



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

MAY 30 1984

MEMORANDUM FOR: Gus C. Lainas, Assistant Director  
for Operating Reactors, DL

THRU: James R. Miller, Chief  
Operating Reactors Branch #3, DL

FROM: Dominic C. DiIanni, Project Manager  
Operating Reactors Branch #3, DL

SUBJECT: PROCESSING LICENSE AMENDMENTS FOR POWER REACTORS AND  
TESTING FACILITIES UNDER 10 CFR 50.92 BASED ON THE  
"SHOLLY" LEGISLATION

This memorandum transmits the enclosed report on a study concerned with the burden that has developed in processing license amendment requests under the "Sholly Legislation." Specifically, the concern of this study is the pre-noticing in the Federal Register of those amendment requests that the staff determines as having a no significant hazards consideration (NSHC). The study makes use of the experience gained during the first year in which the regulation (10 CFR 50.92) has been in place on an interim basis and considers the effects of the regulation as related to public response, cost benefits and the level of reactor plant safety.

Based on these considerations, the results of this study justify the following recommendations:

1. The regulation, 10 CFR 50.92, should be modified so that amendment requests for operating reactor and testing facilities having NSHC need not be prenoticed in the Federal Register.
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3. An activity schedule should be established so that the proposed rule change is completed during the public comment period with ample time to permit Commission deliberation before issuing the final rule.

Dominic C. DiIanni, Project Manager  
Operating Reactors Branch #3  
Division of Licensing

Enclosure: As stated

cc: H. Denton  
D. Eisenhut  
E. Case  
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PROCESSING LICENSE AMENDMENTS FOR POWER REACTORS AND  
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Introduction:

The purpose of this document is to report on a study concerned with the burden that has developed in processing license amendment requests under 10 CFR 50.92 that originated from the "Sholly legislation". Specifically, a concern exists in the need to prenotice in the Federal Register, those amendment requests that the staff determines as having a no significant hazards consideration (NSHC). The study makes use of the experience gained during the first year in which the regulation, (10 CFR 50.92), has been in place on an interim basis and considers the effects of the regulation as it relates to public responses, cost benefit and the level of reactor plant safety.

Public Response:

From May 6, 1983, the inception of the Rule, to the end of the study period (April 13, 1984), NRR has prenoticed approximately 1044 amendment requests that the staff determined as having NSHC. From this total, the Commission received only six public responses, two of which were comments and the remaining four resulted in requests for public hearings. Responses related to NTOLs (Grand Gulf) or TMI-1 having high public visibility were not included in the total number of public responses. In addition, proposed amendment requests involving a significant hazards consideration were not included in the total number of responses since they have always been subjected to prenoticing. Based on the number of public responses during this initial period, the probability of receiving a public response from future amendment requests having NSHC is  $1 \times 10^{-4}$  at a 90% confidence level. The low number of public responses is likely due to the highly technical nature of some of these amendment requests. An understanding of the request requires knowledge of the technical specifications and the engineering aspects of the plant. Most public responses have dealt with well known controversial issues that were scrutinized in the past (i.e. spent fuel pool expansion, reactor vessel thermal shock, etc.).

Based on the number of responses during this initial period and the estimated cost of the Sholly process (discussed below), each public response has had a government cost burden of \$209,000.

It is recognized that the staff has a responsibility to keep the public aware of pending actions by the NRC. All amendment requests are immediately made available to the public through the local PDRs and the PDR in Washington, D. C. In addition, such requests are also transmitted to state officials as they are

submitted to the NRC. The staff acts expeditiously in responding to any public comments received orally or in writing and will continue to do so in the future.

However, the amount of staff effort devoted to the objective of keeping the public informed should not exceed reasonable limits. Prenoticing amendment requests having a NSHC goes beyond this limit in that major emphasis placed on this administrative function tends to overshadow the technical merits of the request.

Based on the above, it can be reasonably concluded that there is no adequate justification for continuing prenoticing amendment requests having NSHC from the point of view of public responses. This is especially applicable for the majority of operating reactors (approximately 95%) with little or no public visibility.

#### Cost Benefit:

A cost benefit analysis was performed utilizing data generated since the effective date of the regulation (10 CFR 50.92) in order to establish the impact when processing future amendment requests. Of the prenotices processed during the first 11 months, we reduced the backlog and therefore our output will be related closer to the number of incoming actions. This backlog reduction was achieved through staff overtime which is not the norm. A more reasonable future value assumed in this analysis is one-amendment-request-per-unit-per-month which amounts to 955 amendment requests per annum. This value is based on 81 operating units, corrected for number of amendment requests expected to involve a significant hazards consideration. As we know, the 81 units will be increasing as more plants come on line which would tend to increase the numbers of amendments per annum in the future. Based on the experience of the first 11 months, it appears that an estimate of 35 staff hours is required to process a typical prenotice, not including actual publication in the Federal Register. This 35 staff hours estimate is considered by many staff members as a reasonable value and includes the efforts of management, project managers, technical staff, licensing assistants, lawyers and secretarial support. However, an estimate of 18 hours per prenotice is used to compute government budgeting costs based on \$62.00 per hour. The 18 hour figure considers only project manager and technical staff time since all other support is factored into the \$62.00 per hour figure. A review of the Federal Registers for the last five months revealed that an average of 31 pages appeared in these publications. The last five months of the reporting was selected to compute the average so as to diminish the effects of reducing the backlog. Using the values discussed above, the total professional staff years (PSYE) that would be consumed and the total annual government budgetary cost for prenoticing amendment requests having no significant hazards considerations can be summarized as follows:

	<u>PSYE</u>	<u>Government Cost Per Annum</u>
NRR/OELD	18.6	\$1,067,000
Federal Register Publication (monthly) \$408./page	Not available	\$151,900
Federal Register Publication (in- dividual)	"	\$35,900
Total	18.6	\$1,254,800

When one applies the government cost during the initial period to the number of public responses, then each public response had a government cost burden of \$209,000.

A review of the legislative history, the Congressional communications and the Office of Policy Evaluation showed no similar cost analysis was recorded. However, the review of the records does indicate that a preliminary cost analysis was prepared for the Commissioners by the Executive Director for Operations (SECY 83-16B, March 4, 1983). According to this analysis, the total estimated impact on the NRC would amount to about four to five PSYE. The estimate in SECY 83-16B is low by a factor of 4 when compared with results of this review, which is based on actual experience to date.

Based on the above, the cost analysis derived from experience indicates that the initial estimated impact on the NRC prior to issuing the interim rule was grossly underestimated. In addition there is no way that such government cost can be justified in the future based on the number of public responses received during the initial period.

#### Level of Reactor Plant Safety

In the past, evaluations related to a NSHC were performed informally. Under 10 CFR 50.92, these evaluations require formal documentation involving management and legal reviews before the final product is published in the Federal Register. These reviews, during the developing of the formal documents, are time consuming, in that several iterations are generally required in order to resolve staff comments. Experience has shown that, during the developing period of the formal documentation, there was no enhancement in the safety level nor the technical aspect of a particular amendment request. In some cases notices were republished when changes to the initial submittals were made (note; note-gram from J. Scinto to G. Lainas, F. Miraglia, T. Novak, March 26, 1984). Such changes are not the result of the formal determination of a NSHC but evolve from the licensee, the staff, or a combination of both, when the amendment request is evaluated in detail. Such changes usually make the

amendment request more restrictive increasing the level of safety, while changes requested by the licensee tend to aid plant operation having no effect on the significant hazards determination. This interchange between the NRC and the licensee during the evaluating period of an amendment request is necessary to achieve the highest possible level of plant safety without overly restricting plant operation. The existing "Sholly" regulation is impeding this interchange which tends to reduce the level of plant safety.

Needless to say, this administrative burden in no way contributes to the primary mission of the staff, which is to assure that reactors are operated safely. It does, however, detract from this primary mission in that prenoticing these amendment requests lengthens the process time by at least 60 days that would result in an increase of the NRR backlog activities in the future. In addition, this burden is magnified for amendment requests involving major modifications to the technical specifications (i.e. Radiological Environmental Technical Specifications (RETS, Appendix I), containment purge etc).

Based on the above it can be concluded that the interim rule (10 CFR 50.92) is an impediment to increasing the level of plant safety.

#### Conclusions and Recommendations

The interim final rule as published on April 6, 1983 could be issued as the final rule by December 31, 1984. The final rule would address public comments on the interim final rule and make changes to it. In this context, I request that the content of this study be reviewed by the proper level management. Experience of the past year has demonstrated that the provision of prenoticing license amendment requests having NSHC involves considerations that should be part of the evaluation of the interim final rule before it becomes final. These considerations involve government cost and staff effort as they relate to public responses, contributions to the safety level of operating plants and the impediment in processing amendment requests. These conditions result in a marked reduction in staff efficiency in maintaining a desired level of operating plant safety. Based on these considerations the results of this study justify the following recommendations:

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Prepared by  
Dominic C. DiIanni  
May 21, 1984



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PDR



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MAY 30 1984

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Prepared by  
Dominic C. DiIanni  
May 21, 1984



AA61-2 PDR

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

Duck  
Roe  
Rehn  
Stello  
Meyne

January 31, 1984

MEMORANDUM FOR: Commissioner Gilinsky  
FROM: Martin G. Malsch *mm*  
Deputy General Counsel  
SUBJECT: NRC STAFF INTERPRETATION OF 10 CFR 50.59 AS  
APPLIED TO BWR PIPING SYSTEMS

This responds to your January 18, 1984 memorandum requesting OGC's legal opinion on whether the staff is correctly interpreting 10 CFR 50.59 in dealing with replacements to BWR piping systems. You specifically questioned an apparent proposal by staff to tell licensees that if their replacement programs are characterized by certain broad features, the replacements will not be regarded as involving "unreviewed safety questions" and, therefore, can be carried out without prior NRC approval in the form of a license amendment.

The staff's proposed guidance of December 14, 1983 can be read in a way that would impermissibly substitute an "overall safety margin" criterion for one of the unreviewed safety question criteria in 10 CFR 50.59 -- namely, whether "... the margin of safety, as defined in the basis for any technical specification is reduced." Section 50.59 provides that there is an unreviewed safety question for any change which involves a decrease in an individual safety margin as defined in the basis of any technical specification. The fact that "overall" safety margins are unchanged would not necessarily be relevant under the terms of this particular criterion. Whether staff's proposed guidance of December 14 would have led to an incorrect unreviewed safety question determination in any specific case can be determined only by reference to language in the basis for the technical specifications for each plant. If any of a plant's technical specifications is explicitly based upon the margin of safety for some individual component, then it would be contrary to section 50.59 to allow any plant change which decreases that margin of safety without a license amendment, and the fact that the "overall" margin of safety for the "system" was unchanged would

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not affect this conclusion.<sup>1</sup> We have not examined any particular sets of technical specifications, so we cannot advise whether the December 14 guidance would actually have lead to incorrect conclusions by licensees.

In its January 18, 1984 revision to the proposed guidance, the staff has added a caveat which is intended to cure the problem with the originally proposed guidance. The January 18, 1984 revision states that the staff guidance is based only on a "generic" review, and requires licensees to review the specific characteristics and technical specifications of each plant before reaching any unreviewed safety question conclusions under the regulations. The language could, in our view, be further improved by changing the language in the last bracketed paragraph of page 3 to read as follows:

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<sup>1</sup>Tradeoffs are not strictly permissible in applying the other two unreviewed safety question criteria of section 50.59. There is an unreviewed safety question either if the change may increase the probability or consequences of an accident or malfunction of equipment important to safety evaluated in the FSAR, or if the change creates the possibility of some new accident or malfunction. An increase in the accident or malfunction probability for one piece of "equipment important to safety" cannot be offset by a decrease in another. However, as explained below, there is considerable leeway in the section.

First, it may be consistent with section 50.59 to define "accident" or "malfunction" broadly without regard to cause. For example, if one defines a loss of coolant accident (LOCA) broadly without regard to cause, then an increase in LOCA probability because of reduced margins in strength of welds or supports could be offset by a decrease in LOCA probability because of the use of pipe materials less susceptible to cracking. Such broad definitions also make it less likely that the criteria relating to new accidents would be tripped.

Second, these other criteria in section 50.59 do not relate specifically to safety margins. Under these criteria one may offset decreases in nominal safety margins by increased conservatism in the use of data or analytical techniques so long as the "bottom line" estimated accident probability or malfunction probability is not increased.

Finally, the reference or base case to be used is not specified in the section. This base case can arguably be either the case described or implicit in the FSAR, or the actual operating condition of the plant preceding the change. This is discussed further in the text.



The NRC staff has developed this guidance without incorporating the results of any detailed review of a specific plant or specific plant technical specifications. A detailed case-specific review could lead to a positive unreviewed safety question conclusion even though the general guidance provided above would suggest a negative conclusion. A positive conclusion would be reached if, for example, the combination of FSAR codes and updated codes leads to a reduced safety margin for some plant structure, system or component, and this reduced margin either increases the possibilities or consequences of an accident or malfunction of equipment important to safety which was evaluated in the FSAR, or created the possibility of some new accident or malfunction, or pertains to a margin of safety in the basis for any technical specification. Thus each licensee must perform the specific, detailed review required by 10 CFR 50.59(a)(2) and in all cases the results of the detailed, case-specific review are controlling over the general guidance provided in this enclosure.

We assume that in most cases there would be no conflict between the general guidance and a case-specific detailed review under section 50.59. If there is any reason to believe that conflicts will be the rule rather than the exception, then the thrust of the guidance might be misleading.

Section 50.59 requires that the licensee make a determination whether there are unreviewed safety questions before making any change. The rule does not require prior staff approval for any change unless unreviewed safety questions are involved. If a change does involve an unreviewed safety question, then the licensee may not proceed with the change absent staff approval in the form of a license amendment. In this circumstance NRC may not allow the change to be made without a license amendment on the theory that no actual safety hazard is present until after the plant goes into operation with the change.<sup>2</sup> Moreover, NRC is not prevented by section 50.59 from taking enforcement action to prevent unilateral licensee actions. In close cases it may be prudent for staff to review the licensee determination and discuss the matter with the licensee before the change is made in the plant or in plant procedures so that the disruption in

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<sup>2</sup>In the TMI-1 steam generator repair matter, staff identified no "change" requiring a section 50.59 review. If there was no "change," and the technical specification requiring the license amendment pertained only to actual plant operation, then licensee was free to proceed with the repair prior to processing the amendment request absent staff enforcement action to halt the repair.

licensee plans is minimized should staff disagree with the licensee's determination.

The above discussion focuses on one of the three unreviewed safety question criteria in 10 CFR 50.59. One further matter of interpretation has a direct bearing on the staff's proposed guidance. Section 50.59 also provides that a change involves an unreviewed safety question "if the probability of occurrence or the consequences of an accident important to safety previously evaluated in the safety analysis report [FSAR] may be increased." This language in section 50.59(a)(2)(i) is somewhat unclear whether the increase is to be determined with reference to the FSAR or with reference to the situation that obtains at the time of the change.<sup>3</sup> However, the focus of the regulation as a whole is on changes in the plant "as described in the safety analysis report." Since the reference case for determining the existence of a "change" is clearly the FSAR, it would seem anomalous to use a different reference case for assuming the significance of the change, i.e., for determining whether an unreviewed safety question is presented by the change.

This question of interpretation goes to the heart of the policy issue whether the Commission should read 10 CFR 50.59 in a way to facilitate the BWR piping changes proposed by licensees simply because they will make plants safer. The interpretation which makes the FSAR the reference base tends to focus one away from the question whether the plants should be made safer than they are, and toward the question whether the plants should be made as safe as we thought they were when we reviewed and approved the FSAR.

If we assume that the FSAR is the proper reference base for determining if the probability of an accident or malfunction is increased, the next question is how one determines this reference base if, as we suspect, the FSAR includes no relevant quantitative discussion of accident or malfunction probability or likelihood of pipe cracks. If one were to adopt the view that the FSAR contemplated "some" piping cracks but not the extent or number of cracks that have been found to date, then under section 50.59 we are left with the highly judgmental question of whether the plant containing changed piping presents a greater or lesser probability of accident or malfunction than the now hypothetical plant with "some" pipe cracks.

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<sup>3</sup>This is because it is not clear whether the clause "previously evaluated in the safety analysis report" modifies "probability of occurrence" or "accident."

cc: Chairman Palladino  
Commissioner Roberts  
Commissioner Asselstine  
Commissioner Bernthal  
OPE  
SECY  
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ELD  
NRR  
IE