

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

SECTION A. Project Title: INTEC - Reactivate CPP-2725 Resin Enclosure Tent for Waste Management Activities

SECTION B. Project Description

This revision documents additional types of treatment (Macroencapsulation Using Commercial and Custom Units) and a change to Work within areas Subject to Flooding. Specifically, it was determined that the location and configuration of the CPP-2725 Resin Tent were incorrectly portrayed on the attached original map. The ICP GIS Department provided a more current map for related RCRA-permitting actions and it shows the actual location and configuration of the CPP-2725 Resin Tent based on the most recent aerial photo flight data.

The proposed action will treat mixed low-level waste (MLLW) at the Idaho Nuclear Technology and Engineering Center (INTEC). The treatment process, macroencapsulation, will result in the waste stream meeting the treatment standards for debris and radioactive lead solids (RLS) for disposition at the Nevada National Security Site (NNSS). The macroencapsulation process is a Hazardous Waste Management Act (HWMA)/Resource Conservation and Recovery Act (RCRA) permitted process. The process has been performed at CPP-1617 or CPP-659. Due to competing scope for use of CPP-659, the CPP-2725 Resin Enclosure Tent will be reactivated to accommodate the waste management operation in addition to continuing to use CPP-1617.

CPP-2725 is an existing structure that was deactivated after the resin transfer from CPP-666 was completed. The Remote-Handled Transuranic (RH TRU) operations has taken ownership of the tent and plans to utilize the temporary structure to store waste packaging materials and perform macroencapsulation via the MACRO bag process in support of meeting the terms of the Idaho Settlement Agreement and Site Treatment Plan.

The tent will require minor maintenance and the main power supply re-energized. The power was disconnected and the wiring removed. The main power will be restored using the existing conduit.

Treatment Process Description – Macroencapsulation Using Commercial and Custom Units:

The treatment objective of macroencapsulation is to meet the treatment standards for debris as specified in 40 CFR 268.45 and radioactive lead solids as specified in 40 CFR 268.40. Depending upon the size and weight of the waste and the radiation hazard presented by that waste either a commercially available macroencapsulation unit or a custom macroencapsulation process will be used.

One commercial macroencapsulation process, although technically considered “treatment” under the HWMA/RCRA program is essentially an overpack or repackaging system that acts as the DOT IP-1 or IP-2 packaging (outer shell) for shipment. The macrobag system does nothing to change the nature or concentration of the waste. However, the middle liner meets the definition of macroencapsulation for hazardous debris (40 CFR 268.45) and radioactive lead solids (40 CFR 268.40). This process does not require opening waste containers and therefore, does not contribute to air emissions.

The commercially available macroencapsulation (Macro Bag) system involves securing hazardous debris in soft sided bags of various sizes. The macrobag/liner system is made from a polymeric organic line/jacket formulated to resist contaminants and leachate. It consists of a zippered inner liner with cardboard integrated into it for structural shape, a middle liner with an air tight seal and a zippered outer shell.

A container(s) of hazardous debris and/or RLS is placed inside the macrobag/liner system and void space filler (e.g. vermiculite, foam pellets, etc.) is added to fill the package to 90% full or greater, if needed. The container(s) and inner liner are used to protect the middle liner from potential damage from the debris and RLS within the container(s). The inner bag is closed by pulling two opposing zippers together.

The middle liner with an air tight seal is designed and manufactured to resist contaminants and leachate. The commercially available macrobag/liner system creates a permanent, impermeable barrier between the waste debris and RLS, and materials into which it may come into contact after disposal; thus encapsulating the debris and RLS. The middle liner with an air tight seal is closed by squeezing the seal, while pushing the air out of the liner. The outer shell is then closed using a patented closure method that incorporates two zipper pulls for added security. Once the containers are

sealed inside the macro bag system, the entire assembly is banded to two pallets (one on top and one on bottom) for handling purposes.

Other commercially available macroencapsulation units are the Ultratech International macropacks, which are planned for smaller, lighter weight, and lower radiation dose wastes. These units provide isolation from potentially leaching media by use of a jacket of high density polyethylene. The waste to be treated is placed inside the macropack, the remaining void space is filled, as necessary, to meet the applicable off-Site disposal facility waste acceptance criteria, and a lid of high density polyethylene is electrically welded to the unit in accordance with manufacturer recommendations effectively sealing the waste within. The electrical welding process is automated and controlled by the macroencapsulation control unit provided by the vendor. After the lid is welded in place, the weld seam is inspected for continuity and lack of deformities that would allow potential leaching media to contact the waste. Any cracks or deficiencies in the seam are repaired. The waste does not come in contact with control equipment unless there has been a release of hazardous constituents.

Custom macroencapsulation units are typically steel boxes with cement grout liners that are prepared on-Site for macroencapsulation of waste. Isolation from potentially leaching media is provided by the cement grout. The walls and floor of the macroencapsulation package will be made of cement grout at least 3 inches thick poured around a central form that creates the void space for the waste placement. The waste to be treated is placed inside the void space inside the macroencapsulation package, the remaining void space is filled/grouted as necessary to meet the disposal facility waste acceptance criteria, and a minimum 3 inch sealing layer of cement grout is added. After allowing the cement grout to cure, the exposed surfaces are inspected for cracks that would allow potentially leaching material to contact the waste. Any deviations in the grout surface are repaired. Cement grout or similar materials that provide an inert barrier may be used. Any remaining void space within the box is then filled as necessary to meet the disposal facility waste acceptance criteria prior to placing the lid on the box that completes the macroencapsulation package. The waste does not come in contact with anything other than the waste package unless there has been a release of hazardous constituents.

SECTION C. Environmental Aspects / Potential Sources of Impact

1. Air Pollutants -. Fugitive dust emissions may be generated from reconnecting the power. All fugitive emissions should be controlled. Project activities will generate emissions from operation of a diesel-powered forklift within the building. Such equipment is exempted as mobile internal combustion engines per IDAPA 58.01.01.222.02.e, and its emissions will not be exhausted through a vent in the tent structure.

4. Chemical Use and Storage – Chemicals such as petroleum products and vermiculite will be used in support of the waste management activities. Project personnel will use non-hazardous chemical substitutes in the place of hazardous chemicals as long as the non-hazardous substitutes meet the requirements/ specifications of the requester. Spill prevention/ minimization measures will be used during storage and use of chemicals/fuels.

5. Contaminated Site Disturbance –Soil disturbances at INTEC require a Notice of Soil Disturbance to be performed. Soil disturbance will be coordinated with appropriate CERCLA personnel.

9. Hazardous/Mixed Waste Generation and Management- The proposed action will treat MLLW streams generated from existing processes such as the filter change-out in the CPP-666 FDP cell and the Sludge Repackaging Project at WMF-1617. Temporary storage may occur as MLLW is being queued for treatment and after treatment. Additional waste stream description is provided in #14 below. All waste will be managed and disposed of through Waste Generator Services.

The macroencapsulation process is a Hazardous Waste Management Act (HWMA)/Resource Conservation and Recovery Act (RCRA) permitted process and will be performed CPP-2725. The HWMA/ RCRA Part B Permit for the Idaho National Laboratory, Volume 18 – Idaho Nuclear Technology and Engineering Center, (PER-109) will be modified and approved prior to performing macroencapsulation activities.

A RCRA permit modification will be required before any waste treatment and/or storage can occur and in the interim it will be used to store weather sensitive packaging materials. Modifications and warehousing treatment supplies that are not hazardous will be done until a permit is approved and implemented.

10. Hazardous/Rad. Material or Waste Handling and Trans- The commercially available macroencapsulation unit is a macrobag with air tight closure system that uses a High Modulus Polymeric Packaging System (HMPPS) for secure macroencapsulation in soft sided bags of various sizes. The HMPPS is made from high-strength high-density polyethylene (HDPE) which is specially formulated to resist contaminants and leachate. It consists of a zippered inner liner with cardboard integrated into it for structural shape, a middle liner with an air tight seal, and a zippered outer shell.

Another commercially available macroencapsulation unit the Ultratech International macropack, which provides isolation from potentially leaching media by use of a jacket of high density polyethylene.

The custom macroencapsulation units are typically steel boxes with cement grout liners that are prepared on-Site for macroencapsulation of waste. Isolation from potentially leaching media is provided by the cement grout.

A hazardous waste determination will be performed for all waste streams to develop the appropriate management practices.

All waste shipped to NNSS must be approved through the Waste Profile system. The process includes NNSS witnessing 5% of the waste packaging process. The approval must be in place prior to performing macroencapsulation. See Section E, Conditions #3 for additional information.

11. Industrial Waste Generation and Management – Industrial waste in the form of plastic, paper, and pallets will be generated as a byproduct of treatment. There is a potential for fluid leaks from operating the forklift which would be cleaned up and disposed of accordingly. All industrial waste will be managed through Waste Generator Services. All industrial waste will be recycled or reused if appropriate.

12. Interaction with Wildlife/Habitat – If migratory bird nests with birds and/or eggs are discovered during the waste management operation in CPP-2725, cease work, and notify the applicable Project Environmental Lead for assistance and guidance on a path forward.

14. PCB Contamination - The MLLW stream will include non-liquid PCB-contaminated mixed (HWMA/RCRA hazardous and low level radioactive) debris. This waste is generated as a secondary waste from processing of AMWTP sludge (under an existing RBDA) at the ARP V sludge repack facility at the RWMC. This PCB remediation waste consists of original crushed drums with residual sludge, tools, PPE, absorbent pads, and equipment parts. The PCB concentration is presumed to be greater than 500 ppm.

Project personnel will ensure all TSCA approvals and notifications have been completed prior to macroencapsulation of PCB waste. NOTE: It was determined (with concurrence from EPA Region 10) that use of the Macro Bag system only does not require a TSCA Approval.

16. Radioactive Waste Generation and Management- Project personnel do not anticipate generating radioactive waste. Should newly radioactive waste be generated, it will be managed and disposed of through Waste Generator Services.

19. Work in Areas Subject to Flooding – The macroencapsulation activities discussed in this EC will be performed at CPP-1617 and the CPP-2725 Resin Tent. The Big Lost River 100-year floodplain is discussed and mapped in the report entitled “Big Lost River Flood Hazard Study,” (D. A. Ostenaar and D. H. O’Connell, 2005, Bureau of Reclamation, Report 2005-2). The overland flow 100-year floodplain at INTEC is discussed and mapped in the report "100-year Floodplain and 25-Year Runoff Analyses for the Idaho Nuclear Technology and Engineering Center at the INEEL" INEEL-EXT-03-01174, by Clear Creek Hydrology and Hutten (2003).

The western and northern edges of CPP-1617 (along Birch St.) appear to be within the 100-year Big Lost River floodplain as shown on the Big Lost River floodplain map; therefore, additional investigation was performed to determine if those locations would experience 100-year flood related impacts. An evaluation was needed in 2006 (for an unrelated project) to determine whether or not the CPP-666 building (not part of this scope) and the CPP-1617 facility are in the 100-year floodplain. The 100-year floodplain map provided with the BOR Big Lost River Flood Hazard Study was consulted. On

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

this map, portions of the 100-year floodplain appear to contact portions of the western wall of CPP-666 and the entrance gate and western fence of CPP-1617. This map is a geo-referenced tiff file in which the pixels that represent the 100-year floodplain are about 20-foot by 20-foot squares. Therefore, the ground level elevations of the CPP-666 building and the CPP-1617 facility were determined at building corners, doorways and fence corners. A survey grade total station was used to determine building elevations. Horizontal and Vertical datum are in the NAD 1927 State Plane System and NGVD 1929, respectively.

Flood stage hazard curve elevations for fifteen specific sites at TRA (ATR) and INTEC are listed in Table SO-4 (page xxii) of the BOR report. From Table SO-4, the 95% probabilistic flood stage estimate of the 100-year flood at the INTEC-near west gate site is 4916.60 ft msl. Thus, any building near the INTEC-west gate site whose ground elevation is above 4916.60 ft can be considered to be outside of the 100-year floodplain.

The surveyed results of the building elevations are posted on the attached jpg figure (Figure 1) which also illustrates the 100-year floodplain near CPP-1617. This figure indicates that all the CPP-1617 facility elevations that appear to be in contact with the mapped Big Lost River 100-year floodplain are greater than (above) 4916.60 ft. CPP-1617 is also outside the 100-year overland flow floodplain at INTEC. Thus, for the purposes of RCRA permitting, CPP-1617 is outside of the 100-year floodplain.

The ICP GIS Department provided the current map that shows the actual location and configuration of the CPP-2725 Resin Tent based on the most recent aerial photo flight data. On this map, portions of the Big Lost River 100-year floodplain appear to contact portions of the western wall of CPP-2725. Further analysis was performed to determine the floodplain status of this building. The ground surface elevation of CPP-2725 was surveyed at building corners and at the southern doorway on 12/12/2016. A survey grade total station was used to determine ground surface elevations. Horizontal and Vertical datum are in the NAD 1927 State Plane System and NGVD 1929, respectively.

The attached map (Figure 2) of the CPP-2725 Resin Tent shows the spot elevations that were surveyed on 12/12/2016. The Big Lost River 100-year floodplain elevation in this area is 4916.60 ft msl. Two of the ground surface elevations measured at CPP-2725 on 12/12/2016 were at or above 4916.60 ft msl and three of the CPP-2725 elevations were below 4916.60 ft msl. Therefore, the CPP-2725 Resin Tent is within the 100-year Big Lost River Floodplain, and is subject to the RCRA floodplain requirements outlined in 40 CFR 264.18(b). See Section E, Conditions, #1 for additional information.

If the hypothetical 100-year flood event were to occur during the work described in this EC in CPP-2725, then the potential exists for flood waters to contact and “wash out” the hazardous wastes. As discussed in 40 CFR 264.18(b), a facility located in a 100-year floodplain must be designed, constructed, operated and maintained to prevent washout of any hazardous waste by a 100-year flood, unless the owner or operator can demonstrate to the Regional Administrator’s [Idaho DEQ] satisfaction that procedures are in effect which will cause the waste to be removed safely, before flood waters can reach the facility, to a location where the wastes will not be vulnerable to flood waters. See Section E, Conditions #4, for additional information.

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: B6.5, Siting/construction/operation/decommissioning of facility for characterizing/sorting packaged waste, overpacking waste

Justification: Treating MLLW using the macroencapsulation process at an existing INTEC facility action will not have a significant effect on the human environment.

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

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

Page 5 of 5
CX Posting No.: DOE-ID-ICP-16-014,
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Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on December 27, 2016.