



Susquehanna Siphon and Vent Block Leak

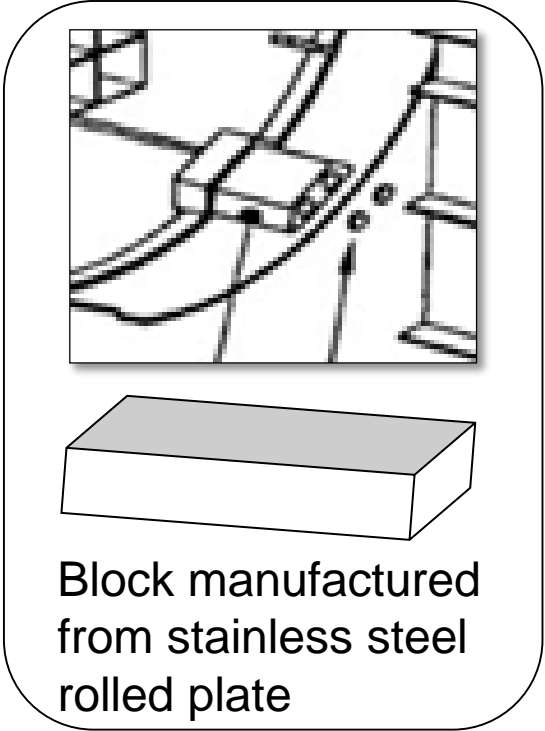
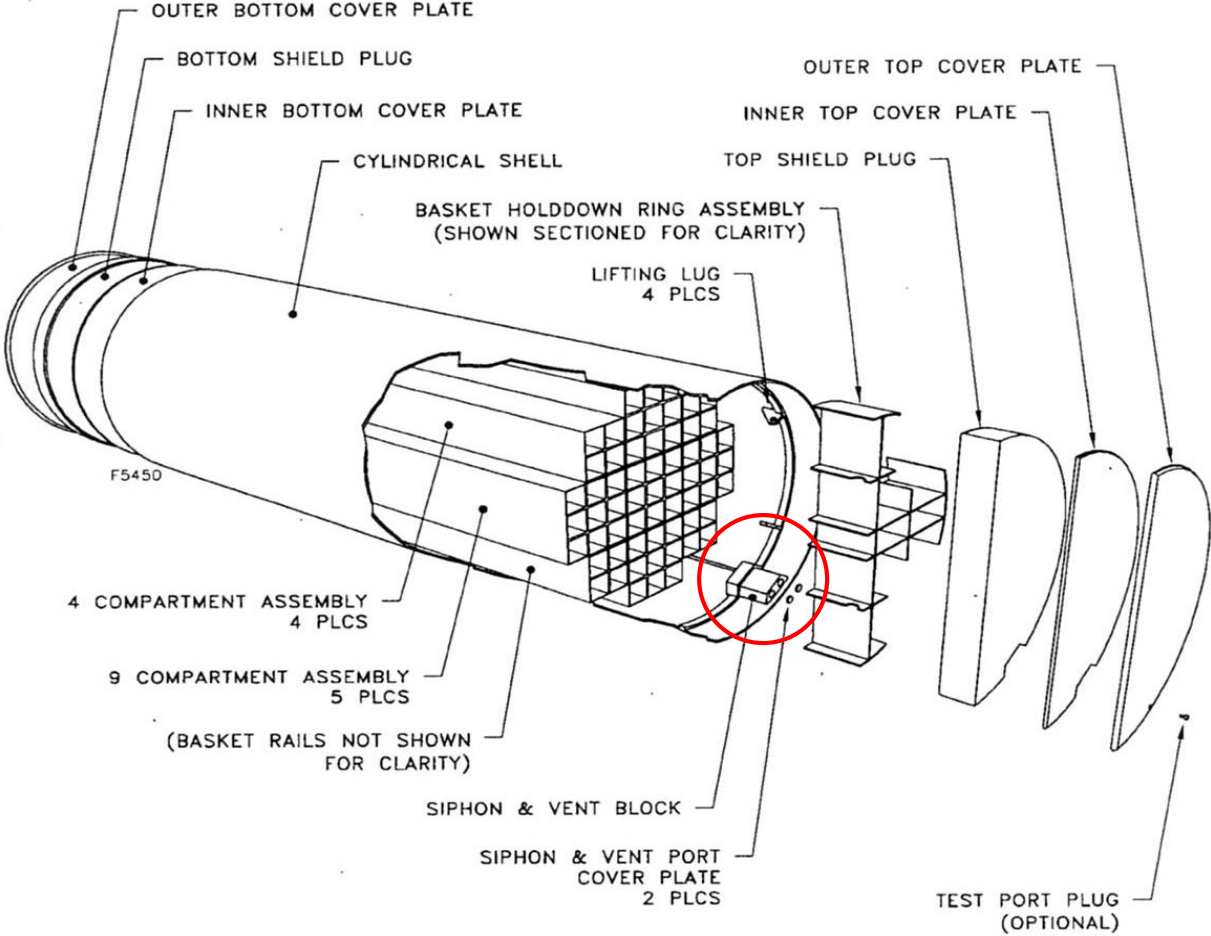
John Wise
Division of Spent Fuel Management
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Susquehanna spent fuel loading campaign – Nov. 2014

- NUHOMS 61BTH Type 1 dry shielded canisters (DSCs)
- During closure operations on one DSC, a liquid penetrant examination of a closure weld identified indications in the base metal of the syphon and vent block

NUHOMS 61BTH Type 1 DSC



Indications after welding the port covers



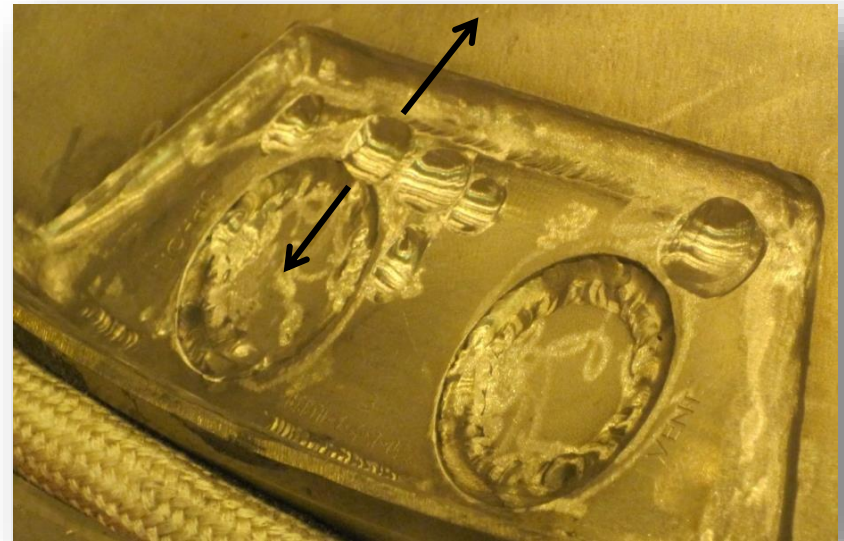
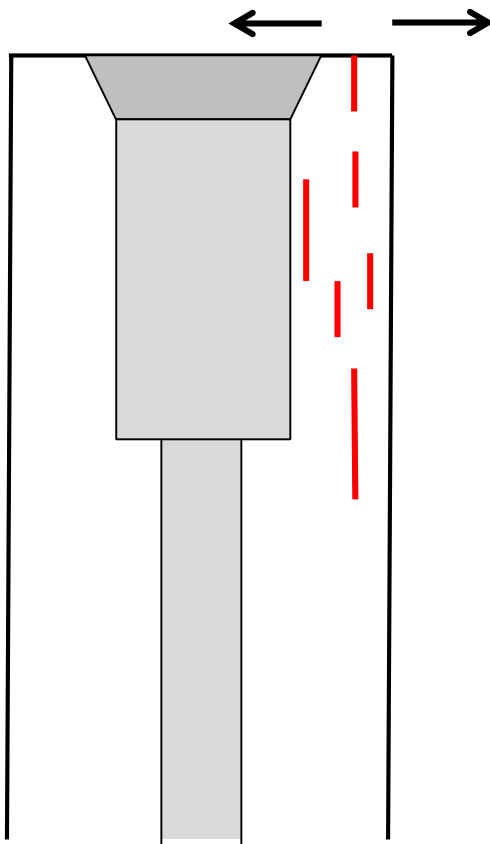
PT examination identified six rejectable indications per the ASME Code – these areas were excavated to bring into Code compliance

Leak discovery and repair

- Subsequent helium leak testing identified leaks in two of the excavations
- Base metal buildups were performed on the six excavations and a 1/8th inch weld overlay was deposited over the entire repaired region
- This area ultimately passed liquid penetrant and helium leak testing
- The DSC met all the Technical Specification requirements before being placed on the ISFSI pad

Identified root cause

- Material separation at plate inclusions due to weld-induced stresses



Rolled plate inclusions



Elongated in rolling direction

Extent of Condition

- Four other canisters had their siphon/vent blocks fabricated from the same lot of rolled plate as the subject DSC
 - Two previously had been successfully loaded, passing liquid penetrant and leak tests
 - For the two unused canisters, planned actions included:
 - Placing a weld overlay on the siphon/vent block of one canister
 - Returning the other canister to the manufacturer

Some considerations going forward

- Use of forged material rather than rolled plates
- Use of weld overlays
- Adjustments in welding practice to reduce stresses

More Information

- NRC ISFSI Inspection Report No. 07200028/2014002, June 24, 2015 (ML15175A212)

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