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## 6. SITE-GENERATED WASTE CONFINEMENT AND MANAGEMENT

All waste produced by the INEEL TMI-2 ISFSI is handled and disposed of in accordance with the existing procedures for handling waste at the Idaho National Engineering Laboratory (INEEL). Drying of the TMI-2 canisters is done prior to loading in the DSC in accordance with INEEL procedures. INEEL has existing facilities to treat and dispose both liquid and solid waste.

### 6.1 On-Site Waste Sources

Transfer operations, routine maintenance and maintenance of the HEPA grade filters in the DSC vent system are the only activities that will generate waste, in the form of dry radioactive waste, during the design life of the system. On the average, the filters could be replaced five times during the 50 year life of the system. This is based on the minimum expected life of the filters per the manufacturer. The vent system is designed with dust covers so plugging or damage of the filters is not expected to contribute significantly to the replacement of the filters. The waste from filter maintenance would consist of the filters and any bags that might be used to cover the filter opening while the filter is being replaced or anti-contamination clothing that may be used in the replacement process. It is estimated that this would consist of about one-half cubic foot per DSC over the design life of the ISFSI. Depending on the handling procedures used, some additional waste, such as plastic bags and tape, could be generated from handling the sampling tool. This is estimated at about one-half cubic foot per DSC. The total dry active waste would be about one cubic foot of waste per DSC.

At the time of closing the ISFSI, the most likely scenario is for the DSCs to be opened, removing the TMI-2 canisters, transporting the DSCs, TMI-2 canisters, and HSMs off-site where they are reassembled for additional storage. Most of the material will be reusable, some such as the DSC lids, filters, seals, etc. would most likely be disposed of. Also some waste will be generated in decontaminating the DSCs and HSMs. The total estimated waste for this activity is less than 10 cubic feet per module. The HSM and basemat, if not reused, would be disposed of as clean free release material after radiological surveys and decontamination which is allowed for in the above waste estimate. The components are fabricated from reinforced concrete and structural steel.

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## 6.2 Offgas Treatment and Ventilation

As described above, potential radioactive wastes produced by the vent system consists of HEPA grade filters and maintenance equipment used in the replacement of the HEPA filters. The gas velocities in the TMI-2 canisters (where the activity is), the DSC and the vent system are extremely low. There is no significant driving mechanism for the fuel particles inside the TMI-2 canisters and the DSC to become entrained in any air flow and carried to the filters. However, the filters are installed to ensure that none of the material escapes from a DSC. Due to the nature and condition of the core debris, and the fact that the damaged fuel has been vented for over ten years, most of the gases that were readily releasable have been released. Therefore, there is no significant volume of releasable fission gases remaining in the TMI-2 canisters. A more detailed discussion of potential releases is provided in Section 7.2.2.

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### 6.3 Liquid Waste Treatment and Retention

All contaminated liquids will remain at the TAN facility where the TMI-2 canisters are dried before being placed in the DSC. As such, liquid wastes will be treated in accordance with TAN procedures. All rain water, ice, and snow will run off the outside of the HSM and will not come in contact with contaminated surfaces. The HSMs have individual drains that would allow any water entering them to exit. These drains will be monitored for radioactivity on a periodic basis

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## 6.4 Solid Wastes

During operation the only solid wastes would be those associated with the HEPA vent system and the facility decommissioning wastes described above. These wastes will be packaged, treated and disposed in accordance with the existing procedures that are in place at the INEEL. Currently, INEEL procedures consist of bagging the waste and placing it in disposal containers where it is transported, either to a waste treatment facility for further treatment, such as incineration, or directly to a low level waste disposal facility.

### 6.4.1 Design Objectives

The design objectives for the vent system are to minimize the system volume and to use commonly available components. The system is designed to minimize volume of waste generated by activities for maintenance and decommissioning.

### 6.4.2 Equipment and System Description

There will be no special equipment used for volume reduction, confinement and/or packaging, storage, and disposal.

### 6.4.3 Operating Procedures

The HEPA filters on the DSC can be replaced by placing new filters in a glove bag with a tool for turning the filters, and securing the bag to the filter housing. The old filters can be removed and the new ones installed within the glove bag. Alternatively, the vent/purge gas sampling system can be used to establish an in-flow of air through the HEPA filter assemblies while work is conducted on the HEPA filter system. This will ensure all potentially loose particles are carried into the DSC.

### 6.4.4 Characteristics, Concentrations, and Volumes of Solid Wastes

As stated above, there may be about one cubic foot of radioactive waste generated for each stored DSC over the lifetime of the storage system. This waste will consist mainly of the plastic containment bags and filter elements. In addition to the waste that would be generated in the operation of the ISFSI, there will be less than 10 cubic feet of solid waste per module generated during decommissioning of the facility.

#### 6.4.5 Packaging

The waste will be packaged in plastic bags and then in metal or wood disposal containers in accordance with INEEL procedures.

#### 6.4.6 Storage Facilities

No special storage facilities are required. The waste will be transported immediately from the ISFSI to the INEEL waste handling system where it will undergo further treatment, or sent directly to a disposal facility.

## 6.5 Radiological Impact of Normal Operations-Summary

The total waste generated will be approximately one cubic foot of waste per DSC over the design life of the system, or a total of 29 cubic feet for the complete facility. In addition to the waste generated during the operation of the ISFSI, another 10 cubic feet per module will be generated in decommissioning the facility.

The small volumes of waste generated during loading, closure, and storage operations will have no significant impact on the ability of existing INEEL facilities to handle and process them. None of the waste will be stored at the ISFSI. As waste is generated it will be disposed of in the INEEL waste system.

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