



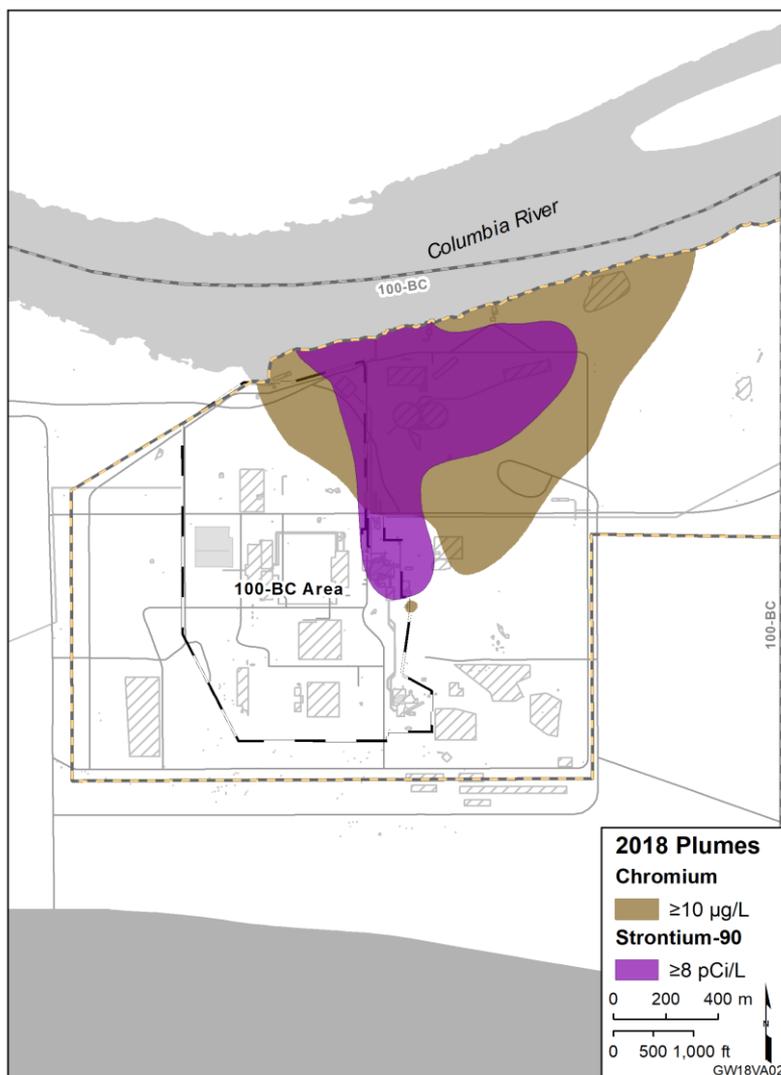
THE HANFORD SITE

2019 Groundwater Update



November 12, 2019

- Removed nearly 90 tons of contaminants, treated +2.4B gallons of groundwater
- Completed modifications & upgrades to existing equipment
- Installed chlorine disinfection system for well lines
- Achieved 2,500 gal/min sustained operation at 200 West P&T
- Removed 1 million pounds of nitrate since 2012
- Successful soil flushing technology test for chromium removal

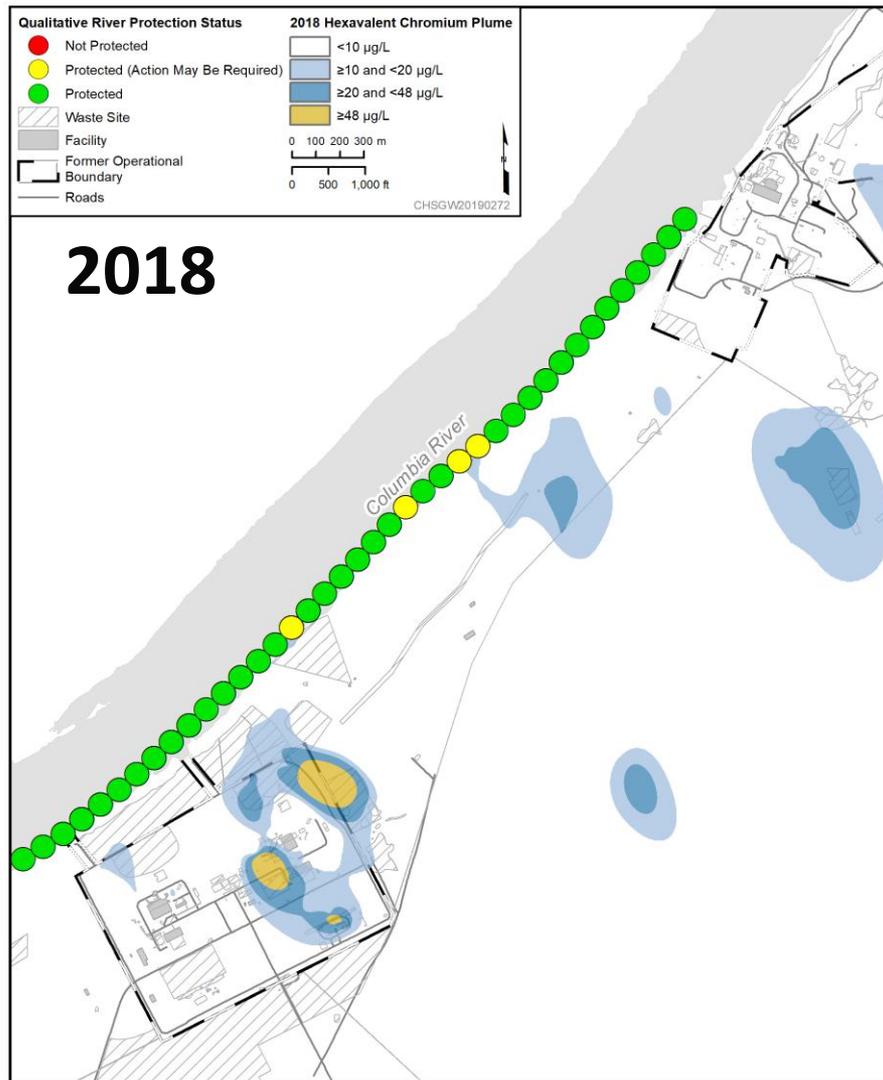
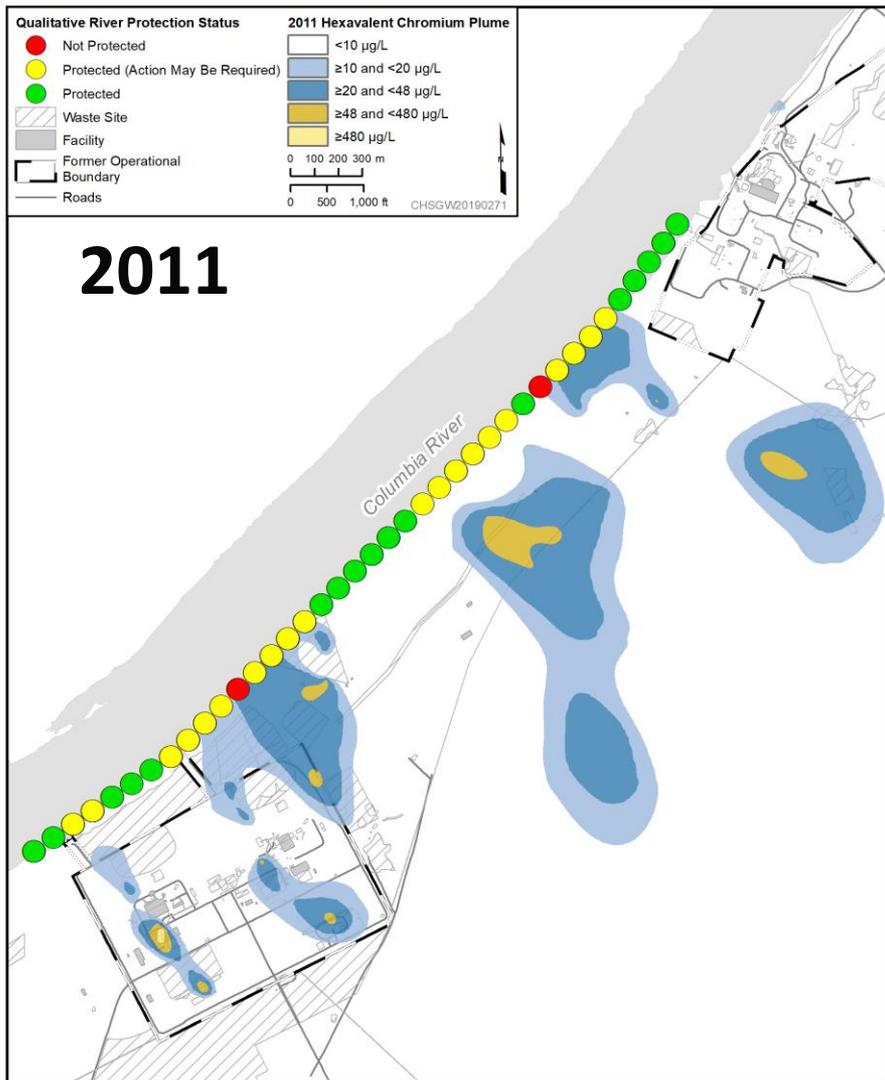


- Completed remedial investigation/feasibility study and Proposed Plan in 2019
- Proposed Plan currently out for public review

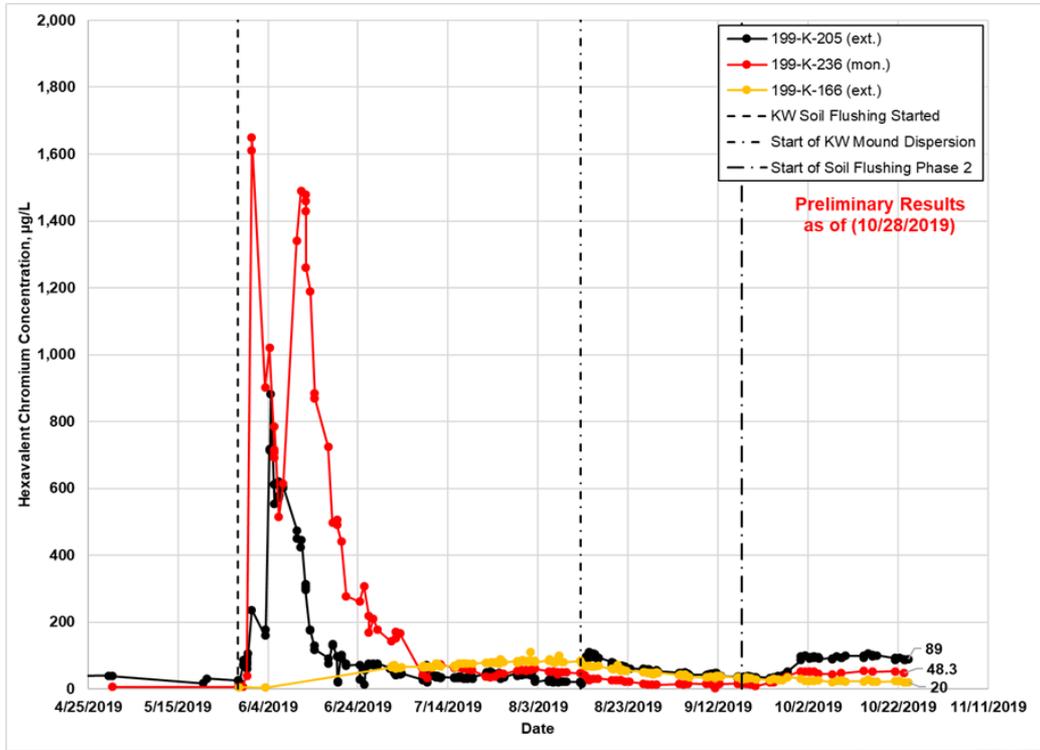
100 K Reactor Area Pump-and-Treat Systems

- KR-4, KW, and KX
- Total System Design Capacity: 1,560 gallons per minute
- Operating Wells: 39 extraction and 18 injection
- Between 2011 and 2018, processed a combined 4.8 billion gallons of water and removed approximately 360 kilograms of hexavalent chromium
- Initiated Soil Flush Treatability Test in 2019

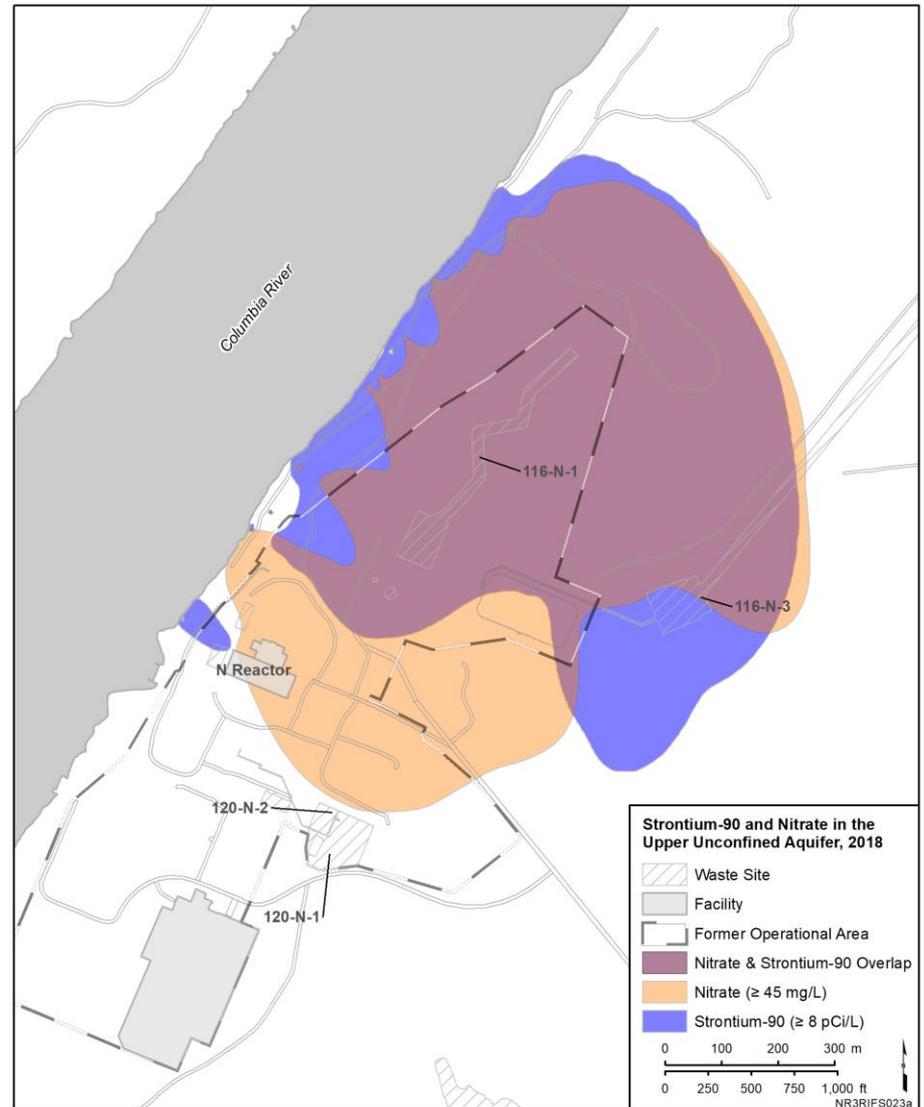
100 K Reactor Area Plumes



100 K Reactor Area Soil Flushing Test



- Remedial investigation/feasibility study prepared in 2019 to support final remedy decision for the 100-N groundwater plumes
- Currently in discussions with the Washington State Department of Ecology and the U.S. Environmental Protection Agency

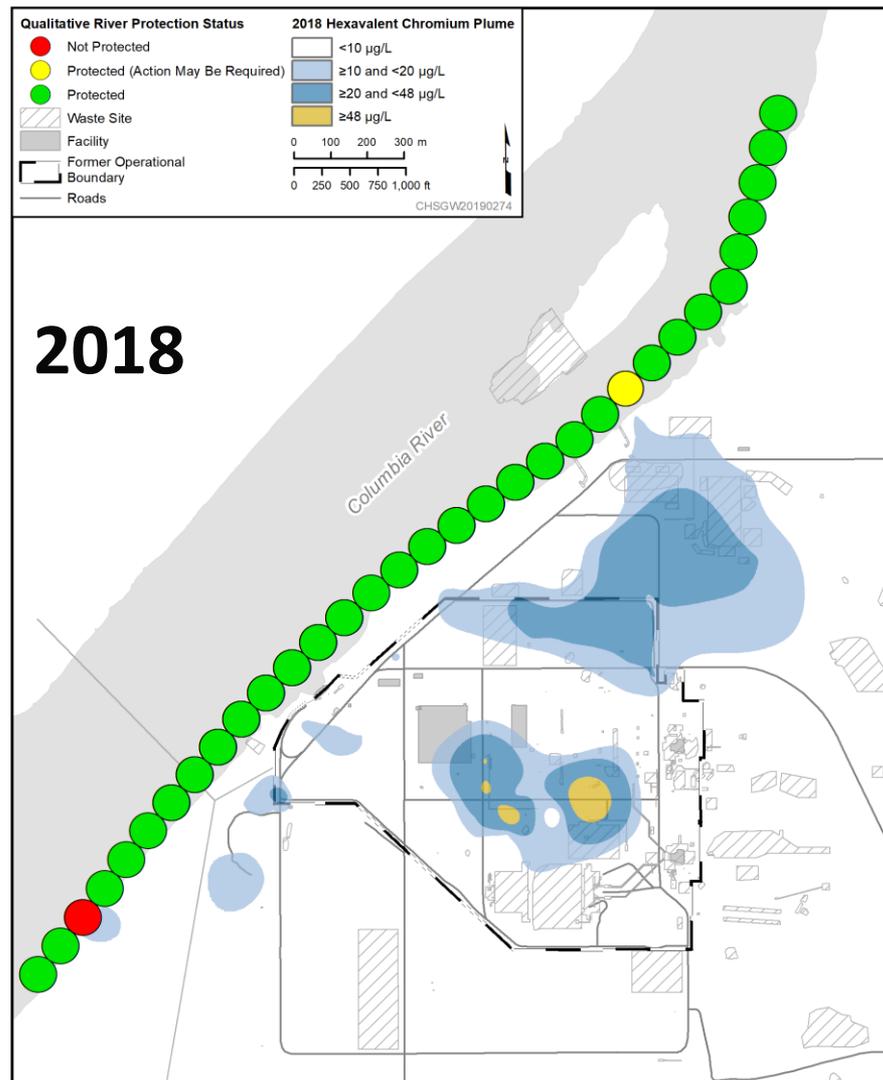
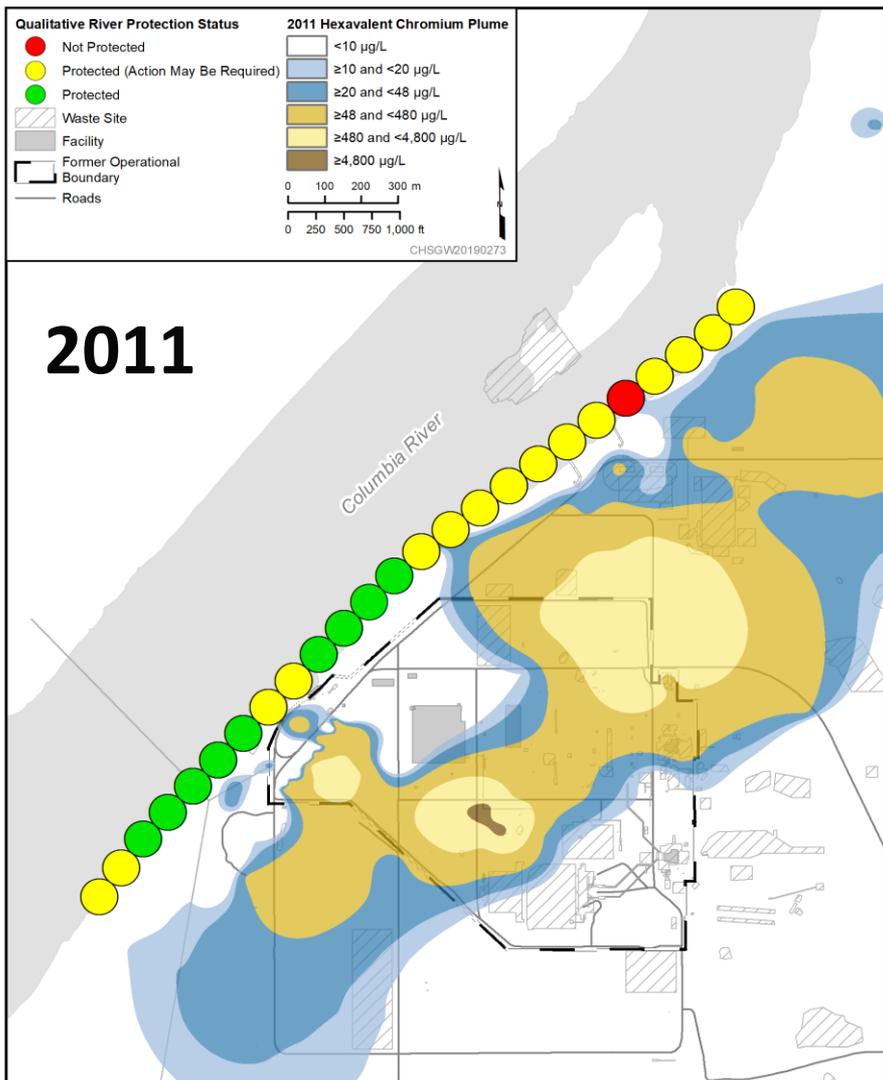


100 D/H Reactor Areas Pump-and-Treat Systems

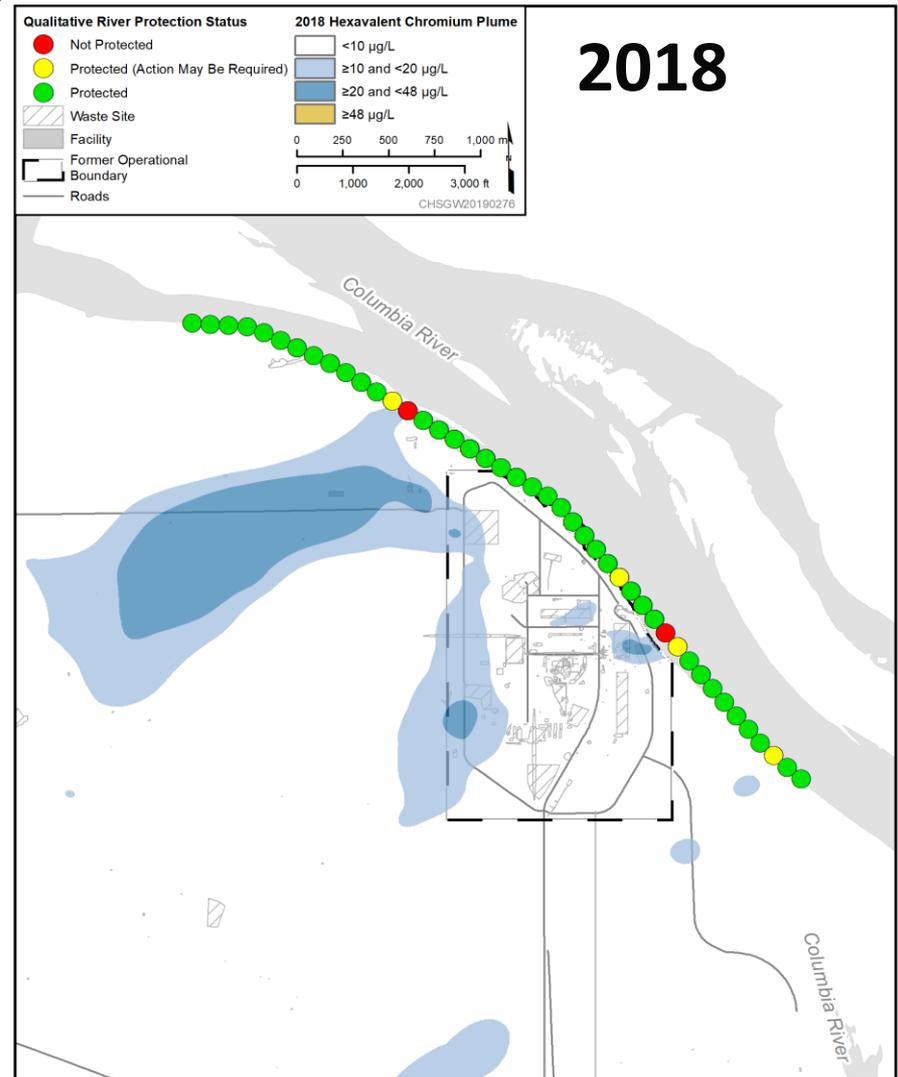
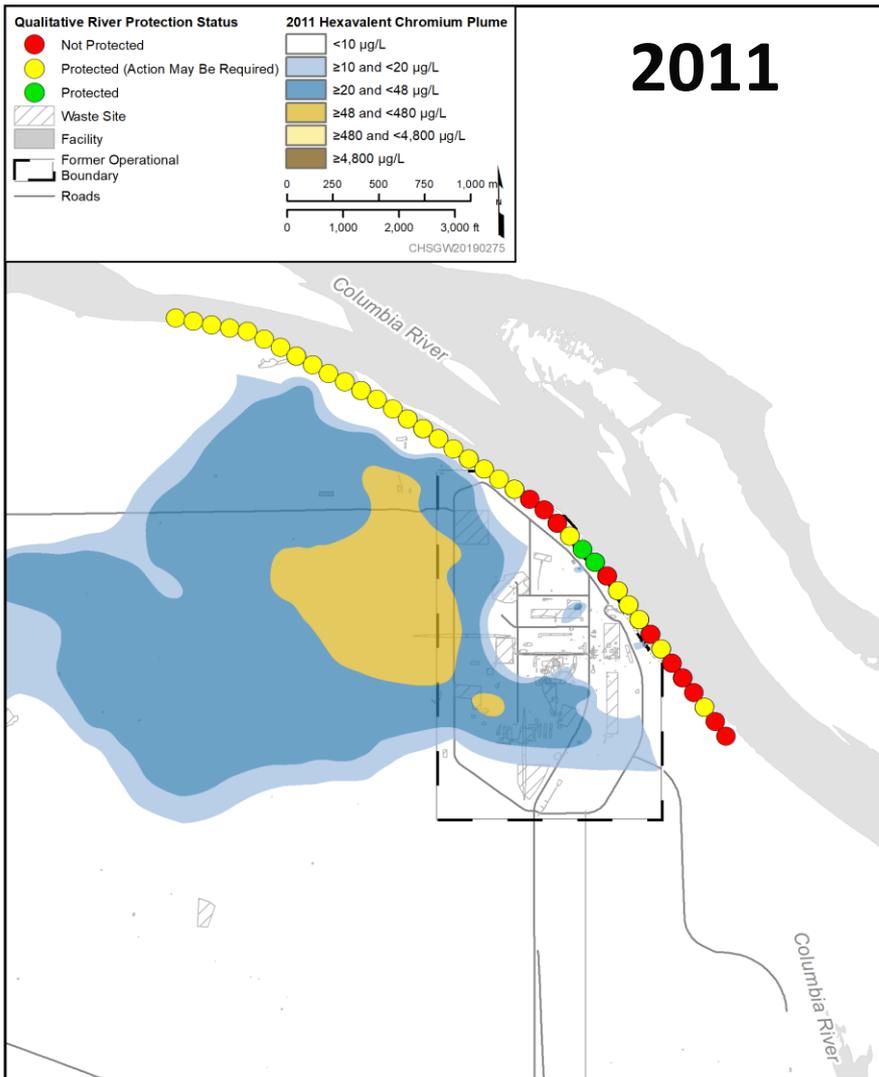
2011 to 2018

- DX and HX Pump-and-Treat Systems
- Total System Design Capacity: 1,675 gallons per minute
- Operating Wells: 88 extraction and 28 injection
- Between 2011 and 2018, processed a combined 5.1 billion gallons of water and removed approximately 1,800 kilograms of hexavalent chromium
- Record of decision signed in July 2018
- Remedial Design / Remedial Action Work Plan currently in discussion with Ecology and EPA

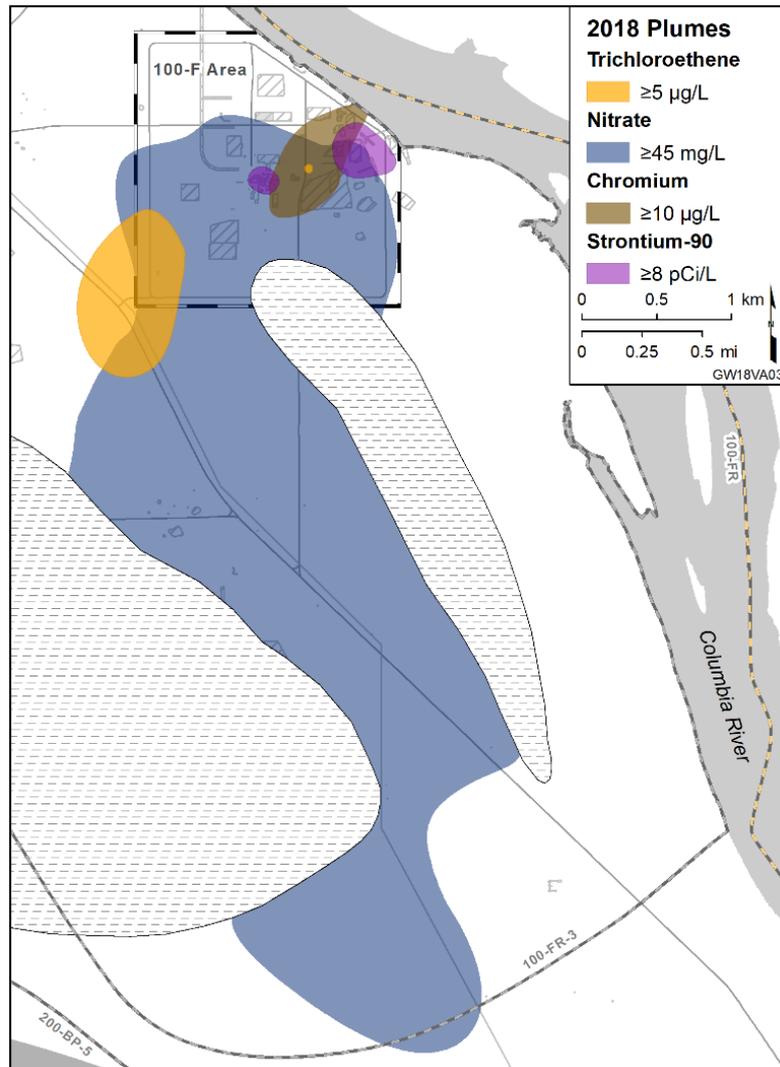
100 D Reactor Area Plume Maps

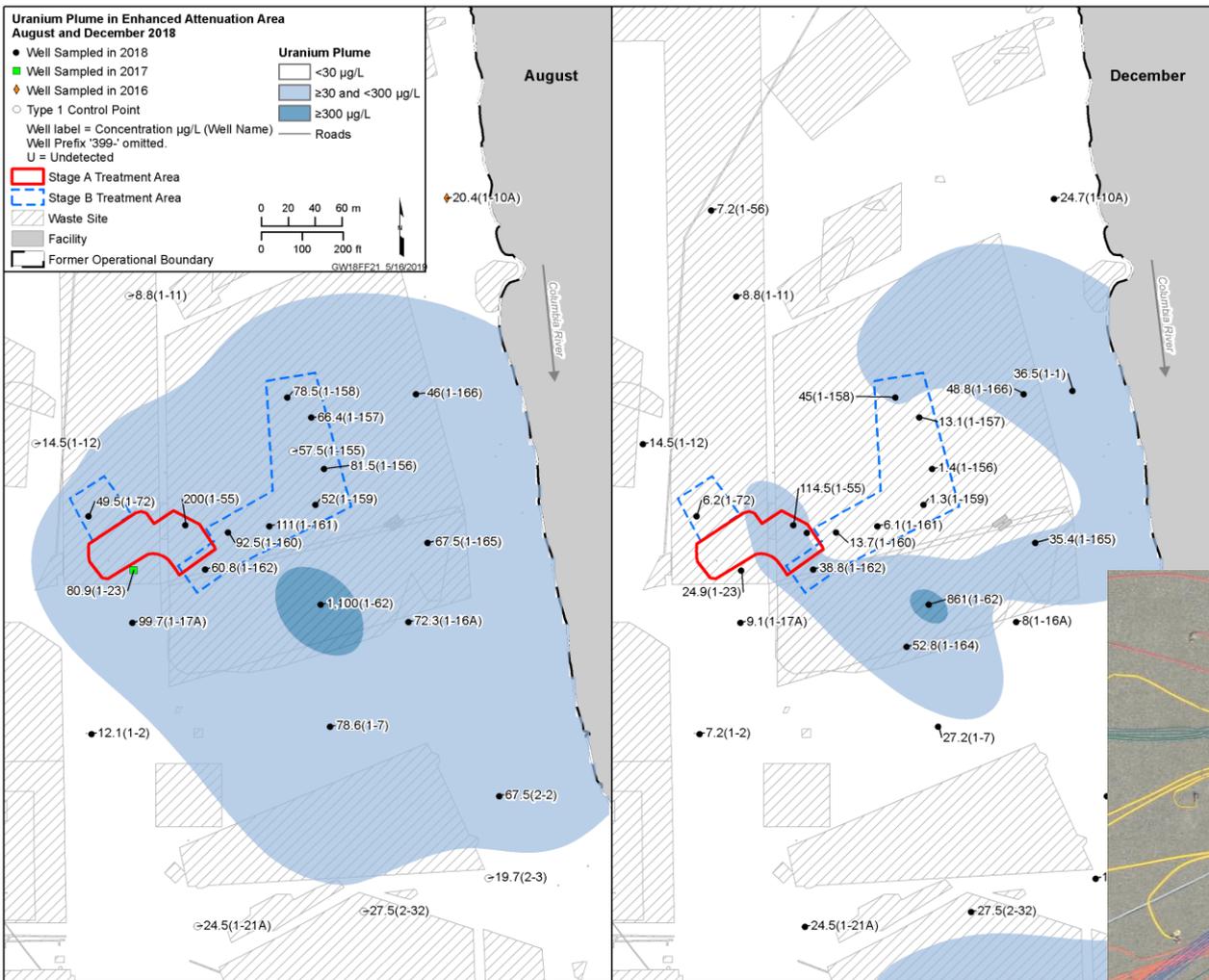


100 H Reactor Area Plume Maps



- Record of decision signed in 2014
- Monitored natural attenuation of groundwater plumes
- Completed installation of the monitoring network in 2019

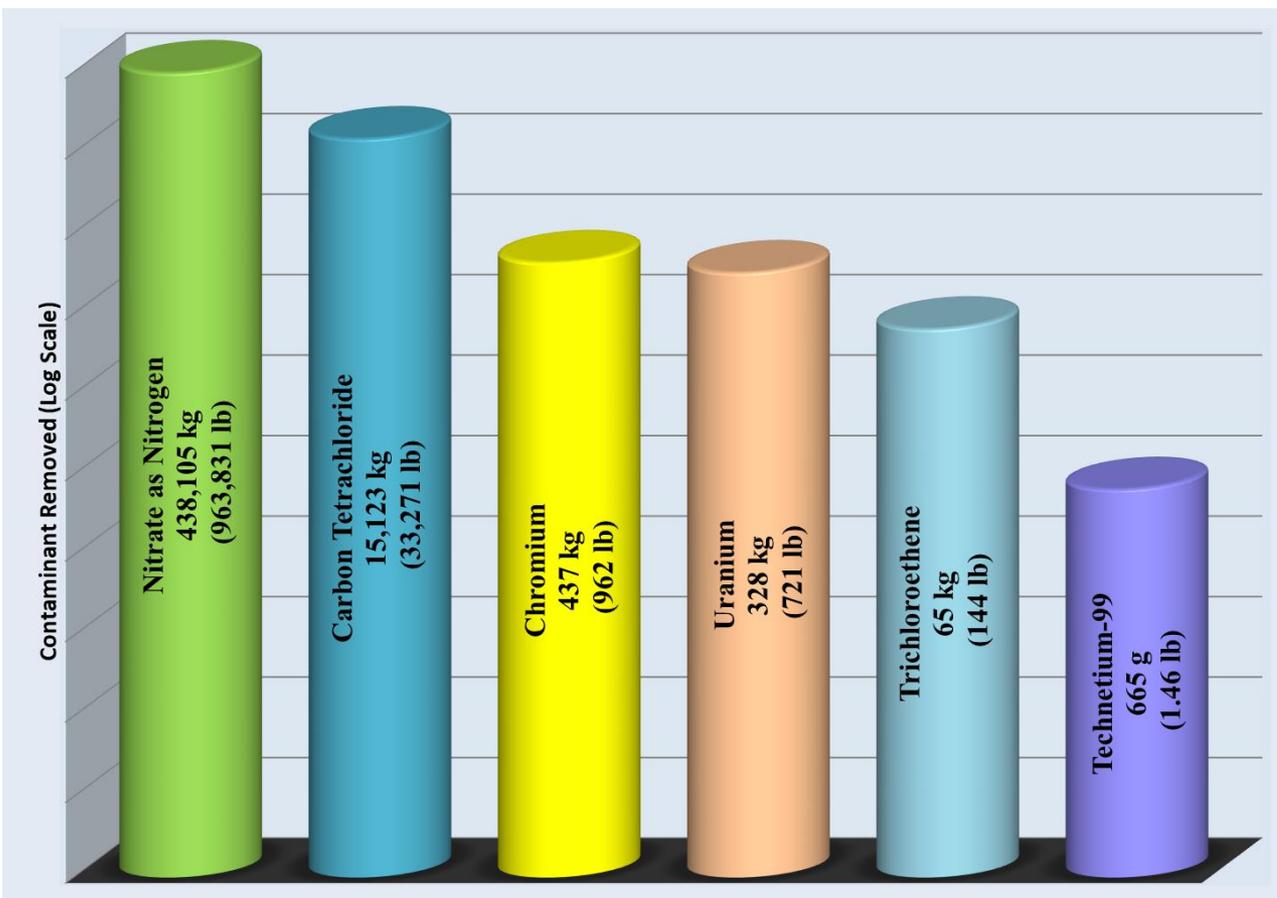




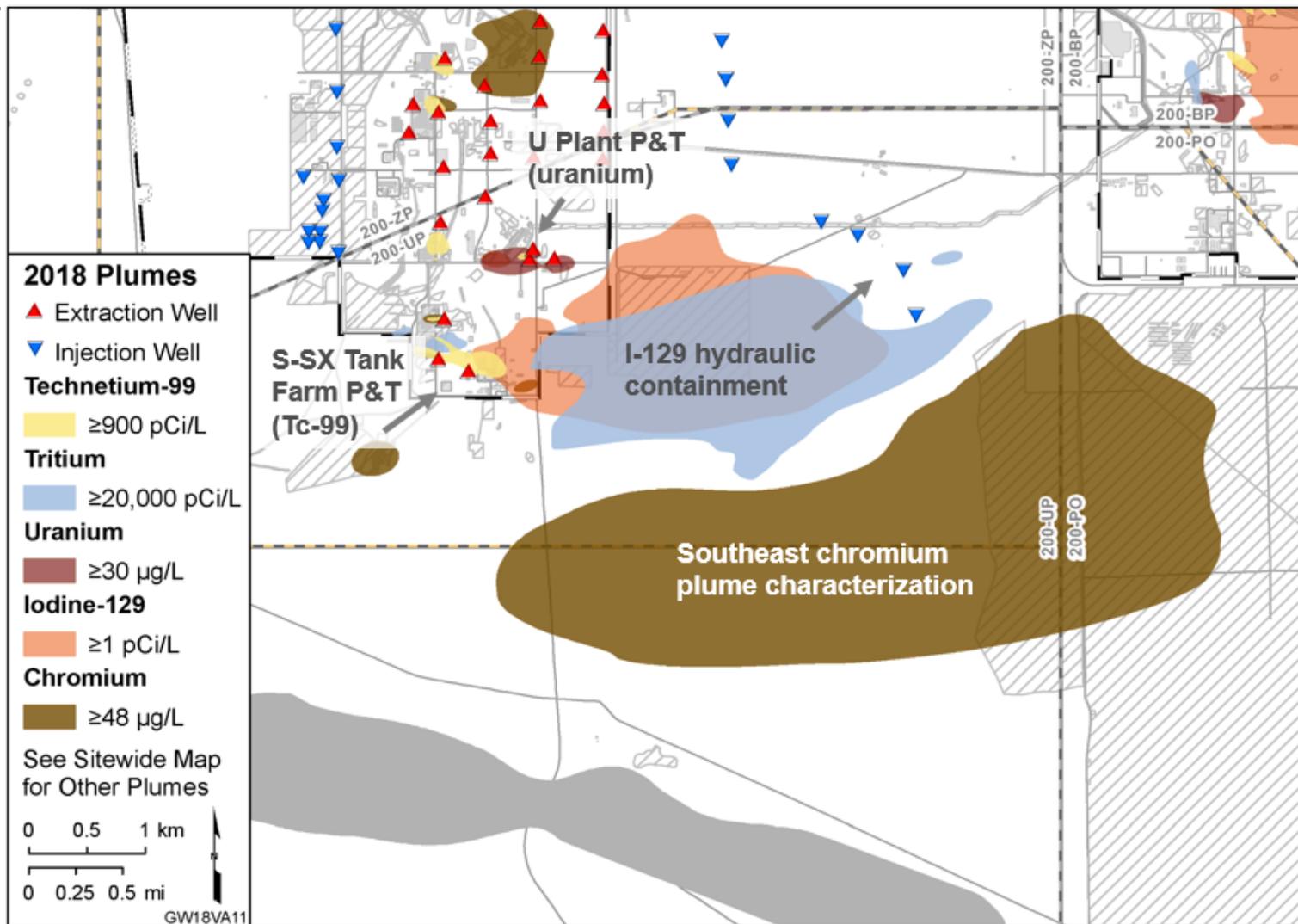
- Record of decision signed in November 2013
- Phase B injections completed October 2018
- Core Samples Obtained in spring 2019
- Currently evaluating core samples for leachability



Cumulative Contaminant Mass Removed by the 200 West P&T, 2012 Through 2018

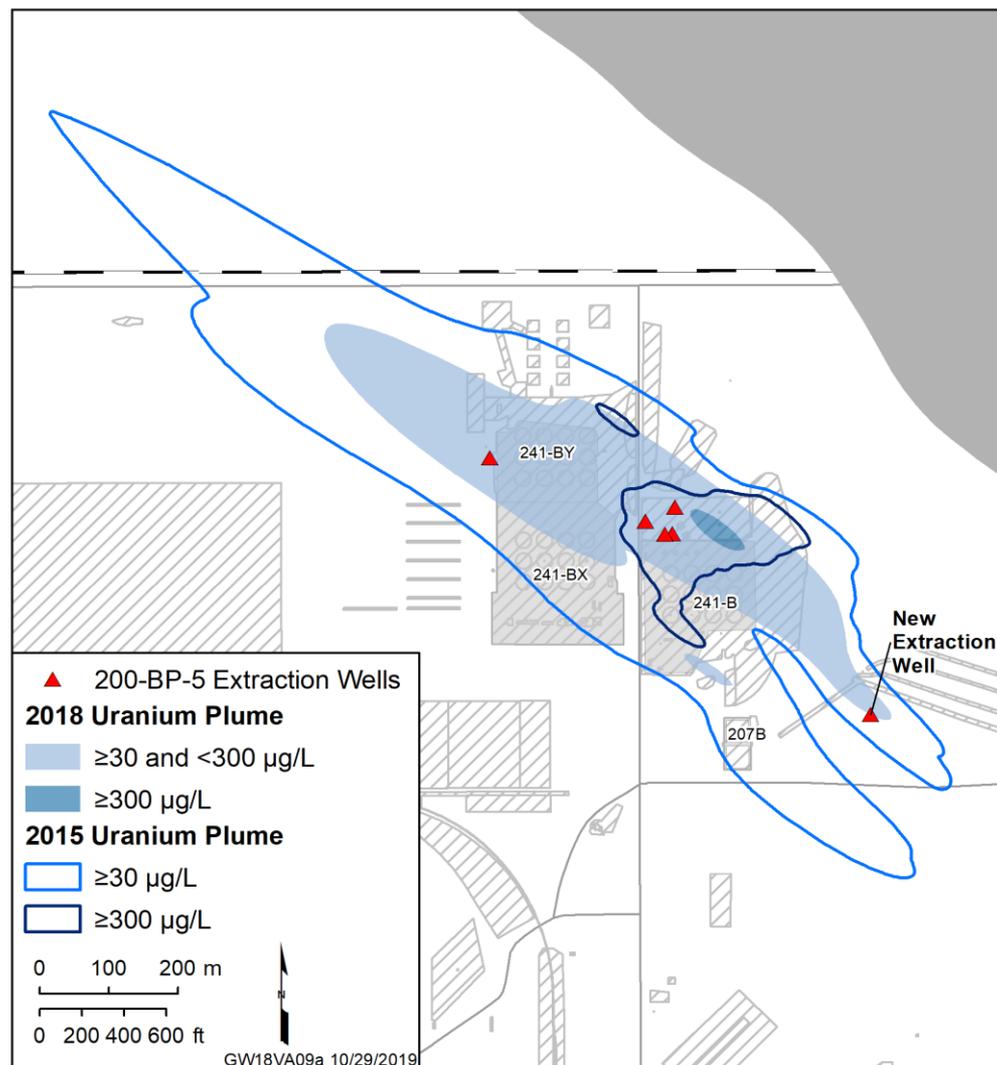


- One Pump-and-Treat facility (200 West)
- Treats groundwater from ZP-1, UP-1, and BP-5
- Will also treat from PO-1

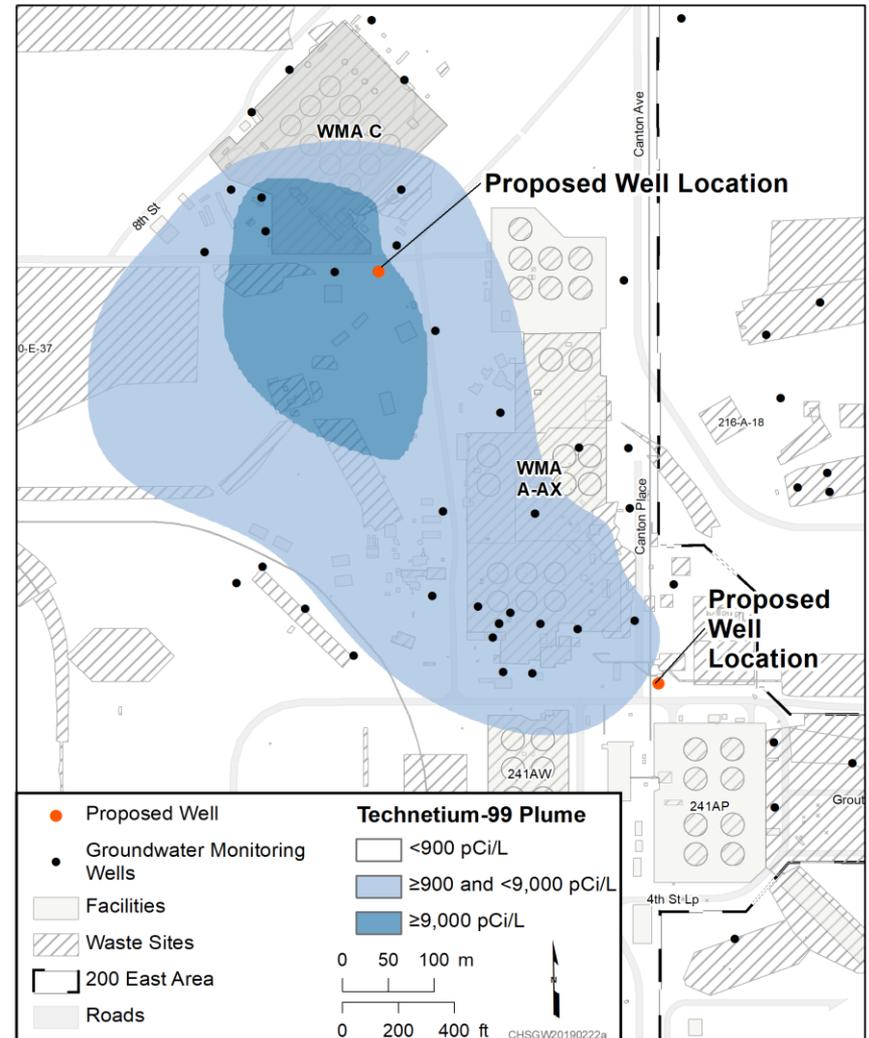


2015 to 2018 Uranium Comparisons:

- Uranium concentrations have decreased by almost 48%
- The 30 $\mu\text{g/L}$ plume area decreased nearly 65%
- The 300 $\mu\text{g/L}$ plume area decreased by 93%
- Currently developing a combined BP-5/PO-1 interim record of decision with Ecology and EPA



- Prepared a feasibility study in 2018 to support interim remedy decision to expedite remediation of technetium-99 and uranium groundwater contamination
- Currently developing a combined BP-5/PO-1 interim record of decision with Ecology and EPA



- Process improvements increases progress in removal of groundwater contaminants, shortening the period required to meet cleanup goals
- DOE and CH2M HILL Plateau Remediation Company (CHPRC) always seek more efficient and cost-effective ways to improve the performance of the groundwater treatment network
- Ultimate goal: Protection of the Columbia River