

Activity title and RIRIP activity identifier, which relates the activity to the Agency's strategic arenas, performance goals, and strategies described in the NRC Strategic Plan (NUREG-1614). *

Lead and support organization

Related Agency performance goals and associated strategies.

Activity description

Priority assigned by lead and supporting program offices through the Planning, Budgeting, and Performance Management (PBPM) process

Schedule date provided when the milestone first appeared in the RIRIP.

Project considerations may include relationships to other activities and organizational entities, critical path items, special training and communication requirements, and special resource requirements.

Allocated resources to conduct the activity.

Major milestones and schedules.

Detailed schedule consistent with operating plans maintained by individual program offices.

Staff's current best estimated completion date.

RS-MS8-8 Reactor Safety Arena

Implementation Activity: Develop the technical basis to revise the PTS rule. (RES)

Primary Performance Goal: Maintain safety, protection of the environment, and the common defense and security.

Strategy 8: We will continue to develop and incrementally use risk-informed and, where appropriate, less prescriptive performance-based regulatory approaches to maintain safety.

The staff is working to develop the technical basis to improve the risk-informed evaluations of reactor pressure vessel (RPV) integrity to support risk-informed decisions to the regulations associated with RPV integrity. The staff is evaluating the application of advanced fracture mechanics concepts to the revision of the regulatory approach to RPV integrity to provide analysis codes and techniques for evaluating and quantifying the risk to RPV integrity, particularly as related to pressurized thermal shock (PTTS). The staff is also conducting the research and analyses needed to develop a generic flaw density and size distribution for reactor vessel welds. The staff and licensees are performing probabilistic fracture evaluations of reactor vessel welds. In addition, the staff is performing an experimental program and analysis to support rulemaking for PTS and guidance for reactor vessel embrittlement. The results of these efforts will be reflected in review guidance documents and in modifications to regulations addressing issues associated with reactor pressure vessel integrity. The staff is also developing pressure-temperature limits and LTOP setpoints, and in applying the PTS pressurized thermal shock (PTS) screening criteria. Some specific staff activities include: development of heat treatment and chemistry unavailability on embrittlement trends; development of the technical bases for revision of RG-1.99; irradiation of high-Cu, high-Ni welds; development of embrittlement trend curves; an expert elicitation to verify that a generalized flaw size and density distribution can be properly developed for the entire population of U.S. RPVs and to assist in developing a flaw distribution; and calculations to provide technical basis for revising 10 CFR 50.61 (the PTS rule).

RES Priority: 8.4

Reactor Safety Arena RS-MS8-8

Project Considerations: The timely completion of activities associated with this implementation activity requires close coordination, cooperation, and communication among numerous organizational units.

Resources Budgeted		
Fiscal Year	Staff Resources (FTE)	Fiscal Resources (K\$)
2001	1.8	300
2002	2.0	450

Selected Major Milestones and Schedules

Major Milestones	Original Target Date	Revised Date
Identify accident sequences significant to PTS for four representative plants	10/2001	
Integrate the results of thermal/hydraulic fracture mechanics, and sequence frequency analyses, using a probabilistic fracture mechanics code (FAVOR), to calculate the frequency of vessel failure and the resultant core damage.	1/2002	
Recommend changes to operational limits associated with PTS acceptance criteria		
Assess the need for PTS rule changes and provide recommendations		

Implementation Activity Tasks, Interim Milestones, and Schedules by Calendar Year

Task	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Identify PTS accident sequences for four representative plants										
Integrate results of thermal/hydraulic fracture mechanics, and sequence frequency analyses, using a probabilistic fracture mechanics code (FAVOR), to calculate the frequency of vessel failure and the resultant core damage										
Recommend changes to operational limits associated with PTS acceptance criteria										
Assess the need for PTS rule changes and provide recommendations										
PTS rulemaking										
Public and industry workshops										
ACRS meeting										
ACRS meeting										
ACRS meeting										
ACRS meeting										
Commission meeting										
Commission meeting										

*The first two letters of the activity identifier indicate the relevant strategic arena (RS for reactor safety, MS for materials safety, WS for waste safety). The remaining letters and the first number indicate the Agency performance goal (MS: maintain safety; PC: public confidence; EER: effectiveness, efficiency, and realism; RB: reduce unnecessary regulatory burden) and the particular strategy to which the activity is primarily related. The last number of the activity identifier is unique to the particular activity.

Figure 1
Layout and Format of Activity Descriptions