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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

DOCKETED  
USNRC

ATOMIC SAFETY AND LICENSING BOARD

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Before Administrative Judges:

Peter B. Bloch, Chairman  
Dr. Jerry R. Kline  
Mr. Frederick J. Shon

OFFICE OF SECRETARY  
OF ENERGY

In the Matter of

Docket Nos. 50-440-OL  
50-441-OL

CLEVELAND ELECTRIC ILLUMINATING  
COMPANY, et al.

(Perry Nuclear Power Plant, Units 1 & 2)

October 29, 1982

MEMORANDUM AND ORDER  
(Concerning Ohio Citizens for Responsible Energy's  
Late-Filed Contentions 21-26)

On August 18, 1982, Ohio Citizens for Responsible Energy (OCRE) moved for leave to file contentions 21 through 26, dealing with risks to control systems from turbine missiles, the integrity of the containment (Humphrey concerns), the risk of power excursions from the thermal-hydraulic response of the core to a seismic event, the need for in-core thermocouples to indicate the adequacy of core cooling, the ability to detect and mitigate steam erosion in valves and piping, and the adequacy of the control room fire suppression systems.

For reasons discussed below, we have decided to admit into this proceeding the contentions on turbine missiles, in-core thermocouples, and steam erosion. The fire suppression contention will not be admitted. In addition, we deny the admission of the Humphrey concerns without prejudice to refileing, so that OCRE may resubmit this contention after it obtains information (that is not now available) about the relationship of the Humphrey concerns to the Perry Nuclear Power Plant (Perry).

## I TURBINE MISSILES

### A. The Contention

OCRE contends that

The placement and orientation of the Perry Nuclear Power Plant (Perry) turbine-generators are unacceptable because low trajectory turbine missiles could strike safety related targets, thereby endangering the safe operation of the facility.

As basis, OCRE sites the Perry Safety Evaluation Report (SER), NUREG-0887, that identifies this issue as an open item. It also cites the Advisory Commission on Reactor Safety (ACRS) Report on Perry (July 13, 1982) as having "expressed dissatisfaction with the progress being made on the resolution of this issue." It relies on a report, Gilbert Associates, Inc. Report No. 1848, "An Analysis of Low Trajectory Turbine Missile Hazard to the Perry Nuclear Power Plant, Units 1 & 2"(October 8, 1976)(Gilbert Report), as establishing that the control room, cable spreading room, auxiliary building, electrical penetration area and Units 1 and 2 reactor buildings are within the "low trajectory missile strike zone." In its reply, it also cites Reg. Guide 1.115 as establishing that the preferred method of protecting against such missile strikes is to design the facility so that safety systems are outside the target zone.

### B. The Argument

The Staff of the Nuclear Regulatory Commission (Staff) believes that this contention meets the requirement that its basis be stated with reasonable specificity. 10 CFR §2.714(b). Applicant, on the other hand, argues that the Gilbert Report cannot be a proper basis for the contention because that report concluded that the "probability of a turbine missile causing unacceptable damage is within our acceptance criteria" because the chance of damage to a safety system from a turbine missile strike, per turbine, was less than 1.5 per 100 million per year ( $1.5 \times 10^{-8}$  per year per turbine).

OCRE has replied that the Staff at the Construction Permit stage calculated that the probability of a strike of safety-related targets exceeded the standard established by Reg. Guide 1.115, Revision 1. Applicant's response, in an authorized filing that responded primarily to new matter raised in OCRE's reply, apparently abandoned direct opposition to this claim of basis, noting in a passing that the Staff's ultimate conclusion at the Construction Permit stage was that its calculated probabilities met its acceptance criteria.

C. Conclusion on Basis for the Contention

We agree with OCRE and the staff that there is a basis for this contention. Reasonable doubts about the protection of safety related equipment from turbine missiles have been raised. OCRE relies on a portion of the Gilbert Report. It is not required to accept the entire logic of a report merely because it relies on a section, particularly when it presents specific reasons for rejecting the probabilistic discussions that led to the report's conclusions. Furthermore, OCRE relies on the ACRS and on the staff's SER, both of which indicate that they have not been satisfied about this issue.

Were we to deny the admissibility of this issue, we would be gutting the public hearing process. OCRE has demonstrated that there are serious doubts about a very particularized safety issue. It wishes to participate in the resolution of the issue by conducting discovery, to inform itself, and by participating in a hearing. Another advantage that this process gives to OCRE is that it may participate in discussions leading to the settlement or acceptable resolution of this issue.

When the public entertains reasonable doubts about an issue, based on a review of available technical literature, that issue is admissible.

D. Conclusions on Lateness

Applicant and staff deny that OCRE had good cause for filing this contention late. They present us with this apparent paradox: OCRE relies on the Gilbert Turbine Missile Report and Regulatory Guide 1.115 (Rev. 1), both of which were published prior to 1977. How can OCRE now have good cause for late filing?

However, OCRE has a complete response. It states that the Perry SER, dated May 1982, first put it on notice of the seriousness of this issue and that the July 13, 1982 report of the ACRS also highlighted this problem.

It further argues that the Construction Permit SER stated that this issue had been resolved but that the Operating License SER considers the issue unresolved. Hence, it was not previously on notice that there were potential problems. Now it is. Applicant correctly argues that staff's position indicates only that it intends to take a "second look" at the issue. While that fact may not be enough to create the basis for a contention, it is the stuff of which good cause for late filing may be constructed.

We accept this response because we do not consider it realistic to expect an intervenor to be conversant with the entire SER and the entire record of the construction permit stage when it first files contentions. A reasonable course for the intervenor to follow is to await scientific publications and key staff documents as a focus for its efforts. In that way, an intervenor can identify significant issues for trial, relying on professionals who spend full time on nuclear issues to identify the areas worth pursuing.

We have decided that the factors for late filing listed in 10 CFR §2.714(a)(1) have been met and that this contention should be admitted as an issue in the proceeding. The only other means whereby petitioner's interests may be protected are staff's analysis, but staff always may be counted upon to analyze safety issues and we do not consider their interest to weigh heavily in the balance. Furthermore, we believe intervenor's discussion of this issue has been indicative of substantial scientific sophistication in

reading, comparing and analyzing scientific documents; hence, we expect OCRE to contribute to the development of a sound record. There are no other parties representing OCRE's interests. There will, of course, be some broadening of issues and a potential for delay, but we do not consider this factor to outweigh the others.

## II CONTAINMENT CONCERNS OF J.R. HUMPHREY

### A. The Contention

This contention consists of 22 major issues and 66 total sub-issues, all dealing with Mark III containments. Each of these sub-issues was incorporated by reference into the contention.

The Perry SER, Supp. No. 1, August 1982 (SSER 1) sets forth the history of this contention, as follows:

In a letter dated May 8, 1982, Mr. John Humphrey, a former engineer [lead systems engineer for containment] with the General Electric Company (GE), notified Mississippi Power and Light Company (MP&L) of certain unresolved safety issues regarding the Grand Gulf Nuclear Station (Grand Gulf) Mark III containment design. The staff met with MP&L, GE, and Mr. Humphrey to determine the character of those concerns and to establish an appropriate program for their resolution. Other Mark III plant applicants attended the meeting, including the Cleveland Electric Illuminating Company, for Perry.

The staff is currently reviewing these containment issues in conjunction with its review of the Grand Gulf design. In letters dated June 23, 1982 and July 14, 1982, these issues were identified to the applicant with a request that each issue be addressed on a Perry plant-specific basis with a schedule as to when this information will be provided for staff review.

On the basis of a preliminary assessment of the 23 major items . . . the staff finds that all but 2 of these issues have either had some prior consideration or do not represent significant safety concerns. (The staff still has to clarify and confirm a few of these items.) The staff will review all the items after the information for Perry requested from the applicant is received. The staff also expects that substantial confirmatory analyses and tests will have to be performed and that they can be completed before an operating license for Perry, Unit 1, is issued. These analyses and tests will need to be defined in the forthcoming schedule from the applicant associated with these items.

Two items which the staff believes warrant priority attention include (1) the effects that structural encroachments over the suppression pool might have on pool swell and impact loads and (2) the response of the residual heat removal (RHR) system, when it is used in the steam condensing mode, to loads produced by the steam condensation phenomenon. . . .

[Emphasis added.] SSER 1 at 6-1.

#### B. The Argument

Applicant and staff argue that OCRE must adequately specify the basis for each of its subcontentions, including showing how each subcontention is related to the Perry plant, citing our own decision, LBP-82-15, 15 NRC 555, 557-60 (March 3, 1982), quoting from Gulf States Utilities Co. (River Bend Station, Units 1 and 2), ALAB-444, 6 NRC 760 (1977); see also Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-687 (August 19, 1982)("a licensing board is not authorized to admit conditionally, for any reason, a contention that falls short of meeting the specificity requirements." Id., slip op. at 11 [emphasis in original]).

With respect to the first item the staff cites as needing priority attention, applicant cites the Perry SER Supplement 1, at 6-1, which says that the staff expects to meet with applicant and GE and to review their data and analyses. With respect to the second item, applicant states that it is committed to staff's tentative solution, that the RHR system not be used in the steam condensing mode. OCRE's response has not specified why this solution is inadequate.

#### C. Conclusion

We recognize that when a man of Mr. Humphrey's position resigns with substantial reservations about the safety of the containment buildings for which he has been professionally responsible, this event raises substantial public interest, particularly among people who were previously doubtful about the safety of nuclear power generation. Furthermore, we recognize that Mr. Humphrey's concerns are very technical in nature and that even the

author of these concerns could not readily determine whether the concerns were applicable to a particular plant.

We also note that the SSER promises further staff review after applicant supplies additional information, including "substantial confirmatory analyses and tests." We infer that staff was sufficiently unsure of the applicability of the Humphrey concerns to Perry that it required applicant to respond to the concerns and it is taking the issues sufficiently seriously to review the responses.

There is little question that the 66 Humphrey concerns are each specific, putting applicant on notice of what is required. Furthermore, the fact that Mr. Humphrey raised these concerns and that staff has chosen to inquire further gives them a basis.

We are convinced that for a matter of this potential importance, the criterion governing good cause for late filing is met. The Humphrey concerns are sufficiently recent for us to consider OCRE's response timely.

With respect to one of the Humphrey concerns, we must rule pursuant to the mandatory reply procedure we have established that there is no basis for it. This concern was one the staff identified as having high priority, was specifically discussed by applicant in its response, and has been set forth above. Applicant stated that it solved the problem by committing not to use the RHR system in the steam condensing mode. Since OCRE's reply did not deal at all with this specific response, we accept applicant's explanation. (However, we will not permit applicant to rebut the encroachments issue by referring generally to a document that we have not seen and that, for all we know, OCRE also does not have.)

With respect to the other Humphrey concerns--those considered of lower priority by staff--OCRE has not yet demonstrated its ability to contribute to a sound record. Furthermore, this extensive list of unsifted concerns raises grave questions concerning the broadening of issues and delay of the proceeding. Consequently, at this time, we rule that the criteria of

10 CFR §2.714 have not been met and that this contention (or group of contentions) is not timely.

However, we note the difficulties both of Mr. Humphrey and of the staff in determining whether these issues are relevant to Perry. We also note that OCRE has been able to persuade us of its ability to contribute to a sound record on other technical issues. Consequently, we dismiss this contention without prejudice to refileing, pending the availability of applicant's answers to staff questions. Should OCRE promptly file an analysis of those answers, demonstrating a safety relationship between one or more of the Humphrey concerns and the Perry plant, we will then consider its filing to be timely and will consider whether the criteria for late filing have been met. Obviously, each of the criteria for late filing will be relevant, including criterion (v), relating to "delay", so that OCRE would be well advised to distill the Humphrey concerns into those issues it considers relevant to Perry.

Even with respect to the specific issue on which we have ruled that basis was not shown because of OCRE's failure to reply, we would reconsider this ruling if OCRE should subsequently demonstrate that it has new information, not available to it at this time, that indicates that this is a serious safety issue, despite applicant's response.

The Humphrey concerns shall not now be admitted as an issue in this proceeding.

### III SEISMIC EVALUATION OF CORE THERMO-HYDRAULICS

#### A. The Contention

This contention is that:

Applicant's seismic analysis (and the NRC Staff's review of same in the SER) is deficient because this analysis totally neglects the response of the core thermalhydraulic design to a seismic event. Because the BWR uses a two-phase moderator/coolant, it is inherently susceptible to power excursion transients resulting from events affecting void distribution. An earthquake could cause sloshing of the



water in the reactor vessel, thus resulting in void collapse and/or redistribution.

OCRE sites Dr. Richard E. Webb, The Accident Hazards of Nuclear Power Plants (University of Mass., 1976) at 28 as its basis for this contention.

B. The Argument, and Conclusion Concerning Basis

Staff states that this contention meets the specificity and basis requirements.

Applicant attempts to discredit the Webb passage in three ways. First, it states that Webb "provides no references, citations or analyses" in support of his theory. Second, a recent review of the Webb book is used to undercut its credibility. Third, applicant's counsel states, with no expert support, that there are only two ways to collapse voids in a BWR core (increased pressure or increased core flow); it then cites two FSAR sections which allegedly analyze these two ways.

We find that applicant's attempt to undermine the basis for this contention is without merit. It cannot undercut the credibility of an expert in order to exclude a contention. Houston Power and Light Company (Allens Creek Nuclear Generating Station) ALAB-590, 11 NRC 542 (1980). Furthermore, while our procedures permit applicant to cite FSAR sections, thereby placing the burden of going forward on the intervenors to explain why those sections are not fully dispositive, applicant has not cited the FSAR or other available, authoritative material and it may not refute a contention by an unsupported ("ipse dixit") statement of counsel.

Consequently, we find that this contention has basis.

C. Late-Filing, and Overall Conclusion

In its reply filing, OCRE concedes that it lacks good cause for late filing because it relies on a book that has been available for six years. It seeks to have the contention admitted because of the balance of factors affecting late filing.

However, other factors also mitigate against admitting this contention. OCRE's reply criticized applicant for making an "ipse dixit" assertion. It was good argument, and we have accepted it for the purpose of deciding that there is basis for the contention. However, OCRE failed to suggest any technical explanation for how void collapse could occur in any way other than that suggested by counsel for the applicant. If OCRE had any relevant technical knowledge, it should have displayed it in order to convince us that it could contribute to developing a sound record. Since it did not do so, we conclude that OCRE has not demonstrated its ability to contribute to developing a sound record on this particular contention.

Three other relevant factors produce a small balance in favor of OCRE, but not enough to tip the overall balance. There is no other available means for OCRE to protect its interest. There are no other parties representing its interest on this issue. There would be some potential for delay, but the issue is so well focused that the potential for delay would not be great.

We agree with the staff on this issue. We conclude that this contention should not be admitted as an issue in this proceeding because the criteria for late filing have not, on balance, been met.

#### IV IN-CORE THERMOCOUPLES

##### A. The Contention, and Conclusion on Basis

This contention is that:

In-Core thermocouples should be used at PNPP in conformance with the requirements of Regulatory Guide 1.97, Revision 2, and TMI Action Plan item II.F.2. In-core thermocouples provide an indication of inadequate core cooling (ICC) and are a redundant and diverse means by which to detect reactor coolant level.

The basis for the contention are the Reg. Guide and Action Plan items referred to, plus an analysis performed by Batelle Laboratories and described in a letter by C.L. Wheeler and The Accident Hazards of Nuclear Power Plants by Dr. Richard E. Webb, at 59-61.

Staff argues that the contention has met the basis and specificity requirements. Applicant argues that a Regulatory Guide does not establish a requirement and therefore cannot provide a basis for a contention.

We accept the premise of applicant's argument, concerning the non-binding effect of a Regulatory Guide; however, we find the conclusion to be a non sequitur. The existence of a Regulatory Guide suggests a staff preference. Although another approach may prove to be acceptable, it is permissible to use a Regulatory Guide to indicate expert opinion. When the expert opinion is that BWR reactors should have in-core thermocouples, this represents an opinion that these are necessary safety features. Hence, while the Regulatory Guide does not establish a requirement, this particular Regulatory Guide does provide the basis for a contention.

B. Lateness, and Conclusions on Admissibility

OCRE's explanation for filing this contention late is that the staff has only recently changed its opinion on this issue, previously having required in-core thermocouples. OCRE claims it first learned of this difference when it received the Perry SER.

Applicant argues that OCRE should have learned of the staff's change of position from the Grand Gulf SER, because OCRE is following that proceeding closely; but that SER was issued almost simultaneously with the Perry SER, making little practical difference. Applicant also argues that SERs in other cases gave public notice of the change in staff's position. However, we are unwilling to impose such a broad knowledge standard on OCRE.

In a more serious vein, applicant argues that its unwillingness to comply with the regulatory guide has been known to OCRE, on this record, since October 1, 1981, when applicant informed the staff of its firm position in opposition to in-core thermocouples. Furthermore, we are persuaded that OCRE's own behavior in filing Freedom of Information Act requests on this subject indicates that it understood that the issue was a contested one.

So, we have a clear case. OCRE knew of the existence of a dispute but chose to rely on a staff position. When it learned that staff changed its position, OCRE chose to file a contention. We find OCRE's behavior to be entirely rational. With limited resources, it may appropriately conserve its limited resources by relying on positions of the staff that are in agreement with their own position, even if the staff's position is disputed by applicant. Consequently, when staff changes its position and thereby affects OCRE's management decision, OCRE has good cause for late filing.

We also find that OCRE has demonstrated familiarity with several of the key documents and has shown its industry in filing Freedom of Information Act requests even before its contention was admitted. We believe it would contribute to a sound record on this issue. The only adverse criterion under 10 CFR §2.714 is the broadening of issues and the potential for delay. However, this contention is quite specific and should not inordinately contribute to delay.

Hence, we find that on balance the factors under 10 CFR §2.714(a)(1) are met and this contention should be admitted as an issue in this proceeding.

## V STEAM EROSION

### A. The Contention, and Conclusion on Basis

This contention is that:

Applicants are not prepared to prevent, discover, assess and mitigate the effects of steam erosion on components of PNPP which will be subjected to steam flow. Steam erosion has been identified as the cause of recent failures of valves and piping (MSIVs and turbine exhaust lines: see NRC [Inspection & Enforcement] Information Notices 82-22 and 82-23). The staff has identified Applicants' lack of an inservice testing program for pumps and valves and leak testing of valves as an open item in Section 3.9.6 in the SER.

Staff states that the contention meets the basis and specificity requirements governing the admission of contentions. Applicant's objections

are almost without substance. Applicant claims that Information Notice 82-22 did not require any immediate action. That is irrelevant. What is important is that it pointed out a significant problem.

Applicant also seeks to characterize this contention as a statement that:

Applicants' still to be submitted inservice inspection program meeting ASME requirements will be inadequate because "presumably" the plants experiencing steam erosion problems had inspection programs meeting ASME requirements.

However, the admission of a contention does not require anticipation of the contents of a document that has not been filed. A contention may address any current deficiency of the application, providing the contention is specific. In this instance, OCRE has not only asserted a deficiency in the application with specificity but has indicated why it believes that a subsequent filing of the applicant's cannot be expected to cure the deficiency. That is more than OCRE need do. (Since the contention is specific, the admonition of Duke Power Co. (Catawba Nuclear Station, Units 1 and 2), ALAB-687 (Aug. 19, 1982), concerning the conditional admission of a vague contention, is not applicable.)

B. Lateness, and Conclusion on Admissibility

Applicant concedes that these contentions are filed in a timely fashion because the notices cited by intervenors appear to be the first generic statement on this issue. Staff says there was a 60 day delay in filing the contention and finds that delay inexcusable. However, staff states that the first notice was published on July 9, 1982. Since the filing of new contentions took place on August 18, 1982, that is only a 40 day delay. We do not consider that excessive and need not rule on whether 60 days would have been too much.

OCRE's alertness to this new issue and its understanding of the potential significance of these notices indicates that it is likely to contribute to the development of a sound record. There are no other means

to protect its interest and no other parties to represent it. Since the contention is specific, broadening of the contention is commensurate with the need to determine the merits of the controversy.

On balance, the factors governing the admission of late contentions are satisfied. This contention shall be admitted as an issue in this proceeding.

#### VI CONTROL ROOM FIRE SUPPRESSION

In this contention, OCRE asks that all advantages and disadvantages of two control room fire suppression systems, carbon dioxide and Halon 1301, should be thoroughly evaluated. Since applicant is planning to install a carbon dioxide system, and not a Halon 1301 system, the staff interpreted this to be a contention limited in effect to the carbon dioxide system contained in the application. Applicant also responded in greater depth concerning the alleged disadvantages of carbon dioxide, which is its choice for a system.

Applicant's defense of carbon dioxide was quite extensive, including a reference to two letters and FSAR §9.5.1.2, said to respond to any concerns specific to Perry. Applicant also argues that OCRE has not provided a nexus between the generic concern about proper control room fire control systems and the Perry plant.

In its reply, OCRE made it clear that it was not challenging the use of carbon dioxide, which is the system included in the application. Instead, OCRE insisted it was just urging staff to carefully consider the advantages and disadvantages of the competing systems. In this form, as clarified by OCRE, this is advice or imprecation but it is not a contention. Hence, it cannot be admitted. Were it a proper contention, we would exclude it as lacking in basis--because OCRE did not address the sections of the FSAR quoted by applicant despite our outstanding order requiring replies to address such issues--and we would also dismiss it as late filed. On balance, we would consider OCRE's failure to address the technical issues

raised by applicant to indicate that it was not prepared to contribute to a sound record on this issue.

Should applicant later decide to shift to a Halon 1301 system, that might provide OCRE with good cause for late filing of that contention.

O R D E R

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 29th day of October, 1982,

ORDERED

(1) The following contentions are admitted as issues in this proceeding:

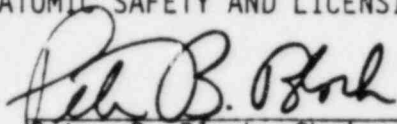
Issue #13: Applicant has not demonstrated that the placement and orientation of the Perry Nuclear Power Plant turbine-generators is in compliance with regulatory requirements that limit the risk that low trajectory turbine missiles will strike safety related targets, thereby endangering the safe operation of the facility.

Issue #14: Applicant has not demonstrated that the Perry Nuclear Power Plant will meet regulatory safety requirements unless it installs in-core thermocouples, as suggested by staff regulatory guidelines, including Regulatory Guide 1.97, Revision 2.

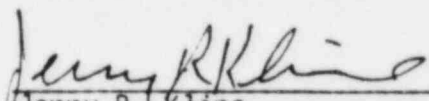
Issue #15: Applicant has not demonstrated that it is prepared to prevent, discover, assess and mitigate the effects of steam erosion on components of the Perry Nuclear Power Plant that will be subjected to steam flow.

(2) In all other respects, Ohio Citizens for Responsible Energy's motion for leave to file contentions 21 through 26 is denied, but the part of the motion concerning contention 22, dealing with the containment concerns of J.R. Humphrey, is denied without prejudice to refiling.

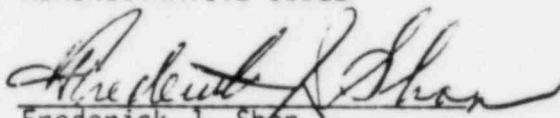
FOR THE  
ATOMIC SAFETY AND LICENSING BOARD



Peter B. Bloch, Chairman  
ADMINISTRATIVE JUDGE



Jerry R. Kline,  
ADMINISTRATIVE JUDGE



Frederick J. Spohn  
ADMINISTRATIVE JUDGE

Bethesda, Maryland