

SECTION A. INTEC - Macroencapsulation/Overpack Operations in CPP-659, CPP-1617 and CPP-2725

SECTION B. Project Description

The continued 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, but due to competing scope for use of CPP-659, the CPP-2725 Resin Enclosure Tent was reactivated in 2016 to accommodate the waste management operation in addition to continuing the use of CPP-1617.

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.

The 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 macro bag/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 airtight 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 airtight 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 airtight seal is closed while pushing 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.

SECTION C. Environmental Aspects / Potential Sources of Impact

Air Pollutants - Petroleum-fueled mobile and portable equipment will be used to support project activities, such as a diesel-powered forklift within the building 2725. Mobile equipment are exempted as mobile internal combustion engines per IDAPA 58.01.01.222.02.e.

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 applied to all aspects of storage and utilization of chemicals/fuels. Affirmative Procurement practices will be used in procuring chemicals and other materials as applicable.

Material or Waste Handling and Transportation - The commercially available macroencapsulation unit is a macrobag with airtight 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 airtight seal, and a zippered outer shell.

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

All waste shipped to NNSC must be approved through the Waste Profile system. The process includes NNSC witnessing 5% of the waste packaging process. The approval must be in place prior to performing macroencapsulation.

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 filter handling cell and the Sludge Repackaging Project at WMF-1617. Temporary storage may occur as MLLW is being queued for treatment and after treatment. 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 at CPP-1617, CPP-2725 or CPP-659 in the crane maintenance areas located in Room 428. The HWMA/RCRA Part B Permit for the Idaho National Laboratory, Volume 18-Idaho Nuclear Technology and Engineering Center, (PER-109) was modified and approved prior to perform macroencapsulaion activities.

Interaction with Wildlife/Habitat – If migratory bird nests with birds and/or eggs are discovered, cease work nearby, and notify the facility Project Environmental Lead.

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.

Work in Areas Subject to Flooding- 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.

If the hypothetical 100-year flood event were to occur during the work 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.

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.

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

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, Facilities for characterizing and sorting packaged waste and overpacking waste

Justification: The environmental impacts from treating MLLW using the macroencapsulation process at existing INTEC facilities 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

Approved by Jason Sturm, DOE-ID NEPA Compliance Officer on November 9, 2020.