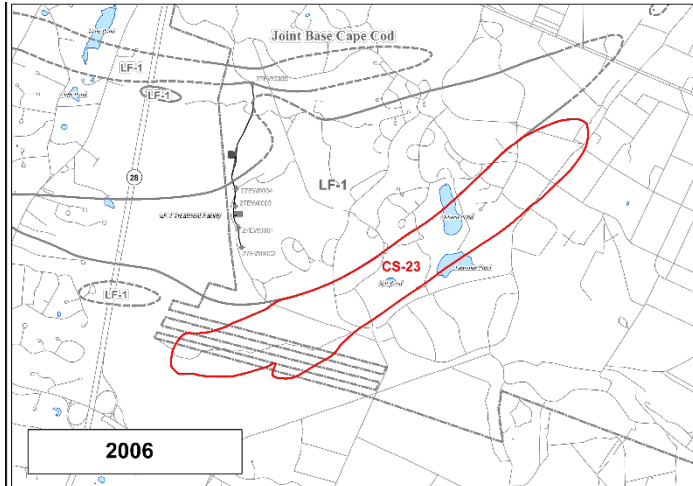
Chemical Spill-20 (CS-20)

- Plume originated from an unknown source area on JBCC
- 1997: Investigations/sampling conducted as part of FS-28 and SWOU RI
- 2000: Record of Decision signed; selected remedy was plume capture and containment via active treatment with MNA and LUCs.

Contaminant of Concern	Standard	Highest Concentration
Tetrachloroethene (PCE)	5 ug/L MCL	98.1 ug/L (2005)

- 2006: Two extraction wells began operation at 775 gpm with carbon treatment at the Hunter Avenue Treatment Plant
- 2015: Last extraction well shut down; monitoring continued
- 2018: Three Step Process toward site closure initiated
- 2020: Fact Sheet on 1,4-Dioxane Supplemental Investigation Findings issued
- 2021: Three Step Process documented in a Draft RACR currently under review by AFCEC legal followed by EPA/MassDEP review
- Will follow similar process as FS-29 for Town agency and resident notifications

Then: Chemical Spill-23 (CS-23) Cleanup



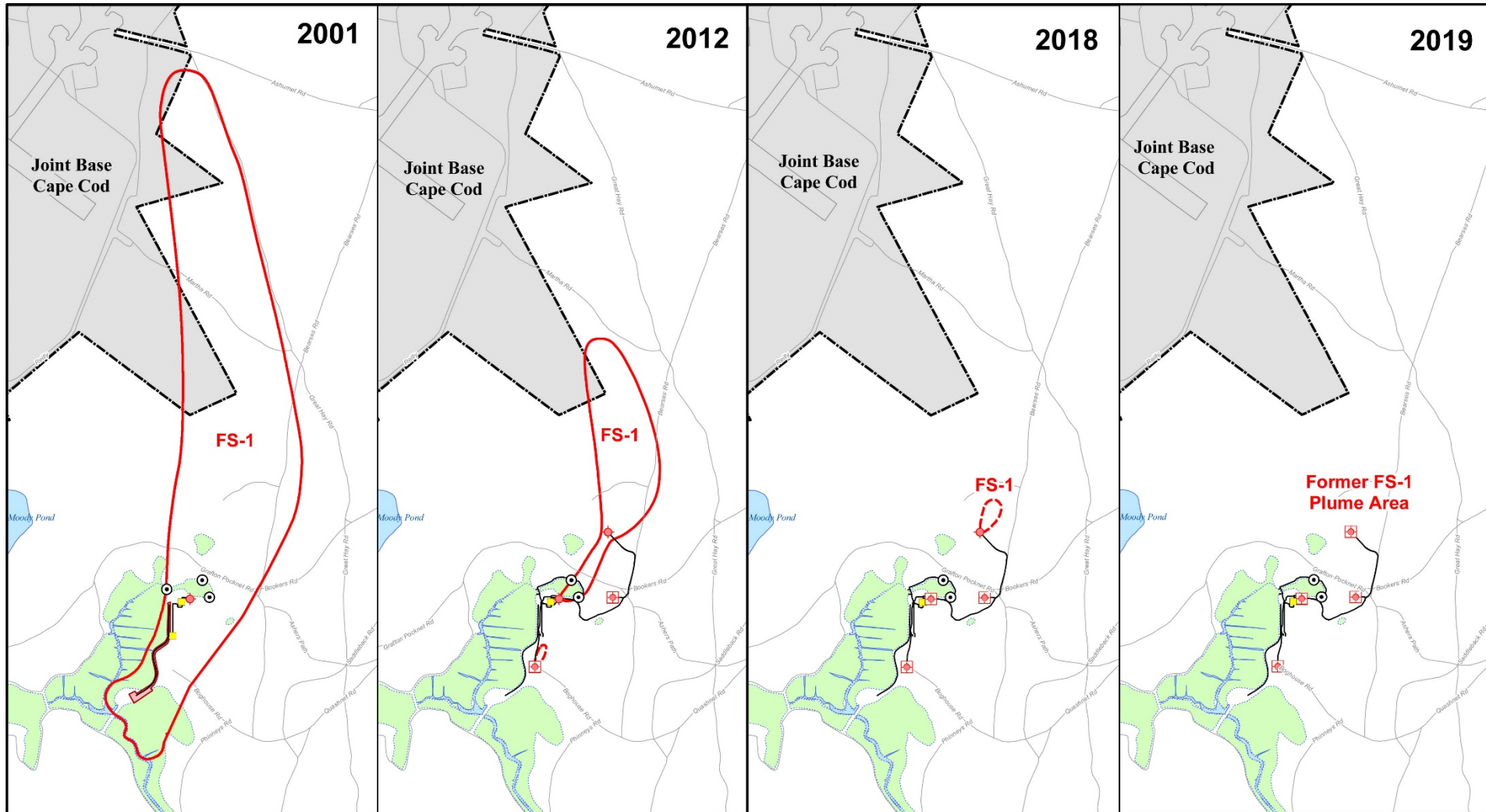
Chemical Spill-23 (CS-23)

- Plume originated from an unknown source area on JBCC
- 2000: Identified during the SWOU investigation
- 2007: Record of Decision signed; selected remedy was plume capture and containment via active treatment with MNA and LUCs.

Contaminant of Concern	Standard	Highest Concentration
Trichloroethene	5 ug/L MCL	57 ug/L (2002)
Carbon Tetrachloride	5 ug/L MCL	42 ug/L (1999)

- 2006: Two extraction wells began operation at 700 gpm with carbon treatment at the Hunter Avenue Treatment Plant
- 2019: Last extraction well shut down; monitoring continued
- 2020: Three Step Process toward site closure initiated
- 2021: Three Step Process will be documented in a Draft RACR currently in preparation
- Will follow same review process as CS-20
- Will follow similar process as FS-29 for Town agency and resident notifications

Followed By: FS-1 Cleanup



Plume defined based on ethylene dibromide; PFOS/PFOA detected above health advisories but will be investigated as part of the flight line investigation (southeastern part of JBCC)

FS-1

- Plume originated from a valve test area on a ramp near the flightline
- 1997: Investigations/sampling conducted
- 2000: Record of Decision signed; selected remedy was plume capture and containment via active treatment with MNA and LUCs.

Contaminant of Concern	Standard	Highest Concentration
EDB	0.02 ug/L MMCL	44.5 ug/L (2000)
Thallium (source area)	2 ug/L MCL	Never detected
Toluene (source area)	1000 ug/L MCL	2800 ug/L (1999)
Lead (source area)	15 ug/L EPA Treatment Technique Action Level in drinking water	476 ug/L (2002)

- 1997: One extraction well and 195 shallow well points began operation at 750 gpm; system burned down in 2002
- 2003: Four extraction wells began operation at 750 gpm with carbon treatment
- 2019: Treatment system shut down; monitoring continued
- 2021: Three Step Process toward site closure initiated
- 2021: Three Step Process will be documented in a Draft RACR
- Will follow same review process as other RACRs
- Will follow same process as other RACRs for Town agency and resident notifications

backpocket

Overview of the Three-Step Process

- Step 1: Demonstrate that cleanup standards have been reached.
 - FS-29 Network: 21 monitoring wells (Figure 4).
 - Three annual sampling events.
 - Step 1 complete when average COC concentrations at each location are below cleanup standards.
- Step 2: Complete a residual risk assessment, if deemed necessary, which considers human health and ecological exposure.
 - A residual risk assessment may be necessary at sites where 'new' contaminants are discovered, or if there are multiple COCs where 'cumulative' risk needs evaluation.
 - In addition, sites that have calculated risk-based concentrations as cleanup goals (rather than MCLs or MMCLs) may require reassessment of exposure assumptions and toxicity information.
- Step 3: Complete MassDEP requirement to assess feasibility of approaching or achieving background conditions.