



McGuire Nuclear Station Spent Fuel Pool Boraflex Update

Meeting with NRC
December 11, 2001



McGuire Boraflex Update

- McGuire Boraflex background
- Current McGuire Boraflex status
- Future Boraflex projections & mitigation plans
 - Region 2 racks
 - Region 1 racks
- Summary



McGuire Fuel Pool Rack Background

- Last reracks performed mid-1980s
- High density racks w/ Boraflex neutron poison material
- 2 fuel pools w/ 2 region design
 - Region 1 designed for storage of new and recently discharged fuel (flux trap design)
 - Region 2 designed for long-term storage of burned fuel assemblies (egg crate design)



Duke Response to NRC Generic Letter 96-04

- RACKLIFE assessment of pools
- BADGER demonstration
- Silica assessment of pools
- Schedule for future in-situ testing



BADGER Testing of McGuire Racks

- Initial demonstration in 1997 (Unit 2)
 - First PWR demonstration
 - Previous BWR demonstration at Peach Bottom
- Testing of Unit 1 and 2 racks in 2000
- Next BADGER campaign scheduled for early Summer 2002



McGuire Soluble Boron Credit TS Amendment

- Submitted April 1999 & amended August 2000 (Axial Bias)
- Approved by NRC in November 2000
- Credit for soluble boron & partial Boraflex
- 3 year interval for in-situ testing of racks



McGuire Soluble Boron TS Overview

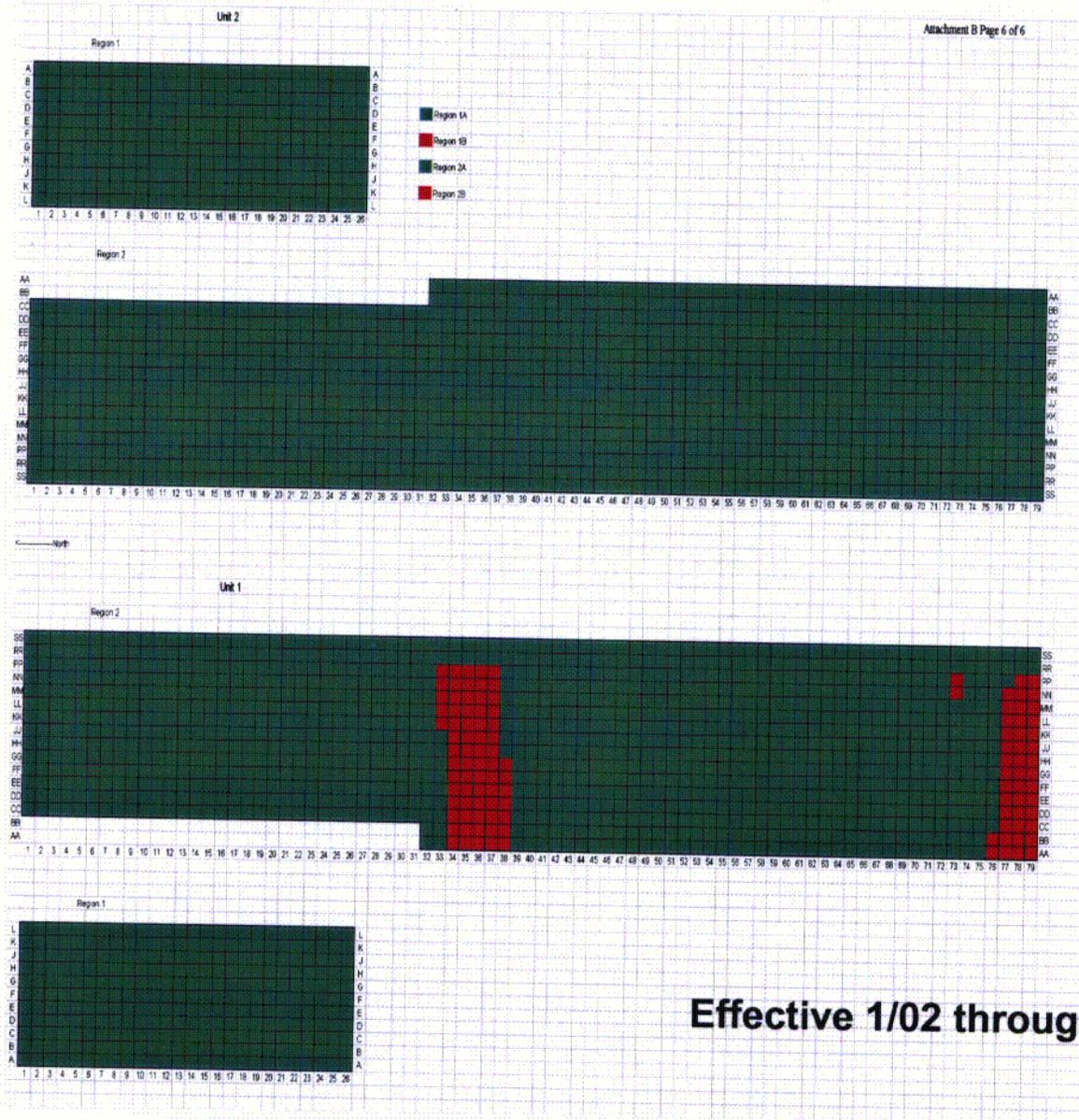
- Soluble boron credit for 730 ppm (current COLR limit is 2,675 ppm)
- Partial Boraflex credit - regions divided into sub-regions (remaining Boraflex)

	<u>Region 1</u>	<u>Region 2</u>
• A (Alpha)	25%	50%
• B (Bravo)	0%	0%

– Bravo designations result in severe storage restrictions for affected and surrounding cells



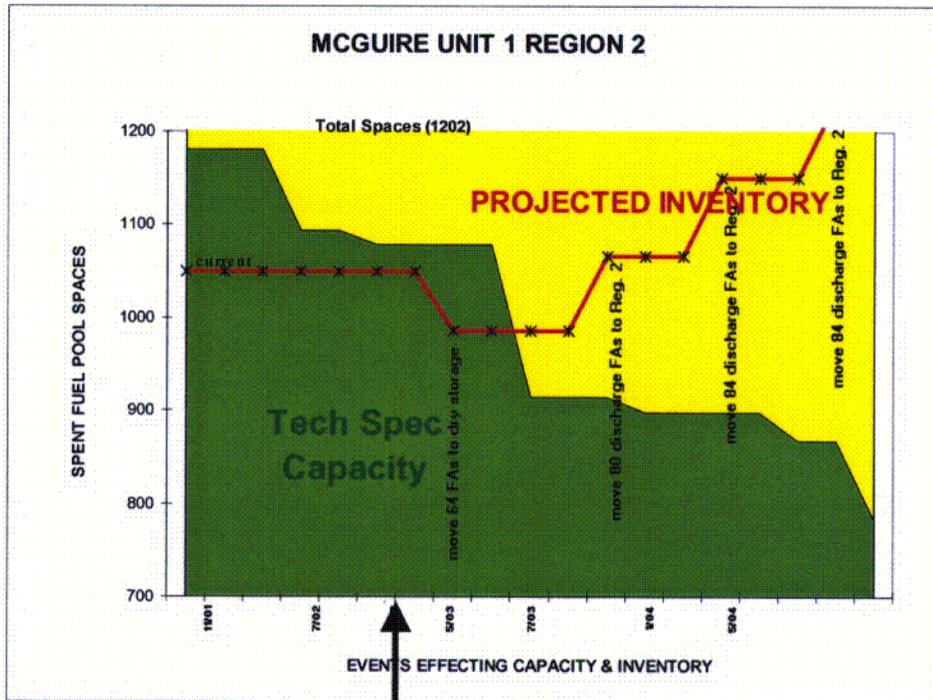
Current McGuire Rack Cell Designations



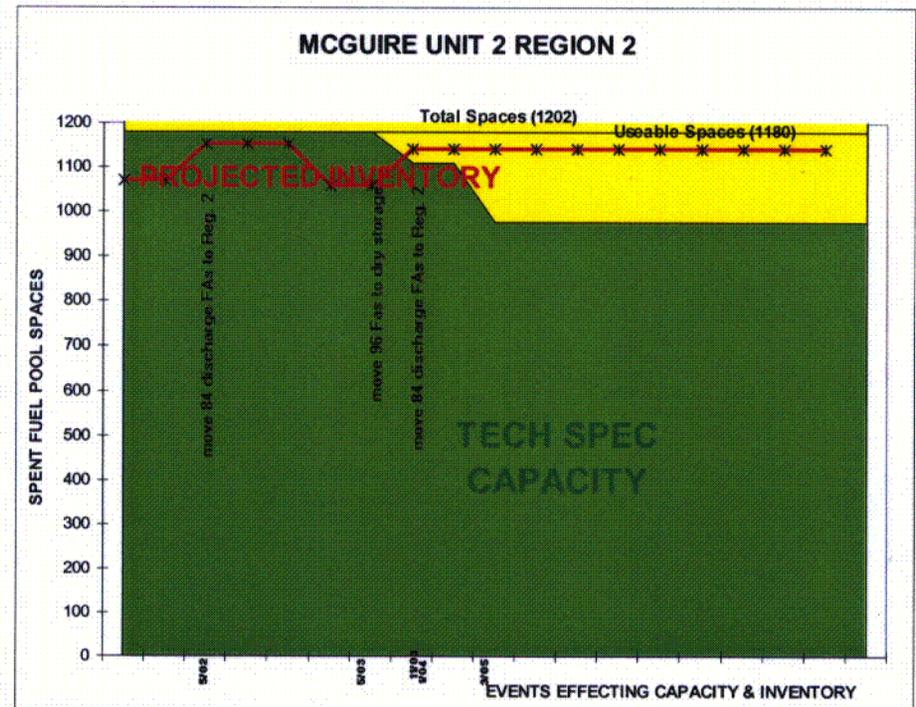
C01



Region 2 Capacities vs. Inventories



**Critical Need Date
1/03**



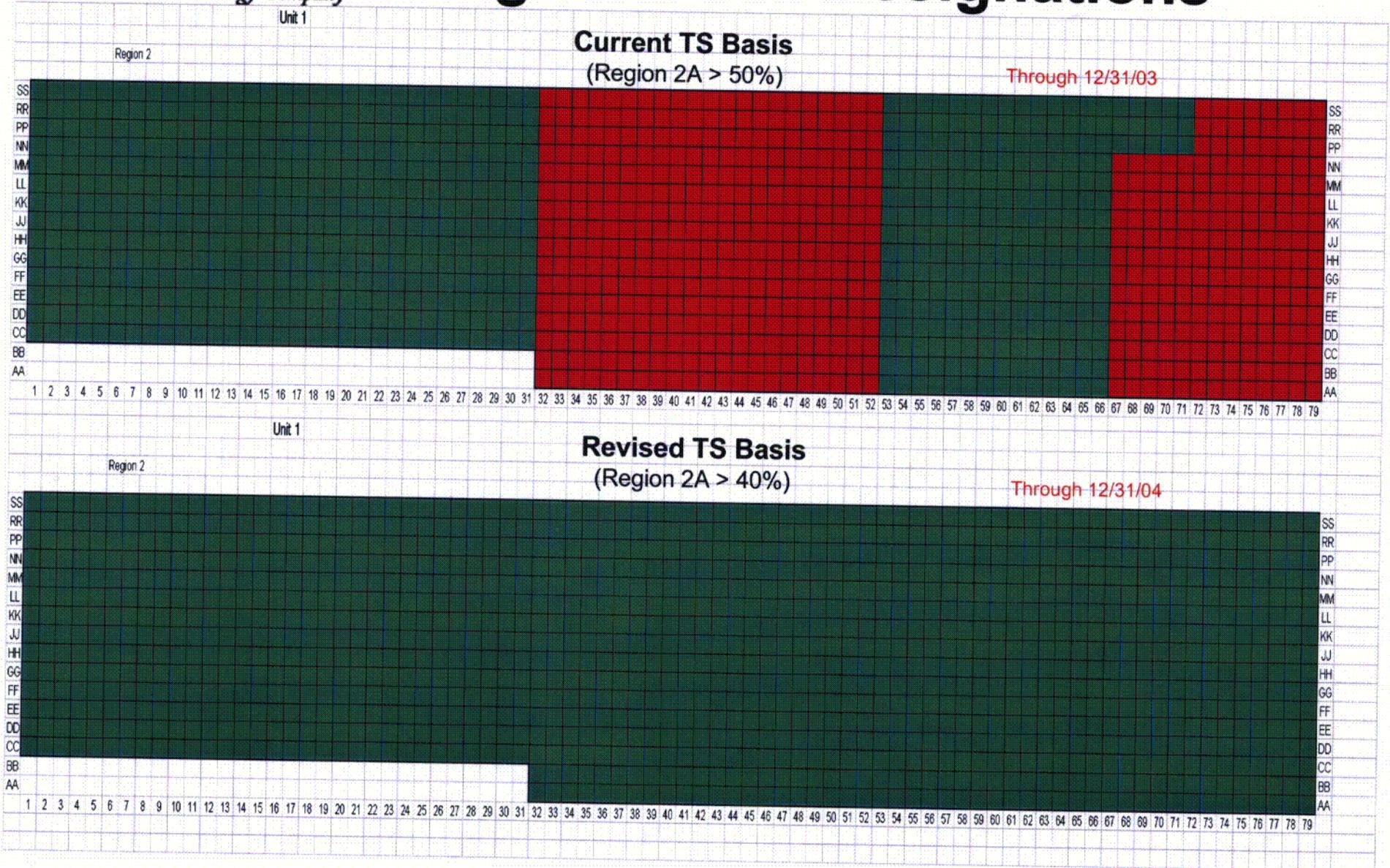


Region 2 Mitigation Option Summary

- Critical need date: January 2003 - Unit 1
- Near-Term Plan:
 - TS amendment to change threshold for Alpha to Bravo from 50% to 40%--extends critical need date to end of 2005
 - Results in more restrictive storage requirements for Alpha cells
 - Reduces the number of Bravo cells (near-term)
- Long-term Options:
 - Cell inserts
 - Accelerated dry storage loadings
 - Pu decay credit
 - Rerack all or portions of Region 2



Future McGuire Unit 1 Region 2 Cell Designations



C03



Plans for Revised Soluble Boron Credit TS Amendment

- Change threshold for Region 2 Alpha to Bravo from 50% to 40% remaining Boraflex
- All Region 2 cells remain >40% through December 2004
- Avoids hundreds of fuel moves
- Provides more reasonable timeframe for implementing long-term fix
- Tech Spec Amendment submittal package will be identical in all other aspects to recently approved McGuire submittal



Schedule for Revised Soluble Boron Credit TS Amendment

- Submittal preparation Now - 3/02
- TS Amendment submittal 3/02
- NRC review 3/02 - 12/02
- NRC approval 12/02
- Revised TS implementation 1/03

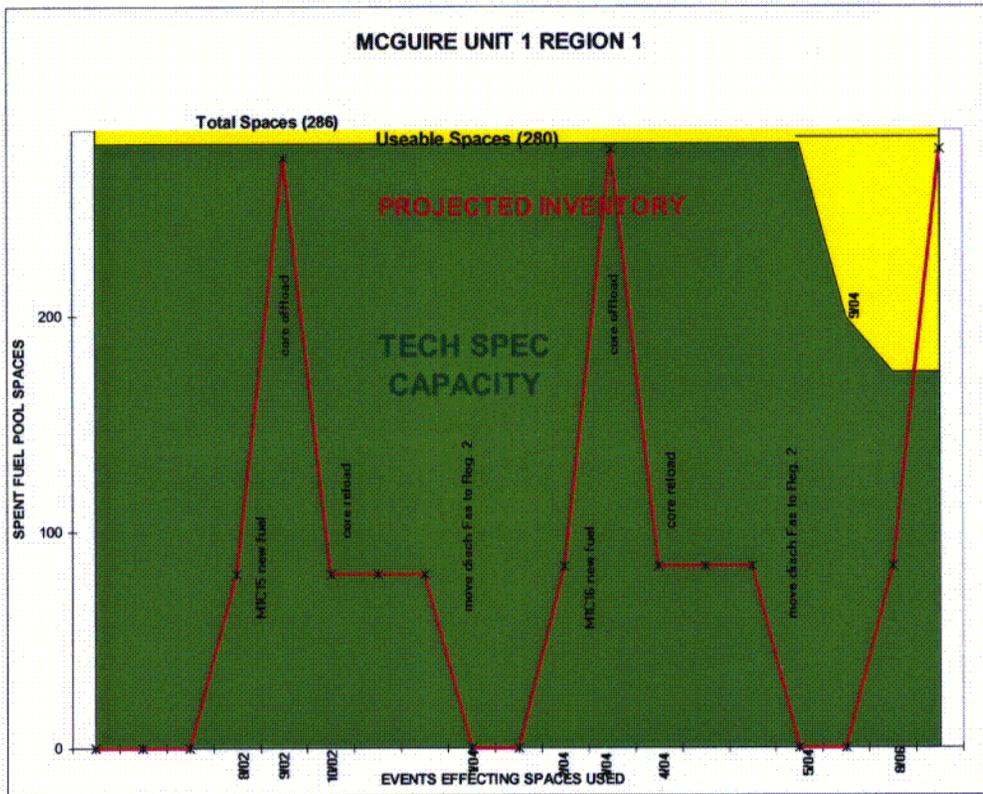


Schedule for Region 2 Boraflex Mitigation

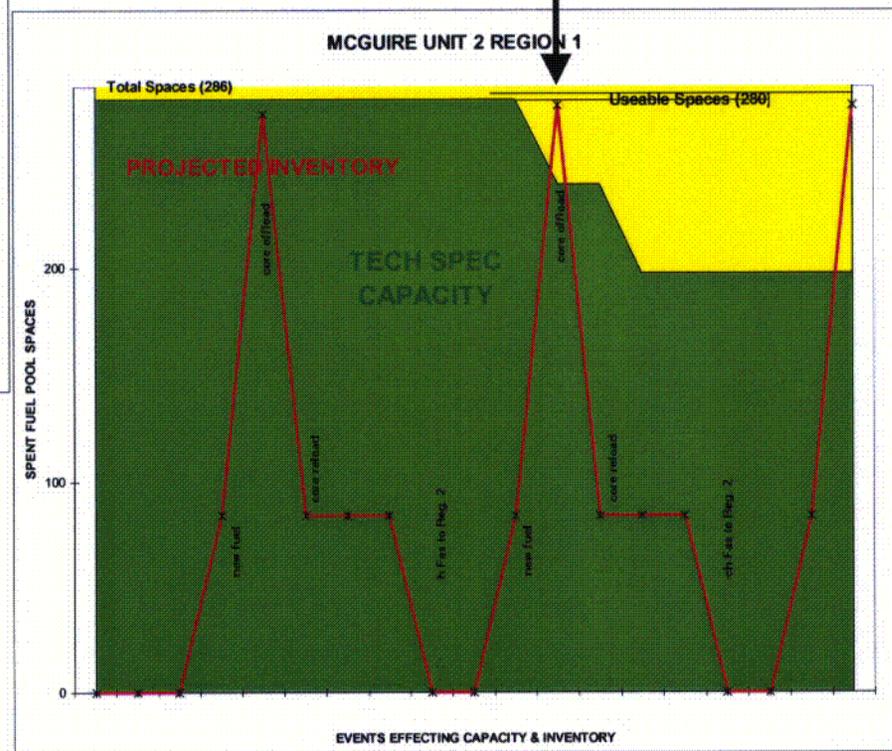
- Issue specification for poison inserts/rerack 12/01
- Submit revised soluble boron LAR 3/02
- BADGER testing in pools 5/02
- Issue PO for poison inserts/rerack 8/02
- Decision on need for accelerated dry storage 8/02
- NRC approval of revised McGuire soluble boron LAR 12/02
- Begin installation of inserts/rerack 11/04



Region 1 Capacities vs. Inventories



**Critical Need Date
9/03**



C04



Region 1 Mitigation Option Summary

- Critical need date: September 2003 - Unit 2
- Near-term Plan:
 - Rerack or install inserts
- Long-term Options:
 - Successful implementation of near-term plan will obviate need for further action



Schedule for Region 1 Boraflex Mitigation

- Issue specification for poison inserts/rerack 12/01
- Issue PO for poison inserts/rerack 3/02
- BADGER testing in pools 5/02
- Decision on need for accelerated dry storage 8/02
- Begin installation of inserts/rerack 6/03



Summary

- Duke continues to be proactive dealing with Boraflex degradation at McGuire
 - Accelerated order of dry storage systems (48 UMS)
 - Accelerated BADGER testing in pools
 - Issuing specification for rerack/inserts
- Revised TS Amendment (50% to 40%) is essential
 - Provides time need to implement long-term solutions (i.e., rerack or inserts)
 - Eliminates hundreds of fuel moves
- Can NRC support licensing schedule?