NUCLEAR FUEL SERVICES, INC.

a subsidiary of The Babcock & Wilcox Company

THEME 3: CREATE MORE RELIABLE NRC RESPONSE

OCTOBER 2010

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Decommissioning
Environmental Unit Manager

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QUESTION #1

Should NRC's programs be modified to ensure greater consistency when addressing low risk, high public interest/confidence issues?

- Should NRC's oversight programs be modified to include more specific guidance on responding to reported incidents where risk is low but there is high stakeholder interest? Should this guidance address the follow up and disposition of a licensee's immediate actions, extent of condition, root cause, corrective action, and communication with the stakeholders?

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RESPONSE TO QUESTION #1

- The NRC's oversight programs should respond consistently to reported groundwater incidents.
- The NRC should be proactive with respect to radioactive releases to groundwater.
  - Nuclear is different;
  - Nuclear is held to a higher standard;
  - As Low As Reasonably Achievable (ALARA) theme; and
  - Public perception issue.

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Case Study (Background)

- In 1950's through the 1970's NFS utilized tetrachloroethylene (PCE) at the plant site
- Characterization efforts began in late 1990's
- Discovered PCE groundwater plume in alluvial aquifer on and off site
- Discovered dissolved uranium groundwater plume in alluvial aquifer on site
- Alluvial aquifer is a non drinking water aquifer (no risk)

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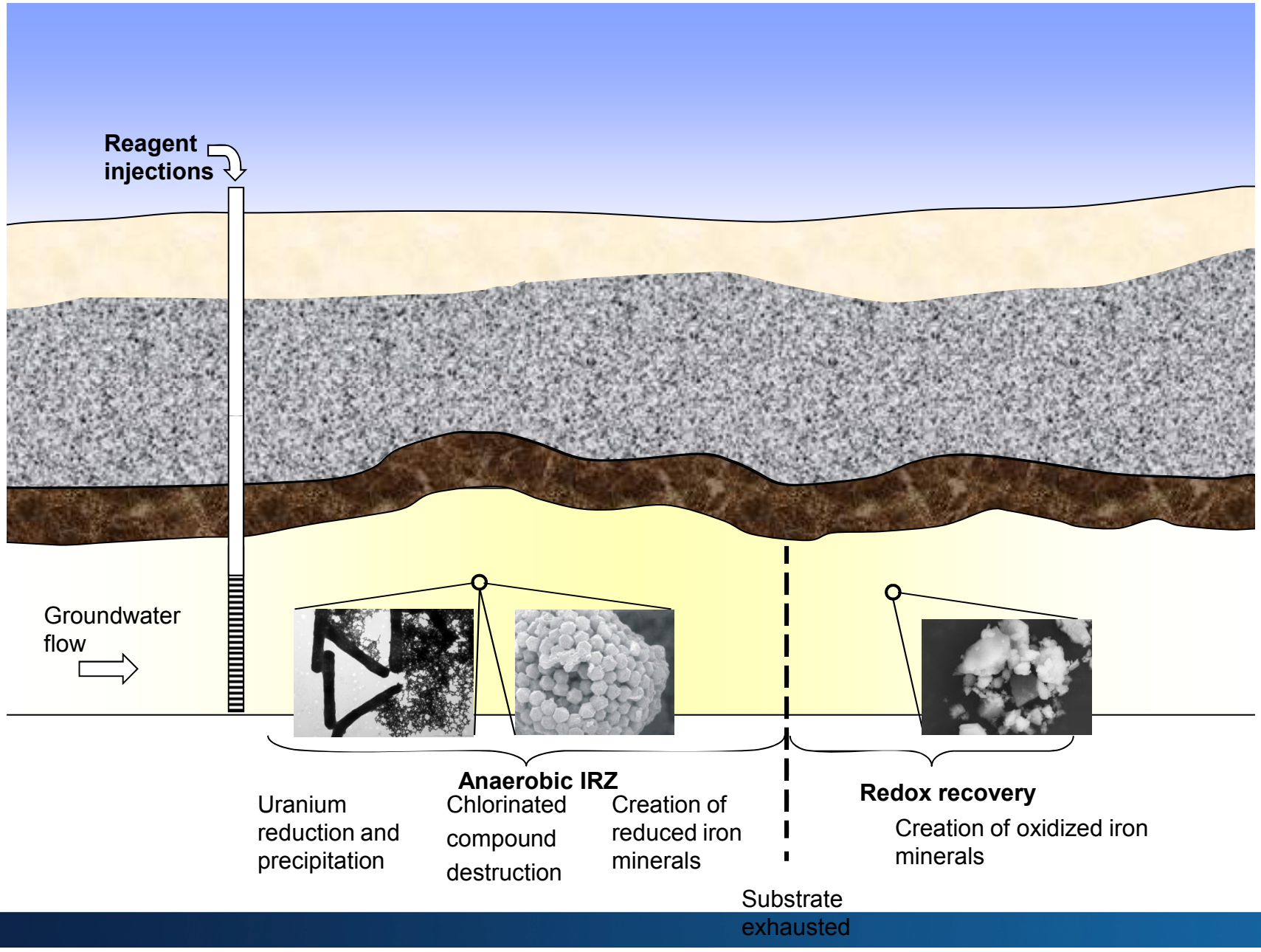
Case Study (Background)

- Remediation began in early 2000's
- In-Situ Reactive Zone (IRZ) technology selected
  - Remediating uranium through reductive precipitation and stabilization with ferrous sulfate
  - Remediating PCE through injection of organic carbon and reductive dechlorination
  - Routinely sampled on and off-site monitoring wells

Engineered In-Situ Treatment of Chlorinated Solvents and Uranium



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Groundwater Remediation Activities

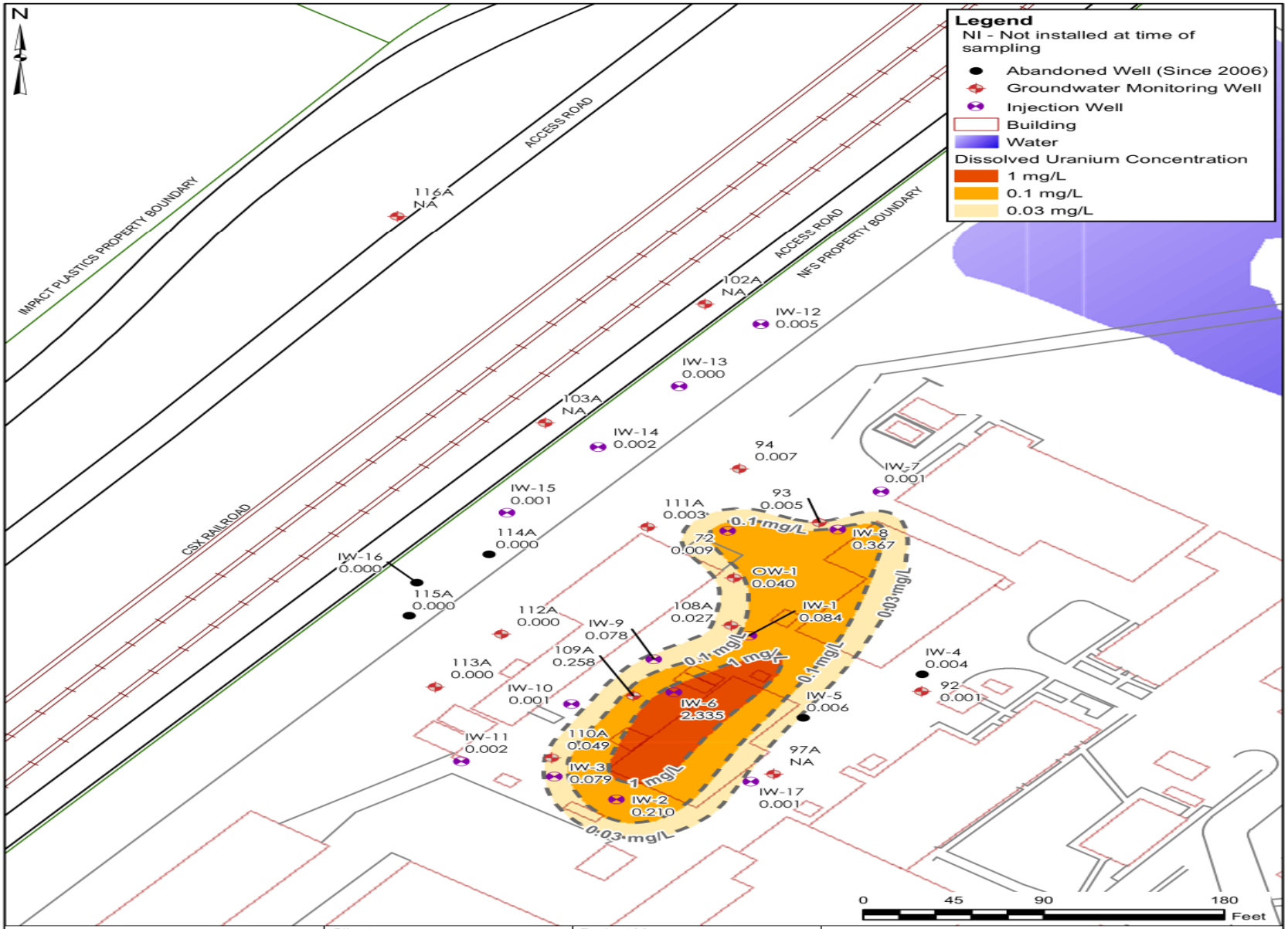
In-Situ Reactive Zone (IRZ) History and Status

2000-2002

- Pilot Test Utilizing In-Situ Reactive Zone (IRZ) Technology Conducted for Uranium and Tetrachloroethylene (PCE)
  - ~60% Reduction of Dissolved Uranium
  - ~83% Reduction of PCE

2002 – Present

- IRZ Implemented Full Scale
  - Uranium – reduced from approximately 0.75 acres to approximately 0.28 acres
  - PCE - reduced from approximately 2 acres to approximately 0.19 acres



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Client: NFS	Project Manager: Berny Ilgner
Checked By: P. Preston	Cartography By: Robbi McKinney
Project: TNNFS701.FS05.00005	Date: 10/19/07

Baseline
Dissolved Uranium Concentrations
August 2002
Erwin, TN

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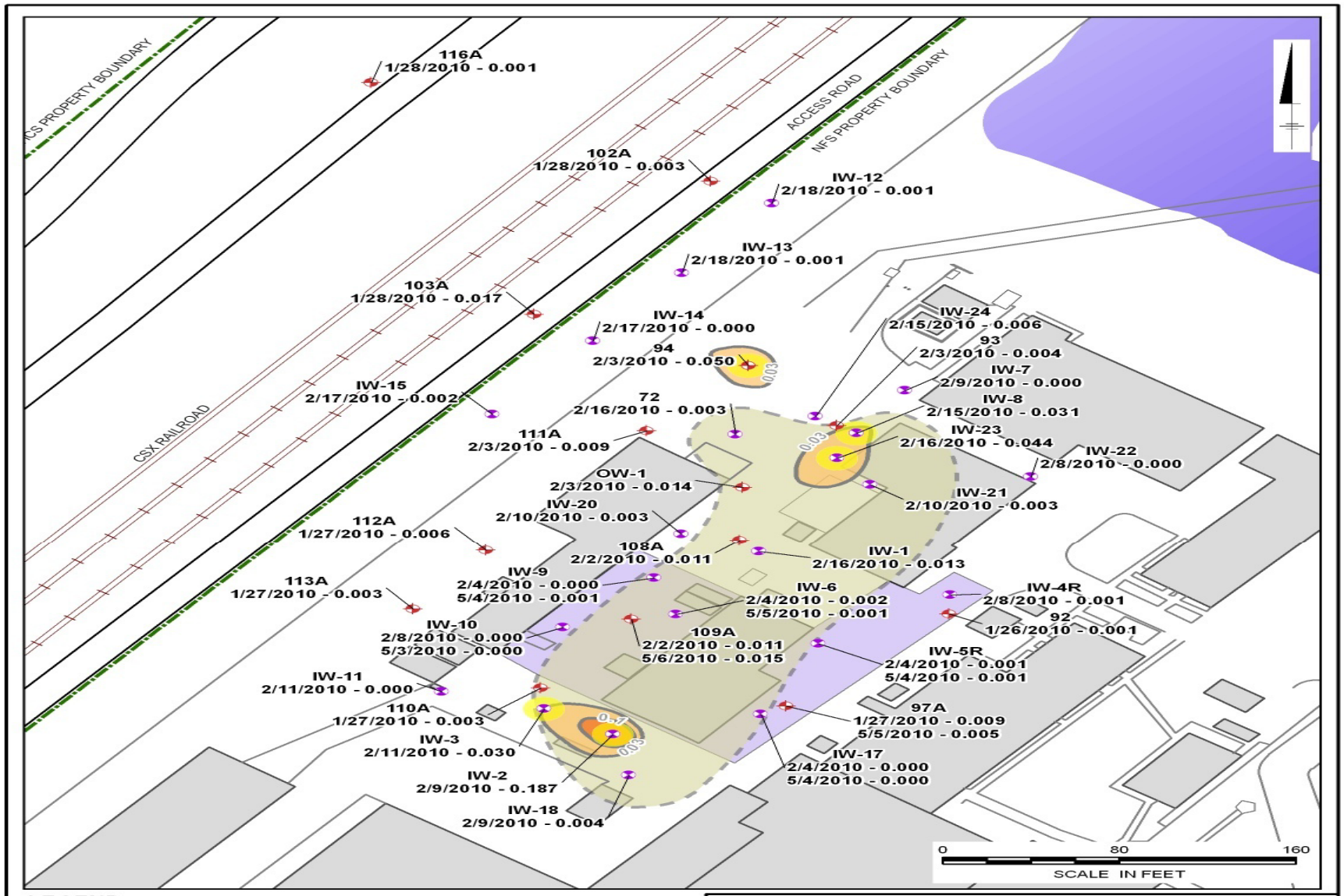

LEGEND:

- Injection Well
- Groundwater Monitoring Well
- Building
- Closure Monitoring Zone
- Dissolved Uranium Baseline
- >0.03 mg/L

Dissolved Uranium Concentration (mg/L)

- 0.03
- 0.1
- Approximate Isopleth
- Inferred Isopleth

NOTES:
mg/L - milligrams per liter

YELLOW HIGHLIGHTED LOCATIONS EXCEED 0.03 MG/L.

NUCLEAR FUEL SERVICE
ERWIN, TENNESSEE

1ST SEMI-ANNUAL 2010 FULL SCALE IRZ STATUS REPORT

Dissolved Uranium Concentrations

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PRELIMINARY

FIGURE
3-7

CITY: (KNOXVILLE) DIV/GROUP:(ENV) DB:(B.ALTOM) LD:(R.MCKINNEY) PIC:(B.ILGNER) PM:(P.PRESTON) TM:(B.BAILEY)
PROJECT: TN\NFS801.FS07.00003 PATH: G:\GIS\TN\NFS_Erwin\GIS\MapDocuments\2009\2009 2nd SA - TDU.mxd SAVED: 17AUG2010

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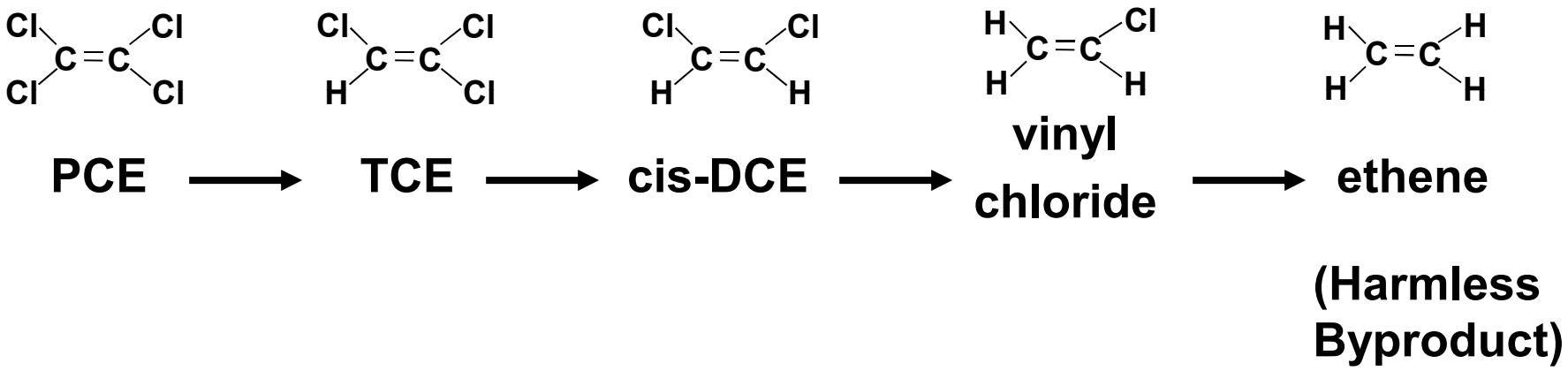
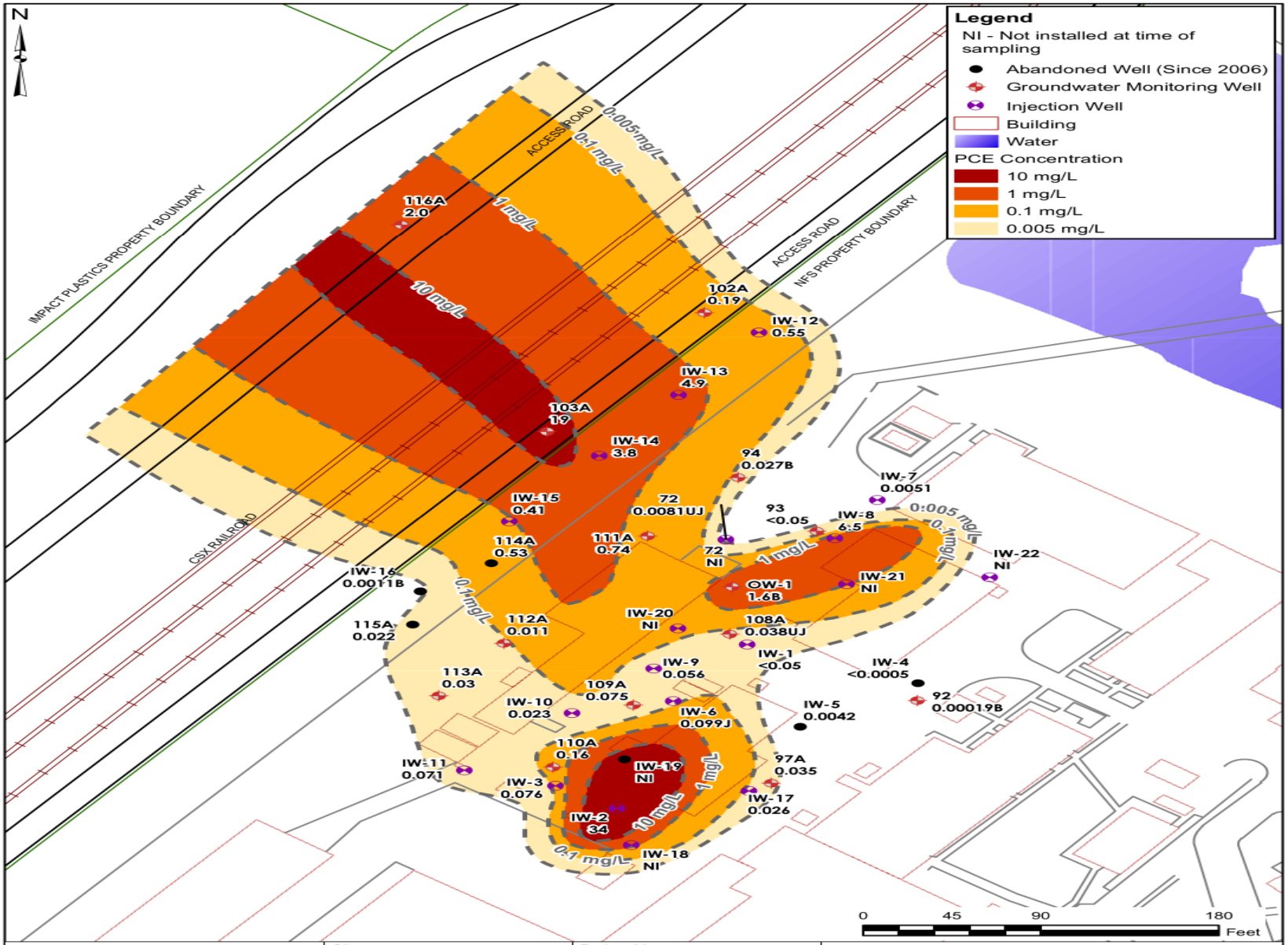
Reductive Dechlorination Process





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Project: TNNFS701.FS05.00005	Date: 10/19/07

Baseline PCE Concentrations August 2002

Erwin, TN

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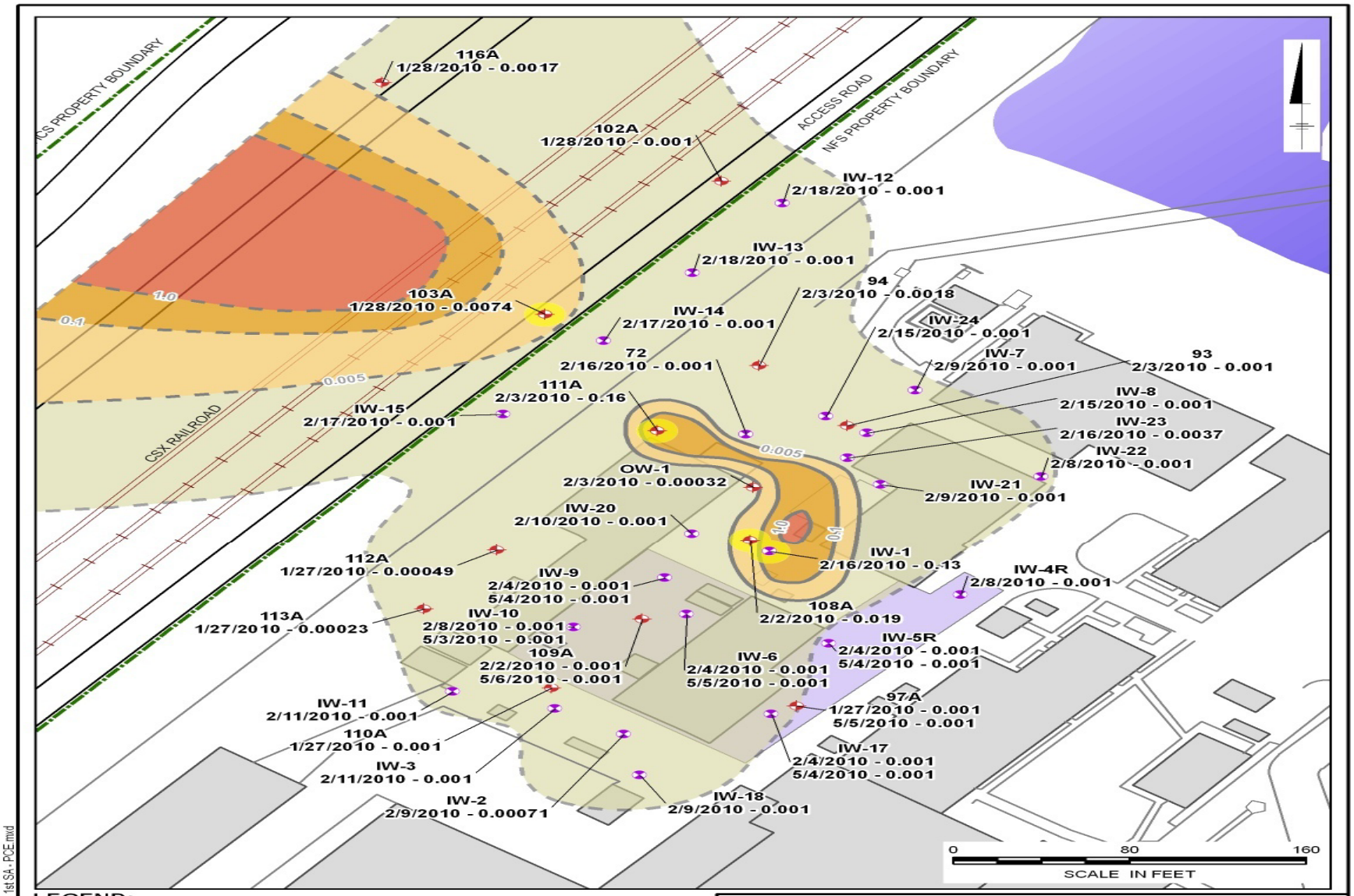

LEGEND:

- Injection Well
- Groundwater Monitoring Well
- Building
- Closure Monitoring Zone
- PCE Baseline
  - >0.005 mg/L

PCE Isopleth (mg/L)

- >1.0 mg/L
- >0.1 mg/L
- >0.005 mg/L
- Approximate Isopleth
- Inferred Isopleth

NOTES:
mg/L - milligrams per liter
PCE - Tetrachloroethene

YELLOW HIGHLIGHTED LOCATIONS EXCEED 0.005 MG/L.

NUCLEAR FUEL SERVICE
ERWIN, TENNESSEE

1ST SEMI-ANNUAL 2010 FULL SCALE IRZ STATUS REPORT

PCE Concentrations

ARCADIS

PRELIMINARY

FIGURE
3-2

CITY: (KNOX/VILLE) DIV/GROUP:(ENV) DB:(B.ALTOM) LD:(R.MCKINNEY) PIC:(B.ILGNER) PM:(P.PRESTON) TM:(R.MCKINNEY)
PROJECT: TN/NFS801.FS07.00001
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QUESTION #2

How can the NRC improve communications and support to other regulatory agencies, such as the U.S. Environmental Protection Agency (EPA) and the States, in understanding and exercising respective roles and responsibilities related to groundwater protection?

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RESPONSE TO QUESTION #2

- Evaluate Defaulting Regulatory Oversight of Groundwater Issues to the Environmental Protection Agency (EPA)
- Communicate
  - Facility Action Plan (FAP) workshop
    - Invite the NRC to the FAP
  - NRC Public Meetings
    - Invite the State and EPA