

## **Criteria for Evaluation of Options**

- A. Impact on licensee resources
- B. Improved timeliness
- C. Impact on U.S. Nuclear Regulatory Commission (NRC) staff efficiency
- D. Impact on licensee efficiency
- E. Impact on NRC resources (e.g., training, model infrastructure)
- F. Ability to extend to external events and low power/shutdown probabilistic risk assessment (PRA) modeling
- G. Impact on ability of NRC staff to perform independent confirmation
- H. Incentive to industry to adopt Regulatory Guide (RG) 1.200 promptly
- I. Improved completeness and fidelity of models
- J. Scrutability of models and results
- K. Degree of implementation by industry

**Option 1**  
**Status Quo**

- continue to improve standardized plant analysis risk (SPAR) models
- for specific findings, both the licensee and NRC make adjustments to their models
- there is usually good agreement between licensee and NRC staff results
- by *de facto*, the staff relies on licensee PRA models to some extent
- as licensees comply with RG 1.200, the NRC staff has more confidence in the results
- for external events, the staff uses input from licensee external events PRA and/or bounding analyses

**CON** (criteria strongly against the option)

F, H

**PRO** (criterion strongly favoring the option)

G

Note: all other criteria not indicated above do not strongly work in favor or against the option

**Option 2**  
**PRA Model meets RG 1.200**

- licensee uses their PRA model and makes the determination of the significance

**CON** (criteria against the option)

E, G, J

**PRO** (criteria favoring the option)

A, B, C, D, F, H, I, K

Note: for Options 2 through 4, the evaluation is with respect to the Status Quo (Option 1)

**Option 3**  
**PRA model meets RG 1.200 and**  
**the model and all supporting documentation**  
**is provided to NRC staff to run**

- assumes there is a “translator” for basic event and other modeling information

**CON** (criteria against the option)

A, E, G, K

**PRO** (criteria favoring the option)

B, D, F, H, I, J

**To be determined** (not evident if a PRO or CON at this time)

C

**Option 4**  
**Fully update the SPAR models to**  
**reflect licensees' RG 1.200 conforming model**

- SPAR models all use same methods and general modeling assumptions (e.g., HRA, though PSFs may differ, as would vendor-specific RCP seal failure model)
- specify standard level of detail in the models
- restrict credit for use of non-standard systems for which full training (including hands-on walk-through) is not in use
- use plant-specific data, though the data analysis would be prescriptive

**CON** (criteria against the option)

A, E, F, H, K

**PRO** (criteria favoring the option)

B, D, I, J

**TBD**

C

Note: all criteria not shown above appear to be neutral in impact compared to Option 1 (status quo)

**Option 5**  
**[applicable to replacing phase 2 screening worksheets]**  
**NRC staff uses licensees' configuration risk**  
**management (CRM) model**

- capable of being used by the resident inspector
- capable of being used by a visiting inspector
- the results provide risk insights not just a risk number
- CRM meets regulatory requirements

**CON** (criteria against the option)

A, E, G

**PRO** (criteria favoring the option)

B, C, F, H, I, K

Note: all criteria not shown above appear to be neutral in impact compared to the status quo for phase 2 screening per Option 6

**Option 6**  
**[applicable to replacing phase 2 screening worksheets]**  
**NRC staff uses SPAR model with SAPHIRE 8**

- this option is the status quo for phase 2 screening in that the staff appears to be headed in this direction, and is therefore neutral in impact

**Option 7**  
**Replace Licensee PRA models by**  
**Super-SPAR**

- NRC resources to upgrade 70+ models to the level of detail in all licensee PRA models, including external events, is in the many tens of millions of dollars
- it is doubtful that industry would discard their PRA models
- dismissed as impractical