Questions and Answers

RFI Removal and Disposal of HFIR Pressure Vessel

UT - Battle, LLC at ORNL

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Question	Answer
Can additional drawings/details be provided of the HFIR (including the overall dimensions, proposed pipe cut locations, weights, etc.)?	Not at this time.
Can additional drawings/details be provided for the HFIR connections (including type of nozzles/penetration (i.e mechanical), dimensions, weights, material type, supports, etc.)?	Not at this time.
Please clarify which of the connection removals would be performed by ORNL divers and which the subcontractor is responsible for cutting/removing? Will any of these connections be reused and if so, which ones.	All Diver activities, including those requested by subcontractor in executing the RPV removal and disposal activity, will be contracted by ORNL. Divers will disconnect all piping and flanged connections, install blind flanges to close openings, and perform any necessary welding operations on the vessel. Vessel flanges are expected to be removable without cutting and will be disposed. Based on subcontractor's recommendations, vessel nozzles may be cut from the vessel for purposes of efficient disposal. However, openings to the vessel must be capped prior to vessel removal.
Is there a proposed cut location for the reactor lower extension?	We request the respondants to the RFI provide guidance on the need for segmentation for removal. Because the reactor will be restarted, we prefer to minimize cutting debris in the pool, but recognize it may be necessary for efficient vessel removal.
Can the followoing additional drawings/details be provided for the reactor pool and clean pool? a. What is the length/width or diameter of the pools? b. Is it the Subcontractors responsibility to drain the pool? c. Can the reactor pool be drained independently of the clean pool?	The reactor pressure vessel is located in a cylindrical pool 18-ft-diam and 36-ft deep. Connected to the reactor pools is a [41.5-ft long, 20-ft deep, and 18-ft wide storage pool. A smaller cylindrical pool 8-ft-diam and 25-ft deep is located at the east end of the rectangular pool. We need to note that the reactor pool is separated from the clean pool side with a removable dam. In the clean pool side many of the spent fuel elements will be remained and protected. ORNL will be responsible for draining the pool.

What are the anticipated dose rates around the nozzles/penetrations, supports, and general area within the reactor pool without water?	The highest expected dose rate (the vessel beam line nozzles) is provided in the RFI. These nozzles are flanged connected and should have divers to remove all four nozzle flanges to reduce the dose down. In 2000, we had divers to replace the HB-2 and HB-4 nozzles for the upgrade project.
What are the rigging/handling capabilities within the reactor building/truck bay? a. Is there a polar crane/ overhead gantry crane? b. Is there a main hook/aux hook? c. What is the capacity? d. What are the travel/height restrictions?	The electric overhead traveling crane serving the reactor bay has a 50-ton capacity hook and a second 3-ton capacity hook. There is not a polar crane. The hoist on the personnel bridge is designed to lift a maximum of 1,000 lb. 50-ton hook elevation - 888'-2"/ 3-ton hook elevation - 892'/ vessel top head elevation - 829'- 8/5/8"
What laydown space is available inside the reactor building?	We have provided the reactor bay floor plan and elevation drawings along with the heavy load path requirements. The laydown space is very limited; the bay space is large enough to handle one Robetel Cask trailer (see Floor Plan drawing).
What laydown space is available outside the reactor building?	It is located just outside of the truck air lock area, which can be viewed with Google maps. Also, the upper parking area can be used for staging.
Are there any interferences/restrictions for the heavy haul route outside of the reactor building?	All routes will need to be vetted prior to use.
Is ORNL looking for responses to include drawings, perhaps as an appendix, and if so would they be included in the 20 page limit?	We encourage the vendor to prove any information relevant to the proposed work. Details supporting the primary response may be provided in an appendix (not included in the 20-page limit).
Referencing Page 3, Figure 3, which components will be disposed of and which components will be kept for the replacement reactor?	At this time, ORNL plans for all reactor internals as shown in RFI Figure 3 to be reused. The vessel and its heads and nozzles, will be disposed of (labeled "Vessel Top Head," "Vessel Bottom Head," and "Reactor Vessel" in RFI Figure 2.

As part of the RPV internals disassembly by ORNL, will ORNL remove any flange connections on the RPV and replacing them with blind flanges?	Divers will disconnect all piping and flanged connections, install blind flanges to close openings, and perform any necessary welding operations on the vessel. Vessel flanges are expected to be removable without cutting and will be disposed. Based on subcontractor's recommendations, vessel nozzles may be cut from the vessel for purposes of efficient disposal. However, openings to the vessel must be capped prior to vessel removal. All Diver activities, including those requested by subcontractor in executing the RPV removal and disposal activity, will be contracted by ORNL.
As subcontractor(s) will be tasked with removing, packaging, and disposing of radioactive materials and mixed waste stored in the pools, more information on the these items (i.e., dimensions, weight, radiation characterization, material of construction, etc.,) is needed.	At this time, ORNL has not identified specific mixed waste item to be disposed of by the Vendor; however, we noted that mixed wastes may be included within the RFI for awareness of potential Vendors. The beryllium reflector is not a part of this RFI and is not expected to be included in the RPV disposal.
Relative to Figure 2, will ORNL dispose of the beryllium reflector and any other mixed-waste items?	The beryllium reflector is not a part of this RFI.
Can ORNL provide a listing of the components to be re-used in the replacement RPV? What is ORNL's plan for storage of these components (location, shielding, etc.)? Is that storage part of ORNL's scope or the vendor's?	ORNL will be responsible for storage of the other components, but subcontractor will need to work with ORNL to ensure they do not interfere with subcontractor's tasks.
The RFI noted that divers would be available for certain operations. Will ORNL contract to have the divers on site for other activities? If a vendor has a need for diver support, will their services be covered by the ORNL contract?	All Diver activities, including those requested by subcontractor in executing the RPV removal and disposal activity, will be contracted by ORNL.
The reactor vessel is being removed in an effort to install a replacement. The existing reactor vessel is both embedded in, and supported by, the concrete structure of the surrounding building. What is, specifically, the expected final condition of the concrete surroundings, extent of removal of embedments, etc. that will be required to support the installation of the replacement?	The concrete structure must be restored to its original configuration.

Regarding materials, can ORNL confirm the RV is carbon steel with a stainless steel cladding? Other than carbon and stainless steel, are there any other component materials included in the waste to be disposed of (RV, internals, or legacy waste currently stored in other pools)? Specifically inquiring about cobalt-based alloys like stellite, zirconium alloys, silver-indium-cadmium, or nickel-based alloys like Inconel.	ORNL confirms that the RPV is carbon steel with a stainless steel cladding. At this time, we have not identified any other component materials included in the waste to be disposed of containing stellite, zirconium alloys, silver-indium-cadmium, or nickel-based alloys like Inconel.
Regarding activities in the reactor bay, can a general-arrangement drawing of the reactor bay identifying available floor space, floor-load rating, and free ceiling height be provided?	Yes, this has been provided. The provided drawings may contain export-controlled information. The use, disposition, export, and re-export of the this property are subject to export control laws, regulations, and directives. DO NOT RELEASE/TRANSFER THIS INFORMATION WITHOUT APPROVAL. The individuals and/or organization receiving this information are responsible for complying with export control regulations.
Understanding that supplemental lifting capacity will be required (a subcontractor-provided crane/A-frame), is there an existing overhead building crane? If so, what is its capacity?	The electric overhead traveling crane serving the reactor bay has a 50-ton capacity hook and a second 3-ton capacity hook. There is not a polar crane. The hoist on the personnel bridge is designed to lift a maximum of 1,000 lb. 50-ton hook elevation - 888'-2"/ 3-ton hook elevation - 892'/ vessel top head elevation - 829'- 8/5/8"
The division of Class A, B/C, and GTCC waste is a major driver for package selection and disposal cost. Can the preliminary characterization of waste to be disposed of be provided at this time?	As mentioned in the RFI, ORNL expects the majority of the RPV material to be Class A waste, with small portions around the beamline nozzles falling into Class B.
Assuming subcontractors will comply with any and all applicable site procedures and permitting, will hot work (i.e., welding, flame cutting, etc.) be permitted within the containment building?	Yes
What is the estimated hours of training (per person) that will be required of vendor personnel to work on the ORNL site?	Plan for Rad Worker 2 - 1 ½ day / Confined Space - ½ day/ Respirator fit (?)- ½ day/ ORNL GET and HFIR GEAT training - ½ day/ Lockout/Tagout - ½ day
Can vendors perform a walk-down of the project site before the response submittal?	No, due to the short period of time available and the large number of vendors responding, site visits are not possible. However, a site visit can be arranged following the RFI for interested vendors.

Can ORNL extend the RFI due date—potentially to August 2026—to accommodate the walk-down and evaluate the information obtained from the walkdown?	Unfortunately, this RFI is attached to a formal milestone for the pressure vessel replacement project and its date cannot be extended.