



# 100 Area “Plug-In” and Candidate Waste Sites for Calendar Year 2011

## Annual listing of waste sites plugged into the remove, treat and dispose remedy in the 1999 interim action Record of Decision for the 100 Area Remaining Sites

The interim action Record of Decision (ROD) for the 100 Area Remaining Sites issued in July 1999 authorized the use of a “Plug-In” or “Analogous Sites” approach for additional waste sites. The approach allows additional waste sites to be cleaned up under the ROD under certain conditions. The conditions apply to candidate or newly discovered waste sites that fit the 100 Area site profile, and where contaminant concentrations exceed cleanup levels established in the ROD. Remove, treat as necessary, and dispose (RTD) is the selected remedy for the sites.

The 100 Area site profile is based on the site characteristics that were detailed in a study that evaluated remedial alternatives for waste site cleanup. The characteristics are defined by the following:

- Types of contaminants
- Types of contaminated environmental media
- Types of contaminated waste material

When a newly discovered site fits the site profile, and contaminant levels exceed cleanup levels, it is appropriate to use the plug-in approach and apply the RTD remedy for remediation of a waste site.

The 2009 Explanation of Significant Differences (ESD) to the ROD authorized that sites where the plug-in approach has been used will be documented in the Administrative Record, and a fact sheet will be published annually identifying the sites that have been added. Fact sheets will be published only for years when the plug-in approach is used.

In CY2011, 24 sites were plugged into the ROD. The sites are listed in Tables 1 and 2. The sites listed in Table 1 are being cleaned up because contaminant concentrations exceeded established cleanup levels. Table 2 lists the candidate sites, which require further evaluation, such as historical research or sampling, before deciding if the RTD remedy is appropriate.



*Remediation of the Hanford 100 areas.*

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## Background

Hanford's nine retired plutonium production reactors and numerous associated facilities are located in the six major sites designated as 100 areas. They are the B/C, D/DR, F, H, KE/KW and N areas. Activities conducted in support of reactor operations at each area resulted in the creation of hundreds of waste sites and contamination of the soil and groundwater. The types of waste sites included in the 100 Areas cleanup effort include liquid waste disposal trenches, solid waste burial grounds, underground pipeline networks, sanitary sewer systems, burn pits and dumping areas, and pre- and post-Hanford military camps and industrial areas. Primary contaminants include radionuclides, as well as inorganic and organic constituents.

Characterization and remediation activities at waste sites have been under way in the 100 areas since 1997 and, with the exception of waste sites in the 100-K Area, remediation will be completed by 2015.

The selected remedy in the ROD includes the following components:

- Removal of contaminated soil, structures, and associated debris
- Treatment, as necessary, to meet waste acceptance criteria at an acceptable disposal facility
- Disposal of contaminated materials at the Hanford Site's Environmental Restoration Disposal Facility; the Waste Isolation Pilot Plant in Carlsbad, New Mexico; or other facilities approved in advance by the U.S. Environmental Protection Agency
- Recontouring and backfilling of excavated areas followed by revegetation
- Institutional controls, as necessary, to prevent unacceptable exposures to residential contamination.

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**Table 1. Sites Added to 100 Area Remaining Sites ROD**

Operable Unit	Site Name	Current Site Knowledge	Material/Media	Known or Potential Contamination	Estimated Cost of Site Remediation
100-DR-2	100-D-106, 1607-D1 Sewer Influent Pipelines	This site consists of the sanitary sewer pipelines that connected the service buildings at the 100-D main gate to the 1607-D1 septic tank. It also includes a french drain approximately 21 m (70 ft) north of the 1709-D building.	Soil and debris	Inorganic and organic chemicals	\$495,800
100-FR-1	100-F-64, Stained Soil Near 1713-FA	This site is red and yellow stained soil straddling railroad tracks with elevated concentrations of lead.	Soil	Inorganic chemicals	\$143,800
100-FR-1	100-F-65, Green Stained Soil Near RR Tracks	This site consists of green stained soil along the railroad tracks immediately west of the 190-F Building.	Soil	Inorganic chemicals	\$80,800
100-FR-2	600-351, Stained Areas Outside 100-F Area	This site contains two stained soil areas. The first area consists of stained, crusted soil and no vegetation, measuring 4 meters (13.2 feet) in diameter. The second area consists of petroleum based material released to the ground surface and the underlying soils. The soil is crusted and no vegetation is growing in the affected area. There are oil cans lying in the site and surrounding area.	Soil and debris	Inorganic and organic chemicals	\$112,100
100-HR-1	100-H-59, 100-H Railroad Track Soil Contamin. Area	This site consists of a 213 meter (700 foot) long trench of contaminated railroad bed, including 39 rails, 700 ties, and scattered debris in 25 piles. The contaminated area is about 3,250 square meters (35,000 square feet). The railroad berm tapers from 2.6 meters (8.5 feet) to 0.3 meters (1 foot) above original grade.	Soil and debris	Inorganic chemicals, radiological	\$109,400
100-KR-1	100-K-96, 100KE River Effluent Pipeline; 100KE River Line; River Line (East) from 116-K-3 Outfall	This site is one of two adjacent 2.1 meter (84-inch)-diameter, carbon steel river effluent pipelines that extend 320 meters (1,050 feet) from the face of 116-K-3 outfall structure down to the Columbia River. The initial 142 meters (466 feet) from the reactors to the outfall inlet are concrete piping, and the remainder welded steel piping.	Soil and debris	Radiological, metals	\$753,021
200-CW-3	600-387, 212-R Railspur Legacy Contamination	The waste site is two areas of superficial and subsurface radiological contamination identified following the removal of 16 Railcars located at 200 North Area. Contamination was found on the gravel bed under the railroad ties and was unrelated to the actual removal of the 16 railcars. In August 2011, localized hot spots of contamination were covered with several inches of gravel as an extra precaution/control. The railroad track is now posted as a Soil Contamination Area. Actual dimensions for the site are not known.	Soil and debris	Radiological	\$600,000

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**Table 2. Candidate Sites Added to 100 Area Remaining Sites ROD**

Operable Unit	Site Name	Current Site Knowledge	Media/Material	Known or Potential Contamination	Estimated Sampling Cost
100-DR-1	100-D-105, 100-D Pipelines Discovered During Remediation	This site consists of pipeline segments in 100-D/DR Area that were discovered during remediation of other waste sites and were not associated with an existing waste site.	Soil and debris	Inorganic and organic chemicals	\$34,700
100-HR-1	100-H-56, H-Area Misc. Pipelines	This site consists of all the 100-H Area miscellaneous pipelines not associated with an existing waste site.	Soil and debris	Inorganic chemicals, metal	\$34,700
100-KR-1	100-K-111, Effluent Seepage Area from 116-K-2	This site is an area along the Columbia River shoreline that appears to have been impacted by effluent from the 116-K-2 trench. This suspicion is evidenced by surface features visible in historical photographs.	Soil	Inorganic chemicals, radiological	\$156,600
100-IU-6	600-358, Scattered Waste Areas in Vicinity of Gable Mtn Firing Range	This site consists of scattered CERCLA regulated debris identified during the unexploded ordnance characterization and clearance of the 600-149:1 waste site. The debris was described as being a lead battery, a lead chunk, a burn area, and a suspect drum or pipe.	Soil and debris	Inorganic and organic chemicals	\$78,300
100-IU-6	600-368, Segment 4 Stained Soil #1	This site consists of a 15 square meter (157 square feet) area covered with green granules.	Soil	Inorganic chemicals	\$78,300
100-IU-6	600-369, Segment 4 Bare/Crusted Soil Areas	This site consists of eight areas that are devoid of vegetation near the Leazer Spur. The site has been divided into eight subsites.	Soil	Inorganic and organic chemicals	\$78,300
100-IU-2	600-370, Segment 4 Bare Ground & Crusted Soil Areas	This site consists of a large disturbed area with surface debris consisting of multiple burn sites with burn remnants, transite, insulators, wood and concrete.	Soil and debris	Inorganic and organic chemicals	\$78,300
100-IU-2	600-371, Segment 4 Chalky Material Area	This site consists of multiple locations having a white chalky substance that resembles either grout or bentonite.	Soil	Inorganic and organic chemicals	\$78,300
100-IU-2	600-372, Segment 4 Oil Stain and Filter Area #1	This site consists of two areas that have a discarded oil filter and are devoid of vegetation.	Soil and debris	Inorganic and organic chemicals	\$78,300
100-IU-2	600-373, Segment 4 Bare Ground & White Stained Area	This site consists of a 28 square meter (303 square feet) area devoid of vegetation and covered by a white stain and crusted soil/glass debris.	Soil and debris	Inorganic and organic chemicals	\$78,300
100-IU-2	600-374, Segment 4 Drum Remnant Area	This site consists of an empty 208 liter (55 gallon) drum (crushed) surrounded by a small area devoid of vegetation.	Soil and debris	Inorganic and organic chemicals	\$78,300
100-IU-2	600-375, Segment 4 Dry Cell Battery Debris Areas	This site consists of five locations that have dry cell battery debris and stained soil.	Soil and debris	Inorganic and organic chemicals	\$78,300
100-IU-2	600-376, Segment 4 Stained Soil #2	This site consists of two stained soil areas and two patches of bare ground.	Soil	Inorganic chemicals	\$78,300
100-IU-6	600-377, Segment 4 Oil Stain & Filer Area #2	This site consists of a 3 square meter (32 square feet) area devoid of vegetation and containing multiple filters.	Soil and debris	Inorganic and organic chemicals	\$78,300
100-IU-6	600-378, Telephone Exchange Emergency Gen Bldg Underground Fuel Tank	This site is the historical location of a 379 L (100 gal) underground storage tank used to store fuel for the 506 telephone exchange emergency generator building (508 bldg).	Soil and debris	Inorganic and organic chemicals	\$78,300
100-IU-6	600-379, Segment 4 Burn Area #1	This site consists of a burn area with visible remnants.	Soil and debris	Inorganic chemicals	\$78,300
TBD	600-385, Segment 4 Transite, Concrete, and Metal Debris Area	The site consists of a 5,334 m <sup>2</sup> (1.3 acres) area with scattered transite, concrete and metal debris.	Soil, debris and asbestos	Inorganic chemicals	\$78,300