

ABWR K/A CATALOG

Glenn Macdonald
South Texas Project



ABWR K/A Catalog

- In December 2008 the NEI New Plant Licensed Operator Task commenced development of new K/A Catalogs in accordance with a Knowledge and Abilities Catalog Revision Plan
 - Existing K/A Catalogs may not comprehensively reflect the knowledge and abilities required to operate advanced plants
 - AP-1000 and ABWR draft K/A Catalogs represent the first results of this effort



ABWR K/A Catalog

- For the ABWR an expert panel was created to modify the existing catalog and determine the importance ratings:
 - At least two STPNOC Operations Training Department personnel who have a BWR and ABWR background
 - One STPNOC line organization member with BWR and/or ABWR knowledge
 - One international ABWR subject matter expert (TEPCO)
 - Operator of ABWRs
 - One member that is an ABWR design subject matter expert (Toshiba)
 - One optional member from the NRC



ABWR K/A Catalog

- A Gap Analysis with NUREG 1123 was conducted
 - Reviewed existing K/As
 - Reviewed ABWR nuclear plant design and operating information
 - Reviewed ABWR Job and Task Analysis
 - Identified current K/As that are applicable
 - Deleted those K/As that are not applicable
 - Identified new K/As associated with the new technology



ABWR K/A Catalog

- Revised Knowledge and Ability Stem Statements
 - Standardized the stems with the AP-1000
 - Clearly defined the scope of the stems
 - Ensured the K/A statement supports the stem
- Summary of Significant Changes
 - Cause-effect relationships moved from K1 to K5
 - Clarified K2 and identified specific components
 - Changed A4 to read “and” instead of “and/or”
 - Removed K5 items that are already identified in the generic fundamentals section



ABWR K/A Catalog

- Deleted the task lists
 - Existing task lists were generic and had limited value for writing exams
 - Difficulty in revising a NUREG to reflect changes to a task list
 - A plant specific task list is provided for exam generation



ABWR K/A Catalog

- Removed some systems from appearing in multiple safety functions
 - Based on a review of the design information
 - e.g. High Pressure Core Flooder removed from Safety Function 4 (Heat Removal from Core) because it is designed to prevent reactor vessel water level from dropping below a level which would initiate RHR or ADS
 - e.g. Residual Heat Removal remains in Safety Function 2 (Reactor Water Inventory Control) and Safety Function 4 because it is designed to perform both functions



ABWR K/A Catalog

- Incorporated Probabilistic Risk Assessment (PRA) and Operating Experience (OE)
 - Added two additional systems (Reactor Service Water and Remote Shutdown)
 - Identified PRA and OE related items in the catalog



ABWR K/A Catalog

- Revised some Generic Knowledge and Abilities
 - Based on guidance contained within the NRC SRO Clarification Guidance, revision 1



ABWR K/A Catalog

- Determined Importance Ratings
 - Only one importance ratings exists for those topics that have the same knowledge requirement for ROs and SROs
 - For the ABWR these ratings were determined by consensus of the “expert panel” and are represented by whole numbers
 - Following production of several license operators these ratings will be evaluated again



ABWR K/A Catalog

- Takeaways

- Changes made to the draft ABWR K/A Catalog do not impact the operating fleet
- PRA information included
 - Very few changes made to the existing deterministically determined document
- RO/SRO differences clarified
- Standardization with the draft AP-1000 K/A Catalog
 - The existing BWR and PWR catalogs have differences
- Template to evaluate changes to the existing K/A Catalogs

