ATTACHMENT 2[1]

PRA IMPLEMENTATION PLAN ACTIVITY TABLE (July 1999)

1.0 REACTOR REGULATION

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
1.1 STANDARD REVIEW PLANS FOR RISK-INFORMED REGULATION	Develop standard review plans (SRPs) to be used in risk-informed regulatory decisionmaking.	* Evaluate available industry guidance		NRR /RES	
		* Develop broad-scope SRP chapters and a series of application-specific SRP chapters that correspond to industry initiatives			
		* The SRPs will be consistent with the regulatory guides (RGs) developed for the industry			
		* Transmit draft SRPs to the Commission for approval to issue for public comment:			
		General	4/97 C[2]		
		IST	4/97 C		
		ISI	8/97 C		
		TS	4/97 C		
		* Transmit final SRPs to the Commission for approval:			
		General	1/98 C		
		IST	3/98 C		
		ISI	12/99		
		TS	3/98 C		
		Update and revise SRPs:			
		General	6/99		Note 1.1
		IST	8/99		
		GQA	8/99		
		TS	8/99		
		ISI	12/00		

(Section 1 is continued on the next page.)

[1] See Abbreviations Table at the end of this report

[2] C = Task previously completed

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
1.2 PILOT APPLICATIONS FOR RISK-INFORMED REGULATORY INITIATIVES	Evaluate the PRA methodology and develop staff positions on emerging, risk-informed initiatives, including those associated with: 1. Motor-operated valves 2. IST requirements 2a. Comanche Peak 2b. Palo Verde 3. ISI requirements 4. Graded quality assurance (GQA) 5. Maintenance Rule 6. Technical specifications 6a. Commission approval 6b. Pilot amendments Issued 7. Other applications to be identified later (e.g., applications related to diesel generator start times and hydrogen control) 7a. ANO request for relief from the staff position in NUREG-0737 for hydrogen monitoring, on the basis of "Task Zero" of the Risk-Informed, Performance-Based Regulation Pilot Program ("Whole Plant Study") proposed by NEI. 7b.San Onofre request to remove hydrogen recombiners	* Interface with industry groups * Evaluate appropriate documentation (e.g., 10 CFR, SRP, RGs, inspection procedures, and industry codes) to identify elements critical to achieving the intent of existing requirements * Evaluate industry proposals * Evaluate industry pilot program implementation, including completion of vendor/EPRI topical reports. * As appropriate, complete pilot reviews and issue staff findings on regulatory requests	1. 2/96 C 2a. 8/98 C 2b. withdrawn 3. 10/99 4. 1/98 C 5. 9/95 C 6a. 5/97 C 6b. 10/98 C 7a. 9/98 C 7b. 8/99	NRR/RES	Note 1.2a Note 1.2b

(Section 1 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
1.3 INSPECTIONS AND ASSESSMENT	Provide guidance on the use of plant-specific and generic information from individual plant examinations (IPEs) and other plant- specific PRAs.	* Develop IMC 9900 technical guidance on the use of PRAs in the power reactor inspection program	6/97 C	NRR	
		* Revise IMC 2515 Appendix C on the use of PRAs in the power reactor inspection program	7/97 C		
		* Propose guidance options for inspection procedures (IPs) related to 50.59 evaluations and regular maintenance observations	10/97 C		
		* Review core IPs and propose PRA guidance where needed	10/97 C		
		* Complete revision to proposed core IPs except for IP 71007 and 82701.	6/98 C		
		* Issue final GQA IP	7/30/99	NRR	Changed Note 1.3a
		* Develop, Test & Implement programs for incorporating risk principles into inspection program that are linked with risk-informed improvements in Licensee Performance Assessment and Enforcement in accordance with revised Oversight Process described in SECY-99-007 and 99-007A.	4/00	NRR	Note 1.3b
		* Review IPEEE insights report and extract guidance for inspectors	12/00	NRR	
		* Identify inspector functions that should utilize PRA methods, as input to AEOD/TTD for their development and refinement of PRA training for inspectors	7/96 C	NRR	
		* Develop consolidated and comprehensive 2—3 week PRA for regulatory applications training course	10/97 C	NRR/HR	
		* Conduct training for Maintenance Rule baseline inspections	8/96 C	NRR	
		* Conduct training courses according to SRA training programs	2/99 C	HR	
		* Develop rotational assignments for SRAs to gain working PRA experience	2/99 C	NRR/RES	

(Section 1 is continued on the next page.)

Regulatory Activity		Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
1.3	INSPECTIONS AND ASSESSMENT (cont)		* Refine SDP process based on findings * Develop risk-informed approach to event- following activities	4/00 10/99		
1.4	OPERATOR LICENSING	Monitor insights from human reliability analyses (HRAs) of PRAs (including IPEs and individual plant examinations, external events (IPEEEs)) and operating experience to identify possible enhancements for inclusion in planned revisions to guidance for operator licensing activities (initial and requalification).	* Revise the Knowledge and Abilities Catalogs (NUREGs-1122 and 1123) to incorporate operating experience and risk insights * Revise the Examiner Standards (NUREG-1021), as needed to reflect PRA insights	8/95 C 3/97 C	NRR	
1.5	EVENT ASSESSMENT	Continue to conduct quantitative event assessments of reactor events while at power and during low- power and shutdown conditions. Assess the desirability and feasibility of conducting quantitative risk assessments on non-power reactor events.	* Continue to evaluate 50.72 events using accident sequence precursor (ASP) models * Define the current use of risk analysis methods and insights in current event assessments * Assess the feasibility of developing appropriate risk-assessment models * Develop recommendations on the feasibility and desirability of conducting quantitative risk assessments	Ongoing TBD	NRR	
1.6	USE OF PRA IN RESOLUTION OF GENERIC SAFETY ISSUES	Audit the adequacy of licensee analyses in IPEs and IPEEEs to identify plant-specific applicability of generic safety issues closed out based on IPE and IPEEE programs.			NRR/RES	Now tracked as part of item 1.10
1.7	REGULATORY EFFECTIVENESS EVALUATION	Assess the effectiveness of major safety issue resolution efforts for reducing risk to public health and safety.			RES/NRR	It is tracked now as item 2.11

(Section 1 is continued on the next page.)

Regulatory Activity		Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
1.8	ADVANCED REACTOR REVIEWS	Continue staff reviews of PRAs for design-certification applications. Develop independent technical analyses and criteria for evaluating industry initiatives and petitions regarding simplification of emergency preparedness (EP) regulations.	* Continue to apply current staff review process * Reevaluate risk-based aspects of the technical bases for EP (NUREG-0396) using insights from NUREG-1150, the new source term information from NUREG-1465, and available plant design and PRA information for the passive and evolutionary reactor designs	9/98 C 12/96 C	NRR NRR/RES	
1.9	ACCIDENT MANAGEMENT	Develop generic and plant-specific risk insights to support staff audits of utility accident management (A/M) programs at selected plants.	* Develop plant-specific A/M insights/information for selected plants to serve as a basis for assessing completeness of utility A/M program elements (e.g., severe-accident training)	TBD	NRR/RES	
1.10	IPE FOLLOW-UP ACTIVITIES	Evaluate specific improvements and analyses proposed as basis for resolution of generic safety issues at specific plants. Use results from the staff review of IPEs to identify potential safety issues and determine an appropriate course of action to address these potential issues.	* Evaluate analyses of issues requested in Generic Letter 88-20 * Evaluate unsolicited analyses of selected voluntary generic issues (GSI23) submitted by licensees. * Recommendations to Commission regarding follow up on accident management programs and licensee-stated actions. * Define use for information, clarify “regulatory use,” and assess the most effective methods for data collection.	5/99 12/99 deferred 5/98 C	RES NRR NRR/ regions NRR/ regions	Changed Note 1.10
1.11	RISK INFORMED REVISIONS TO PART 50	Implement Option 2 to SECY-98-300 as directed by the Commission’s SRM.	Develop a preliminary plan to implement risk informed modifications to 10 CFR PART 50 related to special treatment of SCCs.	10/99	NRR	New Note 1.11

(Section 1 is continued on the next page.)

Notes for Section 1

Note Number	Note
1.1	Memo of 6/30/99 from EDO to Commission describes process for RG and SRP updates.
1.2a	Completion date revised to reflect EPRI Topical as final ISI Pilot activity.
1.2b	SER issued 6/30/99. Exemption to be issued 8/99.
1.3a	The Inspection Plan has been revised following CRGR guidance and has been resubmitted for final CRGR consideration.
1.3b	Implementation date for revised oversight process changed per SRM 98-007A.
1.10	Work on IPE follow up has been deferred in order to refine the program's objectives and approach. The staff is currently exploring the options for IPE insights follow up with industry that will be complementary with the Part 50 risk informed process. Details of this approach will be factored into the PIP when finalized.
1.11	Responds to SRM on SECY 98-300.

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
2.1 REGULATORY GUIDES	Develop RGs to provide a basis for the industry to use in risk-informed regulation.	* Transmit draft PRA RGs to the Commission for approval to issue for public comment: General IST ISI GQA TS * Transmit final PRA RGs to the Commission for approval: General IST ISI GQA TS Update and revise PRA RGs: General IST GQA TS ISI	 C C C C C 1/98 C 3/98 C 12/99 3/98 C 3/98 C 6/99 8/99 8/99 8/99 12/00	RES/NRR	 Completed
2.2 TECHNICAL SUPPORT	Provide technical support to NRC staff using risk assessment in risk-based regulation activities and technical reviews; issue risk assessments and statistical analyses; and develop guidance for agency uses of risk assessment.	* Continue to provide ad hoc technical support to agency PRA users * Expand the use of PRA models available; expand the scope of available models to include external, low-power, and shutdown events; refine the tools needed to use these models; and continue maintenance and user support for SAPHIRE and MACCS computer codes * Support agency efforts in reactor safety improvements in former Soviet Union countries * Load plant-specific PRAs in SAPHIRE to support various risk-informed regulatory activities, e.g., pilot applications, resolution of generic issues, and Maintenance Rule inspections.	Continuing Continuing Continuing Ongoing	RES	
2.3 SUPPORT FOR NRR STANDARD REACTOR PRA REVIEW					Subsumed by Section 1.8, “Advanced Reactor Reviews”

(Section 2 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
2.4 METHODS DEVELOPMENT AND DEMONSTRATION	Develop, demonstrate, maintain, and ensure the quality of methods for performing, reviewing, and using PRAs and related techniques for existing reactor designs.	* Final report on development and demonstration of methods for incorporating aging effects into PRAs.	9/99	RES	See Note 2.4.
		* Develop and demonstrate methods for incorporating human errors of commission in PRAs.	9/98 C		
		* Conduct application of ATHENA for fire risk assessment	7/99		Completed
		* Develop improved methods and data for assessing performance of fire detection and suppression	9/00		
		* Develop improved methods and data for assessing likelihood of fire-induced circuit failures	9/99		
		* Identify and prioritize key areas to improve fire risk analysis	9/98 **C**		
		* Develop and demonstrate methods for assessing reliability/risk of digital systems	9/00		
		* Develop integrated framework for addressing model and parametric uncertainty	11/99		
		* Develop and present fire risk assessment research program plan	6/99		Completed
2.5 IPE AND IPEEE REVIEWS	Evaluate IPE/IPEEE submittals to obtain reasonable assurance that the licensees have adequately analyzed plant design and operations to discover vulnerabilities; and document significant safety insights resulting from IPE/IPEEEs.	* Complete the reviews of the three outstanding IPE submittals: Susquehanna Crystal River SER for Browns Ferry 3	 6/98 C 6/98 C 6/98 C	RES	
		* Revised SER for Browns Ferry3	5/99		Completed
		* Continue regional IPE presentations.	12/97 C		
		* Issue IPE insights report for public comment.	10/96 C		
		* Issue final IPE insights report	12/97 C		
		* Issue preliminary IPEEE insights report	1/98 C		
		* Initiate review of eight additional IPEEE submittals	6/98 C		
		* Complete contractor evaluations of twelve IPEEE submittals.	6/98 C		
		* Complete reviews of IPEEE submittals.	4/00		
		* Issue draft IPEEE insights report for comment	7/00		
		* Issue final IPEEE insights report	1/01		

(Section 2 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
2.6 GENERIC SAFETY ISSUES PROGRAM	Conduct generic safety issue management activities, including prioritization, resolution, and documentation, for issues relating to currently operating reactors, for advanced reactors as appropriate, and for development or revision of associated regulatory and standards instruments.	* Continue to prioritize and resolve generic safety issues	Continuing	RES	See Note 2.6
2.7 NEI INITIATIVE TO CONDUCT "WHOLE PLANT" RISK STUDY	Review NEI initiative to conduct three pilot "whole plant" risk-informed studies of requirements vs. risk and cost.	* Agree on ground rules for study * Complete study	TBD TBD	RES/NRR	Note 2.7
2.8 PRA STANDARDS DEVELOPMENT	Work with industry to develop national consensus standard for PRA scope and quality.	* Initiate Phase 1 activity (ASME) * Issue initial ASME draft standard * Issue ASME draft standard for select public comment * Finalize Phase 1 standard (ASME) * Initiate Phase 2 effort (ANS) * Issue initial ANS draft standard - LPSD - Seismic	9/97 C 7/98 C 1/99 C 12/99 5/99 C TBD	RES	 Note 2.8a Completed Note 2.8b
2.9 LOW POWER AND SHUTDOWN (LPSD) BENCHMARK RISK STUDY	Collect studies of LPSD risk as a benchmark for assessing the need for further staff activities.	* Collect and review existing LPSD risk information (domestic and foreign) to develop perspectives with respect to the need for revising of RG 1.174 and performing additional work * Initiate additional work, as necessary, based on developed plan	12/99 1/00	RES	Note 2.9
2.10 SAFETY GOAL REVISION	Assess need to revise Commission's Safety Goal to make core damage frequency a fundamental goal and make other changes.	* Initiate discussion with ACRS * Make recommendation to Commission * Provide information paper * Provide final recommendations	2/98 C 4/98 C 7/99 3/00	RES	 Completed Note 2.10

(Section 2 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
2.11 REGULATORY EFFECTIVENESS EVALUATION	Assess the effectiveness of major safety issue resolution efforts for reducing risk to public health and safety.	* Evaluate the effectiveness of station blackout rule and issue a preliminary report	9/99	RES/NRR	
		* Evaluate resulting effectiveness of ATWS rule and resolution of USI A-45	9/00	RES	
		* Use lessons learned to develop process/guidance on assessing the effectiveness of major rules	9/01		
2.12 REVIEW OF AGENCY PROGRAMS AND PROCESSES	Perform a broad review of the agency's process to search for opportunities to make these activities more risk informed	* Identify options for modifying Part 50 to be risk-informed (SECY 98-300)	12/98C	RES/NRR	
		* Identify options for incorporating risk insights into the 10 CFR 50.59 process	12/98C		
		* Provide recommendations on Part 50 risk-modification study plan (Option 3)	10/99		New item- Note 2.12
		* PRA Steering Committee	Ongoing		
2.13 RISK-BASED TRENDS AND PATTERNS ANALYSIS	Use reactor operating experience data to assess the trends and patterns in equipment, systems, initiating events, human performance, and important accident sequence.	* Trend performance of risk-important components	3/00	RES	
		* Trend performance of risk-important systems	5/00		
		* Trend frequency of risk-important initiating events	7/98 C		
		* Trend human performance for reliability characteristics	TBD		
	Evaluate the effectiveness of licensee actions taken to resolve risk-significant safety issues.	* Trend reactor operating experience associated with specific safety issues and assess risk implications as a measure of safety performance	As needed		
	Develop trending methods and special databases for use in AEOD trending activities and for PRA applications in other NRC offices.	* Develop standard trending and statistical analysis procedures for identified areas for reliability and statistical applications	C		
		* Develop special software and databases (e.g., common-cause failure) for use in trending analyses and PRA studies	C (Periodic updates)		

(Section 2 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office	Status (this quarter)
2.14 ACCIDENT SEQUENCE PRECURSOR (ASP) PROGRAM	Identify and rank risk significance of operational events.	* Screen and analyze LERs, AITs, IITs, and events identified from other sources to obtain ASP events	Ongoing	RES	
		* Perform licensee and NRC staff peer review of each ASP analyses	Annual report, Ongoing	RES	
		* Complete quality assurance of Revision 2 of the simplified plant-specific models	C	RES	
		* Complete feasibility study for low-power and shutdown models	C	RES	
		* Complete initial containment performance and consequence models.	C	RES	
		* Complete initial development of the LERF models	10/99	RES	
		* Complete Revision 3 of the Level 1 simplified plant-specific models	TBD	RES	
		***** Complete LERF prototype review and checkout process	9/00	RES	
		* Complete external event models for fire and earthquake	TBD	RES	
		* Complete low-power and shut down models	TBD	RES	
	Provide supplemental information on plant-specific performance.	* Share ASP analyses and insights with other NRC offices and regions	Annual report	RES	

(Section 2 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office	Status (this quarter)
2.15 INDUSTRY RISK TRENDS	Provide a measure of industry risk that is as complete as possible to determine whether risk is increasing, decreasing, or remaining constant over time.	* Develop program plan to integrate NRR, RES, and AEOD activities using design and operating experience to assess the implied level of risk and how it is changing * Implement program plan elements to include plant-specific models and insights from IPEs, component and system reliability data, and other risk-important design and operational data in an integrated framework to periodically evaluate industry trends	C 1/01	RES	
2.16 RISK-BASED PERFORMANCE INDICATORS	Establish a comprehensive set of performance indicators and supplementary performance measures which are more closely related to risk and provide both early indication and confirmation of plant performance problems.	* Identify new or improved risk-based PIs which use component and system reliability models and human and organizational performance evaluation methods * Brief ACRS and Commission. Publish candidate RBPIs for NRC and public comment . * Brief ACRS and Commission on RBPIs and request implementation approval.	C 2/00 10/00	RES	Note 2.16

(Section 2 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office	Status (this quarter)
2.17 OPERATING EXPERIENCE DATA	Compile operating experience information in database systems suitable for quantitative reliability and risk analysis applications. Information should be scrutable to the source at the event level to the extent practical and be sufficient for estimating reliability and availability parameters for NRC applications.	* Manage and maintain SCSS and the PI data base, provide oversight and access to NPRDS/EPIX, obtain INPO's SSPI, compile IPE failure data, collect plant-specific reliability and availability data	Ongoing	RES	
		* Develop, manage, and maintain agency databases for reliability/availability data (equipment performance, initiating events, CCF, ASP, and human performance data)	Ongoing		
		* Determine need to revise LER rule to eliminate unnecessary and less safety-significant reporting	6/98 C		
		* Determine need to revise reporting rules and to better capture ASP, CCF, and human performance events	6/98 C		
		* Publish revised LER rule	2/00		
		* Develop database to collect reliability and availability data (RADS)	4/00		

Notes for Section 2

Note Number	Note
2.4	Draft report has been completed and is internal staff review.
2.6	During this period, Generic Issues B-61 (Allowable ECCS Equipment Outage Periods) and GI-165 (Spring Actuated Safety and Relief Valves) were resolved with no new requirements identified. Generic Issue 107 (Main Transformer Failure) was re-prioritized and dropped from the list of outstanding safety issues based on staff re-examination of its risk significance.
2.7	The staff has subsumed its interactions with NEI on the “whole plant study” into the recommended approach to risk-inform 10 CFR 50 as discussed in SECY-98-300
2.8a	ASME standard (Phase 1) covers internal events only (excluding fire) at full-power, a level 1 and a limited Level 2 PRA.
2.8b	ANS has Phase 2 which includes a PRA for low power shutdown conditions and seismic events.
2.9	Work delayed due to higher priority work as described in the staff’s response to the Chairman’s Tasking Memorandum (CTM)
2.10	This task has been delayed because of the need to ensure that any proposed modifications to the Safety Goal Policy statement will be consistent with Commission directives on risk-informing 10 CFR 50 (SECY 98-300), on-going activities related to the oversight program and to provide for extensive coordination with ACRS/ACNW and other stakeholders.
2.12	Responds to SRM on SECY 98-300.
2.16	Deadlines have been extended due to the determination during the initial development phase that identification of appropriate indicators and threshold was more complicated than originally planned. The final target schedule will not be affected.

3.0 STAFF TRAINING

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office	Status (this quarter)
3.0 STAFF TRAINING	Present PRA curriculum as presently scheduled for FY 1998.	* Continue current contracts to present courses as scheduled	Ongoing	HR	
		* Maintain current reactor technology courses that include PRA insights and applications	Ongoing		
		* Improve courses via feedback	Ongoing		
		* Review current PRA course material to ensure consistency with Appendix C	C		

(Section 3 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office	Status (this quarter)
3.0 STAFF TRAINING (continued)	Develop and present Appendix C training courses.	* Prepare course material based on Appendix C	C	HR	
		* Present courses on Appendix C	C		
	Determine staff requirements for training, including analysis of knowledge and skills, needed by the NRC staff.	* Review JTAs performed to date	C	HR	
		* Perform representative JTAs for staff positions (JTA Pilot Program)	C		
		* Evaluate staff training requirements as identified in the PRA Implementation Plan and the Technical Training Needs Survey (Phase 2) and incorporate them into the training requirements analysis	C		
		* Analyze the results of the JTA Pilot Program and determine requirements for additional JTAs	C		
		* Complete JTAs for other staff positions as needed	C		
		* Solicit a review of the proposed training requirements	C		
		* Finalize the requirements	C	HR	
	Revise current PRA curriculum and develop new training program to fulfill identified staff needs.	* Prepare new courses to meet identified needs	Ongoing		
		* Revise current PRA courses to meet identified needs	Ongoing		
		* Revise current and new PRA course to include RG and SRP information	9/97 C		
		* Revise current reactor technology courses as necessary to include additional PRA insights and applications	Ongoing		
	Present revised PRA training curriculum.	* Establish contracts for presentation of new PRA curriculum	Ongoing	HR	
		* Present revised reactor technology courses	Ongoing		
		* Improve courses based on feedback	Ongoing		

4.0 NUCLEAR MATERIALS AND LOW-LEVEL WASTE SAFETY AND SAFEGUARDS REGULATION

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
4.1 VALIDATE RISK ANALYSIS METHODOLOGY DEVELOPED TO ASSESS MOST LIKELY FAILURE MODES AND HUMAN PERFORMANCE IN THE USE OF INDUSTRIAL AND MEDICAL RADIATION DEVICES	Validate risk analysis methodology developed to assess the relative profile of most likely contributors to misadministration for the gamma stereotactic device (gamma knife).	* Hold a workshop consisting of experts in PRA and HRA to examine existing work and to make recommendations for further methodological development * Examine the use of Monte Carlo simulation and its application to relative risk profiling * Examine the use of expert judgement in developing error rates and consequence measures	8/94 C 9/95 C 9/95 C	NMSS	
	Continue the development of the relative risk methodology, with the addition of event tree modeling of the brachytherapy remote after loader.	* Develop functionally based generic event trees	TBD	RES/ NMSS	
	Extend the application of the methodology and its further development into additional devices, including teletherapy and the pulsed high dose rate after loader.	* Develop generic risk approaches	TBD	RES/ NMSS	
4.2 CONTINUE USE OF RISK ASSESSMENT OF ALLOWABLE RADIATION RELEASES AND DOSES ASSOCIATED WITH LOW-LEVEL RADIOACTIVE WASTE AND RESIDUAL ACTIVITY.	Develop decision criteria to support regulatory decision-making that incorporates both deterministic and risk-based engineering judgment.	* Conduct enhanced participatory rulemaking to establish radiological criteria for decommissioning nuclear sites; technical support for rulemaking, including comprehensive risk-based assessment of residual contamination * Develop guidance for implementing the radiological criteria for license termination * Work with DOE and EPA to the extent practicable to develop common approaches, assumptions, and models for evaluating risks and alternative remediation methodologies (risk harmonization)	8/94 C Final rule published 7/97 C 3/98 C Ongoing	RES/NMSS	
4.3 DEVELOP GUIDANCE FOR THE REVIEW OF RISK ASSOCIATED WITH WASTE REPOSITORIES.	Develop a branch technical position on conducting a performance assessment of an LLW disposal facility.	* Solicit public comments * Publish final Branch Technical Position	5/97 C 9/00	NMSS/RES	

(Section 4 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
4.4 ASSESS RISK ASSESSMENT OF MATERIAL USES.	Develop and demonstrate a risk assessment for industrial gauges containing cesium-137 and cobalt-60 using PRA and other related techniques. The assessment should allow for modification based on changes in regulatory requirements. Use empirical data as much as practicable.	* Develop and demonstrate methods for determining the risk associated with industrial gauges containing cesium-137 and cobalt-60 * Issue final report as a NUREG	9/98 C 9/99	RES	Changed (Note 4.4a)
	Develop and demonstrate risk assessment methods for application to medical and industrial licensee activities.	* Through working group with contractor assistance, identify and document a technical basis for a risk-informed approach to the regulation of nuclear byproduct material, and develop plans for a graded approach to nuclear byproduct material regulation based on risk information • Publish draft risk report and associated documents for comment. • Provide final report to the Commission	3/99 7/99 1/00	NMSS	Completed (Note 4.4b) Note 4.4c Note 4.4c
4.5 USE OF PRA IN REGULATING NUCLEAR MATERIALS	Develop and implement a framework for applying PRA to nuclear material uses, similar to the one developed for reactor regulation (SECY-95-280), where appropriate.	* Provide plan for developing framework * Complete scoping effort • Complete framework • Establish milestones for implementation of the framework.	6/98 C 3/99 3/99 C 9/99	NMSS	Note 4.5a Note 4.5b
4.6 RISK-INFORMED REGULATION OF FUEL CYCLE FACILITIES	Revise 10 CFR Part 70 to be risk-informed and performance-based	• Revise current regulation to place emphasis on major accidents and on an integrated safety analysis approach using appropriate risk insights • Develop broad-scope SRP Chapters corresponding to regulated safety discipline areas • Establish an outreach program effectively using internet tools to interface with industry and interested stakeholders • Transmit draft rule and SRP to the Commission for approval to issue for public comment • Transmit final rule and SRP to the Commission for approval	6/99 6/99 Ongoing 6/99 5/00	NMSS	Note 4.6 Complete Complete Complete

(Section 4 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
4.7 FUEL CYCLE SAFETY INSPECTION PROGRAM REVISION	Optimize regulatory burden on both the NRC and its licensees with respect to safety inspection activities while ensuring safe operations	Establish a management task force to develop the framework for a safety inspection program optimizing on plant performance indicators, risk insights, and third party inspections	4/99	NMSS & Regions	Note 4.7 Complete
		• Establish a procedure writing task force to revise current inspection procedures using the new indicators	9/99		
		• Establish an outreach program to interface with industry and interested stakeholders	8/99		
		• Develop a new set of NRC Inspection Manual Chapters	1/00		
		• Develop and complete inspector training	4/00		
		• Implement pilot program for revised fuel cycle safety inspection program	3rd QTR FY00		
		• Incorporate 10 CFR Part 70 risk insights when available and revise program as necessary	9/01		
4.8 PILOT REGULATORY INITIATIVES FOR FUEL CYCLE FACILITIES	Evaluate opportunities for reducing regulatory burden while ensuring equivalent safety	Develop a pilot program for alternate disposition of SLIV violations at the GDPs and fuel cycle facilities with approved corrective action programs	8/99	NMSS & OE	Note 4.8
		• Train inspectors to the new initiative and implement activity	10/99		
		• Evaluate effectiveness of pilot program	8/01		
4.9 PILOT REGULATORY INITIATIVES FOR MEDICAL LICENSEES	Evaluate opportunities for reducing regulatory burden while ensuring equivalent safety	Develop a pilot program with performance indicators focused on safety-related outcomes	8/99	NMSS/OE	Note 4.9
		• Train inspectors on initiative	10/99		
		• Evaluate effectiveness of pilot program	12/00		

(Section 4 is continued on the next page.)

Notes for Section 4

Note Number	Note
4.4a	NMSS completed review of the draft NUREG in January 1999. Comment resolution has been more resource intensive than was originally anticipated; scheduled publication is now September, 1999.
4.4b	SECY-99-062 transmitted the draft working group report to the Commission on March 1, 1999. The schedule for SECY-99-062 was extended to allow coordination with SECY-99-100 which was prepared as part of Regulatory Activity 4.5.
4.4c	New item.
4.5a	In March, 1999, the staff completed its scoping effort. In SECY-99-100, the staff reported the results of this effort and proposed a framework and an approach for its implementation to the Commission. The Commission approved the framework and the staff's proposed implementation approach in its SRM of June 28, 1999.
4.5b	In SECY-99-100, the staff proposed to track progress toward implementation of the framework in the PRA Implementation Plan. Under this new item, the staff will develop milestones for implementation (based on Attachment 4 to SECY-99-100) to be included in the next quarterly update.
4.6	New item.
4.7	New item.
4.8	New item
4.9	New item.

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
5.1 REGULATION OF HIGH-LEVEL WASTE	Develop guidance for the NRC and CNWRA staffs in the use of performance assessment (PA) to evaluate the safety of HLW programs.	* Assist the staff in pre-licensing activities and in license application reviews * Develop a technical assessment capability in total- system and subsystem PA for use in licensing and pre-licensing reviews * Combine specialized technical disciplines (earth sciences and engineering) with those of system modelers to improve methodology	Ongoing	NMSS	
	Identify significant events, processes, and parameters affecting total system performance.	* Perform sensitivity studies of key technical issues using iterative PA (IPA)	Ongoing	NMSS	
	Use PA and PSA methods, results, and insights to evaluate proposed changes to regulations governing the potential repository at Yucca Mountain.	* Assist the staff in maintaining and refining the regulatory structure in HLW disposal regulations that pertain to PA * Apply IPA analyses to advise EPA in its development of a Yucca Mountain regulation * Apply IPA analyses to develop a site-specific regulation for a Yucca Mountain site	Ongoing	NMSS	Note 5.1(a)
	Continue PA activities during interactions with DOE during the pre-licensing phase of repository development, site characterization, and repository design.	* Provide guidance to the DOE on site characterization requirements, ongoing design work, and licensing issues important to the DOE's development of a complete and high-quality license application * Compare results of NRC's iterative performance assessment to DOE's Viability Assessment (VA) to identify major differences/issues	Ongoing	NMSS	Note 5.1(b)
5.2 PRA APPLICATION TO SPENT FUEL STORAGE FACILITIES	Demonstrate methods for PRA of spent fuel storage facilities.	* Prepare user needs letter to RES * Conduct ISA of VSC-24 dry-cask storage system using proabilistic methods • Conduct PRA for dry cask storage	4/97 C 7/99 C Ongoing	RES/NMSS	 Note 5.2a Note 5.2b

(Section 5 is continued on the next page.)

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
5.3 CONTINUAL USE OF RISK ASSESSMENT IN SUPPORT OF RADIOACTIVE MATERIAL TRANSPORTATION	Use PRA methods, results, and insights to evaluate regulations governing the transportation of radioactive material.	* Update the database on transportation of radioactive materials for future applications	6/01	NMSS	
		* Revalidate the results of NUREG-0170 for spent fuel shipment risk estimates	12/99		
		• Update NUREG/CR-4824 (Modal Study)	12/04		Note 5.3

Notes for Section 5

Note Number	Note
5.1a	Proposed regulations for deep geologic disposal at Yucca Mountain were issued for comment in February, 1999. The staff has held public outreach meetings in Nevada. At the close of the comment period on June 30, 1999, 91 commentors had provided approximately 1,000 comments.
5.1b	DOE provided the viability assessment for NRC review in 12/98. The staff completed its review and reported its findings to the Commission in SECY-99-074 on March 11,1999.
5.2a	The ISA of the VSC-24 dry cask storage system has been forwarded to RES to be used as background information in the development of the dry cask storage PRA.
5.2b	In July, 1999 RES initiated a PRA and will use the Holtec Hi-Storm cask design as the basis for the analysis. RES will perform the analysis with in-house staff in coordination with NMSS/SFPO.
5.3	New item.

6.0 REACTOR ENFORCEMENT

Regulatory Activity	Objectives	Methods	Target Schedule	Lead Office(s)	Status (this quarter)
6.1 CONSIDERATION OF RISK IN THE ENFORCEMENT PROCESS	Ensure the consistent Application of the Enforcement Policy in the Area of Risk Informed Enforcement Actions.	* Prepare an enforcement guidance memorandum (EGM) * Update the Enforcement Manual to reflect the guidance developed in the EGM	6/ 97 C 8/98 C	OE OE	
6.2 RISK INSIGHTS DURING WEEKLY ENFORCEMENT PANELS	Ensure risk-informed decisions are made in developing enforcement actions.	* Include regional senior reactor analyst evaluation on paneled enforcement cases when warranted	Ongoing	OE	
6.3 CHANGE THE ENFORCEMENT POLICY SUPPLEMENTS TO INCLUDE ADDITIONAL EXAMPLES OF HOW RISK SHOULD INFLUENCE SEVERITY LEVEL	Provide the staff with more useful guidance for determining the Severity Level of Violations.	* Interface with NRR (SPSB) to consider additional examples for the policy supplements	deleted per SRM 6/15/99	OE	

ABWR	advanced boiling-water reactor
AEOD	Office for Analysis and Evaluation of Operational Data
ACRS	Advisory Committee on Reactor Safeguards
AFW	auxiliary feedwater
AIT	augmented inspection team
ANO	Arkansas Nuclear One
AOT	allowed outage time
A/M	accident management
APS	Arizona Public Service
ASME	American Society of Mechanical Engineers
ASP	accident sequence precursor
ATWS	anticipated transient without scram
BF3	Browns Ferry Unit 3
C	completed
COL	combined construction and operating license
CCF	common-cause failures
CFR	*Code of Federal Regulations*
CRGR	Committee to Review Generic Requirements
CY	calendar year
CNWRA	Center for Nuclear Waste Regulatory Activities
DOE	Department of Energy
EDG	emergency diesel generator
EGM	Enforcement Guidance Memorandum
EP	emergency preparedness
EPA	Environmental Protection Agency
EPIX	Equipment Performance and Information Exchange
FY	fiscal year
HLW	high-level waste
HRA	human reliability analysis
GSI	generic safety issue
GQA	graded quality assurance
JTA	job task analysis
IE	initiating event
IMC	inspection manual chapter
INPO	Institute of Nuclear Power Operations
IP	inspection procedure
IPA	iterative performance assessment
IPE	individual plant examination
IPEEE	individual plant examination, external events
IIT	incident inspection team
IST	inservice testing
ISI	inservice inspection
LAN	local area network
LER	licensee event report
LOSP	loss of offsite power
LLW	low-level waste
LP&S	low power and shutdown
MACCS	MELCOR Accident Consequence Code System
MR	Maintenance Rule
NEI	Nuclear Energy Institute
NOED	notice of enforcement discretion
NPRDS	nuclear plant reliability data system
NRR	Office of Nuclear Reactor Regulation
NMSS	Office of Nuclear Material Safety and Safeguards
OCIO	Office of the Chief Information Officer
OE	Office of Enforcement
OGC	Office of the General Counsel
PA	performance assessment
PI	performance indicator
PIP	PRA Implementation Plan
PIPB	Inspection Program Branch, NRR
PM	project manager
PRA	probabilistic risk assessment
RAI	request for additional information
RCP	reactor coolant pump
RES	Office of Nuclear Regulatory Research
RG	regulatory guide
SAMG	severe-accident management guidance
SAPHIRE	Systems Analysis Programs for Hands -on Integrated Reliability Evaluations
SBO	station blackout
SECY	Office of Secretary of the Commission
SER	safety evaluation report

SGTR	steam generator tuber rupture
SONGS	San Onofre Nuclear Generating Station
SPSB	Probabilistic Safety Assessment Branch
SCSS	sequence coding and search system
SRP	standard review plan
SRA	senior reactor analysts
SRM	staff requirements memorandum
SSPI	Safety System Performance Indicator
TBD	to be determined
TTD	Technical Training Division
TS	technical specifications
TU	Texas Utilities
FY	Fiscal Year
VA	viability assessment