



August 18, 1982

Mr. Darrell Eisenhut  
Director of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. Eisenhut:

Gus Lainas asked that I send you a copy of our correspondence relative to the proposed steam generator generic requirements that you presented in our meeting of July 29, 1982 and your request for industry comments on these requirements.

Attached is a copy of my letter of August 11, 1982 sent to all U. S. pressurized water reactor owners along with the meeting notes on our meeting of July 29, 1982. Not included in this attachment, but included with the material sent to the PWR owners was a copy of your handout for the July 29, 1982 meeting.

We are preparing comments from participants in the July 29, 1982 meeting to be sent to all PWR owners for their comments. You will receive a copy of these comments when they are sent to the PWR owners.

Very truly yours,

A handwritten signature in cursive script, appearing to read "A. D. Schmidt".

A. D. Schmidt  
Chairman  
Executive Committee  
Steam Generator Owners Group

ADS/dmc

Attachment

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PDR TOPRP EUTOGSG  
C PDR

Mr. Darrell Eisenhut  
August 18, 1982  
Page Two

cc: W/Attachment  
G. Lainas, NRC

WO/Attachment

T. Tramm, Commonwealth Edison  
T. Ziegler, TVA  
L. Parscale, Arkansas Power & Light  
A. Curtis, Rochester Gas & Electric  
R. Mecredy, Rochester Gas & Electric  
L. White, Rochester Gas & Electric  
A. Sudduth, Duke Power Company  
R. Acosta, Florida Power & Light  
B. Snow, Rochester Gas & Electric  
J. Gaunt, C.E.G.B.  
D. Love, Arkansas Power & Light  
R. Shell, TVA  
D. Adams, Louisiana Power & Light  
S. Brown, EPRI - NDE Center  
J. Lang, EPRI - SGPO  
S. Green, EPRI - SGPO  
W. Layman, EPRI - NSAC  
J. Berga, EPRI - Washington Office

MILLERS FALLS  
ENERGY  
COTTON CONTENT

August 11, 1982

TO: U. S. Pressurized Water Reactor Owners

Gentlemen:

Representatives of the Steam Generator Owners Group attended a meeting in Bethesda, MD on July 29, 1982, at which the NRC staff reviewed steam generator related requirements they are considering.

The NRC is attempting to pull together all of their steam generator work, including Unresolved Safety Issues A3, A4, and A5 and lessons from the Ginna tube rupture event, into a single set of requirements. NRC staff members at the meeting reviewed the requirements being considered and passed out a draft of certain of those requirements. Darrell Eisenhut, Director of Licensing, requested comments and counter suggestions on the draft and other information presented. He said the NRC wants to consider industry comments before formally issuing the document for public review and comment.

The Steam Generator Owners Group does not speak for the industry. However, I agreed that the Steam Generator Owners Group would apply its best effort in obtaining comments on the NRC draft from all U. S. pressurized water reactor (PWR) owners and would provide the NRC a coordinated set of written comments within two months. We have an opportunity to influence NRC requirements before they are issued.

Attached are meeting notes and NRC materials passed out at our meeting with the NRC on July 29, 1982 as the first step to obtaining this review and comment. To speed the review and commenting process, utility representatives at the meeting agreed to prepare a first draft of comments on each section for distribution to other PWR owners. The EPRI Steam Generator Project Office, working closely with the Steam Generator Owners Group, will provide the staff functions of collecting the drafts, distributing them to all PWR owners for comments, collecting comments, resolving them, and compiling a final set of written comments for the Steam Generator Owners Group to send to the NRC.

August 11, 1982  
U. S. PWR Owners

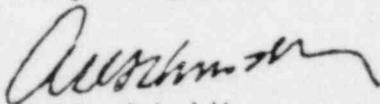
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The schedule for these actions is as follows:

Collect First Draft of Comments	8/13/82
Distribute Draft Comments to PWR Owners for Review and Comment	8/20/82
Collect Comments from PWR Owners	9/10/82
Resolve Comments and Compile Final Comments	9/24/82

As noted above, draft comments on the requirements that the NRC is considering will be mailed to you by August 20, 1982. We look forward to receiving your input in accordance with this schedule.

Very truly yours,



A. D. Schmidt  
Chairman  
Steam Generator Owners Group  
Executive Committee

ADS/nfb

Attachments

cc: T. Tramm, Commonwealth Edison  
T. Ziegler, TVA  
L. Parscale, Arkansas Power & Light  
A. Curtis, Rochester Gas & Electric  
R. Mecredy, Rochester Gas & Electric  
L. White, Rochester Gas & Electric  
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J. Gaunt, C.E.G.B.  
D. Love, Arkansas Power & Light  
R. Shell, TVA  
D. Adams, Louisiana Power & Light  
W. Brown, INPO  
A. Bivens, AIF  
J. Berga, Washington Office  
W. Layman, NSAC  
S. Green, SGPO  
J. Lang, SGPO  
S. Brown, NDE Center

MEETING NOTES

SUBJECT: NRC Review of Proposed Steam Generator Generic Requirements  
With Steam Generator Owners Group Representatives

PLACE: Bethesda, MD

DATE: July 29, 1982

ATTENDEES

SGOG

T. Tramm, Commonwealth Edison  
T. Ziegler, TVA  
L. Parscale, Arkansas Power & Light  
A. Curtis, Rochester Gas & Electric  
R. Mecredy, Rochester Gas & Electric  
L. White, Rochester Gas & Electric  
A. Sudduth, Duke Power Company  
A. Schmidt, Florida Power & Light  
R. Acosta, Florida Power & Light  
B. Snow, Rochester Gas & Electric  
J. Gaunt, C.E.G.B.  
D. Love, Arkansas Power & Light  
R. Shell, TVA  
D. Adams, Louisiana Power & Light

NRC Staff

S. Hanauer  
V. Benaroya  
E. Igne, ACRS  
J. Strosnider  
E. Murphy  
K. Wichman  
R. Martin  
F. Akstulewicz  
W. Collins  
L. Phillips  
L. Frank  
P. Morian  
T. Sullivan  
H. Conrad  
B. Mann  
A. Patton  
W. Johnston  
C. McCracken  
L. Marsh  
R. Ramirez  
D. Eisenhut  
R. Urban  
P. Rodriguez  
R. Mattson  
P. Matthews  
C. Jupiter  
T. Ippolito

EPRI

S. Brown, NDE Center  
J. Lang, SGPO  
S. Green, SGPO  
W. Layman, NSAC  
J. Berga, Washington Office

INPO

W. Brown

AIF

A. Bivens

Others

J. Morehouse, SAI  
R. Belanger, SAI  
J. Nelson, Quadrex  
O. Williams, NUTECH  
L. Connor, NRC Calendar  
N. Chapman, Bechtel  
M. Takahashi, OEISI  
R. Mattu, NUS  
E. Murphy, Westinghouse  
J. Stokler, SAI  
M. Gross, SAI  
J. Renehan, NUS  
M. Kamimura, OEISI  
M. Spæth, SAI  
B. Johnson, SAI  
J. Yacker, Nucleonics Week  
Inside NRC  
F. Wimpey, SAI  
B. Horton, SAI  
R. Liner, SAI  
K. Atwood, NUS  
P. DeLozeir, NUS  
L. Parker, SAI

## SUMMARY

The NRC staff requested the meeting to present steam generator related requirements that they are considering and obtain feedback from Steam Generator Owners Group (SGOG) representatives. The NRC provided a draft of certain requirements that they are considering and the vu-graphs for their meeting presentation (both attached). At the onset Al Schmidt (Chairman SGOG Executive Committee) stated that the attendees intended to listen and provide written comments later, after they had a chance to carefully review the material.

The NRC has attempted to distill lessons from recent steam generator events, particularly the Ginna steam generator event, and combine those with results of task action plans A3, A4, and A5. Eisenhut (NRC staff) said that the goal is to produce one document which resolves the unresolved safety issues and "puts the steam generator questions to bed."

Some of the proposed requirements appeared to be ill conceived over reactions; however, attendees were surprised at the moderation in most of the proposed requirements. Eisenhut and Lainas (NRC staff) both professed a desire for comments and counter suggestions.

Schmidt agreed that the SGOG would coordinate and consolidate written comments from as wide a group of PWR owners as would respond. He agreed to provide them in two months, the time it would take to do a good job. Lainas agreed to that schedule but requested an update on the status of comments in about three weeks. The NRC appears to be willing to wait for comments if indeed they are going to get some; however, they want to proceed without them if they are not forthcoming.

After the meeting with the NRC, the following was agreed to by the SGOG representatives present:

- A. The EPRI Steam Generator Project Office will provide the staff function of collecting and compiling comments.
- B. The EPRI Steam Generator Project Office will prepare notes on the meeting for distribution along with the NRC handouts to U. S. PWR owners.
- C. Various utility representatives volunteered to draft comments on each proposed requirement.
- D. These draft comments will be provided to all U. S. PWR owners for their review and further comment.
- E. The EPRI Steam Generator Project Office will collect comments, resolve differences and compile a final set of written comments.
- F. The final written comments will be provided to the NRC by the Steam Generator Owners Group.

## DISCUSSION

### 1. Introduction

The meeting was chaired by Gus Lainas, Assistant Director for Safety Assessment, Division of Licensing. He provided copies of the vu-graphs to be used during the presentation (Attachment 1) and a draft of specific requirements proposed by the NRC (Attachment 2).

- A. Lainas stated that the purpose of the meeting was to advise representatives of the Steam Generator Owners Group of the NRC's current thinking on steam generator requirements and get feedback from the industry.
- B. Schmidt responded that attendees would listen and would comment in writing later after thoroughly reviewing the material provided.
- C. Lainas stated that the NRC is attempting to integrate their approach to steam generator tube integrity issues. They are considering work on unresolved safety issues A3, A4, and A5, lessons from recent steam generator events such as that at Ginna, and plant operating experiences such as those summarized in NUREG 0886.
- D. Eisenhut stated that the NRC staff wants to issue one document which will resolve the unresolved safety issues and "put steam generator tube integrity issues to bed."

### 2. Requirements Concerning Steam Generator Integrity.

- A. Prevention and Detection of Loose Parts and Foreign Objects.
  - (1) The proposed requirements concern secondary side inspection, improved quality control procedures to prevent introduction of foreign objects in the steam generators, and installation and operation of loose parts monitors on both the primary and secondary sides.
  - (2) Lainas said that the NRC was thinking of a secondary side inspection like that performed at Ginna to be performed any time a unit is down for eddy current inspection, any time there is a modification to the steam generator, or any time there is indication of tube damage due to debris.
  - (3) Lang (SGPO) noted that opening the secondary side of the steam generator for routine, periodic visual inspection would create an undesirable environment from the standpoint of corrosion.

- (4) Eisenhut clarified that the NRC really expected utilities to perform a one-time base-line visual inspection or inventory to ensure there are no loose parts or foreign objects present. After that it might be possible to rely on quality control to ensure that no foreign objects are introduced during maintenance and on loose parts monitors to detect loose parts internal to the steam generator or which find their way into the steam generator from other parts of the secondary system.
- (5) Lainas added that it may also be desirable to follow up unexplained or suggestive eddy current indications with a visual inspection of the secondary side.
- (6) Mecredy (Rochester Gas & Electric) noted that the NRC writeup on the Ginna loose parts monitor was wrong. He said he would provide comments to correct it.

B. Stabilization and Monitoring of Degraded Tubes.

- (1) This requirement concerns preparation and submittal of a report identifying criteria and containing procedures for monitoring rates of progressive tube degradation and stabilizing degraded tubes which might sever and damage adjacent tubes.
- (2) Lainas explained that tubes might be stabilized by inserting a rod in them which would keep them from whipping around if they severed. Progression of tube degradation might be monitored by installing plugs with a small leak path in degraded, non-leaking tubes. If defects grew through the wall, the leak could then be detected.
- (3) Lainas said that stabilization really depended on the degradation mode. If the cause of degradation were corrected, stabilization may not be required.
- (4) Curtis (Rochester Gas & Electric) stated that stabilization of tubes needs to be considered on a case basis and only applied where there is really a chance that the tube might sever. Lainas agreed.
- (5) Eisenhut stated that it was the NRC's intention to limit both stabilization and installation of leaking plugs to those cases where there is a reason to be concerned. Those cases would be selected based on a logical and thorough review. He said he was particularly interested in comments on whether use of a leaking plug was a desirable and practical way to monitor the progression of degradation.

C. Tube ISI Program.

- (1) Strosnider (NRC staff) presented a lengthy list of requirements which have grown out of unresolved safety issues A3, A4, and A5. The list covers the scope and frequency of inspection, acceptance criteria and reporting requirements.
- (2) Cold leg tube inspections are required since defects have been found in the cold leg side of tubes in some plants, for example Prairie Island 2 and Salem 1.
- (3) The maximum inspection interval should be limited to 48 months for each steam generator. If inspections were rotated among steam generators, the current inspection interval could be as long as 160 months.
  - (a) Rotating inspections are not valid since the types and progression of defects may not be the same in each steam generator or plant.
  - (b) Foreign objects may not be present in each steam generator of a plant at the same time.
  - (c) Rates of attack can lead to tube leaks in less than 160 months.
- (4) Special subsets of tubes susceptible to attack may be designated for concentrated eddy current inspections. The region of the subset could cover both location in the tubesheet and axial position in the bundle. Concentrating inspection in such a subset of tubes would prevent excessive inspection and save both dollars and exposure.
- (5) The 3% initial sample size for eddy current inspection should be maintained. However, if more than 1 defective tube is found or more than 5% of the tubes are found to be degraded, either inspection of 100% of the tubes or a statistically based inspection should be performed.
  - (a) The NRC believes that an initial sample size of 3% has provided adequate warning of steam generator tube degradation.
  - (b) If warning of tube degradation is found, greater assurance is required that no more than the maximum tolerable number of failed tubes go undetected.
  - (c) One way of providing that assurance is to do an eddy current inspection of 100% of the tubes.

- (d) Another way is to determine through detailed analysis the maximum number of tube leaks tolerable during a LOCA or main steam line break, then to inspect a sample of tubes which will provide statistical assurance that that number does not exist. The sampling plan could be based on considerations outlined in NUREG CR 1282.
- (6) The NRC desires specific denting surveillance.
- (7) Tube inspection should be conducted after the repair of any leaks, not just leaks that exceed technical specification limits. The concern is that even a small leak may indicate a new phenomenon.
  - (a) Sudduth (Duke Power Company) noted that this removes an incentive for a utility to shutdown and repair small leaks before they grow large.
  - (b) Eisenhut replied that from a safety standpoint, there is no incentive to repair leaks which are less than the technical specification limit.
- (8) The NRC wants denting acceptance limits to be incorporated into technical specifications.
- (9) The NRC wants inspection results reported prior to operation if pluggable indications are found. The NRC wants to be able to plot trends and be able to intervene promptly if it is warranted.
- (10) Strosnider closed by stating that better technical specifications should help save time and paperwork by avoiding safety evaluation reports.
- (11) Eisenhut added that the NRC has been evaluating these requirements for some time as part of the work on unresolved safety issues and knows that these controversial items will take time to review. He stated that he knows many utilities already meet many of these requirements but that the NRC wants a base set of reasonable, practical requirements that apply to the entire industry. It is through such requirements that the NRC intends to wrap up unresolved safety issues A3, A4, and A5.

D. Improved Eddy Current Techniques.

- (1) Murphy (NRC staff) outlined the proposed requirements which include techniques for eliminating unwanted signal interferences, recording and evaluation of both absolute and differential eddy current signals, and addition of a calibration standard to simulate wear.

- (2) The NRC believes that for most defects, differential eddy current provides a conservative estimate of depth, but for wear, differential eddy current indications of depth may be non-conservative.
- (3) Brown (NDE Center) noted that the phenomenon cited by the NRC is due to the relationship between defect volume and depth and is not unique to wear. Consequently, he suggested generalizing the requirements for calibration and not concentrating on wear which may not exist.

E. Primary to Secondary Leakage Limits

- (1) Lainas stated that all technical specifications should be revised to contain the primary to secondary leakage rate limits in the standard technical specification: 1 gpm total steam generator leakage and a 500 gal./day leak per steam generator.
- (2) The NRC believes that these limits adequately restrict doses and maintain tube integrity under a main steam line break or LOCA.

F. Secondary Water Chemistry Program.

- (1) McCracken (NRC staff) outlined the following requirements.
  - (a) For new plants a requirement for a secondary water chemistry program to minimize steam generator tube degradation should be a license condition.
  - (b) Operating plants will be required to commit to a secondary water chemistry program if they are shut down to effect steam generator repairs as a consequence of corrosion. The commitment should be made prior to restart.
- (2) The water chemistry program should be defined in plant procedures but not be included in the license.
- (3) The program should address measures to minimize steam generator corrosion, i.e., material selection, chemistry limits, corrective actions, etc. The Steam Generator Owners Group PWR Secondary Water Chemistry Guidelines of September 1981 have been adopted by the staff as standard review plan 5421. Utilities wanting to deviate from this document would need to justify differences.

- (4) Schmidt noted that water chemistry guidelines are just "guidelines." There are likely to be exceptions to them from plant to plant and the guidelines are likely to change as more information is gathered. McCracken responded that he would prefer to see utilities take some exceptions since that would be an indication that they had read and understood the guidelines.
- (5) McCracken stated that if a plant is operating with no tube corrosion problems the NRC does not want to meddle. On the other hand, if tube corrosion does cause a shutdown, before restart the NRC wants a commitment from the utility to implement the guidelines. They realize that implementation takes time and don't intend to delay startup.
- (6) NRC realizes that adherence to the guidelines will not eliminate corrosion but they hope corrosion will be mitigated.

G. Condenser Inservice Inspection Program.

- (1) McCracken outlined condenser inservice inspection requirements as follows:
  - (a) A license condition that commits to condenser inservice inspection will be required if secondary water chemistry limits which should result in power reductions are exceeded twice per quarter due to condenser leakage.
  - (b) A commitment to perform condenser inservice inspection will be required prior to restart of operating plants which are shut down to make steam generator repairs as a consequence of corrosion.
- (2) While the requirement for condenser inservice inspection would be a licensing condition, the inservice inspection program itself would be in the plant operating procedures.
- (3) McCracken clarified that the inservice inspection program required would be one tailored to find the problems (e.g., air leaks, if air leakage were a problem).

H. Upper Inspection Ports.

- (1) Strosnider stated that plants with U-tube steam generators licensed after January 1, 1983 would be required to install inspection ports at the level of the upper tube support plate and inner row U-bends. Installation of such inspection ports in operating plants would be evaluated case by case.

- (2) Eisenhut clarified that the January 1, 1983 date is flexible. It merely indicates the direction that the NRC is considering.
- (3) Strosnider stated that eight plants already have such inspection ports because the NRC has concluded that they are needed to monitor denting and facilitate tube removal.
- (4) Sudduth questioned the utility of such ports. Duke Power plans to control water chemistry and avoid denting in their steam generators and does not need such a port to detect denting even if it occurs. If a new problem were to develop, Duke Power might desire ports in a different location in their steam generators.
- (5) Schmidt suggested that ports not be required now but that access ports be considered on a case basis as specific needs arise. The concern is that ports installed during construction might never be needed and indeed might be in the wrong location.
- (6) Eisenhut invited suggestions of a better requirement. He questioned whether the utilities might commit "to do something if a problem develops."
- (7) Strosnider added that the NRC really hopes that the utilities would provide a cost benefit analysis for adding ports.

### 3. Requirements Concerning Plant Systems Response

#### A. Reactor Coolant System Pressure Control During a Steam Generator Tube Rupture.

- (1) Marsh (NRC staff) stated that final safety analysis reports assume that for a steam generator tube rupture, primary to secondary differential pressure is decreased to 0 within 30 minutes. In the last 4 such events depressurization has taken at least twice that long.
- (2) The requirement being considered is to determine the optimal means of controlling and reducing pressure emphasizing use of existing equipment. The objective is to minimize leakage, maximize pressure control, and minimize voids in the reactor coolant system.
- (3) Marsh stated that a study with a conclusion would be expected. The study and conclusion should supplement guidelines being prepared by various owners groups.

- (4) Marsh gave an example: Where differential temperature limits prevent the use of auxiliary spray for pressure control, a fatigue evaluation of auxiliary spray connections might be performed to justify limited use of auxiliary spray at high differential temperatures.
- (5) Mecredy suggested that the requirement needed to be better focused.
- (6) Mattson (NRC staff) said the focus should be "making the 30 minute depressurization time come true."

B. Safety Injection Signal Reset.

- (1) Marsh stated that this requirement was for review of the logic for engineering safeguard function equipment to minimize loss of function upon reset of safety injection.
- (2) Marsh said this requirement arose from the Ginna question of whether switch-over of safety injection pump suction from the boric acid storage tank to the refueling water storage tank should be dependent on safety injection reset. He said only a small set of plants should be affected.

C. Containment Isolation and Reset.

- (1) Marsh stated the requirement was to review and evaluate response of the letdown system to containment isolation and reset signals.
- (2) This is another question that arose from the Ginna event. It concerns the logic of selecting which valves to shut for containment isolation.
- (3) Sudduth asked how general the question is. Marsh replied that he knew of one other plant that is affected.

4. Requirements Concerning Radiological Consequences--Standard Technical Specification Limits for Coolant Iodine Activity.

- A. Akstulewicz (NRC staff) outlined the following requirements proposed for iodine activity.
- (1) Plant technical specifications for coolant activity limits that differ in iodine limits or surveillance requirements from the standard technical specification shall incorporate the standard technical specification requirement.

- (2) Plants with low head, high pressure safety injection (HPSI) pumps that do not have iodine limits equal to standard technical specification values will be required to implement the reduced iodine limit imposed at Ginna (0.2 micro curies per gram rather than 1 micro curie per gram).
- B. Mecredy questioned the technical basis for applying lower iodine limits for plants with low head HPSI pumps. After lengthy discussions it appeared that the NRC's rationale was as follows.
- (1) In the case of a steam generator tube rupture, if reactor coolant pressure is being maintained with HPSI, the pressure will be lower in plants with low head pumps than in plants with high head pumps.
  - (2) The reactor coolant system pressure maintained by low head HPSI pumps is less than the low pressure trip point for reactor coolant pumps. Therefore, reactor coolant pumps will trip.
  - (3) If reactor coolant system pumps are not operating, it will take longer to depressurize the primary loop to the secondary pressure. This means primary to secondary leakage will continue longer.
  - (4) The radiological consequences of a longer lasting primary to secondary leak can be kept less than staff guidelines if the coolant iodine activity limit is set lower.
- C. Mecredy made the following points.
- (1) He questioned whether low head HPSI pumps and reactor coolant pump operation had anything to do with primary plant depressurization time.
  - (2) He suggested that the NRC await the results of Ginna calculations before implementing special iodine limits for plants with low head HPSI pumps.
  - (3) He also suggested the NRC consider different plant configurations and operating histories before implementing special iodine limits at all of those with low head HPSI pumps.
  - (4) Considering the NRC's rationale, he questioned the logic of applying special iodine limits to only some of the plants with low head HPSI pumps; i.e., only those that do not have iodine limits equal to the standard technical specification values.

D. Mattson responded that the NRC doesn't plan to implement special requirements until the question of when main coolant pumps should be switched off and on is resolved. Marsh added that the proposed requirements are not an end point but merely one of the steps along the way; therefore, different plants with low head HPSI pumps may indeed be dealt with differently on an interim basis.

5. NRC Proposed Actions.

The NRC is considering actions in the following areas but provided no written backup and no details:

A. Steam Generator Integrity--Sleeving.

- (1) The use of sleeves is growing. The NRC wants to provide guidance on the design, installation and inspection of sleeves. This guidance may take the form of a regulatory guide and will be based on the NRC's "experience."
- (2) Mecredy noted that the design of sleeves by some utilities and vendors is in an advanced stage. Consequently it might be wiser for the NRC to review applications rather than to give guidance for the design. Further discussion led to the suggestion that the NRC consider expanding Regulatory Guide 1.121 to include sleeves rather than issue a new document.

B. Plant Systems Response.

- (1) Evaluation of the potential for over filling a steam generator during a steam generator tube rupture.
  - (a) The NRC plans to perform calculations for 5 or 6 plants to evaluate the impact of a steam generator tube rupture on steam generator over fill and radiological consequences.
  - (b) Analysis will consist of both best estimate analysis and the more conservative "chapter 15" analysis to see what the differences are. The NRC will also evaluate the impact on safety valves and main steam isolation valves.
  - (c) The NRC expects to have the calculations done at Los Alamos using the TRAC code. TRAC decks are already available for TMI-1, Calvert Cliffs and Zion. Calculations would be completed in one year, undergo peer review and be published by December 1983.
  - (d) Green (SGPO) suggested allowing utilities, EPRI, NSAC and INPO to comment early on the assumptions and models to be used to increase the likelihood of valid and useful results.

(2) Considerations in the following three areas based on the Ginna event will be factored into other ongoing NRC work:

- (a) Pressurized thermal shock.
- (b) Improved accident monitoring.
- (c) Reactor vessel inventory measurement.

C. Human Factors Consideration.

(1) Considerations in the following areas based on the Ginna event will be factored into work on the TMI task action plans:

- (a) Reactor coolant pump trip.
- (b) Control room design review.
- (c) Procedures for transient and accidents.

(2) With regard to keeping reactor coolant pumps running during a steam generator tube rupture, Marsh stated the staff agrees with the criteria proposed by the industry and have passed them along to the Commission for endorsement. The staff hopes the letters will be out in August. Marsh was uncertain of exactly what the staff agreed with; however, it appears that they will request a pump trip criterion that distinguishes between a small break LOCA (pumps tripped) and a tube rupture (pumps not tripped).

D. Radiological Consequences.

(1) Reassessment of the consequences of a steam generator tube rupture will be coupled with the evaluation of steam generator over fill discussed earlier (publication expected in December 1983).

- (a) This work will consider such things as the effect of single failures in addition to a steam generator tube rupture.
- (b) Specific items to be evaluated are stuck open power operated relief valves and when the loss of site power should be assumed to ensure conservatism.

- (2) Secondary system isolation will be evaluated to determine how radioactive release can be prevented during a steam generator tube rupture. Items to be considered include:
  - (a) Bonneted secondary safety valves.
  - (b) Use of loop isolation valves where they exist.
  - (c) Means of capturing the release of pressure operated relief valves.
- (3) Reevaluation of the steam generator tube rupture design basis will be a long term item the goal of which is to determine the impact of different assumptions before deciding what actions to take.

E. NRC Organization Response--This covers NRC actions to address internal problems highlighted during the Ginna event.

#### 6. Meeting Conclusion

- A. At the conclusion of the NRC presentation Lainas stated that the NRC welcomes comments on the substance of what was presented and on the form requirements should take. Requirements could be issued as a Regulatory Guide, a Rule, generic letters, or bulletins.
- B. Schmidt stated that the Steam Generator Owners Group would apply its best efforts to get comments from utility representatives in attendance, from other PWR owners not represented, from NSAC, and from INPO. He said to do a good job would take approximately two months.
- C. Lainas said that's longer than the NRC desired but agreed to the schedule. He suggested a meeting in about a month so that the NRC could get some assurance that the comments are worth waiting for.
- D. Schmidt suggested that the Steam Generator Owners Group provide by telephone in about three weeks an update on the progress of the review and comments.

#### 7. Post Meeting of Utility Representatives

- A. Schmidt made the following observations.
  - (1) The NRC appears determined to press ahead with steam generator requirements but willing to wait for industry comments if they will get some.

- (2) This approach provides PWR owners a chance to influence the number and contents of steam generator requirements before they are implemented.
- (3) It is difficult to get a coordinated review started. Busy people, when confronted with an NRC draft document, might put it aside. However, if presented with draft comments they would be more likely to review them and comment on them.

B. Schmidt suggested the following approach.

- (1) Have specific attendees prepare draft comments on each section of the draft NRC requirements.
- (2) Collect the draft comments and send them out to all PWR owners.
- (3) Collect all comments and where possible resolve differences and reach a consensus.
- (4) Mail final comments to the NRC.

C. Discussion was as follows.

- (1) White said that Rochester Gas and Electric plans to comment on the entire document in about three weeks. Sudduth said that Duke Power plans to comment on the entire document also. Both agreed to also aid in a coordinated review.
- (2) The EPRI Steam Generator Project Office agreed to provide the staff function of coordinating, collecting and compiling comments. The first action would be to prepare notes on the meeting which, with the two documents provided by the NRC, could be distributed to all U. S. PWR owners.

D. The approach suggested by Schmidt was agreed to. The effort will be started as follows:

- (1) Draft comments will be prepared for each section of the draft NRC requirements.
  - (a) Draft comments will address both the substance of the proposed requirements and the form that they should take.
  - (b) Drafts will be completed within two weeks (by August 13, 1982).
  - (c) Drafts will be sent to Stanley Green, EPRI Steam Generator Project Office, for compilation and distribution to PWR owners.

- (2) Topics and those who will prepare the drafts are as follows.
- (a) II.1--Loose Parts; Curtis, Acosta.
  - (b) II.2--Stabilization and Monitoring of Tubes; Curtis, Sudduth.
  - (c) II.3--Inservice Inspection; Curtis.
  - (d) II.4--Improved Eddy Current; Brown, Curtis, Sudduth.
  - (e) II.5--Primary to Secondary Leakage; Curtis.
  - (f) II.7--Secondary Water Chemistry; Sudduth, Curtis.
  - (g) II.8--Condenser Inservice Inspection; Curtis.
  - (h) II.9--Upper Inspection Ports; Sudduth, Acosta.
  - (i) Form of Requirement by Item; Bivens.
  - (j) III.1.1--Pressure Control; INPO, Mecredy, Sudduth.
  - (k) III.1.3.1--Safety Injection Signal Reset; Mecredy.
  - (l) III.1.3.2--Containment Isolation and Reset; Mecredy, Sudduth.
  - (m) V.1.4--Iodine Limit; Mecredy.