UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 50-155 OLA
CONSUMERS POWER COMPANY	)	(Spent Fuel Pool
	)	Expansion)
(Big Rock Point Nuclear Plant)	)	

LICENSEE'S FURTHER RESPONSE TO LATE-FILED CONTENTIONS OF INTERVENORS CHRISTA-MARIA, ET AL.

I. INTRODUCTION

On September 4, 1981 Intervenors Christa-Maria, Jim Mills and JoAnne Bier ("Intervenors") filed 31 additional contentions which they sought to have litigated in this proceeding. Intervenors purported to file such contentions pursuant to this Licensing Board's "Order Following Special Prehearing Conference" dated January 17, 1980, which included a scheduled time within which intervenors could file "any new contentions based on new information contained in SER and EIA." Consumers Power Company (Big Rock Point Plant), LBP-80-4, 11 NRC 117, 134. However, in their initial September 4, 1981 pleading Intervenors made no attempt to relate any of their 31 additional contentions to "new information contained in SER and EIA," nor did Intervenors address the five part balancing test for late-filed contentions set forth in 10 CFR §2.714(a).

Licensee and the NRC Staff filed responses to Intervenors' additional contentions pointing out these deficiencies. Moreover, Licensee and the Staff explained

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that the additional contentions also fail to meet the minimal requirements of nexus, basis, and specificity applicable to all contentions in NRC proceedings whether or not timely filed. Finally, Licensee observed that some of the additional contentions were restatements of contentions which have already been admitted by the Board, and therefore no purpose would be served by their admission.

On October 9, 1981 Intervenors filed a reply[1/] withdrawing one of the more frivolous of their additional contentions[2/] but arguing with more imagination than plausibility that the remainder were not untimely because they could be related to new information contained in the SER and EIA, or to two contentions which had been withdrawn at the Special Prehearing Conference subject to later reassertion. In the alternative, Intervenors for the first time addressed some of the five factors set forth in 10 CFR §2.714(a), which, they claimed, support admitting their late-filed contentions.

1/ Intervenors' Reply to Licensee's Motion and Staff's Response to Intervenor's Additional Contentions and Reply to Licensee's Separate Motion Concerning Contention 9-1 (hereinafter "Reply").

2/ Intervenors withdrew late-filed contention 15-1, which stated that:

> The additional spent fuel will increase the heat discharged into Lake Michigan, creating an unacceptable thermal impact, a deleterious imbalance of ecosystems in the area of Lake Michigan and a danger to the health and safety of the public.

The NRC Staff's EIA estimates that the potential increase in thermal discharge from the Plant to Lake Michigan due to the proposed modification is less than 0.04%.

Intervenors' October 9, 1981 reply did little to meet Licensee's relevance, basis, specificity and redundancy objections to individual contentions, apart from the unsupported assertion that Intervenors' late-filed contentions raise "important safety questions".

On October 23, 1981 the Board granted Licensee permission to file this further response to Intervenors' attempted justification of their late-filed contentions.

II. INTERVENORS' ACCUSATION THAT LICENSEE AND THE NRC STAFF ARE "CALLOUS TO THE PUBLIC HEALTH AND SAFETY" IS IRRESPONSIBLE; INTERVENORS' CLAIM THAT FURTHER DELAYS IN THIS PROCEEDING ARE "NOT A SERIOUS MATTER" IS WRONG; INTERVENORS' UNSUPPORTED ASSERTIONS THAT "IMPORTANT SAFETY ISSUES" ARE RAISED DOES NOT EXCUSE COMPLIANCE WITH THE NRC'S RULES OF PRACTICE.

A number of arguments made by Intervenors in their Reply must be met at the outset, because they are fundamentally unfair, wrong, and misleading. Intervenors charge that the opposition to their late-filed contentions shows "the callousness of the Staff and Licensee to the public health and safety" (Reply at 4). This is an unfounded and irresponsible accusation. Consumers Power Company has operated the Big Rock Point Plant safely for almost twenty years. This outstanding record was certainly not achieved through callousness to the public health and safety. Licensee has a right to oppose Intervenors' additional contentions because they do not meet the requirements of the Commission's Rules of Practice, because their admission would cause substantial delay, and because Licensee does not believe they raise "important safety questions".

Intervenors also argue repeatedly that any delay caused by the admission of these late-filed contentions would not be prejudicial since "the plant can operate until 1984 without expanding the spent fuel pool". This position however, blithely ignores the fact that the Big Rock Point Plant will lose full core discharge capability ("FCDC") as of the refueling outage scheduled for this winter. As explained in the affidavit of Carl Larsen dated June 1, 1981,[3/] without FCDC Licensee cannot unload the reactor to make inspections of or repairs or modifications to reactor vessel internals. While FCDC is not a safety requirement, lack of FCDC can result in substantially prolonged outages for the reactor and therefore represents real and continuing economic risk. For this reason it is important to Licensee to maintain FCDC at Big Rock Point Plant. The further "minor" delays in this proceeding of perhaps "many months" apparently contemplated with equanimity by Intervenors (compare pages 14 and 15 of Intervenors' Reply) would indeed be prejudicial.

3/ Mr. Larsen's affidavit was submitted to this Board last summer in opposition to Intervenors' motion for a nine-week delay in this proceeding. While the Board eventually granted Intervenors' request, it did so "solely upon consideration of Intervenors' having received the SER, the EIA and thousands of pages of Licensee's responses to discovery during the latter part of May, 1981..." Order Revising Schedule, dated June 16, 1981. Licensee did not understand the Board's order as indicating that further delays in this proceeding are "not a serious matter", as Intervenors now suggest. (Reply at 15.)

Finally, Intervenors quote, not for the first time, Chief Judge Grossman's comment made at the Special Prehearing Conference that the Board would never deny a request to raise a "legitimate safety question". (Tr. at 195-96.) Intervenors cling to this remark like a life-jacket, arguing that "[t]hat is the question, the only valid question this Board should consider--is there a safety question that ought to be addressed". (Reply at 2). But Chief Judge Grossman's comments were directed only to timeliness. Licensee does not believe the Chief Judge was promising to excuse Intervenors from showing that their additional contentions fall within the jurisdiction of the Board, or that he meant to imply that the basis and specificity requirements of the NRC's Rules of Practice would be waived upon Intervenors' mere allegation that "important safety questions" exist. In fact, Intervenors' failure to provide intelligible contentions with sufficient nexus, basis and specificity to permit litigation in this proceeding strongly supports what Licensee believes to be the case, that no important safety questions do exist with respect to its storage rack replacement proposal.

III. INTERVENORS' REPLY DOES NOT ESTABLISH THAT THE ADDITIONAL CONTENTIONS ARE TIMELY NOR HAVE INTERVENORS MET THE FIVE-PART BALANCING TEST FOR LATE-FILED CONTENTIONS.

A. The NRC Staff's SER and EIA

Both the Staff and Licensee pointed out in their September 15, 1981 responses to Intervenors' additional contentions that all of the contentions were untimely under the

Board's schedule, which provided for the filing only of "new contentions based on new information contained in SER and EIA". The clear intent of this provision was that if the Staff analysis revealed previously unavailable facts bearing on the safety of the proposed pool expansion, Intervenors would not be deprived of an opportunity to put those facts in issue through properly framed contentions. Intervenors, however, took this provision as a license to treat a proceeding already underway for two years as beginning de novo; they submitted a laundry list of contentions without even refering to the Staff's SER or EIA, let alone attempting to show that the contentions were based on new facts revealed in those documents. In replying to the objections of the Staff and the Licensee, Intervenors for the first time attempt to tie their contentions to the Staff documents, but these attempts are patently frivolous.

In order to come within the terms of the Board's order it does not suffice to point to a section the SER or the EIA and allege that because the section deals with a general aspect of the proposed pool expansion any new contention in the same general area is now admissible without regard to what the section actually says. This procedure obviously could be used to justify virtually any new contention because the SER and EIA are comprehensive documents that treat all the relevant health and environmental aspects of the proposed spent fuel pool expansion. Moreover, most of the Staff's conclusions in those documents are based on

the Licensee's calculations submitted in the Application in this proceeding and in various supplements thereto furnished at the request of the Staff. All such data have long been available, and the Board's schedule provides no justification for introducing contentions based on them at this stage of the proceeding. All of Intervenors' new contentions suffer from this fatal defect.

Intervenors' general statements suggest that they learned nearly everything about this case for the first time from reading the SER and EIA.[4/] Nonetheless, when Intervenors descend to specifics and proceed contention by contention, they only claim that two of the contentions -- additional contentions 17 and 18--are based on previously unavailable information. Intervenors concede that contention 18 has no connection with new information in the Staff documents, but is based on a 1981 zoning application by Consumers Power Company. Licensee demonstrates below that this action has no nexus whatever with this proceeding and is not within this Board's jurisdiction even if the contention were timely. In regard to contention 17 Intervenors allege that "[s]eismic considerations were raised in the

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4/ Intervenors state that "each of the Additional Contentions, with the exception of 10, 14, 15, 16 and 18 arise in whole or substantial part from such new material in the SER and EIA". Intervenors later attempt to justify the timeliness of contentions 14, 15 and 16 by relating them to two contentions withdrawn at the Special Prehearing Conference subject to reassertion with greater specificity and basis at the close of discovery. They make no attempt, however, to argue that contentions 10 and 18 are timely.

SER, Sections 3.4.1.1 and 3.2.2.1 [sic], from which Intervenors discovered that the plant was not seismically qualified". (Reply at 6.) This statement is erroneous in three ways. First, the SER never says that Big Rock Point Plant is not seismically qualified. Second, the seismic analysis in Sections 3.4.1.1 and 3.4.2.1 of the SER is an analysis of the spent fuel racks and the spent fuel pool structure to determine loads and stresses and safety against rack tipping; this has nothing to do with the seismic issues raised by Intervenors. (See pp. 34-42 infra.) Third, the data in the SER was not new in that document, but as stated by the Staff was based on the analysis performed by Licensee, which was included in Licensee'a application in this proceeding.[5/]

B. The Two Withdrawn Contentions

Apparently recognizing that their post hoc efforts to relate their additional contentions to new information in the SER and EIA are tenuous, Intervenors also allege that the majority of their new contentions --eighteen in all, counting subparts -- are timely because they merely represent a reassertion of two contentions that were withdrawn by agreement at the Special Prehearing Conference subject to later reassertion. The record in this case, however, shows this argument to be without merit.

5/ Consumers Power Company, Big Rock Point Plant, Spent Fuel Rack Addition, Description and Safety Analysis, Section 5, submitted April 23, 1979.

Before the Special Prehearing Conference, the NRC Staff, Intervenors and Licensee entered into a written stipulation, admitted by the Board at the conference, that provided, inter alia, for the withdrawal subject to reassertion of Christa-Maria Contention 4.[6/] The basis of the agreement between the parties was that Staff and Licensee believed "that Contention No. 4 does not meet the requirements of 10 C.F.R. §2.714 because it is vague in that the first sentence of the contention fails to specify the 'safety hazards of concern'". (Stipulation Among NRC Staff, Christa-Maria and Consumers Power Company at 3.) Christa-Maria, on the other hand, believed "that further specificity is not possible until the information referenced in the contention is completely available". (Id.) The parties therefore agreed to the withdrawal of the contention subject

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6/ The contention stated:

> In its Description and Safety Analysis the Applicant has failed to provide sufficient information about the new storage racks and the pool environment to permit an assessment of all possible safety hazards which may occur as a result of the expansion of the capacity of the pool. The Applicant offers a general description of the kind of storage rack it may use, but does not specify either the precise type or rack vendor. Nor does the Applicant indicate what pool environment it will maintain if the expansion is permitted, i.e., the Description and Safety Analysis does not state whether the pool water will be borated, oxygenated, stagnant or demineralized. This information has been shown to be critical, at the Zion facility for example, to a determination of whether corrosion and cracking can be expected in the racks. Licensing Board Memorandum and Order, In the Matter of Commonwealth Edison Co., (Zion Station, Units 1 and 2) Docket No. 50-295, 50-304, September 14, 1979, _____NRC_____

to reassertion, the intent clearly being that on the basis of facts developed through discovery, Christa-Maria might resubmit the contention after having defined its focus and provided the necessary basis and specificity.

Christa-Maria Contention No. 7 was not originally subject to the Stipulation.[7/] At the special prehearing conference, Licensee objected to this contention as lacking the basis and specificity required by Section 2.714 of the Commission's Rules. (Tr. 80-83). Counsel for Christa-Maria thereupon proposed withdrawing the contention pending discovery, and the parties agreed to treat it in the same way as Contention No. 4. (Tr. 83-84). In the Order Following Special Prehearing Conference, the Board stated that Contention 7 "was withdrawn at the hearing, subject to being resubmitted with more specificity after discovery". (11 NRC at 124.)[8/]

7/ The contention stated:

> The levels of airborne radiation released to the atmosphere through the containment ventilation system will be increased as a result of the storage of additional spent fuel. This increased level of radiation presents an unacceptable risk to the health of residents in the vicinity of the plant.

8/ Similarly, the Board stated that contention 4 "was withdrawn under the stipulation approved by the Board, subject to being reasserted as a new contention within the same subject matter parameters before the close of discovery without objection as to lack of timeliness." Id. Licensee does not regard this statement as doing anything more than memorializing the agreement between the parties.

With regard to both withdrawn contentions, therefore, the basis of the agreement between the parties was that the contentions as they stood could not meet basis and the specificity requirements of Section 2.714, but that if Intervenors could make them specific and provide a factual basis for them through discovery, Intervenors could resubmit them by the close of the discovery period. Intervenors' current invocation of this agreement is a travesty. Instead of making the original two contentions more specific and providing a factual basis for them, Intervenors have introduced eighteen new contentions, each as lacking in specificity and basis as the original two. Furthermore, Intervenors attempt to use the very vagueness of the original contentions as a cloak for the diversity of the new ones. They argue, in effect, that the meaning of the Stipulation was that they might introduce any number of new contentions in the general areas of "the storage racks and the pool environment" and "release of radiation to the atmosphere". (Reply at 3-4.)

This argument is so clearly at variance with the Stipulation as to be frivolous. Moreover, Licensee notes that Intervenors did not purport to rely on the withdrawn contentions when they originally submitted their additional contentions on September 4, 1981. This argument, like Intervenors' attempt to relate the additional contentions to "new information" in the SER and EIA, is a post hoc rationalization that verges on the disingenuous.

C. The Five Factors

In its September 15, 1981 Response to Additional Contentions, the NRC Staff fully analyzed the five factors of 10 CFR §2.714(a) and concluded that the balance weighed heavily against admission of Intervenors' late-filed contentions. Licensee agrees with this analysis and will not repeat it here. Licensee would point out, however, that Intervenors' Reply, which addresses this question for the first time, falls far short of making the showing that would be required for the admission of Intervenors' late-filed contentions (assuming that they were otherwise unobjectionable). It is incumbent on a party submitting a late contention to address each of those five factors and affirmatively demonstrate that, on balance, they favor admission of his late-filed contention. See Duke Power Company (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-615, 12 NRC 350, 352 (1980). The only factor that Intervenors' scattered remarks appear to address directly is the fifth, whether admission of the late-filed contentions would delay this proceeding.

Intervenors have not yet shown good cause for filing their additional contentions late, the first of the five factors. Good cause here would amount to a showing that the contentions specifically relate to previously unavailable information; but this is just the showing that Intervenors have failed to make. Failure to show good cause for late filing means that the petitioner must bear a heavier

burden with respect to the other factors. Duke Power Company (Perkins Nuclear Station Units 1, 2 and 3), ALAB-431, 6 NRC 460, 462 (1977). Furthermore, if the deadline is missed by years, the petitioner's burden becomes "enormously heavy". Puget Sound Power and Light Company (Skagit Nuclear Power Project, Units 1 and 2), ALAB-559, 10 NRC 162, 172 (1979). Here the deadline for filing all contentions save those based on previously unavailable information contained in the SER or EIA was before the prehearing conference in December 1979; Intervenors' additional contentions, therefore, are late by almost two years.

Intervenors do not attempt to address the extent to which their participation may reasonably be expected to assist in developing a sound record, the third of the five factors. The additional contentions they have filed, however, speak for themselves in this regard. Without exception these contentions consist of vague and unfounded claims; many of them have merely been cribbed from unrelated NRC proceedings without concern for whether similar factual situations make similar considerations relevant in this case.

Furthermore, Intervenors have not attempted to argue that admission of their late-filed contentions will not broaden the issues in controversy here, part of the fifth factor. As the Staff pointed out in its September 15, 1981 response, admission of these new contentions would

greatly expand the issues in controversy. Moreover, Intervenors' argument that admission of the late-filed contentions would not delay the proceeding is not persuasive. It is obvious that litigating a collection of new issues even more extensive than those previously in controversy would very substantially delay the proceeding. Intervenors are relegated to their often-repeated but fallacious argument that Licensee will not be damaged by delay until 1984.

IV. EVEN IF INTERVENORS' ADDITIONAL CONTENTIONS WERE TIMELY, EACH OF THEM MUST BE REJECTED FOR FAILURE TO MEET THE CRITERIA OF 10 C.F.R. §2.714

Intervenors reference the Staff's SER and EIA, as well as various decisions by Licensing Boards and Appeal Boards, in a belated attempt to supply the basis that Intervenors completely omitted in framing the contentions themselves. The attempt, however, is futile. Mere citation of an unrelated proceeding based on different facts or the citation of a conclusion in the Staff documents coupled with the bare allegation that the conclusion is unsupported or inadequate is wholly insufficient to supply the factual basis necessary to qualify an issue for litigation.

Late-Filed Contention 1-1 states:

> 1-1 The additional emissions of Iodine-129 and Krypton-85 that will result from handling and storage of additional spent fuel is inimical to the public health and safety.[9/]

9/ Contentions 1-2, 2-2, 3-2, 4-2, 5-2, 6-2, 7-2 and 8-2 cannot stand alone but depend on a favorable ruling with regard to contentions 1-1, 2-1, 3-1, 4-1, 5-1, 6-1, 7-1 and 8-1, respectively. They are not mentioned in Intervenors' Reply.

Intervenors' Reply fails to meet Licensee's previously stated objection that late-filed Contention 1-1 lacks the requisite specificity and basis. Licensee pointed out in its September 15, 1981 response that the contention does not specify whether Intervenors contend that: (1) the numerical assessment of Krypton-85 and Iodine-129 made by the Staff in the SER and EIA is in error; (2) the predicted increased releases will not be in compliance with applicable Federal standards; or (3) the applicable Federal standards are not adequate to protect the public health and safety. Intervenors' Reply does not cure this fatal defect.

Intervenors merely refer to the Staff assessment of Krypton-85 and Iodine-129 releases and assert that the Staff is deficient in not providing an analysis on which to base its conclusions and also deficient is not accounting for "postulated accidents, such as failure of the containment shell." With respect to the first point, Intervenors do not assert that the Staff assessments are incorrect, much less present a factual basis for believing they are incorrect. Intervenors merely make the familiar bare allegation that further analysis is needed. This does not satisfy the Rules of Practice. With respect to Intervenors' second point, nothing in late-filed Contention 1-1 refers to accidents, much less "failure of the containment shell." Intervenors are trying to change their contention in their Reply. This artful dodging is precisely the reason why this Board must insist on basis and specificity; otherwise, there will be no end to this proceeding.

Moreover, late-filed Contention 1-1 has already been answered. The issues Intervenors seek to raise have already been addressed in the Testimony of Charles Axtell and Roger W. Sinderman submitted by Licensee in support of its motion for summary disposition of Intervenors' Contention 2 and O'Neill Contention IIA and the Testimony of Roger W. Sinderman submitted by Licensee in support of its motion for summary disposition of O'Neill Contention IIF. In particular, the calculations attached as Exhibit 3 to Roger W. Sinderman's testimony addressing O'Neill Contention IIF establish that, even if all of the Krypton-85 and Iodine-129 in the expanded spent fuel pool when it is filled to capacity were instantaneously released to the environment (an incredible scenario postulated for illustrative purposes only), no violation of Appendix I dose limits would result. Thus, no purpose would be served by admitting this duplicative contention, even if it met the applicable criteria.

Late-filed Contention 2-1 states:

> 2-1 The failure of the licensee to encapsulate all defective spent fuel elements before placing them in the spent fuel pool is inimical to the public health and safety.

Intervenor's Reply does nothing to rebut Licensee's previously stated objection that Contention 2-1 lacks the requisite basis and specificity. Licensee pointed out in its September 15, 1981 response that the contention does not explain what is meant by "defective" fuel elements, what basis there is for believing that failure to encapsulate them poses a public health hazard, what concern would be

"solved" by encapsulation, or what basis there is for assuming tnat "defective" fuel elements can be identified and encapsulated "before placing them in the spent fuel pool." Intervenors' Reply merely cites the Staff's conclusion that expansion of the spent fuel pool may result in a minor increase of radioactivity in pool water and the fact that, while Staff believed there would be no increase in solid radwaste, Staff conservatively estimated such an increase. (NRC Staff EIA, Section 5.3.3.) Neither conclusion bears any discernible relation to this contention. Intervenors' further reference to the "as low as reasonably achievable" standard of 10 CFR §20.1(c) is ambiguous and leaves Licensee totally confused as to whether late-filed Contention 2-1 applies to occupational exposures within the plant or to public exposure due to plant effluent releases.

Regardless of which interpretation is correct, late-filed Contention 2-1 is redundant with Christa-Maria Contention 2 and O'Neill Contentions IIA and IIF. Testimony submitted by Licensee in support of its motion for summary disposition of those contentions addresses occupational and public exposures due to the spent fuel pool and ALARA issues. At this advanced stage of the proceeding, the appropriate way for Intervenors to raise the encapsulization issue is by submitting an affidavit from one of their "twenty experts" responding to Licensee's motion for summary disposition, setting forth facts specifically addressing the question why encapsulization is practicable, necessary and appropriate to meet the ALARA standards of 10 CFR §20.1(c).

Late-filed Contention 3-1 states:

> 3-1 The application fails to provide that (a) all fuel transfer operations be conducted with the containment isolated, (b) the isolation must be interspersed with breaks during which no fuel transfer operations are conducted so that containment may be vented to allow dissipation of humidity and airborn concentrations of radiation, and (c) the containment should be isolated as a precaution against faulty isolation equipment coupled with fuel handling accidents which would release unacceptable levels of radiation to the environment. For each of these reasons, the expansion is inimical to the public health and safety.

Intervenors' Reply fails to meet Licensee's previously stated objection that Contention 3-1 lacks the requisite specificity and basis. Licensee pointed out in its September 15, 1981 response that the contention offered no basis for the assumption that fuel transfer operations should be changed after installation of the new racks and no basis for the assertions that there was "faulty isolation equipment" at Big Rock which could lead to "unacceptable levels of radiation in the environment," a phrase which is itself unreasonably vague. Intervenors' Reply merely points to the Staff's discussion and evaluation of Licensee's procedures for rack installation and fuel handling. The Staff concluded that the proposed increase in pool capacity will not change the consequences of fuel handling accidents, a conclusion with which Intervenors do not take specific issue. (SER, Section 3.3.1.).

Intervenors' reliance on Commonwealth Edison Co. (Zion Station), LBP-80-7, 11 NRC 245 (1980) at 286, is puzzling. The Board there found that any incremental risk

of a fuel drop accident in the expanded pool due to additional fuel moves would be minimal, and the Board did not impose any such condition as isolation of containment during fuel transfer operations.

Furthermore, to the extent that Licensee can understand the concern behind this contention, it is covered by Licensing Board Question 1, which asks what effect the improper operation of certain containment isolation valves would have on the consequences of spent fuel pool accidents. Licensee has submitted an affidavit that addresses this concern in support of its motion for summary disposition of Board Question 1 and believes that Intervenors should respond to its motion with an affidavit of their own rather than seeking to introduce a redundant and deficient contention.

Late-filed Contention 4-1 states:

> 4-1 Because of problems associated with radioactive crud being added to the pool from the moving of stored fuel elements and the washing down of the old racks, contamination levels may not be kept within limits in the pool area. Therefore, before work begins licensee should measure and record ambient radiation levels around the pool. After the replacement of the storage racks and the fuel elements currently stored in them, the licensee shall again measure the radiation levels around the pool, monitoring such levels and operating the cleanup system until levels return to those typical before the rack modification was begun. No further activities which would then increase the radioactive content of the pool (such as refueling) shall be carried out until the levels return to those typical of the period before the modification. Failure of the application to so provide is inimical to the public health and safety.

Intervenors' Reply fails to meet Licensee's previously stated objection that Contention 4-1 lacks the requisite specificity and basis. Licensee pointed out in its September 15, 1981 response that the term "public health and safety" does not include occupational doses of radiation to workers, that there is no conceivable basis for believing that radiation levels in the vicinity of the spent fuel pool during reracking could adversely affect the general public, and that if Intervenors seek to raise the issue of occupational exposure the contention duplicates O'Neill Contention IIA. Intervenors merely cite the case from which they cribbed the contention, without offering any basis for believing that similarity of facts makes the cited case in any way relevant to the present proceeding. If occupational exposure is indeed Intervenors' concern, the question has been discussed fully in the Affidavit of Charles Axtell submitted by Licensee in support of its motion for summary disposition of O'Neill Contention IIA. In fact, the procedures described in Mr. Axtell's affidavit appear to conform rather closely to those suggested in late-filed Contention 4-1. Intervenors have the opportunity to file an affidavit from one of their "twenty experts" in response to Licensee's motion for summary disposition, indicating how, if at all, Licensee's procedures as described in Mr. Axtell's affidavit are inadequate. No purpose would be served by admitting this redundant contention even if it met applicable requirements.

Late-filed Contention 5-1 states:

> 5-1 The application does not provide for shipment of the old spent fuel storage racks whole in large crates rather than cut up into smaller pieces and is therefore inimical to public health and safety.

Intervenors' Reply does nothing to rebut Licensee's previously stated objection that Contention 5-1 lacks the requisite basis and specificity. Intervenors merely mischaracterize a Staff statement in Section 5.3.3 of the EIA, asserting that "Staff states that about 300 cu. ft. of solid radwaste will be removed from the plant when the failed fuel rack is disposed." This is false. The SER states that this amount of radwaste would be removed "[i]f the Licensee should dispose of the failed fuel rack." (Emphasis added.) The Staff also noted, however, that in fact the failed rack "will be decontaminated and stored in an appropriate manner on site." Licensee has also pointed out in its objection to this contention, as well as in its response to Intervenors' Interrogatory 9-36 (Set I), dated March 19, 1980, and in its objection to Intervenors' Interrogatory 36 (Set III), that the rack will be decontaminated and left on site. Intervenors apparently are not reading the information provided to them.

Late-filed Contention 6-1 states:

> 6-1 The application does not limit quantity or heights of loads which are carried over the spent fuel pool so as to preclude impact energies in excess of 240,000 in-lb. and is inimical to public health and safety.

Intervenors' Reply fails to meet Licensee's previously stated objection that Contention 6-1 lacks the requisite basis and specificity. Intervenors confirm what Licensee already pointed out, that this contention is cribbed from Portland General Electric Co. (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 276-77 (1979). They do not explain, however, how a decision based on different facts in a different case provides a basis for a contention in this proceeding. Intervenors also refer to Section 3.4.1.1 of the SER, the Staff's structural and mechanical evaluation. They assert that "the SER is not sufficient in its analysis of the heights at which various loads will be carried over the pool," without attempting to explain in what respect the Staff's analysis is deficient or what concerns underlie the assertion. Moreover, although Intervenors express concern about cask drop accidents, they ignore Licensee's previously stated objection that this concern duplicates O'Neill Contention IIG(a), already admitted to this proceeding.

Late-filed Contention 7-1 states:

> 7-1 The absence of a pool cover to preclude heavy object drops and cask tipping accidents is inimical to public health and safety.

Intervenors' Reply fails to meet Licensee's previously stated objection that Contention 7-1 lacks the requisite basis and specificity. Intervenors state that "[t]he basis for this contention is that a pool cover, used in other plants (such as the one at the Pebble Springs nuclear facility), would preclude heavy object drop or cask

tipping accidents." As usual, however, Intervenors fail to explain how some other feature lifted out of context from another proceeding based on different facts is at all relevant to this proceeding.[10/] Intervenors fail to identify which "heavy object drops" and "cask tipping accidents" the proposed pool cover should withstand. More importantly, they fail to explain how Licensee could transfer fuel in the pool or conduct other operations which necessarily involve submersion of various casks and heavy objects in the pool,

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10/ To the best of Licensee's knowledge the Pebble Springs facility has not yet been built and is not operating a spent fuel pool with or without a "pool cover". Licensee would point out the following footnote in the Licensing Board's Trojan decision which may be the "basis" for Intervenors' contention:

> In its direct testimony, the State of Oregon asserted that a pool cover is part of the design for the Pebble Springs facility and that installation of a pool cover should be considered for the Trojan SFP. The evidence presented by Oregon does not establish a rationale for installation of a pool cover at Trojan and the expert witness testifying on behalf of the State indicated that, in his view, the proposed SFP modification, of itself, does not increase the consequences of SFP accidents or bring about the need for a pool cover.
>
> The evidence shows that use of a pool cover at Trojan would require substantial design changes to the fuel building and that there is no reasonable or practical way for a pool cover to be installed or used. In view of this and of our findings with regard to the consequences of accidents without a pool cover, there is no need for a pool cover at the Trojan facility due to the proposed amendment.
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> Portland General Electric Co. (Trojan Nuclear Power Plant, LBP-78-32, 8 NRC 413, 433, n. 9 (1978) (record citations omitted, emphasis added).

Intervenors, perhaps understandably, fail to cite this case as a "basis" for their contention.

if their suggested pool cover were in place; or what protection such a pool cover would provide the stored spent fuel if such loads were somehow lowered, as required, into the pool beneath the cover. The contention therefore lacks any reasonable basis.

Late-filed Contention 8-1 states:

> 8-1 The application is inimical to public health and safety because it does not provide that:
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> > the pool shall be borated to 2,000 ppm during the removal and installation of the racks and until the completion of rack replacement to preclude criticality due to overturned racks and consequent spilled fuel elements, or due to the dropping of racks on one another.

Intervenors' Reply fails to meet Licensee's previously stated objection that Contention 8-1 is wholly lacking in the requisite specificity and basis. In its September 15, 1981 response Licensee pointed out that no information is offered to support the assumption that racks may be overturned, or that this may lead to fuel elements being spilled, or that racks may be dropped on one another. Licensee noted that the Staff's SER states at page 3-5 that no rack shall be moved in the vicinity of stored spent fuel, so as to preclude damage to the spent fuel from the drop or tipping of a rack, and that racks shall be moved only when empty. Intervenors' reply offers no reason why such precautions are inadequate.

Moreover, Licensee pointed out that there is no basis for the assumption that adding a concentration of

2,000 ppm of boron to the pool would be necessary, or sufficient, to preclude criticality under the conditions Intervenors hypothesize. Intervenors' Reply merely confirms what Licensee noted, that this procedure was taken out of context from Portland General Electric Co. (Trojan Nuclear Plant), LBP-78-32, 8 NRC 413 (1978). This typifies Intervenors' habit of taking contentions over whole from different cases where they arose in unrelated factual contexts; this technique is wholly insufficient to provide the requisite basis. Here the 2,000 ppm figure represents the usual concentration of boric acid used in spent fuel pools for Pressurized Water Reactors; Big Rock Point is a Boiling Water Reactor.

Late-filed Contention 9-1 was addressed by Licensee's September 15, 1981 Motion to Dismiss Contention 9-1 and to Establish Briefing Schedule.

Late-filed Contention 10-1 states:

> 10-1 By increasing on-site storage of spent fuel, the enlargement of the spent fuel pool would increase the danger to public health involving tornado or turbine missiles impacting the spent fuel pool. The pool as modified will not withstand such accidents within the limits set in NRC regulations.

Intervenors' Reply fails to meet Licensee's previously stated objection that Contention 10-1 lacks the requisite specificity and basis. As Licensee pointed out in its September 15, 1981 response, no reason is given why local meteorology or turbine characteristics and geometry may lead to a credible possibility of tornadoes occurring or of turbine missiles being generated at the Big Rock Point

Plant. Moreover, Intervenors do not explain what specific missiles and impact energies represent the perceived hazard due to these sources.

The mere fact that there may be more spent fuel in the pool as a result of Licensee's proposal does not significantly affect the risk due to turbine missiles or tornado missiles. The likelihood of such events is not increased and the potential consequences are not materially increased. This is because, contrary to the assertion in the contention, the pool itself will not be modified; the only change is that some new storage racks will be plced in the pool. Moreover, the additional spent fuel which would be stored due to the proposed license amendments will have decayed more than three years and, therefore, does not represent a significant addition to the overall inventory of volatile radioactivity present in the pool. See NRC Staff's EIA, pp. 4-5.

Intervenors' Reply merely cites certain sections of the SER and EIA and asserts that they are "deficient" in failing to consider the effects of tornado and turbine missiles. For the reasons given above, this assertion is baseless.

Late-filed Contentions 11-1 and 11-2 state:

> 11-1 NEPA §102(2)(C) requires an Environmental Impact Statement on the environment impacts of the spent fuel pool expansion.
>
> 11-2 NEPA §102(2)(C) requires an Environmental Impact Statement on the additional plant operation which will be made possible by the expansion of the spent fuel pool.

In its September 15, 1981 response Licensee demonstrated that Contention 11-1 lacks the requisite specificity and basis and that Contention 11-2 is inadmissible because it asks the Board to consider an issue that is res judicata. Intervenors' Reply states that "[t]his contention merely preserves Intervenors' position as to the application of NEPA Section 102(2)(C)." Intervenors make no effort to point out a specific deficiency in the Staff's EIA or any "significant impact on the human environment" that has been overlooked. Licensee can only construe this as meaning that Intervenors are not seeking to raise factual issues concerning environmental impacts that could be litigated at a hearing in this proceeding. They are instead mistakenly using the contention format to seek reassurance that they may preserve a right to appeal the Appeal Board's decision in ALAB-636. Intervenors' right of appeal is governed by applicable law and is not subject to the jurisdiction of this Board. The Board should treat Intervenors' Reply as withdrawing Contentions 11-1 and 11-2.

Late-filed Contentions 12-1 and 12-2 state:

> 12-1 If a steam explosion or a melt-down occurred at Big Rock Point, the radiological consequences of an expanded spent fuel [pool] would be greater than at present and inimical to the health and safety of the public.
>
> 12-2 If a steam explosion occurred in which spent fuel is expelled through the containment, the increased quantity of spent fuel increases the damage to the health and safety of the public.

Intervenors' Reply fails to meet Licensee's previously stated objection that Contentions 12-1 and 12-2 lack the requisite specificity and basis. In its September 15, 1981 response Licensee pointed out that Contention 12-1 does not specify the nature of the accidents postulated nor give any basis for believing that such accidents are credible; moreover, it makes no attempt to explain how such accidents could have any impact on the spent fuel pool, let alone cause it to have unspecified "radiological consequences." Intervenors' Reply first cites the Staff's conclusion, at Section 3.2.1 of the SER, that the increase in spent fuel assemblies will cause a 3% increase in peak heat loads in the pool. Intervenors make no attempt, however, to explain how this is in any way relevant to the contention. Intervenors' Reply then states that because the spent fuel pool is within containment, the radiological consequences of the postulated accidents must be analyzed under the criteria of 10 CFR Sections 100.11(a) and 100.13(a). Intervenors still make no attempt to show that the accidents are credible, and the fact that the spent fuel pool is within containment does not in itself mean that the postulated accidents would have any impact whatever on the pool.

Finally, Intervenors' Reply references Licensee's Answer to Interrogatory 9-2 (Set I), furnished to Intervenors on May 17, 1980. The answer sets forth the maximum release of radioactivity assumed in the Site Emergency Plan. However, this assumption of 100% release of core inventory

gases and 25% of halogens over a period of 24 hours is made for emergency planning purposes and is essentially dictated by NRC Staff guidance; it does not establish a credible design basis accident for purposes of 10 CFR Part 100, nor does it provide the specificity and basis necessary to form a litigable contention. Moreover, in suggesting that Licensee has conceded the credibility of such a release, and thereby provided a "basis" for their contention, Intervenors conveniently fail to note that in Licensee's answer to Interrogatory 9-32 (Set I), furnished on March 19, 1980, Licensee stated that it did not consider a reactor core melt at Big Rock Point a credible event. In its response to Intervenors' Interrogatory 9-1 (Set II), furnished on May 15, 1981, Licensee made a similar statement with respect to the occurrence of a steam explosion in the spent fuel pool. (Licensee assumes that the pool is the unspecified locus of the explosion hypothesized in Contention 12.) The contention, therefore, remains fatally deficient.

Late-filed Contention 13-1 states:

> 13-1 Big Rock Point does not have alternate sources of power in the event its primary power source fails. Such failure would render inoperable safety equipment in the expanded spent fuel pool including, without limitation, the cooling system, to the detriment of the health and safety of the public.

Intervenors' Reply fails to provide the specificity and basis necessary to define a litigable contention. As Licensee pointed out in its September 15, 1981 response, the first sentence of late-filed Contention 13-1 is false.

Apparently recognizing this, Intervenors' Reply substitutes the claim that "the SER states that the emergency diesel generators are historically unreliable. . ." (Reply at 12.) Licensee is unable to find any such statement in the SER.

Even if one were to assume, without any basis in this contention, that a loss of offsite power and the diesel generators is a credible event at Big Rock Point, it would be necessary for the admission of this contention for Intervenors to specify why this event would affect the spent fuel pool "to the detriment of the health and safety of the public." Specifically, the failure of the spent fuel pool cooling system would not, by itself, result in an accident causing a radiological release from the spent fuel pool. As long as the spent fuel stored in the pool remains covered with water, even if the pool boils there would be no damage to the fuel and no danger to the public, as shown in the affidavits of David P. Blanchard, Raymond F. Sacramo, and Daniel A. Prelewicz submitted in support of Licensee's Motion for Summary Disposition in respect of Christa-Maria Contention 8 and O'Neill Contention IIIE-2.

Late-filed Contention 14-1 states:

> 14-1 Since the spent fuel pool at Big Rock Point is not borated, any accident, including tornado missile, earthquake or earthquake missile, tipping of a cask into the pool, or drop of a heavy object into the pool which could result in a denser configuration of the fuel assemblies thereby makes criticality excursions more likely if additional fuel is stored in denser configurations than it is presently stored. The expansion is therefore inimical to the health and safety of the public.

Intervenors' Reply fails to meet Licensee's previously stated objection to Contention 14-1. In its September 15, 1981 response Licensee pointed out that the contention consists of a pot pourri of assertions related to other late-filed contentions and, as explained, some of Licensee's arguments in opposition to those contentions apply with equal force to aspects of Contention 14-1.

Contention 14-1 asserts that because the spent fuel pool at Big Rock Point is not borated, certain accidents or natural phenomena will create criticality excursions. This contention is closely allied with late-filed Contentions 7-1 and 8-1. As pointed out at pages 24-26 supra, Intervenors make no effort to explain why the precautions set forth in Licensee's application and the Staff's SER are inadequate, especially with respect to two of the events listed in Contention 14-1, namely, tipping of a cask or drop of a heavy object into the pool. Moreover, the notion of borating the pool at Big Rock Point, as suggested in Contention 14-1, suffers from the same lack of basis described in Licensee's response, supra, to late-filed Contention 8-1.

Licensee's response to late-filed Contention 10-1, supra, pages 26-27, articulates the lack of basis for the asserted concern for tornado missiles. That response is equally applicable to the tornado missile aspect of Contention 14-1, and by analogy to "earthquake missiles" as well. Likewise, Licensee's response, infra, pages 36-45, to

late-filed Contentions 17-1 and 17-2 demonstrates the lack of basis for the earthquake aspect of Contention 14-1.

Finally, Intervenors offer no explanation or basis for their conviction that any one of these events "could result in a denser configuration of the fuel assemblies thereby mak[ing] criticality excursions more likely if additional fuel is stored in denser configurations than ... is presently stored." Instead, Licensee and the Staff must fathom Intervenors' state of mind to ascertain the factual underpinnings for their various concerns.

Intervenors' Reply does nothing but reference the "Materials" section of the Staff's SER and the Trojan case. Neither reference even begins to provide a basis for this incoherent jumble of assumptions, and the contention must be rejected.

Late-filed Contention 16-1 states:

> 16-1 The existence of additional plutonium enriched spent fuel on site will increase leakage or discharge of radioactive matter to the detriment of the health and safety of the public.

Intervenors' Reply does not even attempt to meet Licensee's previously stated objection that Contention 16-1 lacks the requisite specificity and basis. In its September 15, 1981 response Licensee pointed out that Intervenors do not explain how the mere presence of mixed-oxide fuel on site could increase "leakage or discharge of radioactive matter," nor do they specify what radioactive matter they are referring to. Moreover, in asserting that increased

releases of radioactive materials will be detrimental to the "health and safety of the public" without specifying the quantity of such increases, Intervenors leave Licensee and the Staff to speculate whether the calculations of radioactive discharges performed by Licensee and the Staff are being challenged, or whether NRC regulations governing such discharges are being attacked. Finally, Licensee pointed out that insofar as Contention 16-1 challenges the use of "additional plutonium-enriched spent fuel on site" at some future time, it is outside the scope of this proceeding and beyond the Board's jurisdiction. Intervenors' Reply does not attempt to supply a factual basis or even a cursory explanation to remedy any of these deficiencies and the contention remains inadmissible.

Late-Filed Contentions 17-1 and 17-2 state:

> 17-1 Big Rock Point has not been seismically qualified and does not meet NRC standards. No license amendment may be approved for a plant which does not meet NRC standards.
>
> 17-2 Big Rock Point has not been seismically qualified and does not meet NRC seismic qualifications. In the event of an earthquake, an increase in the quantity of spent fuel on site increases the possibility of a melt down and the dangers to the health and safety from a release of radioactive water and materials.

Intervenors' Reply supplements these contentions by misquoting the SER, misrepresenting Licensee's and the Staff's positions, and selectively taking certain NRC Systematic Evaluation Program ("SEP") documents out of context. Moreover, it is clear that Intervenors do not understand the

safety significance of the ongoing SEP seismic reevaluation of Big Rock Point or the meaning of Licensee's statement in response to its Interrogatoreis 3-5(q) and 3-6(q) (Set I) that spent fuel pool valves, piping and lines -- all of which are non-safety-related equipment--are not "seismically qualified." But even if the SEP seismic reevaluation had disclosed an important safety problem at Big Rock Point--which to date it has not--Intervenors have failed to provide contentions with sufficient basis and specificity and logical nexus to this proceeding to satisfy the minimum requirements of th Rules of Practice.

Because Intervenors' contentions and their Reply contain so many mistakes, it is necessary to describe the seismic design basis of Big Rock Point Plant and the status of the SEP seismic review before explaining why late-filed contentions 17-1 and 17-2 are inadmissible.

In 1960, when a construction permit was issued for Big Rock Point Plant, the AEC reviewed the earthquake hazard in northern Michigan and approved the seismic design of the plant, stating:

> There have been no significant earthquakes in this area in historic times. The plant design is based on Zone 1 requirements of the Uniform Building Code which establishes factors of safety which should be used for various areas depending on earthquake frequency. Zone 1 assumes a low level of earthquake experience.

Consumers Power Company (Big Rock Point Plant), 1 AEC 342, 350 (1960). This approved seismic design basis was not modified at the operating license stage. Consumers Power Company (Big Rock Point Plant), 2 AEC 127 (1962).

In 1973, the NRC adopted 10 CFR Part 100, Appendix A. The purpose of the regulation was to set forth:

> the principal seismic and geologic considerations which guide the Commission in its evaluation of the suitability of proposed sites for nuclear power plants and the suitability of the plant design bases established in consideration of the seismic and geologic characteristics of the proposed sites.

10 CFR Part 100, Appendix A, Section I (emphasis added). Thus, 10 CFR Part 100 Appendix A is not by its terms retroactively applicable to plants like Big Rock Point.

On November 17, 1977, the NRC Staff initiated a "Systematic Evaluation Program" of selected older operating nuclear power plants, including Big Rock Point. The NRC Staff emphasized at that time that the initiation of the SEP did not mean that they believed that the selected operating plants were unsafe for continued operation. Rather, SEP has the following objectives:

1. Reassess the safety margins of the design and operation of selected older operating nuclear power plants.
2. Establish documentation which shows how each operating plant reviewed in the SEP compares with current criteria on significant safety considerations and which provides a basis for acceptance of any departures from these criteria.
3. Provide the capability to make integrated and balanced decisions with respect to any required safety improvements.

4. Identify and resolve significant safety deficiencies early in the SEP, if such deficiencies exist.

5. Efficiently use available personnel and minimize NRC and licensee resource requirements to perform the SEP.[11/]

Among the issues which are being investigated pursuant to SEP are Topics II-4, "Geology and Seismology," and III-6, "Seismic Design Considerations." While NRC Staff review of Big Rock Point geology has not yet been completed, the Staff has concluded its review of seismology by establishing a final site specific response spectrum defining postulated earthquake ground motion to be used in the seismic reevaluation of Big Rock Point.[12/] On September 29, 1981 the NRC Staff issued a safety evaluation concluding on the basis of the "low seismic hazard" of the site, the structural analyses performed to date, and a physical inspection of the plant, that continued operation of Big Rock Point Plant is justified pending completion of the seismic reanalysis. (Attachment A).

11/ Letter, dated December 1, 1977, from Victor Stello, USNRC, to David A. Bixel, CPCo., at p. 1, and attached document, "United States Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Report on the Systematic Evaluation of Operating Facilities", at p. 1.

12/ Letter, dated June 17, 1981, from Dennis M. Crutchfield, USNRC, to all SEP Owners with site specific spectra enclosed.

With this background, it is clear that late-filed Contentions 17-1 and 17-2, even as supplemented by Intervenors' Reply, fail to meet the minimum requirements of the Commission's Rules of Practice. Indeed, it becomes evident that, in an effort to depict an "important safety issue", Intervenors have played rather fast and loose with the facts.

Late-filed Contention 17-1 states that Big Rock Point Plant is not seismically qualified and does not meet NRC seismic standards. Intervenors' October 9, 1981 Reply asserts that Licensee and the Staff "concede" that Big Rock Point Plant is not seismically qualified, and also "concede" that Licensee has not yet demonstrated compliance with the requirements of 10 CFR Part 100, Appendix A. Later the Reply states that Intervenors discovered from the NRC Staff's SER that the plant is not seismically qualified. All of these statements are false. The SER never states that the plant is not seismically qualified, Licensee and the staff have never conceded that the plant is not seismically qualified,[13/] and Licensee's position as stated in

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13/ Licensee volunteered in the Response to Intervenors' Interrogatories 3-5(q) and 3-6(q) (Set I) that the spent fuel pool valves, piping and and lines are not "seismically qualified", meaning they have not been specifically designed or analyzed for resistance to a postulated earthquake. There is, however, no need for these components to be seismically qualified since their failure in an earthquake would not drain the pool, nor would the failure of the spent fuel pool cooling system be a safety problem as long as makeup water can be supplied. See Licensee's motions for summary disposition with respect to Christa-Maria Contention 8 and O'Neill Contention IIIE-2, and with

its September 15, 1981 response is that 10 CFR, Part 100, Appendix A is not applicable to Big Rock Point.

In support of their contention that "an earthquake" could occur at Big Rock Point Plant, Intervenors inaccurately summarize a December 15, 1978 memorandum from T. K. Cheng of the NRC's SEP Branch (Attachment B). Nothing in that memorandum indicates the existence of an increased seismic hazard at Big Rock Point Plant; in fact, the memorandum reflects Licensee's view that a very low seismicity should be assigned to the site. The NRC staff, based on thorough review, has now come to the conclusion that there is a "low seismic hazard" at the Big Rock Point site. (See Attachment A at p. 3 and footnote 12 supra with accompanying text). All this merely confirms the initial finding made by the AEC twenty years ago when the plant was licensed. See Consumers Power Company (Big Rock Point Plant) 1 AEC 342, 350 (quoted above).

Intervenors' Reply includes a letter from NRC consultant Professor W. J. Hall, which Intervenors detached from the NRC's September 29, 1981 safety evaluation (Attachment A) and submitted separately to this Licensing Board. Intervenors quote two concerns raised by Professor Hall out

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13/ continued

respect to O'Neill Contention IIB, with attached affidavits. Since these valves, piping and equipment are not safety-related, Intervenors' citation to 10 CFR Part 50, Appendix A, General Design Criteria 17 and 18, is not applicable.

of context. The letter expresses a general concern that the seismic portion of the Probabalistic Risk Assessment does not provide an "overall comprehensive treatment" of "total system performance and the interactions therein" and therefore it should not be used as "a sole basis for continued operation". In the first place, these comments were specifically directed to the adequacy of the Probablistic Risk Assessment, not to the adequacy of the plant. Professor Hall's comments relate to a proposal made by Licensee to the NRC staff in June, 1981 requesting that the Staff rely on the Probabalistic Risk Assessment to answer the balance of SEP Topic III-6. See Attachment C. This Licensee proposal was rejected, and Licensee and the Staff since the date of Professor Hall's letter have agreed to pursue the further rigorous and comprehensive studies recommended by Professor Hall. (See Attachments A and C). Professor Hall's overall conclusion with respect to the adequacy of the plant itself, which Intervenors fail to cite, was that continued operation is justified pending prompt completion of the studies he recommends. A second specific concern raised in Professor Hall's letter was the adequacy of the threaded piping in the fire water system. By detaching Professor Hall's letter from the September 29, 1981 NRC safety evaluation, Intervenors withheld from the Board the NRC's finding that alternate sources of water and alternate systems of welded piping "do exist to provide a reasonable degree of redundancy" for the fire water system. (See Attachments A and C). Finally,

we point out that nothing in Professor Hall's letter refers to the spent fuel pool.

The mere fact that an ongoing seismic reevaluation of Big Rock Point Plant is taking place as part of the SEP program does not prove the existence of an important safety problem, as Intervenors apparently believe. To the contrary, based on its assessment of all studies to date, the conservatisms built into both old and new seismic design criteria, and the inherent seismic resistance of nuclear power plants, the NRC Staff has determined, on a generic basis, that there is no need for a greatly expedited seismic reanalysis of the older nuclear power plants. See Director's Denial Under 10 CFR 2.206, In the Matter of Petition Requesting Seismic Reanalysis, DD-80-1, 11 NRC 153 (1980). This careful conclusion has been reaffirmed based on the recent specific NRC review and inspection of Big Rock Point Plant (Attachment A).

We are left then with two totally vague and unfounded contentions and a Reply which apparently seeks to alarm the Board about the overall seismic safety of the entire plant rather than to define any specific litigible issues within this Board's jurisdiction. Intervenors have failed to specify the size of the earthquake they fear, any credible basis for believing such an earthquake may occur, or any specific safety-related spent fuel pool equipment or components which may be damaged by such an earthquake, or any basis for believing such damage will follow if the

postulated earthquake occurs. Late-filed Contentions 17-1 and 17-2 should be dismissed for failure to comply with the nexus, basis and specificity requirements of the Commission's Rules of Practice.

Late-filed Contentions 18-1 and 18-2 state:

> 18-1 The application is deficient because it does not disclose or address the problems arising from the expansion of the spent fuel pool and the construction and operation of a rad-waste facility licensee proposed to build at Big Rock Point.
>
> 18-2 The increase in on site radioactive material from the expansion of the spent fuel pool and the proposed rad-waste facility is inimical to the health and safety of the public.

Intervenors' Reply fails to meet Licensee's previously stated objection that Contentions 18-1 and 18-2 lack the requisite basis and specificity; moreover, Intervenors' Reply underlines even more clearly the fact that the contentions have no nexus at all with this proceeding. Intervenors state that Contention 18-1 "arises from new information obtained as a result of an application in 1981 for zoning approval for construction of a new rad-waste facility at Big Rock Point." Intervenors do not explain, however, how this "rad-waste facility" -- in fact a construction activity to enclose an existing space on the Big Rock Point site used for temporary storage of steel drums of low level waste -- which is itself not within the Board's jurisdiction, is in any way related to the expansion of the spent fuel pool. Moreover, Intervenors' Reply does not attempt to explain what basis exists for believing that either action

will cause any "problems" even if they were connected. The contention remains fatally deficient.

V. CONCLUSION

For the reasons given above, Licensee renews its motion for this Board to dismiss each of Intervenors' late-filed contentions as untimely.

In the alternative, for the specific reasons given above, Licensee requests that this Board dismiss each of Intervenors' late-filed contentions for failure to comply with the requirements of 10 CFR §2.714.

Respectfully submitted,

Joseph Gallo, by PPS
Joseph Gallo, Esquire

Philip P. Steptoe, Esquire

Peter Thornton, by PPS
Peter Thornton, Esquire

Three of the Attorneys for
Consumers Power Company

ISHAM, LINCOLN & BEALE
Suite 325
1120 Connecticut Avenue, N.W.
Washington, D.C. 20036
(202)833-9730

ISHAM, LINCOLN & BEALE
Suite 4200
One First National Plaza
Chicago, Illinois 60603
(312) 558-7500

Dated: November 6, 1981

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	Docket No. 50-155-OLA
CONSUMERS POWER COMPANY	)	(Spent Fuel Pool
	)	Expansion)
(Big Rock Point Nuclear Plant)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of LICENSEE'S FURTHER RESPONSE TO LATE-FILED CONTENTIONS OF INTERVENORS CHRISTA-MARIA, ET AL. in the above-captioned proceeding were served on the following by deposit in the United States mail, first-class postage prepaid, this 6th day of November, 1981.

Herbert Grossman, Esquire
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Dr. Oscar H. Paris
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Mr. Frederick J. Shon
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Mr. John O'Neill, II
Route 2, Box 44
Maple City, Michigan 49664

Atomic Safety and licensing
Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Atomic Safety and Licensing
Appeal Board Panel
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Docketing and Service Section
Office of the Secretary
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Janice E. Moore, Esquire
Counsel for NRC Staff
U.S. Nuclear Regulatory
Commission
Washington, D.C. 20555

Ms. Christa-Maria
Route 2, Box 108C
Charlevoix, Michigan 49720

Herbert Semmel, Esquire
Urban Law Institute
Antioch School of Law
2633 - 16th Street, N.W.

Ms. JoAnne Bier
204 Clinton
Charlevoix, Michigan 49720

Mr. James Mills
Route 2, Box 108
Charlevoix, Michigan 49720

Peter Thornton

Peter Thornton

ATTACHMENT A

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
September 29, 1981

Docket No. 50-155
LS05-81-09-073

Mr. David P. Hoffman
Nuclear Licensing Administrator
Consumers Power Company
1945 W. Parnall Road
Jackson, Michigan 49201

Dear Mr. Hoffman:

SUBJECT: SEP TOPIC III-6, SEISMIC DESIGN CONSIDERATIONS
BIG ROCK POINT NUCLEAR POWER STATION

In accordance with 10 CFR 50.54(f) of the Commission's Regulations, our letter to you dated August 4, 1980 requested that you submit plans and proceed with a seismic reevaluation program for Big Rock Point facility and that you provide justification for your conclusion that continued operation is justified in the interim until the seismic reevaluation and any necessary upgrading, as results from this reevaluation, is completed. The staff has completed the review of the information supporting continued operation contained in your letters dated February 23, April 25, 1979; February 13, March 31, October 10, 1980; and July 27, 1981 and the meeting summaries dated August 7, 1979 and June 22, 1981. Furthermore, the staff and its consultant (Prof. W.J. Hall of University of Illinois) visited the site to evaluate the seismic resistance of the facility.

As a result of this review, the staff has concluded that continued operation of the Big Rock Point Nuclear Power Plant is justified under the following conditions:

(1) results of seismic analysis are submitted for NRC review on the schedule specified in your July 27, 1981 letter; and

(2) in case of any modifications shown to be necessary as a result of the seismic analysis which are not implemented by January 1, 1983, the schedule for implementation and additional justification for continued operation over the period of this implementation are to be submitted and will be reviewed on a case by case basis.

Enclosed is our safety evaluation report.

Sincerely,

Dennis M. Crutchfield

Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

Enclosure:
As stated

cc w/enclosure:
See next page

Mr. David P. Hoffman

cc
Mr. Paul A. Perry, Secretary
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Judd L. Bacon, Esquire
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Joseph Gallo, Esquire
Isham, Lincoln & Beale
1120 Connecticut Avenue
Room 325
Washington, D. C. 20036

Peter W. Steketee, Esquire
505 Peoples Building
Grand Rapids, Michigan 49503

Alan S. Rosenthal, Esq., Chairman
Atomic Safety & Licensing Appeal Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. John O'Neill, II
Route 2, Box 44
Maple City, Michigan 49664

Charlevoix Public Library
107 Clinton Street
Charlevoix, Michigan

Chairman
County Board of Supervisors
Charlevoix County
Charlevoix, Michigan 49720

Office of the Governor (2)
Room 1 - Capitol Building
Lansing, Michigan 48913

Herbert Semmel
Council for Christa Maria, et al.
Urban Law Institute
Antioch School of Law
2633 16th Street, NW
Washington, D. C. 20460

U. S. Environmental Protection
Agency
Federal Activities Branch
Region V Office
ATTN: EIS COORDINATOR
230 South Dearborn Street
Chicago, Illinois 60604

Herbert Grossman, Esq., Chairman
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. Oscar H. Paris
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. Frederick J. Shon
Atomic Safety and Licensing Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Big Rock Point Nuclear Power Plant
ATTN: Mr. C. J. Hartman
Plant Superintendent
Charlevoix, Michigan 49720

Christa-Maria
Route 2, Box 108C
Charlevoix, Michigan 49720

William J. Scanlon, Esquire
2034 Pauline Boulevard
Ann Arbor, Michigan 48103

Resident Inspector
Big Rock Point Plant
c/o U.S. NRC
RR #3, Box 600
Charlevoix, Michigan 49720

Mr. Jim E. Mills
Route 2, Box 108C
Charlevoix, Michigan 49720

Thomas S. Moore
Atomic Safety & Licensing Appeal Board
U. S. Nuclear Regulatory Commission
Washington, D. C. 205

BASES FOR CONTINUED OPERATION
BIG ROCK POINT NUCLEAR POWER STATION

INTRODUCTION

In accordance with the Commission Regulation 10 CFR 50.54(f), a letter was issued on August 4, 1980 to Consumers Power Company requesting the licensee to provide justification for continued operation until their seismic reevaluation of their facility is complete. In response to this letter, the licensee submitted its basis for continued operation on October 10, 1980. On January 9, 1981, a summary of seismic reanalysis completed to date for the plant facilities was submitted. In this summary report, safety margin of plant structures and systems (a total of 15 structures, systems and subsystems was included) was demonstrated. More recently (June 19, 1981), additional information for justification for continued operation was provided. On June 30, 1981, the staff and its consultant, Professor W. J. Hall of University of Illinois, made a visit to the plant to discuss the seismic capability of structures, systems and components at the Big Rock Point Plant with Consumers Power representatives. The staff's evaluation of the basis for continued operation follows.

Seismic Hazard Consideration

The staff, in its letter dated August 4, 1980, directed the licensee to conduct the seismic reevaluation of Big Rock Point Nuclear Power Plant using the site specific spectrum (0.11g peak ground acceleration) as the free field ground motion. The adequacy of this site specific spectrum was confirmed by the staff through a letter dated June 17, 1981. This ground motion is equivalent to an earthquake with return period between 1,000 years and 10,000 years.

Seismic Resistance of Structures, Systems and Components

In response to NRC letters dated January 15, 1979 and August 4, 1980, the licensee completed a limited seismic reanalysis on Big Rock Point plant facility (15 items were analyzed including most of safety related structures as well as some systems). A summary of these results was submitted to the staff on January 9, 1981 as part of justification for continued operation. Regulatory Guide 1.60 Spectrum scaled to 0.12g peak ground acceleration was used for input ground motion. This spectrum completely enveloped the site specific spectrum recommended by the staff, i.e., it is more conservative than the site specific spectrum. From the preliminary review of the summary report and other information received from the licensee (letters dated February 23, April 25 of 1979, February 13, March 31, October 10 of 1980, July 27, 1981 and meeting summaries dated August 7, 1979 and June 22, 1981), the significant findings are highlighted below:

- The criteria and analyti[illegible]ures used for the structures in the reanalysis are generally [illegible]k to the staff.

- The results presented by th[illegible]nsee indicated that all items identified were adequate for the [illegible]ated earthquake (0.12g Regulatory Guide 1.60 Spectrum) with the following exceptions:

  (1) steel bracing and steel co'umn bases of service building complex were found to be overstres ed;

  (2) allowable stresses would be exceeded at junction of 24" recirculation pipe and 4" cross-connecting loop and undesirable displacements were found at this junction.

  The inadequacies identified above are considered insignificant because: (a) conservatism does exist in the original design with respect to ductility, damping, actual material strength, etc..and (b) conservative seismic input (in comparison with the staff recommended site specific spectrum) was used in this analysis.

In addition, the staff and its consultant (Prof. W. J. Hall of Univ. of Ill.) visited the plant site to evaluate the seismic resistance of the facility. The report of staff's consultant regarding the basis for continued operation of the facility is attached (Enclosure 1). One area, the threaded piping of the fire protection system, was identified as a possible weak link in the facility by the consultant. The fire protection system is the primary source of water for the primary and backup core spray systems as well as the backup supply for the shell side of the emergency condenser. The licensee in a letter dated July 27, 1981 s ated that a redundant source of water for the core spray system is provided by the Post Incident System. This piping system is completely welded and connected to the yard loop piping that has been seismically analyzed. As far as the plants capacity to make up water to the pimary coolant system and the emergency condenser, alternate sources (water can be supplied through a welded pipe system from the DMW storage tank or from the domestic water system onsite with the water sources being the domestic water accumulator, the well water storage tank via the domestic water pump, or ultimately the deep well pump, if the DMW tank becomes depleted) do exist to provide a reasonable degree of redundancy for the removal of decay heat. The consultant recommended that continued operation in the interim should be permitted.

Since early 1979, the folowing additional seismic issues have been addressed, resolved or are being resolved under the SEP seismic review:

- In response to NRC "Achorage and Support of Safety-Related Electrical Equipment" issues dated January 1, 1980 and July 28, 1980, a total of 52 items was inspected by the licensee and its consultants (CPCo letters dated February 13, 1980 and March 31, 1980). The necessary modifications of equipment anchorage and support identified during field walk-down were installed based on the results of analysis performed to a 0.12g R. G. 1.60 Spectrum input (CPCo letters dated October 10, 1980 and January 22 and March 26 of 1981).

. The licensee, in response to NRC letters dated August 4, 1980 and April 24, 1981, has initiated a seismic reevaluation program that is scheduled for completion by the end of 1982.

CONCLUSION

Based on the results provided to date from the analyses of the plant structures and systems/subsystems, the proper anchorage and support of safety related electrical components, the alternate cooling water supplies, and the inherent capacity of the remaining plant structures, systems and components as well as the low seismic hazard (NRC June 17, 1981 letter) associated with the Big Rock Point site, the staff concludes that the continued operation of Big Rock Point Nuclear Power Plant during the seismic reevaluation of the facility and the implementation of any modification shown to be necessary as a result of seismic reanalysis is justified under the following conditions:

(1) results of seismic analysis are submitted for NRC review on the schedule specified in the licensee's July 27, 1981 letter; and

(2) in case of any modifications shown to be necessary as a result of the seismic analysis which are not implemented by January 1, 1983, the schedule for implementation and additional justification for continued operation over the period of this implementation are to be submitted and will be reviewed on a case by case basis.

Lawrence Livermore National Laboratory

Enclosure 1

July 22, 1981
SM 81-194

Mr. P. Y. Chen
Systematic Evaluation Program Branch
Division of Licensing
Office of Nuclear Reactor Reg.
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear P. Y.:

I have enclosed W. J. Hall's final letter regarding continued operation of the Big Rock Point Plant and EG&G's review of the LaCrosse program plan. Note that the LaCrosse review should be used in conjunction with the previous submittals and highlights those items which have still not been adequately addressed in the program plan.

Sincerely,

Thomas A. Nelson

Thomas A. Nelson
Structural Mechanics Group
Nuclear Test Engineering Division

TAN/mg
0007m

Enclosures

Copy of 81-1000762

Enclosure 1

WILLIAM J. HALL
3105 VALLEY BROOK DR.
CHAMPAIGN, ILLINOIS 61820
217 356-0683

July 15, 1981

Mr. T. A. Nelson
L-90
Lawrence Livermore Laboratory
P. O. Box 808
Livermore, CA 94550

Re: Big Rock Point Nuclear Power Plant -- Docket No. 50-155
LLL Agreement 1523501

Dear Mr. Nelson:

Comments arising from my review of the Big Rock Point Nuclear Power Plant and in particular pertaining to its ability to accommodate seismic effects follow.

Over the past several months I have received the following material for review pertaining to this case.

Material originating from Consumers Power Company

1. Letter of March 31, 1980 (8 pages) -- Re: Anchorage and Support of Safety-Related Electrical Equipment

2. Letter of October 10, 1980 (7 pages) -- Re: Response to Staff Letter dated August 4, 1980 - Proposed Seismic Evaluation Program and Basis for Continued Interim Operation

3. Letter of January 9, 1981 (20 pages) -- Re: Preliminary Seismic Safety Margin Evaluation

4. Letter of March 26, 1981 (4 pages) -- Re: Anchorage and Support of Safety-Related Electrical Equipment

5. Letter of June 19, 1981 (3 pages) -- Re: SEP Topic III-6, Seismic Design - Proposed Progress and Justification for Continued Operation

6. Excerpt pp. 53-55, copy from BRP risk analysis

7. Excerpt pp. VI-113 to VI-174, copy from BRP risk analysis

Material originating from U. S. Nuclear Regulatory Commission

1. Letter of August 4, 1980 (3 pages plus Attachments 1 and 2)

2. Letter of April 24, 1981 (5 pages) -- SEP Topic III-6, Seismic Design Considerations Big Rock Point

3. Letter of June 8, 1981 (28 pages) -- Site Specific Ground Response Spectra for SEP Plants Located in the Eastern United States

4. Letter of June 22, 1981 (11 pages) -- Summary of Meeting Held with Consumers Power Company to Discuss Seismic Design Considerations (SEP Topic III-6) for the Big Rock Point Plant

5. Plot (undated) -- 1 page, illustrating USNRC Site Specific Spectrum and the 0.12 g anchored REG. Guide 1.60 Spectra (84.1 percentile) employed by applicant for analysis

6. Copy of Report entitled "Derivation of Floor Responses -- Reactor Building," prepared by D'Appolonia Consulting Engineers, Inc., June 1978, 62 p.

On June 30, 1981, in conjunction with T. Cheng and W. Paulson and W. T. Russell, I made a site visit to the Big Rock Point site and participated in technical discussions and a plant inspection.

On the basis of my review of the seismic portions of the risk analysis studies made available to me, and reflecting on the brief discussions at the time of the site visit wherein some of the uncertainties and gaps in the analysis were identified, I cannot recommend employing such an approach as a sole basis for continued operations. Such studies, when they encompass rigorous total system performance and the interactions therein, can be helpful as a basis for forming an opinion as to the adequacy of expected performance under various conditions of system disturbance. My brief review of the seismic portion of the risk analysis studies suggests that such an overall comprehensive treatment does not currently exist in the present case.

As one might surmise from my foregoing statements, and irrespective of whether or not the level of earthquake hazard is perceived to be low based on recent recorded seismic history, I believe reasonably demonstrated adequacy of system resistance to earthquakes is necessary.

In view of the recent seismic quiescence of the region in which the plant is located, and on the basis of the recent USNRC/TERA site specific studies, spectra anchored at 0.11 to 0.12 g horizontal ground acceleration appear acceptable in this particular case. Although I appreciate the bases upon which the USNRC site specific spectra were generated, I do wish to note that

Dr. Newmark (prior to his death) and I expressed concern verbally that in some cases the amplified regions (acceleration and velocity) were low compared to Standard Reg. Guide 1.60 or NUREG CR/0098 spectra which we normally would recommend for use. In this case it is my understanding that the licensee and his consultants have employed Reg. Guide 1.60 spectra (84.1 percentile) anchored at 0.12 g horizontal ZPA for safety related structures and the reactor coolant loop; such spectra do contain reasonable acceleration and velocity amplifications and I concur with their use.

Even so, when reviewing the physical resistance of critical safety systems in such cases as this, namely older plants, I recommend particular attention be paid to the margins that may be present to resist overloading from seismic effects. However it is only fair to note that in the case of anticipated low seismic activity, as in this case, the loading contribution from seismic effects is normally only a small fraction of the total stressing at critical locations, especially when compared to allowables.

I subscribe fully to the content of the April 24, 1981 USNRC letter and shall not repeat the contents of that letter herein. The site visit reveals that much of the equipment has been reviewed for adequacy of anchorage and support, which is comforting, but much remains to be done (as for example, the walk-through alone, which involves limited inspection at best, indicated a need for anchoring the control room cabinets, anchoring cranes, anchoring fire extinguishing equipment, and anchoring some batteries); comments made on the tour suggested that some portions of the equipment have not been examined as yet. In any event, it is my recommendation that this program of upgrading be pursued rigorously, systematically and promptly.

Obviously I believe the total system integrity at the reactor coolant pressure boundary should be examined carefully as soon as possible on a documented system by system basis. In this connection I am concerned that the fire water system with its standard threaded pipe which is relied upon to provide post-incidence emergency water injection from the intake well, may not possess the desired inherent resistance. This system may not possess the resistance to seismic excitation that is believed to exist, and I strongly suggest that an upgraded system be developed and installed in the very near future, with some degree of redundancy as to water sources, water paths and pumping capacity. It appears to me that such upgrading can be done at minimal expense, but care must be exercised that the system is anchored to sound structural support systems, i.e. not walls which can fail or near walls which could affect the system performance. Alternatively it may be necessary to strengthen some walls.

In conclusion, the system as it currently exists may not be as inherently resistant to seismic excitation as believed by the licensee. If the licensee

promptly develops a plan of action to review and upgrade systems as noted in the USNRC letter of 14 April 1981 and takes steps to execute the required upgrading promptly, then in view of the perceived low seismic hazard I recommend continued operation in the interim (near term).

Sincerely yours,

W. J. Hall

WJH:efh
cc: W. T. Russell, USNRC

ATTACHMENT B

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

DEC 15 1978

MEMORANDUM FOR: D. K. Davis, Chief, Systematic Evaluation Program Branch, DOR

FROM: T. M. Cheng, Systematic Evaluation Program Branch, DOR

SUBJECT: SUMMARY OF MEETING WITH CONSUMERS POWER COMPANY - GEOLOGY AND GEOTECHNICAL SITE VISIT

On November 16, 1978 members of NRC staff met with representatives of Consumers Power Company (attendees listed in Enclosure 1) to discuss technical questions related to the Systematic Evaluation Program (SEP) review of site geology and geotechnical data of the plant, to tour the Big Rock Point site and to identify and obtain information which is not available in the Big Rock Point docket.

The meeting opened with a discussion by T. M. Cheng of the Systematic Evaluation Program Branch addressing the purpose of the visit and the scope of review. The discussions focused on:

1. Settlement of foundations and buried equipment
   a. Construction records
   b. Foundation drawings
2. Geology and Topography
   a. Boring logs and drill cores
   b. Faulting investigations
   c. Mappings
   d. Lineament studies

The staff explained that the local geological and geotechnical information including the engineering properties of the foundation soil will serve both as input into the Lawrence Livermore Laboratory (LLL) Site Specific Spectra development and as a basis for the staff's overall review of geologic and seismic hazards at the Big Rock Point site. The results of discussion and the staff's comments are summarized below.

1. Only limited foundation drawings (Dwg. Nos. 074062-0006, -0152, -0251, -0252, -0254) are available for review and the settlement

Dupe B

of foundations had not been monitored through monument observations. The licensee agreed to provide as much information as they can before January 1979.

2. A total of seven borings had been taken during construction of the plant. The boring locations and information of boring columns are documented in the report from Soil Testing Services, Inc. to Consumers Power Co. on March 7, 1960

3. Additional borings are being drilled next to the plant structures for generating the engineering properties of the supporting soil. This information will be submitted to the staff by January 1979.

4. The licensee indicated that some ancient faults were located across Lake Michigan and they will not affect the local seismicity at the site. The information of faulting is documented in the PSAR of Haven site, Wisconsin Electric Power Co.

5. The licensee pointed out that as documented in the Hazard Analysis Report, only a few shocks have occurred within a 200 miles radius of the site and a very low seismicity is suggested to be assigned to the site.

For both items 4. and 5., the staff indicated that more investigation is necessary before a conclusion will be drawn.

The site tour included observations of local geology, topography and settlement of foundations. Some foundation cracks were found at joints between plant structures. However, these cracks are not considered to be significant.

A field tour was taken in areas surrounding the site which concentrated on observations of outcrops at local quarries and Petoski Park. Large sink holes appeared to exist, as result of carbonate solutioning, at both limestone quarries visited. Small solution cavities were observed at Petoski Park.

A wrap-up briefing was held after the completion of the field tour. The staff confirmed with licensee the additional information to be provided in the near future.

1. Settlement of foundations (January 1979)

2. Soil/rock stratification and the engineering properties of supporting soil (January 1979)

Thomas M. Cheng
Systematic Evaluation Program
Branch, DOR

Enclosure:
As stated

ENCLOSURE 1

DEC 13 19

LIST OF ATTENDEES

SITE VISIT - BIG ROCK POINT

NOVEMBER 16, 1978

NRC

Stan Nowicki	ORB #2/DOR
A. T. Cardone	GSB/DSE
T. M. Cheng	SEPB/DOR

CONSUMERS POWER

W. J. Beknus	NAD
Roger Huston	NAD
Jim Kuemin	NAD
Don Domoor	Big Rock Point

ATTACHMENT C

Consumers Power Company

COPY

General Offices: 212 West Michigan Avenue, Jackson, MI 49201 • (517) 788-0550

July 27, 1981

Director, Nuclear Reactor Regulation
Att Mr Dennis M Crutchfield, Chief
Operating Reactors Branch No 5
U S Nuclear Regulatory Commission
Washington, D C 20555

DOCKET 50-155 - LICENSE DPR-6 -
BIG ROCK POINT PLANT - SEP TOPIC III-6 -
SEISMIC DESIGN CONSIDERATIONS

A seismic reanalysis program for the Big Rock Point Plant has been the subject of numerous letters and discussions since January, 1979. Throughout 1979 and 1980, a great deal of work was done, and a major reanalysis effort was undertaken to seismically analyze important plant structures, and the primary coolant system.

The cost of this work, to date, has been well over one million dollars. Concurrent with this reanalysis effort, Consumers Power Company developed a full Probablistic Risk Assessment (PRA) of the Big Rock Point Plant which included consideration of the seismic hazard at the plant site. The conclusion reached by the PRA was that the risk from a seismic event was not a significant contribution to overall plant risk. In light of the PRA conclusion that seismic risk was not significant, and the major cost of reanalyses to current criteria, Consumers Power Company proposed by letter, dated June 19, 1981, that the PRA be used with appropriate revisions to answer the balance of SEP Topic III-6.

The overriding considerations behind this proposal were: 1) that Consumers Power Company had concluded that the Big Rock Point Plant, as it exists, is a safe plant which does not represent a significant risk to the health and safety of the public; 2) that the seismic contribution to the already low overall plant risk was insignificant; and 3) that continued expenditures strictly in support of the traditional NRC deterministic licensing process for those items considered to be of little significance could not be sustained without making continued plant operation uneconomic. This approach met with a great deal of opposition from the staff. Criticisms of this approach centered around the lack of specific deterministic analyses to support assumptions about plant response to a seismic event; questions concerning the PRA treatment of equipment fragility data, etc which had been developed from other studies; and a general skepticism that a probablistic approach can ever be acceptable for the treatment of external events such as earthquakes. As a result, we have concluded that additional

analyses will be performed to deterministically prove that needed structures and systems will not fail in the event of an earthquake near the Big Rock Point site. The purpose of this letter, therefore, is to discuss our proposed seismic reanalysis program for the balance of SEP Topic III-6 to provide a brief description of work completed to date, and to discuss in more depth the reasons why continued operation of Big Rock Point prior to completion of the deterministic system analyses does not represent a significant hazard to the health and safety of the public.

As discussed above, Consumers Power Company initiated a reanalysis program in 1979 to prove the seismic resistance of major plant structures, the primary coolant system and portions of some other systems. The scope of this program included the following systems/subsystems:

Reactor building internal structure
Containment shell
Primary coolant loop
Turbine building
Service building and office addition
Reinforced concrete stack
Sphere ventilating room
Fuel cask loading dock/core spray equipment room
Screenhouse/diesel generator room/discharge structure
Intake structure
Buried Fire Main Piping
Lake bed pipe
Underground electrical cable
Buried fuel tanks
Liquid radwaste vault

These analyses were performed to a Regulatory Guide 1.60 spectrum having a zero period horizontal ground acceleration of 0.12g. This earthquake is somewhat more conservative than that developed by the NRC for the Big Rock Point site as transmitted to Consumers Power Company by letter dated June 8, 1981. The results of these analyses showed that all items were verified to be adequate for the postulated earthquake (using service Level C stress limits) with the exception of the service building (small number of minor bracing modifications were recommended as being more cost effective than additional analyses) and primary coolant system junctions between the 4" crosstie and the 24" recirculation lines (conservatisms in stress intensification factors used and simplified modeling technique are believed to be responsible). On June 9, 1981, Consumers Power Company informally provided the NRC with a copy of the draft final report for these analyses. Since that time, our internal reviews of the report have been completed, and discussions are underway with our consultant to resolve comments. We expect to have this report finalized and formally submitted to the NRC in the near future.

Dennis M Crutchfield, Chief
U S Nuclear Regulatory Commission

Big Rock Point Plant
July 27, 1981

For the balance of SEP Topic III-6, Attachment A provides a description of our planned seismic reevaluation program for Big Rock Point. This program is consistent with the scope defined in NRC letter dated April 24, 1981, and has been discussed with the NRC at a meeting on July 15, 1981. It will be noted that system evaluations will, wherever possible, rely on simplified analysis techniques and qualification by comparison with equipment which has previously been qualified or has survived past earthquakes. During the July 15, meeting, some questions were raised about the level of detail being provided for the evaluation criteria, and it was requested that the criteria be further amplified.

Subsequently, in a telephone discussion between R Hermann (NRC) and R A Vincent (CPCo) on July 22, 1981, Mr Herman agreed with the approach that the staff first review our program in more detail and provide specific questions in areas for which more information is needed. It will be our intent, therefore, to provide additional information in response to specific staff questions rather than to unilaterally supplement the information being provided herein.

Consumers Power Company remains convinced that the hazard to the health and safety of the public, as a result of a seismic event, is not significant. This conclusion is based on the following:

1. The Probabilistic Risk Assessment for the Big Rock Point Plant submitted to the NRC by letter dated March 31, 1981, shows the overall risk from the plant to be low. Plant risk is predominantly controlled by the plant size (available source term), probability of fission product release, energy available for release and population distribution. Since Big Rock Point is a small plant, remote from major population centers, even major core-melt accidents with containment failure would not result in any predicted acute fatalities, and only small numbers of latent cancer fatalities (small enough to be of questionable statistical significance) over the forty years subsequent to an accident. This is directly supported by the siting study recently performed by Sandia Laboratories for the NRC. Consumers Power Company has a stronger interest in preventing a major accident than even the NRC, and can certainly not endorse conditions which would allow a major accident to happen, but Big Rock Point Plant can and should be regulated in a manner which recognizes the difference in risk between a Big Rock Point and larger, more complex plants.

2. As discussed in our letter of October 10, 1980, the Big Rock Point Plant is in an area of very low seismicity. The design earthquake with a return period of 1,000 to 10,000 years has been determined to be on the order of .08g in the vicinity of the Big Rock Point site. The acceleration determined by the NRC, as being acceptable in your letter of June 8, 1981, is anchored at 0.11g. Typical industrial construction is not usually damaged by earthquakes of these levels. Experience and other analyses performed to date have shown the Big Rock Point Plant to be generally a well-designed, well-constructed facility.

3. The general conclusions from both Consumers Power Company and NRC seismic experts, who have inspected the Big Rock Point facility, also support the

inherent seismic resistance of the plant. Although some portions of plant systems were judged to be marginal, none of the experts predicted failures which would cause loss of system functions. This is particularly significant in that this group of experts included at least one who has extensive experience in inspecting damage to commercial facilities resulting from earthquakes much more intense than the postulated earthquake for the Big Rock Point site.

4. With respect to the question whether a seismic event could induce a LOCA, concern has been expressed about small lines attached to the primary coolant system which have not been inspected or analyzed. This concern was raised because seismically induced deflections in the worst location have been predicted to be up to 3.4 inches. To put this value in perspective, it must be noted that PCS thermal deflections from heatup and cooldown can be up to two to three inches in the worst locations. These deflections have been routinely experienced many times without failure over the past twenty years of plant operation. These thermal deflections were identified in the original analyses and were accounted for in the piping design. This understanding, along with a review of IE Bulletin 79-14 work, supports the position that the small lines attached to the PCS piping at points of large deflection are not stiffly supported and thus can sustain large deflections.

   In addition, the computer model used to predict this maximum deflections is a simplified model which does not account for the complete restraint configuration on the piping. As a result, we believe that this predicted value for maximum seismic deflection of PCS piping for the assumed .12g earthquake is conservative. This conclusion is further underscored in that the spectrum used in the analysis is considerably higher at the relevant frequencies than the site-specific spectrum developed for Big Rock Point Plant by the NRC.

5. With respect to the plant's capability to make up water to the PCS and the emergency condenser, the fire main is important in that it supplies primary and backup core spray, and provides a backup source of water for the shell side of the emergency condenser. Although none of the experts predicted failure as a result of the postulated earthquake, we recognize the staff's concerns with the threaded fire system piping. Redundancy does exist, however, to the fire system.

   For makeup to the emergency condenser, the primary source is demineralized water. This is supplied through quality lines of all welded construction from the DMW storage tank. If a seismic event caused a loss of offsite power, the DMW pump and an air compressor could be powered from the emergency diesel for makeup. If the DMW tank becomes depleted, it could be supplied from the domestic water system onsite with the water sources being the domestic water accumulator, well water storage tank via the domestic water pump, or ultimately the deep well pump. More than sufficient pumping capacity exists to makeup at the 10gpm (approximate) rate needed for decay heat removal.

As previously stated, an additional source of makeup to the emergency condenser is the fire water system. The fire water makeup line taps off the core spray piping inside containment through a manually-operated valve.

If the threaded fire water piping in the turbine building should fail due to a seismic event, further redundancy is provided by the Post Incident System. The Post Incident System can supply water to the core spray lines via a separate line from the yard loop through motor operated valve MO-7072. This system is also a high quality system of all welded construction. MO-7072 can be operated by hand or with power from the emergency bus. Since previous analyses have verified the seismic adequacy of the yard fire piping, and several valves are provided around the loop to isolate leaking sections, this would be a reliable water source.

With respect to makeup water for the PCS, none would be required for a long period of time if a LOCA did not also occur as long as a closed heat transfer loop such as the emergency condenser is available. If a LOCA did occur, a large volume of makeup water would be required. This water would normally be provided through the core spray or redundant core spray lines from the fire system. Again, failure of the threaded piping in the turbine building would not preclude core spray flow because of the redundant path which exists through the Post Incident System. Further redundancy is provided by the condensate pump. An estimated 20,000 gallons of water is normally available in the hot well and the condensate storage tank as well as approximately an additional 3,000 gallons in the demineralized water tank. This source will assure core reflood for a top break (ie, above the core). Domestic water can also be used to supply water to the hot well for long term decay heat removal.

As noted above, the seismic adequacy of the screen house and the intake structure have also been verified. While the above scenarios encompass a loss of screen house equipment, failure of lines in the screen house would not be expected. Since most items including the fire pumps are essentially at ground level, building amplification of the low seismic input accelerations would be small if it occurs at all. For the fire piping, in particular, since the runs in the screen house are relatively short and flexible, failure is also not probable.

In summary then, Consumers Power Company believes that the low accelerations associated with earthquakes in the vicinity of Big Rock Point combined with the infrequency of such events is sufficient in itself to allow continued operation while the remaining seismic analyses are completed. Analyses to date continue to verify the seismic resistance of systems and structures installed during original plant construction. As further assurance, however, the above discussions have shown that redundancy does exist so that the plant is not solely reliant on the fire water system (judged to probably be the most fragile from a seismic

standpoint) for makeup to the emergency condenser and the primary coolant system. We believe, therefore, that further actions are not warranted over the period defined in Attachment A for the balance of the seismic analyses.

Robert A Vincent (Signed)

Robert A Vincent
Staff Licensing Engineer

CC Director, Region III, USNRC
NRC Resident Inspector - Big Rock Point

BIG ROCK POINT PLANT

Seismic Re-evaluation Program

Attachment A

I. Purpose:

1. To satisfy needs of Systematic Evaluation Program topic III-6 Seismic Design Considerations

2. To provide a deterministic basis to better support assumptions and conclusions regarding seismic contribution to Plant risk as developed in the Big Rock Point Probabilistic Risk Assessment

II. Scope: Evaluations will be performed for the following systems or portions thereof:

a) Reactor Coolant System
b) Main Steam up to and including MSIVs
c) Feedwater system up to and including isolation valves
d) Portions of other systems directly connected to the RCS up to and including isolation valves
e) Control Rod Drive system
f) Emergency Condenser including makeup water piping
g) Fire system including core spray, backup core spray, enclosure spray, and backup enclosure spray
h) Reactor Depressurization system
i) Post Incident Cooling system
j) Emergency Power Supply
k) DC Power system
l) Spent Fuel Pool
m) Appropriate portions of structures housing the above system

Note that this list is essentially identical to the list provided in NRC letter dated April 24, 1981. This list is also essentially identical (with the exception of the instrument air system*) to the list of critical systems determined by the PRA to be necessary to mitigate all postulated core melt sequences.

*Instrument air is presently needed only for demineralized water makeup to the shell side of the emergency condensor. The PRA has identified replacement of a one inch manual valve on the redundant fire water makeup line to the emergency condensor as a desireable modification. This modification would allow the operator to supply fire water to the condensor in the event of failure of the normal demineralized water makeup source. Instrument air, therefore, is not included on the above list.

III. Program Elements

1. Compile existing BRP plant seismic qualification data for:

*Structures
*Critical Systems & Components
*Block walls & noncritical equipment presenting potential hazards due to proximity to critical systems.

2. Complete review of D'Appolonia report

*Modify report to reduce conservatism if appropriate.
*Use report results and procedures as input to preliminary evaluation criteria.
*Docket revised report or existing report with qualifying comments.

3. Develop preliminary evaluation criteria.

*Applicable Codes (AISC, ASME, ANSI/ANS, etc.)
*SEP information & applicable NUREGs, Reg. Guides, etc.
*BRP FHSR and equipment specs.
*Service Level D vs C
*Applicability of & procedures for system walkdown.

4. Conduct detailed, systematic plant inspection of critical systems and components.

*Identify vital components on complex systems such as control panels.
*Identify other items potentially hazardous to safety related equipment in their immediate vicinity (e.g. block walls).
*Obtain necessary dimensions, etc. to supplement existing documentation.
*Photograph all items to be reviewed.
*Judge seismic fragilities of all components using personnel expert in observation of actual earthquake damage.
*Observe adequacy of bracing and anchorages.
*Identify most fragile lines & components. Determine and implement desirable plant changes to judgment criteria for housekeeping items plus small lines below sizes considered by applicable codes.
*Take sample measurements of equipment responses to determine fundamental frequencies (hand excitation, accelerometer, oscilloscope).
*Separate items inaccessible during plant operation for walkdown during outage.

*Target completion date is 9/30/81.

5. Finalize evaluation program. Select the best option for evaluation of each component based on available data. Options include qualification by similarity, test, simplified analysis, detailed analysis, replacement, sampling, etc.

6. Prioritize BRP systems for evaluation accoding to:

*Criticality of system to plant operation or shutdown including degree of redundancy General ranking will be RC pressure boundary, shutdown systems, ECCS related systems in that order.

*Perceived fragilities based on walkdowns.
*Accessibility during operation.

7. Finalize evaluation criteria to be applied to each system and method, to include ground and floor response spectra, damping, simplified analysis methods, etc.

8. Conduct evaluation of each included component or piping system by one or a combination of the following methods:

a) Simplified Analysis (systems, equipment)
*Conduct single-degree-of-freedom analysis where justified, (e.g., compact structures whose fundamental mode is obviously rocking), compute fundamental frequency to determine the evaluation g-level from floor response spectra, check the anchorage capacity.
*Conduct simple finite element analysis where justified.
*Formulate conceptual designs of added bracing and anchorages where required.

b) Detailed Analysis (systems, equipment)
*Conduct dynamic analysis where other analysis methods can not be justified.
*Formulate conceptual designs of added bracing & anchorages where required.

c) On-Site Testing (equipment)
*Perform low-level excitation tests on BRP equipment to measure model frequencies, mode shapes, model dampings.
*Use test results to estimate participation factors and hence maximum response from floor spectra without need of equipment structural detail for modeling.
*Use test results of BRP equipment to compare with similar equipment at data source plants, show that similar more fragile equipment have withstood seismic events.
*Use measurements of damping as input to criteria to justify more realistic assumptions for evaluation.

d) Qualification by Similarity (equipment)
*Compare BRP equipment to similar equipment in data source plants which withstood seismic events. Show by analysis or testing that data source equipment is either similar or more fragile than BRP equipment.
*Determine as necessary the fragility levels of BRP equipment (maximum tolerable g-level, or preferably qualification spectrum) from existing shake table data for similar equipment.

e) Target date for completion is the end of the 1982 Big Rock Point refueling outage (1st quarter of 1982).

9. Develop Summary Report

10. Consider interim actions (e.g. temporary systems for added redundancy) where necessary for items of particular safety significance.

11. Complete any modifications determined to be necessary on a schedule which will allow completion with plant or other CPCo labor. Target date is end of 1983 Big Rock Point refueling outage although the final date will depend on the scope of the modifications identified.