



# 100-F/IU Draft A Proposed Plan Overview

Presented to: Hanford Advisory  
Board River and Plateau Committee

By: Greg Sinton

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# 100-F/IU Area Cleanup

- Removed approximately 1.5 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 chrome contamination from 100-F-57 waste site.*



*100-F Area in 2012*

# 100-IU-2/IU-6 Area Cleanup

- Removed approximately 500,000 tons at 100-IU-2/IU-6
- Anticipate approximately 36 waste sites remaining to be remediated after the Record of Decision is issued



*Site 600-379 – view of a small area of apparent burning*

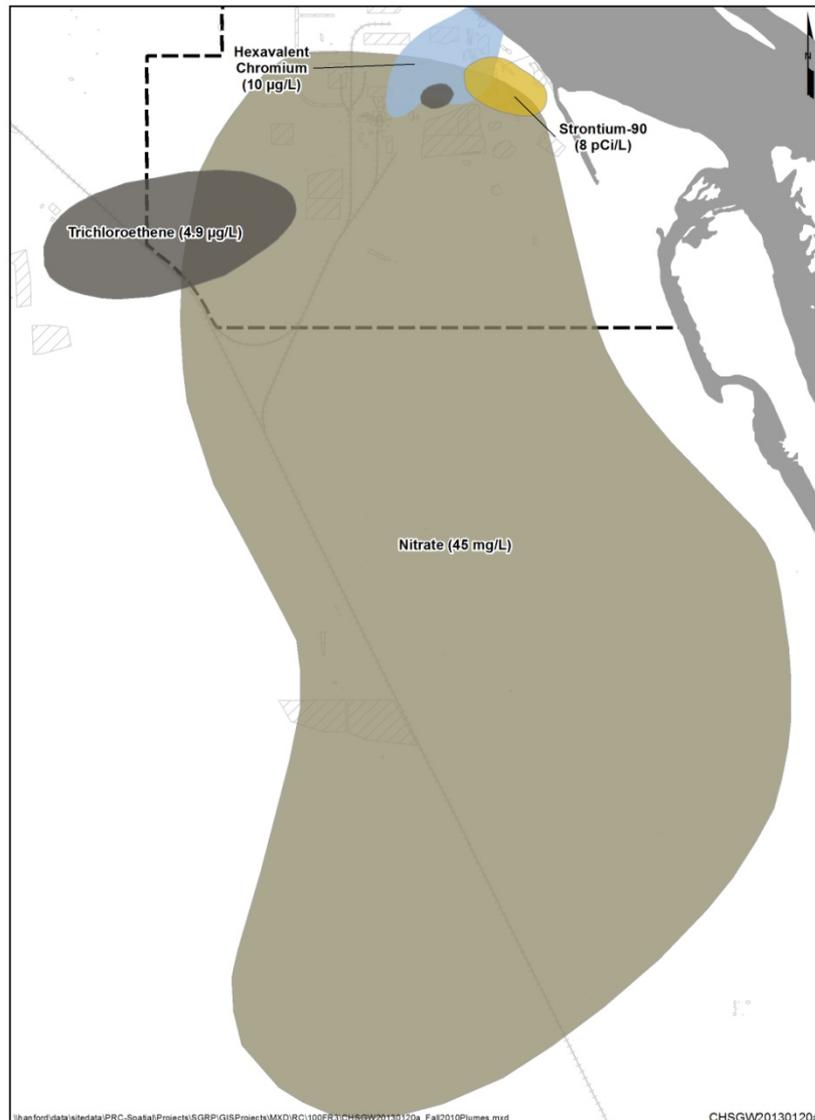


*Site 600-374 – crushed drum and small area of possibly impacted soils*

*Site 600-377 – small pile of oil filter components and associated stained soils*

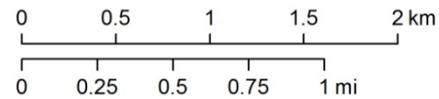


# 100-F/IU Groundwater Plume Map

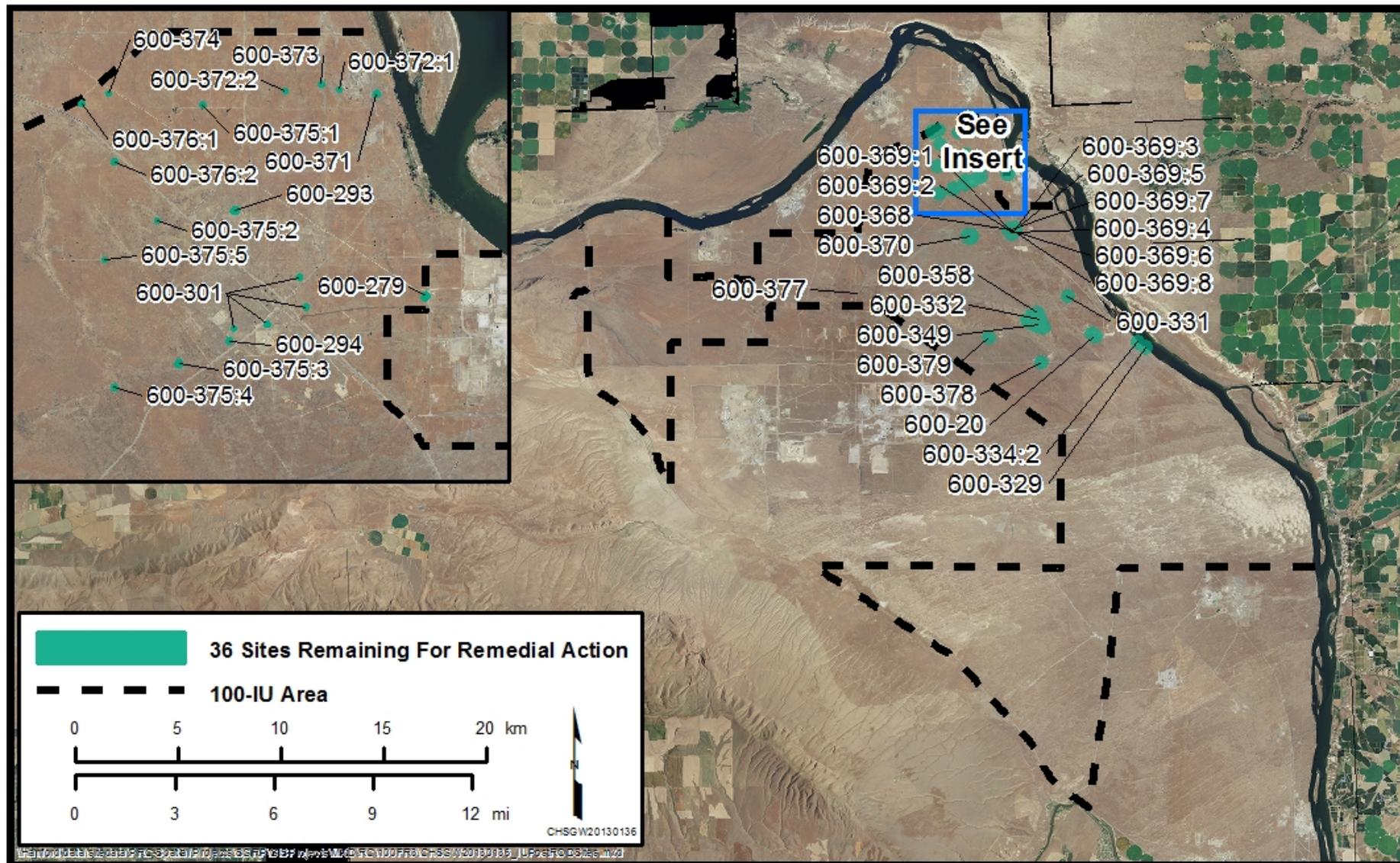


## Fall 2010 Groundwater Plumes

- Trichloroethene (4.9 µg/L)
- Strontium-90 (8 pCi/L)
- Hexavalent Chromium (10 µg/L)
- Nitrate (45 mg/L)
- Waste Sites
- Facility
- Railroad



# 100-F/IU Vadosose Zone Remedial Alternatives—36 Sites Remaining for Remedial Action

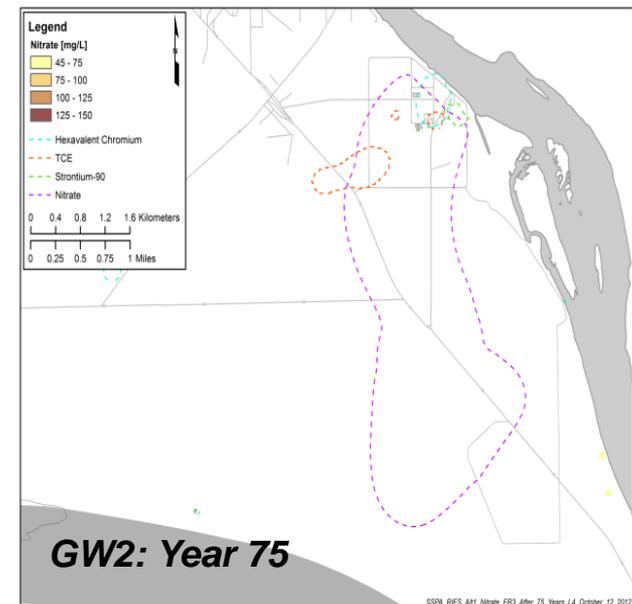
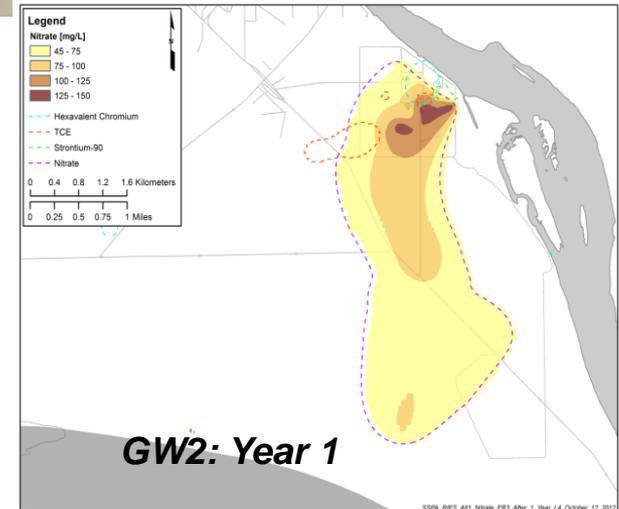


# 100-F/IU Vadose Zone Remedial Alternatives

- Vadose zone sites remedial action alternatives include:
  - Alternative S-1: No Action
  - Alternative S-2: Removal, Treatment, and Disposal (RTD)

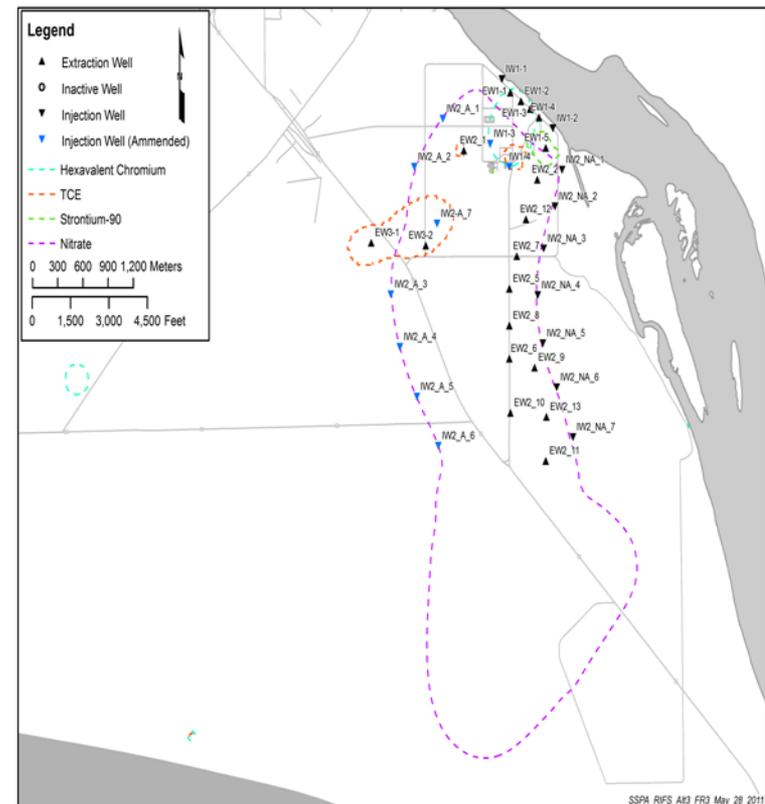
# 100-F/IU Groundwater Alternatives

- GW-1: No Action
- GW-2: Institutional Controls (ICs) and Monitored Natural Attenuation
  - Components: ICs to prevent exposure, natural attenuation to reduce contaminants of concern, installation of additional monitoring wells, and groundwater monitoring
  - Timeframe: 25 to 35 years for Cr(VI), 30 to 80 years for nitrate, 90 to 150 years for strontium-90, and approximately 45 years for Trichloroethene (TCE)
  - Cost: \$34 Million



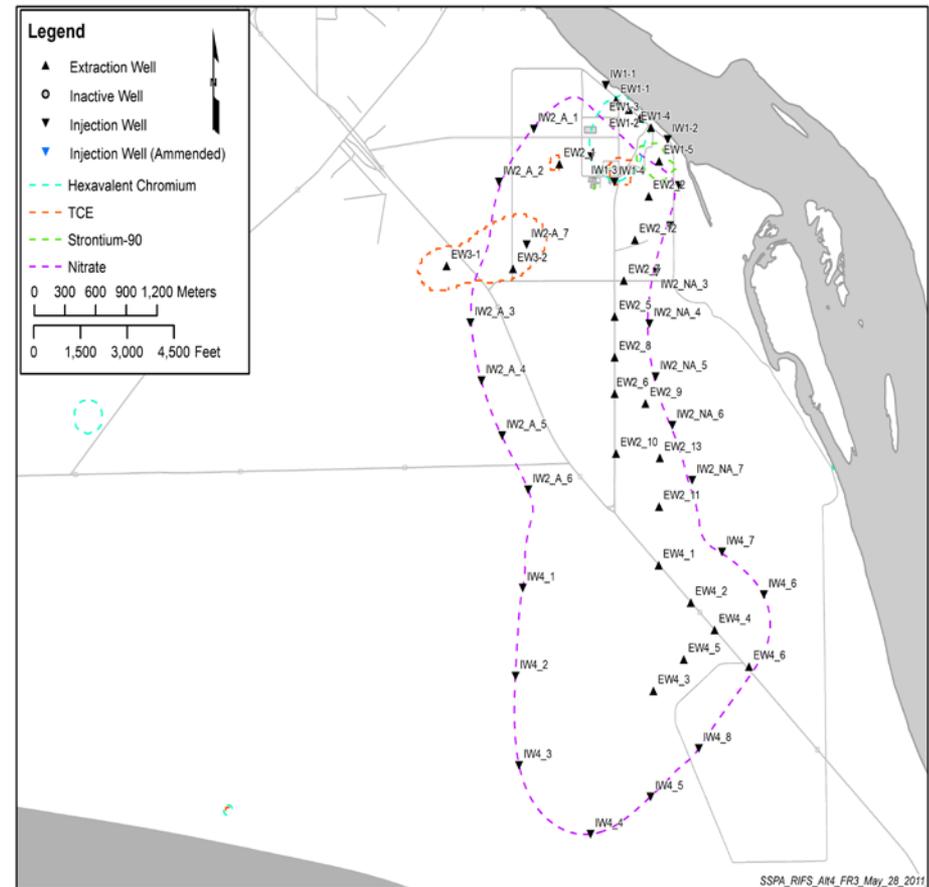
# 100-F/IU Groundwater Alternative GW-3

- GW-3: Pump and Treat Optimized with Other Technologies
  - Components: Pump and treat system in source area with in-situ treatment of nitrate, Cr(VI) and TCE, Southern area allowed to naturally attenuate
  - 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: \$182 Million



# 100-F/IU Groundwater Alternative GW-4

- **GW-4: Enhanced Pump and Treat**
  - Components: Extensive pump and treat system in source area including the southern less concentrated nitrate plume
  - Timeframe: 5 to 10 years for Cr(VI), 10 to 25 years for nitrate, 85 to 150 years for strontium-90, and 10 years for TCE
  - Cost: \$200 Million



# 100-F/IU Preferred Alternative

- Vadose Zone (soil): Alternative S-2 RTD
  - Protective of human health and the environment
  - Complies with *applicable or relevant and appropriate requirements (ARARs)*
  - Cost effective and utilizes permanent solutions
  - Readily implementable as demonstrated through Interim Action Record of Decision activities

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

- Groundwater: Alternative GW-2 ICs and Monitored Natural Attenuation (MNA)
  - Conditions do not currently present an actual risk to human or ecological receptors
  - Achieves cleanup within timeframe comparable to other alternatives
  - Vadose zone sources of the observed contamination have been remediated via RTD

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

- Groundwater: Alternative GW-2 ICs and MNA
  - Plumes are decreasing in concentration and attenuation processes are present and operating within the plumes.

## Residual Plume Concentrations (2007 to 2011 Sampling Results)

Contaminant	Exposure Point Concentration	Maximum Value	Standard
Trichloroethene (µg/L)	11	20	4.9 (MTCA)
Hexavalent Chromium (µg/L)	20	92	10 (SW) 48 (MTCA)
Strontium-90 (pCi/L)	3.3	26*	8 (MCL)
Nitrate (µg/L)	109	139	45 (MCL) 114 (MTCA)

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

- 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