

DIVISION OF SPENT FUEL MANAGEMENT REGULATORY CONFERENCE



**REG CON
2018**



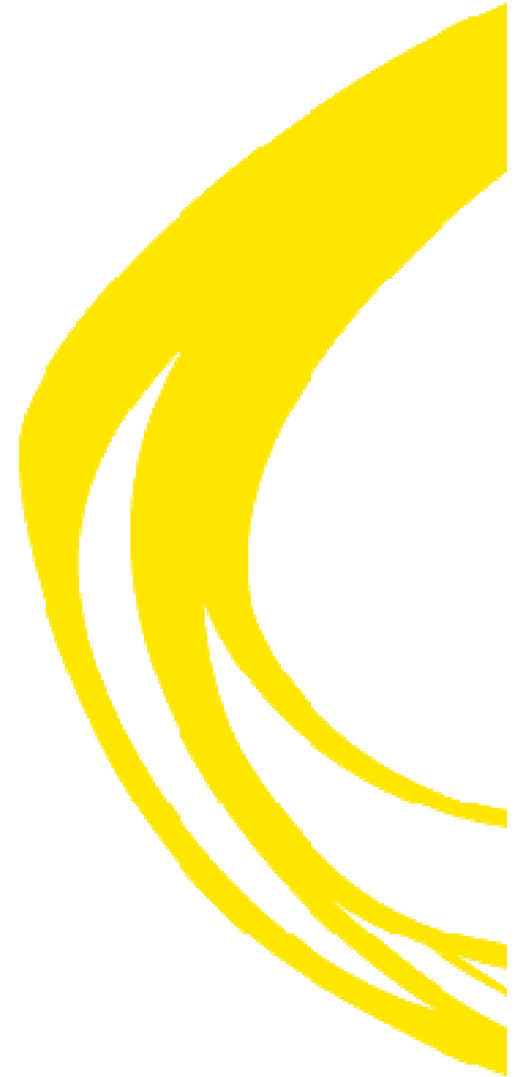
DECEMBER 11 - 12, 2018

U.S. NRC HEADQUARTERS, TWO WHITE FLINT NORTH AUDITORIUM

ROCKVILLE, MARYLAND

SPENT FUEL MANAGEMENT – AN ORANO TN PERSPECTIVE

Prakash Narayanan
TN Americas LLC



Agenda

Introduction

Storage

Transportation

Conclusions



Introduction

Storage

Perspectives on Changes

Regulatory Guidance

License Amendments

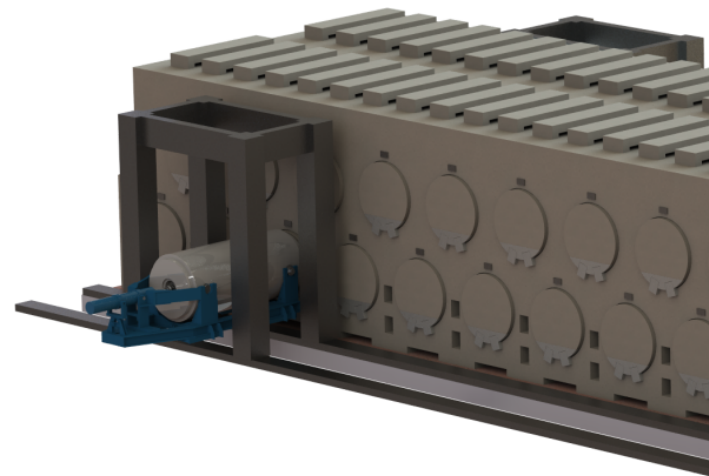
Aging Management

Transportation

Perspectives on Changes

Regulatory Guidance

Licensing



Perspectives on Storage - Changes

Changes in the Industry

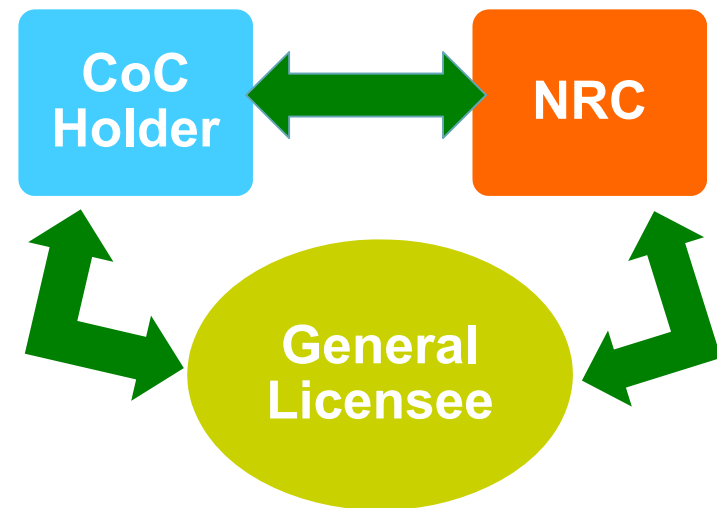
Significant progress in a short duration

TN Americas and CISF

Loading and Operations

Early Shutdown

Aging Management



Perspectives on Storage - Innovation

Innovation in Dry Storage

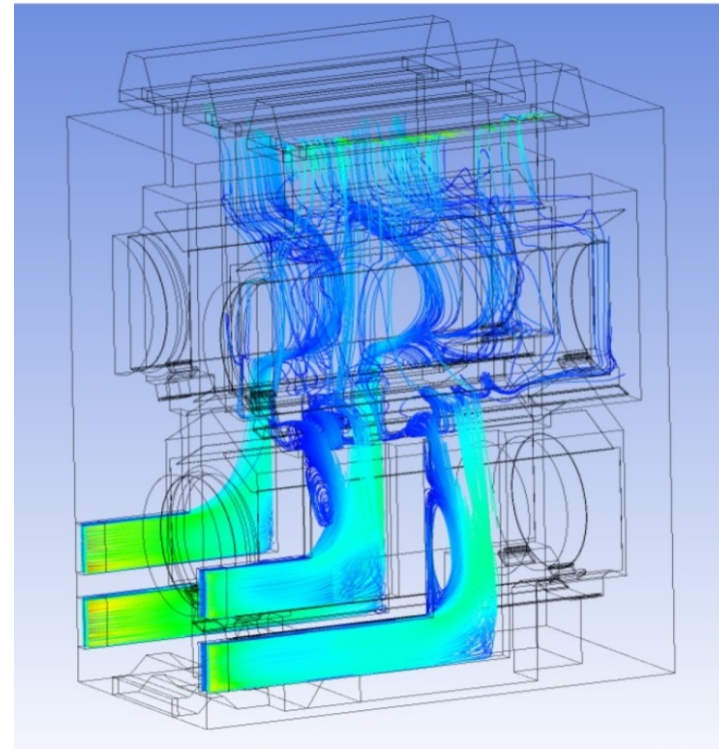
Higher capacity systems

High burnup and heat loads

Advanced Methods

Enhanced Margins

Resolution of complex issues



Regulatory Guidance - Storage

NRC / Industry Efforts

72.48 Guidance / Methodology

MAPS Document

EPRI Extended Storage / HBU Demo

Amendment 16 / Pilot

Challenge – Moving to Risk Informed

Passive Systems

Once loaded, Cask and Contents do not change

Limited number of Design Functions and Design Basis Limits

License Amendments - Storage

Transitioning to Content Specific

Simpler changes becoming complex

Several amendments in parallel

Newer materials

Renewal considerations

Process Improvement

Standard Review Plan

Amendment 16 / Location of Information

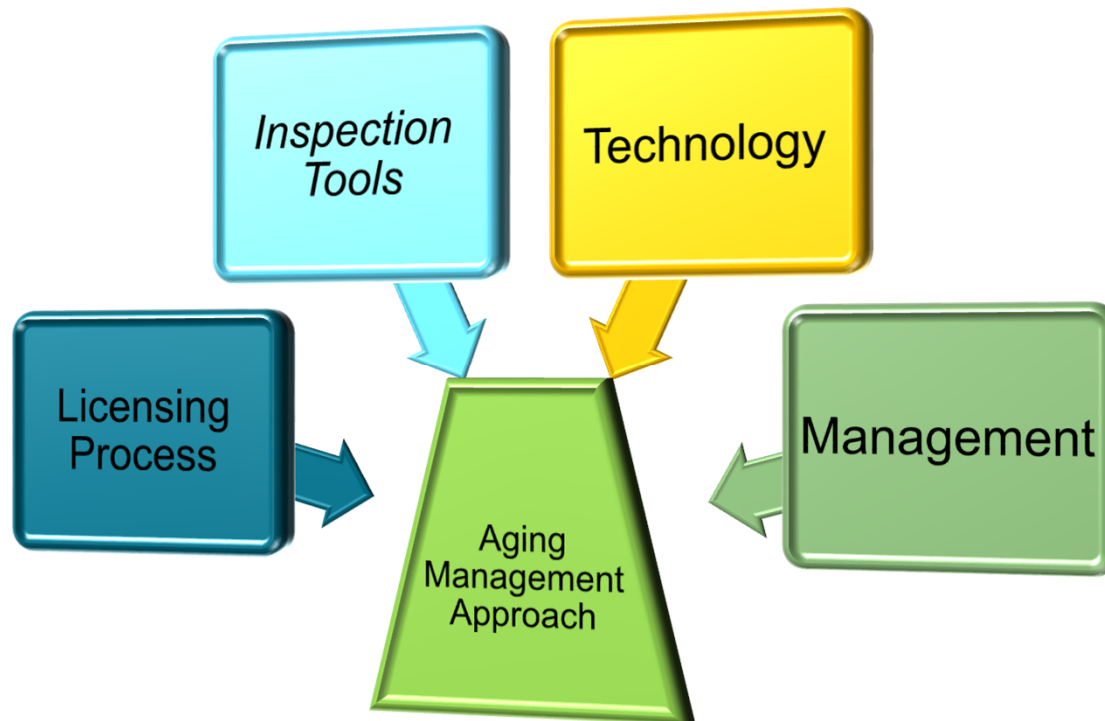
License Amendments

Cumulative Impact of Changes



Aging Management

Approach to Aging Management



Aging Management

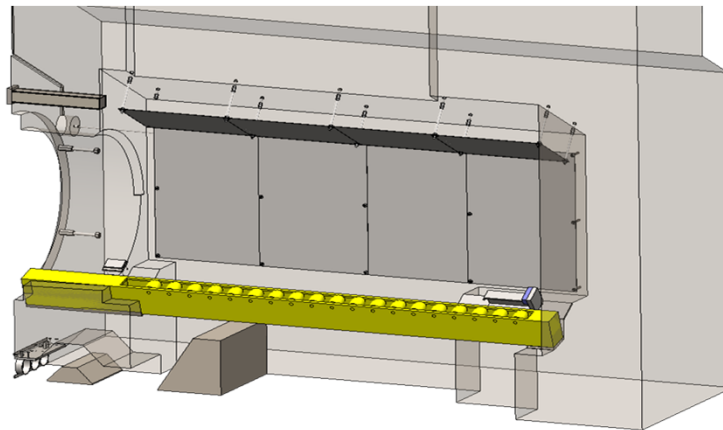
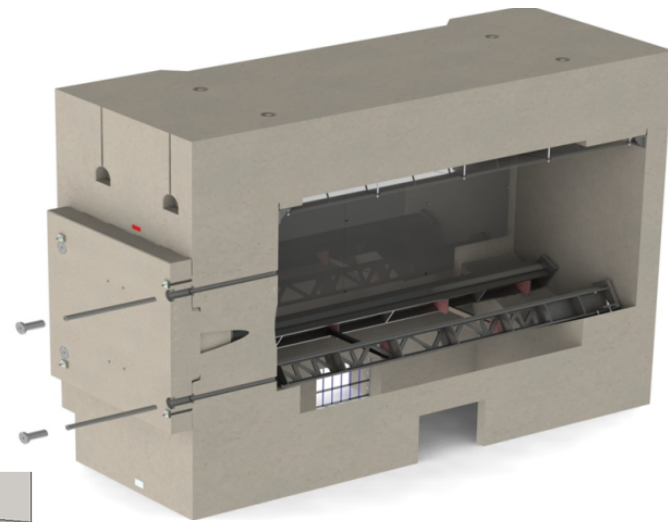
Post Renewal for CoC-1004

Development of AMP Procedures

Preparation for Baseline Inspections

Renewal consideration for changes

Development of Inspection Tools



Perspectives on Transportation

Changes in the Industry

High capacity DSCs

Higher Heat Load and Burnup

Transportation / Long Term Storage

Early Shut down

Radioactive waste



Regulatory Guidance - Transportation

NRC / Industry Efforts

High Burnup SRP

HBU Demo Project

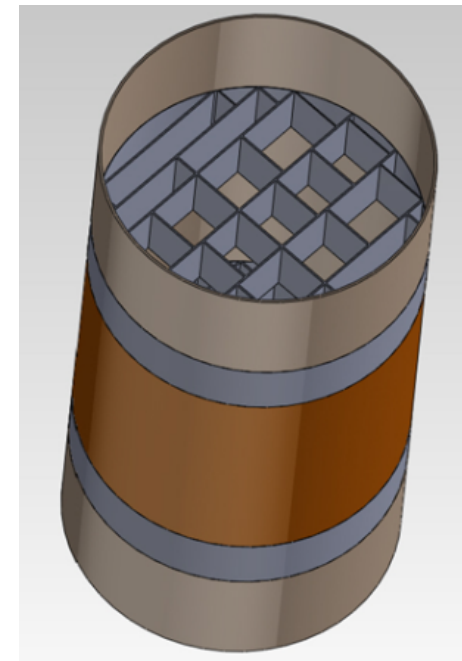
MP197HB Licensing

Burnup Credit

Challenge – Additional Guidance

Storage-Transportation-Storage

Contents Specifications – Spent Fuel and Waste



Transportation Licensing

Transitioning to Content Specific

Simpler changes becoming complex

Considerations for full pool offload

Newer materials

Criticality control

Process Improvement

Standard Review Plan

STORAGE					
	NJ049T	3B43	3B50	3B07	
	35-17	25	26	18	
	Z1 /	Z1 /	Z1 /	Z1 /	
3B41	NJ04WK	NJ07A4	NJ07A5	NJ04VR	3B15
19	13	5	6	14	20
Z1 /	Z1 /	Z3 /	Z3 /	Z1 /	Z1 /
NJ0308	NJ078R	NJ079T	NJ079U	NJ079W	3B22
27	7	1	2	8	28
Z1 /	Z3 /	Z3 /	Z3 /	Z3 /	Z1 /
3B46	NJ07A0	NJ078V	NJ07A3	NJ07A7	NJ020B
29	9	3	4	10	30
Z1 /	Z3 /	Z3 /	Z3 /	Z3 /	Z1 /
3B16	NJ04VT	NJ0793	NJ0794	NJ04W2	3B49
		11	12	16	22
		Z3 /	Z3 /	Z1 /	Z1 /
		NJ020S	NJ03TZ	3B14	
		31	32	24	
		Z1 /	Z1 /	Z1 /	

TRANSPORTATION					
	NJ049T	3B43	3B50	3B07	
	17	25	26	18	
	Z1 /	Z1 /	Z1 /	Z1 /	
3B41	NJ04WK	NJ07A4	NJ07A5	NJ04VR	3B15
19	13	5	6	14	20
Z1 /	Z1 /	Z3 /	Z3 /	Z1 /	Z1 /
NJ0308	NJ078R	NJ079T	NJ079U	NJ079W	3B22
27	7	1	2	8	28
Z1 /	Z3 /	Z3 /	Z3 /	Z3 /	Z1 /
3B46	NJ07A0	NJ078V	NJ07A3	NJ07A7	NJ020B
29	9	3	4	10	30
Z1 /	Z3 /	Z3 /	Z3 /	Z3 /	Z1 /
3B16	NJ04VT	NJ0793	NJ0794	NJ04W2	3B49
21	15	11	12	16	22
Z1 /	Z1 /	Z3 /	Z3 /	Z1 /	Z1 /
	3B13	NJ020S	NJ03TZ	3B14	
	23	31	32	24	
	Z1 /	Z1 /	Z1 /	Z1 /	



Conclusions

Storage and Transportation direction driven by

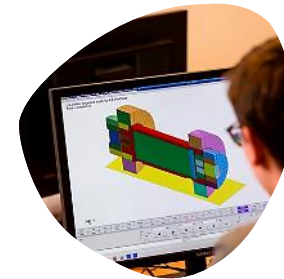
Licensing Process Simplification

Technology / Innovation

ISFSI Operations

Aging Management

CISF Licensing





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Giving nuclear energy its full value