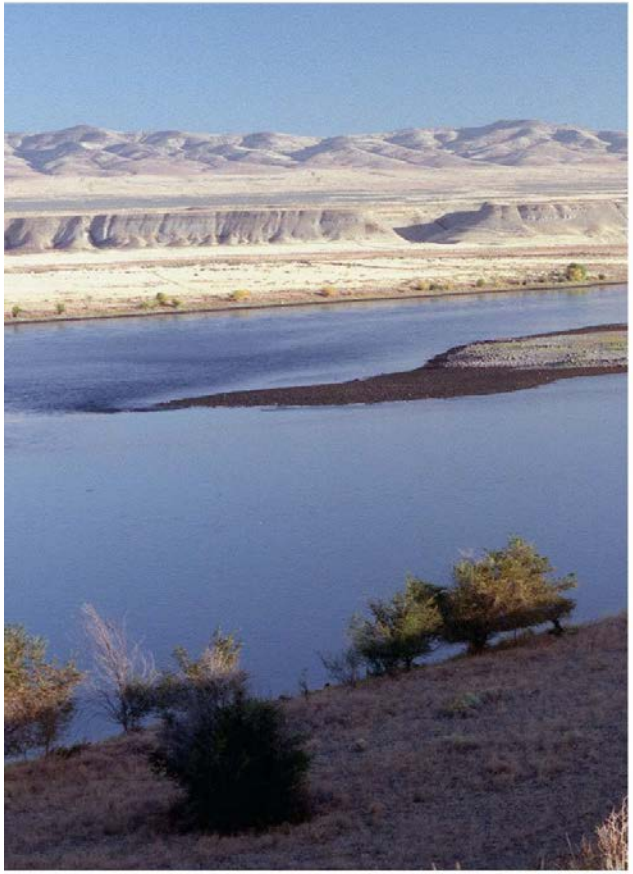

Update on100-F/IU Proposed Plan

Presented at:
Hanford Advisory Board Meeting

By: Greg Sinton,
RL, 100-F/IU CERCLA Document Lead

March 6, 2014

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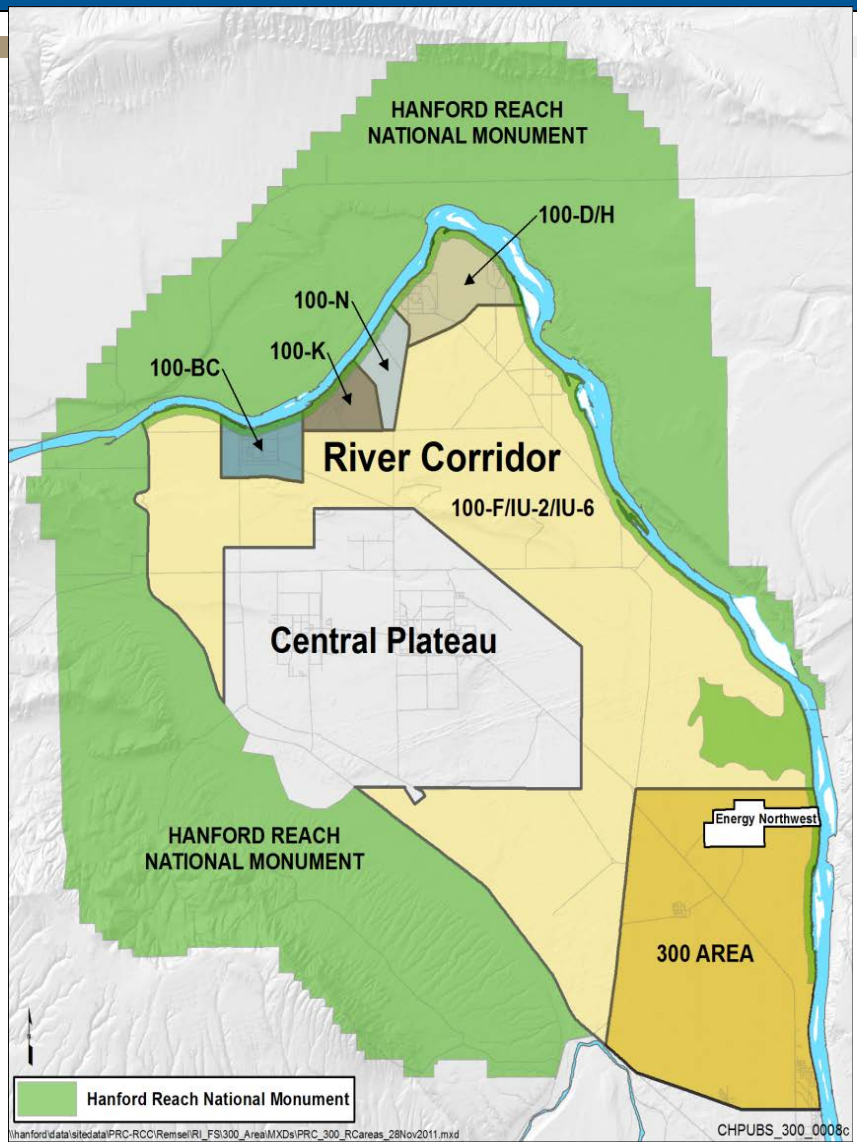
Agenda

- Summary of working draft Rev 0 Proposed plan: review remediation status, background, and alternatives evaluated
- What changed since Draft A
- Monitoring Results
- Currently Anticipated Schedule



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100-F/IU Area Cleanup

- Removed approximately 1.50 Million tons from 100-F
- 100-F revegetation completed winter 2012
- Two square miles of the former reactor industrial park is remediated

100-F Reactor Area during operations (1945-1965)

Removed more than 150,000 tons of waste material and chromium contamination from 100-F-57 waste site.

100-F Area in 2012

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100-IU-2/IU-6 Area Cleanup

- Removed approximately 500,000 tons at 100-IU-2/IU-6
- 14 sites remain to be remediated as of December 2013
- Anticipate ~10 remaining to be remediated after the ROD

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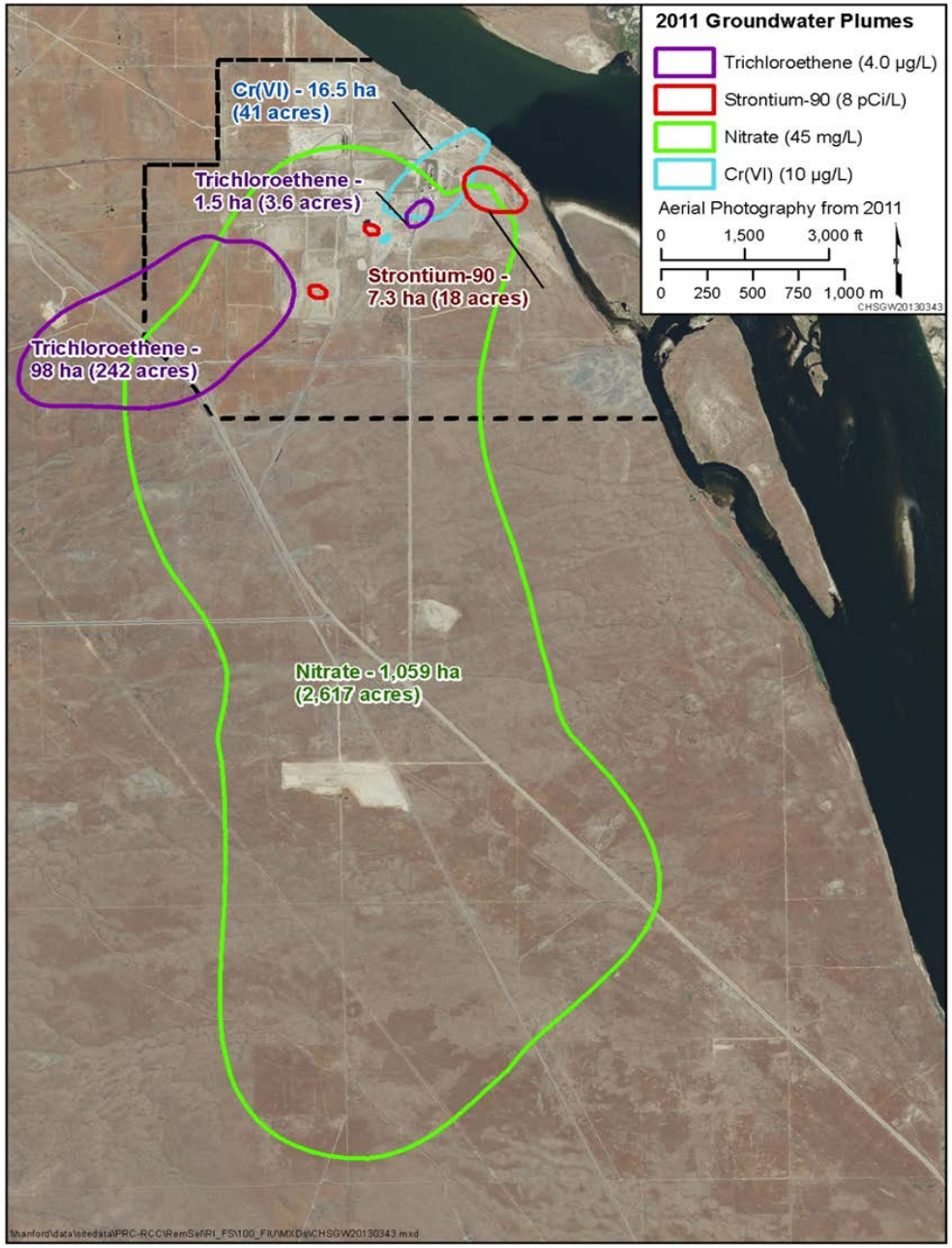
100-F/IU Groundwater Plume Map



Approximate Areal Extent of 100-F/IU Plumes 2011

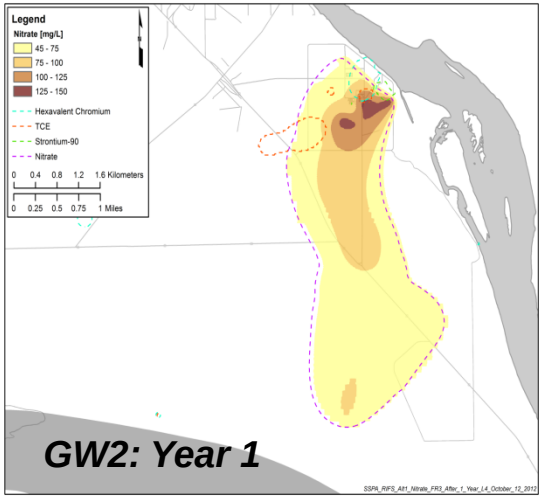
Contaminant	Cr(VI)	Nitrate	Strontium-90	TCE
Standard	10 µg/L	45,000 µg/L	8 pCi/L	4 µg/L
Total Size of Plume in acres	41	2600	18	250

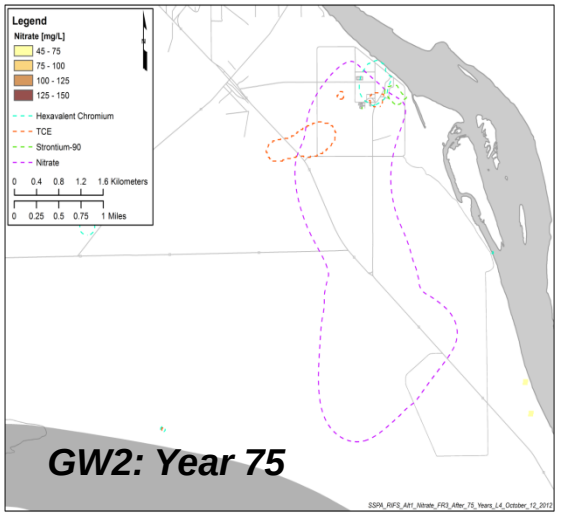
100-F/IU Vadose Zone Remedial Alternatives

- Vadose zone sites remedial action alternatives include:
  - Alternative S-1: No Action
  - Alternative S-2: Removal, Treatment, and Disposal (RTD) and Institutional Controls (ICs)
    - Timeframe: 3 to 5 years
    - Estimated Cost $21M

100-F/IU Groundwater Alternatives

- GW-1: No Action
- GW-2: Monitored Natural Attenuation (MNA) and Institutional Controls (ICs)
  - Components: Natural attenuation to reduce contaminants of concern, installation of additional monitoring wells and groundwater monitoring, ICs to prevent exposure
  - Timeframe: 25 to 35 years for Cr(VI), 30 to 80 years for nitrate, 90 to 150 years for strontium 90, and approximately 50 years for TCE
  - Cost: $36 Million





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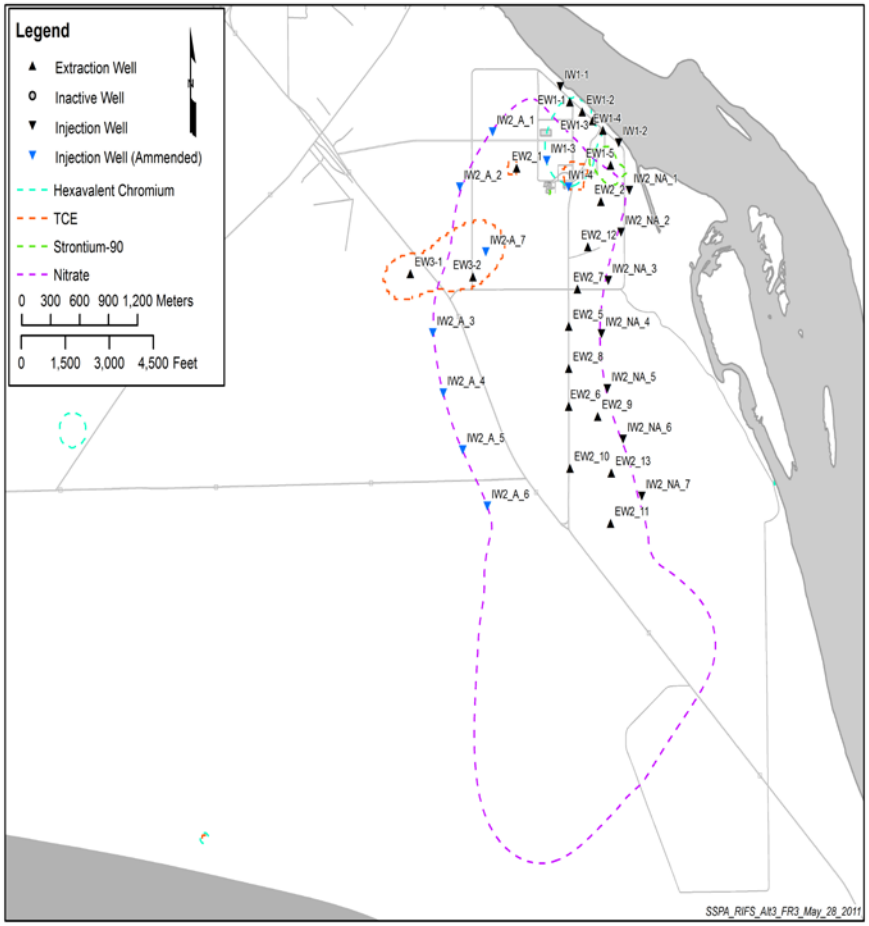
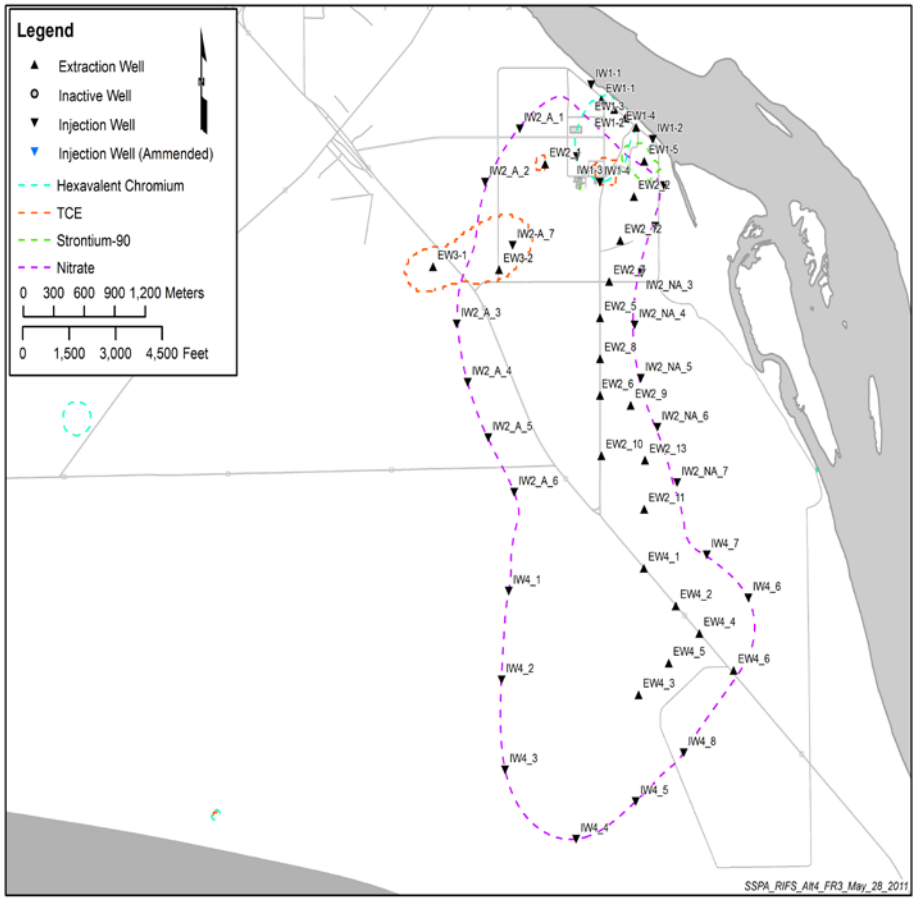
100-F/IU Groundwater Alternative GW-3

- GW-3—Pump and Treat (P&T) with In-Situ Treatment and MNA
  - Components: P&T System in source area with in situ treatment of nitrate, Cr(VI) and TCE, Southern area allowed to naturally attenuate, ICs to prevent exposure
  - Timeframe: 5 years for Cr(VI), 20 to 75 years for nitrate, 85 to 150 years for strontium 90, and approximately 10 years for TCE
  - Cost: $177 Million



100-F/IU Groundwater Alternative GW-4

- GW-4—Enhanced Pump and Treat
  - Components: Extensive P&T system including the southern less concentrated nitrate plume, ICs to prevent exposure
  - Timeframe: 5 -10 years for Cr(VI), 10 to 25 years for nitrate, 85 to 150 years for strontium 90, and 10 years for TCE
  - Cost: $194 Million



100-F/IU Preferred Alternative

- Vadose Zone (source): Alternative S-2 RTD
  - Protective of human health and the environment
  - Complies with *ARARs*,
  - Is cost effective and utilizes permanent solutions
  - Readily implementable as demonstrated through IAROD activities (only a few sites left and processes already in place to complete)

100-F/IU Preferred Alternative (Cont'd)

- Groundwater: Alternative GW-2 MNA and ICs
  - Protective of human health and the environment/ Complies with ARARs
  - The conditions do not currently present an actual risk to human or ecological receptors.
  - The vadose zone sources of the observed contamination have been remediated via RTD.
  - The COC plumes are decreasing in concentration and attenuation processes are present and operating within the plumes.
  - Effective monitoring currently exists and will be enhanced with remedy implementation to confirm natural attenuation processes are performing as anticipated to achieve cleanup levels.
  - Readily implementable and significantly less costly than other alternatives

Changes Since Draft A

- **Clarified/Simplified: Examples include**
  - IRIS update (TCE 4.9 to 4; 45 years to 50)
  - Risk section simplified
  - Deleted confusing risk language from Principal Threat Waste section (HAB comment)
  - Waste site status update to March 2013
  - Updates based on EPA, HQ IRR and other comments
  - **Leveraged applicable language agreed upon from 300 Area effort w/EPA (e.g. PRGs for irrigation scenario not irrigation and non-irrigation)**
- **Remedy (RTD, MNA, ICs) remains the same**

Fall 2013 GW Monitoring Results

- Concentrations and distribution of Cr(VI), Nitrate, Sr-90, and TCE were consistent with anticipated levels
- Six wells in 100-F exceeded the 10ug/L Cr(VI) SW standard, and no wells exceeded the 48ug/L MTCA groundwater clean up level. Highest concentration was 27ug/L
- Ten wells in 100-F and associated 600 area exceeded the 45mg/L nitrate MCL (Max 189mg/L)
- Three wells exceeded the 8pCi/L DWS for Sr-90 (small plume isolated from river)
- Three wells in SW 100-F continue to exceed the 4ug/L MTCA cleanup level for TCE (Max 15ug/L)

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Fall 2013 Aquifer Tube Results

- **26 of 31 tubes successfully sampled Sept-Oct with none exceeding applicable standards**
  - **21 sampled for Cr(VI), none exceed 10ug/L, max. 5.3 ug/L**
  - **11 sampled for nitrate, none exceeded 45 mg/L, max. 25.1 mg/L**
  - **17 sampled for Sr-90, none exceeded 8 pCi/L, max. 5.8 pCi/L**
  - **TCE no longer sampled in aquifer tubes**

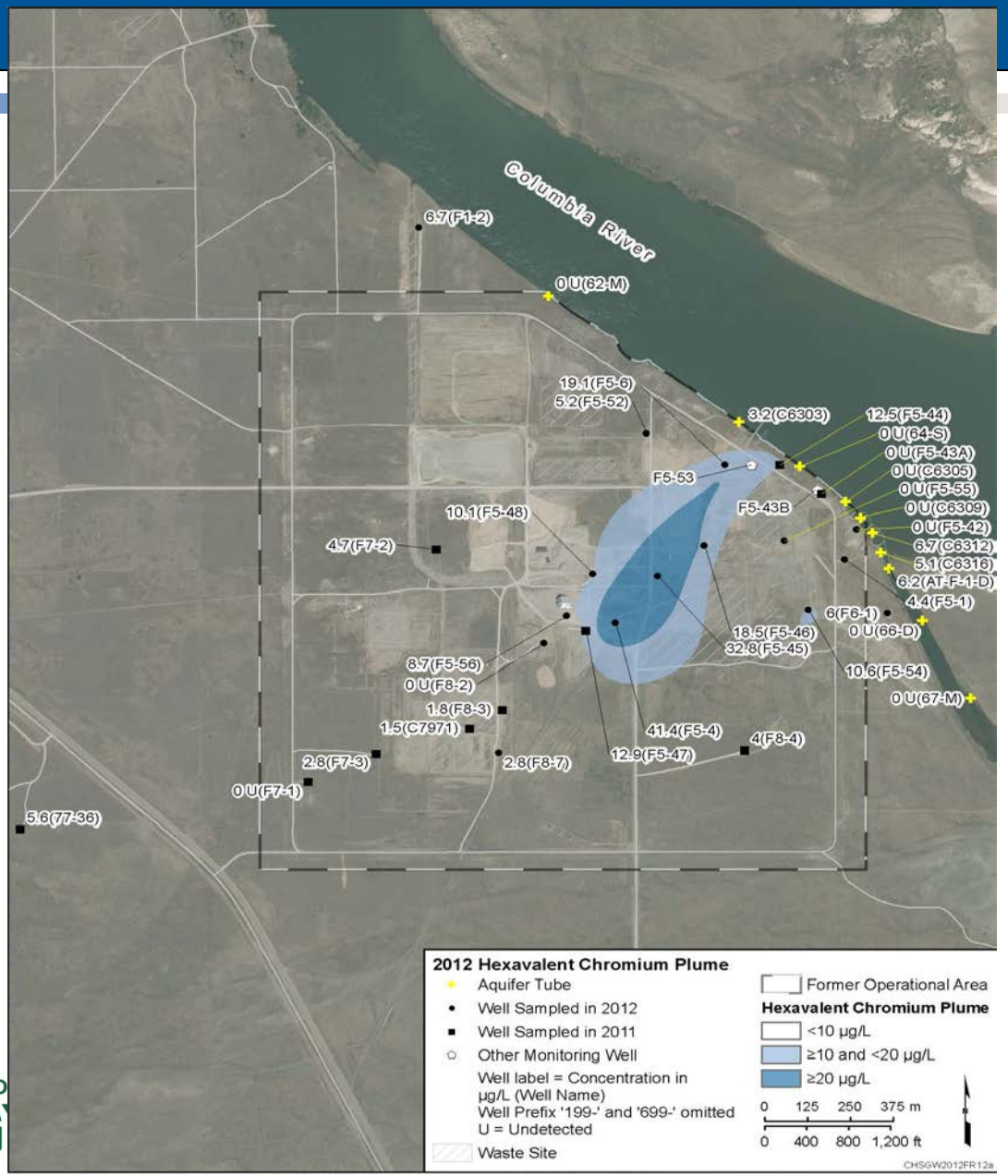
Schedule

- Received remaining EPA comments (legal) January 23, 2014: Working to resolve
- Finalize Rev 0 documents and fact sheet: Jan-April
- Issue notice of public comment period: April
- Public Comment period: May-June
- Prepare ROD & responsiveness summary: June-Sept
- Issue ROD: September 2014

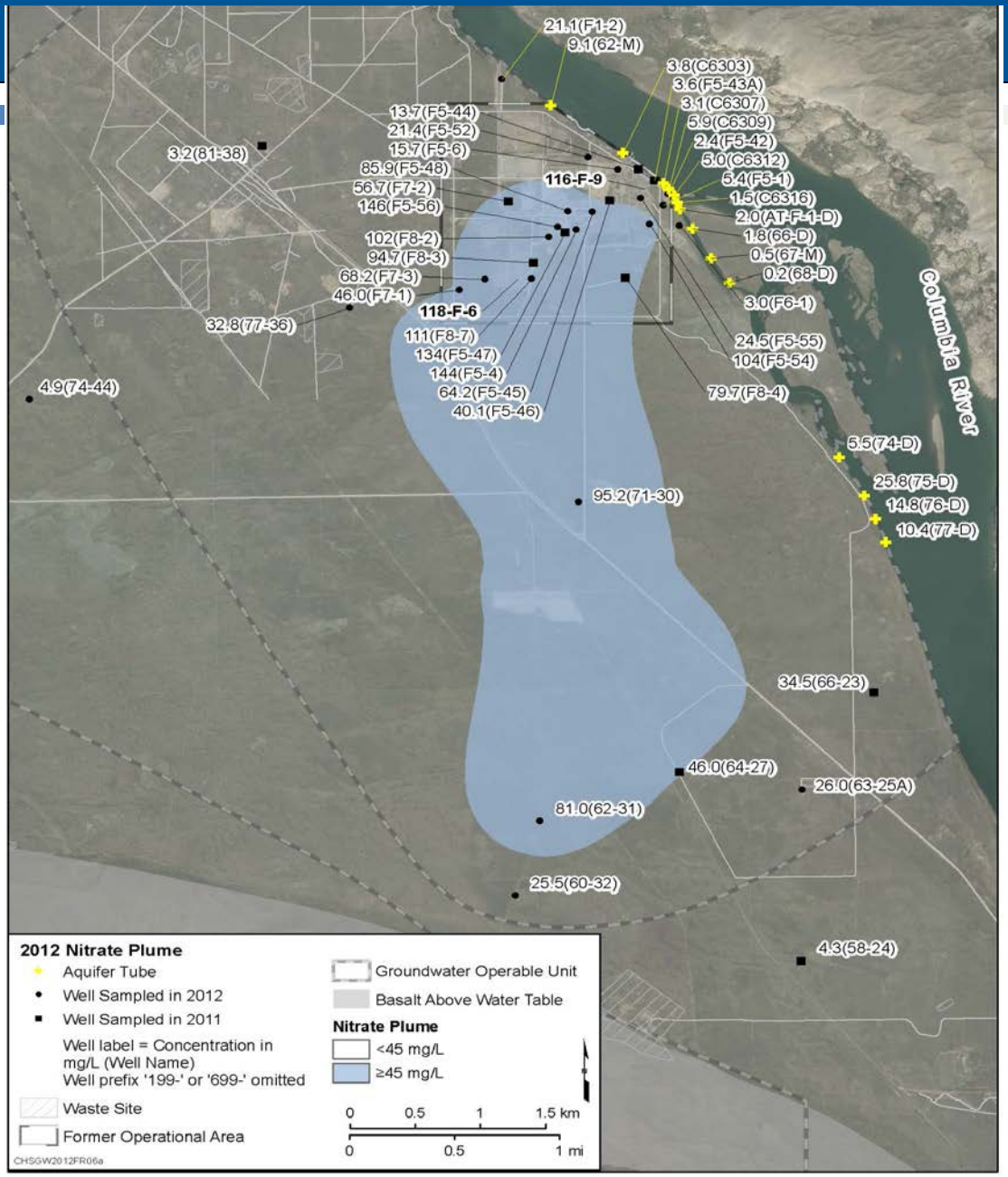
Backup slides

- 2012 plume maps

Cr(VI) Plume 2012



Nitrate Plume 2012



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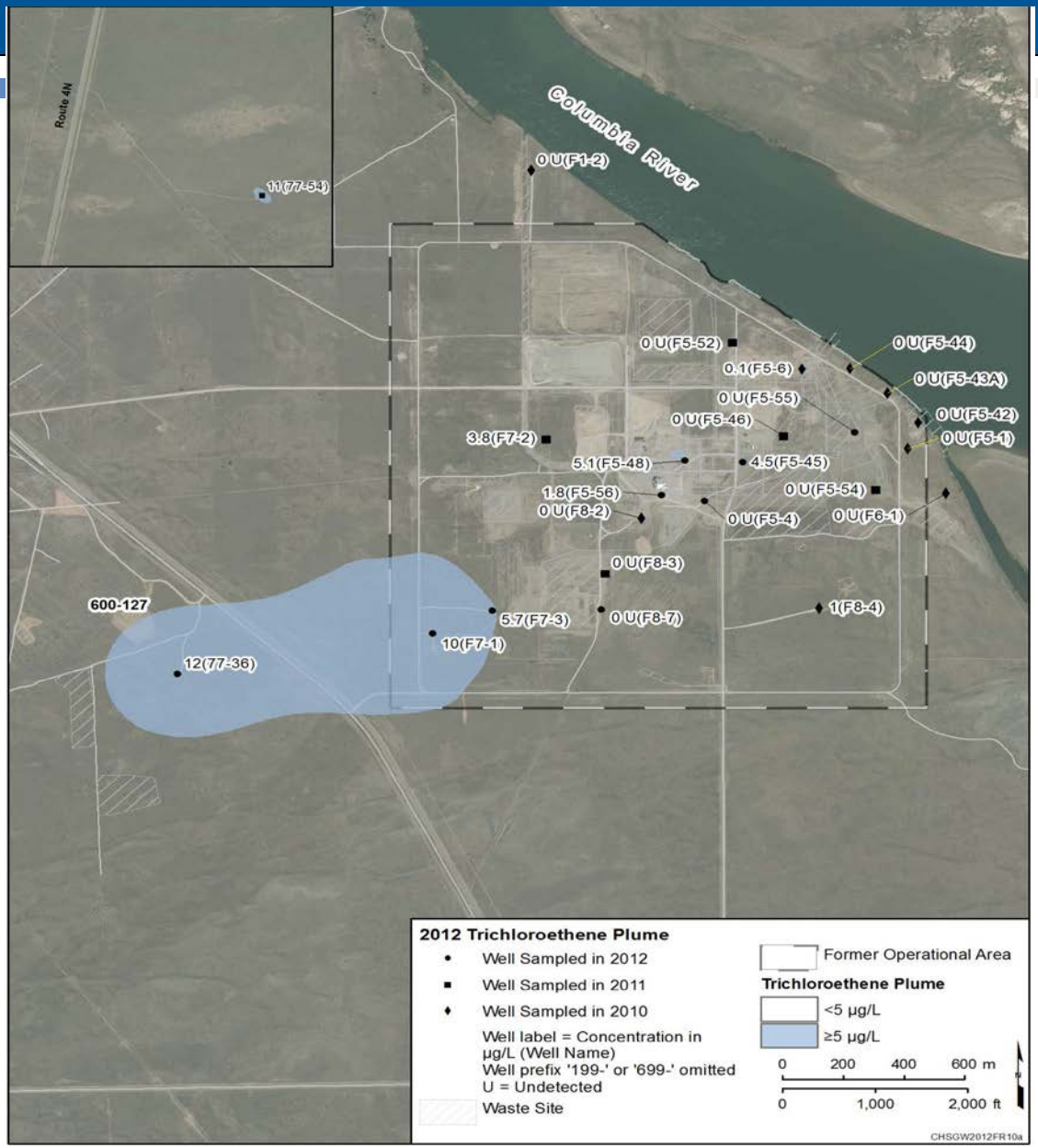
TCE Plume 2012



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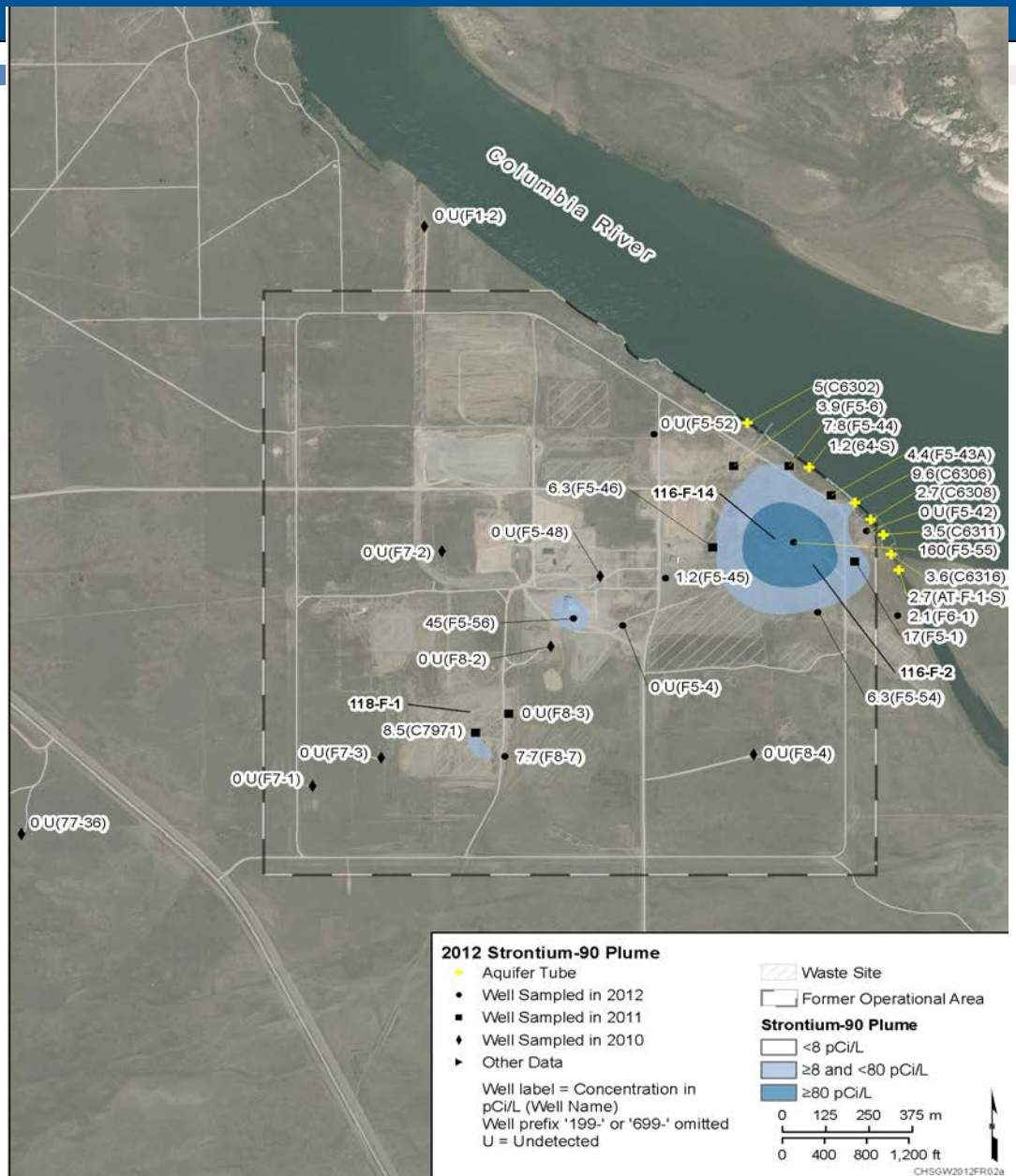
Strontium-90 Plume 2012



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