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Vol. 6, No. 4
November 16, 1984

UNRESOLVED SAFETY ISSUES SUMMARY

AQUA BOOK

UNITED STATES NUCLEAR REGULATORY COMMISSION



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OFFICE OF NUCLEAR REACTOR REGULATION
U. S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555



FOREWORD

THE UNRESOLVED SAFETY ISSUES SUMMARY IS DESIGNED TO PROVIDE THE MANAGEMENT OF THE NUCLEAR REGULATORY COMMISSION WITH A QUARTERLY OVERVIEW OF THE PROGRESS AND PLANS FOR COMPLETION OF GENERIC TASKS ADDRESSING UNRESOLVED SAFETY ISSUES REPORTED TO CONGRESS PURSUANT TO SECTION 210 OF THE ENERGY REORGANIZATION ACT OF 1974 AS AMENDED. THIS SUMMARY UTILIZES DATA COLLECTED FROM THE OFFICE OF NUCLEAR REACTOR REGULATION, OFFICE OF NUCLEAR REGULATORY RESEARCH, AND THE NATIONAL LABORATORIES AND IS PREPARED BY THE OFFICE OF NUCLEAR REACTOR REGULATION.

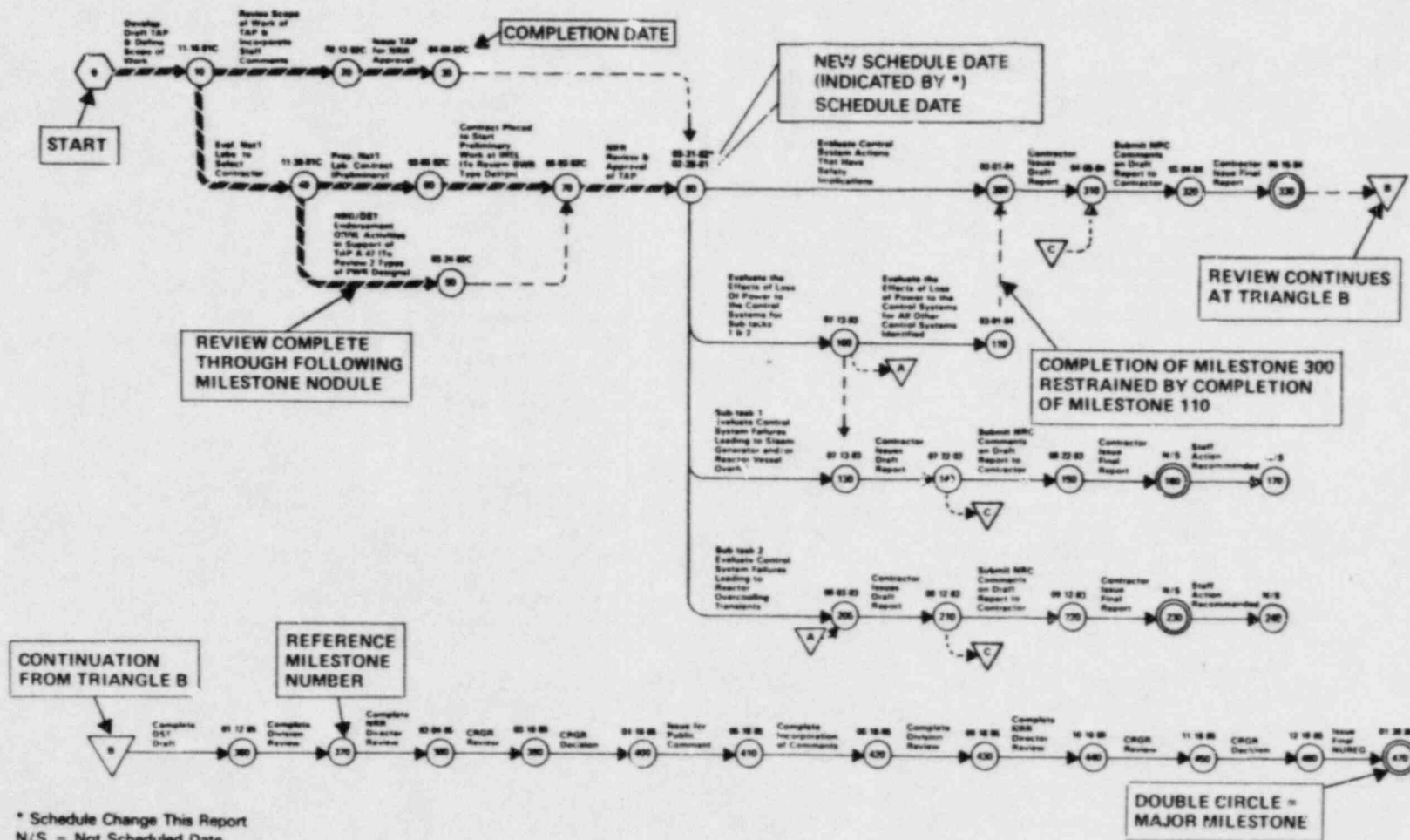
THE DEFINITION OF WHAT CONSTITUTES COMPLETION OF AN UNRESOLVED SAFETY ISSUE (USI) INCLUDES THE IMPLEMENTATION OF THE TECHNICAL RESOLUTION. THIS IS IN ACKNOWLEDGEMENT OF THE FACT THAT REAL SAFETY BENEFITS OCCUR ONLY AFTER THE IMPLEMENTATION HAS TAKEN PLACE. IMPORTANT ELEMENTS OF THIS IMPLEMENTATION PHASE ARE:

- (1) THE PROVISION OF A PUBLIC COMMENT PERIOD FOLLOWING THE ISSUANCE OF A DRAFT NUREG REPORT INCORPORATING THE STAFF'S TECHNICAL RESOLUTION FOLLOWED BY A DISCUSSION AND DISPOSITION OF THE COMMENTS RECEIVED IN A FINAL NUREG REPORT.
- (2) THE PROVISION FOR INCORPORATION OF THE TECHNICAL RESOLUTION INTO THE NRC'S REGULATIONS, STANDARD REVIEW PLAN, REGULATORY GUIDES, OR OTHER NRC OFFICIAL GUIDANCE OR REQUIREMENTS, AS APPROPRIATE.
- (3) THE PROVISION FOR APPLICATION OF THE TECHNICAL RESOLUTION TO INDIVIDUAL OPERATING PLANTS IN THE FORM OF REGULATORY OR DESIGN CHANGES, TECHNICAL SPECIFICATION CHANGE, AND/OR CHANGE TO OPERATING PROCEDURES AND TRAINING, AS APPROPRIATE.

THE MILESTONE CHARTS FOR EACH USI SHOW THE CURRENT SCHEDULE AS OF THE DATE OF PUBLICATION. IF A MILESTONE DATE HAS CHANGED SINCE THE LAST REPORT, THE OLD DATE WILL BE SHOWN WITH THE NEW DATE IMMEDIATELY ABOVE IT. THE NEW DATE WILL BE MARKED WITH AN ASTERISK WITH A FOOTNOTE INDICATING THAT A SCHEDULE CHANGE HAS BEEN MADE. THE PROGRAM STATUS TABLE WHICH BEGINS ON PAGE 3 OF THIS NUREG SHOWS THE COMPLETION DATE STATED IN THE LATEST APPROVED TASK ACTION PLAN AND THE CURRENT SCHEDULED COMPLETION DATE. THE MILESTONE AT THE END OF EACH ACTION PLAN WHICH REPRESENTS THE INITIATION OF THE IMPLEMENTATION PROCESS BOTH WITH RESPECT TO INCORPORATION OF THE TECHNICAL RESOLUTION IN THE NRC OFFICIAL GUIDANCE OR REQUIREMENTS AND ALSO THE APPLICATION OF CHANGES TO INDIVIDUAL OPERATING PLANTS. THE SCHEDULE FOR IMPLEMENTATION WILL NOT NORMALLY BE INCLUDED IN THE TASK ACTION PLAN(S) FOR THE RESOLUTION OF A USI SINCE THE NATURE AND EXTENT OF THE ACTIVITIES NECESSARY TO ACCOMPLISH THE IMPLEMENTATION CANNOT NORMALLY BE REASONABLY DETERMINED PRIOR TO THE DETERMINATION OF A TECHNICAL RESOLUTION. THE PROGRESS AND STATUS FOR IMPLEMENTATION OF UNRESOLVED SAFETY ISSUES FOR WHICH A TECHNICAL RESOLUTION HAS BEEN COMPLETED ARE REPORTED SPECIFICALLY IN A SEPARATE TABLE PROVIDED IN THIS SUMMARY. MORE DETAIL ON THE STATUS OF IMPLEMENTATION IN PROGRESS ON A SPECIFIC UNRESOLVED SAFETY ISSUE WHERE THE TECHNICAL RESOLUTION REQUIRES CHANGES TO INDIVIDUAL OPERATING PLANTS IS PROVIDED IN NUREG-0748, "OPERATING REACTORS LICENSING ACTIONS SUMMARY" WHICH IS PUBLISHED MONTHLY.

KARL KNIEL, CHIEF OF THE GENERIC ISSUES BRANCH, DIVISION OF SAFETY TECHNOLOGY, OFFICE OF NUCLEAR REACTOR REGULATION IS RESPONSIBLE FOR MANAGING THE GENERIC TASKS INCLUDED IN THIS SUMMARY.

EXAMPLE PAGE



* Schedule Change This Report
N/S = Not Scheduled Date

DOUBLE CIRCLE = MAJOR MILESTONE

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ABBREVIATIONS

AAB	ACCIDENT ANALYSIS BRANCH (FORMER NWR BRANCH)	DC	DIRECT CURRENT	HFB	HUMAN FACTORS ENGINEERING BRANCH, DIVISION OF HEALTH, SITTING AND WASTE MANAGEMENT (RES)
AB	ADMINISTRATION BRANCH, TRAINING AND ADMINISTRATION STAFF (IE)	DE	DEBORGH	HSST	HEAVY SECTION STEEL TECHNOLOGY
AC	ALTERNATING CURRENT	DFU	DEPUTY EXECUTIVE DIRECTOR FOR REGIONAL OPERATIONS AND GENERIC REQUIREMENTS	ICBR	INSTRUMENTATION AND CONTROL BRANCH, DIVISION OF FACILITY OPERATIONS (RES)
ACCS	ADVISORY COMMITTEE ON REACTOR SAFEGUARDS	DHS	DIVISION OF FACILITY OPERATIONS (RES)	ICSB	INSTRUMENTATION AND CONTROL SYSTEMS BRANCH, DIVISION OF FACILITY OPERATIONS (RES)
AD	ANALYSIS AND DEVELOPMENT BRANCH, DIVISION OF REACTOR SAFETY RESEARCH (RES)	DMS	DELAY HEAT REMOVAL SYSTEMS	IE	OFFICE OF SYSTEMS INTEGRATION (NRR)
ADD	ACCIDENT EVALUATION BRANCH, DIVISION OF SYSTEMS INTEGRATION (NRR)	DOE	U. S. DEPARTMENT OF ENERGY	IEEE	OFFICE OF INSPECTION AND ENFORCEMENT
AEB	OFFICE OF THE ANALYSIS AND EVALUATION OF OPERATIONAL DATA	DOR	NWR DIVISION	INEL	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
AECD	ATOMIC INDUSTRIAL FORUM	DRA	DIVISION OF RISK ANALYSIS (RES)	IP	INDIAN POINT
AIF	ACTION PLAN TRACKING SYSTEM	DSI	DIVISION OF SYSTEMS INTEGRATION (NRR)	IREP	INTEGRATES RELIABILITY EVALUATION PROGRAM
ARL	ALBEN RESEARCH LABORATORY	DSS	DIVISION OF SYSTEMS SAFETY (FORMER NRR DIVISION)	ISI	IN-SERVICE INSPECTION
ASB	AUXILIARY SYSTEMS BRANCH, DIVISION OF SYSTEMS INTEGRATION (NRR)	DST	DIVISION OF SAFETY TECHNOLOGY (NRR)	LNL	LOS ALAMOS NATIONAL LABORATORY
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	E	ENGINEERING	LER	LICENSEE EVENT REPORT
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	EB	ENFORCEMENT BRANCH, ENFORCEMENT AND INVESTIGATIONS STAFF (IE)	LLNL	LAWRENCE LIVERMORE NATIONAL LABORATORY
ATMS	ANTICIPATED TRANSIENTS WITHOUT SCRAM	ECC	EMERGENCY CORE COOLING	LOCA	LOSS-OF-COOLANT ACCIDENT
B&E	BALTIMORE GAS AND ELECTRIC COMPANY	EED	ENVIRONMENTAL ENGINEERING BRANCH, DIVISION OF ENGINEERING (NRR)	LPP	LEAD PLANT PROGRAM
B&W	BABCOCK AND WILCOX COMPANY	EFY	EFFECTIVE FULL-POWER YEARS	LTP	LONG TERM PROGRAM
B&C	BROOKHAVEN NATIONAL CONSERVATORY	ES&G	EMERGENCY PREPAREDNESS	LWR	LIGHT-WATER REACTOR
B&L	BALANCE OF PLANT	EP	ELECTRIC POWER RESEARCH INSTITUTE EQUIPMENT QUALIFICATION BRANCH, DIVISION OF ENGINEERING (NRR)	MAE	CONTAINMENT TYPES FOR BOILING WATER REACTORS OF ENGINEERING (NRR)
B&R	BOILING WATER REACTOR	EPRI	ELECTRIC POWER RESEARCH INSTITUTE EQUIPMENT QUALIFICATION BRANCH, DIVISION OF ENGINEERING (NRR)	MIT	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CE	COMBUSTION ENGINEERING, INCORPORATED	ERB	EMERGENCY PREPAREDNESS	MSLB	MAIN STEAM LINE BREAK
CREB	CHEMICAL ENGINEERING BRANCH, DIVISION OF ENGINEERING (NRR)	F&M	FINANCIAL	NTEB	NATERIALS ENGINEERING BRANCH, DIVISION OF ENGINEERING (NRR)
CFR	CODE OF FEDERAL REGULATIONS	FSIF	FULL-SCALE TEST FACILITY	NDE	NON-DESTRUCTIVE EXAMINATION
CP	CONSTRUCTION PERMIT	FW	FEEDWATER	NRC	NUCLEAR REGULATORY COMMISSION
CPB	CORE PERFORMANCE BRANCH, DIVISION OF SYSTEMS INTEGRATION (NRR)	FY	FISCAL YEAR	NREP	NEUTRON RESONANCE ESCAPE PROBABILITY
CR	CONTRACTOR REPORT	GSB	GEOSCIENCES BRANCH, DIVISION OF ENGINEERING (NRR)	NRR	OFFICE OF NUCLEAR REACTOR REGULATION
CRER	COMMITTEE TO REVIEW GENERIC REQUIREMENTS	SE	GENERAL ELECTRIC	NSS	NUCLEAR STEAM SYSTEM
CSB	CONTAINMENT SYSTEMS BRANCH, DIVISION OF SYSTEMS INTEGRATION (NRR)	SIB	SAFETY ISSUES BRANCH, DIVISION OF SAFETY TECHNOLOGY (NRR)	NRES	NUCLEAR REGULATORY REPORT (PREPARED BY CONTRACTOR)
				NRES/C	NUCLEAR REGULATORY REPORT (PREPARED BY CONTRACTOR)
				DL	OPERATING LICENSE
				ORAB	OPERATING REACTORS ASSESSMENT BRANCH, DIVISION OF LICENSING (NRR)

ABBREVIATIONS

ORR	OPERATING REACTORS BRANCH, DIVISION OF LICENSING (NRR)	SREB	STRUCTURAL AND BIOTECHNICAL ENGINEERING BRANCH, DIVISION OF ENGINEERING (NRR)
ORNL	ORNL RIVER NATIONAL LABORATORY	SEP	SYSTEMATIC EVALUATION PROGRAM
OSD	OFFICE OF STANDARDS DEVELOPMENT (FORMER NRC OFFICE)	SEPB	SYSTEMATIC EVALUATION PROGRAM BRANCH, DIVISION OF LICENSING (NRR)
OTSG	ONCE-THROUGH STEAM GENERATOR	SER	SAFETY EVALUATION REPORT
PASNY	POWER AUTHORITY OF THE STATE OF NEW YORK	SG	STEAM GENERATOR
PMA	PRELIMINARY DESIGN APPROVAL	SRWR	SANDIA NATIONAL WATER REACTOR
PNL	PACIFIC NORTHWEST LABORATORY (EMTELLE)	SNL	SANDIA NATIONAL LABORATORY
PRA	PROBABILISTIC RISK ASSESSMENT	SQIG	SEISMIC QUALIFICATION UTILITIES GROUP
PSB	POWER SYSTEMS BRANCH, DIVISION OF SYSTEMS INTEGRATION (NRR)	SRP	STANDARD REVIEW PLAN
PSU	PLANT SYSTEMS UNIT (ACD)	SRV	SAFETY RELIEF VALVE
PTRB	PROCEDURES AND TEST REVIEW BRANCH, DIVISION OF HUMAN FACTORS SAFETY (NRR)	SSE	SAFE SHUTDOWN EARTHQUAKE
PWR	PRESSURIZED WATER REACTOR	SSPB	STANDARDIZATION AND SPECIAL PROJECTS BRANCH
RAB	RADIOLICAL ASSESSMENT BRANCH, DIVISION OF SYSTEMS INTEGRATION (NRR)	STP	SHORT-TERM PROGRAM
RCIC	REACTOR CORE ISOLATION COOLING	TAP	TASK ACTION PLAN
REF	REFERENCE	TER	TECHNICAL EVALUATION REPORT
RES	OFFICE OF NUCLEAR REGULATORY RESEARCH	TH	THERMAL HYDRAULICS
RFP	REQUEST FOR PROPOSAL	TM	TASK NUMBER
RHR	RESIDUAL HEAT REMOVAL	THI	THREE MILE ISLAND
RPV	REACTOR PRESSURE VESSEL	UCLA	UNIVERSITY OF CALIFORNIA, LOS ANGELES
RN	OFFICE OF RESOURCE MANAGEMENT	USI	UNRESOLVED SAFETY ISSUE
RNAB	RELIABILITY AND RISK ASSESSMENT BRANCH	W	WESTINGHOUSE ELECTRIC CORPORATION
RNRC	DIVISION OF SAFETY TECHNOLOGY (NRR)	WH	WATER HAMMER
RS	REGULATORY REQUIREMENTS REVIEW COMMITTEE		
RSB	REACTOR SAFETY (FORMER NRR BRANCH)		
RSB	REACTOR SYSTEMS BRANCH, DIVISION OF SYSTEMS INTEGRATION (NRR)		
RSSAMP	REACTOR SAFETY STUDY METHODOLOGY APPLICATION PROGRAM		
RV	REACTOR VESSEL		
SAI	SCIENCE APPLICATIONS, INC.		
SCC	STRESS-CORROSION CRACKING		

PROGRAM STATUS

USI NO.	TITLE	SCHEDULED COMPLETION		REMARKS
		DATE FROM LATEST APPROVED TASK ACTION PLAN	CURRENT SCHEDULED COMPLETION DATE	
A-3, A-4, A-5	STEAM GENERATOR TUBE INTEGRITY	MAY 1984	NOT SCHEDULED	A COMMISSION BRIEFING WAS HELD ON SEPTEMBER 10, 1984. ADDITIONAL INFORMATION WAS SENT TO THE COMMISSION IN SECY-84-138 DATED NOVEMBER 5, 1984.
A-17	SYSTEMS INTER-ACTIONS IN NUCLEAR POWER PLANTS	MARCH 1986	MAY 30, 1986	WORK ORIGINALLY PLANNED UNDER TAP A-17 AND TMI ACTION PLAN ITER II.C.3. SYSTEMS INTERACTION, WERE COMBINED UNDER USI A-17 AND A NEW TASK MANAGER APPOINTED. A REVISED TASK ACTION PLAN HAS BEEN APPROVED BY THE DIRECTOR, NRC. THE ORNL FINAL REPORT HAS BEEN COMPLETED. ORNL WILL BE REVIEWING POTENTIAL SEARCH METHODS FOR USE IN UNCOVERING ADVERSE SYSTEMS INTER-ACTION EVENTS AND IN ADDITION, ORNL WILL BE ASSESSING THE POTENTIAL SAFETY SIGNIFICANCE OF THE ADVERSE SYSTEMS INTERACTION EVENTS.
A-40	SEISMIC DESIGN CRITERIA	JANUARY 1985	OCTOBER 10, 1984	BROOKHAVEN AND LYNNBORO HAVE COMPLETED THEIR STUDIES OF IMB11M P,INT 3 AND THE STAFF IS REVIEWING THE RESULTS.
A-43	CONTAINMENT EMERGENCY SUPP PERFORMANCE	SEPTEMBER 30, 1984	MARCH 31, 1985	THE NRC STAFF INTERNAL REVIEW HAS BEEN COMPLETED. A VALUE/IMPACT ANALYSIS HAS BEEN PREPARED AND A CSGR SUBMITTAL PACKAGE IS TO BE SUBMITTED TO THE CSGR BY DECEMBER 7, 1984.
A-44	STATION BLACKOUT	MAY 1985	JANUARY 30, 1986	ALL TECHNICAL SUPPORT (NURGS/CR) REPORTS HAVE BEEN ISSUED. NURGS-0877 AND NURGS-0869 ALONG WITH SRP SECTION 6.2.2 WERE ISSUED FOR PUBLIC COMMENT IN MAY 1983. THE PUBLIC COMMENT PERIOD ENDED IN JULY 1983 AND THE COMMENTS RECEIVED WERE UTILIZED IN THE PREPARATION OF THE REVISED CSGR SUBMITTAL OF JUNE 14, 1984. THE REGULATORY ANALYSIS HAS BEEN REVISED TO REFLECT COMMENTS RECEIVED FROM THE JULY 11, 1984 CSGR MEETING AND A FOLLOWUP MEETING WITH CSGR WILL BE SCHEDULED SOON.
				THE STAFF'S PROPOSED RECOMMENDATIONS TO RESOLVE A-44 BASED ON THE TECHNICAL FINDINGS, RESULTED IN THE RECOMMENDATION TO PROCEED WITH PROPOSED RULEMAKING, IN CONJUNCTION WITH A NEW REGULATORY GUIDE. THE CSGR RECOMMENDED THAT THE PROPOSED RULE, PROPOSED REGULATORY GUIDE AND NURGS-1032 BE ISSUED FOR PUBLIC COMMENT AFTER MODIFICATIONS ARE MADE TO REFLECT CSGR COMMENTS. THE TECHNICAL BASIS AND RECOMMENDATIONS ARE BEING REVISED BASED ON UPDATED DATA ON LOSS OF OFFSITE POWER EXPERIENCE AT NUCLEAR POWER PLANTS.
				THESE REVISIONS WILL BE INCLUDED IN THE PROPOSED RULEMAKING PACKAGE TO BE SENT TO THE COMMISSION.

-----SCHEDULE CHANGE THIS REPORT

PROGRAM STATUS

USI NO.	TITLE	SCHEDULED COMPLETION		REMARKS
		DATE FROM LATEST APPROVED TASK ACTION PLAN	CURRENT SCHEDULED COMPLETION DATE	
A-45	SHUTDOWN DECAY HEAT REMOVAL REQUIREMENTS	FEBRUARY 1986	FEBRUARY 29, 1986	PLANT VISITS FOR THE PURPOSE OF OBTAINING MISSING INFORMATION RELATIVE TO DND SYSTEMS ANALYSIS HAVE TAKEN PLACE AT POINT BEACH, TURKEY POINT, QUAD CITIES AND ARKANSAS NUCLEAR ONE.
A-46	SEISMIC QUALIFICATION OF EQUIPMENT IN OPERATING PLANTS	DECEMBER 1984	JUNE 15, 1985	WORK ON ALL TASKS IS ESSENTIALLY COMPLETE WITH THE EXCEPTION OF TASK A, AN INTERIM REPORT WHICH SUMMARIZES THE STATUS OF WORK ACCOMPLISHED ON A-46 WAS ISSUED AS NUREG-1018 IN OCTOBER 1983. THE A-46 CSRR PACKAGE (INCLUDING DRAFT NUREG-1030) WAS APPROVED BY THE DIRECTOR OF NRC ON OCTOBER 31, 1984 AND SENT TO CSRR FOR REVIEW AND APPROVAL ON NOVEMBER 1, 1984.
A-47	SAFETY IMPLICATIONS OF CONTROL SYSTEMS FAILURES	APRIL 1986	APRIL 1, 1986	DRAFT FINAL REPORT ON THE EFFECTS OF CONTROL SYSTEMS FAILURES ON TRANSIENTS AND ACCIDENTS FOR A BE DESIGN WAS SUBMITTED AT INEL FOR STAFF REVIEW IN JULY 1984.
A-48	HYDROGEN CONTROL MEASURES AND EFFECTS OF HYDROGEN BURNS ON SAFETY EQUIPMENT	JUNE 1986	NOT SCHEDULED	DRAFT FINAL REPORT ON THE EFFECTS OF CONTROL SYSTEM FAILURES ON TRANSIENTS AND ACCIDENTS AT A WESTINGHOUSE 3-LOOP PWR WAS SUBMITTED BY INEL FOR STAFF REVIEW IN AUGUST 1984. DRAFT REPORT ON THE SAFETY IMPLICATIONS OF CONTROL SYSTEMS OF A BSW PWR DESIGN WAS SUBMITTED BY ORNL IN OCTOBER 1984. WORK ON THIS USI IS LIMITED TO THE GENERIC RESOLUTION OF HYDROGEN CONTROL AND EQUIPMENT QUALIFICATION FOR ICE CONDENSER AND BWR MARK III CONTAINMENTS. A COMMISSION PAPER REGARDING HYDROGEN CONTROL FOR MARK III AND ICE CONDENSER CONTAINMENT WAS REVIEWED AND ENDORSED BY THE CSRR ON JUNE 1, 1983. THE COMMISSION PAPER WAS FORWARDED ON TO THE COMMISSION ON AUGUST 26, 1983, AND ADDITIONAL INFORMATION PROVIDED ON DECEMBER 29, 1983. THE RESULTS OF THE LARGE SCALE HYDROGEN BURN TESTS CONDUCTED AT THE NEWDA TEST SITE SHOW POTENTIAL CHALLENGE TO EQUIPMENT SURVIVABILITY. THE STAFF IS EVALUATING THE DATA AND WILL MAKE RECOMMENDATIONS TO THE COMMISSION REGARDING THE HYDROGEN RULE. A SCHEDULE FOR THE REMAINING MILESTONES OF USI A-48 WILL BE DEVELOPED FOLLOWING COMPLETION OF THE STAFF'S EVALUATION OF THE LARGE SCALE HYDROGEN BURN TESTS.
A-49	PRESSURIZED THERMAL SHOCK	DECEMBER 31, 1985	MARCH 31, 1986	NRC STAFF PROPOSED PTS RULE WAS APPROVED BY THE COMMISSION IN JANUARY 1984. THIS NEW PTS RULE WAS PUBLISHED FOR PUBLIC COMMENT ON FEBRUARY 7, 1984. THE PROPOSED FINAL RULE, TAKING THE PUBLIC COMMENTS INTO ACCOUNT, WILL BE SUBMITTED TO THE COMMISSION FOR APPROVAL IN DECEMBER 1984.

USI'S FOR WHICH TECHNICAL RESOLUTION IS COMPLETE

IMPLEMENTATION
TASK MANAGER/
TELEPHONE NO.

USI NO.	TITLE	DATE COMPLETED	REPORTS PUBLISHED	IMPLEMENTATION STATUS
A-1	WATER HAMMER	MARCH 15, 1984	NUREG-0927, REV. 1 NUREG-0933, REV. 1 SRP SECTIONS 3.9.3, REV. 1 3.9.4, REV. 2 5.4.6, REV. 3 5.4.7, REV. 3 6.3, REV. 2 9.2.1, REV. 3 9.2.2, REV. 2 10.3, REV. 3 10.4.7, REV. 3	THE REVISED SRP SECTIONS WILL BE USED ONLY FOR REVIEW OF "CUSTOM PLANT" CONSTRUCTION PERMIT APPLICATIONS, AND FOR STANDARD PLANT APPLICATIONS. THESE SRP SECTIONS WERE DEVELOPED AFTER THE ISSUANCE OF THESE SRP SECTIONS REVISIONS, WHICH ARE INTENDED FOR REFERENCING IN CONSTRUCTION PERMIT APPLICATIONS. (FORWARD FIT IMPLEMENTATION ONLY.)

JIM SHEA
492-7231

A-2	ASYMMETRIC BLOWDOWN LOADS ON REACTOR PRIMARY COOLANT SYSTEMS	DECEMBER 1980	NUREG-0609	ALL PWR PLANT ASSESSMENTS FOR ASYMMETRIC LOADS HAVE BEEN RECEIVED AND HAVE BEEN EVALUATED BY THE STAFF AND EGSAS. THE BASIS FOR THE EVALUATIONS WAS CRITERIA INCLUDED IN NUREG-0609. SER'S FOR ALL BAW OWNERS' GROUP PLANTS HAVE BEEN ISSUED. SER'S FOR THE COMBUSTION ENGINEERING OWNER'S GROUP PLANTS AND SER'S FOR THE PLANT-SPECIFIC SUBMITTALS HAVE BEEN DELAYED. SER'S FOR THE 4 CE PLANTS HAVE BEEN SENT TO DELB FOR COMMENT AND/OR APPROVAL. THE WESTINGHOUSE OWNERS GROUP "LEAK BEFORE BREAK" CONCEPT WAS APPROVED. THE SER WAS THE SUBJECT OF SL-84-04 DATED FEBRUARY 1, 1984. TACS FOR THE 16 AFFECTED PLANTS WERE CLOSED. MPA ITEM B-10 WILL BE CLOSED WHEN THESE REMAINING SER'S ARE ISSUED. THE CURRENT SCHEDULE SHOWS THAT THIS WILL OCCUR SEPTEMBER 30, 1985.
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USI'S FOR WHICH TECHNICAL RESOLUTION IS COMPLETE

USI NO.	TITLE	DATE COMPLETED	REPORTS PUBLISHED	IMPLEMENTATION STATUS	IMPLEMENTATION TASK MANAGER/ TELEPHONE NO.
A-6	MARK I SHOR, TERM PROGRAM	DECEMBER 1977	NUREG-0408	COMPLETE - ALL PLANT-UNIQUE ANALYSES AND EQUIPMENT MODIFICATIONS AS REQUIRED WERE REVIEWED AND ACCEPTED AND APPROPRIATE TECHNICAL SPECIFICATION CHANGES WERE MADE.	BYRON SIEBEL 492-7534
A-7	MARK I LONG TERM PROGRAM	JULY 1980 AUGUST 1982	NUREG-0661 NUREG-0661, SUPPL. NO. 1 SRP SECTION 6.2.1.1C	LICENSEES ARE IN THE PROCESS OF OR HAVE INSTALLED MODIFICATIONS TO MEET THE COMMISSION'S ORDER DATE FOR EACH OPERATING PLANT. MORE THAN HALF OF THE PLANTS AFFECTED HAVE COMPLETED THESE MODIFICATIONS. THE LICENSEES HAVE SUBMITTED PLANT-UNIQUE ANALYSES TO THE STAFF FOR POST-IMPLEMENTATION AUDIT REVIEW FOR COMPLIANCE WITH THE ACCEPTANCE CRITERIA CONTAINED IN APPENDIX A TO NUREG-0661. OUR CONTRACTORS, BNL AND THE FRANKLIN RESEARCH CENTER, ARE REVIEWING THESE SUBMITTALS AND HAVE COMPLETED THE REVIEW FOR ELEVEN PLANTS. SEERS HAVE BEEN ISSUED FOR NINE PLANTS. SEE MULTI-PLANT ACTION ITEM B-01 IN NUREG-0748.	BYRON SIEBEL 492-7534
A-8	MARK II CONTAINMENT POND DYNAMIC LOADS	AUGUST 1981	NUREG-0848 SRP SECTION 6.2.1.1C	THE REQUIREMENTS RECOMMENDED IN NUREG-0808 ARE BEING IMPLEMENTED DURING THE OPERATING LICENSE REVIEW FOR EACH PLANT WITH A MARK II CONTAINMENT. THESE REQUIREMENTS HAVE ALSO BEEN INCLUDED AS AN ADDITION TO THE APPROPRIATE SECTION OF THE STANDARD REVIEW PLAN.	BYRON SIEBEL 492-7534
A-9	ATWS	SEPTEMBER 1980	NUREG-0460, VOL. 4 PROPOSED RULE 48-FS7521 FINAL RULE 49-FS7521	THE TECHNICAL FINDINGS FOR THIS ISSUE HAVE BEEN PUBLISHED IN NUREG-0460, "ANTICIPATED TRANSIENTS WITHOUT SCRAM FOR LIGHT WATER REACTORS," VOL. 4. A PROPOSED RULE BASED ON THIS WORK PLUS ADDITIONAL ANALYSIS WAS PUBLISHED FOR COMMENT. THE COMMENTS RECEIVED WERE ADDRESSED AND A FINAL RULE WAS AFFIRMED BY THE COMMISSION IN NOVEMBER 1983. THE FINAL RULE WAS PUBLISHED ON JUNE 26, 1984. GUIDANCE FOR IMPLEMENTATION IS INCLUDED IN THE FINAL RULE.	DAVID PYATT, RES 443-7631

USI'S FOR WHICH TECHNICAL RESOLUTION IS COMPLETE

USI NO.	TITLE	DATE COMPLETED	REPORTS PUBLISHED	IMPLEMENTATION STATUS	IMPLEMENTATION TASK MANAGER / TELEPHONE NO.
A-10	BWR FEEDWATER NOZZLE CRACKING	NOVEMBER 1980	NUREG-0619	RESPONSES FROM LICENSEES TO AN IMPLEMENTATION LETTER HAVE BEEN RECEIVED AND RECOMMENDED TREATMENT OF THESE RESPONSES HAVE BEEN SUBMITTED TO NRC MANAGEMENT. ADDITIONAL INFORMATION HAS BEEN REQUESTED OF LICENSEES. ALL PLANTS HAVE RECEIVED LETTERS ACCEPTING THEIR PROPOSED MODIFICATION PLANS. VERMONT Yankee'S OPERATION IS SUCH THAT NO FEEDWATER NOZZLES NEED BE INSTALLED. LASCROSSE, BIG ROCK POINT, AND DRESDEN 1 DO NOT HAVE SUSCEPTIBLE PLANT SYSTEM CONFIGURATIONS AND ARE CONSIDERED COMPLETE WITH REGARD TO THIS ACTION. HUMBOLDT BAY, BY VIRTUE OF ITS STATUS (SHUTDOWN, NO FORSEEABLE RESTART) IS ALSO CONSIDERED COMPLETE. COMPLETE - SEE MULTIPLANT ACTION ITEM 9-25 IN NUREG-0748.	ROBERT SILBERT 492-7128
A-11	REACTOR VESSEL MATERIALS TOUGHNESS	OCT. 15, 1982	NUREG-0744 VOLS. I AND II	GENERIC LETTER 82-26 TRANSMITTED THIS MORG REPORT. NO FURTHER ACTION IS CONTEMPLATED.	AL DEGAZIO 492-8945
A-12	STEAM GENERATOR AND REACTOR COOLANT PUMP SUPPORTS	OCT. 11, 1983	NUREG-0577, REVISION 1 SRP SECTION 5.3.4	THE PROPOSED A-12 RESOLUTION IMPLEMENTATION WILL APPLY TO NEW CONSTRUCTION ONLY, THROUGH A NEW SRP SECTION 5.3.4, WITH NO BACKFITTING. SRP SECTION 5.3.4 HAS BEEN USED BASED ON PUBLIC COMMENTS RECEIVED AND P. THEN REVIEW BY THE STAFF AND CRSP. THE REVISED SRP SECTION 5.3.4 IS PART OF AN ISSUANCE PACKAGE WHICH IS UNDERGOING FINAL REVIEW PRIOR TO SUBMITTAL TO THE EXECUTIVE DIRECTOR FOR OPERATIONS.	AL DEGAZIO 492-8945

USI'S FOR WHICH TECHNICAL RESOLUTION IS COMPLETE

USI NO.	TITLE	DATE COMPLETED	REPORTS PUBLISHED	IMPLEMENTATION STATUS	IMPLEMENTATION TASK MANAGER/ TELEPHONE NO.
A-24	QUALIFICATION OF CLASS 1E SAFETY RELATED EQUIPMENT	AUGUST 1981	NUREG-0588 NEW RULE 48F82729	EDR HAS THE LEAD IN IMPLEMENTING THE POSITIONS IDENTIFIED IN THE REPORT. SEE MULTIPLANT ACTION ITEM B-60 IN NUREG-0748.	JOSE CALVO 492-8563
A-26	REACTOR VESSEL PRESSURE TRANSIENT PROTECTION	SEPTEMBER 1978	NUREG-0224 SRP SECTION 3.2	ALL PLANTS WERE REQUESTED TO PROVIDE AN OVER-PRESSURE PREVENTION SYSTEM THAT WOULD BE USED WHENEVER THE PLANT WAS IN A COLD SHUTDOWN CONDITION. ALL PWMS IMPLEMENTED THEIR SYSTEMS WITH PRELIMINARY APPROVAL FROM THE NRC, AND A COMPLETE REVIEW TOOK PLACE ON A POST-IMPLEMENTATION BASIS. ONE LICENSING ACTION REMAINS TO BE COMPLETED. SEE MULTIPLANT ACTION ITEM B-04 IN NUREG-0748.	AL DEAGAZIO 492-8943
A-31	RESIDUAL HEAT REMOVAL REQUIREMENTS	MAY 1978	REGULATORY GUIDE 1.139 SRP SECTION 3.4.7 REGULATORY GUIDE (DRAFT) 1.113	NRC APPROVED IMPLEMENTATION PLAN OF JANUARY 31, 1978 IS BEING IMPLEMENTED ON RTDLS DURING THE REVIEW PROCESS. NO BACKFIT TO OPERATING REACTORS IS PLANNED.	
A-36	CONTROL OF HEAVY LOADS NEAR SPENT FUEL	JULY 1980	NUREG-0612 SRP SECTION 9.1.5	IMPLEMENTATION REQUIREMENTS WERE ISSUED TO ALL LICENSEES BY LETTER DATED DECEMBER 22, 1980. THE LETTER REQUESTED INTERIM ACTIONS TO BE COMPLETED IN 90 DAYS, A PHASE I ACTION (REPORT, CONFIRMATION AND JUSTIFICATION) IN SIX MONTHS AND PHASE II (SPECIFIC REQUIREMENTS) IN NINE MONTHS. ALL LICENSEES HAVE RESPONDED TO THE DECEMBER 22, 1980 GENERIC LETTER AND THEIR RESPONSES ARE BEING EVALUATED. AS OF NOVEMBER 16, 1984, ALL BUT 19 PHASE I REVIEWS BEEN COMPLETED AND IT IS ANTICIPATED TO COMPLETE THE REST IN FY-85. NPA C-15 HAS BEEN ESTABLISHED FOR PHASE II, AND 20 FACILITIES ARE BEING REVIEWED IN A PILOT PROGRAM. IT IS EXPECTED TO CLOSE OUT PHASE II IN FY-85.	DON NEIGHBORS 492-4837

USI'S FOR WHICH TECHNICAL RESOLUTION IS COMPLETE

IMPLEMENTATION
TASK MANAGER/
TELEPHONE NO.

BYRON SIEBEL
492-7534

DICK CLARK
492-7162

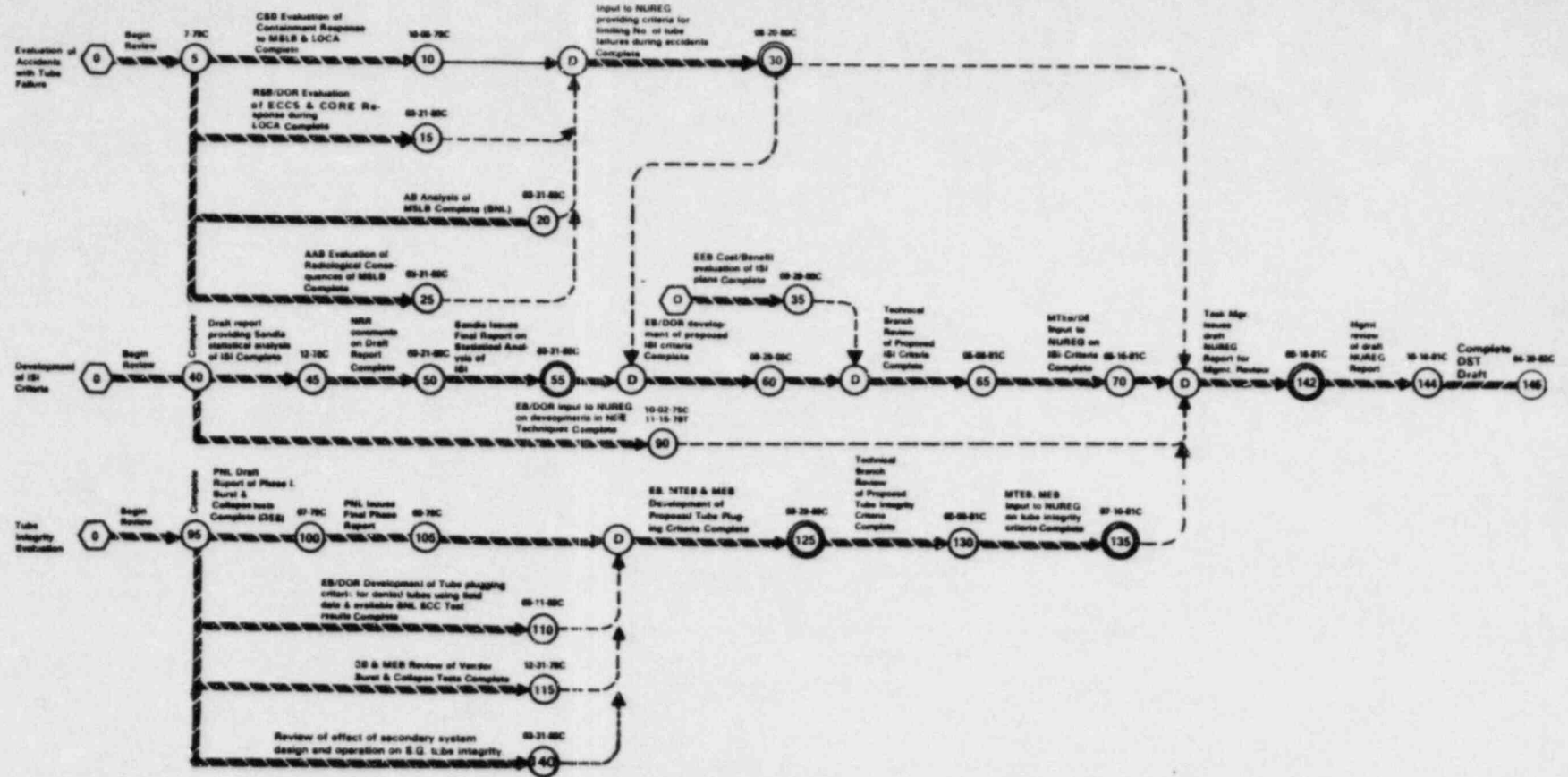
USI NO.	TITLE	DATE COMPLETED	REPORTS PUBLISHED	IMPLEMENTATION STATUS
A-39	DETERMINATION OF SAFETY RELIEF VALVE (SRV) POOL DYNAMIC LOADS AND TEMPERATURE LIMITS FOR CONTAINMENT	MARK I -02-29-80 MARK II -09-30-82 MARK III-10-14-82	NUREG-0763 NUREG-0783 NUREG-0802 SRP SECTION 9.2.1.1C	GENERIC LETTERS TRANSMITTING THESE NUREGS TO BWR APPLICANTS AND LICENSEES HAVE BEEN ISSUED. IMPLEMENTATION ON MARK I PLANTS IS PART OF USI A-7. IMPLEMENTATION ON MARK II AND MARK III PLANTS IS BEING PERFORMED DURING THE OPERATING LICENSE REVIEW FOR EACH PLANT.
A-42	PIPE CRACKS IN BOILING WATER REACTORS	JULY 1980	NUREG-0313, REV. 1	IN FEBRUARY 1981, NUREG-0313, REV. 1 WAS ISSUED TO ALL HOLDERS OF BWR OPERATING LICENSES OR CONSTRUCTION PERMITS AND TO ALL APPLICANTS FOR OPERATING LICENSES. BY JULY 1, 1981, THE APPLICANTS/LICENSEES WERE TO PROVIDE THEIR PROGRAM FOR REPLACEMENT OF SERVICE SENSITIVE LINES AND WELDS, THEIR PROGRAM FOR AUGMENTED INSERVICE INSPECTION, THEIR PROGRAM FOR IMPROVING THE WATER CHEMISTRY ENVIRONMENT AND INCORPORATION OF ADEQUATE LEAK DETECTION CAPABILITY. BASED ON OUR REVIEW OF THE INSPECTIONS AND OTHER ACTIONS TAKEN BY BWR LICENSEES TO DETECT AND MINIMIZE INTERGRANULAR STRESS CORROSION CRACKING, WE HAVE SENT LETTERS TO ALL OPERATING BWR LICENSEES ADVISING THEM THAT A-42 HAS BEEN SATISFACTORILY RESOLVED FOR THEIR FACILITIES. THIS ISSUE IS NOW CONSIDERED COMPLETE.

WEST., CE & B&W STEAM GENERATOR TUBE INTEGRITY (A-3, A-4, A-5)

AS OF WEEK ENDING NOVEMBER 16, 1984

KEY PERSONNEL	TASK REVIEWERS	J. RAJAN MEB/DE B. TUROVLIN CEB/DE F. ODAR ADB/RSR F. AKSTULEWICZ AEB/DSI L. FRANK MTEB/DE	SCHEDULED COMPLETION												
<p>TASK MANAGER* P. NORIAN XZ7487</p> <p><i>Paul Norian</i></p> <p>NRR ANALYST JUDY BUTTS XZ4822</p> <p>• PROBLEM DESCRIPTION</p> <p>Pressurized water reactor steam generator tube integrity can be degraded by corrosion induced wastage, cracking, reduction in tube diameter, denting and vibration induced fatigue cracks. The primary concern is the capability of degraded tubes to maintain their integrity during normal operation and under accident conditions (LOCA or a main steam line break) with adequate safety margins.</p> <p>Wastage and Combustion Engineering steam generator tubes have suffered degradation due to wastage and stress corrosion cracking. Both types of degradation have been decreased by conversion from phosphate to an all-volatile secondary water treatment. Degradation due to denting which leads to primary side stress corrosion cracking continues to be a problem.</p> <p>B&W's once-through steam generators (OTSG's) were relatively free of trouble prior to the first tube leak incident at Oconee Unit 3 in July, 1976. Since then, all three Oconee units have experienced tube leak incidents. The leaks at the Oconee units are the result of cracks of unknown origin propagated in the circumferential direction by flow induced vibration and have been limited to tubes located adjacent to the open tube inspection lane.</p> <p>A second form of degradation characterized as an erosion-corrosion phenomenon has been observed at Oconee and other B&W units.</p> <p>*The staff contact for the Division of Licensing's integrated steam generator program is Emmett Murphy, XZ7467</p>	<p>NAME BRANCH</p> <p>E. MURPHY ORAB/DL</p> <p>W. PASEDAG AEB/DSI</p> <p>C. PARSZEWSKI CEB/DE</p> <p>• RES INTERFACE INFORMATION</p> <p>A. RES has funded, at the request of NRR, a major confirmatory program at PNL. The activity of this program consists of tests to verify the burst and cyclic strengths of degraded steam generator tubes and the leak rate data.</p> <p>B. RES is funding a program addressing the factors which determine Inconel 600 susceptibility to stress corrosion cracking in primary water. Metal condition, chemistry, temperature, stress and environment will be considered.</p> <p>• ACRS INTERFACE INFORMATION</p> <p>The current status of this program was discussed with the ACRS Metal Components Subcommittee on January 26, 1983 and September 12, 1983. A meeting with the full ACRS was held on October 13, 1983.</p>	<p>• TECHNICAL ASSISTANCE CONTRACTS</p> <p>The following technical assistance contracts are generic in nature and will be applicable to the three Category "A" Technical Activities (A-3, A-4, and A-5) related to PWR steam generators.</p> <p>A. SANDIA - Provide statistical analysis of steam generator tube failures in operating reactors in order to establish the bases for the sampling plan for inservice inspection. Completed.</p> <p>B. BNL - Provide necessary computer code and perform parametric evaluation of effects of tube failures concurrent with MSLS. Completed.</p> <p>C. BNL - Provide technical consultation and assistance to review information in areas of water chemistry and corrosion analysis, stress and/or burst strength calculations. Completed.</p> <p>D. PNL - Provide cost/benefit evaluation of ISI plans. Completed.</p> <p>E. PNL - Evaluate environmental consequences of multiple tube failures concurrent with MSLS. Completed.</p> <table border="1" data-bbox="932 1266 1330 1331"> <thead> <tr> <th>FIN NO.</th> <th>CONTRACTOR</th> <th>OBLIGATED</th> <th>EXPENDED</th> </tr> </thead> <tbody> <tr> <td>2314</td> <td>PNL</td> <td>\$75,000</td> <td>\$75,000</td> </tr> <tr> <td>62315</td> <td>PNL</td> <td>195,000</td> <td>195,000</td> </tr> </tbody> </table>	FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED	2314	PNL	\$75,000	\$75,000	62315	PNL	195,000	195,000	<p>1978 ANNUAL REPORT <u>Early 1980</u></p> <p>CURRENT <u>Not Scheduled</u></p> <p>• POTENTIAL PROBLEMS</p> <p>The ACRS letter dated October 16, 1981 stated that the proposals should be recommended industry actions and not new requirements.</p> <p>• STATUS SUMMARY</p> <p>The NRC has formed a Task Force under the Division of Licensing to prepare its proposed requirements regarding steam generator tube integrity. These requirements will include new concerns resulting from the Glina tube failure (such as loose parts in the secondary system and plant response to tube failure) and also corrosion related failure mechanisms. The recommendations prepared by the staff under USI A-3, 4, 5 were primarily concerned with corrosion mechanisms such as wastage and denting. Consequently, as discussed with the Commission on June 26, 1982, the requirements from the USI program will be incorporated in the overall set of requirements being developed to address tube failure.</p> <p>The proposed requirements were discussed with the Steam Generator Owners Group on July 29, 1982. Comments from the group were received September 30, 1982.</p> <p>Science Applications, Inc. performed a Value/Impact analysis of the recommendations and issued their final draft report on September 23, 1982. This report was sent to all PWR vendors and licensees for comment.</p> <p>The report has been transmitted to CRGR and meetings were held on September 14, 1983 and October 24, 1983. An ACRS meeting was held on October 13, 1983. A Commission briefing was held on September 10, 1984. Additional information was sent to the Commission in SECY-84-126, dated November 5, 1984.</p>
FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED												
2314	PNL	\$75,000	\$75,000												
62315	PNL	195,000	195,000												

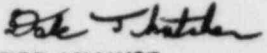
WEST., CE & B&W STEAM GENERATOR TUBE INTEGRITY (A-3, A-4, & A-5)



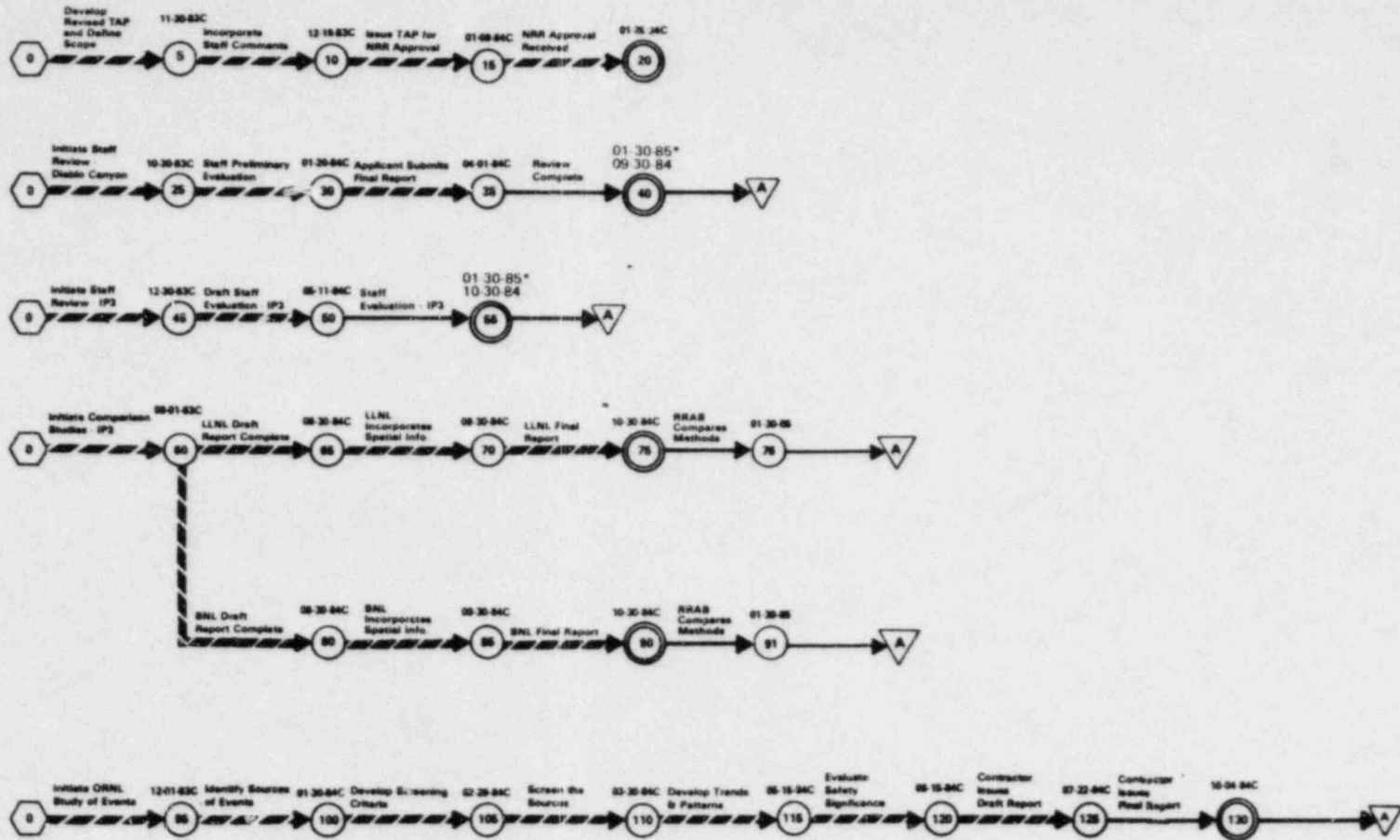
FINAL REPORT AND SCHEDULE SUPERCEDED BY TASK REPORT — SEE STATUS SUMMARY

SYSTEMS INTERACTIONS IN NUCLEAR POWER PLANTS (A-17)

AS OF WEEK ENDING NOVEMBER 16, 1984

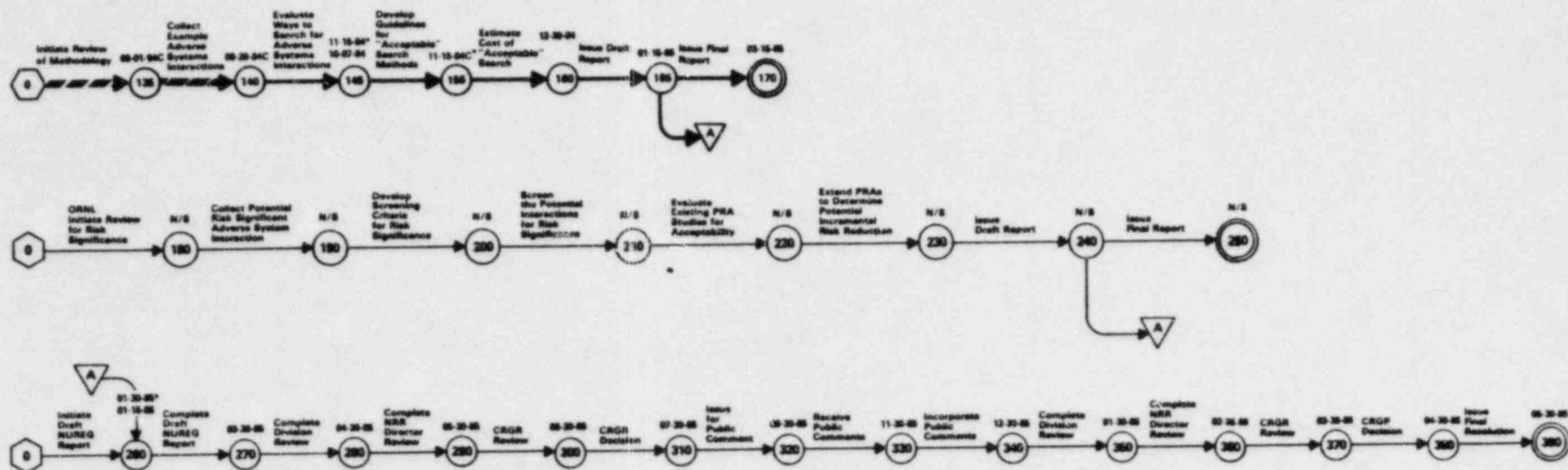
KEY PERSONNEL		TASK REVIEWERS		SCHEDULED COMPLETION															
TASK MANAGER DALE THATCHER X29640  NRR ANALYST JUDY BUTTS X24022		NAME BRANCH <hr/> E. CHELLIAH RRAB/DST <hr/> C. MORRIS RRAB/DST <hr/> F. COFFMAN RRAB/DST <hr/>		1978 ANNUAL REPORT Phase 1 - 05-78 <hr/> CURRENT 05-30-85															
<p>• PROBLEM DESCRIPTION</p> <p>The design of a nuclear power plant is accomplished by groups of engineers and scientists organized into engineering disciplines and into scientific disciplines. The review performed by the designers include interdisciplinary reviews to assure the functional compatibility of the plant structures, systems, and components. Safety reviews and accident analyses provide further assurance that system functional requirements will be met. These reviews include failure mode analyses.</p> <p>The NRC review and evaluation of safety systems is accomplished in accordance with the Standard Review Plan (SRP) which assigns primary and secondary review responsibilities to organizational units arranged by plant systems or by disciplines. Each element of the SRP is assigned to an organizational unit for primary responsibility and, where appropriate, to other units for secondary responsibilities.</p> <p>Thus, the design and analysis by the plant designers, and the subsequent review and evaluation by the NRC staff take into consideration the interdisciplinary areas of concern and account for systems interaction to a large extent. Furthermore, many of our regulatory criteria are aimed at controlling the risks from systems interactions. Examples include the single failure criterion and separation criteria.</p> <p>Nevertheless, there is some question regarding the interaction of various plant systems, both as to the supporting roles such systems play and as to the effect one system can have on other systems, particularly with regard to whether actions or consequences could adversely affect the presumed redundancy and independence of safety systems.</p> <p>The problem to be resolved by this task is to identify where the present design, analysis, and review procedures may not acceptably account for potentially adverse systems interaction and to recommend the regulatory action that should be taken.</p>	<p>• RES INTERFACE INFORMATION</p> <p>The Division of Risk Analysis has been consulted during the development and execution of this plan.</p> <p>• ACRS INTERFACE INFORMATION</p> <p>A meeting with the combined ACRS Subcommittees on Reliability and Risk Assessment and Extreme External Phenomena was held on 03/13/83 to describe the status of the program.</p> <p>A meeting with the ACRS Subcommittee on Probabilistic Assessment was held on July 8, 1983. Subsequently, the ACRS wrote a letter critical of the staff program.</p> <p>A meeting was held on November 18, 1983 with the full committee for the purpose of discussing the revised staff program.</p> <p>An ACRS Subcommittee meeting is scheduled for November 14, 1984 for the purpose of discussing the status of the A-17 program. A briefing for the full committee is to take place in December.</p>	<p>• TECHNICAL ASSISTANCE CONTRACTS</p> <p># LLNL - LLNL performed a systems interaction review of a portion of the Indian Point 3 plant using the Digraph Matrix method.</p> <p># BNL - BNL performed a systems interaction review of a portion of the Indian Point 3 plant using Fault Tree combined with a Failure Mode and Effect Analysis.</p> <p>ORNL - ORNL reviewed a number of information sources (including LERs) to gather information on experienced and hypothesized system interaction events. From this information, an evaluation was made to establish trends and patterns among the events.</p> <p># ORNL - ORNL is also investigating search methods which could be used to uncover system interaction events.</p> <table border="1"> <thead> <tr> <th>FIN NO.</th> <th>CONTRACTOR</th> <th>OBLIGATED</th> <th>EXPENDED</th> </tr> </thead> <tbody> <tr> <td># A-0448</td> <td>LLNL</td> <td>\$1,000K</td> <td>\$800K</td> </tr> <tr> <td># A-3725</td> <td>BNL</td> <td>\$1,000K</td> <td>\$800K</td> </tr> <tr> <td># B-0789</td> <td>ORNL</td> <td>\$400K</td> <td>\$300K</td> </tr> </tbody> </table>	FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED	# A-0448	LLNL	\$1,000K	\$800K	# A-3725	BNL	\$1,000K	\$800K	# B-0789	ORNL	\$400K	\$300K	<p>• POTENTIAL PROBLEMS</p> <p>• STATUS SUMMARY</p> <p>Responsibility for resolution of USI A-17 was transferred to the Generic Issues Branch of the Division of Safety Technology in September 1983 and a full-time Task Manager was assigned. The Task Action Plan has subsequently been revised and has been approved by the Director, NRR. The ORNL final report on events has been completed. ORNL will be reviewing potential search methods for use in uncovering adverse systems interaction events and, in addition, ORNL will be assessing the potential safety significance of the adverse systems interaction events.</p> <p>Brookhaven and Livermore have completed their studies of Indian Point 3 and the staff is reviewing the results.</p>
FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED																
# A-0448	LLNL	\$1,000K	\$800K																
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SYSTEMS INTERACTIONS IN NUCLEAR POWER PLANTS (A-17) Continued



* Schedule Change This Report.

SYSTEMS INTERACTIONS IN NUCLEAR POWER PLANTS (A-17) Continued



N/S = Not Scheduled
 * Schedule Change This Report

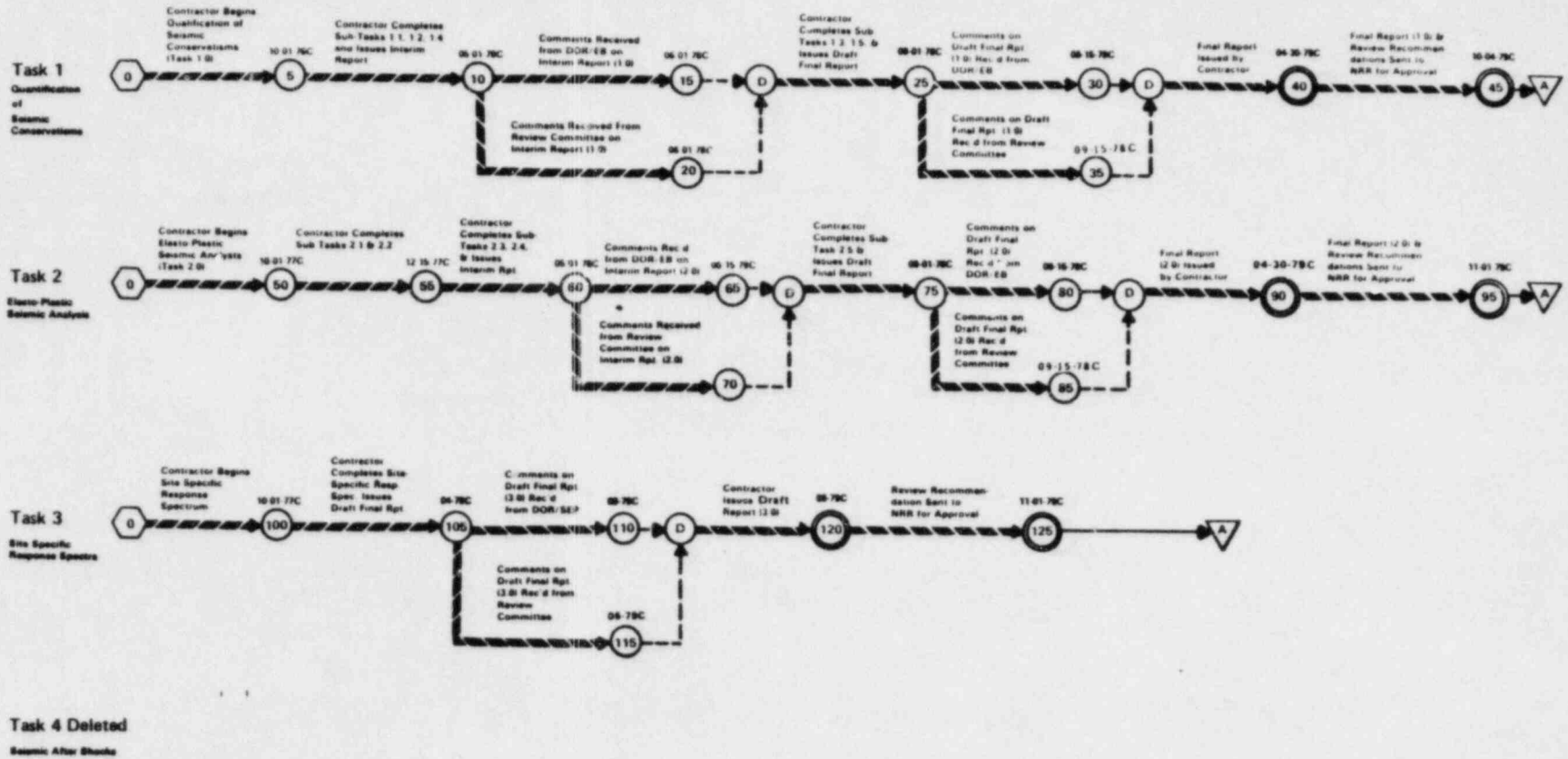
SEISMIC DESIGN CRITERIA - SHORT TERM PROGRAM (A-40)

AS OF WEEK ENDING NOVEMBER 16, 1984

KEY PERSONNEL		TASK REVIEWERS		SCHEDULED COMPLETION																					
TASK MANAGER SYED SHAUKAT X24216 <i>Syed K. Shaukat</i> NRR ANALYST JUDY BUTTS X24822		<table border="1"> <thead> <tr> <th>NAME</th> <th>BRANCH</th> </tr> </thead> <tbody> <tr> <td>N. CHOKSHI</td> <td>SGEB/DE</td> </tr> <tr> <td>L. REITER</td> <td>GSB/DE</td> </tr> <tr> <td>P. SOBEL</td> <td>GSB/DE</td> </tr> </tbody> </table>		NAME	BRANCH	N. CHOKSHI	SGEB/DE	L. REITER	GSB/DE	P. SOBEL	GSB/DE	<table border="1"> <thead> <tr> <th></th> <th>1978 ANNUAL REPORT</th> <th>PHASE I - 1979</th> <th>PHASE II - 1981</th> </tr> </thead> <tbody> <tr> <td>1978 ANNUAL REPORT</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CURRENT</td> <td></td> <td></td> <td># 10-10-84</td> </tr> </tbody> </table>			1978 ANNUAL REPORT	PHASE I - 1979	PHASE II - 1981	1978 ANNUAL REPORT				CURRENT			# 10-10-84
NAME	BRANCH																								
N. CHOKSHI	SGEB/DE																								
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	1978 ANNUAL REPORT	PHASE I - 1979	PHASE II - 1981																						
1978 ANNUAL REPORT																									
CURRENT			# 10-10-84																						
• PROBLEM DESCRIPTION The seismic design process required by current NRC criteria includes the following sequence of events: (a) Define the magnitude or intensity of the earthquake which will produce the maximum vibratory ground motion at the site (the safe shutdown earthquake or SSE). (b) Determine the free-field ground motion at the site that would result if the SSE occurred. (c) Determine the motion of site structures by modifying the free-field motion to account for the interaction of the site structures with the underlying foundation soil. (d) Determine the motion of the plant equipment supported by the site structures. (e) Compare the seismic loads, in appropriate combination with other loads, on structures, systems, and components important to safety with the allowable loads. While this seismic design sequence includes many conservative factors, certain aspects of the sequence may not be conservative for all plant sites. At present, it is believed that the overall sequence is adequately conservative. The objective of this program is to investigate selected areas of the seismic design sequence to determine their conservatism for all types of sites, to investigate alternate approaches to parts of the design sequence, to quantify the overall conservatism of the design sequence, and to modify the NRC criteria in the Standard Review Plan if changes are found to be justified. In this manner, this program will provide additional assurance that the health and safety of the public is protected, and if possible, reduce costly design conservatism by improving (1) current seismic design requirements, (2) NRR's capability to quantitatively assess the overall adequacy of seismic design for nuclear plants in general.		• RES INTERFACE INFORMATION None.		• TECHNICAL ASSISTANCE CONTRACTS Lawrence Livermore National Laboratory (LLNL), under contract to RES, reviewed all reports by 04-30-79. LLNL report on recommendations for changes to the seismic design criteria was completed on 12-26-79 (NUREG/CR-1181). LLNL has performed the value/impact analysis on proposed requirements developed from the A-40 technical findings. LLNL report was completed and issued in August 1984 as NUREG/CR-3486.																					
• ACRS INTERFACE INFORMATION None.		<table border="1"> <thead> <tr> <th>FIN NO.</th> <th>CONTRACTOR</th> <th>OBLIGATED</th> <th>EXPENDED</th> </tr> </thead> <tbody> <tr> <td>A-0041</td> <td>LLNL</td> <td>\$120 K</td> <td>\$120 K</td> </tr> </tbody> </table>		FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED	A-0041	LLNL	\$120 K	\$120 K	• POTENTIAL PROBLEMS None.													
FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED																						
A-0041	LLNL	\$120 K	\$120 K																						
				• STATUS SUMMARY The CRGR package will be forwarded to the CRGR by December 7, 1984.																					

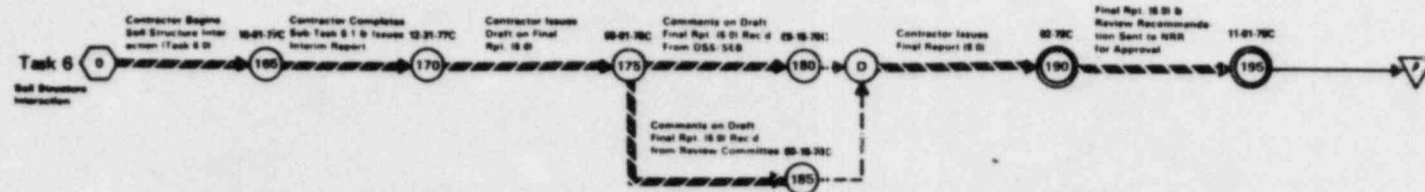
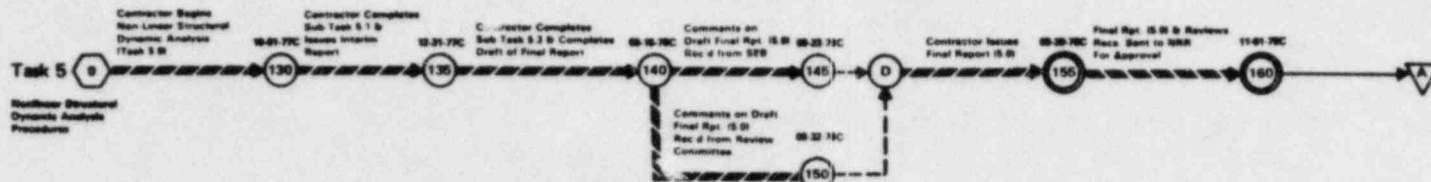
SEISMIC DESIGN CRITERIA - SHORT TERM PROGRAM (A-40)

Phase 1

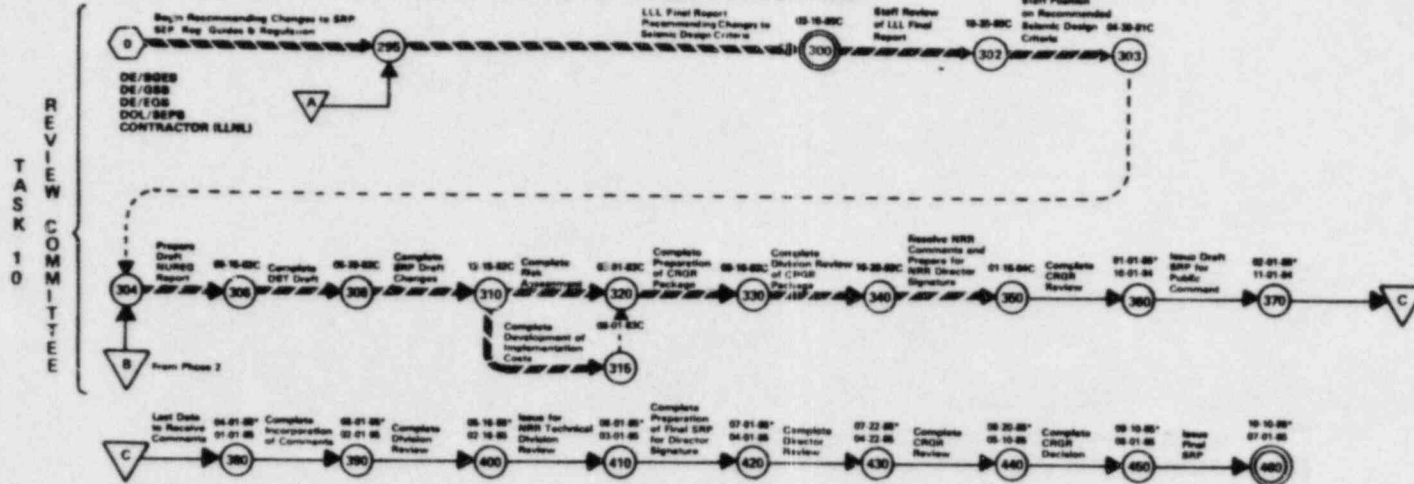


SEISMIC DESIGN CRITERIA - SHORT TERM PROGRAM (A-40) CONTINUED

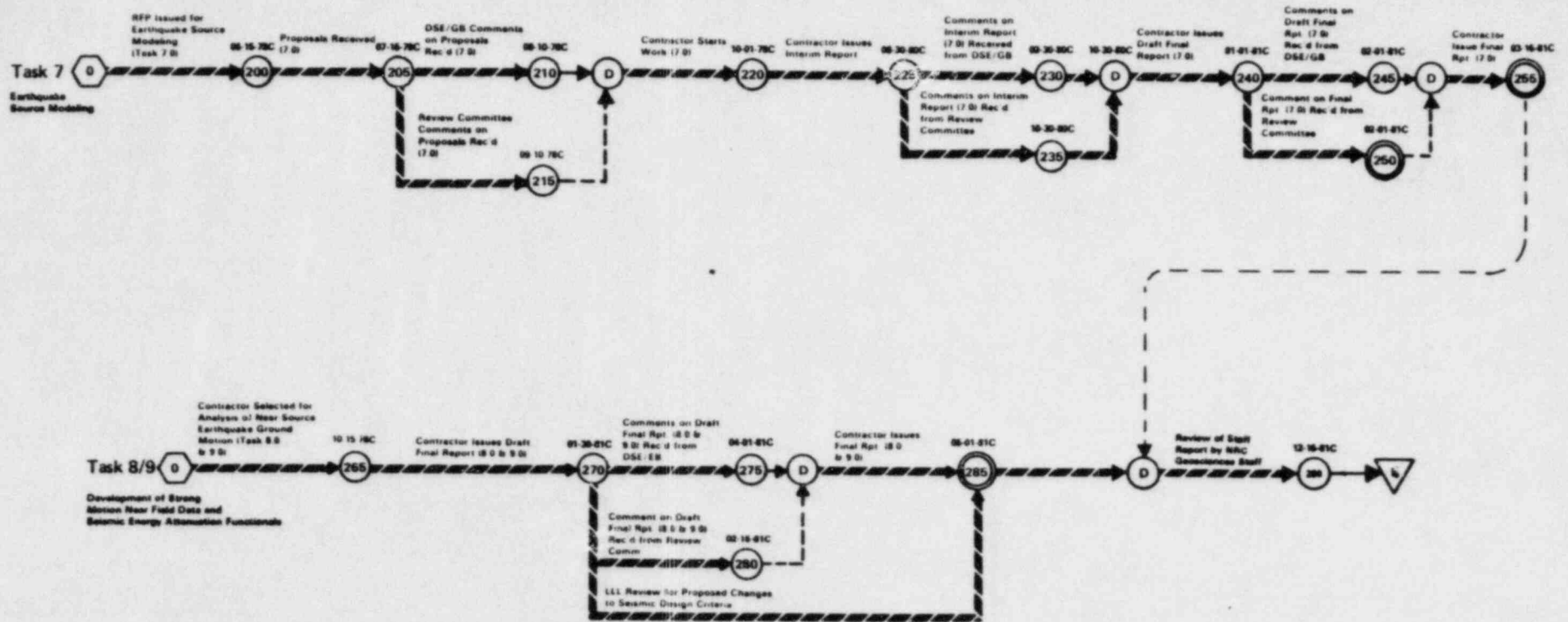
(Phase 1 Cont.)



Reviews, Comments and Recommendations on Task 1.0 - 6.0 By Review Committee



SEISMIC DESIGN CRITERIA - SHORT TERM PROGRAM (A-40) CONTINUED



CONTAINMENT EMERGENCY SUMP PERFORMANCE (A-43)

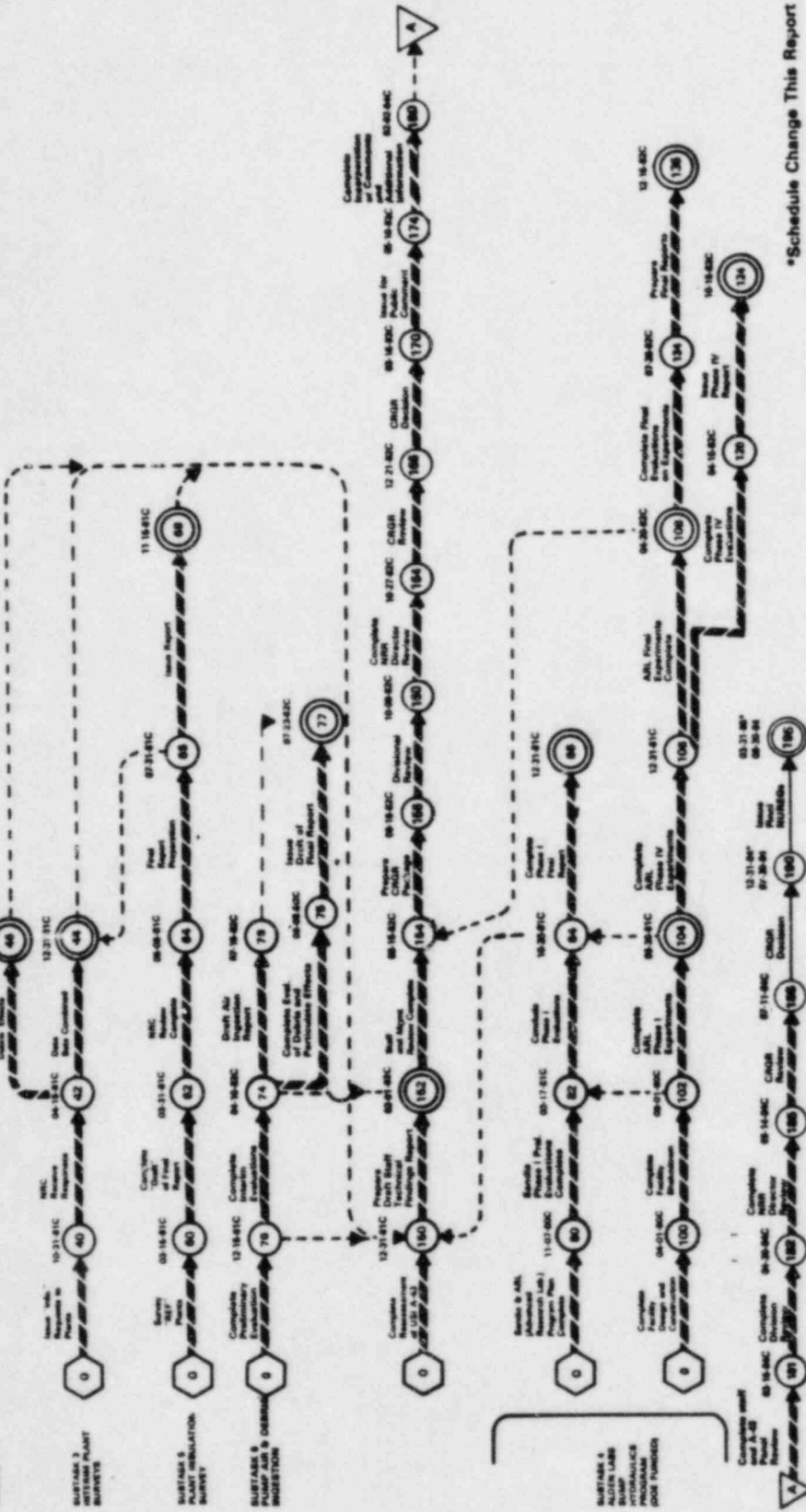
AS OF WEEK ENDING NOVEMBER 16, 1984

KEY PERSONNEL	TASK REVIEWERS	SCHEDULED COMPLETION																																																													
TASK MANAGER	NAME BRANCH	ORIGINAL	April 1982																																																												
<i>Judy Butts</i>	S. DIAB RSB/DSI	CURRENT	7 03 31 85																																																												
NRR ANALYST	P. NORIAN GIB/DST																																																														
JUDY BUTTS <i>X20822</i>	W. BUTLER CSB/DSI																																																														
• PROBLEM DESCRIPTION	• RES INTERFACE INFORMATION	• TECHNICAL ASSISTANCE CONTRACTS	• POTENTIAL PROBLEMS																																																												
<p>Following a Loss of Coolant Accident (LOCA) in a PWR, water flowing from the break in the primary system would collect on the floor of containment. During the injection mode, water for core cooling and containment spray is drawn from a large supply tank. When the water reached a low level in the tank, pumps are reconfigured to draw from the containment. This is called the recirculation mode wherein water is drawn from the containment floor or sump and pumped to the primary system or containment spray headers. This program addresses the safety issue of adequate sump or suppression pool function in the recirculation mode. It is the objective of this program to develop improved criteria for design, testing, and evaluation which will provide better assurance that emergency sumps will function to satisfy system requirements.</p> <p>The principal concerns are somewhat interrelated but are best discussed separately. One deals with the various kinds of insulation used on piping and components inside of containment. The concern being that break initiated debris from the insulation could cause blockage of the sump or otherwise adversely affect the operation of the pumps, spray nozzles, and valves of the safety systems.</p> <p>The second deals with the hydraulic performance of the sump as related to the hydraulic performance to safety systems supplied therefrom. Preoperational tests have been performed on a number of plants to demonstrate operability in the recirculation mode. Adverse flow conditions have been encountered requiring design and procedural modifications to eliminate them. These conditions, air entrainment, cavitation, and vortex formation, are aggravated by blockage. If not avoided or suppressed, they could result in pump failure during the long term cooling phase following a LOCA.</p> <p>The concerns relative to debris, blockage, and hydraulic performance also apply to boiling water reactors during recirculation from the suppression pools, and will also be addressed.</p>	<p>None; USI A-43 being managed by the Generic Issues Branch (GIB).</p>	<p>FIN No. A1237, "Containment Emergency Sump Performance", and FIN No. A1296, "Technical Assistance for Resolution of USI A-43", are being funded by RES and NRR respectively. This work is managed by the GIB Task Manager and these combined efforts are expected to be concluded in FY 84.</p>	<p>Further reviews by CRGR could lead to additional assessments and schedule slippage.</p>																																																												
	• ACRS INTERFACE INFORMATION	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>FIN NO.</th> <th>CONTRACTOR</th> <th>OBLIGATED</th> <th>EXPENDED</th> </tr> </thead> <tbody> <tr> <td>FY 81:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>A1237</td> <td>Sandia</td> <td>\$226,000</td> <td>\$101,000</td> </tr> <tr> <td>A1296</td> <td>Sandia</td> <td>\$120,000</td> <td>\$ 75,100</td> </tr> <tr> <td>FY 82:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>A1237</td> <td>Sandia</td> <td>\$327,000</td> <td>\$327,000</td> </tr> <tr> <td>A1296</td> <td>Sandia</td> <td>\$400,000</td> <td>\$281,000</td> </tr> <tr> <td>FY 83:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>A1296</td> <td>Sandia</td> <td>Qtr 1 \$426,000</td> <td>\$360,000</td> </tr> <tr> <td></td> <td></td> <td>Qtr 2 \$440,000</td> <td>\$371,000</td> </tr> <tr> <td></td> <td></td> <td>Qtr 3 \$467,000</td> <td>\$386,000</td> </tr> <tr> <td></td> <td>Sandia</td> <td>Qtr 4 \$606,000</td> <td>\$430,000</td> </tr> <tr> <td>FY 84:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>A1296</td> <td>Sandia</td> <td>Oct. 83 \$606,000</td> <td>\$441,000</td> </tr> <tr> <td></td> <td></td> <td>Nov. 83 \$606,000</td> <td>\$471,000</td> </tr> </tbody> </table>	FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED	FY 81:				A1237	Sandia	\$226,000	\$101,000	A1296	Sandia	\$120,000	\$ 75,100	FY 82:				A1237	Sandia	\$327,000	\$327,000	A1296	Sandia	\$400,000	\$281,000	FY 83:				A1296	Sandia	Qtr 1 \$426,000	\$360,000			Qtr 2 \$440,000	\$371,000			Qtr 3 \$467,000	\$386,000		Sandia	Qtr 4 \$606,000	\$430,000	FY 84:				A1296	Sandia	Oct. 83 \$606,000	\$441,000			Nov. 83 \$606,000	\$471,000	• STATUS SUMMARY
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	<p>The ACRS full Committee was briefed on the resolution status of A-43 and the comments received on 08/31/83. Committee members raised questions regarding SWR recirculation pump bearings and seals ingesting particulates and the effect thereof. In addition, the Committee cautioned against hasty or generalized application of the leak before-break concept to other issues without a very thorough analysis and review.</p>	<p>The regulatory analysis has been revised to reflect comments received from the 07/11/84 CRGR meeting and a followup meeting with CRGR will be scheduled soon.</p>																																																													

CONTAINMENT EMERGENCY SUMP PERFORMANCE (A-43)

NOTE: The sub-task 1 report is no longer necessary since the background presented therein has been summarized in NUREG-0897, Resolution of USI A-43, "Containment Emergency Sump Performance," which is in the final preparation stage.
 NOTE: Subtask 2 has been deleted since findings presented in this lower report are superseded by experimental results from Subtask 4.

SUBTASK 1
 PWR RECIRCULATION
 TESTS REPORT
 SUBTASK 2
 CONTAINMENT EMERGENCY
 SUMP PERFORMANCE
 REPORT (JONAS
 REPORT)



*Schedule Change This Report

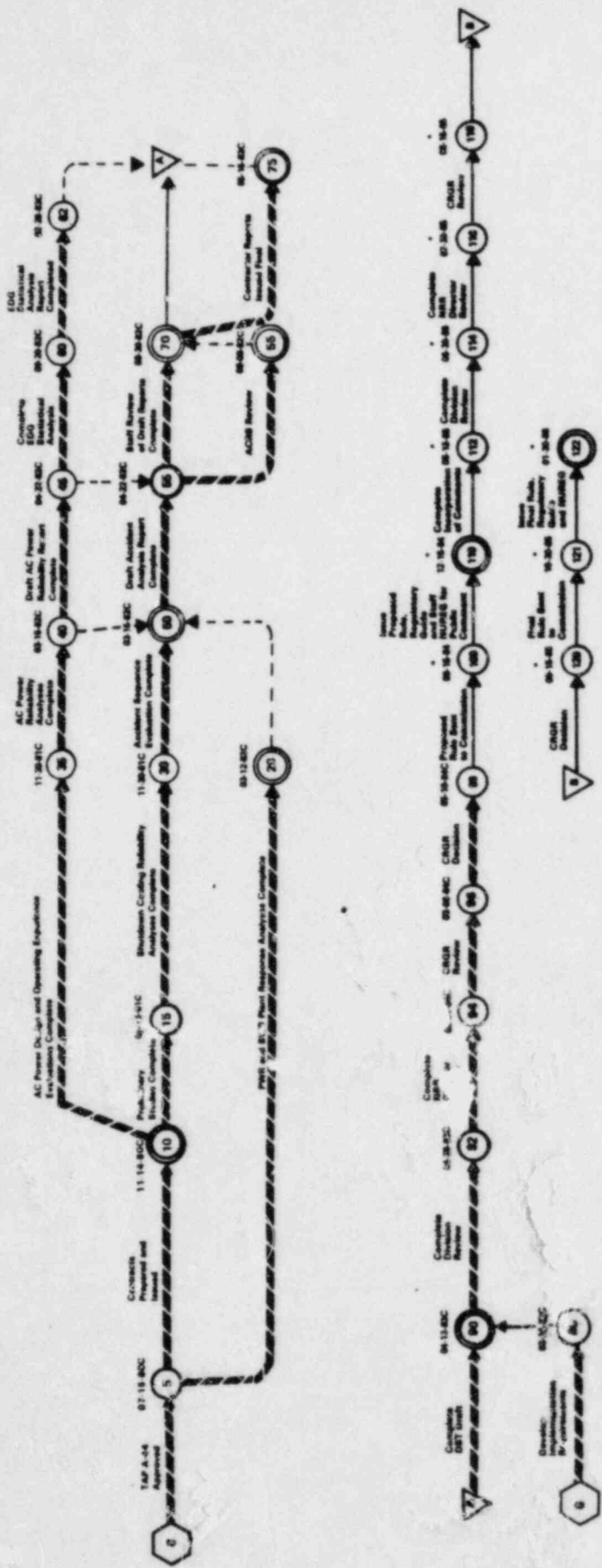
STATION BLACKOUT (A-44)

AS OF WEEK ENDING NOVEMBER 16, 1984

KEY PERSONNEL TASK MANAGER	TASK REVIEWERS		SCHEDULED COMPLETION	
	NAME	BRANCH		
<i>Alan Rubin</i> NRR ANALYST JUDY BUTTS X24822	R. ANAND	ASB/DSI	D. LANGFORD	RSB/DSI
	L. ENGLE	ORB/DL	F. A. BUSLIK	RRAB/DST
	O. CHOPRA	PSB/DSI		
				ORIGINAL <u>JUNE 1982</u>
				CURRENT <u>01-30-84</u>

• PROBLEM DESCRIPTION	• RES INTERFACE INFORMATION	• TECHNICAL ASSISTANCE CONTRACTS	• POTENTIAL PROBLEMS												
<p>Electric power for safety systems at nuclear power plants is supplied by two redundant and independent divisions. Each of these electrical divisions includes an offsite alternating current (A.C.) source, an onsite A.C. source (usually diesel-generators), and a direct current (D.C.) source. Appendix A to 10 CFR 50 defines a total loss of offsite power as an anticipated occurrence, and as such, it is required that an independent emergency onsite power supply be provided at nuclear power plants.</p> <p>The unlikely, but possible loss of A.C. power (that is, the loss of A.C. power from the offsite source and from the onsite source) is referred to as a station blackout. In the event of a station blackout, the capability to cool the reactor core would be dependent on the availability of systems which do not require A.C. power supplies, and on the ability to restore A.C. power in a timely manner. The concern is that the occurrence of a station blackout may be a relatively high probability event and that the consequences of this event may be unacceptable, for example, severe core damage may result.</p>	<p>RES is providing technical assistance for the resolution of A-44.</p>	<p>ORNL FIN 80744 5740K - Evaluate expected frequency and duration of offsite (preferred) power losses at nuclear power plants. Estimate the reliability and evaluate the dominant factors affecting the reliability of emergency A.C. power supplies.</p> <p>Perform statistical correlation and trend analysis of diesel generator data.</p> <p>NUREG/CR 2985, "Reliability of Emergency AC Power Systems at Nuclear Power Plants," was published in July 1983.</p> <p>SNL FIN A1302 4300K - Evaluate the risks posed by station blackout accidents and assess the effectiveness of safety improvements in reducing those risks.</p> <p>Evaluate risk reduction and costs of various fixes and to provide input for value/impact analysis.</p> <p>NUREG/CR 3226, "Station Blackout Accident Analyses (Part of NRC Task Action Plan 1-44)," was published in May 1983.</p>	<p>• STATUS SUMMARY</p> <p>The staff's proposed recommendations to resolve A-44 based on the technical findings, were reviewed by NRR and RES divisions. This review resulted in the recommendation to proceed with proposed rulemaking in conjunction with a new Regulatory Guide, to resolve A-44. The proposed technical resolution has been reviewed by the Director, NRR, and forwarded to CRGR. Meetings were held with CRGR in March and April 1984 to review the proposed resolution. CRGR recommended that the proposed rule, the proposed Regulatory Guide and the draft staff NUREG-1032 be issued for public comment after making modifications to reflect CRGR comments.</p> <p>The technical basis and recommendation are being revised based on updated data on loss of offsite power experienced at nuclear power plants.</p> <p>These revisions will be included in the proposed rulemaking package to be sent to the Commission.</p>												
	<p>• ACRS INTERFACE INFORMATION</p> <p>Station Blackout is related to a number of ACRS concerns regarding the reliability of power systems. This task will be coordinated with the committee as the task progresses.</p> <p>A presentation on staff recommendations to resolve USI A-44 was made to the ACRS Subcommittee on AC/DC Power Systems Reliability on May 10, 1983.</p> <p>A presentation was made to the full ACRS on July 7, 1983.</p>	<table border="1"> <thead> <tr> <th>FIN NO.</th> <th>CONTRACTOR</th> <th>OBLIGATED</th> <th>EXPENDED*</th> </tr> </thead> <tbody> <tr> <td># 80744</td> <td>ORNL</td> <td>5740K</td> <td>4895K</td> </tr> <tr> <td># A1302</td> <td>SNL</td> <td>4300K</td> <td>4294K</td> </tr> </tbody> </table> <p>* As of August 31, 1984.</p>	FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED*	# 80744	ORNL	5740K	4895K	# A1302	SNL	4300K	4294K	
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STATION BLACKOUT (A-44)

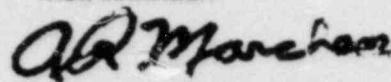


NOTE: Milestones 75 - Accident Analysis Report and EOL Reliability Report were published in 1983. The Draft Loss of Offsite Power Report was published in July 1984.

This Schedule for the Resolution of this U.S. is being revised.

SHUTDOWN DECAY HEAT REMOVAL REQUIREMENTS (A-45)

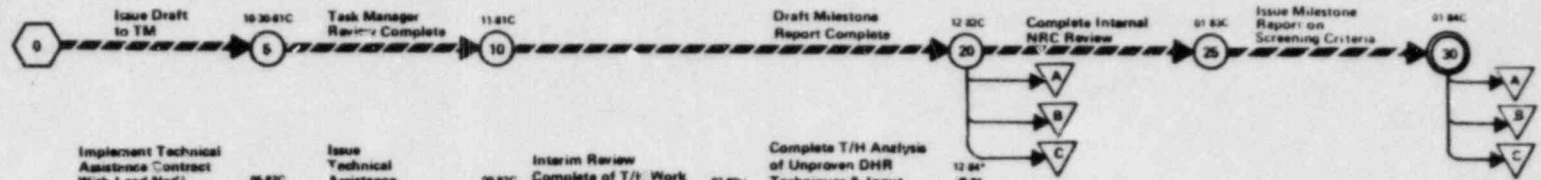
AS OF WEEK ENDING NOVEMBER 15, 1984

KEY PERSONNEL	TASK REVIEWERS	E. McPEEK	SSPB/DL																																
TASK MANAGER  NRR ANALYST JUDY BUTTS X2822	<table border="1"> <thead> <tr> <th>NAME</th> <th>BRANCH</th> </tr> </thead> <tbody> <tr> <td>T. MARSH</td> <td>RSB/DSI</td> </tr> <tr> <td>F. ROSA</td> <td>ICSB/DSI</td> </tr> <tr> <td>M. SRINIVASAN</td> <td>PSB/DSI</td> </tr> </tbody> </table>	NAME	BRANCH	T. MARSH	RSB/DSI	F. ROSA	ICSB/DSI	M. SRINIVASAN	PSB/DSI	<table border="1"> <tbody> <tr> <td>D. DIANNI</td> <td>ORB 4/DL</td> </tr> <tr> <td>M. CUNNINGHAM</td> <td>DRA/RES</td> </tr> <tr> <td>R. FRAHM</td> <td>RRAB/DST</td> </tr> <tr> <td>P. HEARN</td> <td>ASB/DSI</td> </tr> </tbody> </table>	D. DIANNI	ORB 4/DL	M. CUNNINGHAM	DRA/RES	R. FRAHM	RRAB/DST	P. HEARN	ASB/DSI	SCHEDULED COMPLETION <table border="1"> <tbody> <tr> <td>ORIGINAL</td> <td>10-30-85</td> </tr> <tr> <td>CURRENT</td> <td>02-28-86</td> </tr> </tbody> </table>	ORIGINAL	10-30-85	CURRENT	02-28-86												
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CURRENT	02-28-86																																		
<p>• PROBLEM DESCRIPTION</p> <p>Task A-45 was approved as a USI by the NRC in December 1980.</p> <p>Although many improvements to the steam generator auxiliary feedwater system were required of the reactor manufacturers by the NRC following the TMI-2 accident, the staff feels that providing an alternative means of decay heat removal could substantially increase the plants' capability to deal with a broader spectrum of transients and accidents and potentially could, therefore, significantly reduce the overall risk to the public. Consequently, Task A-45 will investigate alternative means of decay heat removal in PWR plants, including but not limited to using existing equipment where possible. This Unreactive Safety Issue will also investigate the need and possible design requirements for improving reliability of decay heat removal systems in boiling water reactors (BWRs).</p> <p>The overall purpose of Task A-45 is to evaluate the adequacy of current licensing design requirements, in order to ensure that nuclear power plants do not pose an unacceptable risk due to failure to remove shutdown decay heat. The objective will be to develop a comprehensive and consistent set of shutdown cooling requirements for existing and future LWRS, including the study of alternative means of shutdown decay heat removal and of diverse "dedicated" systems for this purpose.</p> <p>The main objectives of the program are as follows:</p> <ul style="list-style-type: none"> - Determine the safety adequacy of decay heat removal systems in existing power plants for achieving both hot shutdown and cold shutdown conditions. - Evaluate the feasibility of alternative measures for improving decay heat removal systems, including diverse alternatives dedicated to the decay heat removal function. - Assess the value and impact of the most promising alternative measures. - Develop a plan for implementing any new licensing requirements for decay heat removal systems. <p>The interrelation and relative timing of each of the program sub-tasks are shown on the schedule network.</p>	<p>• RES INTERFACE INFORMATION</p> <p>Close coordination and cooperation will be required on Task A-45 between NRR and RES. RES assistance will be required from the Divisions of Risk Analysis and Accident Evaluation. The Division of Risk Analysis will provide technical input from their Sandia Laboratory Program on Alternate Decay Heat Removal Concepts, technical evaluations relative to reliability and risk assessment for shut-down decay heat removal systems, and input from Task A-44, "Station Black-out," relative to shutdown cooling systems. The Division of Accident Evaluation will provide technical input relative to the transient response of existing and improved shutdown decay heat removal systems to transient events and small LOCA's. This will also include performing (in-house, contractors) detailed thermal hydraulics analyses where required to support existing and improved decay heat removal systems behavior under transient and accident conditions.</p> <p>• ACRS INTERFACE INFORMATION</p> <p>The Task Manager participated in briefing the Full Committee on November 2, 1984 on the results of an NRC team visit through five European countries to discuss their approach to decay heat removal systems and plant protection against sabotage.</p> <ul style="list-style-type: none"> - Task Manager briefed the full committee on August 9, 1984 on the overall status of USI A-45. - ACRS Subcommittee on Decay Heat Removal Systems (DHRS) met on June 7, 1984, and Task Manager provided the subcommittee with an update of the USI A-45 program. - Further meetings with the full committee and subcommittee on DHRS will be held as the work on USI A-45 progresses and certain pre-determined milestones are completed. 	<p>• TECHNICAL ASSISTANCE CONTRACTS</p> <p>Implemented a technical assistance contract on May 10, 1982 with Sandia (FIN A1308) to provide overall project management, technical direction and integration for the entire Task A-45 program, including selection and management of subcontractors.</p> <table border="1"> <thead> <tr> <th>FIN NO.</th> <th>CONTRACTOR</th> <th>OBLIGATED</th> <th>EXPENDED</th> </tr> </thead> <tbody> <tr> <td>#A1308</td> <td>Sandia</td> <td>\$3,980K</td> <td>\$3,786K</td> </tr> </tbody> </table> <p>* Includes the following funding which has been committed to support subcontracting:</p> <table border="1"> <tbody> <tr> <td>#</td> <td>UCLA</td> <td>\$228K</td> </tr> <tr> <td>#</td> <td>ORNL</td> <td>\$431K</td> </tr> <tr> <td>#</td> <td>BBR</td> <td>\$ 52K</td> </tr> <tr> <td>#</td> <td>LANL</td> <td>\$107K</td> </tr> <tr> <td>#</td> <td>ASAI</td> <td>\$146K</td> </tr> <tr> <td>#</td> <td>SAI</td> <td>\$256K</td> </tr> <tr> <td>#</td> <td>AE Support</td> <td>\$364K</td> </tr> <tr> <td>#</td> <td>DHR Tech. Support</td> <td>\$108K</td> </tr> </tbody> </table> <p>• POTENTIAL PROBLEMS</p> <p>Potential problem areas identified to date are:</p> <ul style="list-style-type: none"> - Obtaining sufficient NRR manpower to work on Task A-45. - Development of appropriate reliability or quantitative goals for Task A-45 and translation of probabilistic results into licensing requirements. - Program funding must be approved and obtained. - Obtaining necessary operating experience on shut-down cooling systems including the most current DHR system design information resulting from Post-TMI changes. - Uncertainty in the quality of information that will be available from ongoing reliability and risk assessments, on what schedule, and whether information can be extrapolated to all operating plants. - Number of plants that need to be assessed may be significantly greater than the plants that will have a PRA or reliability study performed because of significant design variation in the systems used for the decay heat removal function. 	FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED	#A1308	Sandia	\$3,980K	\$3,786K	#	UCLA	\$228K	#	ORNL	\$431K	#	BBR	\$ 52K	#	LANL	\$107K	#	ASAI	\$146K	#	SAI	\$256K	#	AE Support	\$364K	#	DHR Tech. Support	\$108K	<p># - Arranging for plant visits in connection with A-45 assessments is taking longer than originally scheduled.</p> <p>• STATUS SUMMARY</p> <p>Revision 3 of TAP A-45 was issued in March 1984 and approved by the Director, NRR on July 24, 1984.</p> <p>In a memorandum to the Director, NRR, dated April 13, 1984, DST requested a 4-month schedule slip in the USI A-45 program. Subsequently, on May 14, 1984, the Director, NRR approved the 4-month schedule slip.</p> <p># Plant visits for the purpose of obtaining missing information relative to DHR system analyses have taken place at Point Beach, Turkey Point, Quad Cities and Arkansas Nuclear No. 1. Arranging for the site visits is taking longer than originally estimated.</p> <p># Responses have been prepared to: (1) Chairman Palledino's memorandum of August 21, 1984 requesting that we address ACRS comments contained in a memorandum to W. J. Dircks, dated August 14, 1984, and (2) Commissioner Roberts' questions on the A-45 program contained in his memorandum to W. J. Dircks, dated September 7, 1984.</p> <p># During this reporting period, the tenth and eleventh contractor draft interim milestone reports have been issued: (1) "A Primary System Feed and Stead Transient in a Three Loop Pressurized Water Reactor Following a Complete Loss of Feedwater with Delayed Reactor Trip," and (2) "A Simplified Seismic Analysis Plan for the USI A-45 Program."</p>
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SHUTDOWN DECAY HEAT REMOVAL REQUIREMENTS (A-45)

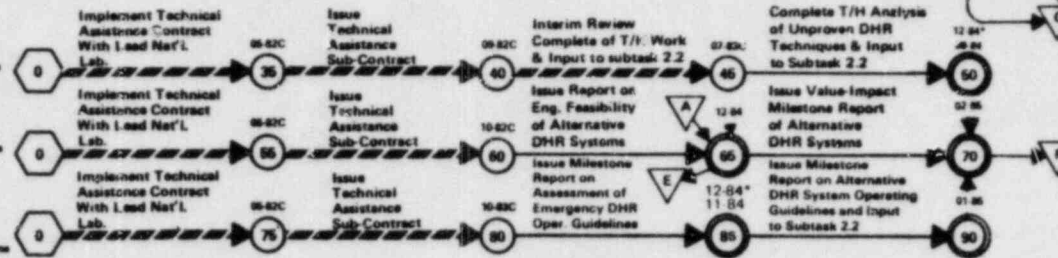
TASK 1. DEVELOP SCREENING CRITERIA FOR DHRs

Subtask 1.1 Existing Plants
Subtask 1.2 Future Plants
Subtask 1.3 Dev. Qualitative Criteria for Special Emergencies*



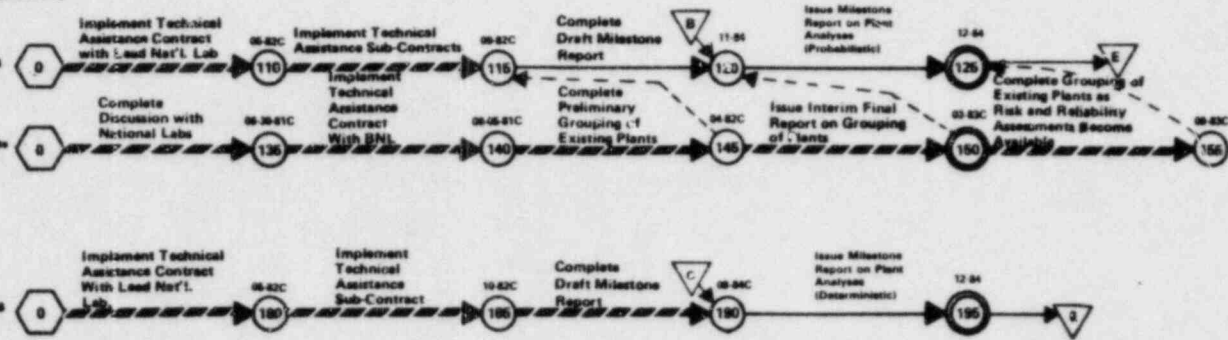
TASK 2. DEV. MEANS FOR IMPROVEMENT OF DHRs

Subtask 2.1 Phenomenological Studies
Subtask 2.2 Conceptual Design Studies
Subtask 2.3 Operational Aspects of Alternative DHR Systems



TASK 3. ASSESS ADEQUACY OF DHRs IN "EXISTING" LWR'S

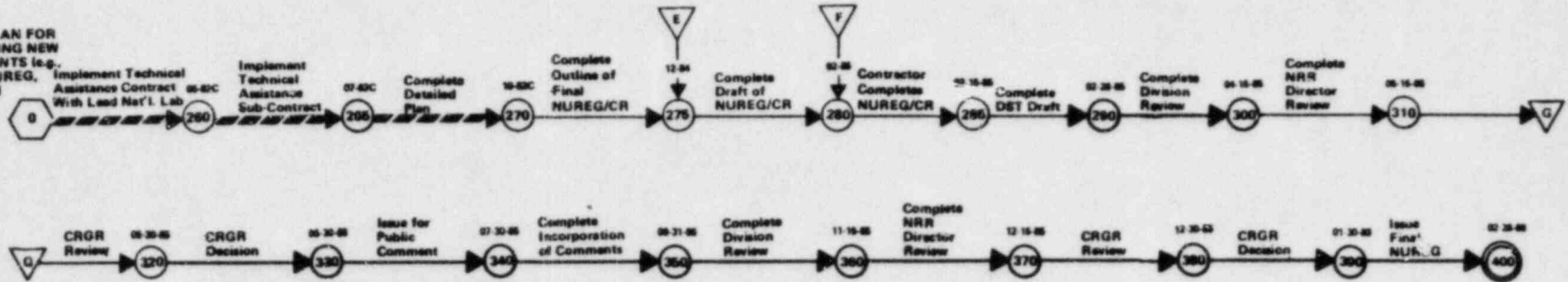
Subtask 3.2 Assess Adequacy of DHRs in Existing Plants on Probabilistic Basis
Subtask 3.3 Group Other Existing Plants for Assessments of Adequacy of DHRs
Subtask 3.5 Assess Adequacy of DHRs in Existing Plants on Deterministic Basis



* Schedule Change This Report

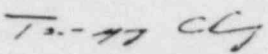
SHUTDOWN DECAY HEAT REMOVAL REQUIREMENTS (A-45) CONTINUED

TASK 4. DEVELOP PLAN FOR IMPLEMENTING NEW REQUIREMENTS (e.g., PREPARE NUREG, REG. GUIDE)



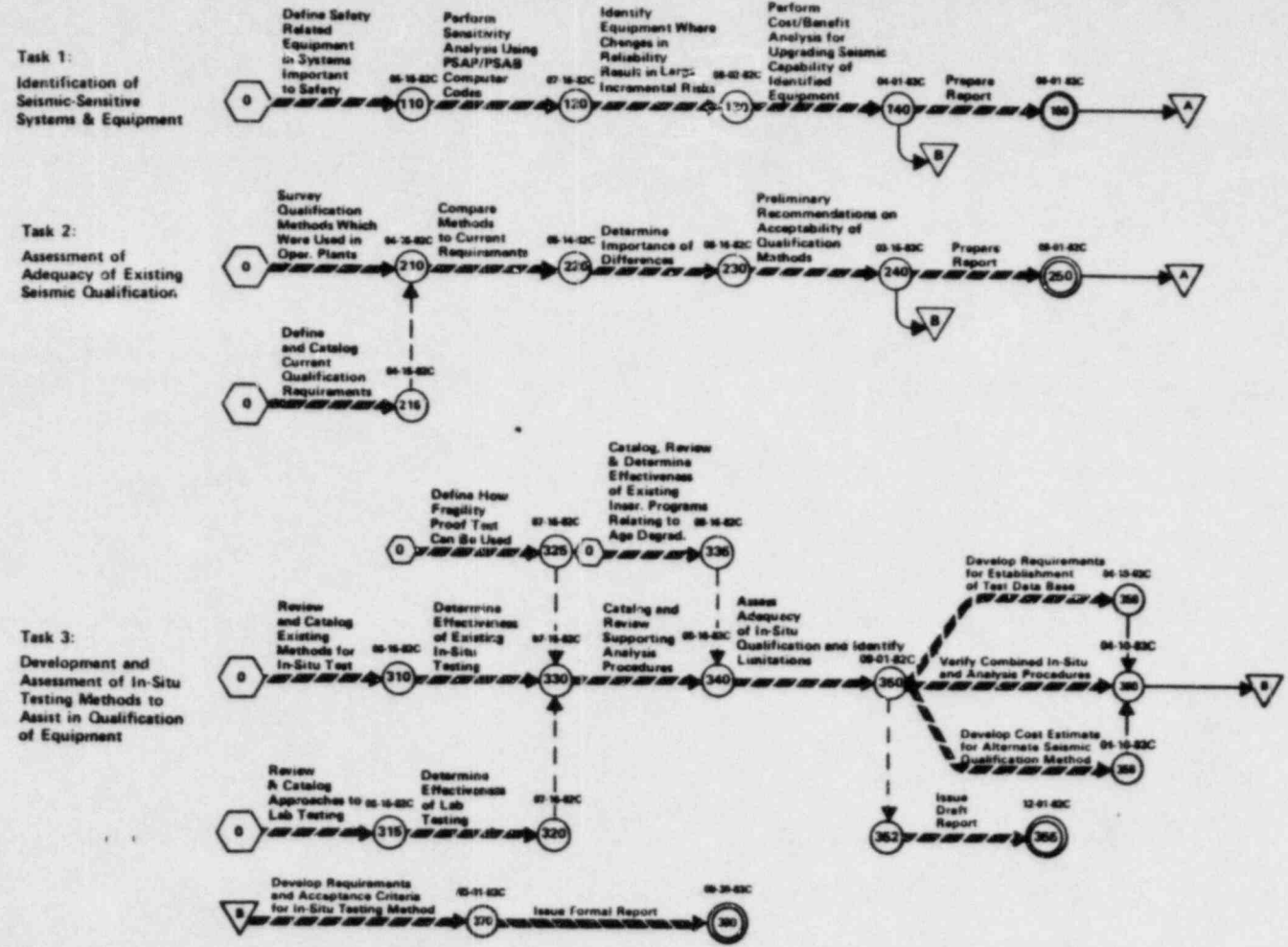
SEISMIC QUALIFICATION OF EQUIPMENT IN OPERATING PLANTS (A-46)

AS OF WEEK ENDING NOVEMBER 16, 1984

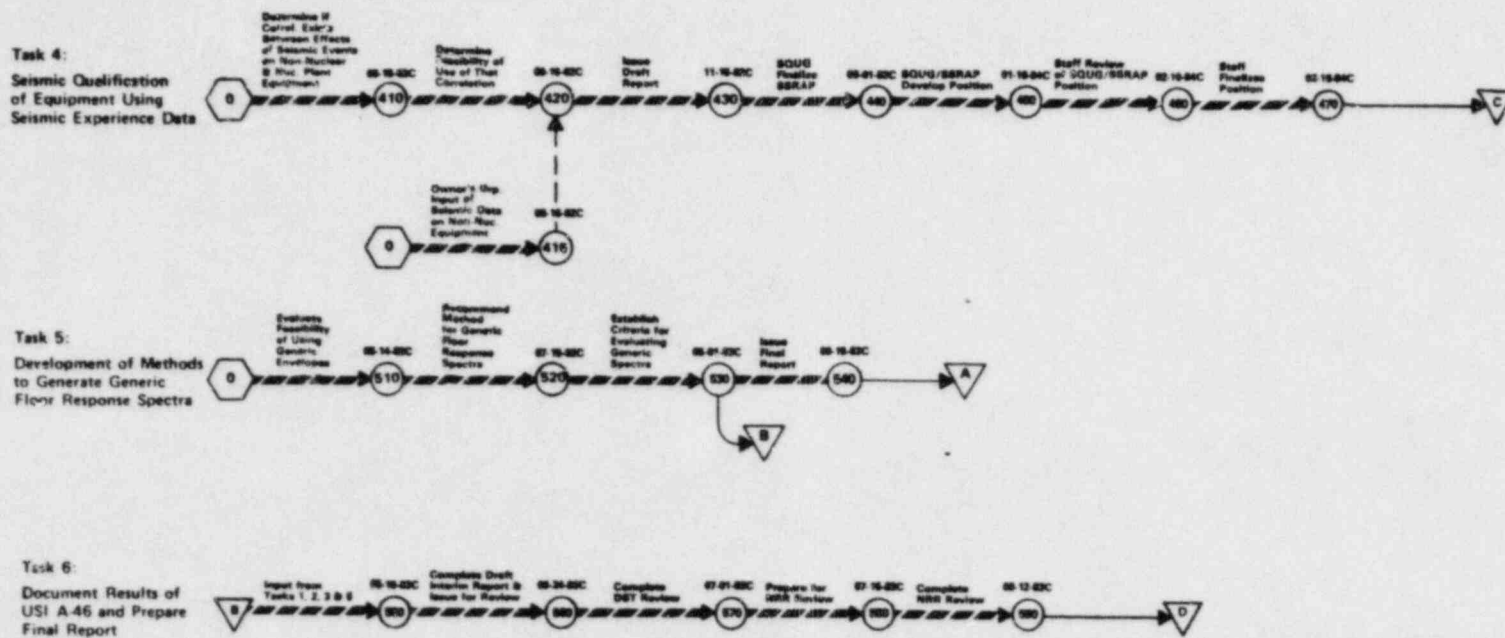
KEY PERSONNEL TASK MANAGER	TASK REVIEWERS		FRANK SKOPEC	RAB/DSI	SCHEDULED COMPLETION
	NAME	BRANCH	KULIN DESAI	RBB/DSI	
 NRR ANALYST JUDY BUTTS X24822	ARNOLD LES	EQB/DE	HAROLD POLK	SGEB/DE	ORIGINAL 12-15-83
	PEI-YING CHEN	SEPB/DL	GUSTAAF CIESE-KOCH	GSB/DE	CURRENT 7-16-84
	JOHN KNOX	PSB/DSI	GERALD WEIDENHAMER	MSEB/RES	

• PROBLEM DESCRIPTION	• RES INTERFACE INFORMATION	• TECHNICAL ASSISTANCE CONTRACTS	• POTENTIAL PROBLEMS																
<p>Task A-46 was approved as a USI by the NRC December, 1980.</p> <p>The design criteria and methods for the seismic qualification of mechanical and electrical equipment in nuclear power plants have undergone significant change during the course of the commercial nuclear power program. Consequently, the margins of safety provided in existing equipment to resist seismically induced loads and perform the intended safety functions may vary considerably. The seismic qualification of the equipment in operating plants must, therefore, be reassessed to assure the ability to bring the plant to a safe shutdown condition when subject to a seismic event. The objective of this Unresolved Safety Issue is to establish an explicit set of guidelines that could be used to judge the adequacy of the seismic qualification of mechanical and electrical equipment at all operating plants in lieu of attempting to backfit current design criteria for new plants. This guidance will concern equipment required to safely shutdown the plant, as well as equipment whose function is not required for safe shutdown, but whose failure could result in adverse conditions which might impair shutdown functions. Also, explicit guidelines will be established for use in requalifying equipment whose seismic qualification was found to be inadequate.</p> <p>A breakdown of the tasks is as follows:</p> <p>Task 1 Identification of Seismic Sensitive Systems and Equipment</p> <p>Task 2 Assessment of Adequacy of Existing Seismic Qualification</p> <p>Task 3 Development and Assessment of In-Situ Testing Methods to Assist in Qualification of Equipment</p> <p>Task 4 Seismic Qualification of Equipment Using Seismic Experience Data</p> <p>Task 5 Development of Methods to Generate Generic Floor Response Spectra</p> <p>Task 6 Document Results of USI A-46 and Prepare Final Report</p>	<p>Part of a RES contract with Southwest Research Institute (SWRI) is concerned with developing methodology to complete various seismic qualification tests and is designated Task 2 for A-46. This work is essentially complete. SWRI issued related reports in June and November 1983.</p> <p>• ACRS INTERFACE INFORMATION</p> <p>The status of A-46 was presented to the ACRS Subcommittee in March 1983. In March and July 1983, respectively, the Seismic Qualification Utility Group (SQUG) also made two separate presentations to the ACRS Subcommittee and Full Committee on their pilot program to establish the feasibility of using seismic experience data in conventional power plants to demonstrate the adequacy of similar equipment installed in operating nuclear power plants. The ACRS, in their comments, indicated that the SQUG approach was in line with the ACRS recommendations made in January 1983 and should be encouraged. However, ACRS believes that more work is required to establish the operability of equipment during and after an earthquake, and more data will be required to support conclusions drawn concerning the seismic resistance of the equipment investigated. The status of A-46 was presented to the ACRS Subcommittee again in March and April 1984, and to the ACRS Full Committee in May 1984.</p>	<p>Tasks 1 and 2 were performed by Brookhaven National Laboratory and are essentially complete. NUREG/CR-3267 on Task 1 was issued in June 1983. NUREG/CR-3268 on Task 2 was issued in September 1983. A draft guidelines on Task 1 was issued in September 1983.</p> <p>Task 3 was performed by Idaho National Engineering Laboratory and is now complete. NUREG/CR-3275 on Task 3 was issued in June 1984.</p> <p>Task 4 has been studied independently by Lawrence Livermore National Laboratory (LLNL) and by the Seismic Qualification Utility Group (SQUG). Results of the LLNL study were published in NUREG/CR-3017 dated August 1983.</p> <table border="1"> <thead> <tr> <th>FIN NO.</th> <th>CONTRACTOR</th> <th>OBLIGATED</th> <th>EXPENDED</th> </tr> </thead> <tbody> <tr> <td>A0423</td> <td>LLNL</td> <td>\$79K</td> <td>\$75K</td> </tr> <tr> <td>A0474</td> <td>INEL</td> <td>\$280K</td> <td>\$280K (act)</td> </tr> <tr> <td>A1287</td> <td>BNL</td> <td>\$320K</td> <td>\$320K</td> </tr> </tbody> </table>	FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED	A0423	LLNL	\$79K	\$75K	A0474	INEL	\$280K	\$280K (act)	A1287	BNL	\$320K	\$320K	<p>None.</p> <p>• STATUS SUMMARY</p> <p>Work on all tasks is essentially completed by the contractor with the exception of Task 4. The SQUG formed an independent Senior Seismic Review and Advisory Panel (SSRAP) in June 1983 to make recommendations for use of seismic experience data. The NRC staff has been working very closely with the SQUG and the SSRAP and will continue to do so. This activity is an important element in the resolution of A-46. The A-46 schedule was approved by NRC management on July 18, 1983. SSRAP issued its report in February 1984 and then updated it in August 1984.</p> <p>The USI A-46 CRGR package (including NUREG-1030) was issued in March 1984 for NRR and RES staff review and comments. It was approved by the Director of NRR on October 31, 1984 and sent to CRGR for review and approval on November 1, 1984.</p>
FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED																
A0423	LLNL	\$79K	\$75K																
A0474	INEL	\$280K	\$280K (act)																
A1287	BNL	\$320K	\$320K																

SEISMIC QUALIFICATION OF EQUIPMENT IN OPERATING PLANTS (A-46)

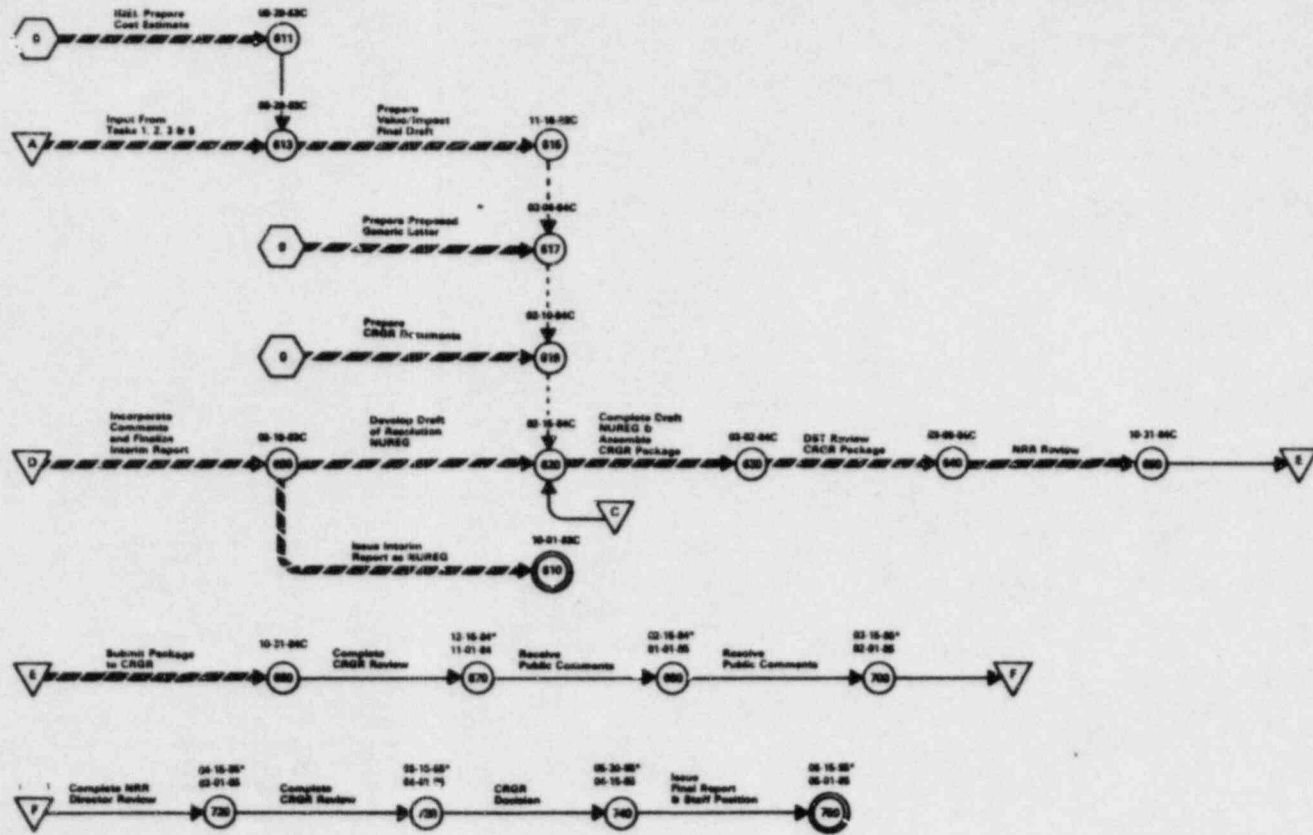


SEISMIC QUALIFICATION OF EQUIPMENT IN OPERATING PLANTS (A-46) CONTINUED



SEISMIC QUALIFICATION OF EQUIPMENT IN OPERATING PLANTS (A-46) CONTINUED

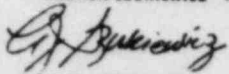
Task 6
(Continued)



* Schedule Change This Report.

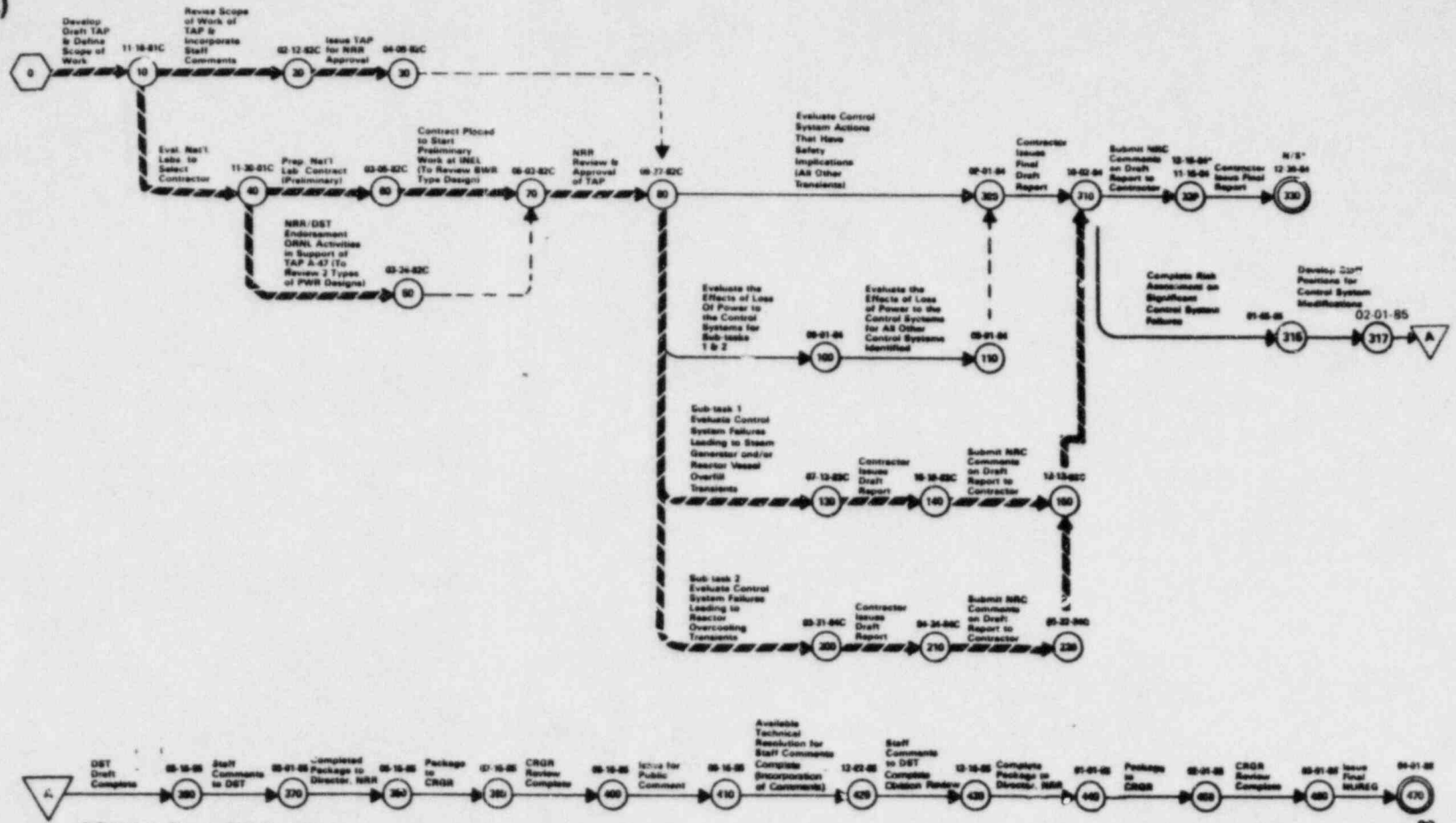
SAFETY IMPLICATIONS OF CONTROL SYSTEMS (A-47)

AS OF WEEK ENDING NOVEMBER 16, 1984

KEY PERSONNEL	TASK REVIEWERS	S. DIAB RSB/DSI M. CHIRAMAL PSU/AEOD J. T. BEARD ORAB/DL R. KENNEDY PTRB/DHFS	SCHEDULED COMPLETION																				
<p>TASK MANAGER ANDREW SZUKIEWICZ X30713</p>  <p>NSR ANALYST JUDY BUTTS X30822</p> <p>PROBLEM DESCRIPTION</p> <p>Task A-47 was approved as a USI by the NRC in December 1980.</p> <p>This issue concerns the potential for accidents or transients being made more severe as a result of control system failures or malfunctions. These failures or malfunctions may occur independently or as a result of the accident or transient under consideration and would be in addition to any control system failures that may have initiated the event. Although it is generally believed that control system failures are not likely to result in loss of safety functions which could lead to serious events or result in conditions that safety systems are not able to cope with, in-depth studies have not been performed to support this belief. The potential for an accident that would affect a particular control system and the effects of the control system failures will differ from plant to plant. Therefore, it is not likely that it will be possible to develop generic answers to these concerns, but rather plant-specific reviews will be required. The purpose of this Unresolved Safety Issue is to define generic criteria that may be used for plant-specific reviews. A specific subtask of this issue will be to study the steam generator overfill transient in PWRs and the reactor overfill transient in BWRs to determine and define the need for preventive and/or mitigating design measures to accommodate this transient.</p> <p>RES INTERFACE INFORMATION</p> <p>Close coordination will be required on Task A-47 between NSR and RES. RES assistance will be required from the Division of Facilities Operations and the Division of Risk Analysis. The Division of Facilities Operations will provide input from their research programs currently being developed in conjunction with A-47 on control system interactions. The Division of Risk Analysis will provide input on their current ongoing ORNL program "Evaluation of Pressurized Thermal Shock". Other research activities are being evaluated to determine their significance to A-47 and may be identified later.</p> <p>ACRS INTERFACE INFORMATION</p> <p>The ACRS Subcommittee on Electrical Power Systems (Dr. Kerr) met on the issue on 1/23/81 to initiate an approximate six month study at the request of Chairman Ahearne.</p> <p>Status of the activities identified in TAP A-47 was discussed with the ACRS Subcommittee on December 21, 1982 and November 16, 1983.</p>	<p>TASK REVIEWERS</p> <table border="1"> <thead> <tr> <th>NAME</th> <th>BRANCH</th> </tr> </thead> <tbody> <tr> <td>D. BASDEKAS</td> <td>DFG/RES</td> </tr> <tr> <td>J. CALVO</td> <td>ICSB/DSI</td> </tr> <tr> <td>E. CHELLIAH</td> <td>RRAB/DST</td> </tr> </tbody> </table>	NAME	BRANCH	D. BASDEKAS	DFG/RES	J. CALVO	ICSB/DSI	E. CHELLIAH	RRAB/DST	<p>TECHNICAL ASSISTANCE CONTRACTS</p> <p>During the week of July 20, 1981, meetings were held with INEL, EG&G (Idaho Falls), Battelle Northwest and Lawrence Livermore Labs for the purpose of discussing the A-47 objectives and to assess the type of activities that could best be conducted by these organizations. Similar meetings with ORNL and Sandia Labs were held July 9, 1981. A Technical Assistance (T.A.) contract with ORNL (FIN B-6467) was established through NSR/RES. RES will conduct a review of two different types of PWR designs (one B&W plant, Oconee, and one CE plant, Calvert Cliffs), and perform the activities identified in Tasks 1, 2, 3 and 4 of Task Action Plan A-47. A separate T.A. contract to perform the review on one BWR type design, Browns Ferry, and one PWR type design, (Westinghouse) H.B. Robinson, was established with INEL (FIN A-6477). The technical assistance contracts will perform the following tasks:</p> <ol style="list-style-type: none"> 1. Evaluate Control System Failures Leading to Steam Generator and/or Reactor Overfill Transients 2. Evaluate Control System Failures Leading to Reactor Overcooling Transients 3. Evaluate (All Others) Control System Actions That Have Safety Implications 4. Evaluate the Effects of Loss of Power to the Control Systems <table border="1"> <thead> <tr> <th>FIN NO.</th> <th>CONTRACTOR</th> <th>OBLIGATED*</th> <th>EXPENDED**</th> </tr> </thead> <tbody> <tr> <td>A-6477</td> <td>INEL</td> <td>\$1,336,000</td> <td>\$1,336,000</td> </tr> <tr> <td>B-6467 and B-6516</td> <td>ORNL</td> <td>\$3,990,000</td> <td>\$2,990,000</td> </tr> </tbody> </table> <p>* through FY 84 ** through June 1984</p>	FIN NO.	CONTRACTOR	OBLIGATED*	EXPENDED**	A-6477	INEL	\$1,336,000	\$1,336,000	B-6467 and B-6516	ORNL	\$3,990,000	\$2,990,000	<p>POTENTIAL PROBLEMS</p> <p>Availability of the B&W simulator for the Calvert Cliffs-1 evaluation is rescheduled to begin in March 1985.</p> <p>STATUS SUMMARY</p> <p>The Westinghouse PWR design review at INEL was started February 1, 1983.</p> <p>Draft final report on the effects of control systems failures on transients and accidents for a GE design was submitted by INEL for staff review in July 1984.</p> <p>Draft final report on the effects of control system failures on transients and accidents at a Westinghouse 3-Loop PWR was submitted by INEL for staff review in August 1984.</p> <p>Draft Report on the Safety Implications of Control Systems of a B&W PWR design was submitted by ORNL in October 1984.</p> <p>A draft report on the overfill transient for the B&W review was submitted by ORNL in October 1983.</p>
NAME	BRANCH																						
D. BASDEKAS	DFG/RES																						
J. CALVO	ICSB/DSI																						
E. CHELLIAH	RRAB/DST																						
FIN NO.	CONTRACTOR	OBLIGATED*	EXPENDED**																				
A-6477	INEL	\$1,336,000	\$1,336,000																				
B-6467 and B-6516	ORNL	\$3,990,000	\$2,990,000																				

**B&W-PWR
PLANT REVIEW
(OCONEE)**

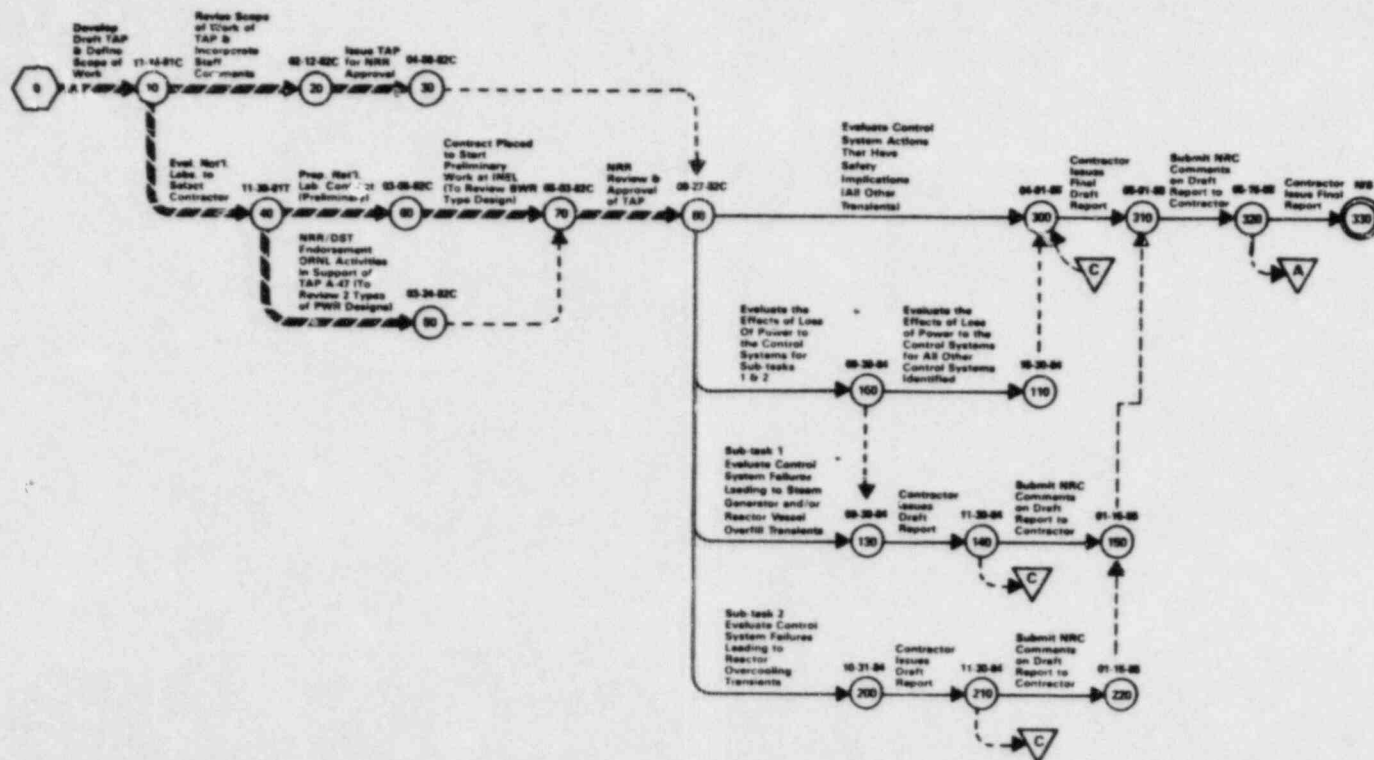
SAFETY IMPLICATIONS OF CONTROL SYSTEMS (A-47)



* Schedule Change This Report.

CE-PWR
PLANT REVIEW
(CALVERT CLIFFS)

SAFETY IMPLICATIONS OF CONTROL SYSTEMS (A-47)
CONTINUED



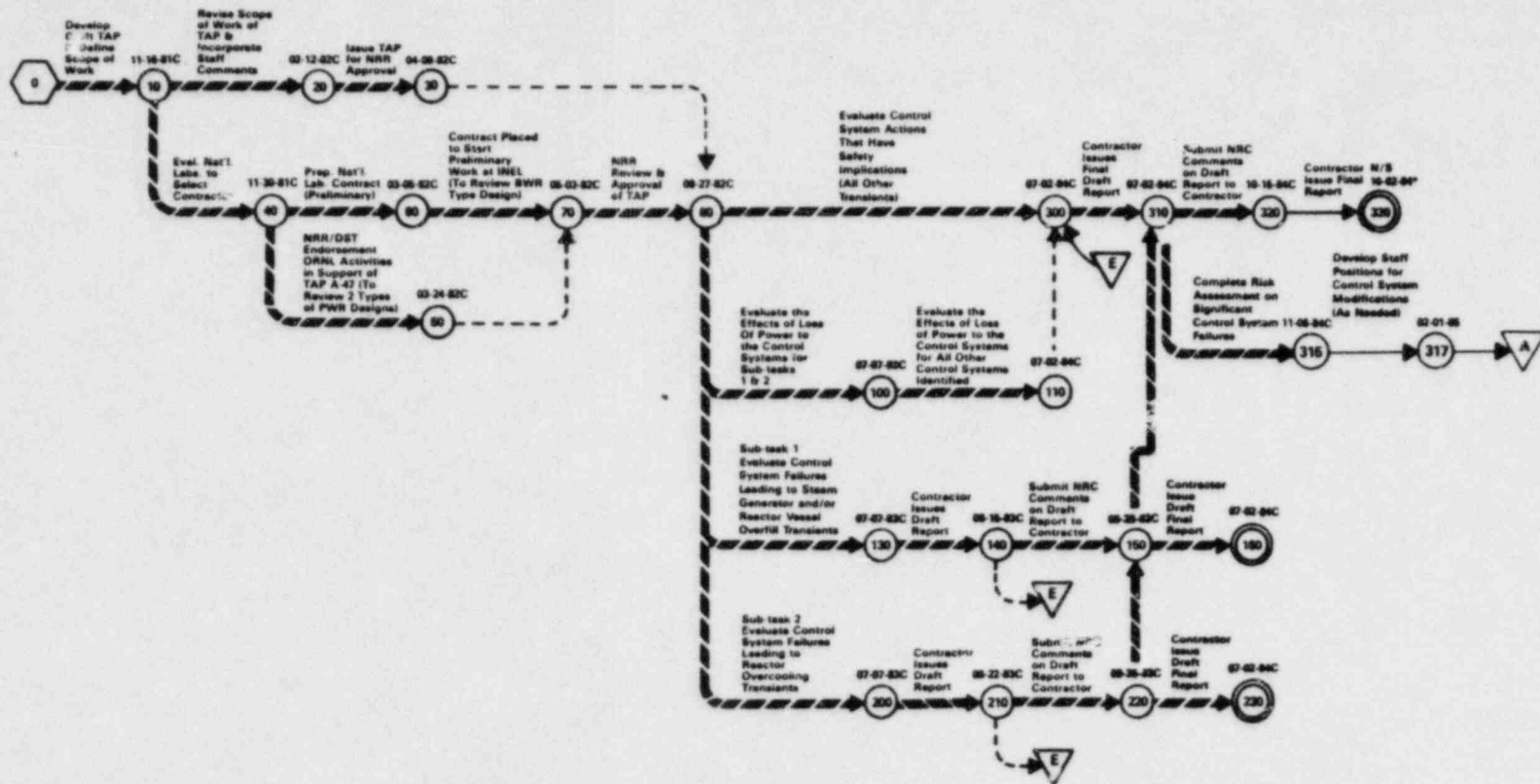
NOTE: This schedule is contingent on the availability of the BG&E simulator for ORNL use, per agreement between RES and BG&E. Simulator studies are to begin in March 1985.

* Schedule Change This Report.

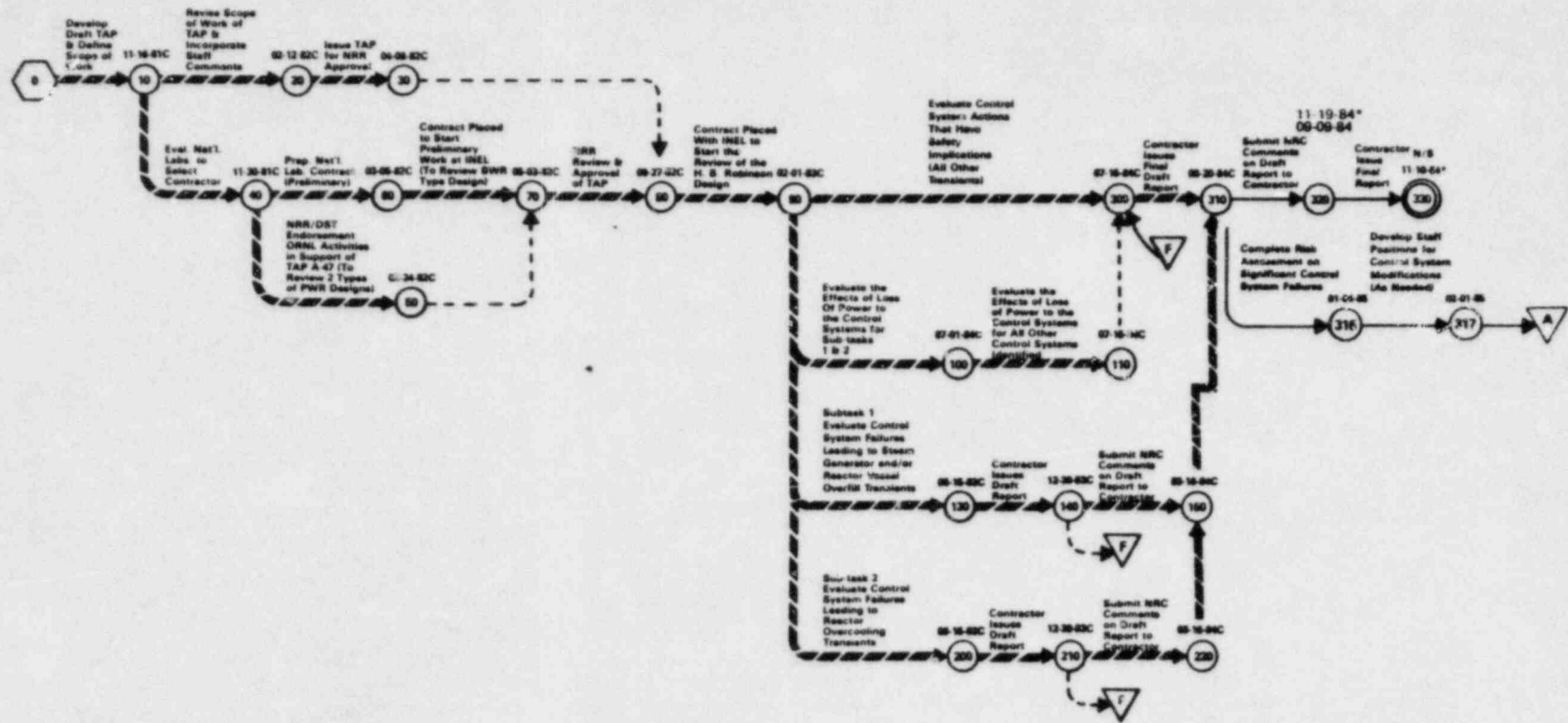
N/S = Not Scheduled.

**GE-BWR
PLANT REVIEW
(BROWNS FERRY)**

**SAFETY IMPLICATIONS OF CONTROL SYSTEMS (A-47)
CONTINUED**



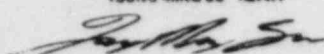
* Schedule Change This Report.
N/S = Not Scheduled.



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N/S = Not Scheduled.

HYDROGEN CONTROL MEASURES AND EFFECTS OF HYDROGEN BURNS ON SAFETY EQUIPMENT (A-48)

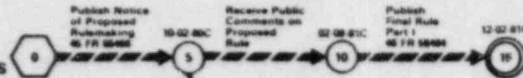
AS OF WEEK ENDING NOVEMBER 16, 1984

KEY PERSONNEL		TASK REVIEWERS		SCHEDULED COMPLETION		
TASK MANAGER TSUNG MING SU X27677  NRR ANALYST JUDY BUTTS X24822		NAME BRANCH GERALD MAZETIS PSRB/DHFE/NRR CHARLES TINKLER CSB/DSI/NRR MARC WIGDOB RSB/DSI/NRR HUKAM GARG EOB/DE/NRR		KRYSZTOF PARCZEWSKI CEB/DE/NRR RICHARD CLEVELAND RSCB/DST/NRR VERNON ROONEY DL/NRR PAT WORTHINGTON SAB/DAT/RES MARTEN FLEISMAN RAB/DRA/RES HAROLD POLK SGEB/DE/NRR		ORIGINAL 06-30-85 CURRENT Not Scheduled
PROBLEM DESCRIPTION Task A-48 was approved as a USI by the NRC in December 1980. Postulated reactor accidents which result in a degraded or melted core can result in generation and release to the containment of large quantities of hydrogen. The hydrogen is formed from the reaction of the zirconium fuel cladding with steam at high temperatures and/or by radiolysis of water. Experience gained from the TMI-2 accident indicates that we may want to require more specific design provisions for handling larger hydrogen releases than currently required by the regulations particularly for smaller, low pressure containment designs. The scope of this USI is limited to the generic resolution of hydrogen control and equipment qualification for the condenser and BWR containments. This is based on the existing case review for these containments.		RES INTERFACE INFORMATION There are extensive research programs related to the hydrogen issue sponsored by RES. The results of those research programs will be incorporated into licensing decisions, as appropriate.		TECHNICAL ASSISTANCE CONTRACTS TO BE DEVELOPED FIN NO. CONTRACTOR OBLIGATED EXPENDED		POTENTIAL PROBLEMS The state-of-the-art has substantial uncertainties. Therefore, there is a potential for new findings which may impact the current schedule. The current schedule was developed on the basis of licensing schedules. As of this date, the licensing schedules for Grand Gulf and Sequoyah have slipped for several months. This slippage will potentially delay the completion date of USI A-48.
ACRS INTERFACE INFORMATION TO BE DEVELOPED		STATUS SUMMARY The Task Action Plan (TAP) was approved on 12/23/82, and a detailed schedule has been developed as shown on the following pages. A Commission Paper regarding hydrogen control for Mark III and ice condenser containments was reviewed and endorsed by CROR on June 1, 1983. The Commission Paper was forwarded to the Commissioners on August 26, 1983. Additional information was provided on December 28, 1983 to justify the staff position on the Commission Paper. The results of the large scale hydrogen burn tests conducted at the side Test Site show potential challenge to equipment survivability. The staff is evaluating the data and will make recommendations to the Commission regarding the Hydrogen Rule.				

HYDROGEN CONTROL MEASURES & EFFECTS OF HYDROGEN BURNS ON SAFETY EQUIPMENT (A-48)

TASK 1- NEAR TERM HYDROGEN RULEMAKING

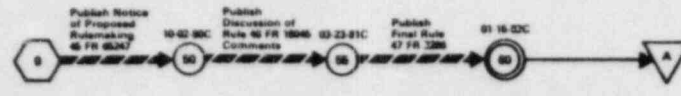
1.1 INTERIM RULE PART 1 - INERTING OF MARK I & II CONTAINMENTS



1.2 INTERIM RULE PART 2 - HYDROGEN CONTROL FOR MARK III AND ICE CONDENSER & DRY CONTAINMENTS



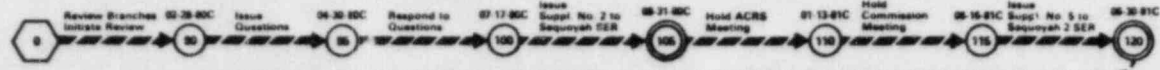
1.3 RULE FOR NEAR TERM CONSTRUCTION PERMITS & MANUFACTURING LICENSE APPLICATIONS



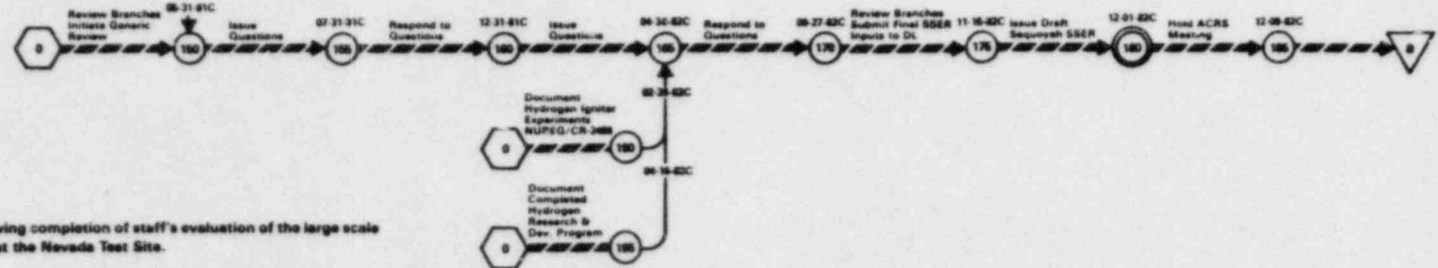
TASK 2- PLANT SPECIFIC HYDROGEN REVIEWS

2.1 SEQUOYAH ICE CONDENSER SYSTEM

2.1.1 INTERIM IGNITION SYSTEM

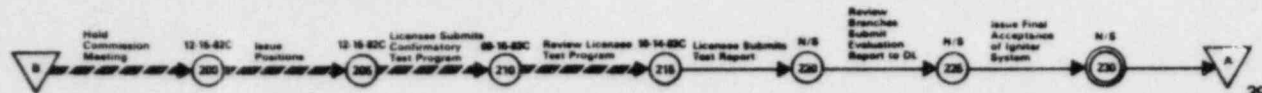


2.1.2 FINAL IGNITION SYSTEM



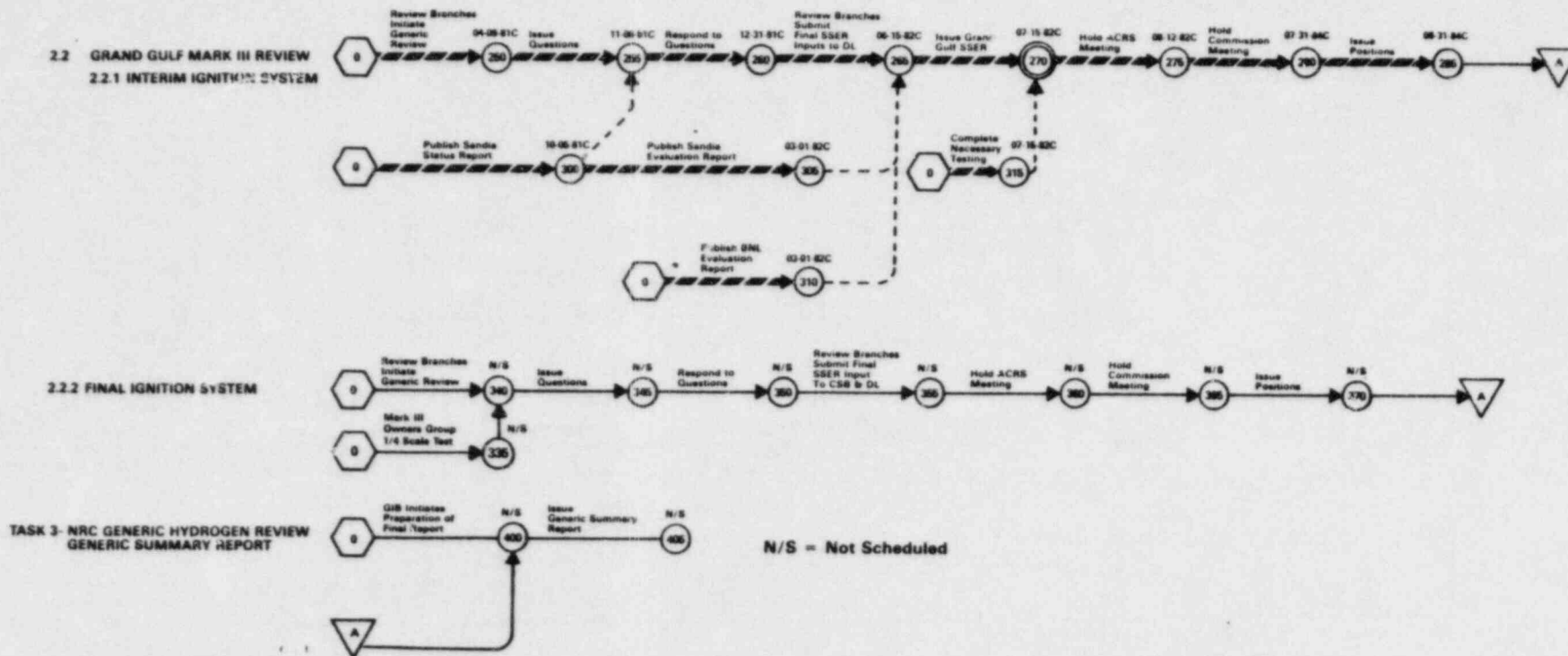
NOTE: Schedule will be developed following completion of staff's evaluation of the large scale hydrogen burn tests conducted at the Nevada Test Site.

N/S = Not Scheduled



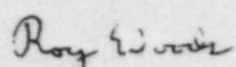
HYDROGEN CONTROL MEASURES & EFFECTS OF HYDROGEN BURNS ON SAFETY EQUIPMENT (A-48)

CONTINUED



PRESSURIZED THERMAL SHOCK (A-49)

AS OF WEEK ENDING NOVEMBER 16, 1984

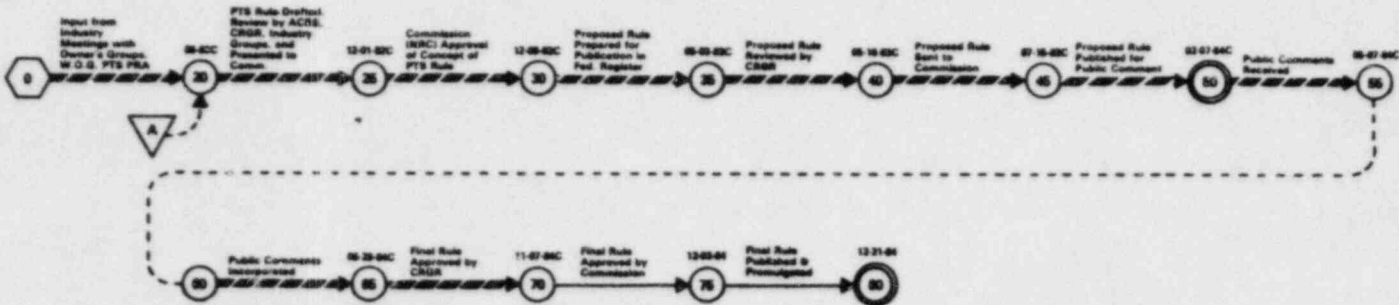
KEY PERSONNEL	TASK REVIEWERS	AS OF WEEK ENDING	SCHEDULED COMPLETION																																																												
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CURRENT	03-31-88																																																														
<p>• PROBLEM DESCRIPTION</p> <p>This task was designated a U81 by the NRC in December 1981.</p> <p>Neutron irradiation of reactor pressure vessel weld and plate materials decreases the fracture toughness of the materials. The fracture toughness sensitivity to radiation induced change is increased by presence of certain materials such as copper. Decreased fracture toughness makes it more likely that, if a severe overcooling event occurs followed by or concurrent with high vessel pressure, and if a small crack is present on the vessel's inner surface, that crack could grow to a size that might threaten vessel integrity.</p> <p>Severe pressurized overcooling events are improbable since they require multiple failures and improper operator performance. However, certain precursor events have happened that could have potentially threatened vessel integrity if additional failures had occurred and/or if the vessel had been more highly irradiated. Therefore, the possibility of vessel failure due to a severe pressurized overcooling event cannot be ruled out.</p>	<p>• RES INTERFACE INFORMATION</p> <p>A major portion of the work is being performed under a contract with Oak Ridge National Laboratory through the Division of Risk Analysis, RES (FIN # 80468).</p> <p>Other major contributors are:</p> <ul style="list-style-type: none"> Primary System Integrity Research Program through the Division of Engineering Technology, RES and Code Applications Program through the Division of Accident Evaluation, RES 	<p>• TECHNICAL ASSISTANCE CONTRACTS</p> <p>Contract (B-3518) issued to PNL. PNL will perform sensitivity studies using the VISA code, and investigate vessel failure modes due to PTS.</p> <p>The following RES contracts are providing technical assistance to the PTS program. These are in addition to the technical assistance contracts which were initiated to specifically address the PTS issue and listed in the table below.</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>FIN NO.</th> <th>LAB</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>G-1947</td> <td>Purdue</td> <td>Mixing Calculations</td> </tr> <tr> <td>A-4070</td> <td>Creare</td> <td>Mixing Experiments</td> </tr> <tr> <td>A-3298</td> <td>BNL</td> <td>T-H Calculation Comparisons</td> </tr> <tr> <td>A-7308</td> <td>LANL</td> <td>SOLA Mixing Calculations</td> </tr> <tr> <td>A-7316</td> <td>LASL</td> <td>TRAF, T-H Calcs., Jona</td> </tr> <tr> <td>A-6047</td> <td>INEL</td> <td>RELAP T-H Calculations</td> </tr> <tr> <td>S-0488</td> <td>ORNL</td> <td>Integrated PTS Study</td> </tr> <tr> <td>S-0119</td> <td>ORNL</td> <td>HSS1 Experiments</td> </tr> <tr> <td>S-6905</td> <td>ERSA</td> <td>Struct. Integrity</td> </tr> <tr> <td>S-4290</td> <td>NSRDC</td> <td>Spectrum Shape</td> </tr> <tr> <td>S-7028</td> <td>USNA</td> <td>Rapid J-R Curve</td> </tr> <tr> <td>S-8942</td> <td>Gundruming</td> <td></td> </tr> <tr> <td>S-2863</td> <td>PNL</td> <td>Via Development</td> </tr> <tr> <td>S-5980</td> <td>HEDL</td> <td>Gasometry</td> </tr> <tr> <td>S-0415</td> <td>ORNL</td> <td>P. V. Simulation</td> </tr> <tr> <td>S-6224</td> <td>ORNL</td> <td>Gasometry</td> </tr> <tr> <td>S-2286</td> <td>PNL</td> <td>NDE</td> </tr> <tr> <td>S-2467</td> <td>PNL</td> <td>NDE</td> </tr> <tr> <td>S-2589</td> <td>PNL</td> <td>Acoustics</td> </tr> </tbody> </table>	FIN NO.	LAB	DESCRIPTION	G-1947	Purdue	Mixing Calculations	A-4070	Creare	Mixing Experiments	A-3298	BNL	T-H Calculation Comparisons	A-7308	LANL	SOLA Mixing Calculations	A-7316	LASL	TRAF, T-H Calcs., Jona	A-6047	INEL	RELAP T-H Calculations	S-0488	ORNL	Integrated PTS Study	S-0119	ORNL	HSS1 Experiments	S-6905	ERSA	Struct. Integrity	S-4290	NSRDC	Spectrum Shape	S-7028	USNA	Rapid J-R Curve	S-8942	Gundruming		S-2863	PNL	Via Development	S-5980	HEDL	Gasometry	S-0415	ORNL	P. V. Simulation	S-6224	ORNL	Gasometry	S-2286	PNL	NDE	S-2467	PNL	NDE	S-2589	PNL	Acoustics	<p>• POTENTIAL PROBLEMS</p> <p>• STATUS SUMMARY</p> <p>The Task Action Plan for A-49 was approved and issued on March 28, 1982.</p> <p>NRC Staff PTS recommendations (SECY-82-486) were approved by the Commission in December 1982. A new rule for PTS resolution was published for public comment on February 7, 1984. The proposed final rule, taking the public comments into account, will be submitted to the Commission for approval during December 1984.</p> <p>The TAP has been extensively revised (Revision 1) to reflect division of the program into two parts, a short-term program, "Development of a PTS Rule" and a long term program that will provide "Guidance and Acceptance Criteria for the Analyses to be Required by the PTS Rule." The revised TAP describes issuance of the new rule, confirmatory studies now underway to support the new rule, and the plant-specific analyses and other requirements that will be included in the new rule.</p> <p>A status report regarding flux reduction efforts was sent to the Commission on February 26, 1983 (SECY-83-79). The final report was submitted on October 28, 1983 (SECY-83-443).</p> <p>Revision 1 of the TAP as described above was approved on November 22, 1983 by the Director of NRR. Revision 2, containing minor scheduled changes, was submitted to the Director of NRR for approval in March 1984.</p>
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	<p>• ACRS INTERFACE INFORMATION</p> <p>Meetings have been held and will be scheduled as necessary with the Subcommittee on Metallic Components and with the full ACRS. The latest Subcommittee meeting was held on May 17, 1984.</p> <p>† A full ACRS Committee meeting on this subject was held on October 12, 1984.</p>	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>FIN NO.</th> <th>CONTRACTOR</th> <th>OBLIGATED</th> <th>EXPENDED</th> </tr> </thead> <tbody> <tr> <td>FB-2610</td> <td>PNL</td> <td>\$1031K</td> <td>\$787K</td> </tr> <tr> <td>A-7-2</td> <td>LANL</td> <td>\$680K FY83</td> <td>\$680K</td> </tr> <tr> <td>A-3701</td> <td>BNL</td> <td>\$200K</td> <td>\$200K</td> </tr> </tbody> </table>	FIN NO.	CONTRACTOR	OBLIGATED	EXPENDED	FB-2610	PNL	\$1031K	\$787K	A-7-2	LANL	\$680K FY83	\$680K	A-3701	BNL	\$200K	\$200K																																													
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PRESSURIZED THERMAL SHOCK (A-49) SHORT TERM PROGRAM

TASK A:
Review of information requested by August 21, 1981 letters to industry groups and eight selected utilities



TASK B:
Promulgation of a new PTS Rule



TASK C:
Consideration of flux reduction options for lead plants †



† PTS Rule also requires consideration of flux reduction option for all PWRs. This Task (C) is such consideration in the immediate future to prevent preclusion of this option for the oldest (lead) plants.

PRESSURIZED THERMAL SHOCK (A-49) LONG TERM PROGRAM

Task 1:

Development of a Revised Regulatory Guide 1.99

Draft revision of the trend curves in Reg. Guide 1.99, Revision 1, "Effects of Residual Elements on Predicted Radiation Damage to Reactor Vessel Materials": This task is no longer considered to be necessary for completion of A-49. Its scheduled completion is a longer term item than A-49, and adequate guidance regarding this subject is contained within Task (B). A detailed schedule for this task is therefore not presented.

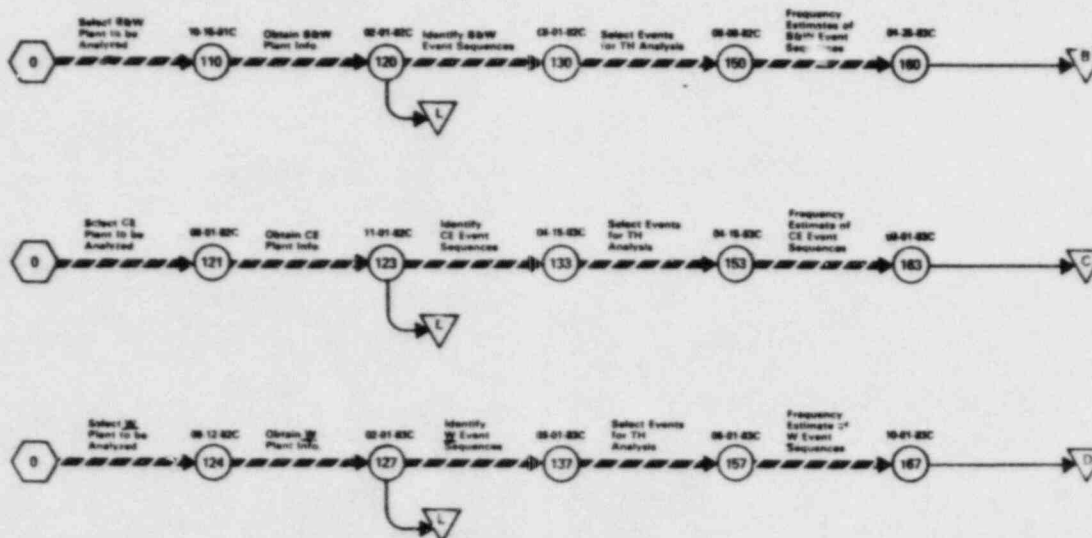
Task 2:

Ongoing Program to Improve Procedures and Operator Training

This program is ongoing separate from the A-49 PTS effort and is much broader than PTS, considering PTS as one of the many types of incidents for which procedures and training should be improved, on a combined/integrated basis. Generic Letter 82-33 contains a description of the overall program and schedule. The PTS effort cannot and should not be separated from the overall effort, and so a detailed PTS schedule is not presented here. The ongoing program will be completed and applied to each plant, however, on a schedule compatible with completion of the final PTS resolution for each plant (i.e., before acceptance of plant specific analyses required by the PTS rule, Task (B) above.)

Task 3:

Determination of Event Sequences to be Considered



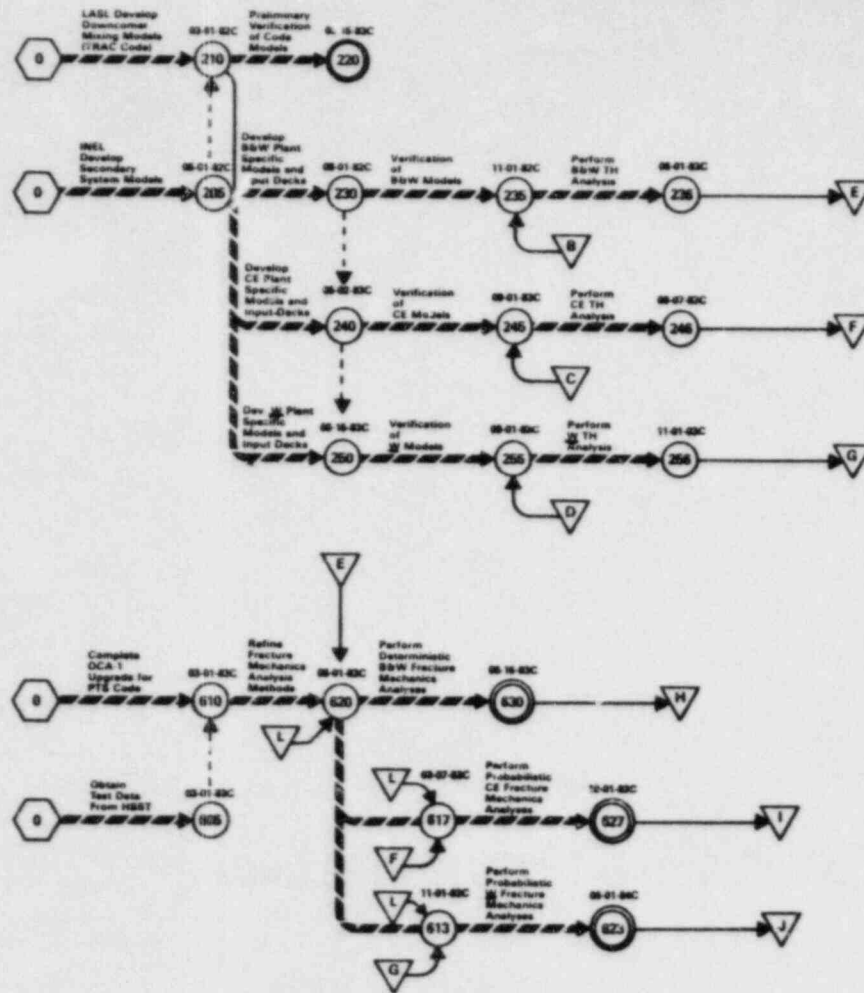
PRESSURIZED THERMAL SHOCK (A-49) LONG TERM PROGRAM (CONTINUED)

Task 4:
Transient Model Development
& Verification

Task 5:
Calculation of
P(t) and T(t)

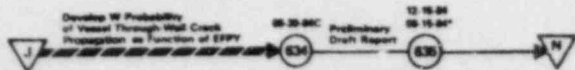
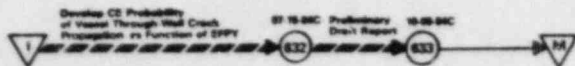
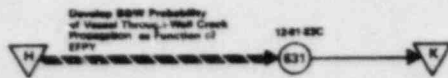
Task 6:
Improvements in Methods
and Data for Fracture
Mechanics and Calculations

Task 7:
Vessel Failure Analysis

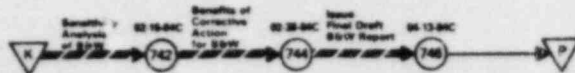


PRESSURIZED THERMAL SHOCK (A-49) LONG TERM PROGRAM (CONTINUED)

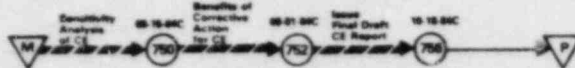
Task 8:
Integration of Results



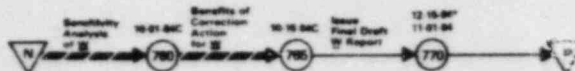
Task 9:
Plant-Specific Sensitivity Studies, Benefits of Corrective Actions, and Draft Final Report for B&W Plant



Task 10:
Plant-Specific Sensitivity Studies, Benefits of Corrective Actions, and Draft Final Report for CE Plant



Task 11:
Plant-Specific Sensitivity Studies, Benefits of Corrective Actions, and Draft Final Report for W Plant



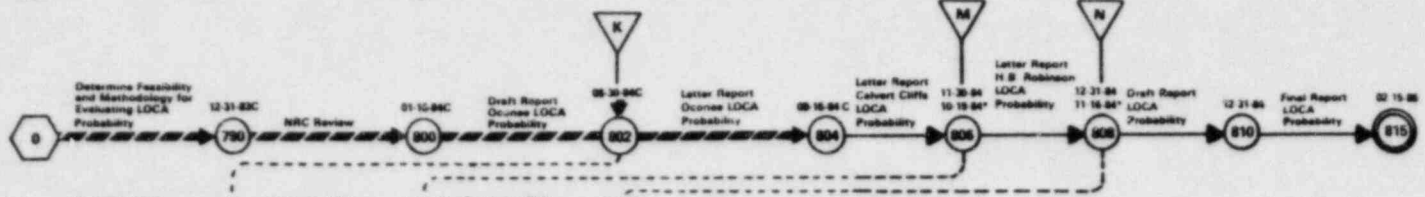
* Schedule Change This Report.

PRESSURIZED THERMAL SHOCK (A-49) LONG TERM PROGRAM (CONTINUED)

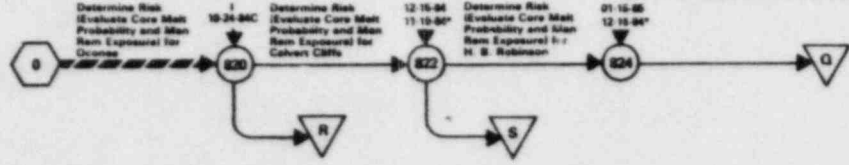
Task 12:
Generic Sensitivity Studies



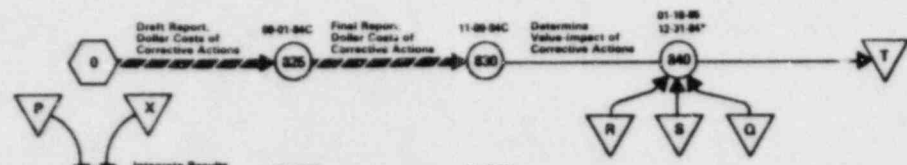
Task 13:
Determine LOCA Probability



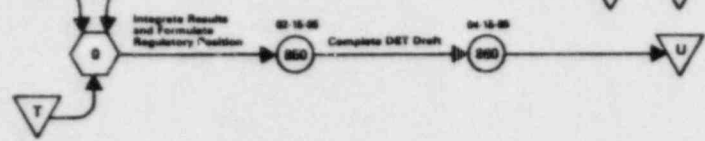
Task 14:
Determine Risk



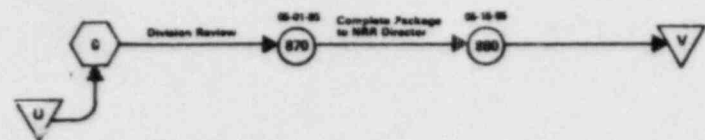
Task 15:
Value-Impact



Task 16:
Regulatory Position



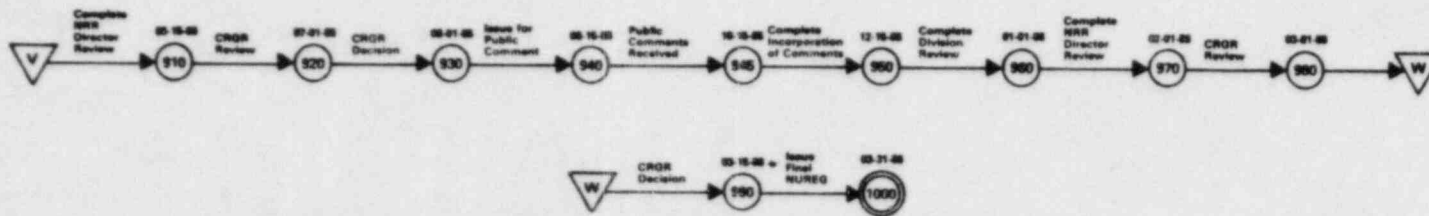
Task 17:
Internal Review



* Schedule Change This Report.

PRESSURIZED THERMAL SHOCK (A-49) LONG TERM PROGRAM (CONTINUED)

Task 16:
Issue Final
Technical Resolution



NRC FORM 335 <small>(7-77)</small>		U.S. NUCLEAR REGULATORY COMMISSION BIBLIOGRAPHIC DATA SHEET		1 REPORT NUMBER (Assigned by DDC) NUREG-0606, Vol. 6, No. 4	
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16 ABSTRACT (200 words or less) Provide an overview of the status of the progress and plans for resolution of the generic tasks addressing "Unresolved Safety Issues" as reported to Congress.				9 (Leave blank)	
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