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