Tri-Party Agreement
U.S. Department of Energy
Washington State Department of Ecology
U.S. Environmental Protection Agency

# 300 Area "Plug-In" Waste Sites for Fiscal Year 2011

## Annual listing of waste sites "plugged-in" to the remove, treat, and dispose remedy in the 2001 interim action Record of Decision for 300-FF-2.

The Record of Decision (ROD) for the 300-FF-2 portion of Hanford's 300 Area remedial action issued in April 2001, authorizes the use of a "Plug-In" or "Analogous Sites" approach for including additional waste sites. This approach allows additional waste sites to be cleaned up under this ROD with certain conditions. These conditions apply to "candidate" or "newly discovered" waste sites that fit the 300-FF-2 site profile, and when the contaminant concentrations exceed the cleanup levels established in the ROD. Remove, Treat as necessary, and Dispose (RTD) is the selected remedy for these sites and cleanup work for these sites will be added to the 300 Area cleanup milestone M-16-00B.

The 300-FF-2 site profile is based on the site characteristics that were detailed in a study that evaluated remedial alternatives for waste site cleanup. These characteristics are defined by the following:

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

The 2009 Explanation of Significant Differences (ESD) to the ROD authorized that additions of plug-in and candidate sites will be documented in the administrative record. A fact sheet will be published by DOE annually to identify the plug-in and candidate sites that meet the criteria to add them to the ROD for 300-FF-2.

Nine sites were added to the RTD remedy for 300-FF-2 in fiscal year 2011.

| Site Code | Description |
|---|---|
| 300-283 | Contaminated Light Water Disposal Site #2. On September 29, 1965, a major contamination event occurred at the 309 building, Plutonium Recycle Test Reactor (PRTR). A fuel element was heated until molten and a process tube burst. The event grossly contaminated the PRTR's heavy water moderator with fission products and with light water from the coolant. Most of the primary coolant and make-up coolant water was disposed via the 340 Building. Secondary coolant and other normally contamination-free streams were routed directly to the Columbia River. When contamination was detected in this stream, the water was pumped to the ground. About 189,250 liters (50,000 gallons) of liquid waste were disposed to the ground. |
| 300-284 | Sandblasting Area Near 3221 Building. The site and associated 3221 building was used for the sand blasting of various items preparatory to these items being painted. |
| 300-288 | Piles of Garnet Sand/Soil Mixture Within Gravel Pit 6. |
| 300-287 | Transite Debris West of Route 4 South |
| 300-290 | Radiological Debris Area East of Horn Rapids Disposal Landfill. This site consists of debris, mostly rusted metal automotive parts, scraps of crumpled sheet metal, electrical wire debris, and engine gaskets in a posted Radiological Material Area. |


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| 300-291 | Garnet Sand West of 350-A Paint Shop. Garnet grit was commonly used in grit-blasting operations to clean rust, paint, or contamination from the surface of metal components. The garnet material is not a hazardous substance, but there is potential for contamination from the surface material that was removed by grit blasting. |
| 300-294 | Garnet Sand East of 350 Building. Garnet grit was commonly used in grit-blasting operations to clean rust, paint, or contamination from the surface of metal components. The garnet material is not a hazardous substance, but there is potential for contamination from the surface material that was removed by grit blasting. |
| 333 WSTF | 333 West Side Tank Farm. The site is an above grade tank farm containing three cylindrical tanks that stand upright within a concrete containment basin. The containment basin was attached to the outside wall of the 333 Building. One of the tanks is labeled "Non Contaminated Waste Oil - Flashpoint 455 degrees F." The two other tanks are labeled "Uranium bearing acid." The concrete containment basin is 6 meters (19.7 feet) by 4.2 meters (13.8 feet) with a depth of 0.4 meters (1.3 feet). Asphalt pavement surrounds the basin and the west side of the building. On this pavement there is a sign posting fixed radioactive contamination. |
| 3712 USSA | 3712 Bldg. Uranium Scrap Storage Area. The 3712 USSA was a uranium metal storage unit. Fires occurred in 1979 from an inadequately cured billet and in 1985 from uranium fines. The fires spread uranium oxide. |

Eight candidate sites were added for 300-FF-2 in fiscal year 2011.

| Site Code | Description |
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| 300-279 | 3716 Automotive Repair Building Fuel Tanks. The site consists of the historical location of underground diesel and gasoline storage tanks that were located to the north of the original 313 Bldg., and east of the original 3716 Automotive Repair Bldg. location. The northern expansion of the 313 Bldg. was over this area where the tanks were located. |
| 300-280 | Construction Debris Disposal Pit West of George Washington Way. The construction debris disposal pit was a rectangular 13 m by 38 m pit aligned northwest to southeast with a 6 m wide gravel road ramping into the northwest end of the pit. The disposal pit appears to have been used for construction debris during the construction of the 309 Facility in the late 1950's. |
| 300-281 | Septic Tank Near 325 Building. |
| 300-282 | Crib removed during demolition of the 3717-B Building. |
| 300-286 | Three 300 Area Potentially Contaminated French Drain/Drywells. This site consists of three discrete locations and the underlying soil of a potentially contaminated French drain and drywells and their associated below grade piping components. |
| 300-289 | Stained Soil Area North of 300 Area. This site consists of bare ground, with crusting and two drum bung plugs. |
| 300-293 | 300 Area Miscellaneous Pipelines. The site consists of miscellaneous piping in the 300 Area, which may include many non-hazardous telecommunication, compressed gas and electrical related utilities. |
| 600-290:2 | Contaminated Equipment Storage Area. 300 West Storage Area. |

In addition to these sites, in early November 2010, during preparations to demolish the 324 building, an instrument probe confirmed that many years ago, highly radioactive liquid had leaked through the floor into the soil below the building. Probe measurements of soils directly below 324 B-Cell have confirmed the presence of radioactivity as high as 8,900 R/hr. This contamination has been designated as waste site 300-296. Characterization activities will be continued in 2011. Current assumptions are that this site will be "plugged-in" to the ROD following characterization and documented in a future fact sheet.

## Background

The 300 Area is adjacent to the Columbia River and begins one mile north of the Richland city limits. The 300 Area began operations in 1943 as a fuels fabrication complex for the nine plutonium production reactors located in the 100 areas. Most of the facilities in the area were involved in the fabrication of nuclear reactor fuel elements. Also located in the 300 Area were technical and administrative functions, as well as research and development activities related to the development and fabrication of reactor fuels. Before 1973, solid waste and debris generated by these activities were disposed in a series of unlined disposal sites, called burial grounds. The burial grounds were located north and west of the 300 Area complex and some contain drummed liquid wastes. Liquid disposal trenches occupied the northeast side of the 300 area.

*Hanford's 300 Area.*

The 300-FF-2 Operable Unit comprises waste sites falling into four general categories: waste sites in the 300 Area industrial complex; outlying waste sites north and west of the 300 Area industrial complex; general content burial grounds; and transuranic-contaminated burial grounds. The selected remedy in the ROD included the following components:

*Collecting a sample from beneath 324 Building.*

- 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 (EPA)
- Recontouring and backfilling of excavated areas followed by revegetation
- Institutional controls as necessary to prevent unacceptable exposures to residual contamination

Remediation of 300-FF-2 waste sites began in 2002.



To request additional information, please contact:

Rudy Guercia
US Department of Energy
Richland Operations Office
PO Box 550, MSIN: A3-04
Richland, WA 99352
Phone: 509-376-5494, FAX 509-373-0726
Email: rudolph.guercia@rl.doe.gov

or

Paula Call
US Department of Energy
Richland Operations Office
PO Box 550, MSIN: A7-75
Richland, WA 99352
Phone: 509- 376-2048
Email: paula.call@rl.doe.gov