

FEDERAL FACILITY AGREEMENT AND CONSENT ORDER (FFA/CO) NEW SITE IDENTIFICATION (NSI)

Site Title: INTEC Buildings CPP-601, -602, -627, and -640 Landfill	Site Code: CPP-139 Document number: NSI-26008
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PART A

1. **Site Status:** Potential Existing

If a potential site, record the date entered into the Long Term Stewardship Tracking System:
July 11, 2012

2. **Description of Site and Location:**

Potential new Site CPP-139 is a mixed waste landfill comprising the buried remains of four buildings—CPP-601, Fuel Processing Building; -602, Laboratory sub-grade foundation; -627, Remote Analytical Facility Building; and -640, CPP Headend Processing Plant—that were left following decontamination and decommissioning (D&D) of the buildings and closure of the landfill under the associated *HWMA/RCRA Closure Plan for the CPP-601/627/640 Landfill Phase 2* (DOE-ID 2010). The Closure Plan indicates, "The final end state for the CPP-601/627/640 landfill is expected to be integrated with the final end state for the surrounding northern Idaho Nuclear Technology and Engineering Center facilities in approximately 2035 through coordination of the HWMA/RCRA and CERCLA programs." The site was covered with a pit-run gravel and soil cover in accordance with the Hazardous Waste Management Act (HWMA)/Resource Conservation and Recovery Act (RCRA) Closure Plan. However, as illustrated on Figure Part A-1, the boundary of the site is identified as the footprint of Buildings CPP-601, 602, 627, and 640.

In addition to the residual mixed waste in the buried remains, Site CPP-139 also encompasses the nine existing Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 USC § 9601 et seq.) sites shown in Figure Part A-1.

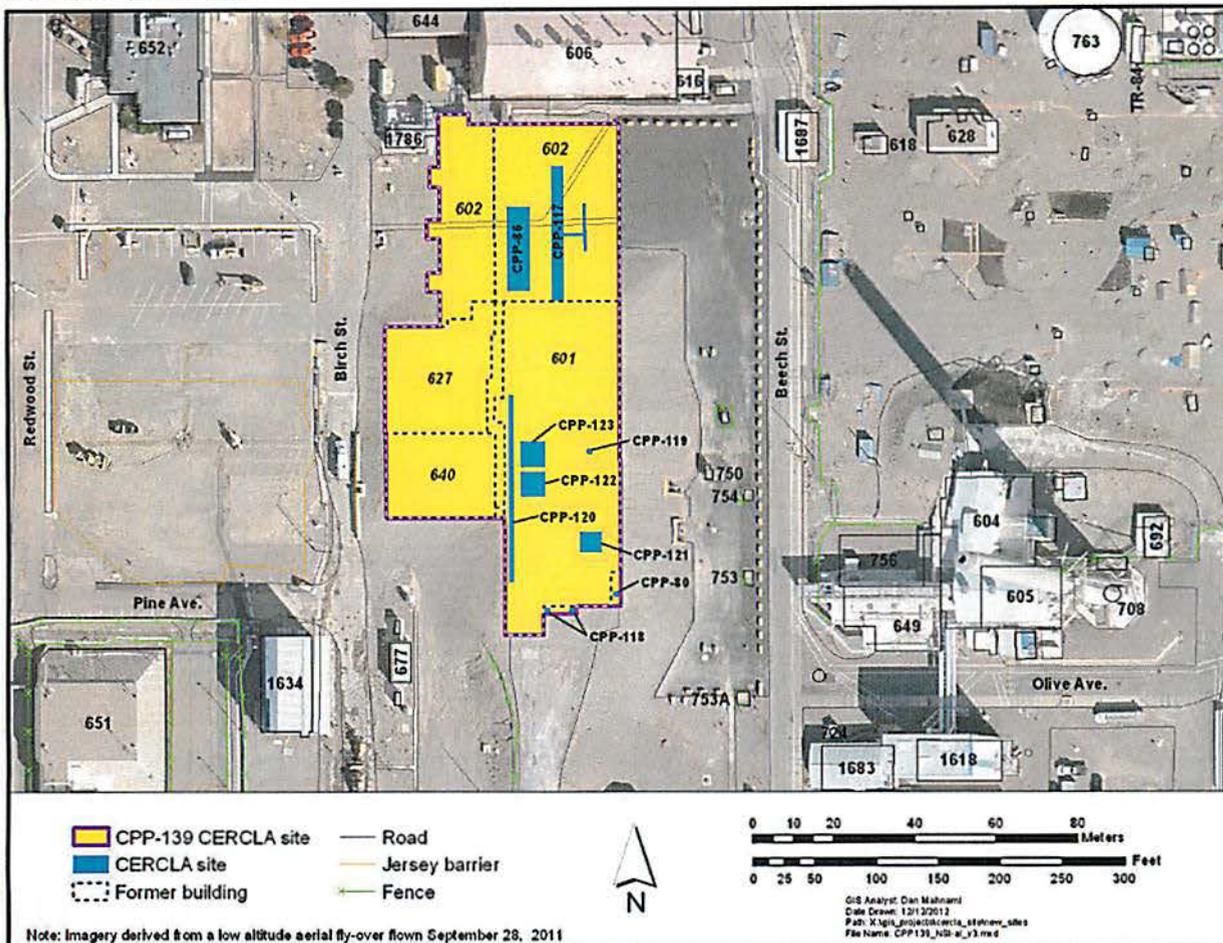


Figure Part A-1: Location of Site CPP-139, and existing CERCLA sites within CPP-139. The D&D actions at Buildings CPP-601, -602, -627, and -640 were performed as non-time-critical removal actions

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(NTRAs), and were conducted in accordance with the general requirements described in Revision 1 of the *Action Memorandum for General Decommissioning Activities under the Idaho Cleanup Project* (DOE-ID 2009) and the specific requirements of the *Action Memorandum for Decommissioning CPP-601/640 Fuel Reprocessing Facilities* (DOE-ID 2008) and the *Action Memorandum for the Decontamination and Decommissioning of Building CPP-627, the Remote Analytical Facility* (DOE/NE-ID 2004). The removal action for CPP-627 consisted of removing the building down to the concrete foundation, essentially at grade, leaving contaminated piping beneath the foundation. The removal action for Buildings CPP-601 and CPP-640 primarily consisted of removing abovegrade structures that were not part of the process cells. Removal of the aboveground portion of the buildings left residual contamination to a depth of approximately 60 ft below the original ground surface. The process cells were filled with grout to create a stable monolith with the top approximately 10 ft above the surrounding ground surface. Then, the pit-run gravel and soil cover, as specified in the HWMA/RCRA Closure Plan, was installed over the monolith (including the former location of CPP-627) to provide long-term protection of the monolith from impacts of weather. Consequently, the peak of the earthen cover is approximately 80 ft above the deepest residual contamination. The minimum depth to contamination at the site is approximately 4 ft. The removal action for CPP-602 removed the entire building, leaving only the basement floor and subgrade walls (i.e., more than 3 ft below grade). The basement area was then backfilled with pit-run material, compacted, and contoured to grade. The D&D actions began in 2004 with D&D of CPP-627 and were completed in 2011 with D&D of Building CPP-602. The pit-run gravel and soil cover was completed in mid-2011. Further details of the D&D actions are documented in the *Final Removal Action Report for CPP-601, CPP-602, CPP-627, CPP-630, and CPP-640* (DOE-ID 2012a).

As shown in Figure Part A-1, the nine existing sites include Operable Unit (OU) 3-13 Group 2 CERCLA sites (CPP-80, -86, -117, -118, -119, -120, -121, -122, and -123). Those sites are the result of suspected releases to the environment of CERCLA constituents from past activities at Buildings CPP-601 and CPP-602. Site CPP-86 was incorporated into Site CPP-117 when the new site identification for Site CPP-117 was approved (NSI-24915). Site CPP-117 (including Site CPP-86) is below the site of former Building CPP-602. The remaining sites are located beneath the location of former Building CPP-601. A brief description of each of those nine sites is provided in the paragraphs below.

Site CPP-80—Building CPP-601 Vent Tunnel Drain Leak

Site CPP-80 is a release identified during the early 1980s resulting from redirecting acidic condensate from a stainless-steel line to a cast-iron drain line beneath the south vent tunnel floor east of the site of former Building CPP-601. The point of release was approximately 17 ft below the surrounding grade. The release volume was bounded by an estimate of what could have been released to the soil beneath the building. The estimate of more than 105,000 gal accounts for more than 90% of the total volume released beneath Buildings CPP-601 and CPP-602. The condensate contained moderate concentrations of radionuclides (DOE-ID 2012a). No soil sampling was performed because of the inaccessibility of the site.

Site CPP-86—CPP-602 Waste Trench and Sump

Site CPP-86 was identified in the *Final Record of Decision, Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13* (DOE-ID 1999) as releases from the CPP-602 waste trench and sump. The site was subsequently identified as encompassed within the CPP-117 site (NSI-24915).

Site CPP-117—CPP-602 Sump and Abandoned Piping

Site CPP-117 comprises releases beneath the site of former Building CPP-602. The releases were from the CPP-602 waste trench and sump (originally identified as Site CPP-86) as well as from cast-iron pipes that were direct-buried in the soil beneath the building. The waste trench and sump ran underneath CPP-602, which was a laboratory and office building that also housed a liquid uranium product denitrator. The trench lay approximately 24 ft below the surrounding grade, and provided a location for piping used to collect liquid waste from various CPP-602 operations. The waste subsequently was routed through the sump (approximately 32 ft below surrounding grade) to CPP-601 and on to the process equipment waste evaporator system. The release from piping and then from the sump to the soils was discovered during modifications made in 1990. Site CPP-117 also addressed releases discovered in 1990 from direct-buried piping beneath CPP-602 that failed when inadvertently used for corrosive service. These releases occurred approximately 22 ft below the surrounding grade.

Site CPP-118—Waste Gas/Waste Handling Vaults Ventilation Outlet Ducts

The Site CPP-118 release occurred between 1983 and 1984, when liquid waste collected in the CPP-601 Waste Gas/

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Waste Handling (WG/WH) tank vaults and may have been released through unsealed joints in a ventilation duct leaving the tank vault approximately 56 ft below the surrounding grade. As discussed in the "New Site Identification (NSI) Form for CPP-117, CPP-118, CPP-119, CPP-120, CPP-121, CPP-122, and CPP-123 - Fuel Reprocessing Complex Potential Releases" (NSI-24915), the liquid waste released would be similar to the typical waste received by the WG/WH tanks during that time.

Site CPP-119—P-Cell Wall Drain

Site CPP-119 was discovered during pipe inspection activities of the P-cell in summer 1989. An incomplete weld was discovered in a vertical portion of the 2-in. stainless-steel drain line. The release point would have been 32 ft below the surrounding grade. The drain line was used to route second-cycle condensate from the P-110 product condenser to the WG/WH deep tanks. The concentration of the potential release was estimated through mathematical modeling based on historical process flowcharts (NSI-24915).

Site CPP-120—CPP-601 West Vent Corridor (Tunnel) and Drains

Site CPP-120 includes releases in the CPP-601 West Vent Corridor (tunnel) and drains. The primary release beneath the west vent corridor was the result of cast-iron waste piping receiving unplanned acidic releases between 1971 and 1978 during electrolytic campaigns and Cell 5 decontaminations. Data from the decontamination of G- and H-cells in 1982 were used to estimate the solution concentrations (NSI-24915). The release point would have been 13 ft below the surrounding grade.

Site CPP-121—M-Cell Floor Liners

The release beneath the M-cell floor liner occurred during preprocess testing in 1983. A small release of process solution might have allowed approximately 1 L of radioactive solution and 1,000 L of clean water to leak behind the liner. The process solution was third-cycle product solution, which is 0.13 molar nitric acid and high in uranium (NSI-24915). The release point would have been 32 ft below the surrounding grade.

Site CPP-122—E-Cell Floor Liner Pinholes

The Site CPP-122 release occurred when contaminated solutions leaked to the floor of E-cell during operations in 1980 and 1981. Decontamination efforts mobilized the remaining radioactive solutions and might have allowed some to leak to the soil below the cell. This release is estimated to have a potential release of 11 L of dissolver product (NSI-24915). The release point would have been 23 ft below the surrounding grade.

Site CPP-123—F-Cell Sump

The Site CPP-123 release was the result of approximately 285 L of dissolver off-gas scrubber solution entering the area beneath the F-cell liner through an unsealed bolt hole in 1980 and 1981. The release would have been highly acidic and have high concentrations of radioactive constituents. The radionuclides released from CPP-123 account for approximately 57 different radionuclides released from beneath Buildings CPP-601 and -602 (NSI-24915). The release point would have been 23 ft below surrounding grade.

Contamination that was left within CPP-601, CPP-602, CPP-627, and CPP-640 as a result of the completed NTCRAs and the contamination historically attributed to the nine existing CERCLA sites were identified as one source term because the facilities are adjacent to each other. A listing of the source term estimates is presented in the "Residual Radioactive Inventory for Fuel Reprocessing Complex Removal Action Report" (EDF-10239) for radionuclides and in "Non-radiological Material Inventory for CPP-601, CPP-602, CPP-627, and CPP-640 Landfill Closure" (EDF-9367, Rev. 2) for nonradionuclides. Based on those source term estimates, Site CPP-139 is recommended for inclusion as a new CERCLA site. Institutional controls for soil sites, as documented in Revision 7 of the *INL Site-Wide Institutional Controls and Operations and Maintenance Plan* (DOE-ID 2012b), will be implemented as an interim measure to control the site pending the final remedy decision, which will be documented when Part B of this NSI form is completed. Any post-closure RCRA (42 USC § 6901 et seq.) requirements identified in the closure permit will be administered through the INL RCRA program. No sampling is necessary to complete Part B of this NSI form.

References

42 USC § 6901 et seq., 1976, "Resource Conservation and Recovery Act (Solid Waste Disposal Act)," *United States*

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Code, October 21, 1976.

42 USC § 9601 et seq., 1980, "Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA/Superfund)," *United States Code*, December 11, 1980.

DOE-ID, 1999, *Final Record of Decision, Idaho Nuclear Technology and Engineering Center, Operable Unit 3-13, Idaho National Engineering and Environmental Laboratory*, DOE/ID-10660, Rev. 0, U.S. Department of Energy, October 1999.

DOE-ID, 2008, *Action Memorandum for Decommissioning CPP-601/640 Fuel Reprocessing Facilities*, DOE/ID-11360, Rev. 0, U.S. Department of Energy Idaho Operations Office, August 2008. (Note: This document has been canceled, but provided requirements during decontamination and decommissioning.)

DOE-ID, 2009, *Action Memorandum for General Decommissioning Activities under the Idaho Cleanup Project*, DOE/ID-11293, Rev. 1, U.S. Department of Energy Idaho Operations Office, January 2009.

DOE-ID, 2010, *HWMA/RCRA Closure Plan for the CPP-601/627/640 Landfill Phase 2*, DOE/ID-11431, Rev. 2, U.S. Department of Energy Idaho Operations Office, September 2010.

DOE-ID, 2012a, *Final Removal Action Report for CPP-601, CPP-602, CPP-627, CPP-630, and CPP-640*, DOE/ID-11453, Rev. 0, U.S. Department of Energy Idaho Operations Office, February 2012. (Note: This document has been canceled, but is reference for information.)

DOE-ID, 2012b, *INL Site-Wide Institutional Controls, and Operations and Maintenance Plan for CERCLA Response Actions*, DOE/ID-11042, Rev. 7, U.S. Department of Energy Idaho Operations Office, April 2012.

DOE/NE-ID, 2004, *Action Memorandum for the Decontamination and Decommissioning of Building CPP-627, the Remote Analytical Facility*, DOE/ID-111460, Rev. 0, U.S. Department of Energy Idaho Operations Office, June 2004. (Note: This document has been canceled, but provided requirements during decontamination and decommissioning.)

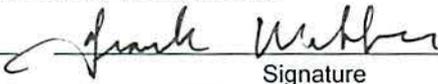
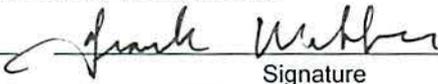
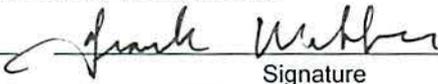
EDF-9367, 2011, "Non-Radiological Material Inventory for CPP-601, CPP-602, CPP-627, and CPP-640 Landfill Closure," Rev. 2, Idaho Cleanup Project, December 15, 2011. (Note: This document has been canceled, but is referenced for information.)

EDF-10239, 2012, "Residual Radioactive Inventory for Fuel Reprocessing Complex Non-Time Critical Removal Action Report," Rev. 0, Idaho Cleanup Project, February 8, 2012. (Note: This document has been canceled, but is referenced for information.)

NSI-24915, "New Site Identification (NSI) Form for CPP-117, CPP-118, CPP-119, CPP-120, CPP-121, CPP-122, and CPP-123 - Fuel Reprocessing Complex Potential Releases," Idaho Cleanup Project, June 20, 2005.

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3. Is the site a solid waste management unit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
4a. Potential Site Recommendation <input type="checkbox"/> Do NOT include as a new FFA/CO site. This site does NOT warrant further investigation, and does NOT meet the criteria for acceptance (i.e., no evidence of a release of a CERCLA hazardous substance). The site should NOT be included under FFA/CO Action Plan. <input checked="" type="checkbox"/> Include as a new FFA/CO site. This site DOES meet the criteria for acceptance (i.e., evidence of a release of a CERCLA hazardous substance), DOES warrant further investigation, and SHOULD be included under the FFA/CO Action Plan (complete the remainder of Part A). Additional sampling recommended? <input type="checkbox"/> Yes – Submit Part A. <input checked="" type="checkbox"/> No – Proceed to Part B.			
4b. Existing Site Recommendation Additional sampling recommended? <input type="checkbox"/> Yes – Submit Part A. <input type="checkbox"/> No – Proceed to Part B.			
4c. Idaho Cleanup Project Environmental Restoration Director Concurrence: <table style="width: 100%; border: none;"><tr><td style="width: 33%; text-align: center; vertical-align: bottom;"><u>Frank Webber</u> Name (printed)</td><td style="width: 33%; text-align: center; vertical-align: bottom;"> Signature</td><td style="width: 33%; text-align: center; vertical-align: bottom;">12/17/2012 Date</td></tr></table>	<u>Frank Webber</u> Name (printed)	 Signature	12/17/2012 Date
<u>Frank Webber</u> Name (printed)	 Signature	12/17/2012 Date	

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11/06/2012
Rev. 13
Use with MCP-3448

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PART A

5. FFA/CO Remedial Project Manager (RPM) Concurrence:

DOE-ID FFA/CO RPM: Concur with recommendation. Do not concur with recommendation.

EPA and DEQ concurrence required? Yes No

Kevin O'Neill
Name (printed)

[Signature]
Signature

12/18/2012
Date

Explanation:

EPA FFA/CO RPM: Concur with recommendation. Do not concur with recommendation.

DENNIS FARLE
Name (printed)

[Signature]
Signature

1/8/13
Date

Explanation:

DEQ FFA/CO RPM concurrence: Concur with recommendation. Do not concur with recommendation.

Daryl F. Koch
Name (printed)

[Signature]
Signature

1/07/2013
Date

Explanation: