

Nuclear Energy Research Initiative

Cooperative Agreement DE-FC03-99SF21902

TECHNICAL PROGRESS REPORT 4Q99



January 20, 2000

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4Q99

Narrative:

Task 0: Project Management

- A. Task Status: Conference calls were held on an approximately weekly basis during the months of October and November. The purpose of these calls was to ensure all project participants had the opportunity to share ideas on and contribute to the development of detailed plans for risk-informing nuclear plant regulatory and design processes.

The Risk-Informed Project Team decided to advance the start dates for tasks 1.3, 1.4, 1.5, and 1.6 (regulatory and design processes and sample problem) and to delay the start of tasks 1.1 (list of applicable regulations) and 1.2 (list of structures, systems, and components). The purpose of these changes was to place emphasis tasks 1.3 – 1.6. Correspondingly, a revised project milestone chart was prepared and submitted to the Department of Energy.

- B. Issues/Concerns: None.

Task 1: Development of Risk-Informed Methodologies

- A. Task Status: Under task 1.3 (risk-informed regulation) a “next-to-final” draft of the Regulatory Framework document was produced. This document describes a more-restricted application of the defense-in-depth and safety margin concepts which is driven by risk-information rather than engineering judgements on the appropriateness conservatisms. Under task 1.4 (risk-informed design), the concept of a re-generated design process based on basic design principles and risk information was discussed and agreed upon. Only those safety systems and features shown to contribute significantly to safety would be added to the basic equipment required for power production. Under task 1.5 (sample problem selection), a problem involving the re-design of the safety injection system and concomitant impacts on plant cost was proposed. Under task 1.7 (regulatory process revisions) the background of “adequate protection” was described and the project team agreed that this project would not propose a change to the basic approach to adequate protection, nor pursue a quantitative definition of adequate protection.

- B. Issues/Concerns: None.

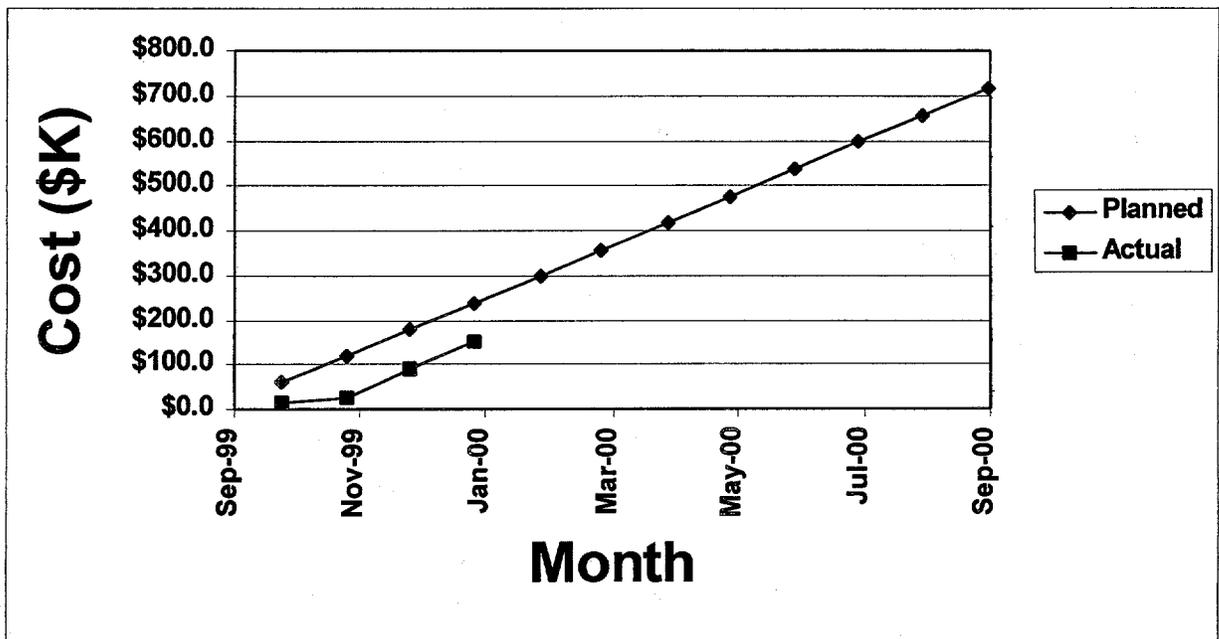
NUCLEAR ENERGY RESEARCH INITIATIVE (NERI) PROGRAM
DE-FC03-99SF21902
TECHNICAL PROGRESS REPORT
4Q99

Task 2: Strengthening the Reliability Database

A. Task Status: No technical action this quarter.

B. Issues/Concerns: None.

Cost Performance:



NUCLEAR ENERGY RESEARCH INITIATIVE (NERI) PROGRAM
DE-FC03-99SF21902
TECHNICAL PROGRESS REPORT
4Q99

Status Summary of NERI Tasks – Phases 1-3:

Phase 1: 8/20/99 – 8/19/00

Milestone/Task Description	Planned Completion Date	Actual Completion Date
Completion of subtask 1.1, identify all applicable regulatory requirements	8/18/00 4/13/01	
Completion of subtask 1.2, identify SSCs and typical costs	8/18/00 4/13/01	
Begin subtask 1.3, develop methodology to risk-inform regulations	See Phase 2	
Begin subtask 1.4, develop methodology to simplify SSCs	See Phase 2	
Begin subtask 1.5, identify high priority requirements and SSCs	See Phase 2	
Begin subtask 1.7, evaluate reg. process	See Phase 3	
Begin subtask 1.8, coordinate activities with industry and NRC	See Phase 3	
Completion of subtask 2.1, identify current data sources	12/30/99	
Begin subtask 2.2, identify weaknesses	See Phase 2	

Phase 2: 8/20/00 – 8/19/01

Milestone/Task Description	Planned Completion Date	Actual Completion Date
Completion of subtask 1.3, develop methodology to risk-inform regulations	8/1/01	
Completion of subtask 1.4, develop methodology to simplify SSCs	8/1/01	
Completion of subtask 1.5, identify high priority requirements and SSCs	8/1/01	
Begin subtask 1.6, apply methodologies	See Phase 3	
Continue subtask 1.7, evaluate regulatory process	See Phase 3	
Continue subtask 1.8, coordinate activities with industry and NRC	See Phase 3	
Completion of subtask 2.2, begin subtask 2.2, identify data weaknesses	8/31/00	
Begin subtask 2.3, develop programs	See Phase 3	

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4Q99**

Phase 3: 8/20/01 – 3/19/02

Milestone/Task Description	Planned Completion Date	Actual Completion Date
Completion of subtask 1.6, apply methodologies to sample SSCs	3/1/02	
Completion of subtask 1.7, evaluate regulatory process	3/19/02	
Completion of subtask 1.8, coordinate activities with industry and NRC	3/19/02	
Completion of subtask 2.3, develop programs to correct weaknesses	3/1/02	

