PRA Update Project – Phase 2
Project Work Plan
Revision 0: July 22, 2002

Project Approvals:

Project Manager: James Masterlark Date: 7/22/2002
James Masterlark

PRA Lead: Date: 7/24/2002
Rick Wood

Engineering Manager: Date: 8/6/02
Norm Hoefert

Engineering Director: Date: 8/7/02
Lori Armstrong

9/10/02

Project Title:

PRA Update Project – Phase 2

Purpose:

The purpose of this project is to update/upgrade the Probabilistic Risk Assessment (PRA) due to physical (modifications) and administrative (operational procedures) changes at Point Beach. Phase 1 of this project updated the most risk significant systems and updated the data analysis. This portion of the project updates the balance of the Fault Trees. Notebooks documenting the PRA model based upon the current configuration of the plant will be developed. Upon the completion of this project, updates to the PRA models and documents will be switched to a real-time basis. This project will also take advantage of the unique capabilities of PRA to review plant design coupled with operational procedures to identify any significant design deficiencies or vulnerabilities.

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Project Background:

The PRA is a probabilistic evaluation of plant design and operation used to provide insights into design configurations and operational methodologies. The PRA and its associated Risk Models is used as a basis for many Risk Informed applications at the site. These applications include:

- On-line risk monitoring using Safety Monitor
- System risk importance rankings for Maintenance Rule
- Risk evaluations of planned modifications
- Evaluation and risk significance for plant transients and /events
- Support of the NRC performance review program
- NRC Approved Risk Informed Programs such as ISI

Since this analysis is used to make risk informed decisions, it is important that the information is kept as close to the actual plant configuration as reasonably possible. In addition, it is important to update the PRA with changes to availability and reliability data which can change over time due to operational methodologies, maintenance practices and aging.

Project Format:

The project is structured so that each system fault tree can be incorporated into the controlled model as completed and reviewed. There are 5 basic steps to complete to update each system model:

FMEA/Drawings: The portion of the update reviews the current plant design through review of drawings, DBD, procedures, operator interviews and walk-downs. From this review a Failure Modes and Effects Analysis is performed and a simplified system drawing showing failure modes is developed.

Fault Tree Development: In this section, the existing fault tree is updated or a new fault tree is created to match the data contained in the FMEA. In addition, basic events are added and/or modified in the BED and Parameter Files.

Notebook: The balance of the notebook is developed. This includes the evaluation for Basic Event Mapping, Indirect Effects and other reviews needed to support Safety Monior. A review of initiator impacts is also reviewed and documented. As part of the project, the FMEA Table and Fault Tree may need to be updated.

Testing/Validation: The fault tree is quantified to verify that it is producing accurate cutsets. The fault tree is then integrated into the top logic model and tested. Finally, a second review of the model and notebook is performed.

Incorporation: The notebook is finished and sent into EDMS. The data from the notebook is used to update other notebooks that may be affected. The data from the notebook will be used to update Safety Monitor data tables. And finally, Safety Monitor will be updated with the revised model.

Deliverables:

The following deliverables will be provided (updated) based upon plant configuration changes, administrative changes, and plant specific operational data which have occurred since 1996.

- Update to the Fault Trees
  - Instrument Air
  - Component Cooling Water
  - Main Feed Water
  - Fuel Oil
  - Charging
  - Fire Protection
  - HVAC
  - RPS
  - ESFAS
  - AMSAC
  - Main Steam
  - Atmospheric Steam Dumps
  - Primary Relief
  - Feed and Bleed (HRA)
  - PORV Re-closure
  - MISC Human Error Events (HRA)
- Update to the affected system PRA Notebooks
- Update to Safety Monitor as each system is completed

Success Indicators:

Project milestones will be used as success indicators for the project. These indicators will measure the success of completing the primary phases of the project in time to provide useful

results to the plant. (See Schedule for Milestones). A monthly update report will be submitted to the PRA Lead and Programs Engineer manager to monitor the status of the project. This update will be submitted within 7 days of the end of the month.

Responsibilities:

- Model Updates, Notebook Updates and Safety Monitor Model updates will be the responsibility of the PRA group with Scientech contracted support. Project Manager will be James Masterlark and the PRA Lead (Rick Wood) will have overall responsibility for budget and PRA resources

Resources:

PRA Group

James Masterlark (Project Lead, System Model Development, Reviewer)
200 hours (2002), 400 hours (2003), 350 hours (2004)

Paul Knoespel (System Model Development, Reviewer – 2.5 hr/week)
100 hours (2002), 200 hours (2003), 150 hours (2004)

Ed Coen (Thermal Hydraulic Evaluations)
50 hours (2002), 100 hours (2003), 50 hours (2004)

George Baldwin (Human Reliability Analysis)
80 hours (2002), 200 hours (2003), 100 hours (2004)

Contractor Support

Contractor support is based on budgeting for 2002 and 2003 and an assumed budget for 2004. Cost is based upon a PRA engineer at $90 per hour + travel at once per month from an engineer familiar with methods. Estimates may be off if a higher cost PRA engineer or training is required.

Scientech – Char Greene (System Model Development - Full Time)
1000 hours (2002), 1100 hours (2003), 900 hours (2004)

Budget:

Contractor support -	$115K (2002), 115K (2003), 100K (2004)
PSA Group -	430 hours (2002), 900 hours (2003), 650 hours (2004)

Schedule:

- Instrument Air (8/31/2002)
- Component Cooling Water (10/31/2002)
- Main Feed Water (12/31/2002)
- Fuel Oil (1/31/2003)
- Charging (3/31/2002)
- Fire Protection (4/30/2003)
- RPS (6/30/30/2003)
- ESFAS (8/31/2003)
- AMSAC (10/31/2003)
- HVAC (2/28/2004)
- Main Steam (3/31/2004)
- Atmospheric Steam Dumps (4/15/2004)
- Primary Relief (4/30/2004)
- Feed and Bleed (HRA) (5/30/2004)
- PORV Re-closure (5/30/2004)
- MISC Human Error Events (HRA) (7/31/2004)