

Exelon Dry Cask Storage Program 2012 Campaign Summary

Kevin P. Donovan, PE
NEI Used Fuel Management Conference



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Exelon 2012 Spent Fuel Loading Campaign Summary

Site	Campaign Size		Cask Type	Dose / Goal
	Casks	Fuel		
Byron (PWR)	8	256	MPC-32	1.509 / 1.818
Dresden (BWR)	4	272	MPC-68	2.070 / 2.595
Limerick (BWR)	3	183	61BT	1.270 / 1.519
Oyster Creek (BWR)	4	244	61BTH	1.382 / 1.560
Peach Bottom (BWR)	6	408	TN-68	1.559 / 1.492
Total	25	1363		

Limerick also installed 19 HSM-H horizontal storage modules on existing pad

Lessons Learned – Human Performance

- Significance Level 3 Human Performance (HU) Issues
 - Supplemental Engineer performed work for which they were not qualified
 - Errors discovered on (supplemental workforce) inspection reports that put into question the operability of loaded canister(s)
 - FME L3 event (loss of FME control) when supplemental worker dropped setscrew
 - Supplemental Work Planner performed work for which they were not qualified
 - Supplemental worker injured finger (OSHA Recordable) during crane disassembly
- Lessons Learned / Corrective Actions
 - Supplemental Engineers need to be supervised by Engineering Management
 - All DCS supplemental Engineering resources are now assigned to a site Engineering workgroup
 - Supplemental workforce may not have developed the same commitment to flawless execution as longer-term utility employees. A multi-faceted approach to improving performance of supplemental workforce is required.
 - Incentives / penalties built into contracts
 - Participation in supplemental workforce HU training
 - Dedicated Task Manager to focus specifically on supplemental workforce
 - Oral Boards for company and supplemental supervision / oversight

Lessons Learned – Equipment Performance

- Most Significant Equipment Performance Issues
 - Overhead Crane Performance
 - Byron load cell component failures (15 days to campaign start)
 - Dresden limit switch damage (20 days mid-campaign)
 - Oyster Creek overhead crane repairs (14 days to mobilization)
 - Spent Fuel / Refuel Bridge Performance
 - Byron post-modification test of control upgrades (5 days to campaign start)
 - Oyster Creek post-modification test of control upgrades (2 days to dry run)
 - Byron disruption of Helium supply (5 hours during processing)
 - Peach Bottom lift beam repair (14 days to campaign start)
- Lessons Learned / Corrective Actions
 - Established formal milestones for completion of inspections / preventive maintenance
 - Backed up milestone dates to ensure sufficient time to address discovery items
 - Established requirement for Maintenance to certify crane / bridge readiness
 - Strengthened Management challenge of equipment readiness at T-1 month review
 - On-site support by OEM for crane / bridge emergent repairs

Lessons Learned – HSM Installation

- Limerick ISFSI pad sized for 94 DSCs / HSMs
 - Initial configuration of 24 HSMs established based on a belief that DOE would begin taking fuel after some delay past 1998
 - Installed an additional 19 HSMs in 2012
- Lessons Learned
 - Expansion by 19 (or to full capacity of 94) required additional analyses and physical changes
 - 10CFR20 dose analysis required assuming fully-populated to 94
 - Physical security changes to support expansion required
 - Sheer size and weight of HSMs requires use of transportation capabilities (rail) and heavy haulers not frequently exercised by site
 - Significantly more challenging from a coordination of workgroups perspective
 - Coordination with fabricator for transportation and delivery schedules
 - Coordination of constructor resources and heavy equipment
 - Coordination of security resources to establish compensatory measures and support access / egress of materials and haulers
 - Alignment of site resources to support: Operations, Engineering, Rad Protection, Security, Work Planning, Work Control

Work Hour Rule Considerations

- For our Holtec sites, we have expanded the per-cask cycle time to two weeks with weekends off

Week1	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Days							
Nights							
Week2	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Days							
Nights							

Work Hour Rule Considerations (cont'd)

- For our Transnuclear sites, we have established a 5-day cycle time with weekends off

Shift	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Days							
Swing							
Mids							

- These approaches are compatible with the WHR plus provide flexibility for upsets

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