

# HI-STORM 100 Part 72 License Renewal Pre-Submittal Meeting

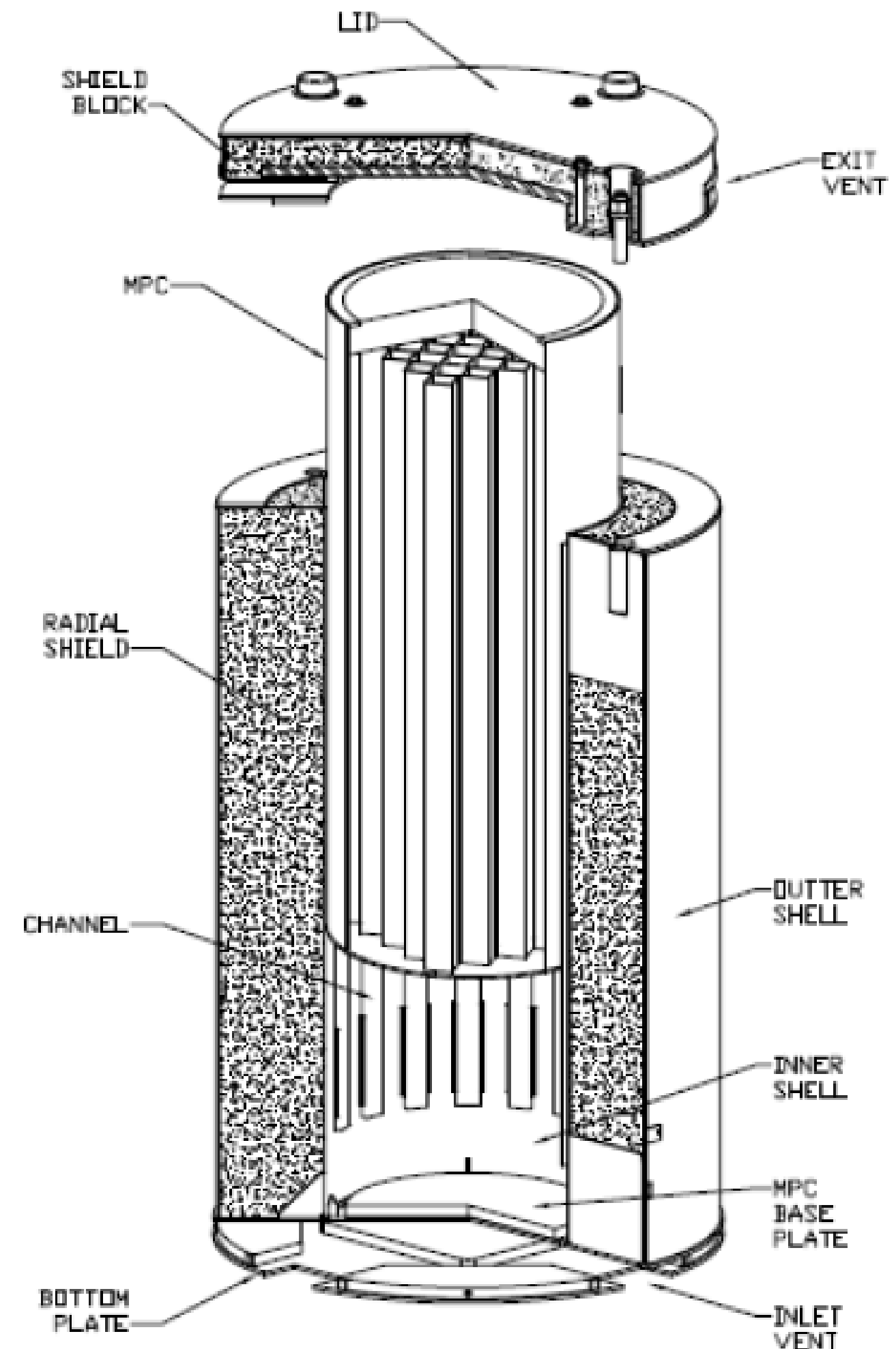


# Meeting Purpose

- To share plans with the NRC staff for the application to review the HI-STORM 100 Storage CoC
- To obtain feedback from the NRC staff on renewal application prior to submittal

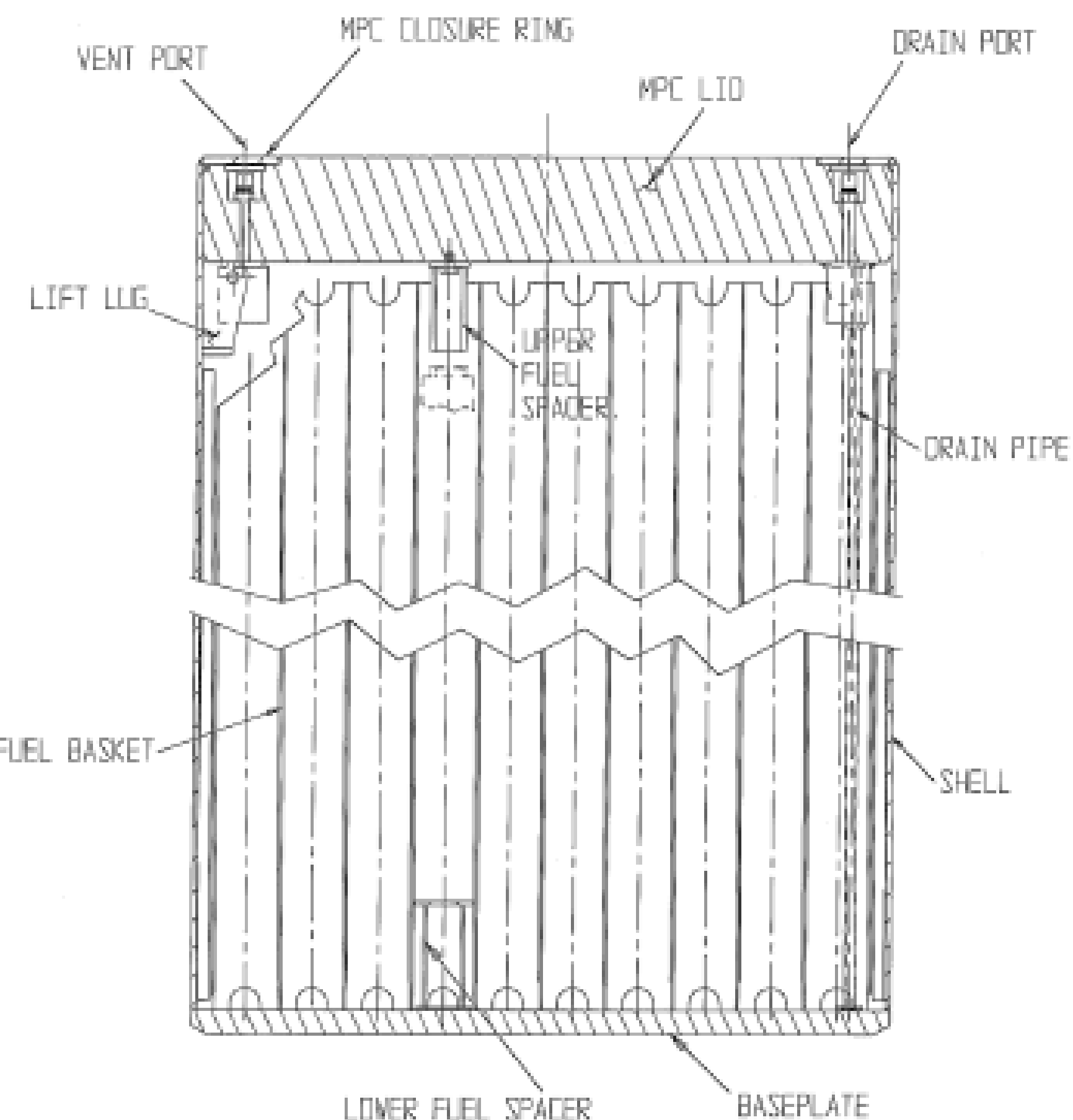
# HI-STORM 100 System

- Storage system
- Stainless Steel Canister (MPC)
  - MPC-24 / 32 / 68 (including variants)
  - Stainless steel baskets with neutron absorber within sheathing
  - Metamic-HT baskets (68M and 32M)
- Steel-Concrete-Steel cask
  - Steel inner and outer shells
  - Concrete filled between (no rebar)
  - Also includes 100U underground
- HI-TRAC transfer cask (including variants)

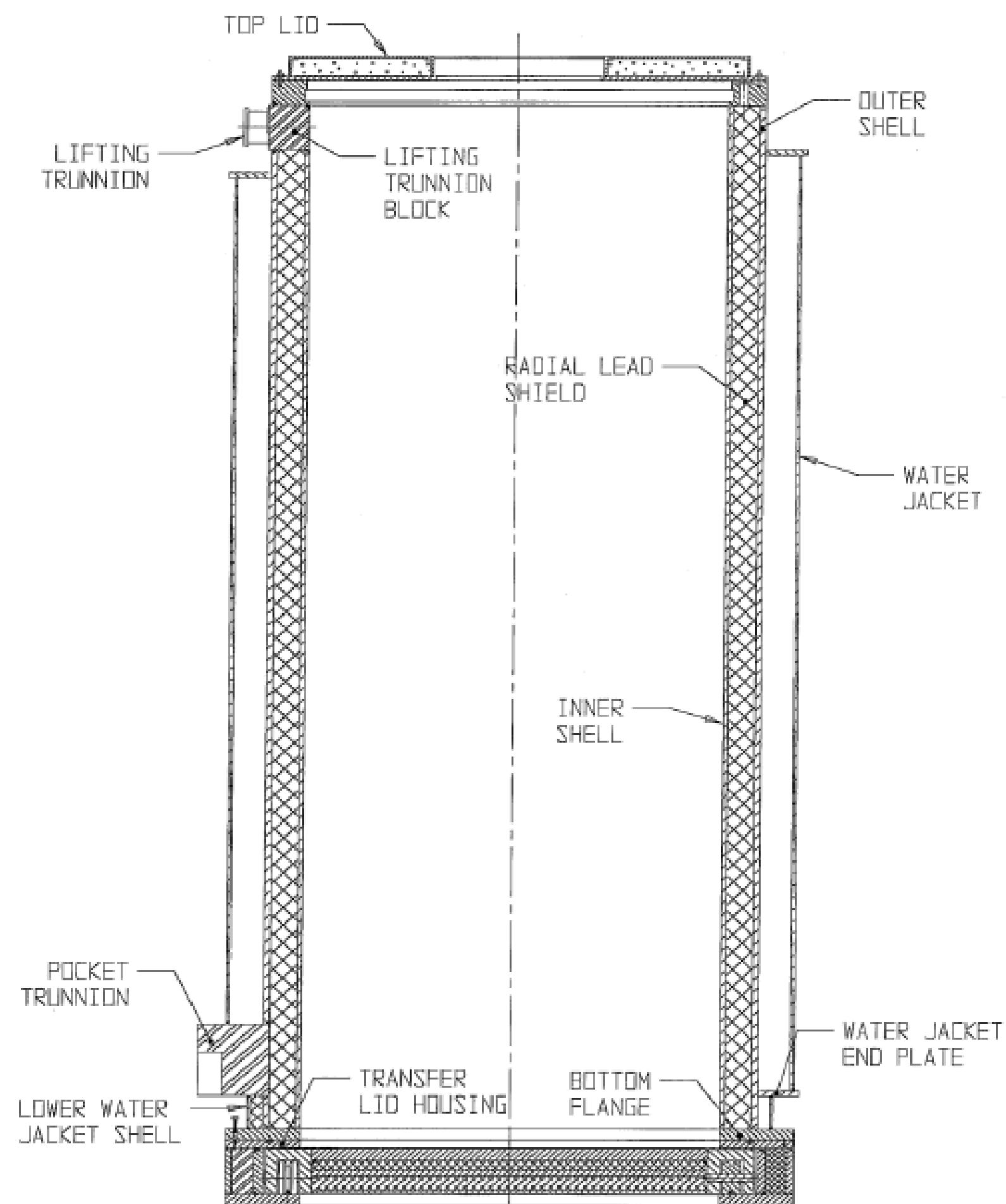


HI-STORM 100S Version B

# HI-STORM 100 Schematics



MPC



HI-TRAC (125 ton)



# HI-STORM 100

- License Expiration Date:  
5/31/2020
- Timely Renewal Date:  
4/30/2020
- 14 Approved  
Amendments, 1 in process
- Number of versions of  
components, but all are  
essentially same materials  
/ same environment



# Renewal Application

- Following guidance in NUREG-1927 Rev 1 and NEI-14-03
- Have also reviewed the MAPS report, although significant portions of the application were developed prior to issuance of draft NUREG
- Apply for 40 year extension of the existing license
- Application requires Aging Management Programs (AMPs) or Time-limited Aging Analyses (TLAAs)



# Renewal Application Overview

- Chapter 1 – General Information
- Chapter 2 – Scoping Evaluation
- Chapter 3 – Aging Management Review
- Chapter 4 – Aging Management Tollgates
- Appendix A – AMPs
- Appendix B – TLAAs
- Appendix C – System Inspections
- Appendix D – FSAR Changes
- Appendix E – CoC / Tech Spec Changes

# HI-STORM 100

- Scoping Process – Following NUREG-1927 2 Scoping Questions
  - Classified as Important to Safety (ITS)?
  - Classified as Not Important to Safety (NITS), but failure could prevent fulfillment of an ITS function?
- Applied to major SSCs in HI-STORM 100 System



# HI-STORM 100 Scoping



Structure, System, or Component (SSC)	Scoping Results		In-Scope SSC
	Criterion 1 <sup>Note 1</sup>	Criterion 2 <sup>Note 2</sup>	
MPC	Yes	N/A	Yes
HI-STORM 100 Overpack / 100U	Yes	N/A	Yes
HI-TRAC	Yes	N/A	Yes
Fuel Assembly <sup>Note 3</sup>	Yes	N/A	Yes
ISFSI Pad	No	No	No
ISFSI Security Equipment	No	No	No
Fuel Transfer and Auxiliary Equipment	No	No	No

## Notes:

1. SSC is ITS
2. SSC is NITS but failure could prevent ITS function from being fulfilled
3. Fuel pellets not included

# HI-STORM 100 Scoping

- Application breaks down into sub-components and intended function
- Further evaluation only based on those that have intended safety function
  - Safety function based on: confinement, criticality control, heat transfer, structural integrity, shielding, and retrievability
  - Example: MPC drain tube, not considered for aging as it does not serve those functions during extended storage period
- Tables in application go into detail on materials, environment, etc

# AMPs / TLAAAs

## ■ AMPs

- MPC AMP
- Overpack AMP
- HI-TRAC AMP
- Fuel Assembly AMP
- 100U Concrete AMP

## ■ TLAAAs

- Neutron Absorber Depletion
- HI-TRAC Trunnions
- MPC Fatigue
- Fuel Cladding Integrity

# HI-STORM 100 MPC AMP

- Visual inspection of MPC exterior surface
  - VT-3 of accessible areas
  - 1 canister at each site, frequency of 5 years
  - AMP contains guidance for how to select canister
- AMP contains criteria for results that do not require further evaluation and results that do require further evaluation
- All corrective actions / confirmation are referred to the site's QA program



# HI-STORM 100 Overpack AMP

- Covers both internal and external
- External continues annual inspection already required in the FSAR – performed annually
- Internal is recommended to be performed concurrent with the MPC AMP
  - Visual inspection of internal overpack components
  - One overpack, every 5 years
- All corrective actions / confirmation are referred to the site's QA program

# Transfer Cask AMP

- Transfer cask not necessarily in constant use during period of extended storage
- AMP is focused on pre-use inspections
- AMP contains acceptance criteria that does not require further evaluation, anything beyond the listed criteria requires additional evaluation
- Corrective action in accordance with site's program

# High Burnup Fuel AMP

- Relies on EPRI / DOE High Burnup Dry Storage Cask Research and Development Project
- Application is based on NRC guidance in NUREG-1927 and NUREG-2214

# HI-STORM 100U Concrete AMP

- Following Standard in ACI-349 – quantitative three-tier
  - Acceptance without further evaluation – free of significant deficiencies
  - Acceptance after review – some degradation, but can maintain design basis function
  - Acceptance requiring further evaluation – degradation, could prevent design basis function from being maintained
- Corrective actions from tier 2 and 3 are referred to the site's QA program
- Also includes groundwater monitoring
- No HI-STORM 100Us currently in service, but renewal still requested



# HI-STORM 100 Changes – 72.48s / Other

- CoC Renewal application process will evaluate changes made under 72.48 related to HI-STORM 100
- Application also evaluates manufacturing deviations
- Any changes that impact aging management will be identified
- No change in aging management across amendments, since materials and environments are the same across all amendments

# Schedule

- Timely renewal date 4/30/2020
- Planned submittal January 2020