

# Used Fuel Disposition Campaign

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## Interim Storage Mock-Up Discussion

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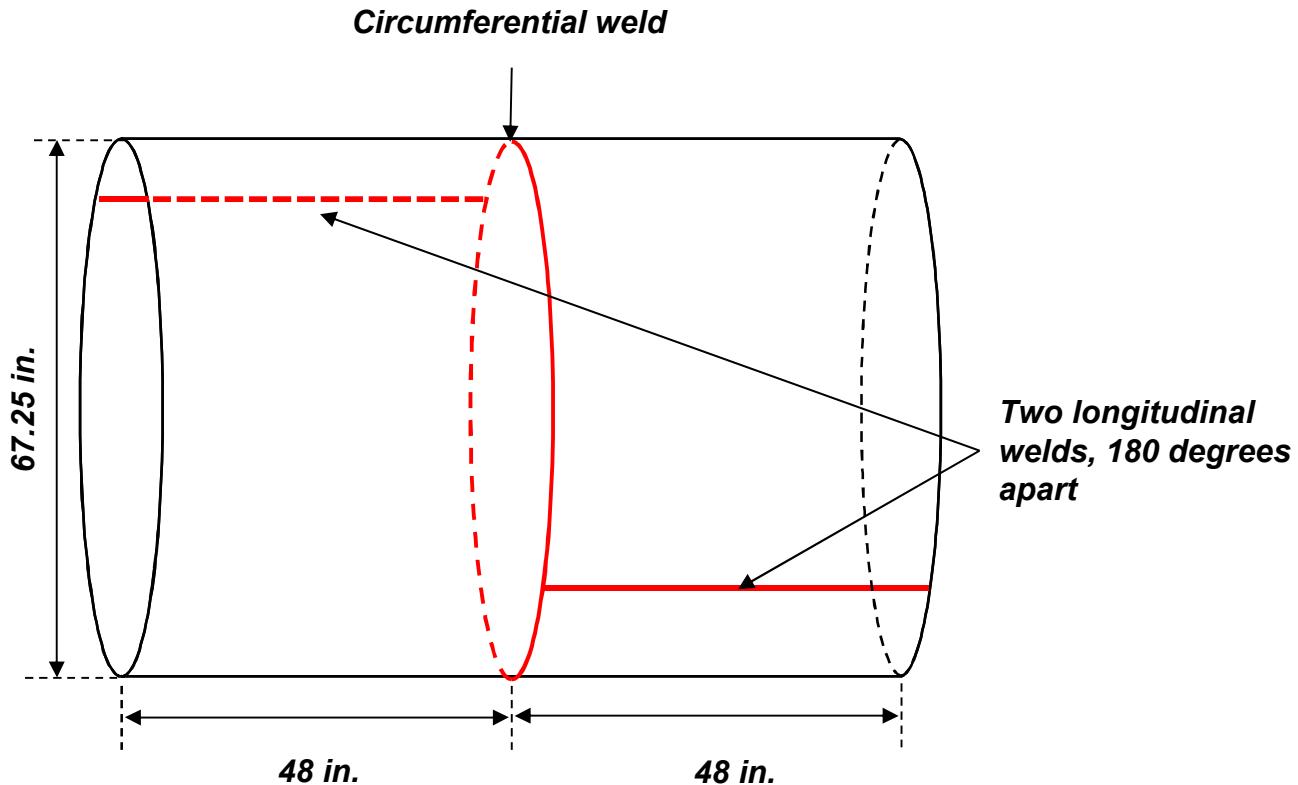
- Considerable work has been done on 304SS to demonstrate that it is susceptible to chloride induced stress corrosion cracking
- Work of particular relevance to interim storage relies on bend bars to provide the stress state
  - Is this representative?
  - What can these tell us and what are their limitations?
- Recall – SCC requires three things
  - Environment (EPRI work, etc.)
  - Susceptible material – Mockup (sensitization)
  - Stress – Mockup (weld residual stress)

## Goals for a Mock Container

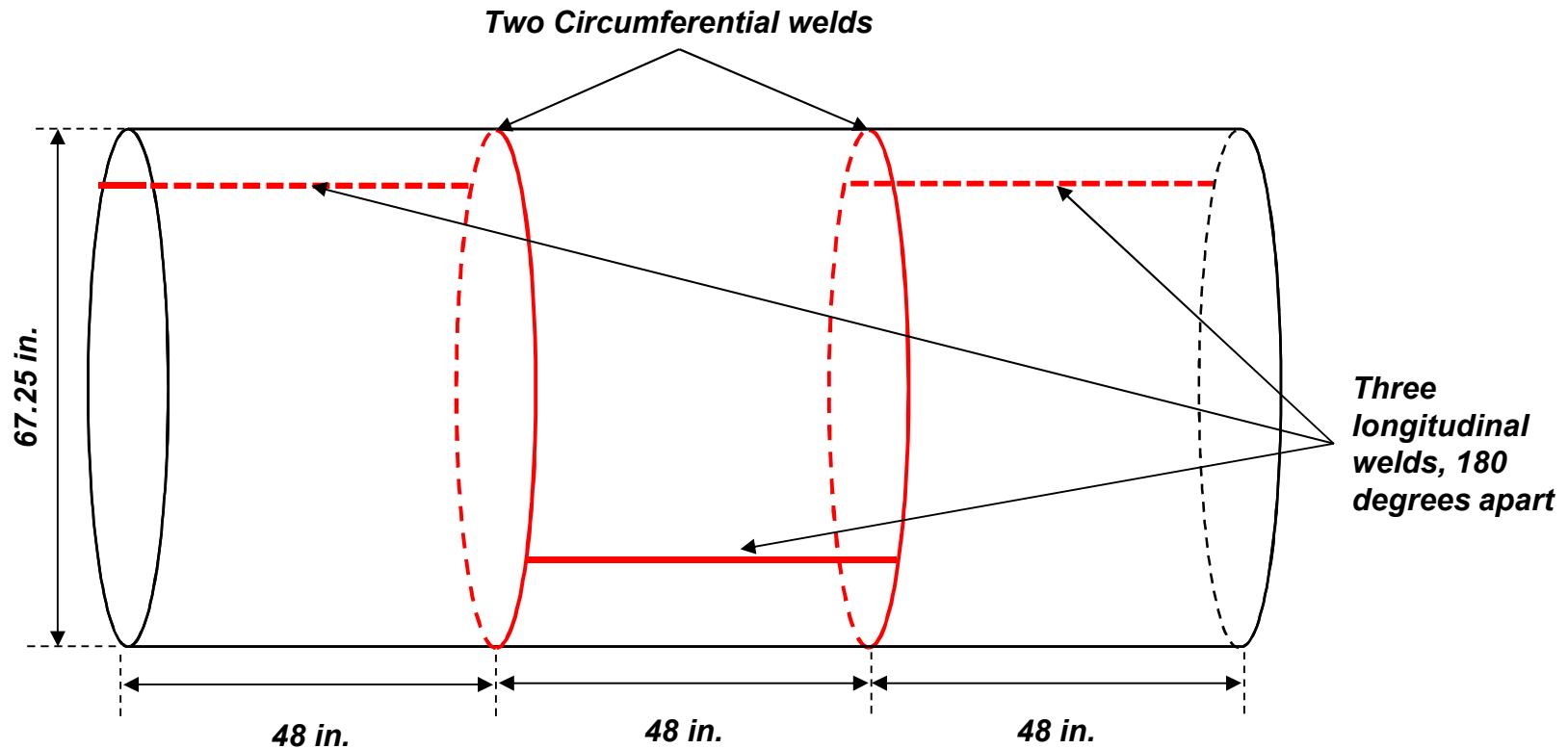
- Want to replicate fielded structures in order to assess the susceptibility stress corrosion cracking initiation and propagation
- Welding parameters, joint designs, etc. are all held proprietary by the vendors
- NEUP program (R. Ballinger) approached three vendors last year and received quotes from each of them.
- We attempted to do the same with varying degrees of success
  - NAC – still waiting...
  - Holtec – no response.
  - Areva-TN - Ranor

- **Wall material:** 304 SS
- **Wall thickness, overall diameter, weld joint geometry:** standard geometry for NUHOMS 24P
- **Welds:**
  - Specific design not specified by manufacturer.
  - Welds to be full penetration and inspected per ASME B&PVC Section III, Division 1, Subsection NB (full radiographic inspection)
  - Double-V joint design
  - Weld procedure: Submerged Arc

## Mock-Up Design



# Mock-Up Design



## What do we want to do with the mockup?

### ■ Comments on the design – anything we should add/remove?

- Baseplate?
- Simulated repairs?
- Stress mitigation?
- Others?

### ■ What do we want to measure?

- Weld residual stress state
- Extent of sensitization

### ■ What samples do we want to make?

- Subdividing the mock-up will impact the stress state – need to determine how much
- Sample geometry that we need?