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OFFICE OF SECRETARY  
OF ENERGY & SERVICE  
October 18, 1982

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before The Atomic Safety And Licensing Board

In the Matter of	)	
	)	
THE CLEVELAND ELECTRIC ILLUMINATING	)	Docket Nos. 50-440
COMPANY, <u>ET AL.</u>	)	50-441
	)	
(Perry Nuclear Power Plant,	)	
Units 1 and 2)	)	

APPLICANTS' ANSWER TO "OHIO CITIZENS FOR RESPONSIBLE ENERGY MOTION TO COMPEL DISCOVERY ON STAFF AND APPLICANTS"

I. Introduction

By its "Motion to Compel Discovery On Staff and Applicants," dated September 20, 1982 ("Motion"), Ohio Citizens for Responsible Energy ("OCRE") seeks to compel Applicants to answer Interrogatories 4-9, 11-13, 15-21, 28 and 31 from the second set of interrogatories to Applicants filed by Sunflower

Alliance, Inc., et al.\*/ on April 30, 1982. Applicants answered Sunflower's second set of interrogatories on August 20, 1982, and objected, in whole or in part, to the above-listed interrogatories (except Interrogatories 13 and 19, to which Applicants responded for the SLCS system) on the ground that they were irrelevant and beyond the scope of Issue #6.

For the reasons stated below, OCRE's motion should be denied.

## II. Argument

### A. OCRE Must Demonstrate That Its Interrogatories Are Relevant to Issue #6

All the objections under challenge in OCRE's motion are based upon the lack of relevance of the interrogatories to Issue #6. Applicants have previously addressed the legal standards governing this discovery dispute. See Applicants' Substantive Answer to Sunflower Alliance, Inc. Et Al. Motion to Applicant to Compel Discovery, dated July 23, 1982, at 2-4. Under 10 C.F.R. § 2.740(b)(1), parties "may obtain discovery regarding any matter, not privileged, which is relevant to the subject matter in the proceeding . . . ." The regulation

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\*/ OCRE has replaced Sunflower Alliance as the lead intervenor for Issue #6, to which these interrogatories are addressed. See Memorandum and Order (Concerning Procedural Motions), dated September 17, 1982.

expressly provides that discovery "shall relate only to those matters in controversy which have been identified by the Commission or the presiding officer in the prehearing order entered at the conclusion of [the special] prehearing conference." Id. (emphasis added). The same principle is repeated in the Statement of Consideration accompanying 10 C.F.R. § 2.740(b)(1), 37 Fed. Reg. 15,128 (1972), and in the Commission's recent Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 N.R.C. 452, 455 (1981). See Pennsylvania Power & Light Company (Susquehanna Steam Electric Station, Units 1 and 2), ALAB-613, 12 N.R.C. 317, 322 (1980).

The Appeal Board and other licensing boards have noted that 10 C.F.R. § 2.740 is patterned after Rule 26 of the Federal Rules of Civil Procedure. Commonwealth Edison Company (Zion Station, Units 1 and 2), ALAB-196, 7 A.E.C. 457, 460 (1974); Allied-General Nuclear Services (Barnwell Fuel Receiving and Storage Station), LBP-77-13, 5 N.R.C. 489, 492 (1977). Under federal court constructions of Rule 26,

the Federal courts have long recognized that discovery processes must be kept within workable bounds on a proper and logical basis for the determination of the relevancy of that which is sought to be discovered. When the information sought is irrelevant to the proceeding, the Federal courts will not hesitate to sustain objections to such interrogatories.

Allied-General Nuclear Services, supra at 492 (citing federal court decisions). See also, Commonwealth Edison Company, supra, at 461 ("'[D]iscovery, like all matters of procedure, has ultimate and necessary boundaries'"). Further, as Applicants previously pointed out, the moving party -- in this case, OCRE -- carries the burden of demonstrating relevancy.

Thus, OCRE is clearly required to demonstrate the relevance of the above-listed interrogatories to Issue #6 before an order compelling discovery would be appropriate. As indicated below, OCRE has failed to make such a showing.

B. The Scope of Issue #6 Remains Limited To Manual vs. Automatic SLCS Initiation

At the outset, OCRE's motion expressly notes that

[t]he Licensing Board ruled that only the differential consequences resulting from the use of the manual as opposed to the automated SLCS are relevant . . . .

Motion at 2. However, as demonstrated in section C below, OCRE's motion proceeds to totally ignore this fact and to argue issues well beyond the defined scope of Issue #6.

Issue #6 states that "Applicant should install an automated standby liquid control system to mitigate the consequences of an anticipated transient without scram." Special Prehearing Conference Memorandum and Order, LBP-81-24, 14 N.R.C. 175, 220 (1981). The history of Issue #6 plainly demonstrates that the issue "should be interpreted to raise

[the] narrow point" of whether the Perry standby liquid control system ("SLCS") should be automatically (instead of manually) initiated. LBP-81-24, 14 N.R.C. at 220. Indeed, the Licensing Board declined to admit the rest of Sunflower's fifteenth ground of intervention, a broad ATWS issue which stated, inter alia, that "Applicants' protection from ATWS is currently insufficient." Id. at 219-220.

Recent developments have done nothing to modify the scope of Issue #6. The August 13, 1982 telephone conference, on which OCRE substantially relies for its motion, included a lengthy discussion on Issue #6. Tr. 713-730. OCRE's motion cites only a limited portion of that discussion and incorrectly asserts that the conference call "provide[d] the basis for expanding the scope of discovery on Issue #6." Motion at 2 (emphasis added). OCRE's assertion is baseless. The conference discussion, and the Licensing Board's follow-up Order (Concerning a Motion to Compel), dated August 18, 1982, gave OCRE no such license.

First, as indicated above, the "scope of discovery" is determined by that which is relevant to the issue. Contrary to OCRE's assertion, "the scope of discovery" for a contention cannot expand or contract unless the contention itself is changed. It is quite clear from the transcript of the August 13 telephone conference, and from the Licensing Board's

August 18 Order, that Issue #6 has not been changed. The contention remains limited to "the differential advantages and disadvantages associated with using a manual rather than an automatic standby liquid control system." August 18 Order at 7. Indeed, OCRE's motion, at 2, recognizes this fact.

During the conference call, Applicants' counsel noted that Issue #6 only deals with "questions which clearly are relevant to the initiation mode," and not with "other ATWS systems, or the ability of the plant, [or] the likelihood of ATWS in general." Tr. 719. When the Chairman restated Applicants' position that interrogatories "ought to be restricted to that difference, which is the difference between having an automated system and not having one," OCRE's representative indicated "[t]hat would be acceptable." Tr. 721. The Licensing Board directed intervenor to resubmit its interrogatories to address only the admitted contention by asking about the differential advantages and disadvantages associated with using a manual rather than an automatic standby liquid control system. August 18 Order at 7. OCRE now reverses field, arguing that Applicants should answer interrogatories totally unrelated to the issue of the difference between having an automated SLCS and a manual one.



C. OCRE's Motion Fails to Address Applicants Relevancy Objections Under Issue #6

OCRE's new arguments at pp. 3-7 of the Motion are not addressed to Applicants' objections to the interrogatories, and they fail to speak to the only issue before the Licensing Board, which is whether the interrogatories are relevant to Issue #6. Applicants respectfully submit that the new arguments cannot possibly provide a basis for an order compelling answers to interrogatories that fall squarely outside the contention at issue. Applicants believe that OCRE's new arguments are simply irrelevant to Issue #6 and to the motion to compel and should therefore be disregarded.

Of the four basic points argued by OCRE at pp. 3-7, the first three points have nothing whatsoever to do with the issue of manual vs. automatic actuation of the Perry SLCS. Point #1 relates to ATWS as a source of accident risk for BWRs. Point #2 argues that most ATWS sequences require rapid mitigation. Point #3 relates to the ability of the recirculation pump trip to mitigate an ATWS.

The fourth point, argued at pp. 4-7 of OCRE's motion, asserts that a manual SLCS at Perry would not be actuated in time. This argument is totally unrelated to Applicants' objections to the interrogatories. While the assertions made by OCRE might be appropriate in testimony, they are irrelevant to the motion to compel. None of the interrogatories at issue

are directed to the question of whether a manual SLCS at Perry would be timely activated. Moreover, the references on which argument #4 is based are not specific to Perry's design and commitments, and do not relate to how the manual SLCS would operate at Perry.

Thus, rather than arguing the relevancy of its discovery, OCRE's motion instead seeks to expand Issue #6. Put simply, OCRE would rather modify the contention to fit its interrogatories, than (as the Board instructed) modify its interrogatories to fit the contention. See August 13, 1982 transcript at 721 and 723-727.

To the extent that OCRE's motion seeks to establish facts relative to the effectiveness of SLCS manual initiation (point #4 of the Motion, pp. 4-7), or to broaden Issue #6 to cover non-SLCS ATWS mitigation systems (points 1-3 of the Motion, pp. 3-4), the motion should be adjudged either under NRC regulations governing motions for summary disposition (10 C.F.R. § 2.749) or those regulations governing nontimely motions for new or amended contentions (10 C.F.R. § 2.714). As the NRC Staff pointed out, OCRE's motion fails to satisfy the requirements of § 2.714. See NRC Staff's Response to Motion of Ohio Citizens for Responsible Energy to Compel Discovery of the Staff and Applicants, dated October 5, 1982, at 3. The Motion also fails under § 2.749, in the case of point #4 of the



Motion. Apart from OCRE's failure to comply with the procedures of § 2.749, there surely remain "genuine issues to be heard" regarding Issue #6, within the meaning of 10 C.F.R. § 2.749(a), notwithstanding OCRE's new, generalized arguments regarding the timeliness of manual SLCS actuation. See Applicants' February 5, 1982 answers to Interrogatories 56-62 and 64 of Sunflower's first set of interrogatories, regarding Applicants' assessment of the effectiveness of the manual initiation mode for the Perry SLCS.

Whether OCRE is seeking to expand the contention or to establish certain issues of material fact (such as the time for initiation of the Perry manual SLCS), OCRE must follow the procedures established in NRC regulations. See Wisconsin Electric Power Company (Point Beach Nuclear Plant, Unit 1), ALAB-696, slip op. at 31 (October 1, 1982). For the reasons stated above, Applicants submit that OCRE has failed to do so. Its motion should therefore be denied.

Although a detailed evaluation of OCRE's new arguments is not relevant to the motion to compel, Applicants have included a brief evaluation of these arguments for the Licensing Board's information. See Attachment.

D. OCRE's Arguments Fail to Overcome Applicants' Objections to Individual Interrogatories

OCRE's arguments with regard to individual interrogatories, set out at pp. 7-11 of the Motion, are mostly premised on OCRE's earlier arguments that Issue #6 should be enlarged (points 1, 2 and 3 of the Motion). The arguments fail to establish the relevance of any of the contested interrogatories to Issue #6 as admitted.

1. Interrogatory 4: This interrogatory asks about modification of the scram discharge volume at Perry. Applicants objected to the interrogatory on the basis that it falls outside the scope of Issue #6, which deals only with the SLCS and not with the scram discharge volume or any non-SLCS ATWS mitigation system. OCRE's motion argues that the interrogatory should be answered because "the SDV is a source of common-mode failure for the scram system," and that SDV modifications would reduce the probability of an ATWS. OCRE makes no attempt to demonstrate that the interrogatory is relevant to the issue of manual vs. automatic SLCS initiation, but rather seeks to expand the contention to discuss the ability of the SDV and the scram system to reduce the probability of an ATWS. These issues are not relevant to Issue #6.

2. Interrogatory 5: Interrogatory 5 inquires into the relationship of the Perry design to the alternative plant designs discussed in NUREG-0460, Volume 4. Applicants answered

the question with respect to Applicants' SLCS design, but objected to the interrogatory insofar as it concerned any ATWS mitigation system other than SLCS. OCRE's motion now asserts that other mitigation systems should be addressed, and states that an assessment of Applicants' "total ATWS mitigation program is needed to estimate the risk of ATWS at Perry." Issue #6 does not discuss the issue of the risk of ATWS at Perry. That issue would have been covered by Sunflower's original contention, which was rejected. OCRE's motion thus provides no information as to why Interrogatory 5 is relevant to Issue #6.

3. Interrogatory 6: This interrogatory relates only to "scram failure in a BWR/6," and does not speak at all to the issue of SLCS initiation. Applicants objected on relevancy grounds. The mechanisms of a postulated scram failure are not relevant to the issue of SLCS initiation. OCRE argues that it would be "useful to know" how many rods have to be handled during a manual scram procedure. OCRE does not explain why this information would be useful or relevant to the resolution of Issue #6. OCRE has not met its burden of showing the relevance of this interrogatory to the contention.

4. Interrogatory 7: Interrogatory 7 asks Applicants to give detailed descriptions of all transients "capable of initiating reactor scram in a BWR/6." Applicants objected to

the interrogatory as irrelevant and beyond the scope of Issue #6. The interrogatory has no relevance to the limited issue of SLCS initiation at Perry. OCRE's motion asserts that "[i]t should be established whether the most likely transients have the most severe consequences or require rapid mitigation," but OCRE never explains what this has to do with Issue #6. OCRE has thus failed to meet its burden of establishing relevancy.

5. Interrogatory 8: Applicants are asked in this interrogatory to describe scram system failures capable of producing ATWS in a BWR/6, but are not asked anything about SLCS initiation. Applicants objected on the ground that the interrogatory is not relevant to Issue #6. OCRE's arguments are, on their face, addressed to "measures other than the SLCS," and therefore do not even attempt to establish the relevance of the interrogatory to this SLCS contention.

6. Interrogatory 9: The interrogatory is concerned with Perry's Reactor Protection System and not with the issue of whether Applicants should automate SLCS initiation. Applicants objected on that basis. OCRE argues that the interrogatory is relevant to assessing the risk of ATWS and the ability of the alternate rod insertion (ARI) and manual scram systems to mitigate an ATWS should it occur. However, Issue #6 is not concerned with the risk or consequences of ATWS events generally, or with any systems other than SLCS which may be used

to prevent or mitigate ATWS events. OCRE's motion does not attempt to show how Interrogatory 9 is relevant to Issue #6 and therefore cannot overcome Applicants' relevancy objections under 10 C.F.R. § 2.740(b)(1).

7. Interrogatory 11: This interrogatory concerns the probabilities of "design basis events" and ATWS, and is not related to the need for automatic SLCS initiation. Applicants objected to the interrogatory as irrelevant to Issue #6. OCRE argues that "a knowledge of Applicants' views of the chances of ATWS provides insight into whether ATWS will be promptly recognized and mitigated." Applicants fail to understand the logic of this argument, or its relevance to the specific issue of SLCS initiation. OCRE carries the burden of showing how its interrogatory is relevant to the contention. An interrogatory asking about the probability of an ATWS, such as Interrogatory 11, is outside the limited scope of Issue #6.

8. Interrogatory 12: This interrogatory again asks about the Reactor Protection System, this time in the context of the alternate rod insertion system. OCRE references its arguments under Interrogatory 9, which speak to the risk of ATWS and the ability of non-SLCS mitigation systems to respond to ATWS. These are not related to the limited issue of automatic vs. manual SLCS initiation at Perry. OCRE's arguments do not address Issue #6, and thus cannot overcome Applicant's relevancy objections.

9. Interrogatory 13: This interrogatory asks Applicants to describe what operator actions would be required in the event of an ATWS, the information on which an operator would rely as a basis for these actions, and the timeframe of operator actions. Applicants' answer was limited to the Perry SLCS system, since post-ATWS operator actions not related to the issue of SLCS initiation at Perry are irrelevant and beyond the scope of Issue #6. OCRE states that it believes Applicants have more detailed information than was provided, and cites the BWR owners group evaluation of the Perry control room in January 1982. At the time of the owners' group review, Applicants furnished a draft system operating procedure addressing pre-operational testing and post-initiation operation of the Perry SLCS as originally designed. Since that time, the Perry SLCS has been redesigned and the draft procedure furnished to the owners' group review is no longer applicable. A new SLCS system operating procedure is being developed. In any case, the decision process for determining whether and when to initiate the manual SLCS, as covered by Issue #6 and the interrogatory, was not a part of that draft procedure, but will be covered in the Perry emergency operating procedures now being prepared.

Applicants have this date filed an amended answer to Interrogatory 13, in order to clarify that the operator will



also base his decision of whether to manually initiate the SLCS on consideration of the Perry suppression pool temperature. Applicants inadvertently omitted discussion of this parameter in our previous answer. The amended answer also deletes the previous reference to initiation within two minutes of the ATWS event. Under Applicants' symptom-based emergency operating procedures, manual initiation of SLCS will take place immediately upon reaching designated safety limits, and will not be tied to the time of the ATWS event as such.

Lastly, OCRE argues that it wants to know what operator actions are to be taken if the automatic backup scram system fails. Applicants answer insofar as it relates to the initiation of the SLCS would be the same, even assuming (which we do not) that Perry's automatic backup scram systems were to fail.

10. Interrogatory 15: This interrogatory concerns the recirculation pump trip ("RPT") and is not related to SLCS or to the question of automatic vs. manual SLCS initiation. Applicants objected to it on that basis. OCRE's motion makes no attempt to relate the interrogatory to Issue #6, but speaks only to the initiation of the RPT. The initiation of the RPT is not at issue in this contention. OCRE's motion fails to establish relevancy.

11. Interrogatory 16: Applicants objected to this interrogatory as irrelevant to Issue #6. The interrogatory is

concerned with RPT hardware, and not with SLCS or SLCS initiation. OCRE's motion merely references its arguments under Interrogatory 15. The Motion fails to link the interrogatory to the subject matter of Issue #6.

12. Interrogatory 17: This interrogatory asks about the ability of the alternate rod insertion system to meet IEEE Standard 279, and also asks whether Perry's RPT and SLCS logic meet the criteria of Appendix C of Volume 3, NUREG-0460. Applicants objected to the questions concerning the ARI and RPT systems as outside the scope of Issue #6. Applicants further objected to the interrogatory on the ground that Appendix C of Volume 3 of NUREG-0460 is not related to whether the SLCS should or should not be automated. OCRE's motion fails to speak to Applicants' relevancy objections. The Motion contains the generalized assertion that the RPT, ARI and SLCS "together form a backup scram system," and that "it is important that systems meet the appropriate criteria if they are to be reliable." These generalized assertions, however, do not demonstrate how the interrogatory is relevant to Issue #6. OCRE must show relevancy before it can prevail on a motion to compel.

13. Interrogatory 18: This interrogatory asks about the computer code verification tests for BWRs described in NUREG-0460, Volume 4. Because the subject matter of the

interrogatory is not relevant to Issue #6, Applicants objected. OCRE's motion does not attempt to demonstrate relevancy. Instead, it addresses "the efficacy of the ATWS mitigation systems." The interrogatory is not relevant to the specific question of SLCS initiation at Perry.

14. Interrogatory 19: Interrogatory 19 inquires about those parts of the scram system, back-up scram systems, and ATWS mitigation systems requiring electrical power, and the alternate power systems in the event of loss of off-site power. Applicants responded to the question insofar as the SLCS system is concerned. OCRE's motion seeks information "for parts of the scram system and backup systems other than the SLCS." On its face, OCRE's motion seeks information which is outside the scope of Issue #6. Thus, no relevancy showing has been made by OCRE in support of its motion.

15. Interrogatory 20: This interrogatory asks a series of questions about Perry's manual scram capabilities. Since the interrogatory is not relevant to whether Applicants should automate the SLCS, Applicants objected. OCRE's argument is that "[i]f manual scram attempts are to be the first priority, rather than SLCS initiation, it becomes relevant to ask how long this takes and whether it is effective." This argument begs the question. The fact that the manual scram sequence precedes SLCS initiation does not provide an answer to

Applicants' relevancy objection. The questions in this interrogatory concerning how the manual scram system would operate are unrelated to whether there should be an automatic SLCS system at Perry. The interrogatory is not relevant to Issue #6.

16. Interrogatory 21. This interrogatory is concerned with the effects of power oscillations on fuel and containment integrity "and any other affected system at PNPP." Again, we are left to speculate how this relates to SLCS initiation or SLCS. OCRE's motion asserts that because the interrogatory "deals with the consequences of ATWS" it should be answered. The Motion does not relate the interrogatory to the question of whether the Perry SLCS should be automated, and therefore does not even attempt to establish relevancy. Finally, OCRE's reliance on NUREG-0460, Volume 4, p. A-67 is misplaced. The referenced discussion concerns "a BWR/4 turbine trip with bypass." OCRE has failed to show relevance of this discussion to Perry's BWR/6 design.

17. Interrogatory 28: This interrogatory inquires about prevention of boron dilution by the ECCS "after SLCS activation." Applicants objected on the grounds that Issue #6 is unrelated to questions concerning any postulated dilution of the boron solution. OCRE's motion references Interrogatory 72 from Sunflower's first set of interrogatories which asks about

mechanisms to reduce dilution of the boron injected by the SLCS. Applicants objected to the latter interrogatory on the basis that it does not relate to the differential advantages and disadvantages associated with using a manual rather than an automated standby liquid control system, and because mechanisms to reduce dilution of injected boron are not relevant to the risk of inadvertent initiation of an automated SLCS under Issue #6. See "Applicants Additional Answer to Sunflower Alliance, Inc. Et Al. First Round Discovery Requests," dated August 24, 1982. OCRE fails to speak to Applicants' relevancy objections, and offers no basis of its own for establishing the relevance of Interrogatory 28.

Applicants believe that the discussion during the August 18, 1982 telephone conference and the Licensing Board's followup Order provided a proper basis for Applicants' additional answer to Interrogatory 72, contrary to the suggestion of OCRE's motion. In any case, neither Sunflower nor OCRE objected to Applicants' additional answer. The instant Motion is not directed to Interrogatory 72 but to Interrogatory 28. Applicants have filed their answers and objections to these two interrogatories in the proper fashion, and we know of no basis for OCRE's statement that "sanctions against Applicants are appropriate." To the contrary, Applicants' timely objections to interrogatories falling outside the scope of a contention

are entirely proper if the discovery process is to be kept within reasonable bounds.

18. Interrogatory 31: This interrogatory inquires whether "the use of different chemicals as neutron poisons" has been investigated. Applicants objected on the ground that the interrogatory is irrelevant and beyond the scope of Issue #6. The properties or effectiveness of the neutron poison used in the SLCS is unrelated to the differential advantages and disadvantages associated with using a manual rather than a automated standby liquid control system. OCRE's motion does not address Issue #6 as admitted by the Licensing Board, and is therefore properly objectionable on relevancy grounds. OCRE's motion argues that other neutron poisons should be examined because the SLCS flow rate may be inadequate if natural boron is used. Since the flow rate is the same whether SLCS is automatically or manually initiated, this argument is irrelevant to Issue #6. Furthermore, the reference cited by OCRE, SECY-80-409, is inapplicable to Perry. SECY-80-409 at p. D-13 expresses concern that suppression pool temperature might approach boiling, but the analysis assumes a smaller suppression pool design than Perry's. NEDO-24222, Volume 1, § 4.3.4, p. 4-66 demonstrates that an 86 GPM capacity system such as Perry's provides substantial margin for maintaining suppression pool temperatures well below the boiling level.



III. Conclusion

For all the reasons stated, Applicants respectfully request that OCRE's motion be dismissed.

Respectfully submitted,

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Dated: October 18, 1982

ATTACHMENT

COMMENTS ON OCRE ATWS ALLEGATIONS

At page 3 of its Motion to Compel, OCRE asserts "that a lengthy time delay before the ATWS is mitigated by the manual SLCS is likely and that other mitigation systems are only partially effective in lessening the consequences of ATWS." OCRE then argues four points, at pp. 3-7 of the Motion, in support of this assertion. The four points, and the authorities cited therein, provide no support for OCRE's assertion. Despite the fact that this section of OCRE's Motion to Compel fails to address the interrogatories, and Applicants' objections thereto, a perspective on OCRE's four points may nonetheless be of interest to the Licensing Board. The four points, and our responses, are set forth below.

"1. It should be recalled that ATWS is the dominant source of accident risk for BWRs (NUREG/CR-0400, p. 46; NUREG/CR-1659, Vol. 4, p. 6-26); the most likely result of an ATWS at a BWR is a core meltdown (NUREG-0460, Vol. 3, p. 21)."

Response: The cited references, NUREG/CR-0400, p. 46, and NUREG/CR-1659, Volume 4, p. 6-26, actually state that ATWS events were included among all transient events in WASH-1400 (the "Rasmussen Report"), and that WASH-1400 concluded that all transient events combined were the dominant source of risk for the BWR. WASH-1400 did not conclude that ATWS alone is the dominant source of risk. See NUREG/CR-0400, p. 46; NUREG/CR-1659, Volume 4, p. 6-27.

OCRE's reference to core meltdown is without basis and relevance to Perry. The citation for OCRE's core meltdown proposition, NUREG-0460, Volume 3, page 21, discusses Staff alternative #1. Alternative #1 assumes, among other things, no recirculation pump trip (RPT).<sup>1/</sup> Applicants' single-failure, safety-grade RPT design, and Applicants' other ATWS prevention and mitigation capabilities, were not considered in the discussion on which OCRE relies. We know of no basis for OCRE's suggestion that the most likely result of a postulated ATWS at Perry is a core meltdown. OCRE's reliance on Staff alternative #1 in NUREG-0460 in support of that proposition is misplaced.

"2. For most ATWS sequences, severe power and pressure surges occur within seconds. Rapid mitigation is required to avoid damage to fuel, reactor coolant pressure boundary, and the containment integrity."

Response: For most types of postulated ATWS sequences, rapid mitigation is not required to avoid damage to fuel, reactor coolant pressure boundary and the containment integrity. See NEDO-24222, Volume 1. Rapid mitigation is only necessary for valve closure events under high power operating

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<sup>1/</sup> "Alternative #1 is a 'do nothing' alternative. It would in fact rescind a requirement for recirculation pump trip (RPT) that was imposed several years ago. The RPT equipment has now been installed on more than half of the BWRs in operation." NUREG-0460, vol. 3 at 20.

conditions, such as a main steam isolation valve (MSIV) or turbine stop valve closure event. Any significant power or pressure surges requiring rapid mitigation would be caused by one of these two postulated valve closure conditions.

"(a) Dr. Richard Webb has calculated that MSIV closure ATWS with failure of the recirculation pump trip (RPT) will produce a 10,000% power surge within 7 seconds (The Accident Hazards of Nuclear Power Plants, p. 27 - attached)."

Response: OCRE's reliance on the figure at page 27 of Dr. Webb's book is misplaced. Dr. Webb assumes failure of the coolant recirculation pumps to turn off. Perry's RPT system is designed as a safety-grade, single failure proof system, and Dr. Webb's 10,000% power surge would therefore be inapplicable to Perry.<sup>2/</sup> The basis of Dr. Webb's calculations is not given (see note d of Webb's figure 8), and Applicants are not aware of any basis for the 10,000% power surge calculation and are totally unable to substantiate this calculation. In any case, it is the Doppler feedback mechanism, not the RPT, which limits the power surge in the early stage of a postulated event.

"(b) General Electric has calculated, for the same event, only with the RPT, that for the BWR/6, neutron flux peaks at 790% near 4 seconds. Peak pressure occurs at 8 seconds. (NEDO-24222, Vol. 1, p. 4-57)"

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<sup>2/</sup> The Brookhaven curve, shown as the dashed curve in Webb's figure 8, assumes actuation of RPT. This curve more closely approximates GE's calculations in NEDO-24222.

Response: OCRE's reliance on NEDO-24222 in support of OCRE's point #2 is equally misplaced. The GE analyses of postulated ATWS from an MSIV closure event in a BWR 6/Mark III are described in detail in section 3.3.1 of NEDO-24222, Volume 2, pp. 3-235 to 3-239. These analyses conclude that with the MSIV closure transient, the automatic RPT mitigation functions such as those at Perry would adequately lower the postulated neutron flux and would reduce power levels such that "an essentially normal shutdown can be accomplished." The analyses then conservatively assume ARI failure and still conclude that SLCS would adequately mitigate an MSIV closure event combined with a failure to scram. As stated in Section 5 of NEDO-24222, Volume 1, page 5-8, "there is a substantial margin with respect to assuring coolability of the core and safe reactor shutdown."

"(c) GE also estimates that for many ATWS events, some fuel may experience transition boiling, usually within seconds (NEDO-24222, Vol. 2 pp. 3-275 to 3-306). The Staff considers the number of failed fuel rods to be equal to the number of rods experiencing transition boiling (NUREG-0460, Vol. 2, p. XVI-67)."

Response: GE's analysis in NEDO-24222 does indicate that for some ATWS events, some fuel may experience limited transition boiling. However, even when GE performed its calculations using the Staff's conservative<sup>3/</sup> assumption of 100% fuel

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<sup>3/</sup> The Staff recognizes that its 100% fuel failure assumption is "conservative." See NUREG-0460, Volume 2, p. XVI-71.

failure, it was concluded that peak clad temperatures and resulting radiation doses would be within accepted limits. See NEDO-24222, §§ 5.4.3 and 5.5.2.5.

"3. The RPT feature only partially mitigates ATWS (46 FR 57522, November 24, 1981 (Proposed Rule on ATWS)). GE admits that the ultimate solution to an ATWS event must involve the insertion of negative reactivity, either through ARI scram or the SLCS (NEDO-24222, Vol. 1, p. 4-55)."

Response: The statement is correct. It is expected that Applicants' ARI system will be available for this purpose, and that in the unlikely event that ARI fails, SLCS will provide adequate mitigation.

"4. The SLCS is the system of last resort. It is common knowledge that the SLCS, if it is to be manually operated, will not be actuated in time, if at all."

Response: The implicit suggestion in the first proposition, as amplified in OCRE's supporting paragraphs, discussed below, is that Applicants may hesitate to use the manual SLCS. The suggestion has no basis. Applicants' emergency operating guidelines will clearly spell out those safety-related emergency conditions and parameters requiring initiation of the manual SLCS. When those defined parameters are exceeded, initiation of the manual SLCS is non-discretionary. Further, as indicated below, none of the references cited by OCRE supports the proposition that the manual SLCS would not be timely activated at Perry.



"(a) 'The liquid boron poison system designed to stop the chain reaction might not act fast enough . . . ' NUREG/CR-0400, p. 47."

Response: OCRE's reliance on NUREG/CR-0400 is misplaced. The analyses in NUREG/CR-0400 and in the Rasmussen Report, on which NUREG/CR-0400 is based, assume an SLCS system capacity of 43 gallons per minute (GPM). Applicants' SLCS system has a design capacity of 86 GPM. Moreover, the conclusion cited by OCRE has nothing to do with whether the SLCS is manually or automatically initiated.

"(b) 'BWR reactor operators may be subject to a strong disincentive to actuate the Standby Liquid Control (SLC) system because of the costly nature of spurious SLC actuations. They may also be inclined to override an autostart of the SLC if they doubt that an ATWS indication is genuine or the failure of the scram system is irreparable.' 46 FR 57529, November 24, 1981. Proposed rule on ATWS, 'Hendrie Rule'."

Response: Under Perry's emergency operating procedures, the cost of spurious SLCS initiation will not be a factor in the operator's decision concerning whether to manually initiate the SLCS. Further, under Applicants' symptom-based emergency operating procedures, developed in response to lessons learned from the TMI-2 incident, operators will be required to take action based on emergency symptoms or indications, and will not be evaluating whether they reflect a "genuine" emergency. The proposed rule on ATWS did not assume symptom-based emergency

operating procedures such as Perry's. Finally, the Perry system is a manually-initiated system, which will be initiated only if designated safety parameters are exceeded. If initiated, there would be no override function.

"(c) The 4 volumes of NUREG-0460 continually stress the unreliable nature of manual SLCS actuation. E.g., 'analyses show that manual actuation is too slow and the capacity of the SLCS too small to adequately control the core power level following an ATWS event. Therefore, the core might not remain covered because the steam generation rate exceeded the ECC system's capacity or resulted in the failure of the suppression pool even if the recirculation pumps tripped' (NUREG-0460, Vol. 1, p. 36)."

Response: NUREG-0460, Volume 1, was not analyzing an SLCS with the capacity of Perry's. Nor did NUREG-0460 consider emergency operator procedures such as those that will be used at Perry. See response to point #1, above. As to OCRE's final point, that "the core might not remain covered," the Perry design provides adequate control of the core power following an ATWS event. With the recirculation pumps tripped, Perry's emergency core cooling capacity far exceeds the steam generation rate and would prevent uncovering of the core. The Perry design also provides significant margin to suppression pool limits. NUREG-0460, Volume 1, did not consider ATWS mitigation systems such as those at Perry.

"(d) GE's design for the automatic SLCS includes a 2 minute time delay 'to allow for operator interruption in the event of spurious initiation after an actual scram has been confirmed.' NEDO-24222, Vol. 1, p. 3-3."

Response: See response to paragraph (b), above.

"(e) 'The SLCS is used only in the highly improbable event that not enough control rods can be inserted in the reactor core to accomplish shutdown and cooldown in the normal manner.' General Electric, NEDO-24222, Vol. 1, p. A7.2-35."

Response: Applicants concur with the statement in this paragraph. It in no way supports OCRE's point #4, however.

"(f) IE Bulletin 80-17 requires BWR licensees to review their emergency operating procedures to assure that operator actions include, if there is scram failure, tripping the recirculation pumps, inserting the control rods manually, or if this is unsuccessful, repeatedly resetting the RPS and scrambling the reactor, venting the scram air header, and manually opening or bypassing the SDIV vent and drain valves. SLCS initiation is required if scram is still unsuccessful and RPV water level cannot be maintained or suppression pool temperature cannot be maintained below the scram limit."

Response: I&E Bulletin 80-17 required licensees at operating reactors to review emergency operating procedures and to perform tests as a result of the Brown Ferry 3 partial scram failure. This incident was not an ATWS, as recognized by OCRE in paragraph (j). I&E Bulletin 80-17 did not consider BWRs with the same ATWS prevention and mitigation systems, including SLCS, as Perry's. It also did not consider emergency operating procedures such as those which will be employed at Perry. The operator's emergency ATWS prevention and mitigation measures at Perry would not interfere in any way with the operator's

ability to monitor the control room panel indicators relevant to SLCS, contrary to the implication of paragraph (f).

"(g) The Staff's 'BWR Scram Discharge System Safety Evaluation,' dated December 1, 1980, p. 28, indicates that, because of an excessive number of alarms and indicators which may confuse operators, unclear operating procedures, and numerous activities which may divert operators, 'reliance on the operator to successfully carry out a manual scram within a limited time frame (2 minutes) may not be assured.'"

Response: The Staff analysis cited did not consider emergency operating procedures such as those that will be employed at Perry. Under these procedures, and with Perry's design, there will not be an excessive number of alarms or indicators and there will be no operator confusion which could interfere with the operator's ability to manually initiate SLCS if needed.

"(h) GE, in the description of the inadvertent safety/relief valve opening transient (NEDO-24222, Vol. 1, p. A7.1-7), implies that even a normal control rod scram is to be avoided if the situation can be controlled otherwise."

Response: The inadvertent safety/relief valve opening transient referenced in NEDO-24222 is a mild transient that does not require automatic scram initiation for a Mark III design such as Perry's. NEDO-24222 indicates those actions that are available to the operator to mitigate this mild transient. In the unlikely event that the operator's measures

fail to correct the condition, the operator would manually scram upon reaching designated suppression pool temperature limits. Thus, for those situations requiring a scram, NEDO-24222 in no way implies that a normal scram is to be avoided.

"(i) The Electric Power Research Institute, in its analysis of ATWS, makes the assumption that '(m)anual reactor trips were not considered as an alternate to automatic reactor trips because the operator would not be expected to respond as quickly as required.' EPRI, 'ATWS: A Reappraisal' Part II Vol. II p. 18. EPRI also states that '(t)he failure of the recirculation pump trip and the liquid poison injection is dominated by the probability that the operator will fail to initiate the liquid poison injection system. Based on the analysis of operator performance in similar situations as discussed in Appendix II (of RSS, WASH-1400) this probability has been estimated to lie between  $10^{-1}$  and  $10^{-2}$  with a median value of  $3 \times 10^{-2}$ .' EPRI, 'ATWS: A Reappraisal' Part II, Vol. 1, p. 30."

Response: As OCRE notes, the statements from the EPRI analysis are merely "assumptions." These assumptions were intended to be consistent with those assumptions used in the Rasmussen Report in order "to simplify the analysis and make it traceable," as stated in the referenced EPRI report. The Rasmussen Report assumptions did not consider (and are not applicable to) the Perry design, as noted above. Furthermore, the probabilities cited by OCRE apply to failure of an operator to perform a single task. The probabilities of an operator failing to initiate manual reactor trips or SLCS at Perry



should not be assessed on the same basis, since Perry's emergency operating procedures will require an operator to perform multiple repetitions of a function that fails to operate on the first attempt. This is not the case with the assumptions cited by OCRE. Also, the symptom-based approach to emergency operating procedures, as used at Perry, was not assumed in the EPRI probabilities, and would further lessen the probabilities of an operator failing to initiate an emergency system.

"(j) The June 1980 partial scram failure at Browns Ferry 3 illustrates that excessive delay may occur before the reactor is made subcritical. Four scrams (3 manual, one automatic) were required before all control rods were inserted. The time that elapsed from the initial unsuccessful scram until all control rods were inserted was approximately 15 minutes. (BWR Scram Discharge System Safety Evaluation, December 1, 1980, p. 1) Although this incident was not an ATWS, since it occurred during a manual scram for routine maintenance and not in response to a transient, it indicates that manual actions may not be taken in a timely manner."

Response: The Browns Ferry 3 incident was not an ATWS, and the resulting alarms and indicators of safety parameters did not indicate a need for rapid mitigation, as might be required for some ATWS events. The operator actions in the Browns Ferry 3 incident were proper and timely for the non-ATWS event that occurred. Thus, the Browns Ferry 3 incident does not support OCRE's suggestion that at Perry, "manual actions may not be taken in a timely manner."



"(k) Applicants believe that the costs of an inadvertent SLCS actuation are extremely large: \$10-1/2 million for downtime with an addition \$1/2 to 1 million for cleanup (see Applicants' answer to interrogatory 23 of Sunflower's Second Set, dated August 20, 1982)."

Response: Applicants agree that the costs of inadvertent SLCS actuation are extremely large. However, this fact does not support OCRE's point #4, since cost is not a factor in the operator's determination to manually initiate SLCS.

"(l) The BWR Owners Group, in its review of the Perry control room and procedures in January 1982, indicated that SOP-C41, concerning SLCS actuation, was unclear in that it stated that the system is to be used only if there is a loss of reactivity control. However, the methods for assessing the loss of reactivity control are not discussed (p. 4-25 of PNPP Control Room Evaluation)."

Response: At the time of the Perry control room review, Applicants had not completed their emergency operating procedures, which are currently in preparation. The methods for assessing SLCS initiation conditions will be clearly addressed in the final procedures.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

DOCKETED  
USNRC

Before the Atomic Safety and Licensing Board 19-441:29

In the Matter of )  
 )  
THE CLEVELAND ELECTRIC ) Docket Nos. 50-440  
ILLUMINATING COMPANY ) 50-441  
 )  
(Perry Nuclear Power Plant, )  
Units 1 and 2) )

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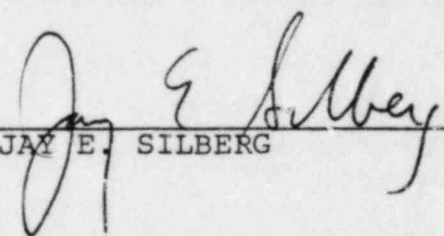
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CERTIFICATE OF SERVICE

I hereby certify that true and correct copies of "Applicants' .. Answer to 'Ohio Citizen's For Responsible Energy Motion to Compel Discovery on Staff and Applicants'" were served this 18th day of October, 1982 by deposit in the United States mail, postage prepaid, addressed to each of those persons on the attached Service List.

  
\_\_\_\_\_  
JAY E. SILBERG

DATED: October 18, 1982

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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