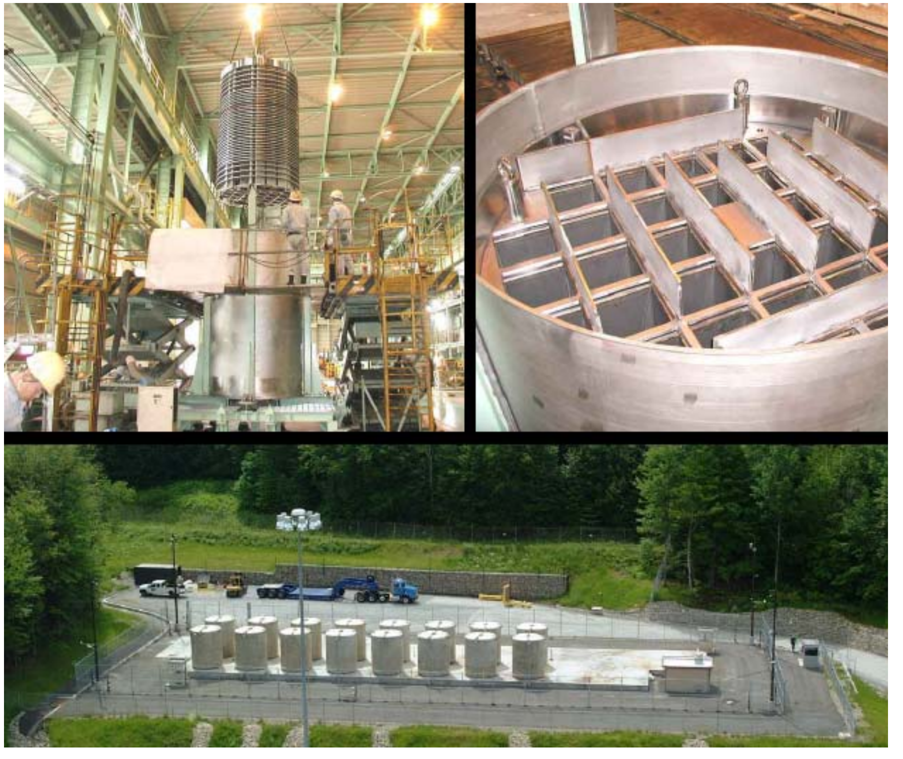
Overview of NAC-MPC Amendment Application
Docket No. 72-1025



October 27, 2008

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Presentation Overview

- Introduction / Meeting Objectives
- Dairyland Power La Crosse BWR Project Schedule
- NAC-MPC Amendment
  - Structural and Thermal Evaluations
  - Nuclear Evaluations
- Licensing Considerations
- Questions

Introduction / Meeting Objectives

- Overview of DPC LACBWR spent fuel project
- Discuss LACBWR changes to the NAC-MPC system
- Address NAC's intended approach to nuclear, thermal, and structural evaluations, and licensing
  - Make as few licensing changes as possible
  - Major cask components will remain same
  - LACBWR spent fuel significantly colder than that licensed
  - Design basis calculations provide amendment bounding conditions

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Dairyland Power Cooperative - La Crosse BWR Spent Fuel Storage Schedule

- LACBWR operation 1967 to 1987
- 1996-2006 limited dismantlement, including RPV removal
- 2007-2010:
  - ISFSI
  - 5 NAC-MPC systems loaded in 3rd Quarter of 2010
  - DPC June 19, 2008 letter to NRC addressing schedule importance
- 2011 Full scale dismantlement and license termination plan development

MPC Amendment Schedule

- 72 Application
  - Pre-application meeting (Meeting in June 2008)
  - Pre-submittal meeting (Current meeting)
  - Amendment request (December 2008)
  - Post-submittal meeting (January 2009)
  - Draft CoC (November 30, 2009)
- 71 CoC Amendment Application filed in 4th Quarter 2009 for NAC-STC

MPC-LACBWR Design Overview

- LACBWR—333 assemblies, 155 Allis-Chalmers and 178 Exxon
- LACBWR bounded by YR and CY
- 32 DFC capacity per canister / TSC (160 total)
- All AC assemblies in DFCs
- Fuel debris in one DFC
- Four additional DFCs available

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SAR Disciplines Bounded

- Structural—VCC and TFR bounded by YR and CY
  - TSC basket structural analysis and fuel rod buckling are new with 68 cells and 32 DFCs
- Thermal loading at < 4.5 kW is bounded for all operational configurations
- Shielding results for the LACBWR fuel bounded by YR and CY
- Criticality results for the LACBWR fuel show $k_{eff} < 0.93$
- Confinement—leak tight with MAGNASTOR lid configuration and acceptance test – ISG 15 and 18

MPC-LACBWR Design Overview

- Actual MPC-YR transfer cask
- MPC VCC design with minor modifications
- Tube and disk basket with design features and materials the same as MPC basket

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Amendment scope limited to expedite NRC's technical review, certification, and rulemaking

Structural and Thermal Evaluations for the NAC-MPC Amendment

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Structural Evaluation-Overview

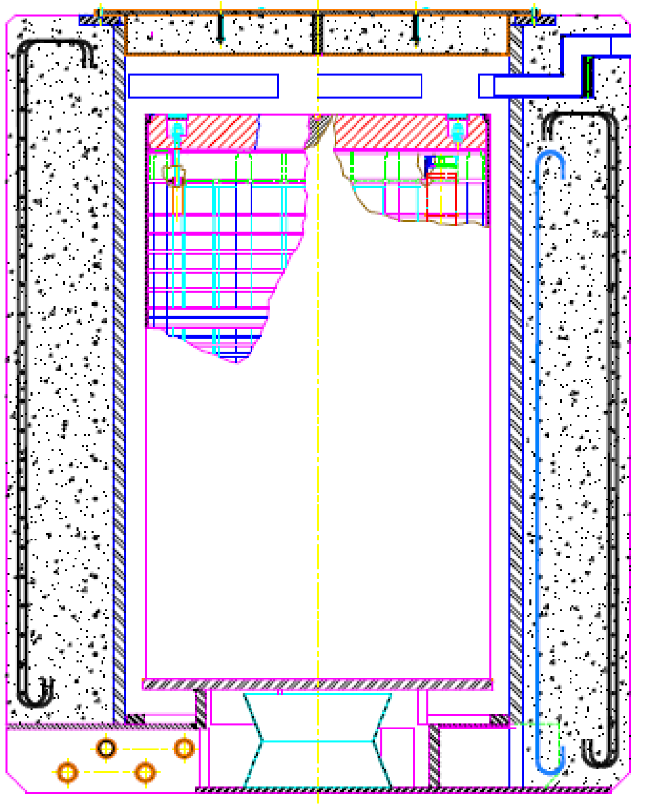
- LACBWR will employ the <u>existing</u> YR transfer cask
- Bounding YR canister weight precludes the need for additional evaluation of transfer cask

	Yankee Rowe	LACBWR
Canister OD (in)	70.64	70.64
Canister length (in)	122.5	116.05
Lid thickness (in)	3 / 5	7
Liner ID (in)	79	79
VCC OD (in)	128	128
VCC length (in)	160	160
Liner thickness (in)	3.5	2.5
Number of assemblies	36	68
Assembly weight (lb)	850	400
Total fuel weight (lb)	30,600	27,200
Loaded canister weight	54,700	53,700

No re-analysis of transfer cask

Structural Evaluation—
Vertical Concrete Cask (VCC)

- LACBWR storage system will employ the existing YR concrete cask reinforcement / pedestal design
- YR heat load of 12.5 kW bounds the largest expected value of < 4.5 kW per canister and bounds thermal stresses
- YR design basis calculations provide bounding conditions for LACBWR
  - Tornado missiles, seismic, 6-inch drop, extreme heat, air pad lift



No re-analysis of concrete cask

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LACBWR Canister Design

- Canister model will be combined with basket model to load the canister shell in tip over evaluation to comply with current license methodology
  - Multiple basket orientations considered
- Back fill pressure is atmospheric pressure
- Weld design follow NAC Magnastor canister design

	Yankee Rowe	LACBWR
Canister OD (in)	70.64	70.64
Canister length (in)	122.5	116.05
Canister shell thickness (in)	0.625	0.50
Base plate thickness (in)	1.00	1.00
Canister material	Type 304L	Dual certified 304L 304
Lid thickness (in)	Two lids Structural: 3 Shield: 5	Single lid 7
Lid Weld thickness (in)	0.875	0.50

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LACBWR Basket Design

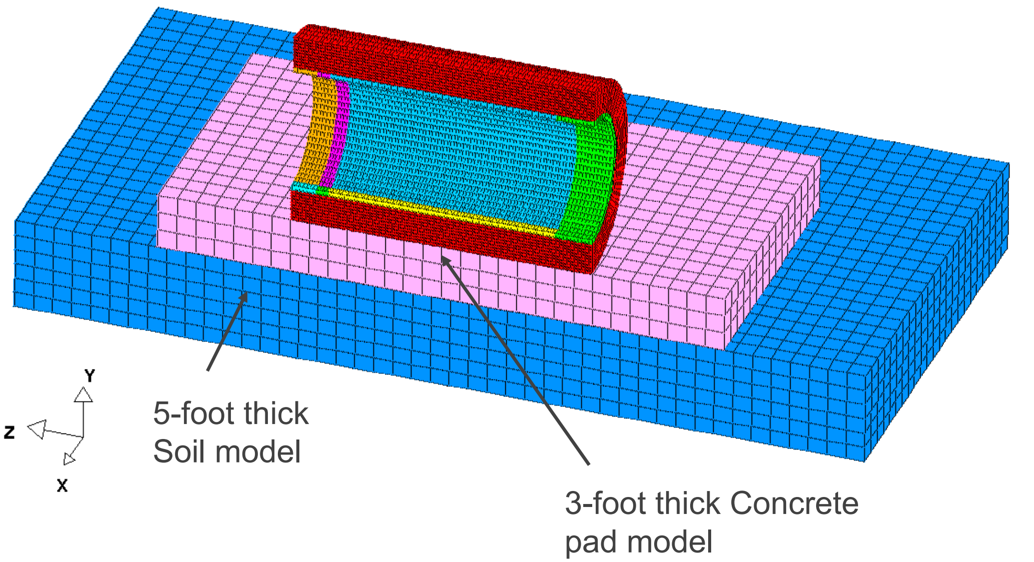
- Basket is tube and disk design (NAC-STC, NAC-MPC, NAC-UMS)
- LACBWR contains 32 over sized cells for damaged fuel cans
- Ultimate strength for 17-4 PH stainless steel is 135 ksi

	Yankee Rowe	LACBWR
Disk OD (in)	69.15	69.40
Disk material	17- 4 PH	17- 4 PH
Number of support disks	22	24
Support disk thickness (in)	0.50	0.625
Support disk pitch (in)	4.41	3.83
Number of DFCs	4	32
Ligament thickness (in)	0.88	0.61
Load (lb) per disk per cell	38.6	18.8

Basket Analysis is Structural Focus of Amendment

Tip Over Evaluation

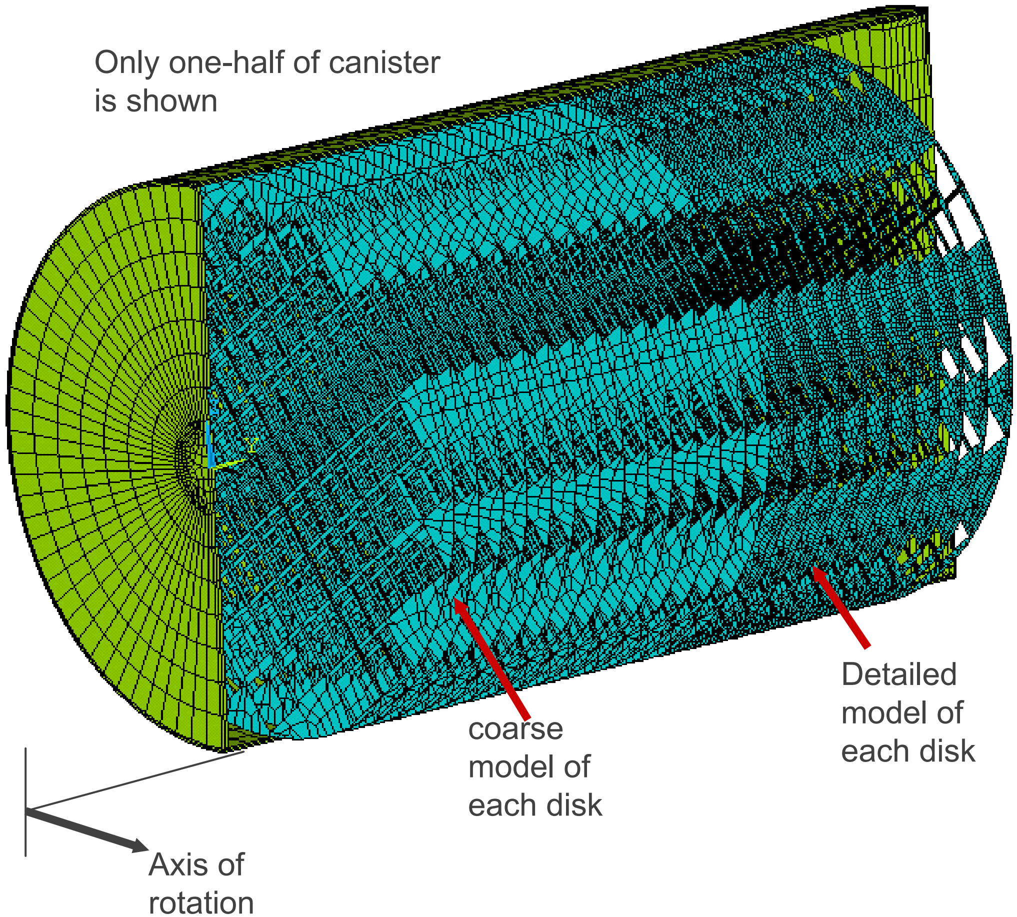
- Determination of peak accelerations used Yankee Rowe LS-Dyna analysis model
- Analysis soil properties consisted of 20,000 elastic modulus. Site testing reflected soil modulus of 9,000 psi
- Maximum acceleration at basket top is 22.4g's
- The basket DLF was computed to be 1.13 using MPC-CY methodology



No New Methodologies

Basket and Canister Tip Over Evaluation

- ANSYS 3-D model of the full length basket and canister
- Acceleration applied by angular acceleration
- Full model captures loading condition of basket on the canister wall
- Canister is included in the model
- Top stainless steel (304) weldment is included with DFC loading
- Multiple basket orientations are to be evaluated



Expanded Model Used to Improve Accuracy

Basket and Canister Tip Over Evaluation Results

- Detailed sectional stresses are computed for 271 sections
- SAR shows the 271 sectional stresses for the bounding disks and disk angular orientations
- Analysis results in calculation contain all sectional stresses for all disks for all angles
- Minimum disk margin is +0.30
- Minimum top weldment margin is +0.38

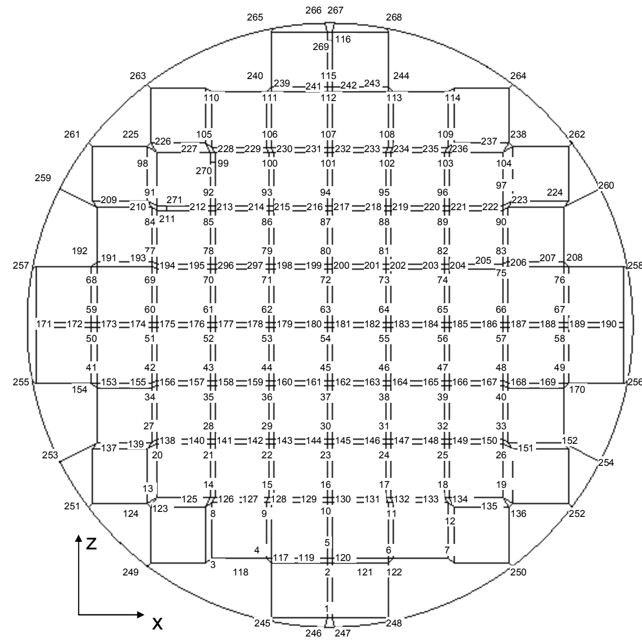


Table : Support Disk Primary Membrane + Primary Bending Stresses (Pm + Pb), 0° Tip Orientation

Section	Sx (ksi)	Sy (ksi)	Sxy (ksi)	Stress Intensity (ksi)	Allowable Stress (ksi)	Margin of Safety
265	-64.77	-42.32	-26.43	82.26	128.6	0.56
268	-64.77	-42.32	26.43	82.26	128.6	0.56
112	17.11	-26.05	1.31	43.24	128.6	1.97
241	28.59	-17.22	-3.5	43.22	128.6	1.98
242	28.59	-17.22	3.5	43.22	128.6	1.98

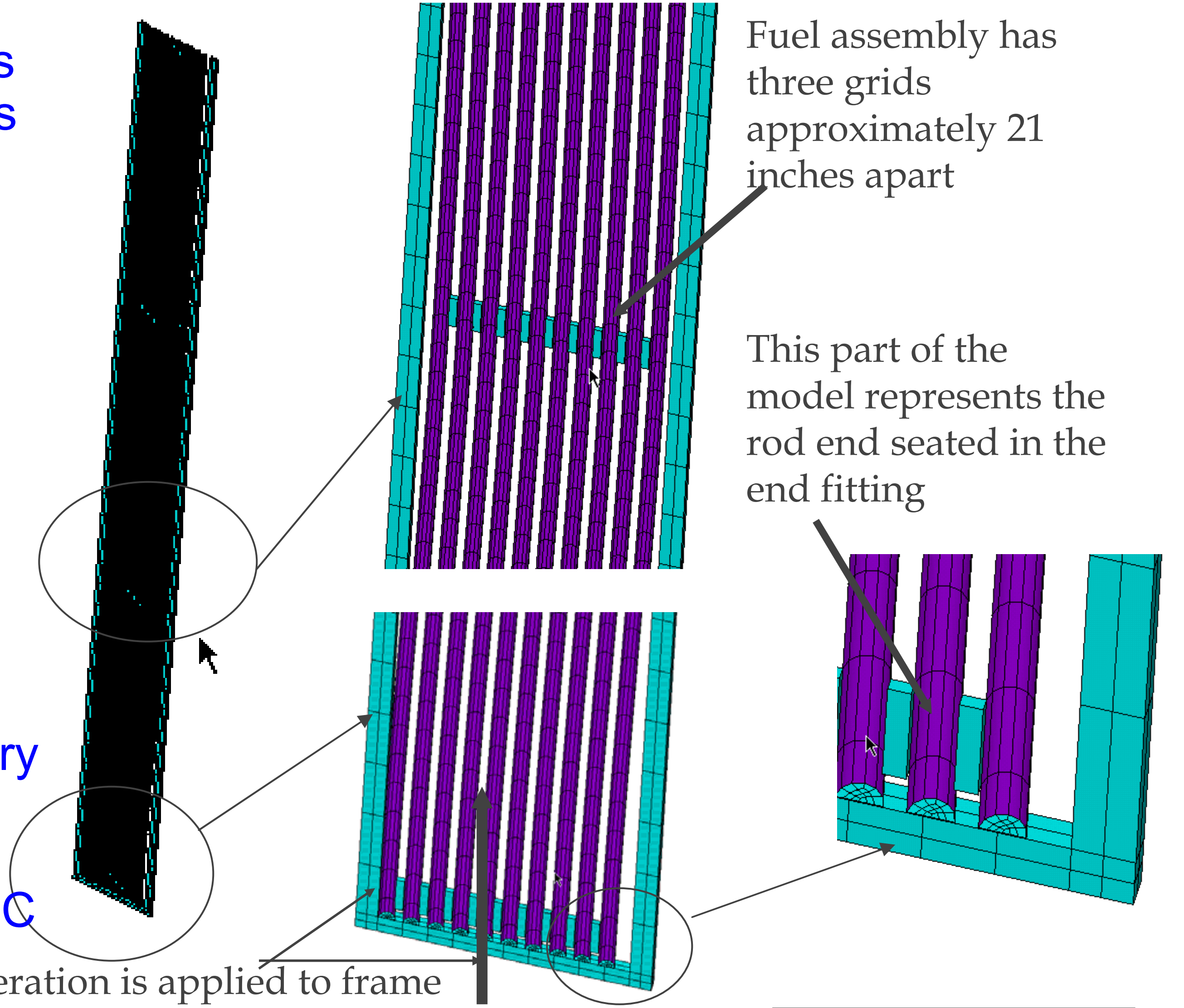
Fuel Rod Buckling Evaluation—Fuel Properties

- Yield (Sy) and ultimate (Su) strengths are needed for the irradiated condition
- Extensive fuel rod testing documented in "Post Irradiation Evaluation of Fuel Rods from the Lacrosse Boiling Water Reactor," June 1976
  – Test temperature of 700F envelopes clad normal storage temperature of 443F
- Radiation shows increased Sy and Su and loss of ductility
- Stress criteria limits fuel rod stresses to Su at unirradiated conditions

Fast Fluence	Sy (ksi)	Su (ksi)
0	37	68
0.4	75	81
0.5	83	87
1.25	140	141

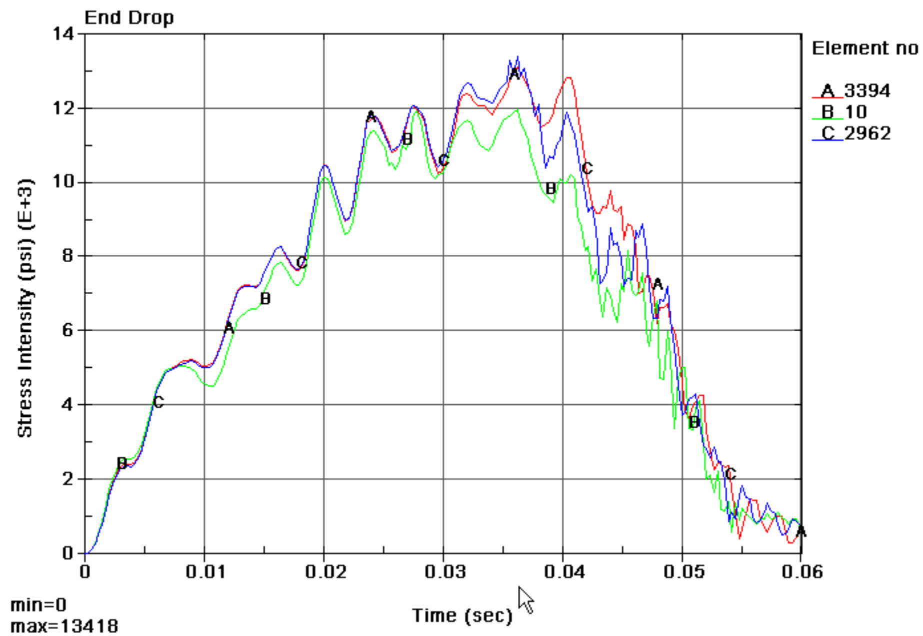
Consideration of Transport Fuel Rod Buckling

- LS-DYNA Model uses same methodology as UMS High Burn Up Amendment
- BWR model is comprised of 10 pins
  - 0.394 inch OD
  - 0.022 inch clad
  - Maximum bow of 0.225 inch is included
- Deceleration of peak 45gs using time history from transport impact limiter end drop evaluation for CY MPC



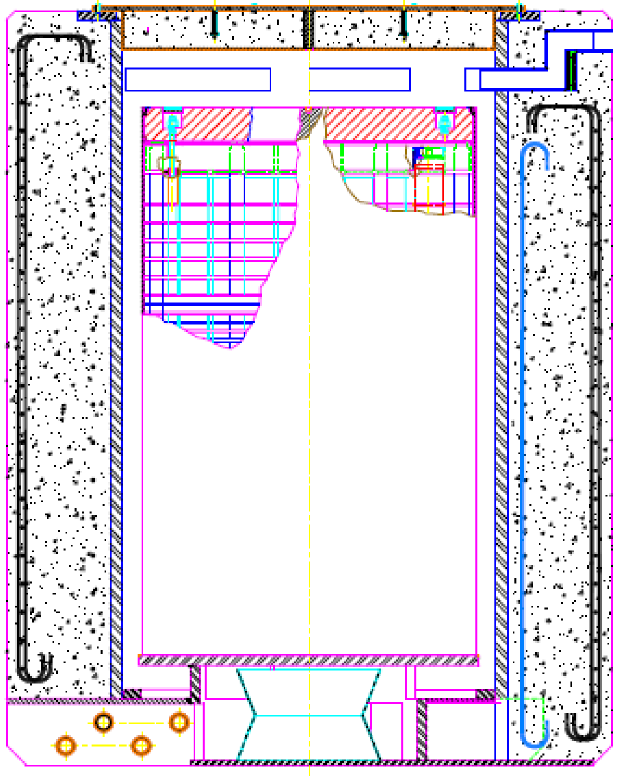
Fuel Rod Buckling Evaluation—Results

- Bilinear properties were modeled using unirradiated material
- Maximum stress intensities are determined from LS-DYNA transient analysis
- Maximum stresses occurred at the base of the fuel rod at the brick elements representing the end fitting
- The stresses of the fuel rods remain in the elastic region
- Minimum M.S. (to Su) is +1.75
- Analysis confirms undamaged fuel will remain undamaged



Thermal Evaluation Overview

- Maximum canister heat load < 4.5 kW (vs. 12 kW YR)
- Steady state analyses were performed <u>without</u> convection in the annulus region



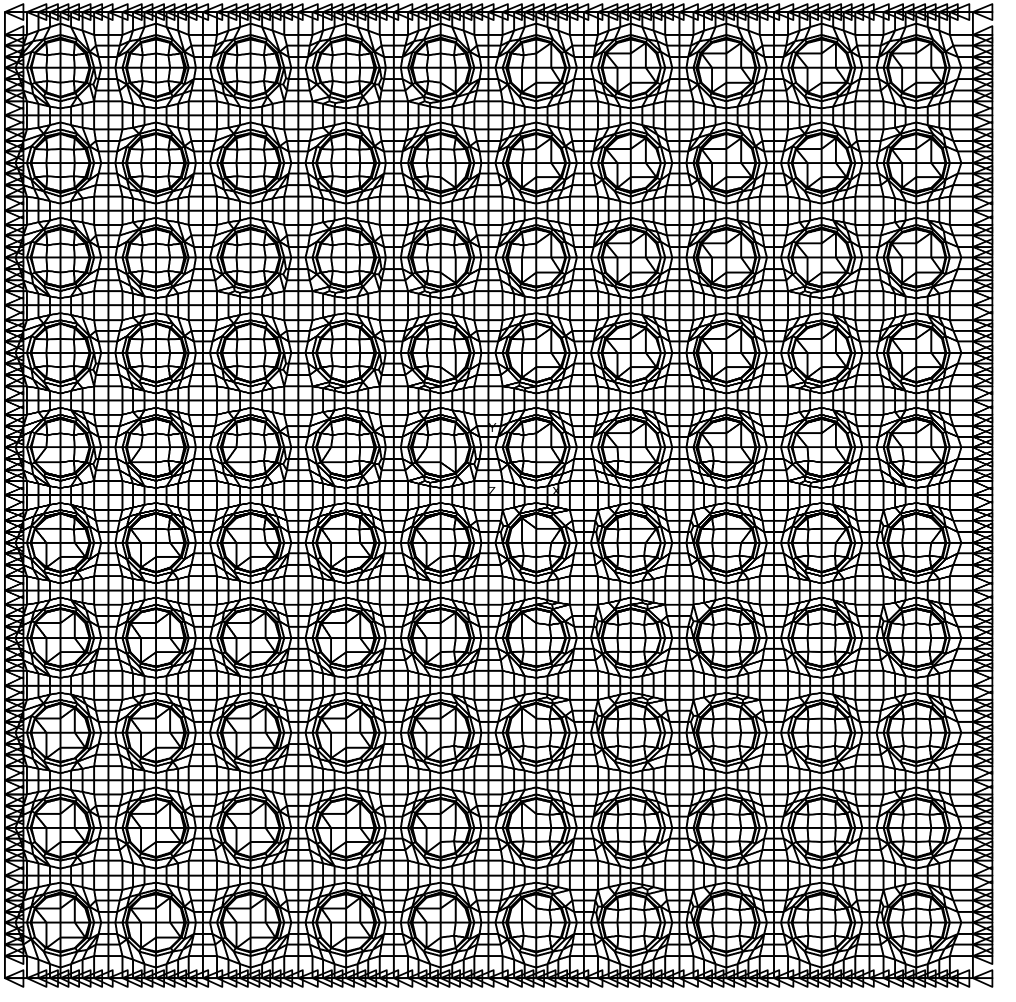
Due to Low Heat Load, Credit for Annulus Convection Cooling Not Required

Details of the Storage Condition Thermal Analysis

- Previous license amendments (MPC) have used a series of effective properties (radiation & conduction) for the
  - Fuel assembly
  - Damaged fuel can
  - Neutron absorber
- LACBWR VCC thermal analysis model used a 3-D model comprised of the fuel, fuel tubes, damaged fuel can, basket, canister, and VCC
  - Radiation is modeled from canister to inner liner of VCC
- Power curve has a peaking factor of 1.36

Fuel Assembly Thermal Model

- Effective properties are determined using a detailed model of the 10x10
- Radiation is incorporated using radiation matrix
- In-plane and axial properties are computed being temperature dependent
- Properties for the fuel tube are also computed using simpler models



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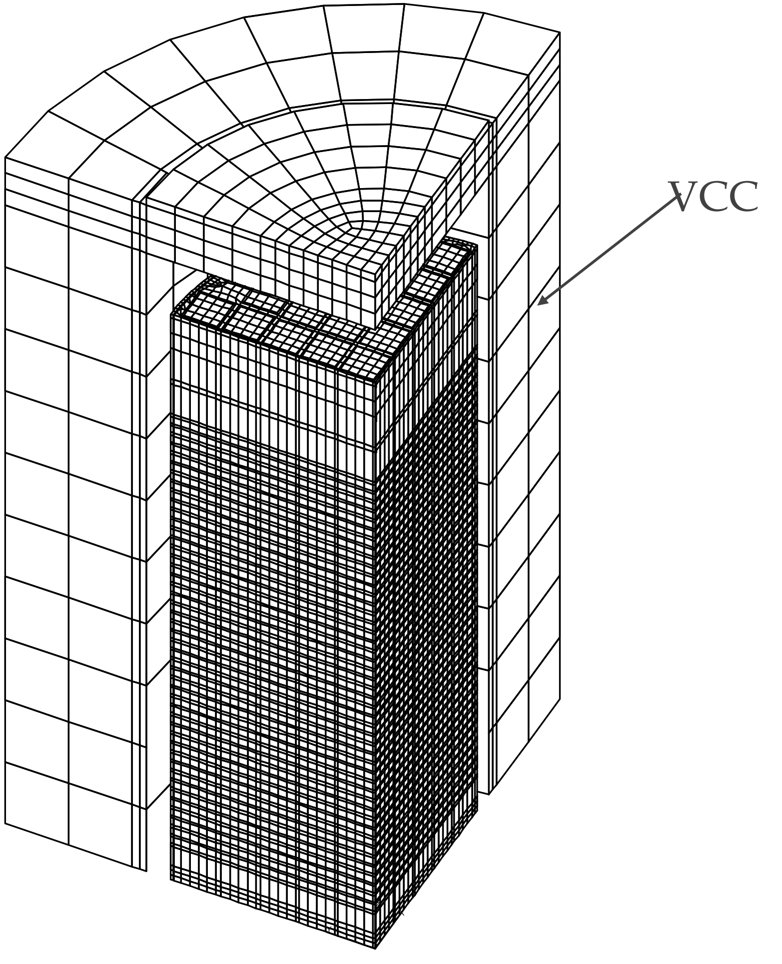
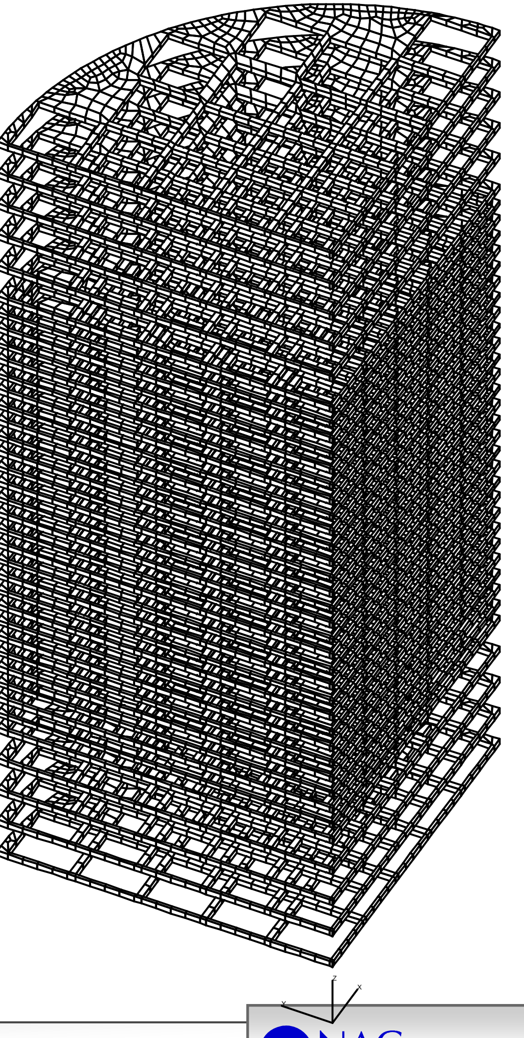
Canister-VCC Thermal Model for Storage Condition

- Fuel assemblies are modeled as homogeneous using properties from the detailed fuel assembly model
- Maximum heat load is 4.5 kW
- Effective properties for the fuel tubes are also included
- Only radiation is simulated between the canister and VCC inner liner
- Solar insolance and film coefficients are applied to VCC exterior surfaces



Detailed Basket Thermal Model

- Each support disk and aluminum disk are modeled
- Top end weldment is also included
- Gaps between the disks and the canister shell include radiation and conduction in helium
- Following conditions are evaluated as steady state:
  -40F, 75F, 105F, 125F



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Thermal Results for Storage Condition

Condition	Support Disks (°F)	Heat Transfer Disks (°F)	Top Weld. (°F)	Bottom Weld. (°F)	Fuel Tubes/ DFC (°F)	Canister Shell (°F)	Fuel Clad (°F)	Avg. Helium (°F)
75F	437	436	388	352	438/404	349	443	359
Allowable	*650*	*650*	*800*	*800*	*800*	*800*	*808*	*N/A*
-40F	370	368	313	293	371/336	280	377	289
105F	454	452	405	368	454/420	365	459	375
133F	465	463	416	379	465/431	377	470	387
Allowable	*800*	*700*	*800*	*800*	*800*	*800*	*1058*	*N/A*

- System design and heat load does not challenge fuel clad allowables
- Time limit for fuel clad/basket for the all vents blocked condition is unlimited
- Fire condition is bounded by the Yankee Rowe MPC condition

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3-D ANSYS LACBWR Transfer Cask Model

- 3-D ANSYS canister-basket model will be used
  - Heat transfer through water in the annulus between canister and cask is by conduction only
  - Transfer cask model contains separate elements for each layer (lead, NS4, shells)
- For the vacuum drying condition, the effective material properties for the fuel, neutron absorber and gaps will include the conductivity of helium
  - Minimum pressure of 10 Torr (13 millibar) > 1 millibar implies the gas has the same conductivity as gas with 1 bar pressure (Poling, Prausnitz, O'Connell, 2001)

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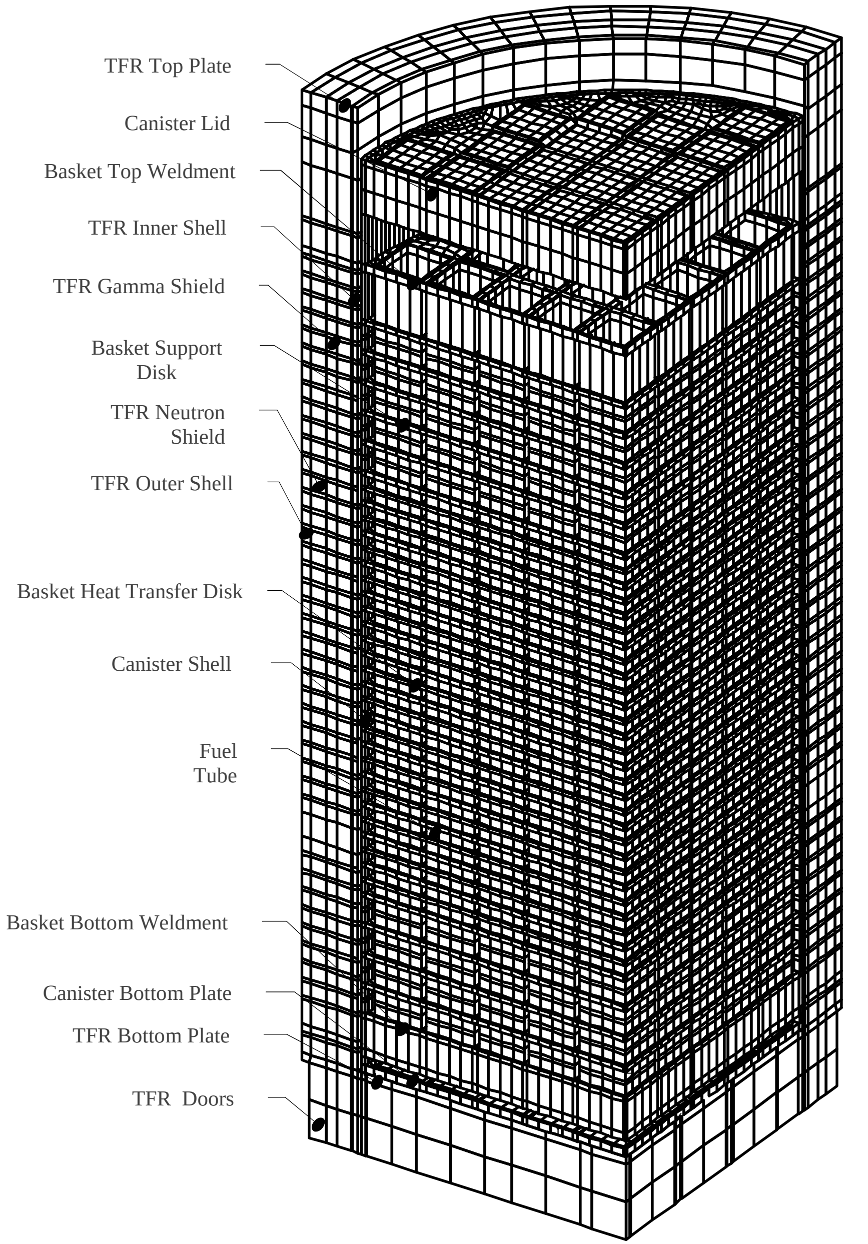
Transfer Cask Model

- The detailed canister basket used for storage condition was combined with a detailed transfer cask model
- Water is allowed to conduct in transfer cask-canister annulus
- Film coefficients are applied to exterior of transfer cask



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Transfer Cask Steady State Thermal Results

Condition	Support Disks (°F)	Heat Transfer Disks (°F)	Top Weld. (°F)	Bottom Weld. (°F)	Fuel Tubes/ DFC (°F)	Caniste r Shell (°F)	Fuel Clad (°F)	Mediu m (°F)
Helium condition	323	321	276	175	323/288	236	329	237
Water condition	138	138	135	99	139/132	120	139	120
Allowable	*650*	*650*	*800*	*800*	*800*	*800*	*808*	*N/A*

- Maximum clad temperatures are well below fuel clad allowables
- No time limits are required for fuel/basket in the transfer cask

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Nuclear Evaluations for the NAC-MPC Amendment

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Shielding Analysis
Method

- Codes
  - MCNP5: 3-D Monte Carlo Evaluations
    - Continuous energy cross-sections – ENDF/B-VI libraries
    - Benchmarked to literature and against previous NAC cask models
  - SCALE 4.3: SAS2H Source Term Evaluations
    - 27-Group ENDF/B-IV libraries
  - SKYSHINE (NAC-CASC): Site Boundary Analysis
- Assemblies Grouped by Type: AC and Exxon

MPC Licensed Source Term Method
NRC Accepted Shielding Method

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Method (continued)

- Determine maximum system dose rates by:
  - Maximizing source for each fuel group by setting
    - Minimum cool time
    - Maximum burnup
    - Minimum enrichment
    - Maximum hardware source
- No channels or non-fuel hardware

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Source Determination

- Overall source extremely low:
  - Maximum burnup – 22 GWd/MTU (low burnup fuel)
  - Minimum cool time – 23 years
  - Minimum enrichment – 3.6 wt% ^{235}U (assembly avg.)
- Licensing basis canister heat load ≈ 4.2 kW
- As loaded heat load expected at 2-3 kW per canister

Fuel (Uranium Oxide) Source
< ¼ MPC-YR Level

Source Term Results

Parameter	AC	Exxon
Latest Discharge	1982	1987
Max. Burnup (MWd/MTU)	22,000	21,000
Min. Initial Enrichment (wt % ^{235}U)	3.6	3.6
Min. Cool Time (years)	28	23
Decay Heat (W/assembly)	63	61
Neutron Source (n/sec)	2.13E+06	1.54E+06
Gamma Source (γ/sec)	2.79E+12	2.81E+12
Hardware Source (γ/sec/kg)	3.08E+11	5.72E+11
Cobalt impurity in steel/inconel (ppm)	2000	2000

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Source Profile

- Axial burnup profile based on site-specific data provided in 10 axial nodes
  - Nodes from LACBWR data
  - Low burnup fuel with burnup peak of 1.36
- Source profile determination
  - Photon source equal to relative burnup
  - Neutron source equal to relative burnup raised to 4.22 power

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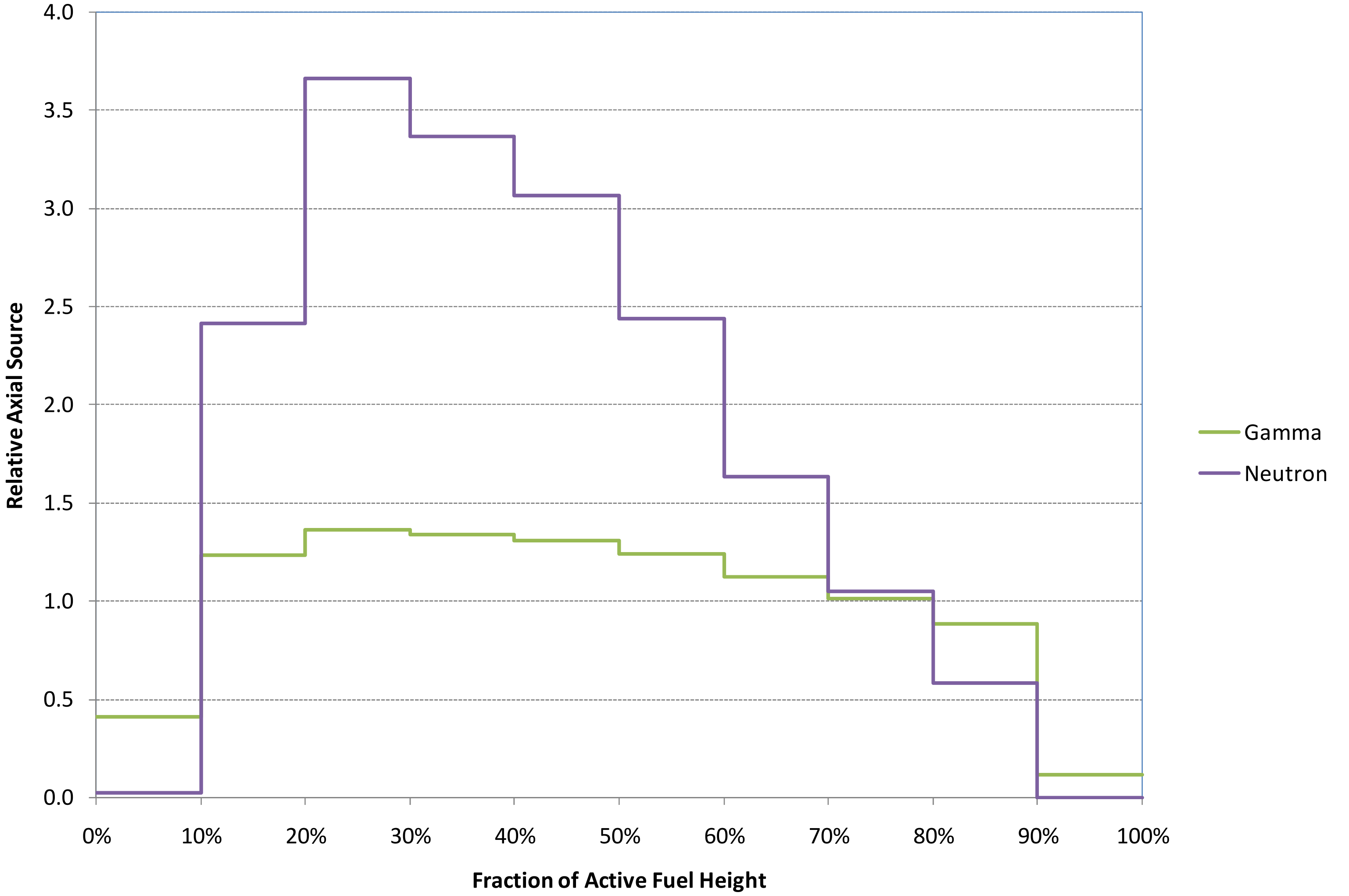
Source Profile (continued)



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Hardware Source Activation Fractions

- Activation ratios for upper plenum and end fittings based on PNL-6906
  - Upper end fitting: 0.1
  - Upper plenum: 0.2
  - Lower end fitting: 0.15
- In-core hardware flux factor at 1.0

Shielding Evaluations

- Discrete shielding evaluations for storage and transfer casks with undamaged and damaged fuel
- Consider fuel debris
- Transfer cask evaluations for:
  - Dry system (bounding)
  - Wet system
- Storage cask always dry
- Mixed loading of 36 Exxon and 32 AC assemblies
  - 32 DFCs in outer fuel tubes
  - Exxon fuel may be located in 8 DFC locations “shielded” by AC fuel

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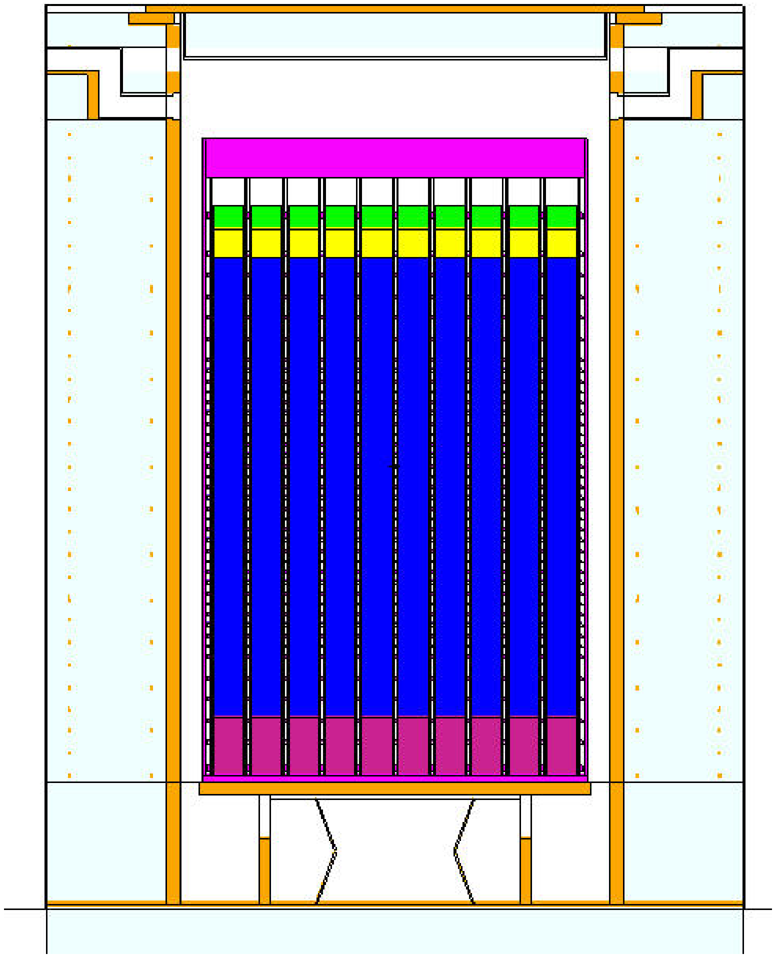
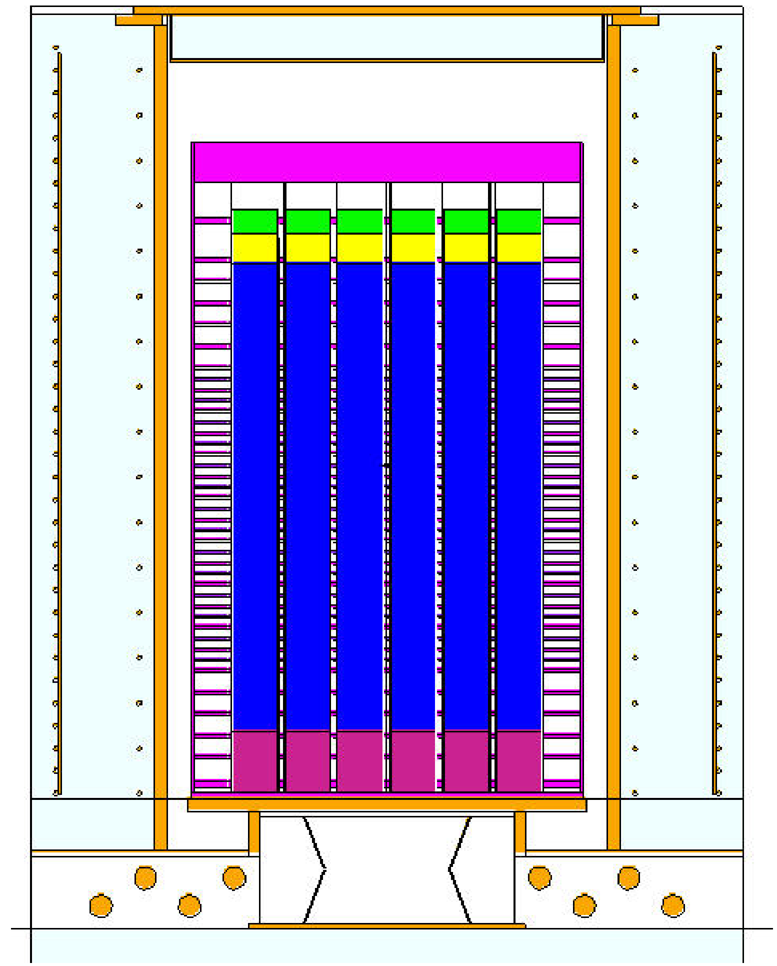
Shielding Evaluations (continued)

- Shielding / radiation protection evaluations to be completed
  - Transfer cask occupational exposure
  - Storage cask occupational exposure
  - ISFSI dose (skyshine) calculations
    - Based on a 5 cask array
  - Cask and canister activation evaluations
  - Surface contamination release evaluation

Storage Cask Model





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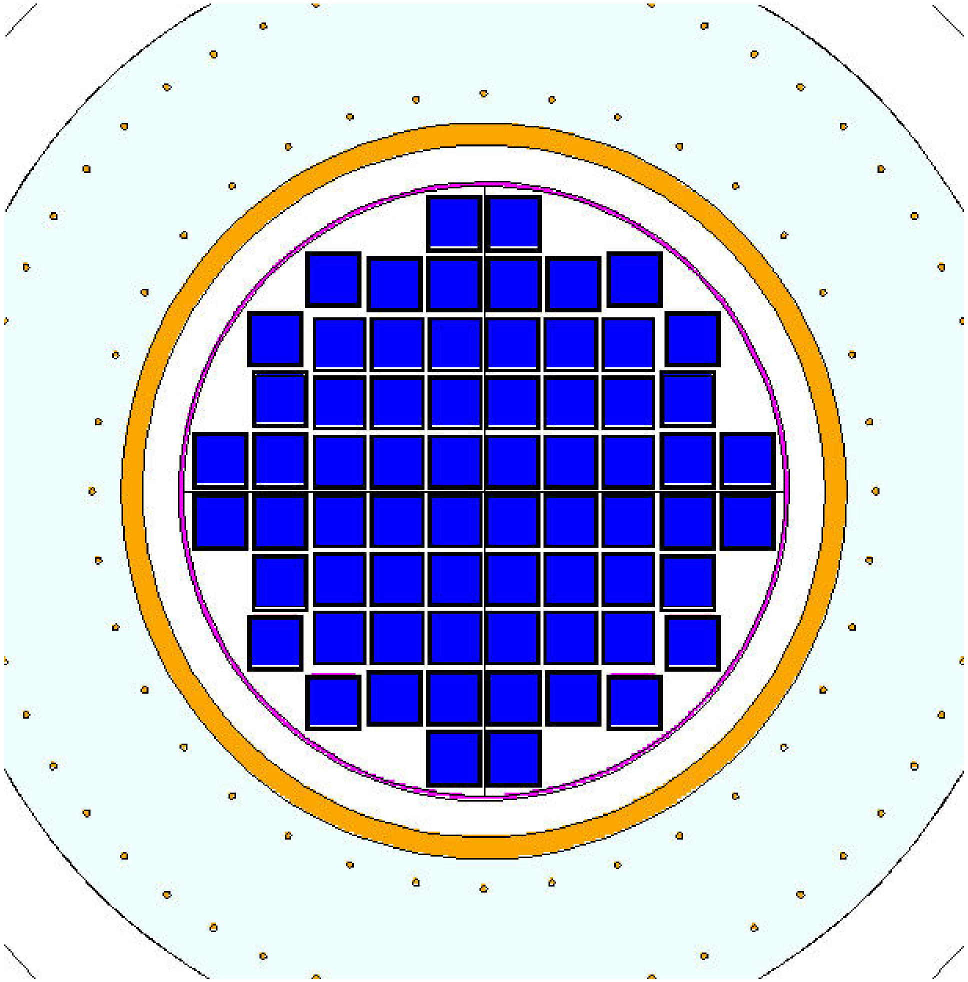
Storage Cask Model (continued)



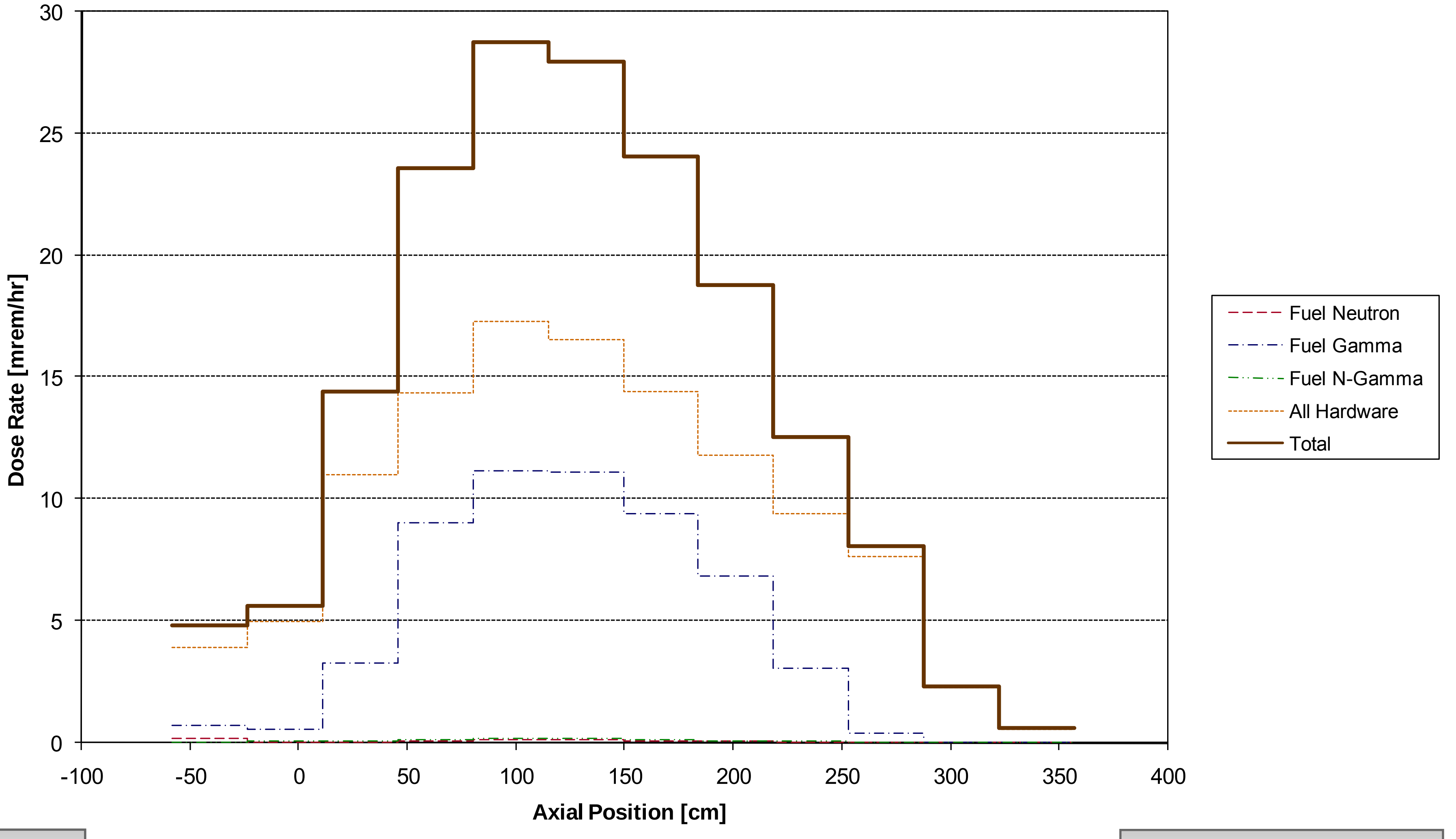
Storage Cask Results

- Undamaged fuel

	LACBWR-MPC	CY/YR-MPC (Inc. DFC)
Side surface maximum	30 mrem/hr	167 mrem/hr
Top surface maximum	19 mrem/hr	76 mrem/hr
Air outlet average	38 mrem/hr	191 mrem/hr
Air inlet average	2 mrem/hr	117 mrem/hr

- Damaged fuel (uranium oxide collects in lower end fitting void space)
  - No increase in side surface maximum
  - Increase in air inlet average (approximately double)
  - No effect on top or air outlet dose rates due to gravity
- Accident condition (loss of 6" of concrete)
  - Side 1m maximum: 105 mrem/hr

Storage Cask Side Dose Rate Profile



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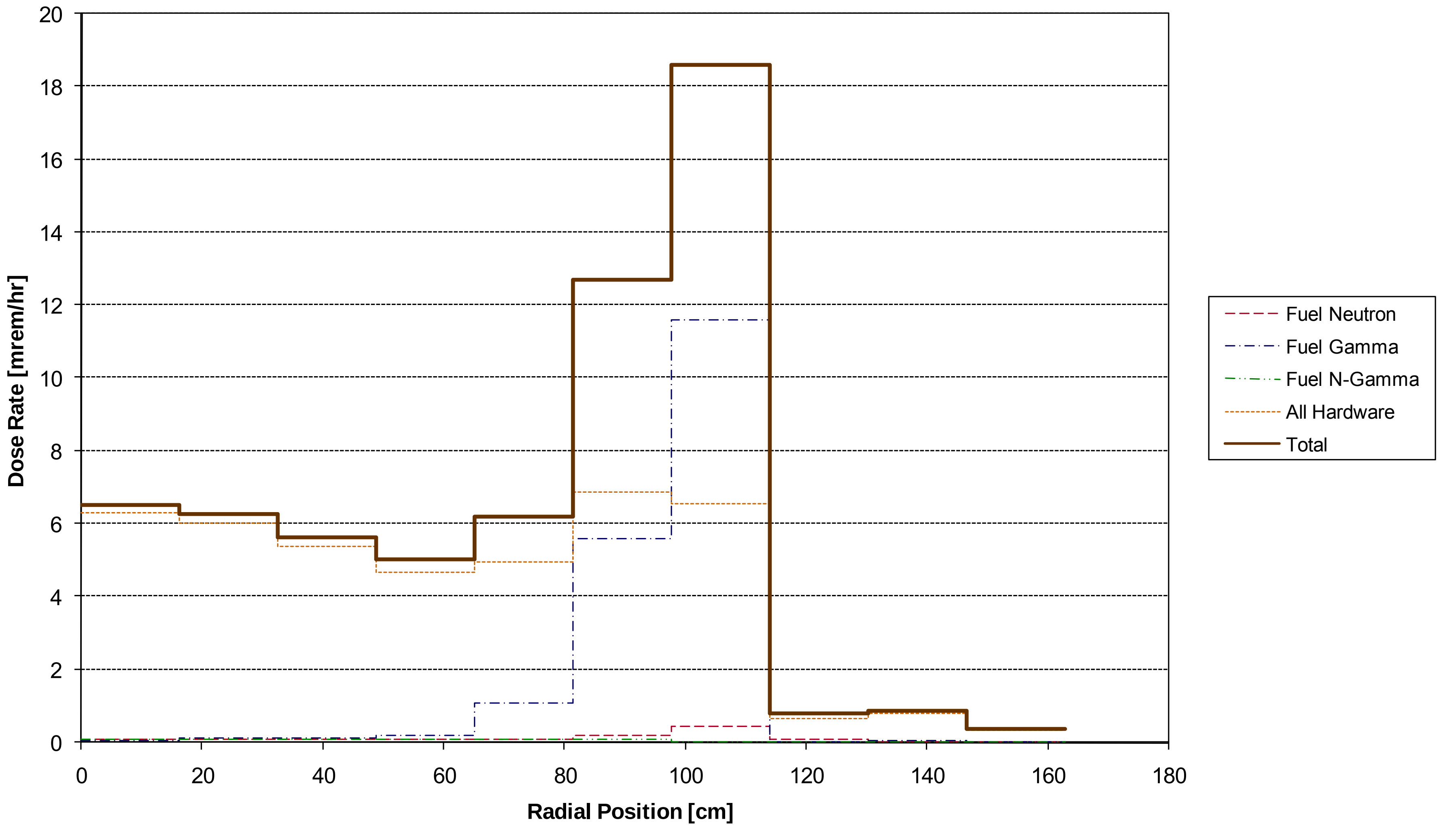
Storage Cask Top Dose Rate Profile



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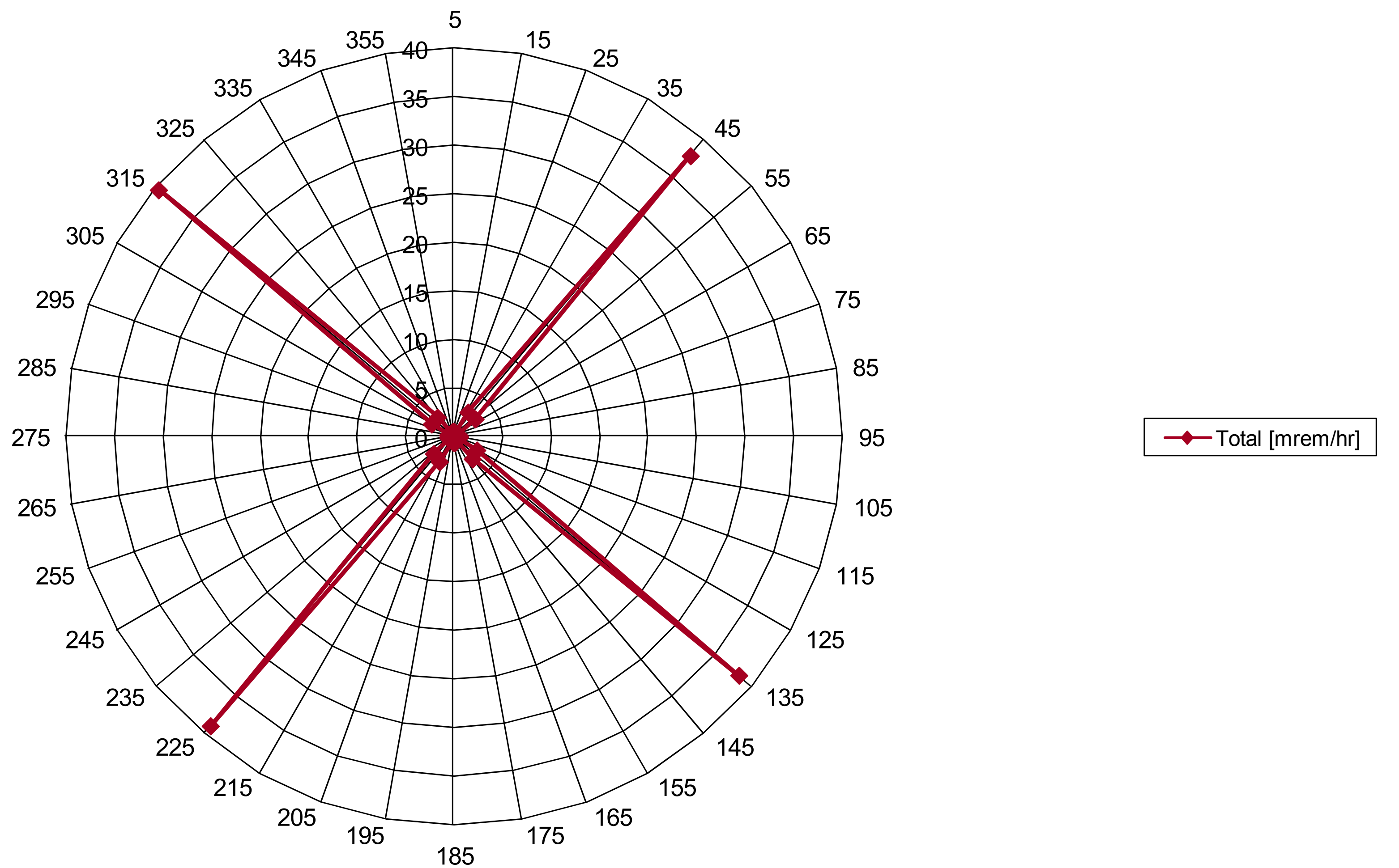
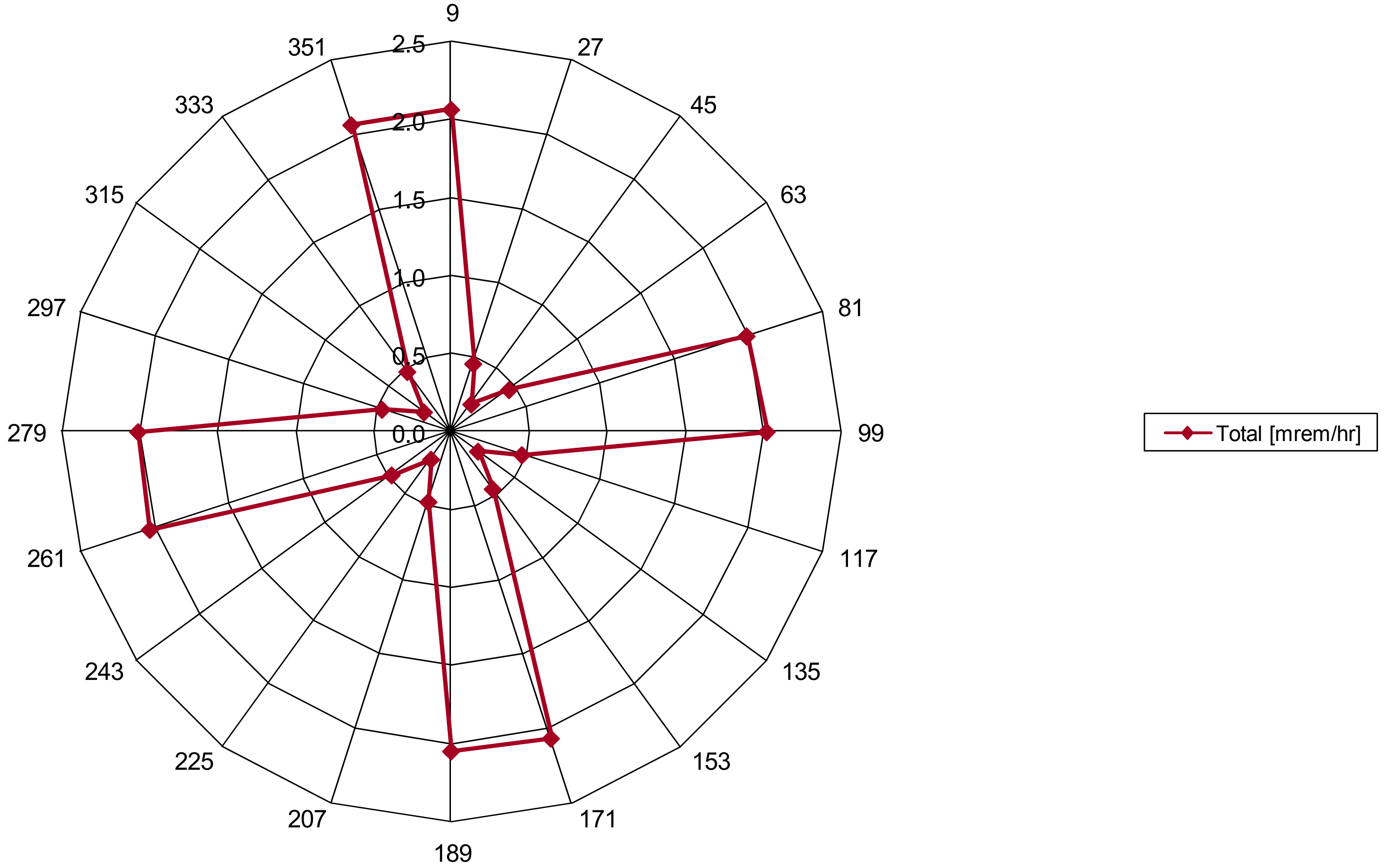
Storage Cask Air Inlet Dose Rate Profile



Storage Cask Air Outlet Dose Rate Profile



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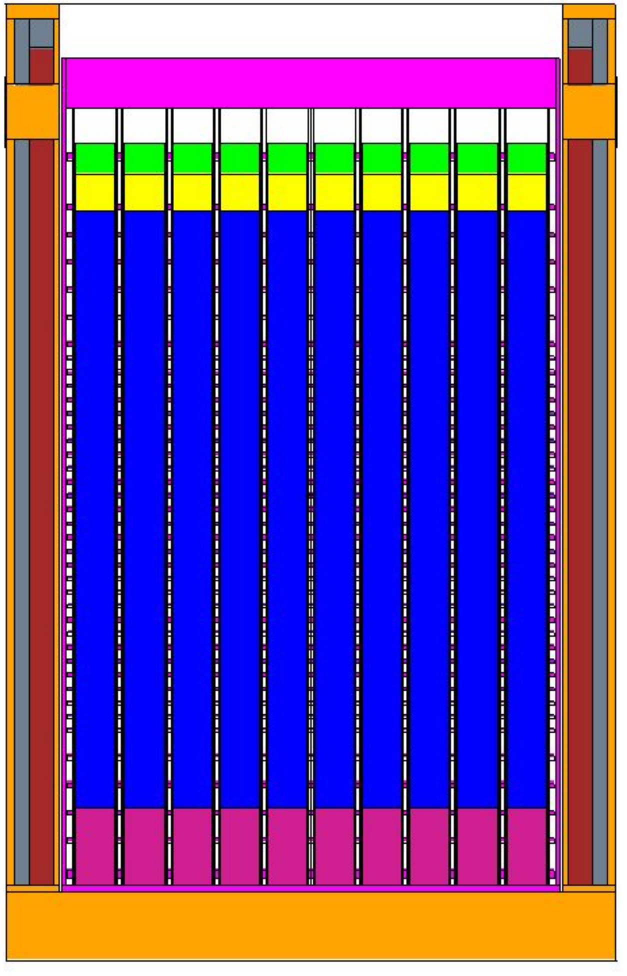
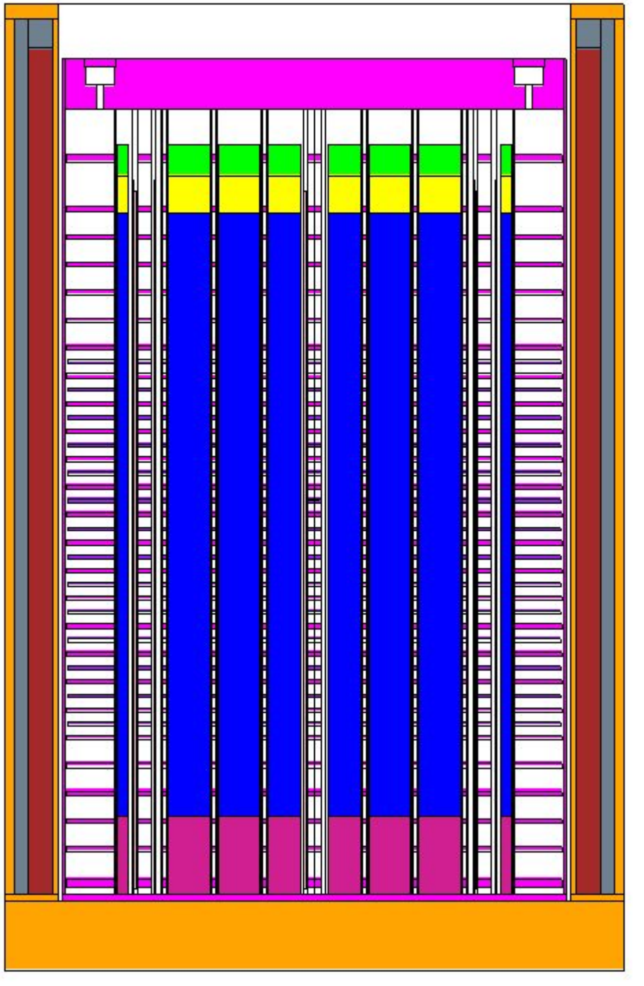
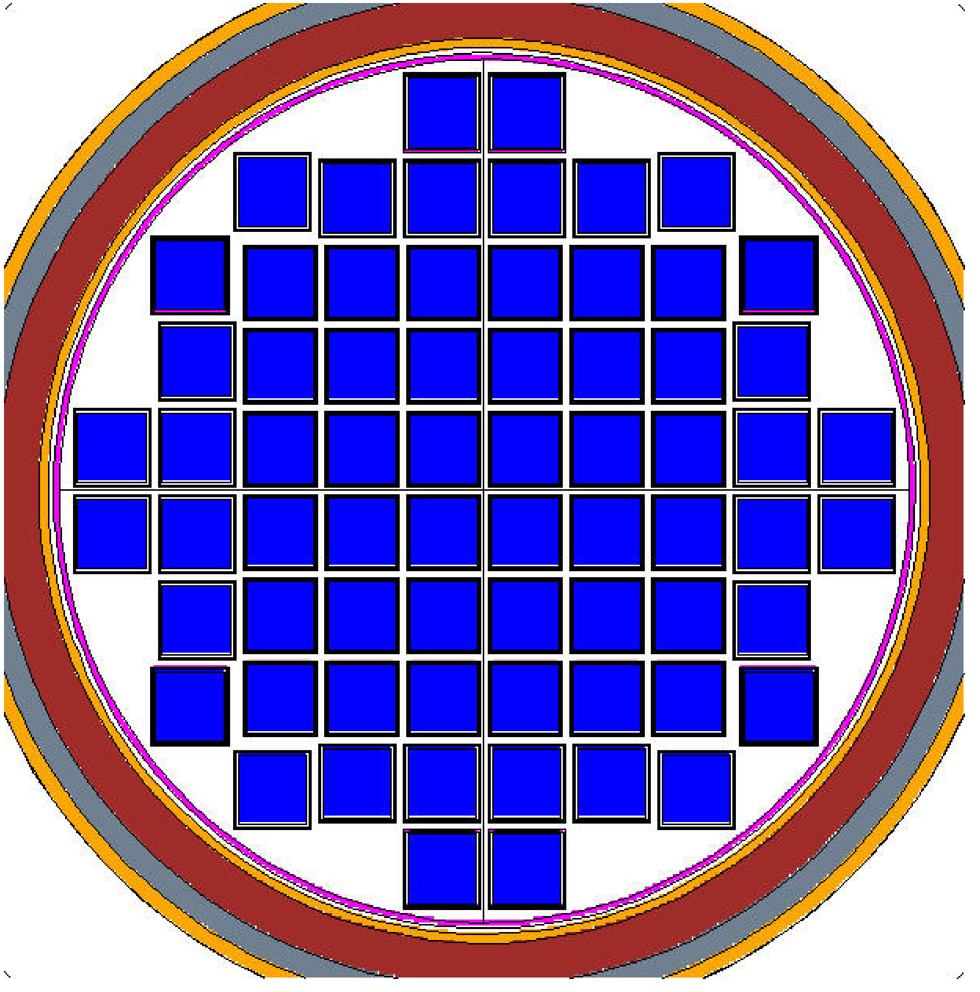
Transfer Cask Model





Transfer Cask Model (continued)



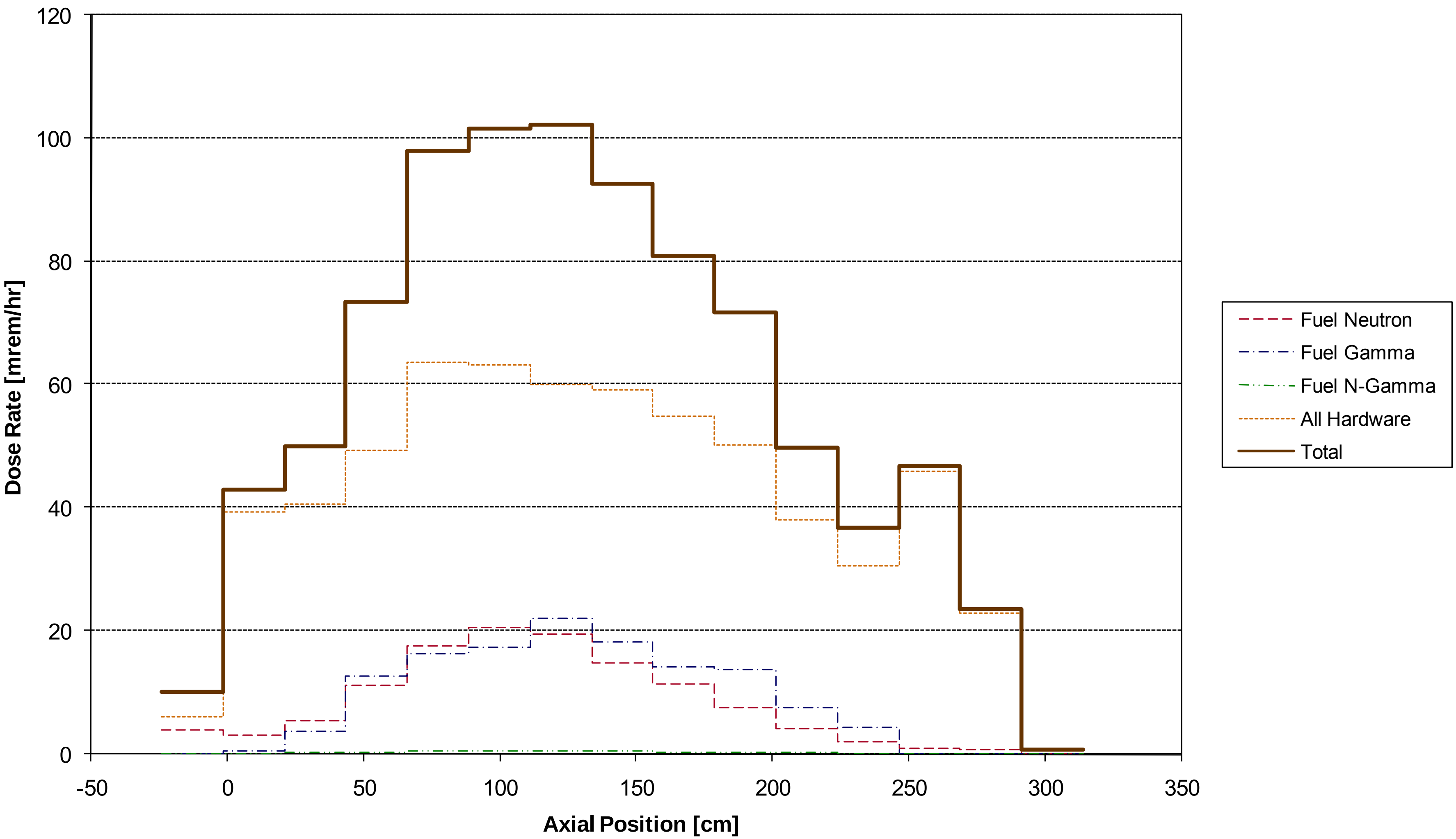
Transfer Cask Results

- Undamaged fuel

	LACBWR-MPC	CY/YR-MPC (Inc. DFC)
Side surface maximum	68 mrem/hr (wet) 102 mrem/hr (dry)	455 mrem/hr (dry)
Top surface maximum	471 mrem/hr (wet) 599 mrem/hr (dry)	2179 mrem/hr (dry)
Bottom surface maximum	24 mrem/hr (wet) 54 mrem/hr (dry)	436 mrem/hr (dry)

- Damaged fuel
  (uranium oxide collects in lower end fitting void space)
  - No increase in side surface maximum
  - No effect on top dose rates due to gravity
  - Increase in bottom dose rates
    (76 mrem/hr maximum for dry conditions)

Transfer Cask Side Dose Rate Profile (Dry)



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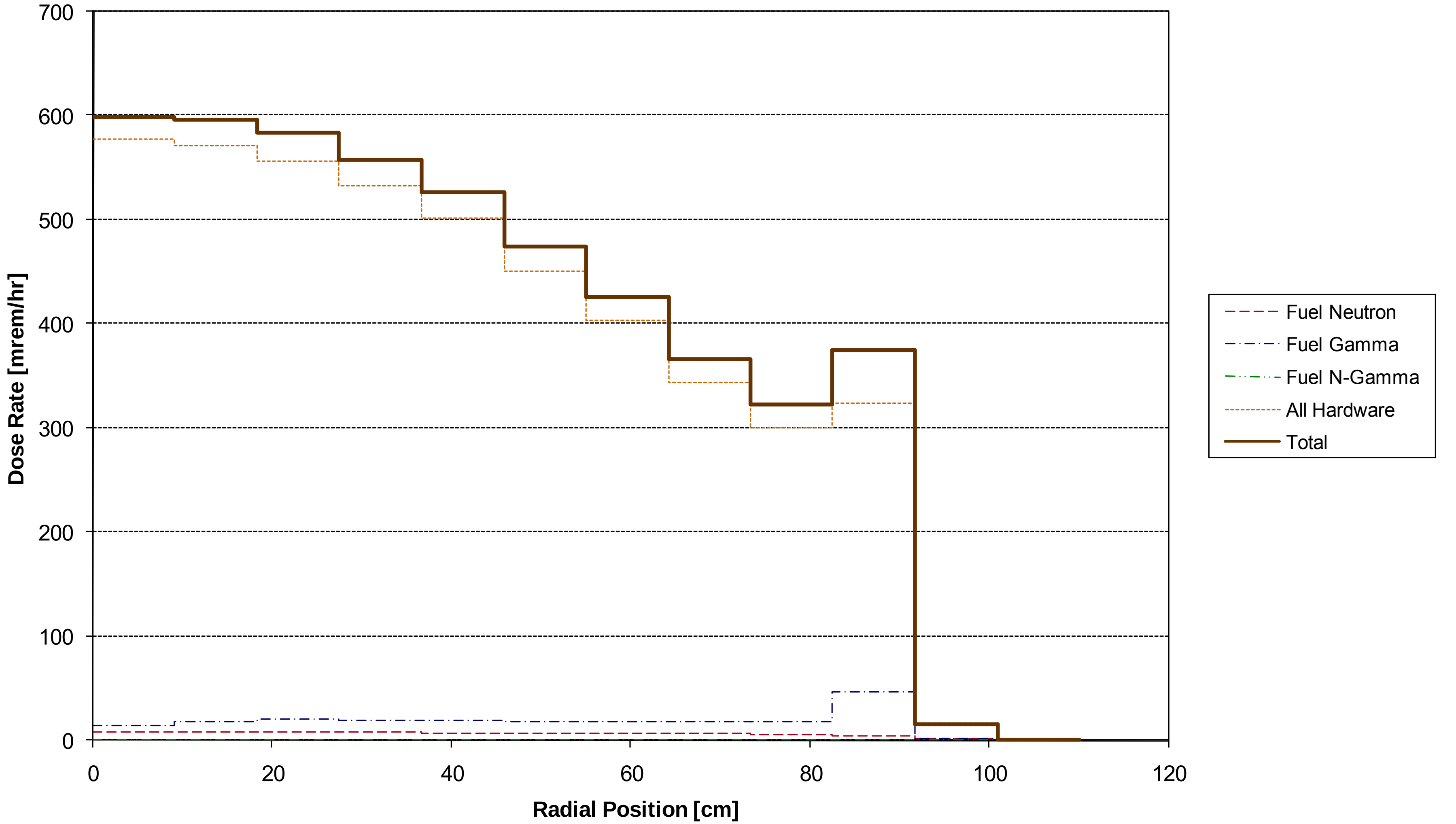
Transfer Cask Top Dose Rate Profile (Dry)



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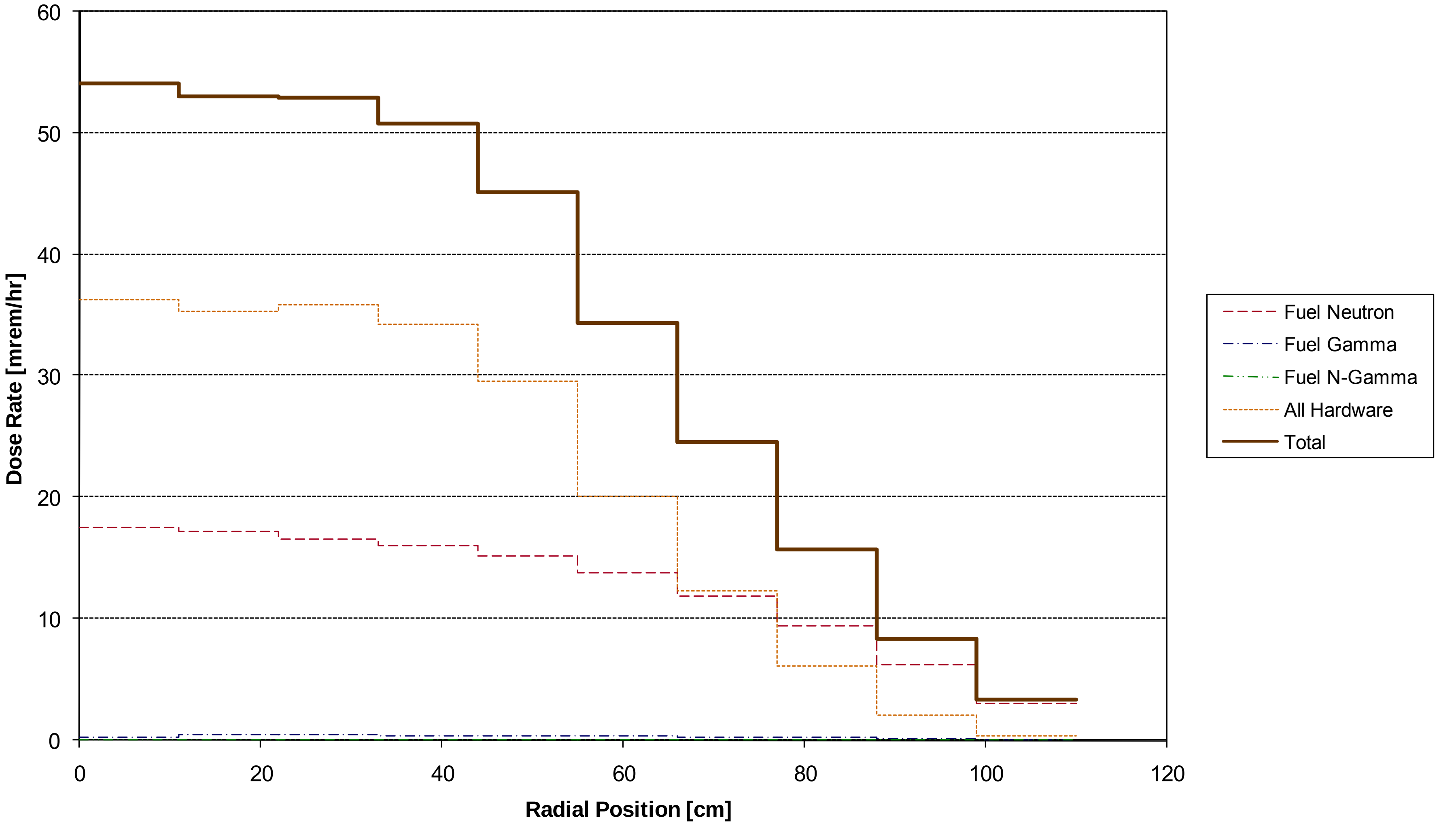
Transfer Cask Bottom Dose Rate Profile (Dry)



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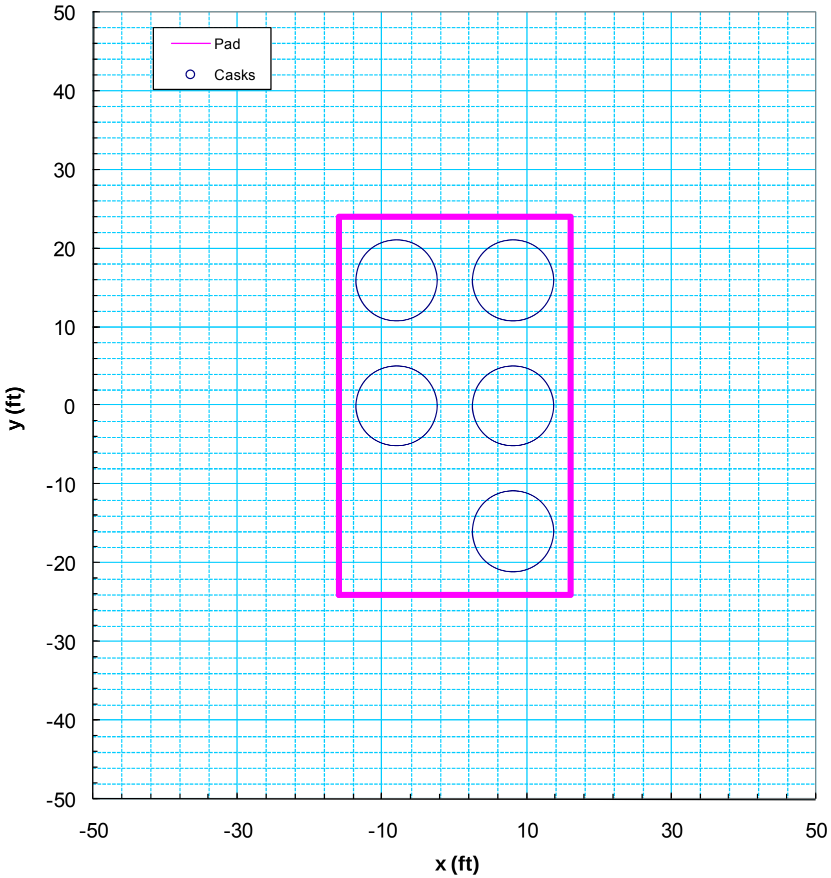
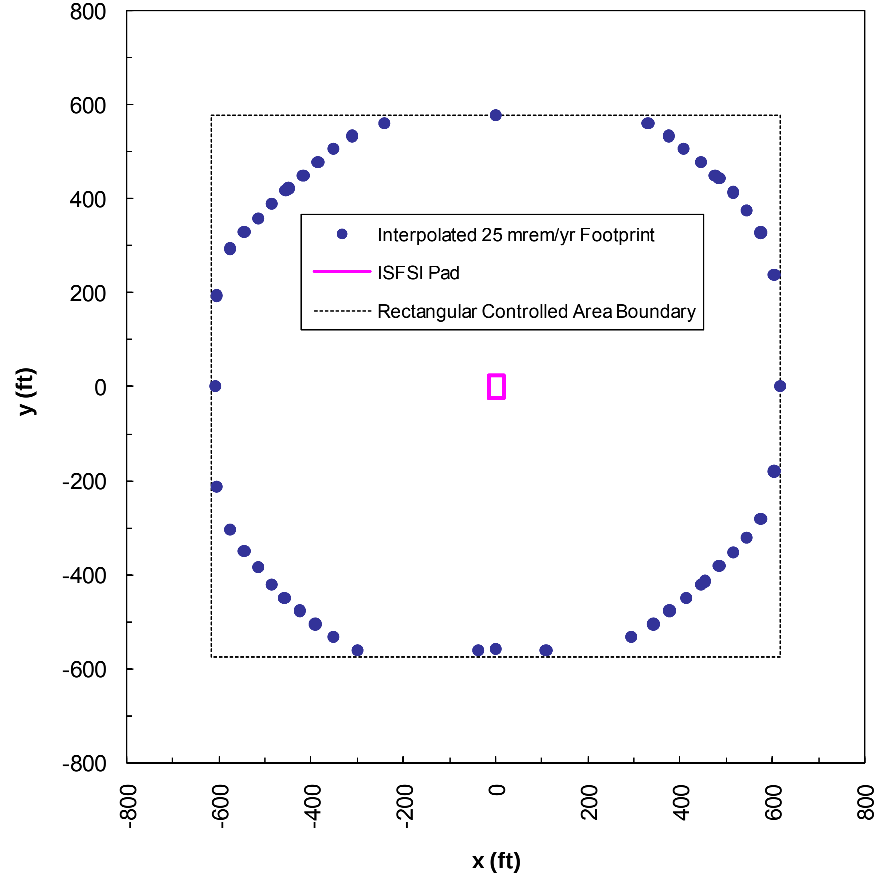
Skyshine Model & Results





Criticality Analysis
Method

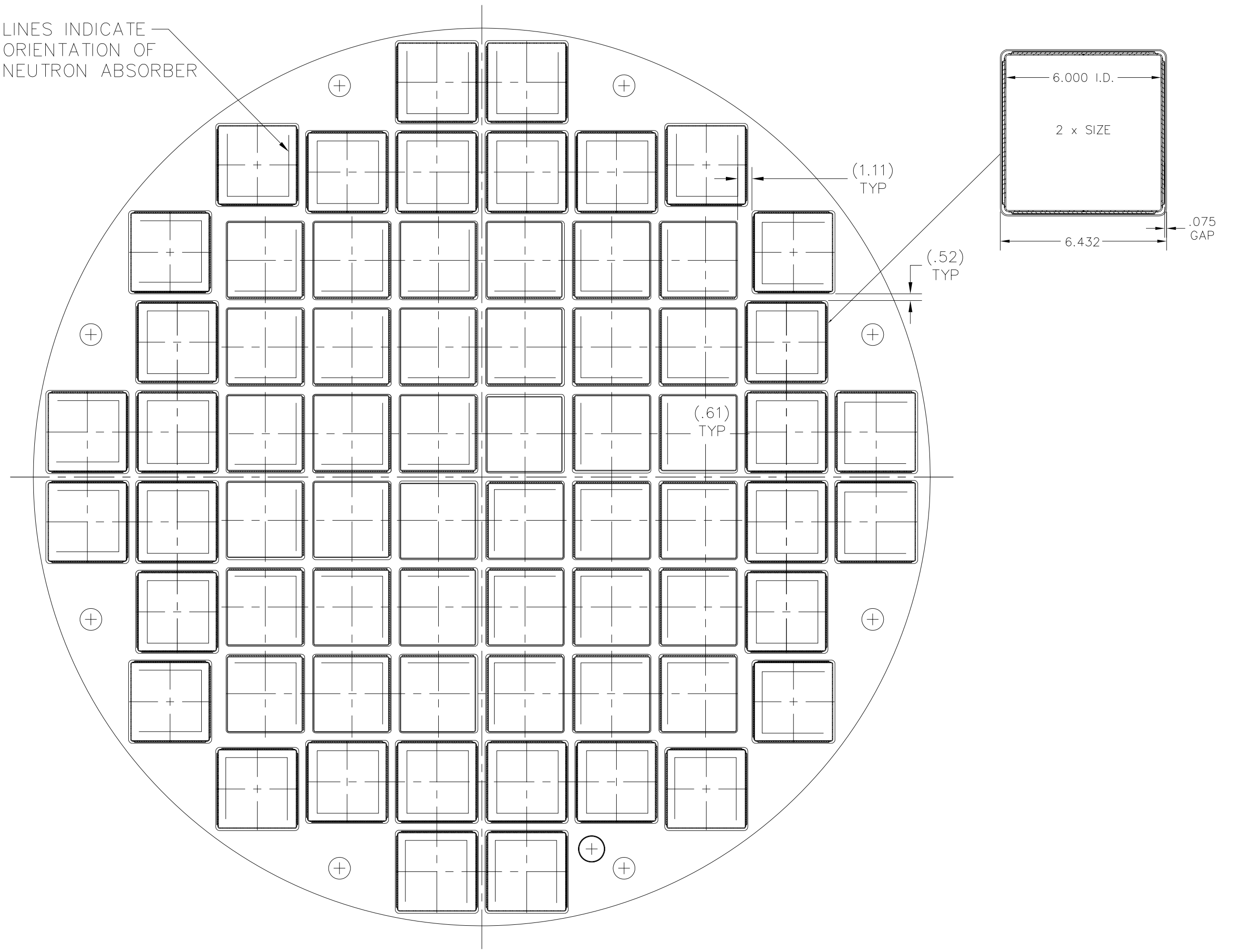
- Code – MCNP5
  - ENDF-B/VI cross section set
- Analysis Steps
  - Construct detailed 3-D model
  - Most reactive basket configuration
  - Optimum moderator determination
  - Inclusion of damaged fuel
    - Including preferential flooding and optimum debris configuration

Revised Basket Requires Detailed Evaluation

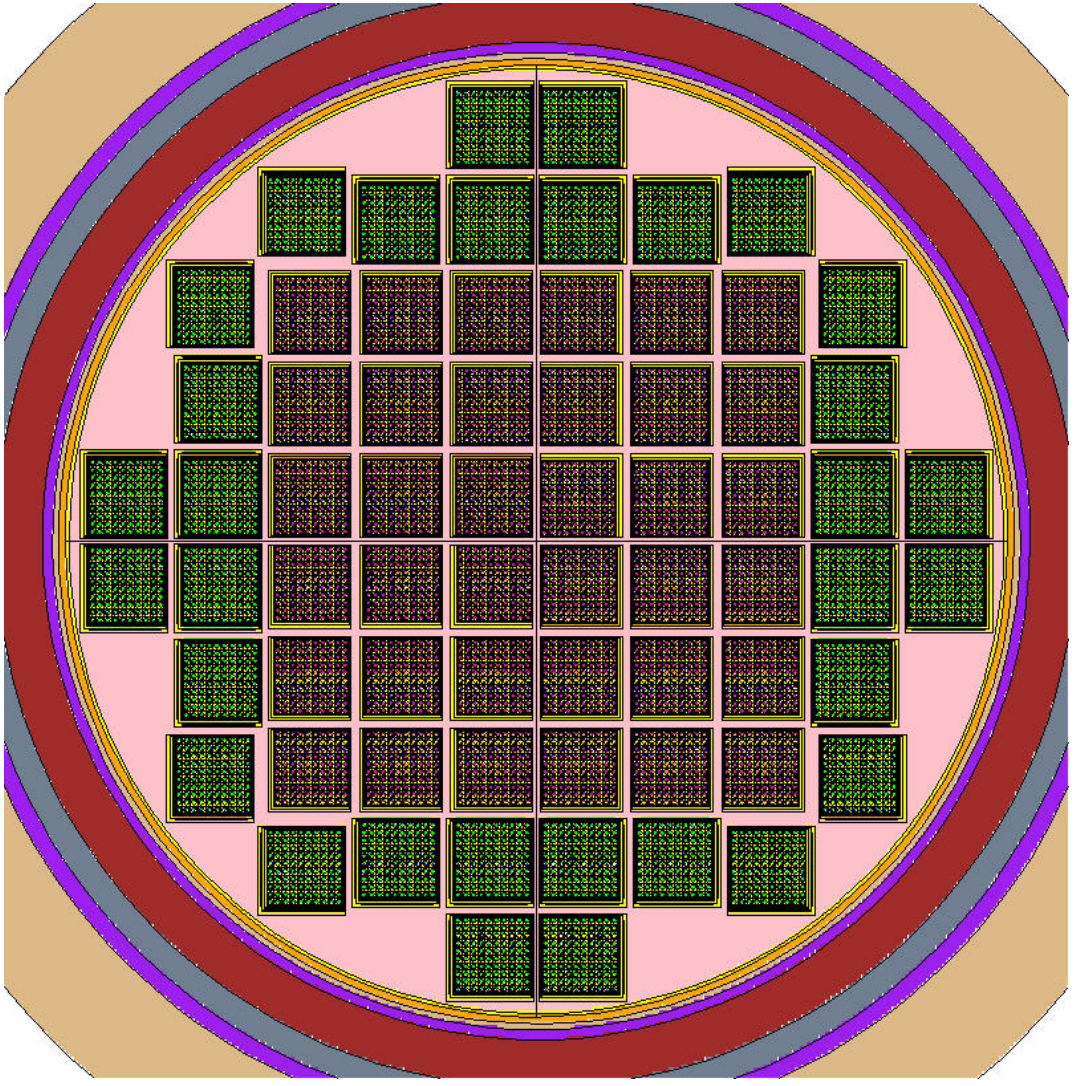
3-D Models

- Complete basket detail
- Simplified cask structure
  (primary shields modeled)
- Criticality control by flux traps in combination with fixed absorber panels
- Absorber panels are attached to outside of tubes
- Storage and transfer systems evaluated in vertical configuration only
  - Transport to consider axial payload shift

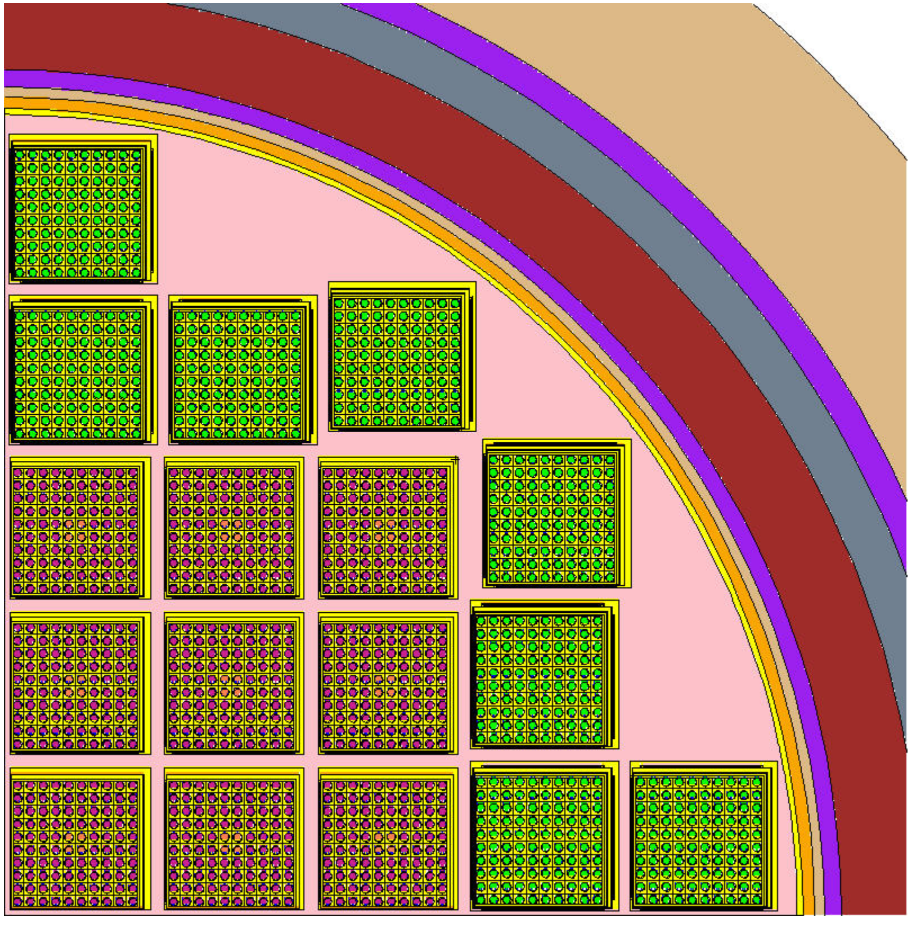
LACBWR Basket Cross-Section

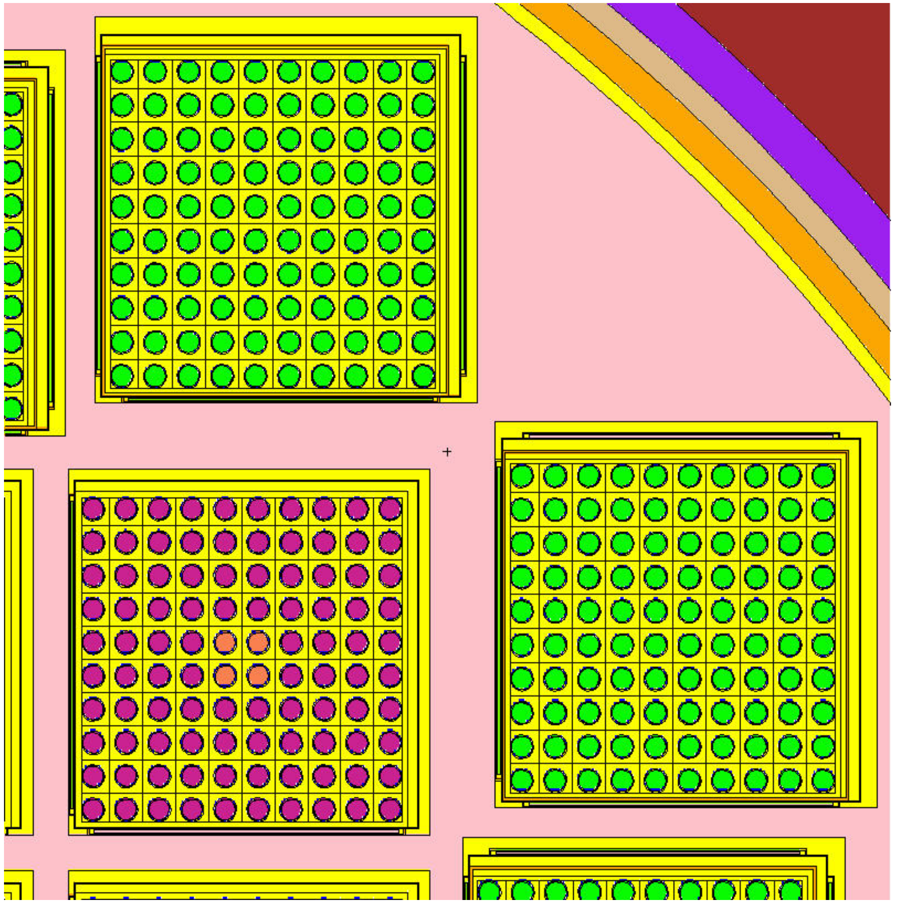


LACBWR Basket Cross-Section (VISED)

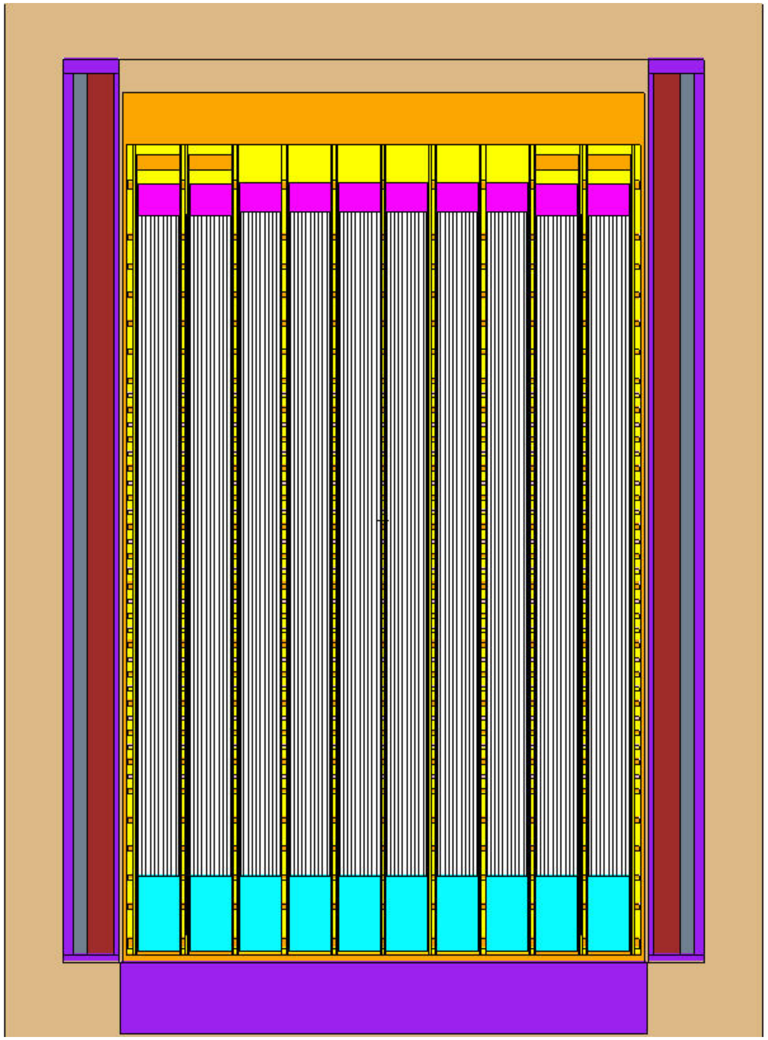


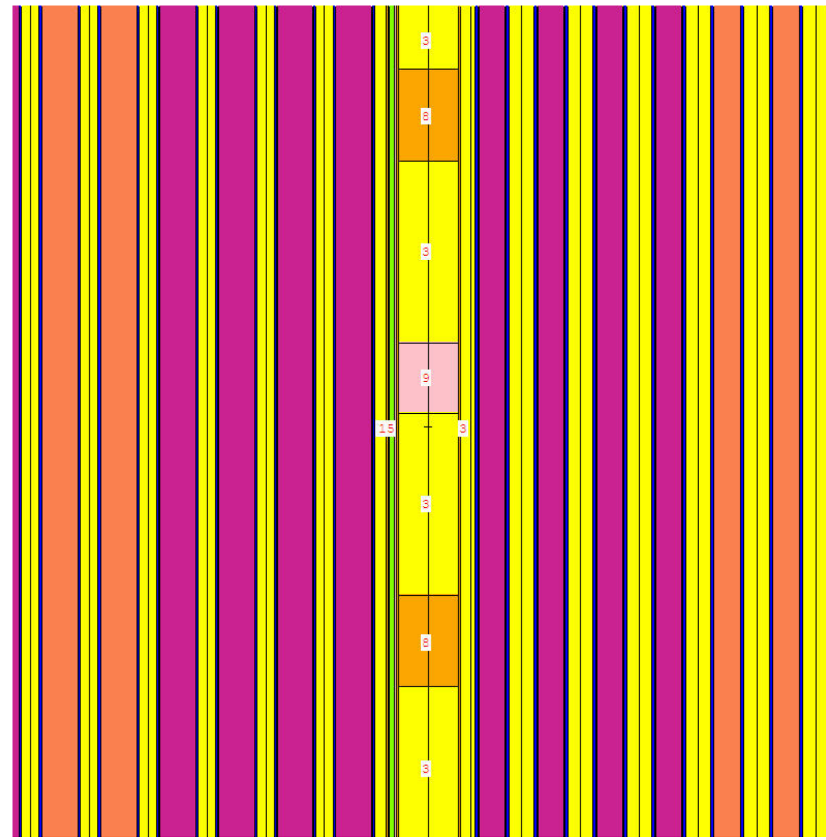
LACBWR Basket Cross-Section (VISED)



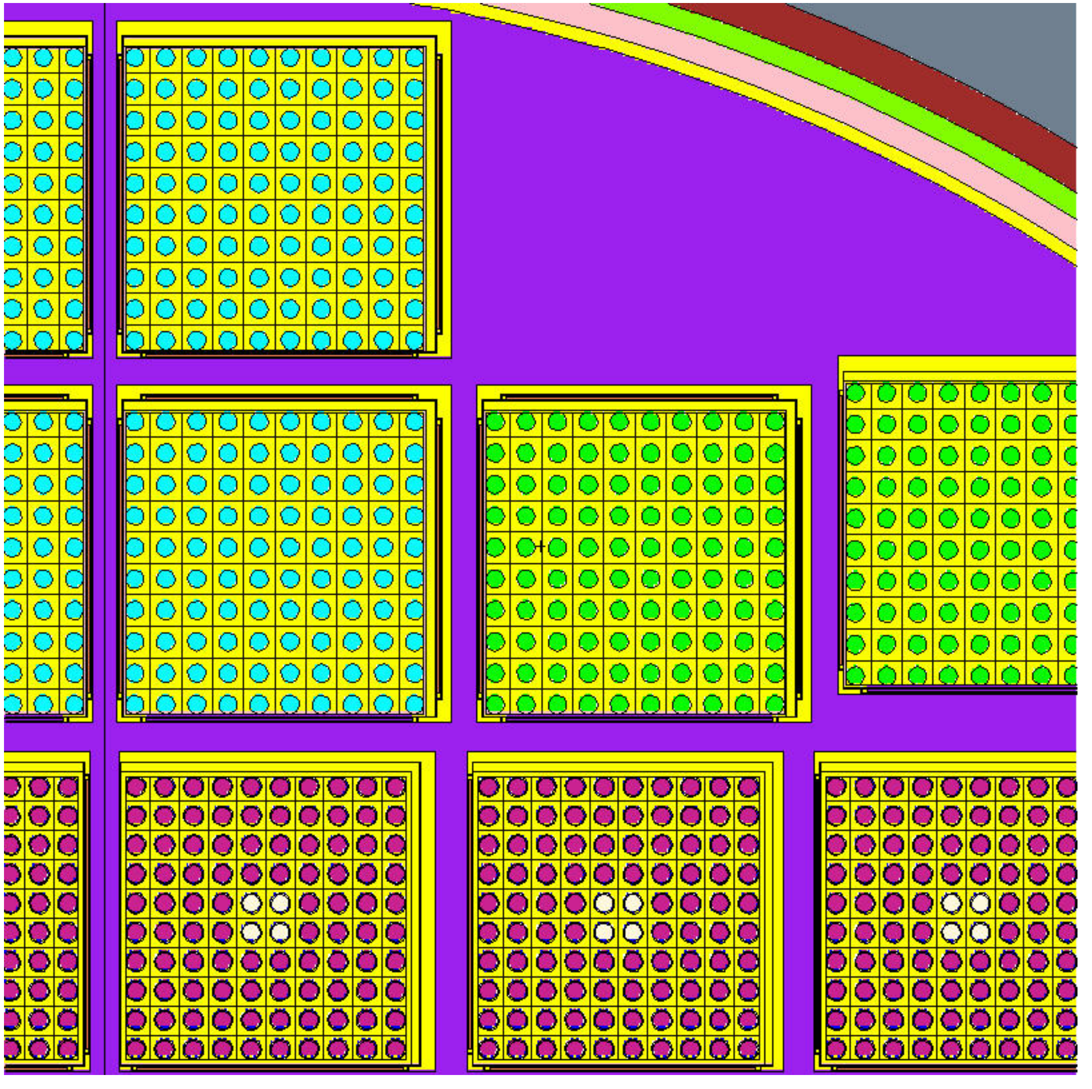


LACBWR Basket Cross-Section (VISED)





LACBWR – Unclad Rod Array (VISED)



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Assembly Information

- LACBWR used two primary steel clad assembly types
  - AC and Exxon
- Exxon fuel assembly
  - Max. 3.71 wt% ^{235}U average enrichment
    - Radial discrete enrichment pattern
    - Evaluated to demonstrate adequacy of evaluating an "average" enrichment assembly
  - Maximum 96 fuel rods (4 inert rods)
  - AC fuel has 2 types
    - Max. 3.64 wt% ^{235}U and 3.94 wt% ^{235}U
    - 100 fuel rods (no inert rods)
    - Larger diameter pellet than Exxon Nuclear fuel

Assembly Information

- Based on reactor primary coolant chemistry and sipping evaluations, all AC assemblies are considered to be damaged for placement in the dry storage and transport system (note: not all AC assemblies are characterized as having clad breaches)
- Exxon assemblies undamaged based on preliminary review
  - Evaluated for potential insertion into DFC
  - Less reactive than AC assemblies

Baseline Reactivity Comparisons

- Transfer cask analysis at stacked disk basket design maximum reactivity configuration
- AC fuel assembly most reactive when considering full cask load of any one fuel type
  - EX 3.71 wt% ^{235}U $k_{eff}+2\sigma = 0.854$
  - AC 3.64 wt% ^{235}U $k_{eff}+2\sigma = 0.881$
  - AC 3.94 wt% ^{235}U $k_{eff}+2\sigma = 0.903$
- Due to assignment to DFCs, AC fuel not permitted in center 36 fuel tubes

Steel Clad Low Reactivity Fuel

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Tolerance and Shift Analysis Method

- Evaluated basket tolerances on primary components
  - Fuel tube width and thickness
  - Absorber width and thickness
  - Disk opening location and size (maximum flux trap)
  - Disk thickness and spacing
- Shifting evaluated for fuel assembly within tube and tubes within basket
- Components evaluated individually and in combination

Duplicate/Augment YR/CY Analysis Method for LACBWR

Tolerance and Shift Analysis Results

- Evaluated basket tolerances with full load of undamaged EX or AC fuel types – wet (0.9982 g/cc) TSC Cavity
  - Limited statistically significant information from centered or shifted manufacturing tolerance studies
  - Combination of tolerance characteristics minimizing flux traps increases reactivity significantly ($\Delta k/\sigma > 10$ over base case)
  - Shifted components increase system reactivity, $\Delta k/\sigma > 10$

Damaged Fuel Studies

- Within DFCs
  - Assemblies with as-built rod configuration (breached)
  - Unclad rod array
    - Removal of stainless steel clad parasitic absorber increases reactivity
    - Provides additional space for otherwise under-moderated fuel rod lattice
  - Fuel / Water Mixture
- Maximum reactivity for increased pitch unclad rod array of AC Type 2 (3.94 wt% ^{235}U) fuel in DFCs
  - $k_{eff}+2\sigma = 0.874$

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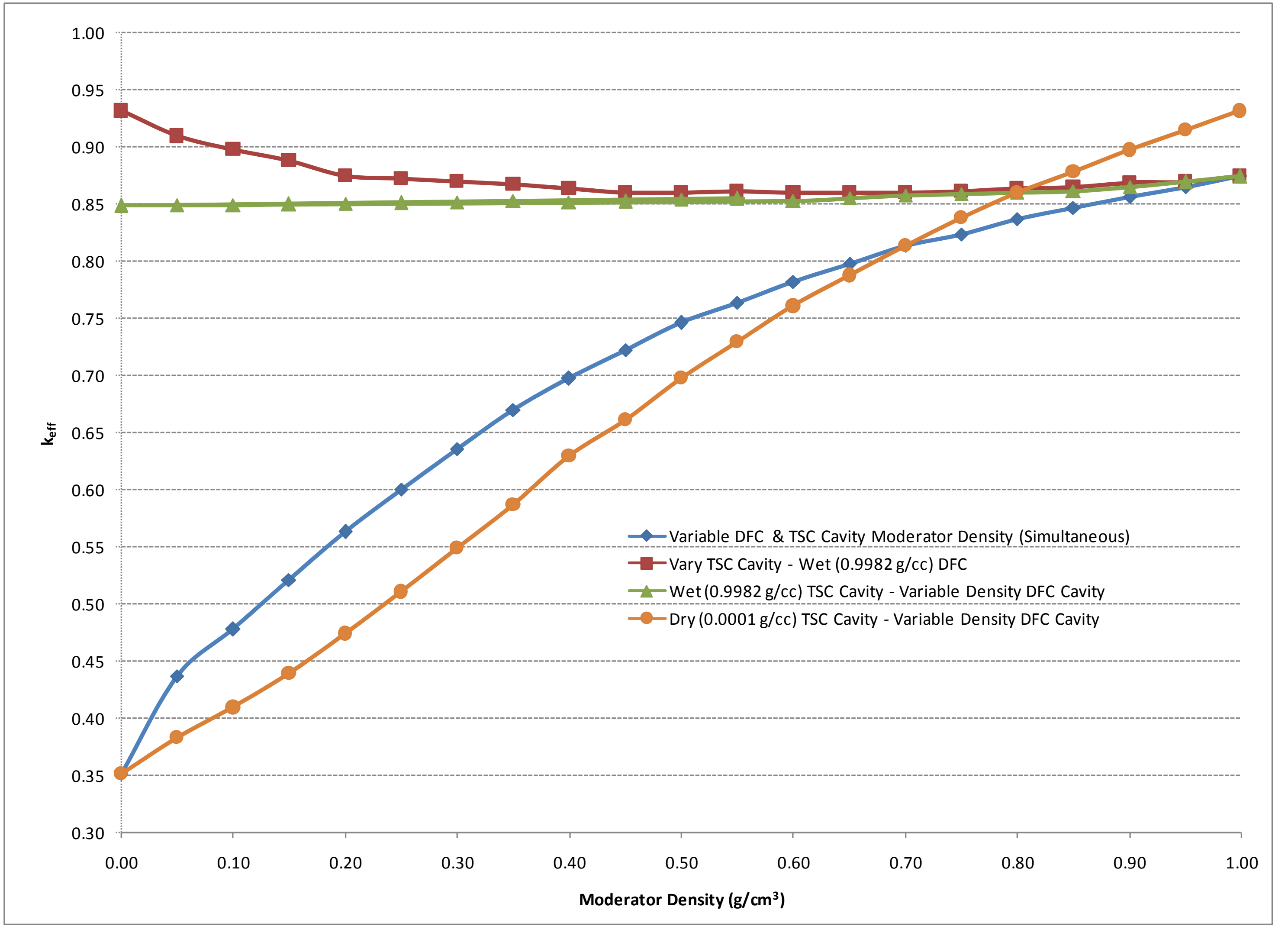
Optimum Moderator / Fuel Studies

- Determine maximum reactivity moderator in the canister, outside the cask, while considering preferential flooding of the damaged fuel canisters
- Optimum moderator for undamaged contents is full density TSC moderator (0.9982 g/cc)
- Optimum moderator for DFC configuration is a wet (0.9982 g/cc) DFC with a dry (0.001 g/cc) TSC (i.e., preferential flooding of TSC)
  - Due to the large number of high reactivity DFCs and the low efficiency of the neutron absorbers in the dry TSC reactivity of the EX undamaged and AC damaged configuration increases substantially ($\Delta k \sim 0.06$)

DFC Optimum Moderator Study



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Criticality Conclusion

- Maximum reactivity for EX undamaged and 3.94 wt% ^{235}U AC at k_σ of 0.931 versus USL of 0.937
- To increase system margin a revised loading pattern preferentially loads AC Type 1 (3.64 wt% ^{235}U) and AC Type 2 Fuel (3.94 wt% ^{235}U) – $k_{eff}+2\sigma = 0.9205$
- Loading of EX fuel assemblies (16) into DFC slots along system x-y plane axis increases system reactivity slightly – $k_{eff}+2\sigma = 0.9244$
- Maximum reactivity of system is below USL of 0.9372 under the conservative assumption set
  - In particular preferential flooding of the DFCs with loose fuel (no clad)

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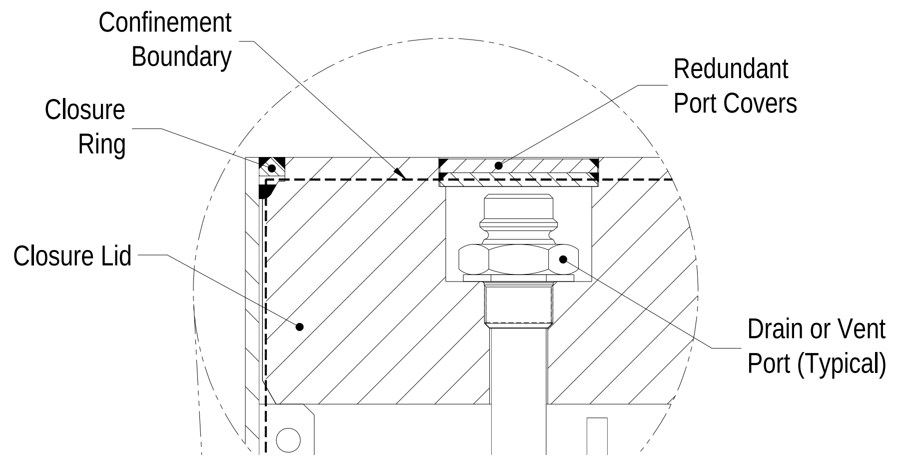
Confinement

- Revised lid design
  - No credible leakage (leak-tight)
  - MAGNASTOR configuration
  - Single lid with closure ring
- ISG-18 compatible closure – Stainless steel TSC and lid
- Redundant weld seal design
- TSC shell leak tested at fabrication
- Lid weld not field leak tested
- Port covers field helium leak tested
- Final assembly hydro tested
- ALARA based design



Licensing Considerations for the NAC-MPC Amendment

NAC International is a Wholly Owned Subsidiary of USEC Inc., the World's Leading Supplier of Enriched Uranium Fuel for Commercial Nuclear Power Plants.

Licensing Summary
NAC Multi-Purpose Canister (NAC-MPC)

- Licensing Basis: CoC No. 1025, Amendment 5, July 24, 2007 and NAC-MPC FSAR, Revision 7
- LACBWR Amendment Request (FSAR Rev. MPC-08A) to be submitted in December 2008
- Desired draft CoC/SER date November 2009
- Desired draft final effective date for CoC 1025, Amendment 6 is March 2010
- DPC June 19 letter to NRC addressing importance of amendment schedule

Amendment Request to be Submitted in December 2008

- Electronic submittal planned
- NAC-MPC FSAR, with “Revision 08A” on all changed pages and rev bars added to mark changes/additions
- All chapters supplemented by MPC-LACBWR Appendix cross-referencing applicable information in base document text
- Upon approval, changes to be incorporated into NAC-MPC FSAR, Revision 8

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Conclusion

- NAC is committed to the submission of a quality amendment
- NAC requests the NRC provide reviewers that have experience with the NAC-MPC or NAC-UMS systems
- NAC anticipates limited NRC review because:
  - Non-aggressive fuel
  - Only criticality and structural changes are significant
  - Thermal and shielding amended to confirm LACBWR bounded by previously licensed MPC designs
  - Changes to other disciplines minor
- RIS 2005-27-Rev. 1 would allow for a 7-month completion time (one – three disciplines) for NRC review

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Questions?