100 D/H Proposed Plan Update for HAB

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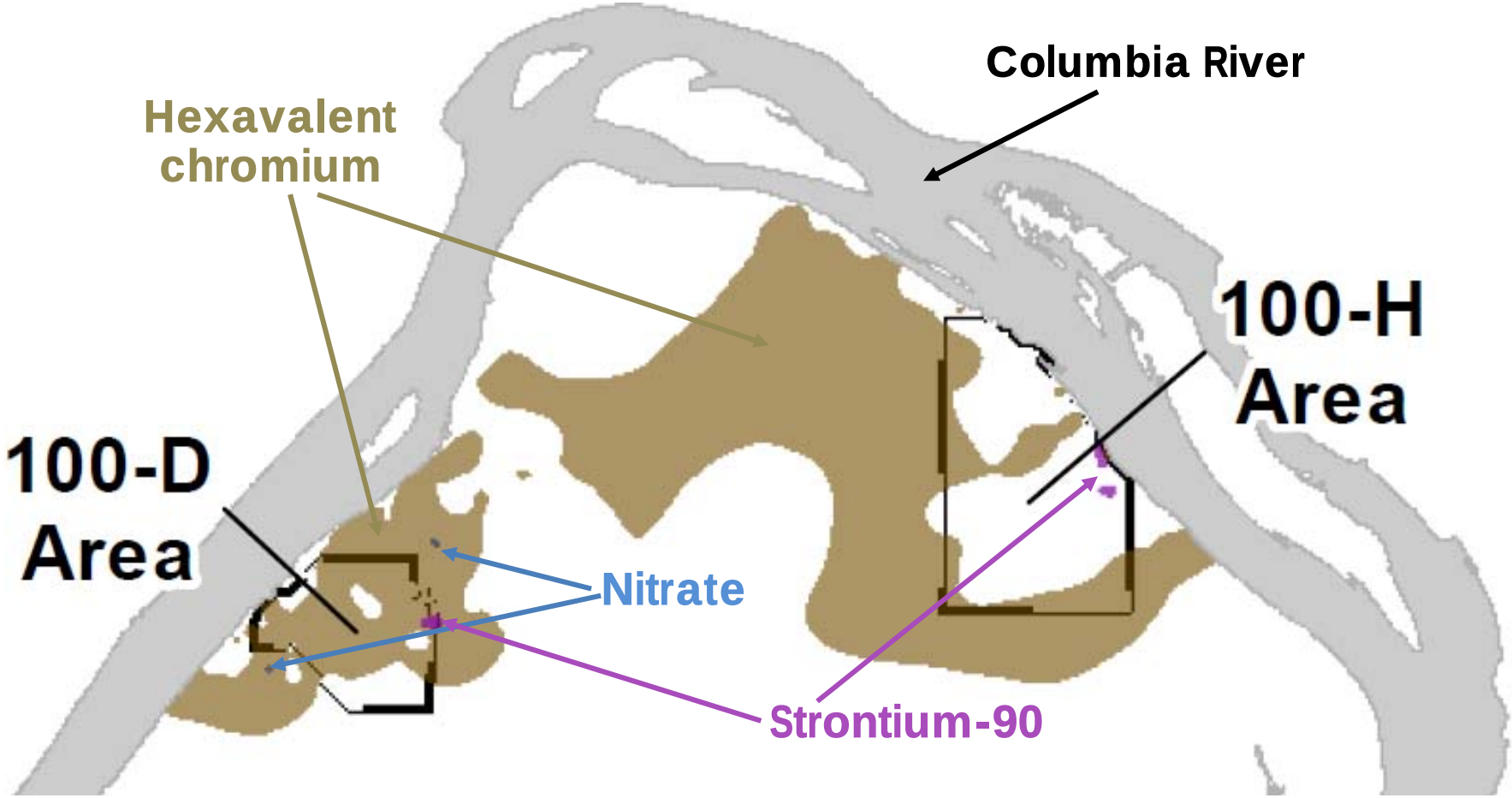
DEPARTMENT OF ECOLOGY
State of Washington



- Size of cleanup area: 7.8 square miles
- Total waste sites: ~280
- Pump & treats: 2

- GW contaminants:
  - o Chromium
  - o Nitrate
  - o Strontium-90

100 D/H Progress Report

- By removing hexavalent chromium-contaminated soil at 100-D (big dig) and concentrating pump and treat, the need for pump & treat was reduced an estimated 34 years!
- Remediation of interim action waste sites to be completed by 3/31/2016
- Proposed plan to address final cleanup actions.

The greenish water in the “pond” at 100-D indicates high concentrations of hexavalent chromium in the groundwater. The pond is the result of excavating 10 feet of the aquifer material.

Current status & path forward

- Proposed Plan under final review by Ecology and EPA legal.
- Public comment period tentatively planned to start mid-February.
- TPA agencies to gather stakeholder input on regional public meetings.

Common Remedial Actions

- **Remove, Treat and Dispose (RTD)** – Contaminated soil and debris are excavated, transported to Environmental Restoration Disposal Facility and treated as necessary prior to disposal.
- **Pump-and-treat** – Contaminated groundwater extracted from the aquifer using wells, transferred to a facility for treatment. Treated water is returned to the aquifer.
- **Groundwater Monitoring** – Groundwater contaminant plumes are monitored to measure performance of the pump-and-treat systems, attenuation rates and protectiveness of the remedy.

Common Remedial Actions

- **Monitored Natural Attenuation (MNA)** – Relies on natural attenuation processes that could include physical, chemical, or biological processes that act without human intervention such as dispersion, dilution, sorption, or radioactive decay.
- **Institutional controls (IC)** – Non-engineered instruments such as administrative and/or legal controls to limit uses of land to prevent unacceptable human health and environmental exposure to contaminants.

Remedial Alternatives

- **Alternative 1: No Action**
  - Provides a baseline for comparison against other alternatives.
  - No active remedial action is taken.
  - All existing actions cease, including institutional controls.

Digging a massive pit ~85 feet deep – all the way to groundwater – appears to have been effective in removing a large source of hexavalent chromium contamination in the 100-D Area.

Remedial Alternatives

- **Alternative 2**
  - RTD for select waste sites
  - MNA with ICs for 3 waste sites in shallow zone (116-D-8, 116-DR-9 and 100-D-25)
  - MNA with ICs for 37 waste sites in deep zone (ICs are for deep excavation restrictions)
  - Pump-and-treat with biological treatment for chromium. Installation of 30 new wells.
  - Plumes for chromium, nitrate and strontium-90 will achieve cleanup levels in 25 years, 13 years and 56 years, respectively.
  - Estimated total cost: $333M (Waste sites, $66M; Groundwater, $267M)

Remedial Alternatives

- **Alternative 3 (Preferred alternative)**
  - RTD for select waste sites
  - MNA with ICs for 3 waste sites in shallow zone (116-D-8, 116-DR-9 and 100-D-25)
  - MNA with ICs for 37 waste sites (ICs for deep excavation restrictions)
  - Increased capacity for pump-and-treat for chromium. Installation of 80 new wells.
  - Plumes for chromium, nitrate and strontium-90 will achieve cleanup levels in 12 years, 6 years and 44 years, respectively.
  - Estimated total cost: $374M (Waste sites, $66M; Groundwater, $308M)

Remedial Alternatives

- **Alternative 4**
  - RTD of all waste sites, including 116-D-8, 116-DR-9, 100-D-25
  - MNA with ICs for 37 waste sites (ICs for deep excavation restrictions)
  - Current pump-and-treat for chromium with installation of 30 new wells.
  - Plumes for chromium, nitrate and strontium-90 will achieve cleanup levels in 39 years, 13 years and 56 years, respectively.
  - Estimated total cost: $430M (Waste sites, $75M; Groundwater, $355M)

Questions?