

**DOE-ID NEPA CX DETERMINATION  
IDAHO NATIONAL LABORATORY**

**SECTION A. Project Title: Spent Resin Removal and Addition of New Resin to Ion Exchange (IX) Columns Located at CPP-666**

**SECTION B. Project Description**

The proposed action will transfer spent resins from hold tanks located inside CPP-666 to on-site vendor-owned and operated resin dewatering equipment (EnergySolutions), with off-site disposal of the dewatered resins at the Nevada National Security Site. This process is required to maintain water cleanliness and remove radionuclides and chlorides in the spent nuclear fuel storage pool in CPP-666 at the Idaho Nuclear Technology and Engineering Center. Since CWI has not performed resin transfer or dewatering activities, this activity has been deemed a new process. The project activities will not impact any RCRA permitted or interim status activities or equipment. EnergySolutions is the subcontractor responsible for the dewatering, packaging, and transporting the spent resins to the Nevada National Security Site for off-site disposal.

Background:

The ICP manages spent nuclear fuel in the CPP-666 Fuel Storage Area (FSA), where it is received, handled, stored and prepared. Different types of spent nuclear fuel have been stored and handled in the pool area since the facility was put into use in 1984. The FSA consists of six storage pools, which have a combined storage capacity of approximately 3.5 million gallons of deionized water. Pool water is recirculated through the water treatment area to maintain water quality (e.g., clarity, ion content) and removal of radionuclides from the water.

As part of the water treatment process, the ion exchange resins remove radionuclides and chlorides from the water via cation and anion resins. The spent IX cation and anion resins are contained in two tanks housed within a shielded vault located on the southwest side of CPP-666. Four additional vessels (IX columns) located in CPP-666 contain 500 cubic ft. of cation resin and 500 cubic ft. of mixed bed (cation and anion) resin that is currently being used by the facility water treatment system. These in-process vessels include VES-FT-101, VES-FT-102, VES-FT-103 and VES-FT-104.

Phase I, II, and III Resin Activities:

During Phase I, up to 1,000 cubic ft. of spent Amberlite™ resin will be removed from the CPP-666 facility. This spent resin is currently stored in the two resin storage tanks: the spent cation resin tank (VES-FT-131), and the spent anion resin tank (VES-FT-132), each of which holds 500 cubic ft. of spent resin. The activity consists of the transfer of these resins from both tanks to subcontractor equipment for on-site resin dewatering and off-site disposal. Excess slurry transfer water and the water from the dewatering process will be transferred to VES-FT-134 and then processed through the INTEC Liquid Waste Management System for treatment by ICP.

During Phase II, up to 1,000 cubic ft. of spent Purolite® resin will be removed from the in-process IX columns (VES-FT-101, VES-FT-102, VES-FT-103 and VES-FT-104) and transferred to the resin storage tanks (VES-FT-131 and VES-FT-132). Once spent resin has been removed from IX columns, new resin will be added to the IX columns and the IX columns will be returned to service. Samples of the spent resin, in the form of resin slurry, will be collected and sent to an off-site contracted laboratory for radiological and inorganic (metals) analyses. This sample data will be used to generate a source term for Phase III resin and will be provided to the Subcontractor. Lead blankets will be used as temporary shielding during the handling of the spent resin samples. The lead blankets will be returned to their storage areas upon completion of use.

During Phase III, up to 1,000 cubic feet for spent Purolite® resin will be removed from CPP-666 to on-site vendor-owned and operated resin dewatering equipment (EnergySolutions). The dewatered/treated resin will then be transported off-site for disposal at the Nevada National Security Site.

To support resin removal activities, a temporary weather enclosure structure has been erected to provide protection to equipment and workers during resin removal and dewatering. The enclosure (tensioned membrane over steel framework) measures 50 ft. by 60.5 ft. with an eave height of 35 ft. The weather enclosure will be equipped with heaters, lights and a ventilation system. Upon project completion, the weather enclosure structure will be dismantled and the structural materials properly dispositioned. ICP will submit the proper demolition notification prior to commencing such work.

The heaters, lights, and HEPA-filtered ventilation system in the enclosure structure will be electrically powered by two diesel fueled Caterpillar XQ230 (C9ATAAC engine) generators until mid-February. These generators are leased by CWI from an area vendor. Each generator is rated at 230 kW and 374 horsepower and has a storage capacity of approximately 400 gallons of diesel fuel. The fuel tanks mounted on the generators are considered to be portable oil storage facilities, but are not defined as aboveground storage tanks. Electricity will be provided via a new line once completed, which is anticipated in mid-February.

The proposed action is scheduled to start July 2014 and be completed by September 2015. The estimate project cost is \$6M.

**SECTION C. Environmental Aspects / Potential Sources of Impact**

**1. Air Pollutants** – Two portable diesel-fueled Caterpillar XQ230 (C9 engine) generators will, for a portion of the project, provide electrical power to the heaters, lights, and ventilation system installed in the weather enclosure constructed on the west side of CPP-666. The generators are classified as nonroad engines in accordance with 40 CFR 89.2 definitions (*Control of Emissions from New and*

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*In-Use Nonroad Compression Ignition Engines*). Per the interpretation provided by ETI-039 "Nonroad Engines," and requirements in PRD-5030, the generators can be operated up to 12 months or less, regardless of size, at the project location without being subject to air permitting requirements. Thus, no air permitting applicability determination will be needed for their operation. As mobile equipment, they do not require registration with the State of Idaho per IDAPA rules. The generators began operation at their project location in December 2014 and will be operated until mid-February 2015.

While the temporary weather enclosure structure is equipped with a HEPA-filtered ventilation system, there are no anticipated radiological emissions from the transfer of spent IX resin materials. The transfer system is a closed system with respect to all piping, connections, vessels, etc. exterior to CPP-666 and/or located with the enclosure structure. None of the project activities involve any construction or modification of existing radiological emissions sources that would constitute a "modification" as defined under IDAPA rules.

**4. Chemical Use & Storage** - New IX resin beads will be procured and added to the IX columns. Ion exchange resin is non-hazardous. Each generator has the capacity to store approximately 400 gallon of diesel fuel. Affirmative Procurement (MCP-1185) will be used as guidance in procuring applicable chemicals and materials.

**5. Contaminated Sites Disturbance** – Soil disturbance work is being performed within Site CPP-88. Soils will be disturbed in two separate locations: (1) one small excavation on the east side of manhole (electrical vault) MAH-SAA-EE-2H2; and (2) a trench across Maple Avenue, measuring approximately 85 ft long by 3 ft wide and 2.5 ft deep. Excavated soils will be sampled and managed in accordance with MCP-3002, "Managing Disturbed Soils" and work control instructions. A notice of soil disturbance will be completed and approved prior to commencing any excavation work.

**10. Hazardous/Rad. Material or Waste Handling and Trans.** – All radioactive waste handling and transportation will be managed in accordance with DOE Order O 435.1, Change 1, "Radioactive Waste Management".

A Hazardous Waste Determination will be performed on all generated waste to determine the appropriate waste management practices.

**11. Industrial Waste Generation and Management** - Wastes generated from these activities will consist primarily of excess materials and wastes, including scrap metal and wood, plastic, and other materials such as cardboard packaging. As applicable, materials that are not recycled will be managed as industrial waste and disposed of through Waste Generator Services at the INL Landfill Complex.

**12. Interaction with Wildlife** – Project personnel will take steps (e.g., installation of bird netting) to mitigate potential bird nesting in areas where nesting could be disturbed by project activities (e.g., covered door railings and porticos above doorways). Do not disturb active bird nesting sites.

**13. Managing Property and Materials** – Project personnel will excess the temporary weather enclosure equipment (heaters, lights, and ventilation system) as well as any materials that could be reused.

**16. Radioactive Waste Generation and Management** – Approximately 2,000 cubic feet of spent radiologically-contaminated resin will be generated during this activity. Radioactive waste and materials and wastes generated will be properly containerized, labeled, and managed with the assistance of Waste Generator Services. Spent resin will be analyzed to facilitate off-site waste disposal.

Wastewater (low-level waste) generated from the dewatering process will be transferred from the dewatering equipment in the weather enclosure structure to the CPP-666 Contaminated Waste Sump (SU-FT-134) and from there to the Contaminated Waste Tank (VES-FT-134). The wastewater will then be conveyed from VES-FT-134 to the Process Equipment Waste Evaporator at CPP-604 for volume reduction.

**SECTION D. Determine the Level of Environmental Review (or Documentation) and Reference(s):** Identify the applicable categorical exclusion from 10 CFR 1021, Appendix B, give the appropriate justification, and the approval date.

Note: For Categorical Exclusions (CXs) the proposed action must not: 1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, including requirements of DOE orders; 2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities; 3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; 4) adversely affect environmentally sensitive resources. In addition, no extraordinary circumstances related to the proposal exist which would affect the significance of the action, and the action is not "connected" nor "related" (40 CFR 1508.25(a)(1) and (2), respectively) to other actions with potentially or cumulatively significant impacts.

References: Categorical Exclusion B6.3 Improvements to environmental control systems

Justification: Maintaining the CPP-666 pool water cleanliness as described in Section B is categorically excluded and meets the criteria described above (see Note).

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act)  Yes  No

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Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on February 15, 2015.