

COMMUNITY ADVISORY BOARD MEETING
HAVEN WELL PFC CONTAMINATION
June 2, 2015

Scott Hilton, P.G.

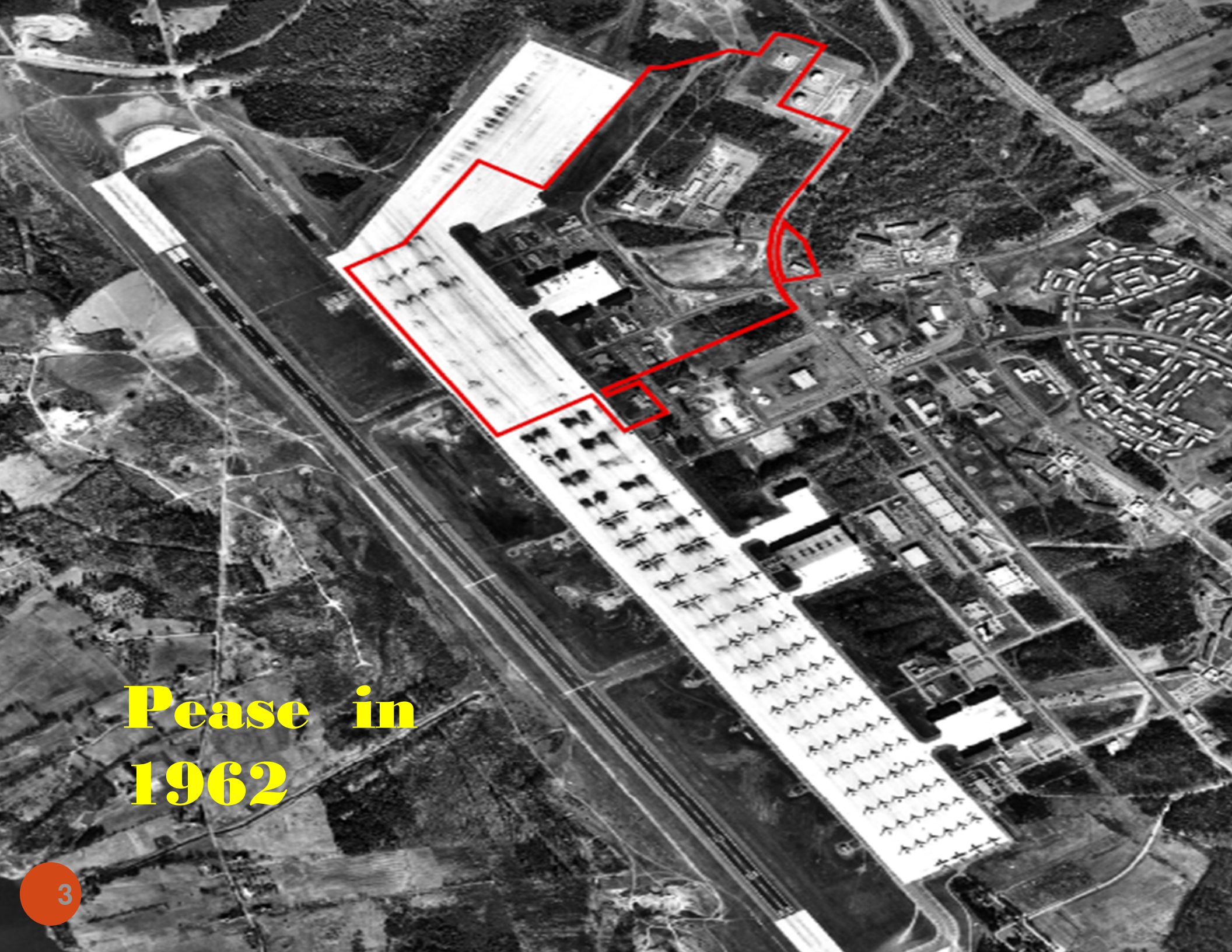
NHDES, Supervisor DoD Sites Section

25 years at Pease

- 1991 to 1996-Technical support staff responsible for CERCLA sites in northern portion of the base.
- 1997- 2015-Pease Project Manager. Responsible for all Pease clean-up program and associated property transfer work.

History of Pease Air Force Base

- 1956 to 1991 Strategic Air Command (SAC) Base.
 - 4,365 acres
 - Population --10,715
 - Water Supply—3 on-site supply wells; Haven, Smith and Harrison wells
- 1990 added to National Priority List under CERCLA (Superfund).
- 1991--First Base in nation to be closed under the Base Realignment and Closure Act (BRAC). Base Clean-up Team Formed.



**Pease in
1962**

The Pease AFB Clean-up Program

- DERP -Defense Environmental Restoration Program. Established by Congress in 1986, it provides framework for the cleanup of Department of Defense (DoD) sites. Clean-up is under jurisdiction of the Secretary of Defense.
- DoD is lead agency for all clean-up activities at Pease.
- DoD work is coordinated through Base Clean-up Team (BCT).
 - BCT---Air Force, EPA and DES
- DSMOA-Defense/State Memorandum of Agreement.
 - DoD funds DES oversight of the Pease clean-up programs
 - Two Pease clean-up programs under DSMOA
 - CERCLA (hazardous waste sites)
 - Petroleum release sites

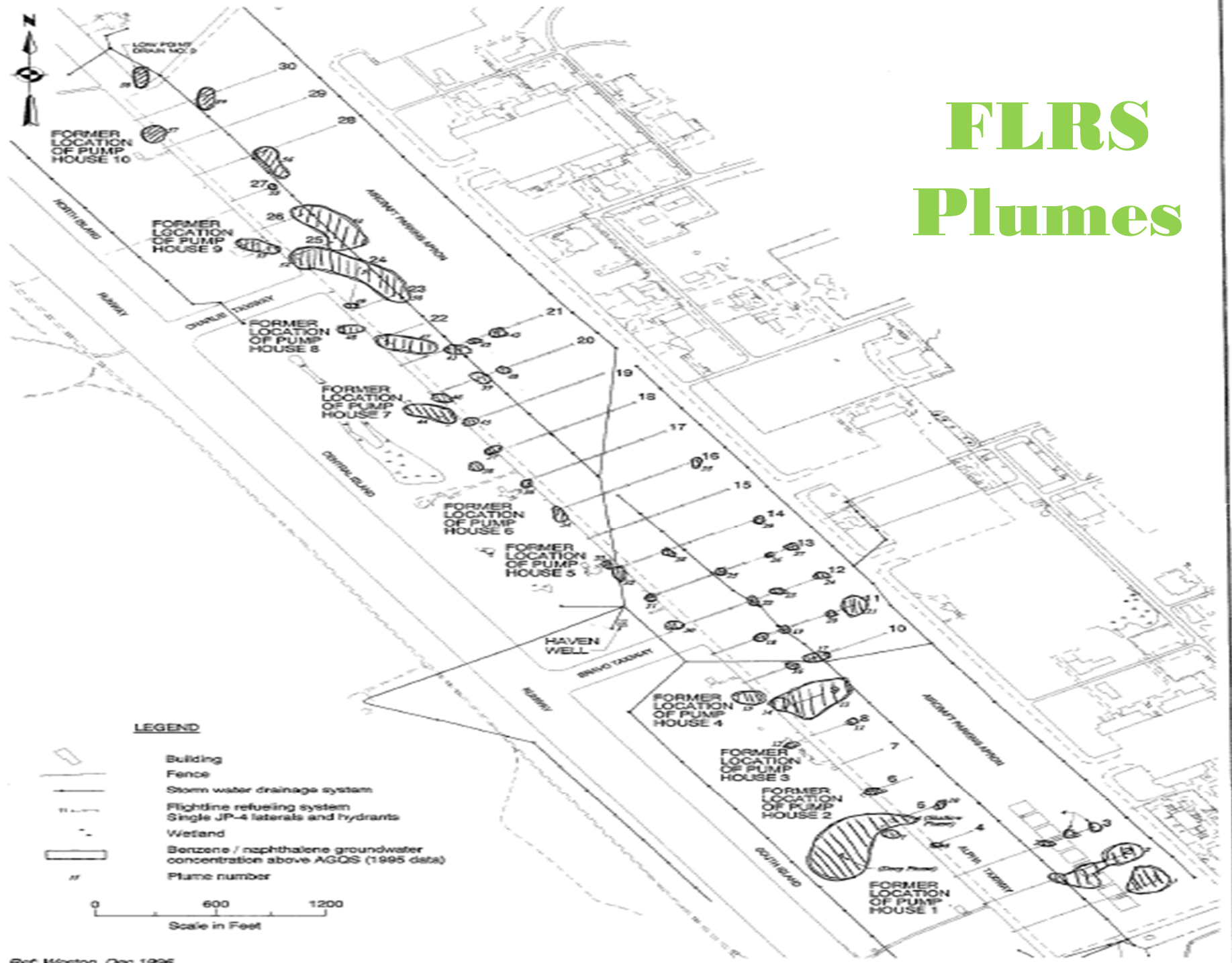
Pease CERCLA Program Sites

- **41 Hazardous Waste Sites identified**
 - Solvents and metals
- **Sites are grouped into 7 Zones**
- **CERCLA Records of Decision (ROD) are issued for each zone**
 - 17 sites closed or determined to require no further action
 - 5 landfill sites in long term monitoring
 - 6 restored surface water sites
 - 13 sites remain open
 - (8 are in close proximity and referred to as Zone 3 sites)

Pease Petroleum Clean-up Program.

- 161 Petroleum storage tanks removed or closed-in-place
- Contaminated soil excavated and disposed during tank removals
- 58 groundwater plumes identified on the Flightline (FLRS)
- 5 groundwater plumes identified in other areas of the base

FLRS Plumes



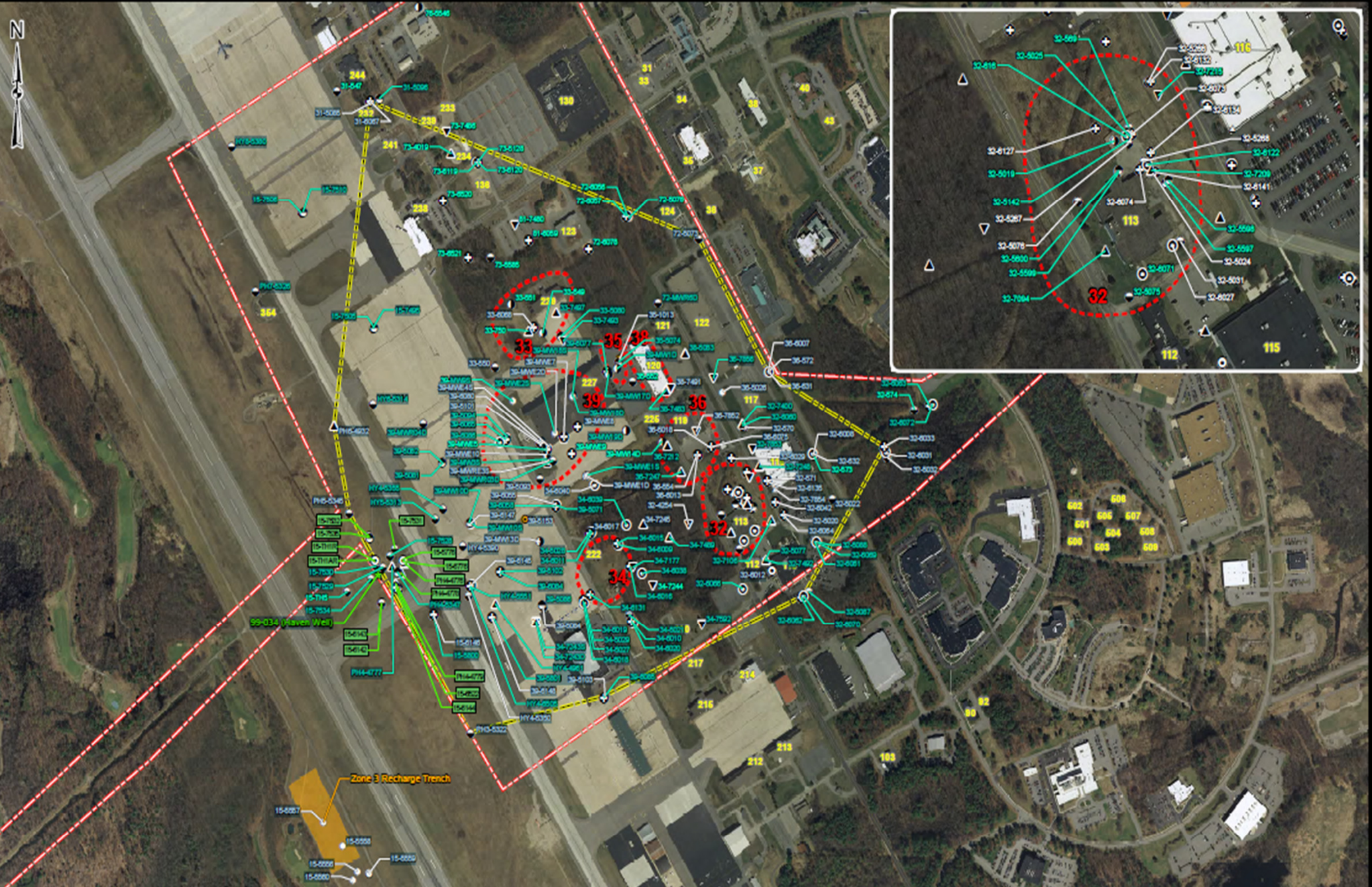
BECHTEL ENVIRONMENTAL INC.
Oak Ridge, Tennessee



Figure 4-1
Plume Inventory, 1995
Flightline Refueling System
Pease Air Force Base, New Hampshire

Protection of the Haven Well

- 1995-Zone 3 ROD Remedy--Groundwater containment to protect Haven.
- 1997-EPA and DES express concerns about containment at higher Haven pumping rates.
- 1999- EPA and DES performed independent data analysis that indicated Air Force remedies may not protect Haven well at higher pumping rates.
- 2000-EPA and DES discover flaws in the Zone 3 groundwater model.
- 2002-Air Force agrees to conduct Haven well pump test to re-calibrate model.
- 2003-Air Force revises model --- Haven well may draw in contamination from FLRS and Zone 3 sites at higher pumping rates.
- 2003-Zone 3 ROD Amendment—Construct back-up water treatment system and conduct Haven sentry well monitoring for FLRS and Zone 3 contaminants. During construction of the treatment system the City made a connection between the Pease and City water systems.



Legend

▲ Piezometer (Upper Sand)	● Monitoring Well (Hybrid)	119 Building ID	15-7502 Sentry Well
▼ Piezometer (Lower Sand)	⊕ Monitoring Well (Fractured Bedrock)	GMZ 3 Boundary	33-0000 Water Levels Only
○ Monitoring Well (Overburden)	○ Monitoring Well (Shallow Bedrock)	Zone 3 Boundary	⊖ Extraction Well
○ Monitoring Well (Upper Sand)	○ Monitoring Well (Bedrock)	Site Boundary	△ Piezometer (Other)
○ Monitoring Well (Lower Sand)	○ Recovery Well		

Source:
 - ESRI Data & Maps 2008
 - USGS: 2010 Non-AHPA funded 2010 Multispectral Color Orthophotography 5k file at 1" (3m) GSD, MGRID MGS (15.1 compression) file format for Southern New Hampshire

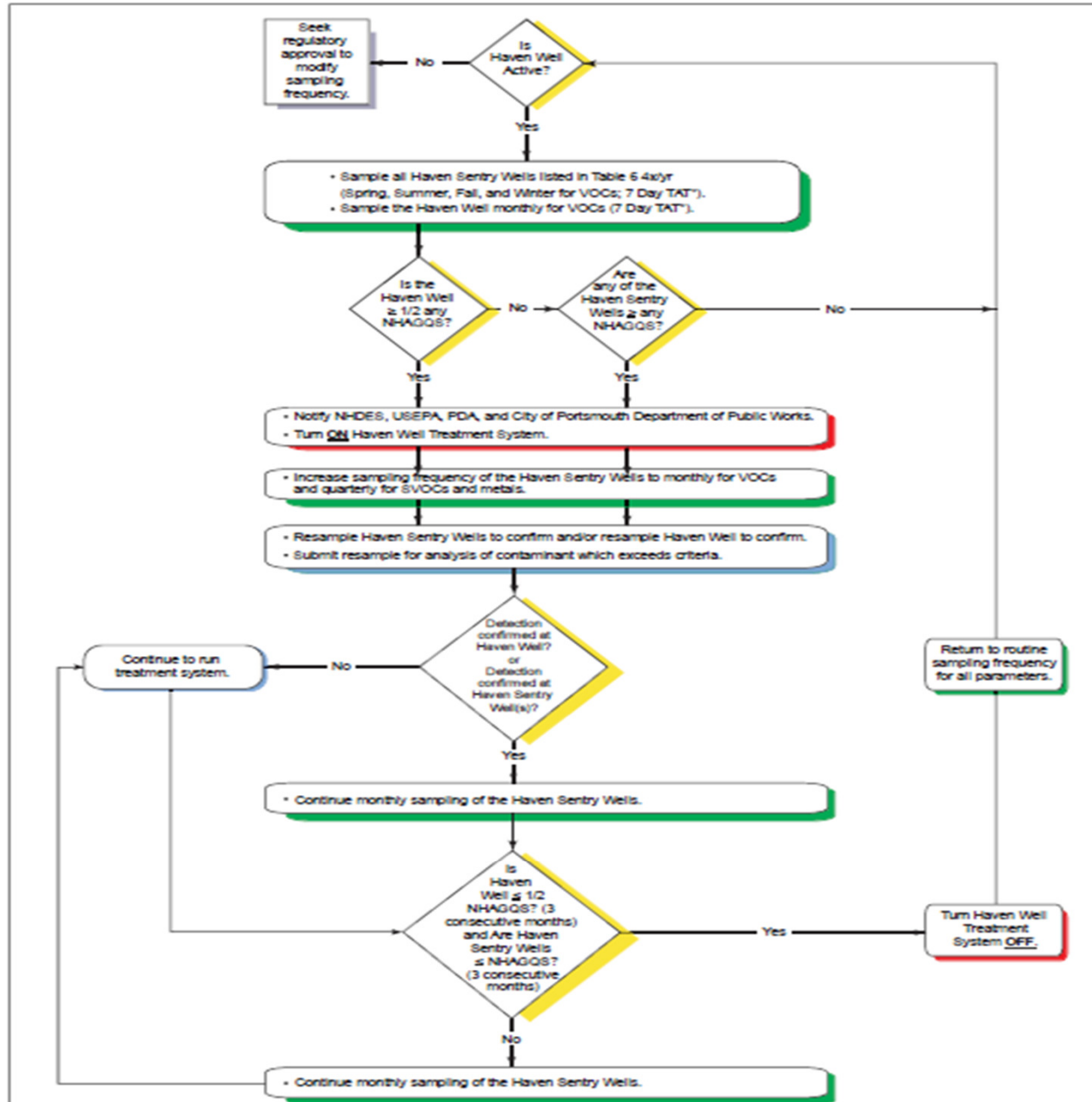
500 0 500
 Feet

MONITORING LOCATION MAP
ZONE 3 LONG-TERM MONITORING PLAN, REV 3
FORMER PEASE AFB, NEW HAMPSHIRE

SITES 32, 33, 34, 35, 36, 38, 39

URS **FIGURE 2**

10



Notes:

- * - Actions will be taken using unvalidated data
- AF - Air Force
- NHDES - New Hampshire Department of Environmental Services
- NHAGQS - New Hampshire Ambient Groundwater Quality Standards
- USEPA - United States Environmental Protection Agency
- PDA - Pease Development Authority
- TAT - Turn Around Time
- VOCs - Volatile Organic Compounds
- SVOCs - Semivolatile Organic Compounds

J:\LongPease\Work\Cre\Pease Decision Trees\Figure 6.a

ZONE 3 LONG-TERM MONITORING PLAN, REV 3
FORMER PEASE AFB, NEW HAMPSHIRE

HAVEN WELL TREATMENT PLANT DECISION TREE
VOLATILE ORGANIC COMPOUNDS AND NAPHTHALENE

URS

FIGURE 6

Pease PFC Investigation and Response

Why did EPA and DES ask the Air Force to Sample for PFC's

- May 2012--EPA's Federal Facilities Restoration and Reuse Office issues Fact Sheet on the emerging contaminants; Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS).
- PFOA and PFOS found in many products including Aqueous Film Forming Foam (AFFF).
- May 2012--EPA's Unregulated Contaminant Monitoring Rule 3.

AFFF Application

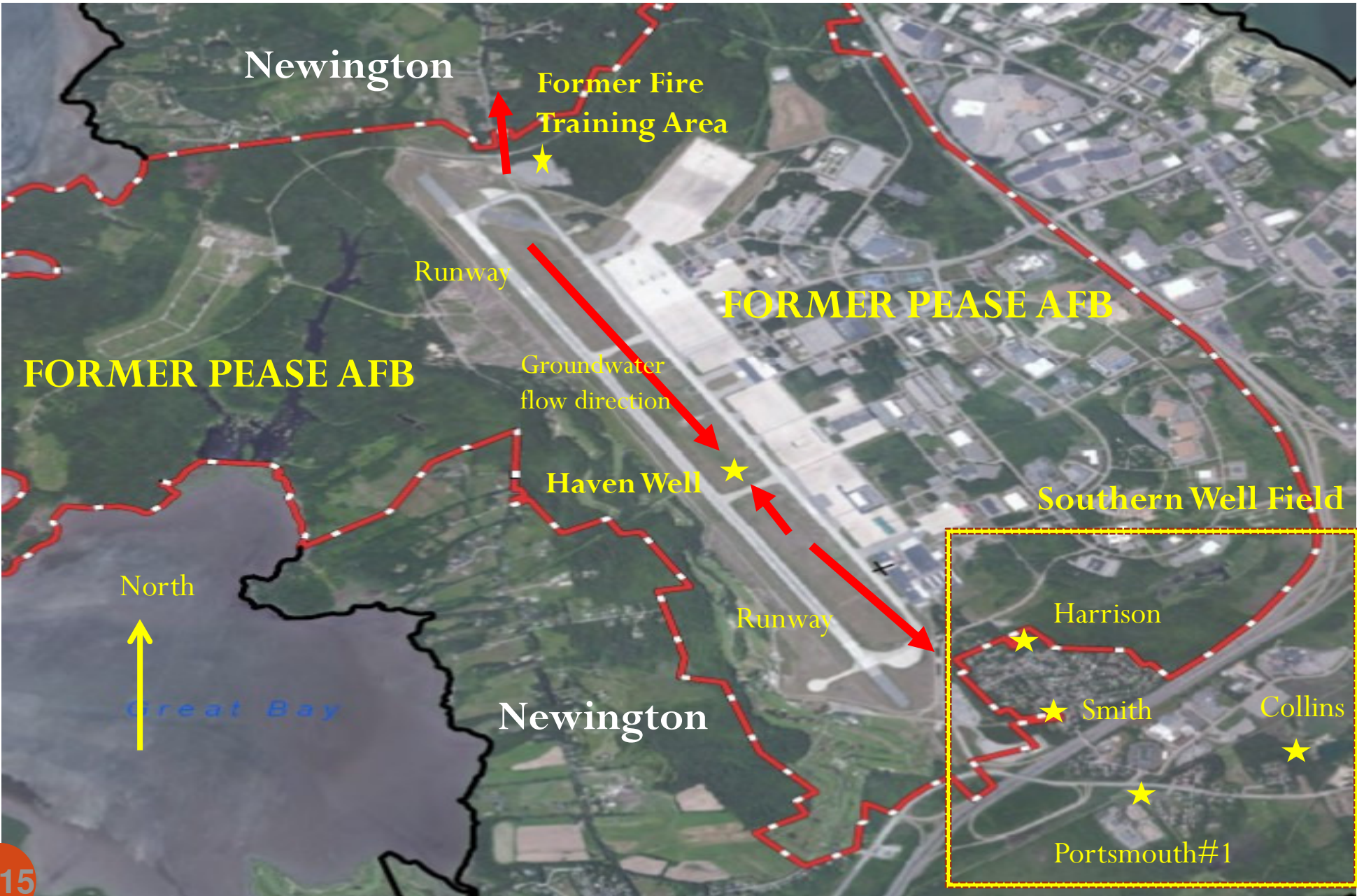


AFFF was used to extinguish fires and also to form a film over fuel spills to prevent ignition

Discovery of PFC's at Pease

- June and September 2013 – At the request of EPA and DES Former Fire Training Area-2(FTA-2) monitoring wells sampled for PFC's
- January 2014 – FTA-2 PFC Investigation Report submitted.
 - PFOS and PFOA detected above the EPA Provisional Health Advisory (PHA) in groundwater
- April 16, 2014 – The Haven, Smith, and Harrison public water supply wells are sampled at the request of EPA and DES
- May 12, 2014 - Supply well results received, PFOS detected above the PHA in the Haven well (2.5 $\mu\text{g}/\text{L}$, PHA 0.2 $\mu\text{g}/\text{L}$)
 - PFOS below the PHA in the Smith and Harrison Wells
 - Haven Well shut-down on May 12, 2014

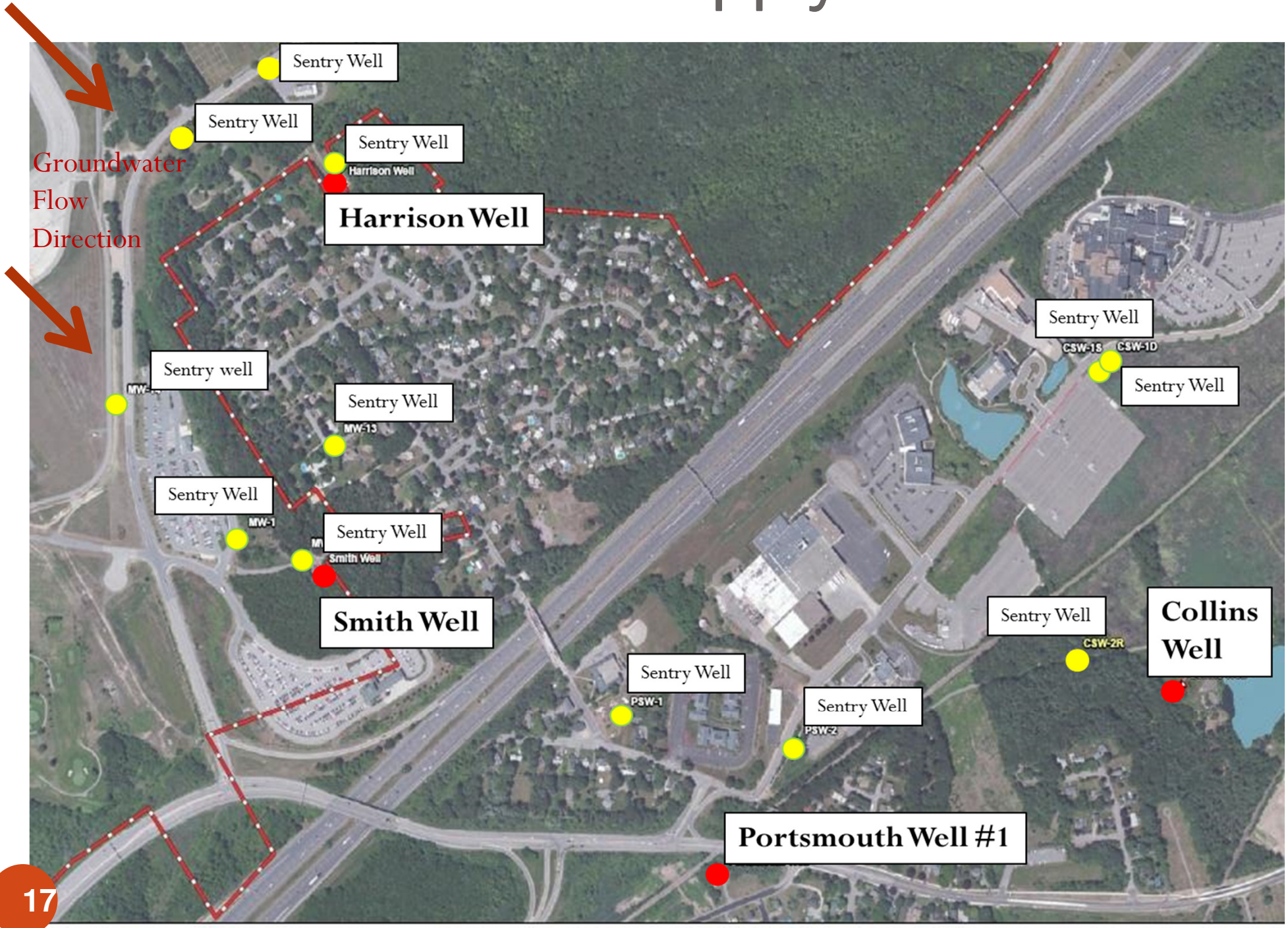
Former Pease AFB



Public Water Supply PFC Monitoring Program

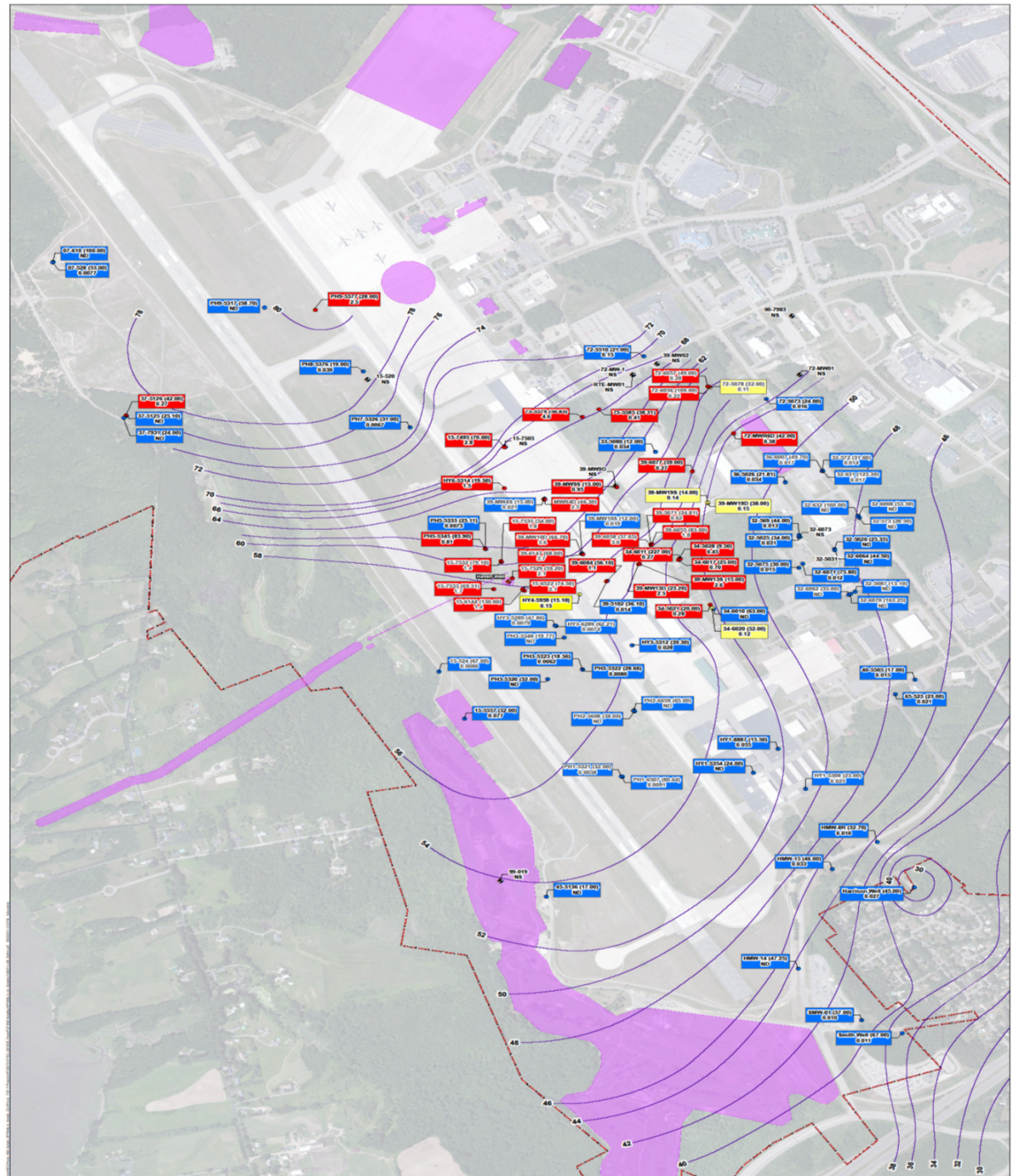
- Initial weekly sampling of water supply wells in the southern well field. Establish sentry well network.
- Once imminent risk determined to be low, routine monitoring program established for each supply well and its associated sentry wells.
- Decision tree established to direct a course of action.
- Sample existing monitoring wells to establish a snap shot of PFC distribution in the aquifer and evaluate water quality up-gradient of the southern well field.

Southern Water Supply Well Field



PFC Contaminant Levels, Groundwater Elevations and Potential PFC Sources

- Symbol Key**
- PFOS Concentration in Water
 - Less than 0.1 ug/L
 - 0.10 to less than 0.2 ug/L
 - Greater than 0.20 ug/L
 - ▬ Former Pease AFB Boundary
 - (66.70) Well Depth Below the Ground Surface



Questions and Discussion

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