100-F/IU Draft A Proposed Plan Overview

Presented to: Hanford Advisory Board River and Plateau Committee

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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

Removed more than 150,000 tons of waste material and chrome contamination from 100-F-57 waste site.
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 600-374 – crushed drum and small area of possibly impacted soils

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

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

Legend:
- Waste Sites
- Facility
- Railroad

**Scale:**
- 0 0.5 1 1.5 2 km
- 0 0.25 0.5 0.75 1 mi
100-F/IU Vadose 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

GW2: Year 1

GW2: Year 75
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
• 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)

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

*Higher results from two soil boring locations*
• 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