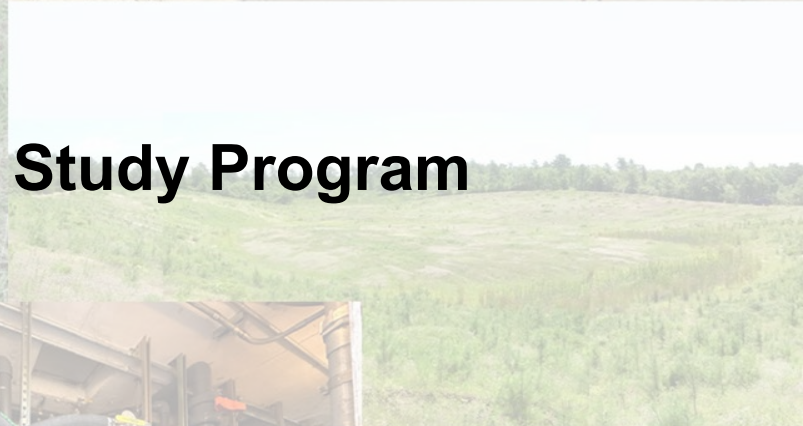




Impact Area Groundwater Study Program Overview

Mr. Shawn Cody
Federal Program Manager
JBCC Cleanup Team Meeting
September 16, 2026



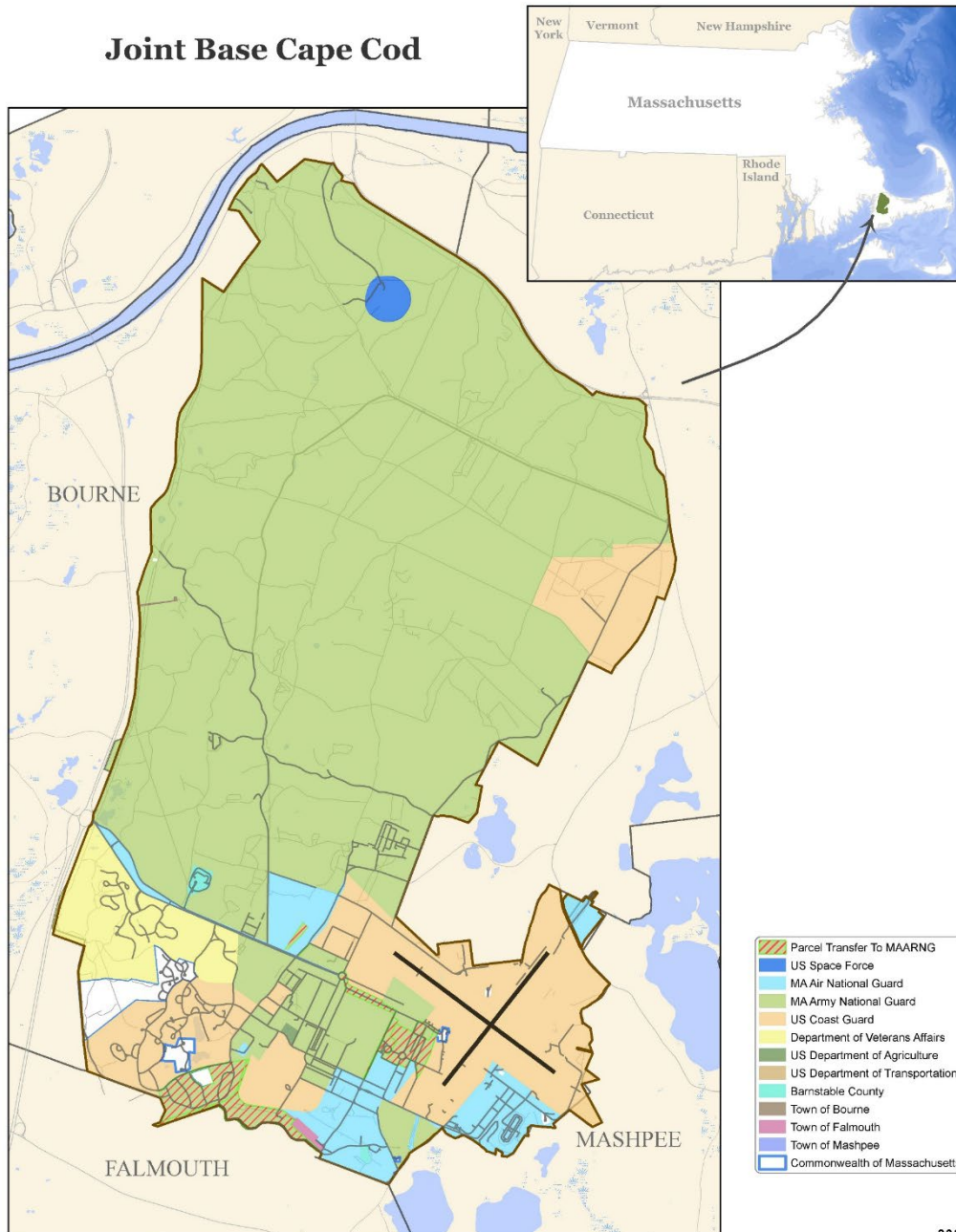
- Regulated under Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

- # ARNG IAGWSP

- Regulated under the Safe Drinking Water Act
- Began in 1997
 - Issuance of four EPA Administrative Orders.



Joint Base Cape Cod



Joint Base Cape Cod

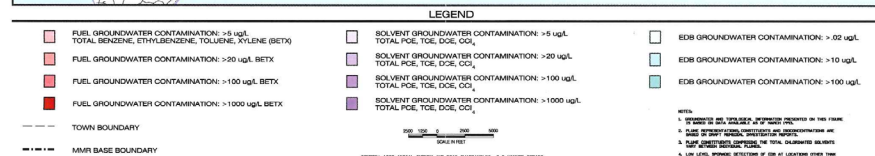
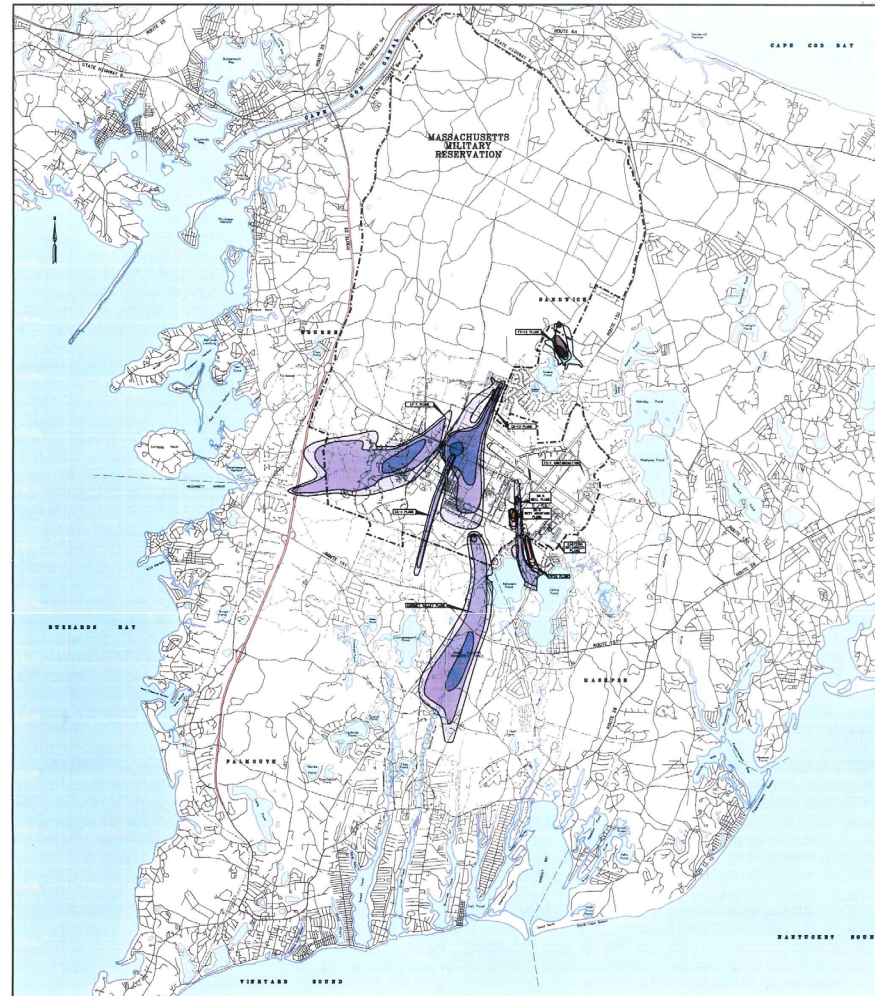
◆ Tenants include:

- Massachusetts Army National Guard
- Massachusetts Air National Guard
- Cape Cod Space Force Station
- U.S. Coast Guard Cape Cod

◆ Upper Cape Water Supply Reserve / Camp Edwards Training Area. (15,000 acres.)

- Sole Source Aquifer.
- Impact Area Groundwater Study Program manages investigation and cleanup of historic groundwater contamination.
- MAARNG Environmental Office (Environmental and Readiness Center) ensures current and future training is conducted in a way that is protective of the environment.

2024

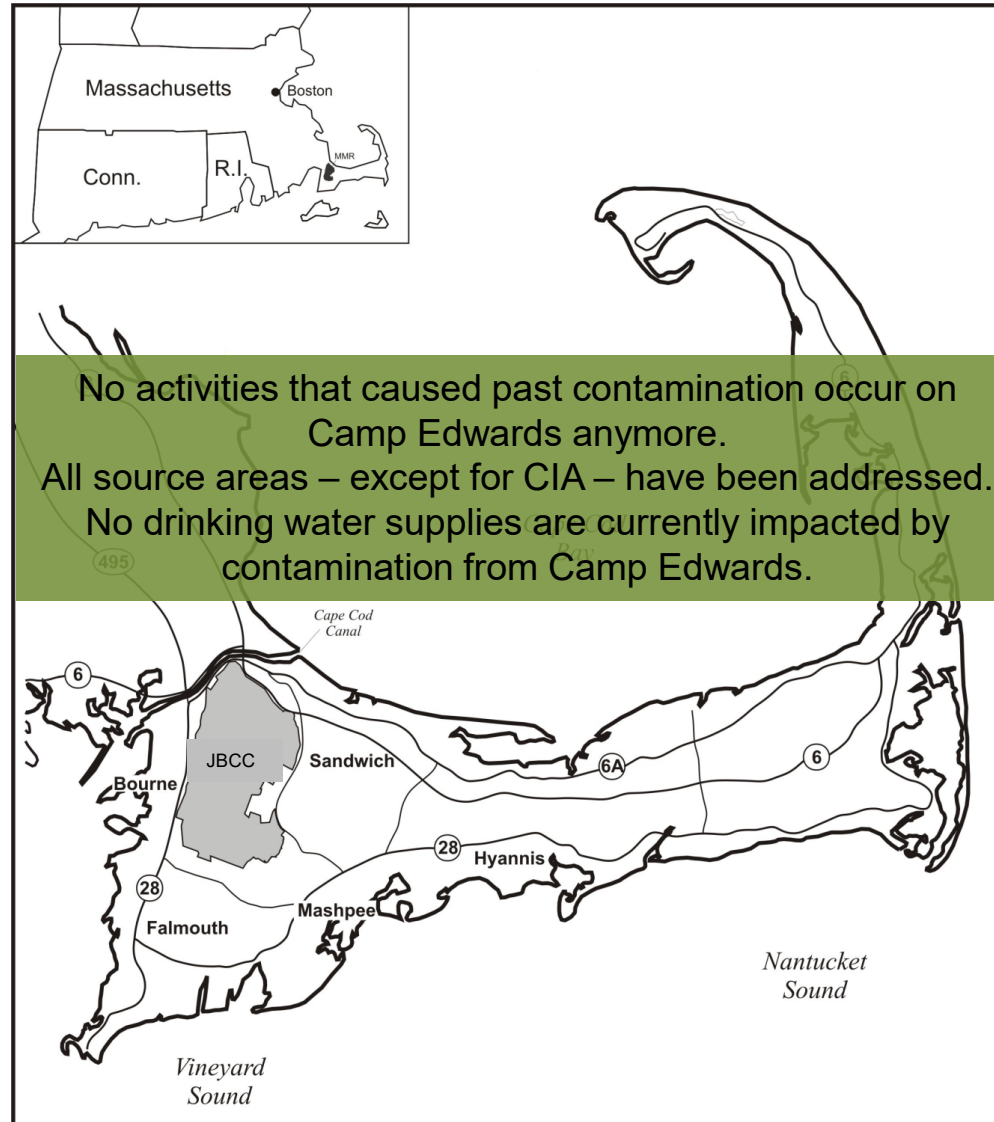


MMR INTERPRETIVE GROUNDWATER CONTAMINATION MAP



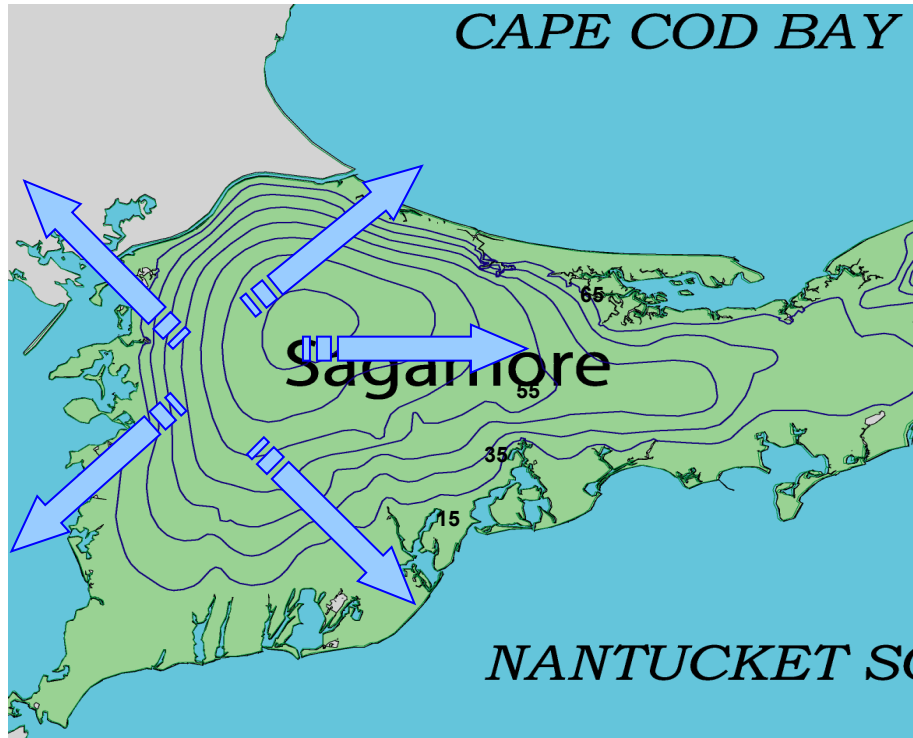
Impact Area Groundwater Study Program

- ◆ 1997 through 2001 EPA issues 4 Administrative Orders (AOs)
 - 3 under Safe Drinking Water Act and 1 under Resource Conservation and Recovery Act
- ◆ Stops all live fire training and requires investigation and cleanup of contamination.
- ◆ Military agrees to comply with AOs and formally establishes Impact Area Groundwater Study Program and Environmental & Readiness Center.
- ◆ The AOs were issued under the EPA's emergency powers to prevent imminent and substantial endangerment to public health because the base sits atop a sole source aquifer.





Cape Cod Aquifer



- ◆ The Sagamore Lens is the 300 feet of saturated sand (groundwater) that underlies all of the Upper Cape.
- ◆ Groundwater flows from the top of the Sagamore Lens in all directions at about 1-2 feet per day.
- ◆ This flow is the movement of water through the sand particles. It is **NOT** a free-flowing river.



IAGWSP Investigation/Findings and Current Status

◆ 1996 to present

- 1,400+ monitoring well screens in over 700 locations.
- 100,000+ groundwater and soil samples.
- Over 300,000 Geophysical anomalies investigated.

◆ Contaminants of Concern

- Groundwater: RDX: EPA Regional Screening Level = 0.97 micrograms per liter ($\mu\text{g/L}$); Massachusetts Contingency Plan (MCP) GW-1 standard=1 $\mu\text{g/L}$; Perchlorate 2 $\mu\text{g/L}$.
- Soil: Explosives, propellants, perchlorate & metals.

◆ 14 Operable Units (OUs)

- Decision Documents completed and remedies in place for all OUs.

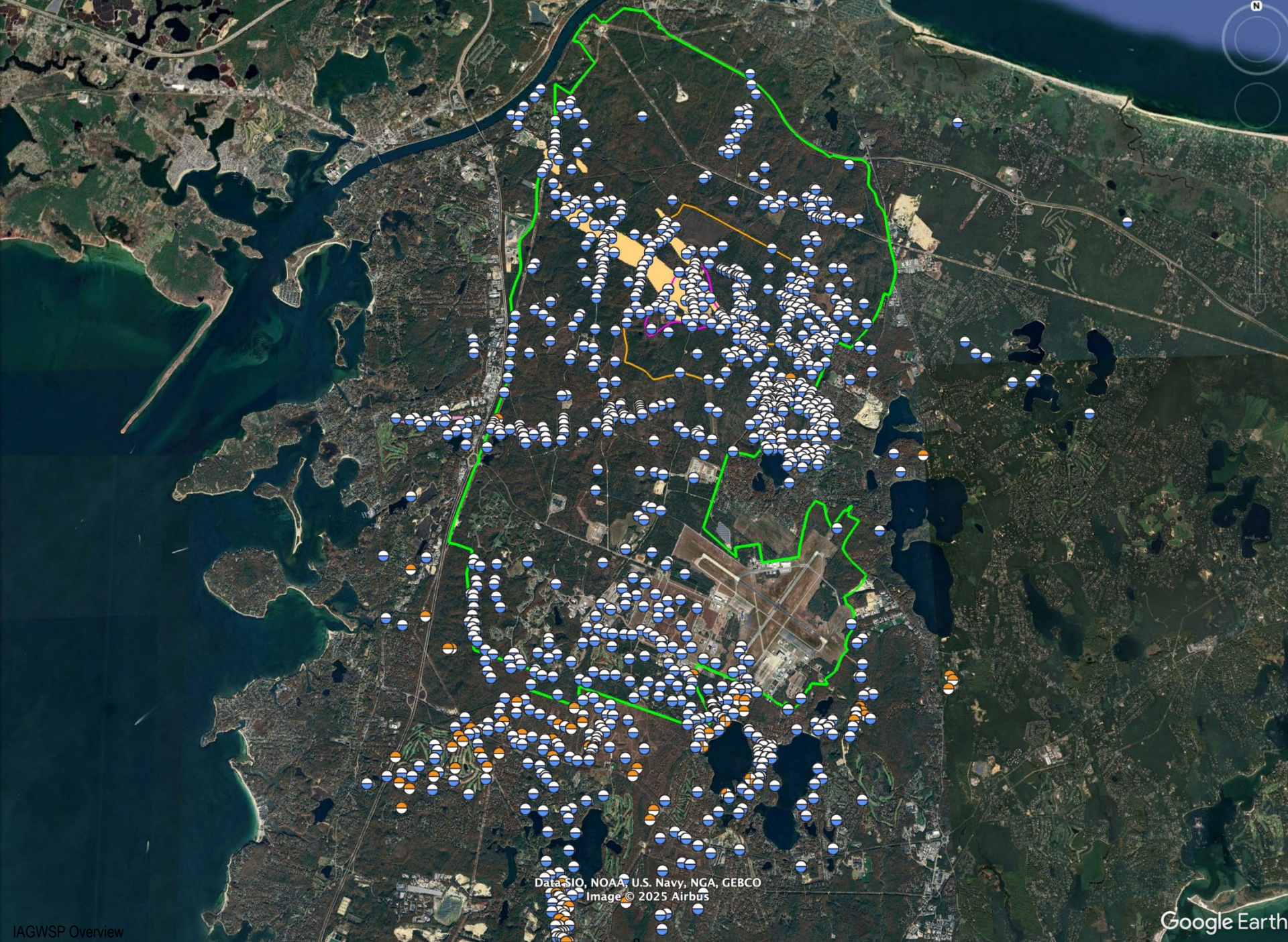
◆ Currently 7 Groundwater Plumes

- 15 extraction, treatment, reinjection (ETR) systems treating more than 2.8 million gallons of groundwater per day.
- Over 22 billion gallons of groundwater treated to date.

◆ Known source areas removed and treated

- More than 125,000 tons of soil has been excavated and treated.
- Four tons of explosives safely removed.
- 700 tons of munitions-related scrap recycled.



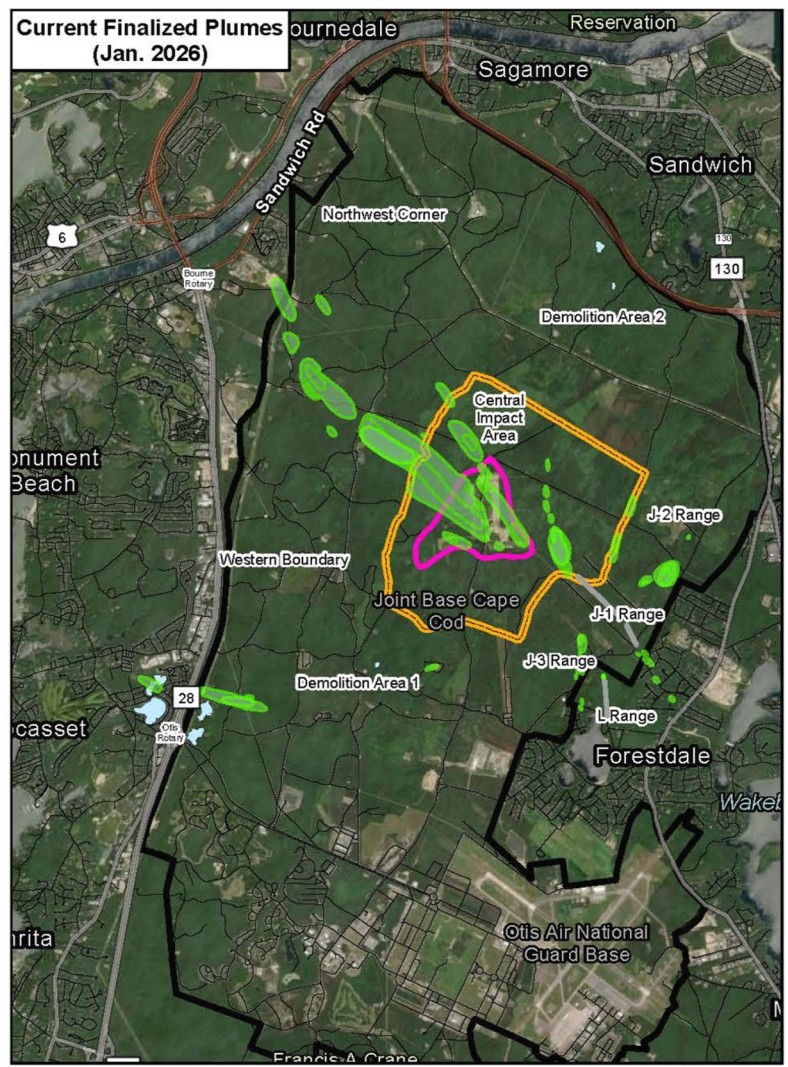
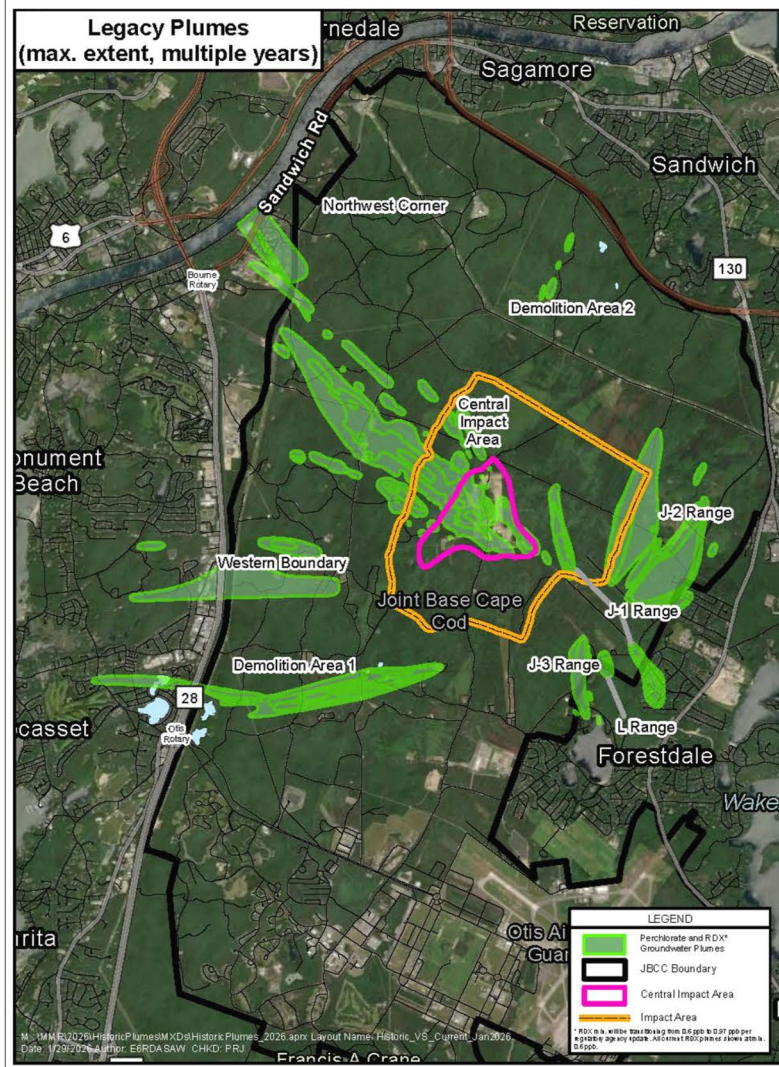


Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2025 Airbus

Google Earth



Groundwater Plumes Over Time





Impact Area Groundwater Study Program

Operable Units Status

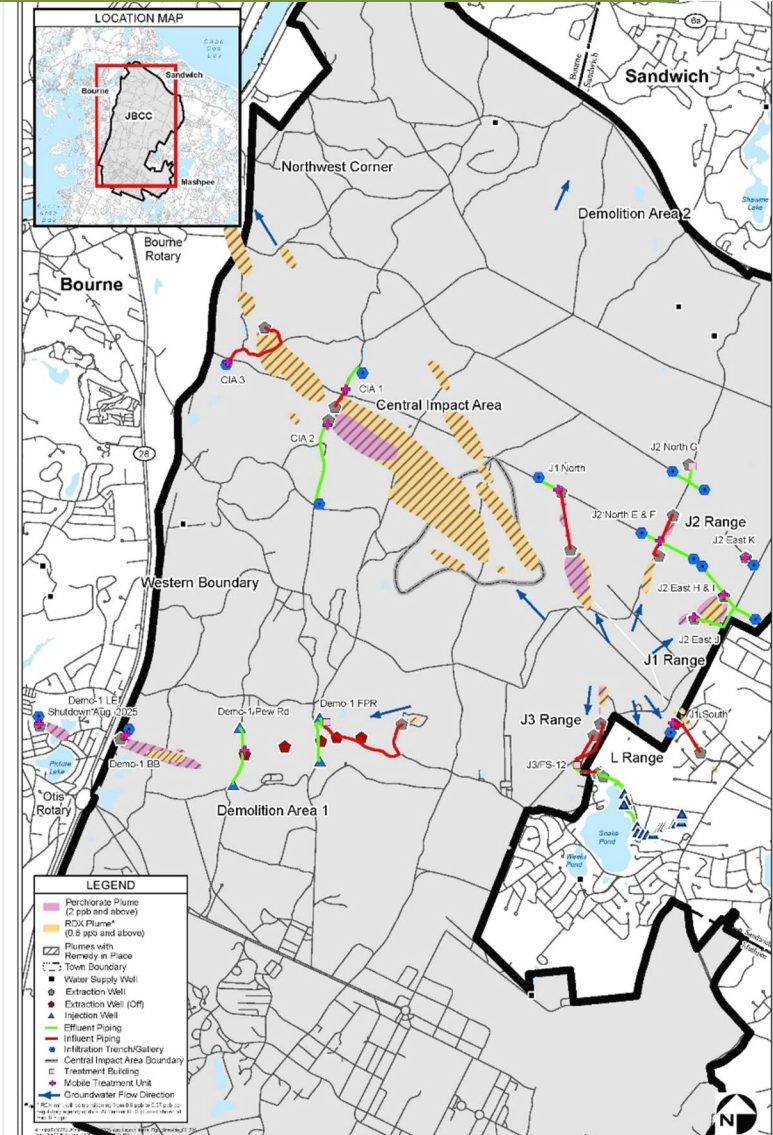
OUs with Groundwater Treatment:

- Central Impact Area
- Demolition Area 1
- J-1 Range (North & South)
- J-2 Range (North & East)
- J-3 Range

OUs with No Further Action/Closed:

- Gun and Mortar Positions – “big guns” (NFA)
- Former K Range (NFA)
- Former A Range*
- Western Boundary*
 - BA-4 Disposal Area
- L Range*
- Small Arms Ranges*
- Training Areas*
- Northwest Corner*
- Demolition Area 2*

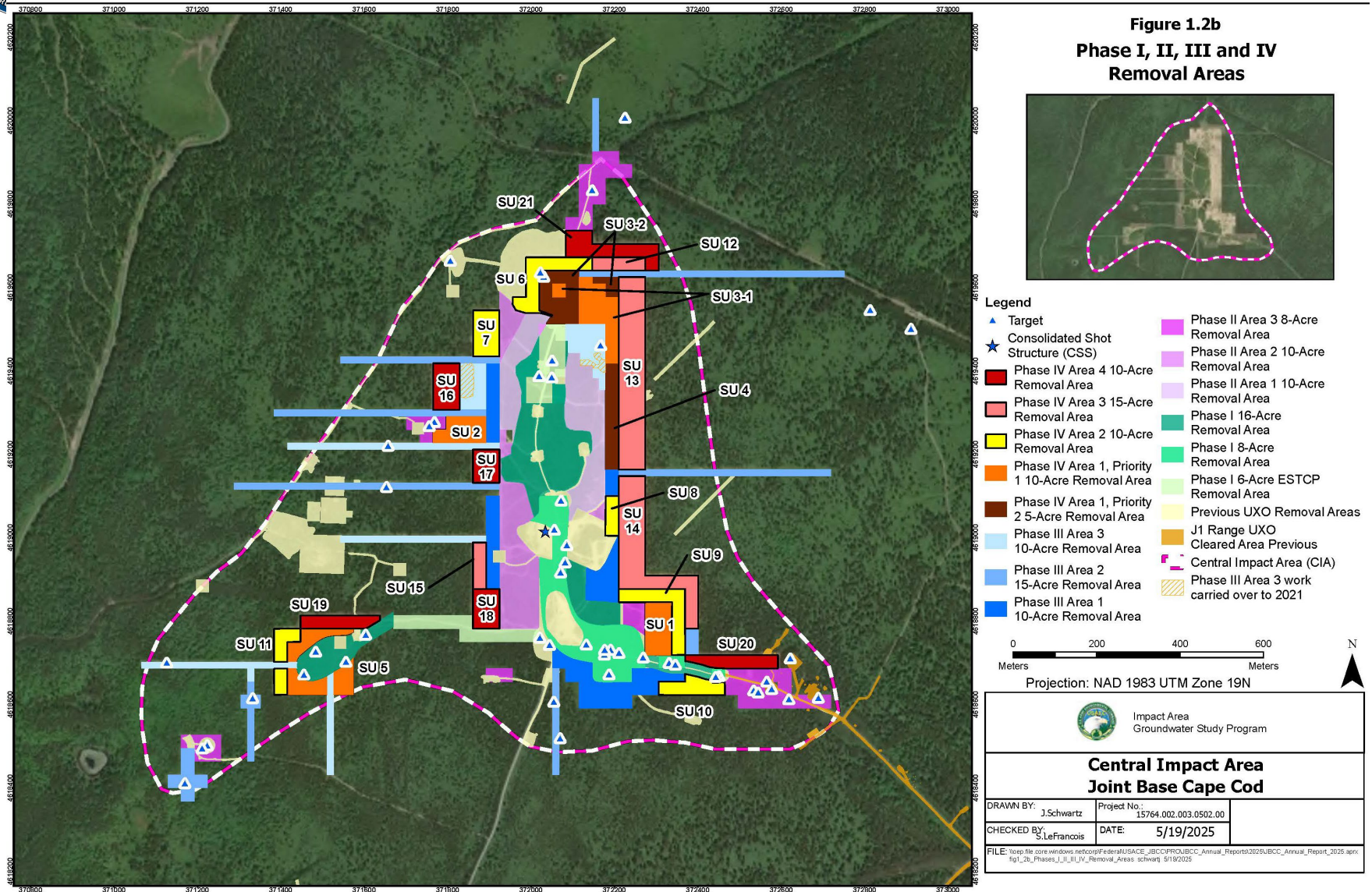
*Site has Certificate of Completion/Compliance

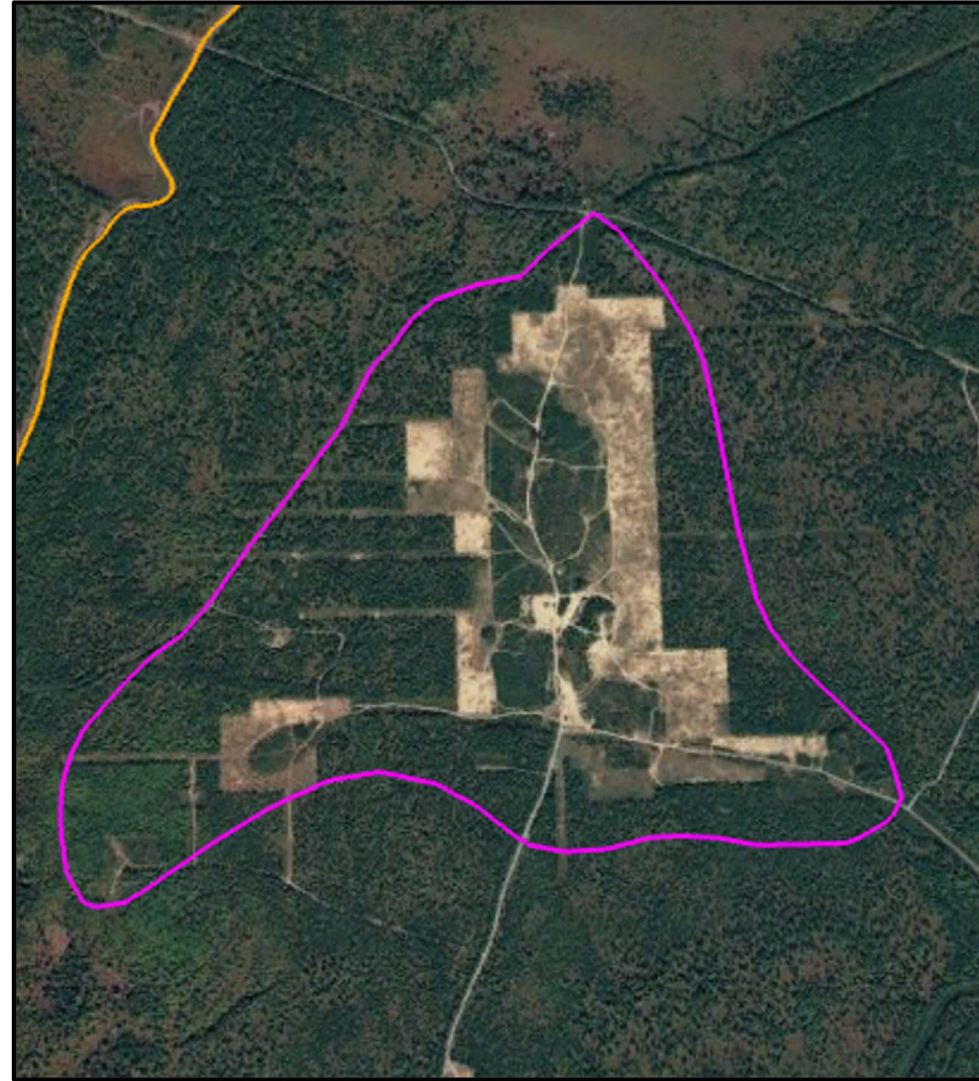




Central Impact Area – Source Removal Phases

Figure 1.2b
Phase I, II, III and IV
Removal Areas







Central Impact Area – Source Removals

SOURCE REMOVAL TOTALS

Acres Investigated	Anomalies Investigated by Metal Mapper	Anomalies Excavated	UXO Items Recovered	UXO-like Items Recovered	Pounds of Explosives Recovered
143	299,826	120,140	3,108	16,497	8,523

