ENCLOSURE 1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

3/19/79

NOTE TO: R. Tedesco
W. Minners
R. Ireland

Revised draft for your review.

Ashok Thadani

enclosure

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5. TECHNICAL ASSISTANCE

A. RES

ETEC: Review literature to determine if data is available for Safety/Relief Valve behavior during an ATWS (see Note 4)

Report Issue - Early '79

Funding - $50K

B. RES

Plan for confirmatory Safety/Relife Valve experiments (see note 5)

Projected Funding (FY 80 and 81) - $1.25M

C. DSS/AB, RES

T/H Stability Analysis (see note 6) - $376K
(FY 80 and 81)

D. Three-Dimensional Inelastic RPV Closure Analysis

The decision to contract this analysis will be made following review of the two-dimensional analysis.

Funding - $100K

MEB Manpower - Five Man Weeks.

6. INTERACTIONS WITH OUTSIDE ORGANIZATIONS

A. ACRS

"This task is closely related to one of the generic items identified by the ACRS and, accordingly, is being coordinated with the Committee."

B. KWU

Review their plans for Safety/Relief Valve research.

7. ASSISTANCE REQUIREMENTS FROM OTHER NRC OFFICES

Nuclear Regulatory Research/Probabilistic Analysis Branch Support on ATWS related research and risk studies.

8. POTENTIAL PROBLEMS

C. DSS/RSB/AB/CPB/CSB/MEB/ICSB; DOR/RSB/MEB/PSB/AAB; DSE/AAB

(1) Review Generic Analyses, Continue Discussions with ACRS and other Groups.

(2) Prepare Safey Evaluation Reports

(3) Manpower Requirements in Man-Months:

	DSS	DOR	DSE
RSB	4	4	-
CPB	3	-	-
AB	1	-	-
CSB	3	-	-
ICSB	4	-	-
MEB	4	4	-
PSB	-	4	-
AAB	-	4	4

For more details, see attached resources planning and forecasting chart.

D. DSE/CBB

(1) Environmental Appraisal

(2) Prepare report for inclusion in Commission paper

(3) Manpower Requirements:

CBB 3 Man-Months

E. SD; OELD (see Note 3)

(1) Review staff reports on ATWS

(2) Develop ATWS Rule and RG

(3) Manpower Requirements:

SD 4 Man-Months
OELD 2 Man-Months

Minimum Info. Required to Proceed with ATWS Rule	May 1
Additional Detailed Analyses and Confirmation of Classification of Plants	September 1
Final Minor Amount of Useful Information	December 1

3. BASIS FOR CONTINUED PLANT OPERATION AND LICENSING PENDING COMPLETION OF TASK

The issue of anticipated transients without scram has been discussed throughout the nuclear industry for a number of years. Historically, the regulatory staff has excluded very low probability events from the design basis. At issue in the ATWS discussions is whether or not the probability of an ATWS event is sufficiently low to warrant the continuance of the current staff practice with regard to ATWS, i.e., continued exclusion from the design basis for nuclear power plants because of its low probability.

Because of the perceived potential for serious consequences resulting from ATWS events, a number of studies have been undertaken to assess the probabilities and consequences of such events. These studies have been performed by vendors, utility groups (i.e., Electric Power Research Institute), as part of the Reactor Safety Study (WASH-1400), and by the AEC and NRC regulatory staff.

In NUREG-0460, Volume 3, the staff states:

> "The staff has maintained since 1973 (for example, see pages 69 and 70 of WASH-1270) and reaffirms today that the present likelihood of severe consequences arising from an ATWS event is acceptably small and presently there is no undue risk to the public from ATWS. This conclusion is based on engineering judgment in view of: (a) the estimated arrival rate of anticipated transients with potentially severe consequences in the event of scram failure; (b) the favorable operating experience with current scram systems; and (c) the limited number of operating reactors."

In view of these considerations and our expectation that the necessary plant modifications will be implemented in 2 to 5 years following Commission rulemaking on ATWS, the staff has generally concluded that operating nuclear power plants can continue to operate because the risk from ATWS events in this time period is acceptably small. As a prudent course, in order to further reduce the risk from ATWS events during the interim period while this matter is under review by the Commission, the staff has required that the following steps be taken.

1. Emergency procedures be developed to train operators to recognize an ATWS event.

2. Operators be trained to take actions in the event of an ATWS including but not limited to consideration of manually

scramming the reactor.

Early operator action as described above (in conjunction with a recirculation pump trip in BWRs) significantly improves the capability of a facility to withstand a range of ATWS events.

The ATWS study results indicated that the ATWS event is a significant risk-contributor in BWRs. In order to make the BWR ATWS risk comparable to that in PWRs, it is evident that some plant modifications would be required. Some measures to reduce the risks from ATWS events in these BWRs are now being instituted. Recirculation pump trips have been or will be installed on all operating BWRs and are required on all new CP or OL applications.

In summary, we conclude that continued operation of existing power reactors, and issuance of Construction Permits and Operating Licenses, pending completion of this Task Action Plan, can continue with reasonable assurance that operation will not present an undue risk to the health and safety of the public.

4. NRR TECHNICAL ORGANIZATIONS INVOLVED (Estimates for FY 79 and 80 - also see Notes 1 and 2)

These manpower requirements estimates are developed on the basis of the needs described in Section 2 and do not include estimates of manpower required to implement a recirculation pump trip on BWRs. The work required to implement ATWS once the rule is effective is also not included in these estimates.

A. DSS/Reactor Systems Branch

(1) Coordination of ATWS Program.

(2) This effort would involve coordination or internal reviews, meetings with ACRS, vendors, consultants, development of ATWS rule and regulatory guide and Commission Paper of Generic Analyses.

(3) Manpower requirements: Man-months

B. DSS/Analysis Branch

(1) Evaluation Models

(2) Complete review of outstanding issues

(3) Manpower Requirements: 2 Man-Months

NOTES

Anticipated Transients Without Scram

* Forecast based on assumption that it will not be necessary to hold a rulemaking hearing and that an ATWS Rule will be made effective on or about 2/1/80. No attempt made to forecast work involved in implementation once the rule is made effective.

(1) Technical Review effort in 2nd and 3rd quarters of FY-79 to provide early verification of modifications needed for v plant classes to meet ATWS requirements set forth in NUREG-0460, Volume 3. This effort necessary to provide input to framing of the proposed ATWS Rule which is currently targeted for transmittal to the Commission on or about May 30, 1979.

(2) Manpower forecast for 4th quarter FY-79 and first and second quarters FY-80 based on need to confirm earlier judgment following a review of detailed generic analyses and to respond to comments on the proposed ATWS Rule and associated Regulatory Guide.

(3) Effort in 2nd and 3rd quarters of FY-79 spent in formulating a proposed ATWS Rule and Regulatory Guide. Effort to be closely coordinated with A. Thadani.

(4) DSS and RES to determine if confirmatory work on safety valve response is needed. If, as currently believed, confirmatory work is needed, Dss/RSB will have to monitor and assess the work as it relates to ATWS mods.

(5) Literature survey on safety valve response nearing completion; if conclusion is reached that confirmatory experiments are needed, coordinated effort with FRG, Japan, etc., may be possible. Funding estimate of $1.25M through FY-81 based on preliminary RES planning. ($1.78M currently targeted for FY-82,)

(6) May need some confirmatory support on BWR stability. Details not yet developed. For ATWS, stability is of consideration only in BWRs and the present estimate is that the BWR subtask will be completed in the second quarter of FY-81. This task is subject of forthcoming USERs request for RES support of the RPI contract.

A. Rulemaking Hearings

If rulemaking is eventually chosen as the method of generic resoution of this problem, hearings would likely be requested. If so, it is difficult to assess the length of time and manpower the hearings would require.

B. Plant Hearings

Extensive effort is expected for hearings on some plants would require significant effort.

C. Industry Submittals

Delays in industry analysis submittals (or non-submittals) could cause the staff to modify their planned ATWS rule and Regulatory Guide. This could well result in greater manpower needs and a delay in the issuance of the rule.

TASK ACTION PLAN
RESOURCE PLANNING AND FORECASTING CHART

GENERAL INFORMATION

Lead (Cognizant) Division: Systems Safety

TAP Title: Anticipated Transients Without Scram

TAP #: A-9

Task Manager: A. Thadani

Lead Supervisor: R. Tedesco

Cognizant Supervisor (if appl.):

Target completion date: 02/01/80

Total man-months (man-years): 61 (5.1)

Total dollars: $1.626M

I. MANPOWER RESOURCES (in technical man-months)

v/Br.	Reviewer	Sub-task	FY79 1Qtr	2Qtr	3Qtr	4Qtr	FY80 1Qtr	2Qtr	3Qtr	4Qtr	FY81 1Qtr	2Qtr	3Qtr	4Qtr	Total	Notes
S/RSB	Thadani	Overall direction,coordination		4.6	10	2.7	2.5								10	
S/MEB	[illegible]	Integrity/operability of components (ATWS Rule,RG,ACRS)		2.0 3.5	1.5	1.75 .25	1.5 .25								4	1, 2
R/MEB	?	" " "		3.5	1.5	1.3 .25	1.5 .25								4	1, 2
S/CSB	[illegible]	Containment Integrity (ATWS Rule, RG, ACRS)		1.5 2.5	1.0	1.0 1.25	2.0 .25								3	1, 2
S/CPB	[illegible]	Fuel Behavior (ATWS Rule, RG, ACRS)		2.0 2.5		.75 .25	.25								3	1, 2
S/AB	[illegible]	Analysis Methods (ATWS Rule, RG, ACRS)		2.0 2.5		.75 .25	.25								3	1, 2
S/ICSB	[illegible]	Mitigating Systems Criteria (ATWS Rule, RG, ACRS)		1.0 3.5		1.75 .25	1.25								4	1, 2
PSB R/RSB	[illegible]	" " "			1	1.75 .25	1.25								2.5	1, 2
TAL																

I. FISCAL RESOURCES (in thousand dollars)

v/Br	Contractor	Title (FIN)	1Qtr	2Qtr	3Qtr	4Qtr	1Qtr	2Qtr	3Qtr	4Qtr	1Qtr	2Qtr	3Qtr	4Qtr	Total

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TASK ACTION PLAN
RESOURCE PLANNING AND FORECASTING CHART

I. GENERAL INFORMATION

Lead (Cognizant) Division: _____

TAP Title: Anticipated Transients Without Scram TAP #: A-9

Task Manager: _____ Lead Supervisor: _____ Cognizant Supervisor (if appl.): _____

Target completion date: _____ Total man-months (man-years): _____ Total dollars: _____

II. MANPOWER RESOURCES (in technical man-months)

Div/Br.	Reviewer	Sub-task	FY79 1Qtr	FY79 2Qtr	FY79 3Qtr	FY79 4Qtr	FY80 1Qtr	FY80 2Qtr	FY80 3Qtr	FY80 4Qtr	FY81 1Qtr	FY81 2Qtr	FY81 3Qtr	FY81 4Qtr	Total	Not
DSS/RSB	Newberry Kelly	Review ATWS Transient Analyses, System Behavior (ATWS Rule, RG, ACRS)		1.5		1.5	1.5	.25							4	1.
DOR/RSB	Woods	" " " "		1.5		1.5	1.5	.25							4	1.
DOR/AAB	?	Radiological Evaluation		2.5		1.5	1.0	.25							4	1.
DSE/AAB	Chapman	Radiological Evaluation (ATWS Rule, RG, ACRS)		2.5		1.5	1.0	.25							4	1.
DSE/CBB	Youngblood/ Sinkel	Environmental Appraisal			2	.25	.25								2.5	1.
DELD	J Norberg	Develop ATWS Rule		1		.5	.5								2	3.
D		Develop ATWS Rule, RG		3		.5	.5								4	3.
SS/RSB	C Graves	Confirmatory Safety Valve Assessment				.3			1.3	1.3		1.4			3	4.
OTAL				17	28	7	6	1.3	.3	.3	.3	.3	.3	.3	61	

II. FISCAL RESOURCES (in thousand dollars)

iv/Br	Contractor	Title (FIN)	1Qtr	2Qtr	3Qtr	4Qtr	1Qtr	2Qtr	3Qtr	4Qtr	1Qtr	2Qtr	3Qtr	4Qtr	Total	
S/RSB/ ES		Confirmatory Safety Valve Experiments					- - -	- - -	- - -	1	25M - - -	- - -	- - -	- - -	1250K	5
/RSB/		T-H Stability Analysis Relating					- - -	BWR-	- - -	- - -	- - -					

ENCLOSURE 2

A. Thadani

ROUTING AND TRANSMITTAL SLIP Date 7/6

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. Eisenhut		
2. Ross		
3. Vassallo		
4. Schroeder		
5. Muller		

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

we need to discuss late Monday or early Tuesday which of you gentlemen will implement the specific recommendations. Tedesco will pick a time

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
R. Vollmer	Phone No.

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