UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

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

In the Matter of

CLEVELAND ELECTRIC ILLUMINATING COMPANY, et al.

(Perry Nuclear Power Plant, Units 1 & 2)

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

March 3, 1932

MEMORANDUM AND ORDER
(Concerning Late-Filed Contentions: Quality Assurance, Hydrogen Explosion, and Need for Increased Safety of Control System Equipment)

On December 18, 1981, and on January 8, 1982 Sunflower Alliance, Inc., et al. (Sunflower) requested that new issues be admitted to the proceeding. In one motion, it filed an additional contention regarding the fact that "control systems" at Perry are not safety grade. In another motion, it requested to expand the scope of the quality assurance contention which we had admitted in this proceeding. See LBP-81-24, 14 NRC 175, 210-212 (1981). In still another motion it requested permission to resubmit a contention, previously rejected by the Board, concerning whether Perry is safe from a possible hydrogen-explosion accident. See Id. at 207-209. These motions have been responded to by Cleveland Electric Illuminating Company, et al. (applicant) and by the Commission's staff (staff). Then, as required by Order of this Board, Sunflower has replied.

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We have decided that the scope of the quality assurance contention need not be expanded because the scope of discovery under the admitted quality assurance contention appears to be broad enough to permit investigation of serious quality assurance deficiencies with safety or environmental implications. Should there be a motion for summary disposition, Sunflower will have an opportunity to demonstrate that there are additional genuine issues of fact that it has discovered and that should be admitted to a hearing. See Consumers Power Company (Big Rock Point Plant) LBP-82-8, February 19, 1982, slip op. at 43,47. In the absence of such a motion, it may file for the expansion of its contention based on the new information discovered by it.

We also have decided to admit the hydrogen explosion contention. On the other hand, the control systems contention shall not be admitted as an issue in this proceeding.

I CONTROL SYSTEMS CONTENTION

Sunflower contends:

> That the applicant undertake to assure that the Perry Nuclear Power Plant's control systems be upgraded, perhaps by making them redundant, so that no single failure in the system will cripple the control system.

It relies on a failure which occurred at the Rancho Seco Nuclear Power Plant in Clay Station, California. That incident was triggered when a dropped electric light bulb damaged the direct current electrical system servicing the control panel for the reactor. Intervenor alleges as a ground for late filing that it was not aware of the issue in March of 1981. In the absence of any representation to the contrary, we infer that Sunflower first learned

of this issue through a newspaper article in the New York Times on December 6, 1981, as suggested to us by staff.

We find that Sunflower has not shown good cause for late filing and that it has not demonstrated its ability to contribute to the resolution of this issue. Hence, it fails to meet the criteria for late filing. It also has failed to show that this contention has a "nexus" to the Perry facility. For that independent reason, Commission precedent also requires that we reject this contention.

We agree with applicant that a general newspaper article, not reflecting any new research or previously unavailable insights, cannot provide an acceptable excuse for late filing. Houston Lighting and Power Company (Allens Creek Nuclear Generating Station (Unit 1), January 12, 1982 (unpublished) at 3-4. To rule otherwise would all but nullify the late-filing restriction because even matters broadly known could be brought to an intervenor's attention through a newspaper article about a matter that was already quite stale. See our previous order, LBP-82-11, February 26, 1982, slip op. at 4-5.

The material contained in the cited article was not only stale, but notoriously so. One of the most celebrated documents in this field, the Kemeny Commission Report (Report of the President's Commission on the Accident at Three Mile Island; The Need for Change: The Legacy of TMI, October 1979) had this to say as part of its "Overview" or summary chapter, on pages 19 and 20:

> In the licensing process, applications are only required to analyze "single-failure" accidents. They are not required to analyze what happens when two systems fail independently of each other, such as the event that took place at TMI. There is a sharp delineation between those components in systems that are "safety-related" and those that are not. Strict reviews and requirements apply to the former; the latter are exempt from most requirements -- even though

> they can have an effect on the safety of the plant. Instead, there should be a system of priorities as to how significant various components and systems are for the overall safety of the plant.

[Emphasis in original.] this issue also has been addressed in NUREG-0585, at 3-1 through 3-3 and A-14. The issue also is considered to be an unresolved safety issue, by action of the Commission on December 24, 1980. NUREG-0705 at A-9 to A-11. It was summarized in the Commission's 1980 Annual Report to Congress.

Under the circumstances, Sunflower would have to demonstrate very great competence to assist the Board in resolving this issue, and it would have to show in what way the Perry plant is deficient with respect to the safety of its control system. Sunflower has done neither. It shows only a superficial understanding of the issue, based on a newspaper article, and an ignorance of the entire previous history. It shows no nexus between its contention and the specifics of the Perry reactor.

We are required to reject this contention on the independent ground that it is a generic issue which has not been specifically related to the Perry reactor. Gulf States Utilities Company (River Bend Station, Units 1 and 2), ALAB-444 (1977) 760 at 771 ff. In that case, the State of Louisiana attempted to litigate issues included in a document entitled "Technical Safety Activities Report" and in another document, the regulatory guides, issued by the Commission to assist applicants in determining the information staff will require from them and the standards staff will apply in reviewing the application. Id. at 767. The State submitted the table of contents of the Technical Safety Activities Report, with 88 items circled. It also submitted the numbers and titles of 14 regulatory guides said to be "substantially relevant." Id. at 771.

In Gulf States the Licensing Board required a "nexus" to the proceeding; that is, allegations establishing with respect to each

contention, a relationship to the River Bend application. Ibid. The Appeal Board affirmed, saying:

> It seems clear to us that, in order to introduce a new issue into a proceeding, a party--and likewise an interested state--must do more than present what amounts to a check list of items contained in the TSAR or in regulatory guides. The very nature of the TSAR and regulatory guides supports this conclusion.

Id. at 772. The Appeal Board then discussed the nature of these documents and the reasons why generic issues considered in these documents need not necessarily raise issues litigable in a particular proceeding. Ibid. The Appeal Board then stated:

> To establish the requisite nexus between the permit or license application and a TSAR item (or Task Action Plan), it must generally appear both (1) that the undertaken or contemplated project has safety significance insofar as the reactor under review is concerned; and (2) that the fashion in which the application deals with the matter in question is unsatisfactory, that because of the failure to consider a particular item there has been an insufficient assessment of a specified type of risk for the reactor, or that the short-term solution offered in application to a problem under staff study is inadequate.

Id. at 773.

We do not consider the nexus requirement to be a mere technicality. It makes good sense in the overall context of Commission decisionmaking. Generally, applicant and staff are aware of unresolved safety issues and a portion of the SER addresses them. We even have an obligation to consider sua sponte whether the staff has adequately addressed these issues. Northern States Power Company (Monticello Nuclear Generating Plant, Unit 1), ALAB-620, 1980. In addition, staff is doing research on these questions. In that context, litigation in a particular case is merely redundant, unless intervenor examines the relevant plant-specific documents and identifies a specific problem or set of problems which have not been addressed. Given the extensive attention given to these documents by applicant and staff,

this is no easy task for a volunteer, intervenor group. However, these safety proceedings are designed to consider serious safety issues and the difficulty arises from the nature of the issues intervenor wishes to litigate and not from any desire on the part of the Commission to erect artifical barriers to full participation. On the contrary, if Sunflower manages to raise serious issues (as it appears to have done in other motions decided in this memorandum) it will receive a receptive audience in this Licensing Board.

We consider that the Gulf States rule is applicable here a fortiori. By referring to specific Commission documents rather than to a newspaper article, the State of Louisiana gave greater specificity to its allegations than Sunflower has done here. Nevertheless, the State was found not to have alleged the requisite nexus to the proceeding. It follows that Sunflower also has not alleged the requisite nexus.

If Sunflower should receive genuine new information in the future bearing on the nexus of this contention to this proceeding, it may of course attempt to file this contention again.

II HYDROGEN CONTROL CONTENTION

Sunflower's contention 7, as originally submitted was:

> Petitioners allege that there is insufficient documentation of the ability of the containment structures of said facilities to safely inhibit a hydrogen explosion of the magnitude and type which occurred at Three Mile Island Unit 2 near Harrisburg, Pennsylvania and of which the Commission is aware.

Initially, we excluded this contention pursuant to Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit No. 1), CLI-80-16, 11 NRC 674 (1980).

In its filing, Sunflower has attempted to meet the criteria for litigating hydrogen issues set forth in the Three Mile Island case. It does this by asserting the existence of a pipe break in the reactor coolant pressure boundary, a failure of the ECCS to maintain coolant due to several possible categories of deficiency (including operator error), the generation of hydrogen through a Zircaloy/water reaction, the attainment of a flammable or combustible concentration of hydrogen, an explosion and breach of containment. Motion to Resubmit Contention 7 at 3. It also adds that a similar scenario could commence with an anticipated transient without scram (ATWS). As cause for late filing, Sunflower asserts the promulgation of the final rule on "Interim Requirements Related to Hydrogen Control" (46 Fed. Reg. 58484, December 2, 1981). It states that the rule did not cover Mark III containments, such as is to be employed at Perry.

As applicant and staff have indicated, Sunflower apparently is not aware of of the issuance on December 18, 1981, of a Proposed Rule, "Interim Requirements Related to Hydrogen Control." In the Supplementary Information included in that Proposed Rule, relating to hydrogen control for Mark III BWRs, the Commission stated:

> [I]t has become clear that additional protection is required to provide assurance that large amounts of hydrogen can be safely accommodated by these plants. The particular type of hydrogen control system to be selected is left to the discretion of the applicant or licensee; however, it must be found acceptable by the NRC based upon suitable programs of experiment and analysis. . . . Whatever systems are finally proposed and approved for the long term, large amounts of hydrogen must be safely accommodated, and operation of the system, either intentionally or inadvertently, must not further aggravate the course of an accident or endanger the plant during normal operations. The amount of hydrogen to be assumed in the design of the hydrogen control system is that amount generated by assuming that 75% of the fuel cladding surrounding the active fuel region reacts with water. . . .
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> Based on the state of technology as of August 1981, the Commission believes that control methods that do not involve burning provide protection for a wider spectrum of accidents than do those that involve burning.

Mimeo. at 3-4, 6.

Also relevant to the Commission's current policies concerning the control of hydrogen is the Proposed Policy Statement related to Safety Goals for Nuclear Power Plants (February 11, 1982). In that proposed statement, the Commission proposes a guideline that the likelihood of a large-scale core melt accident should be less than one in 10,000 per year of reactor operation. It also states that it "recognizes the importance of mitigating the consequences of a core-melt accident", in part through assuring the integrity of the containment. Memorandum at 13.

We find these recent Commission utterances, proposed and tentative though they may be, to be inconsistent with the TMI decision on which we relied. The Commission now appears to be of the view that the assumptions of §50.44 are unrealistic and that some additional steps may need to be taken. While we could adopt a wait-and-see attitude on this important matter, we believe it to be more prudent to proceed on the assumption that by the commencement of operation of Perry, the requirements of 10 CFR §50.44 will be more stringent. Thus, under the general powers of the presiding officer, we choose to consider this contention admissible, though it might ultimately come to pass that a contrary rule (or no rule) will be enacted. 10 CFR §2.718. To wait to see would be to risk needing to delay the issuance of a license for lack of forethought.

In any event, the apparent change in Commission attitudes provides us with more favorable leanings toward the hydrogen contention. In this instance, Sunflower has not only suggested specific scenarios which might meet the Commission's previous objections, it also has provided increased

specificity for its contention and, especially in the following passage, has demonstrated its competence to pursue this issue:

> It is questionable whether the hydrogen gas control system at Perry will be operated in a timely and effective manner. First, all components of this system (analyzers, mixers, recombiners, and purge capability) are activated manually by the operator (FSAR, Section 6.2.5). Relying on manual operation during the stressful emergency situation following a LOCA would likely increase the possibility of operator error. The operation of the hydrogen analyzers, the first step in the hydrogen control sequence, may be delayed for 15 minutes to one hour after the LOCA (FSAR, Section 6.2.5.2.1). This delay seems inappropriate, especially in light of the standard of 10 CFR 50.44(d)(1): "A time period of 2 minutes shall be used as the interval after the postulated LOCA over which the metal-water reaction occurs."
>
> Secondly, the effectiveness of hydrogen recombiners is questioned in Regulatory Guide 1.7 (p. 1.7-4): "Hydrogen recombiners can process the containment atmosphere at a limited rate of 100-150 scfm per recombiner. Therefore, an inordinately large number of recombiners would be required to control the hydrogen concentration that is postulated to be generated in the first 2 minutes of the LOCA." Perry uses 2 recombiners per unit; each recombiner is sized for a 100 scfm flow rate (FSAR, Section 6.2.5.2.3).
>
> This intervenor considers containment purging as a hydrogen control measure to be unacceptable, as this results in radioactive releases to the environment.

Motion to Resubmit Contention 7 at 4.

In this cited passage, Sunflower adds specificity to its hydrogen contention. Applicant argues that Sunflower has, nevertheless, failed to show a basis for its contention because: (1) operators need not respond in two minutes, as the amount of hydrogen generated in that time period would be far below flammability limits, which would not be reached (pursuant to regulatory guidelines on the amount of hydrogen generated) in a Mark II containment even after 10 hours; and (2) Regulatory Guide 1.7's statement about the number of recombiners that would be needed is not applicable to large containments, such as the Mark III at Perry. On the second point, we find that Sunflower has a basis for its doubts about recombiners, based in part on the Regulatory Guide's concern about small containments, in part on

the absence of authority concerning the safety of recombiners in large containments, and in part on the finding in the Proposed Rule on "Interim Requirements Related to Hydrogen Control" that control methods involving burning are not as effective "for a wide spectrum of accidents" as are other methods.

Furthermore, a portion of this passage establishes a nexus to this proceeding by its citation to the FSAR and its assertion that Perry uses two recombiners per unit. It demonstrates the seriousness of Sunflower's concern with this issue and its ability to contribute to its resolution.

Whether or not a party has shown good cause for late filing relates in part to the safety or environmental importance of the issue it has raised. In this case, there is no doubt as to the importance of the issue nor the direct concern of the Commission with this area of safety. In addition, the regulatory environment in which this contention is brought has shifted substantially, adding another reason in support of late filing.

Another factor that is balanced in determining whether there is good cause for late filing is whether the intervenor's delay in filing will contribute to an overall delay in the decision of the case. Such delays, resulting from late filings, are unduly costly to applicants and are not favored. Indeed, if the late filing of a contention is part of a pattern of delay, such a pattern also might be considered in deciding whether there is good cause for late filing. However, Sunflower has been cooperative in its approach to this proceeding. It raised this particular contention at an early date but found it necessary to amend its filing to meet rather stringent criteria that the Commission has applied to hydrogen contentions. Since it is still early in the history of the case, we do not anticipate that delay in filing this contention will cause any delay in the decision of the case. Compare Houston Lighting and Power Company (Allens Creek Nuclear

Generating Station, Unit 1), January 12, 1982 (unpublished) at 3-4, 5-6.

Under the circumstances, we find that, on balance, the criteria for late filing have been met (10 CFR §2.714(a)(1)) and we admit this contention in the following form:

> Issue #8: Applicant has not demonstrated that the manual operation of two recombiners in each of the Perry units is adequate to assure that large amounts of hydrogen can be safely accommodated without a rupture of the containment and a release of substantial quantities of radioactivity into the environment.

We have intentionally excluded from this contention any reference to the mechanism by which hydrogen can be generated. Sunflower has suggested several mechanisms, any one of which would do. Hence, we think they have met the Commission's former criteria for admission of this contention. It seems to us that little purpose would be served by litigating the likelihood that any one of the suggested scenarios (each one of which includes a mechanism by which the reactor would experience a failure of the core cooling system) could occur. There is little doubt that any one scenario, except perhaps for the occurrence of human error, would be highly unlikely to occur. However, we could embark on an endless search for multiple, unlikely events unless we assay that tortuous path in advance and refuse to enter.

III MOTION TO ENLARGE THE QUALITY ASSURANCE CONTENTION

The quality assurance issue admitted in this proceeding is:

> Issue #3: Applicant has an inadequate quality assurance program that has caused or is continuing to cause unsafe construction.

This issue was further limited by us in our September 9, 1981 Memorandum and Order, slip op. at 6, in which we stated that:

> [T]he admission of this issue was intended to be limited to the quality assurance implications arising from the stop work order issued to [applicant] . . . and the steps taken by it to remedy the alleged deficiencies leading up to the stop work order.

Now, Sunflower approaches us with a motion that its admitted contention should be enlarged. However, we do not consider its motion to be ripe. It is already permitted to engage in discovery relevant to its contention or to applicant's defense. 10 CFR §2.740(b)(1). In that context, relevance may be broadly interpreted in the interest of full disclosure and it is doubtful that serious discovery requests, related to the safety or environmental consequences of quality deficiencies would be irrelevant to the admitted contention. Even old deficiencies may be related to the damage that may have been caused by the quality assurance problems leading to the stop work order. More recent deficiencies may be related to the effectiveness of the steps taken to remedy the previous deficiencies.

There will be time for Sunflower to add to its contention, if necessary. Upon a motion for summary disposition, it may offer genuine issues of fact relevant to its contention and not falling strictly within it. If these genuine issues of fact have an important safety significance they may be admitted as newly discovered material. Big Rock Point, supra, at 43, 47. In addition, new material uncovered during discovery may at that time form the basis for a new contention.

At the present time, Sunflower's motion contains many alleged quality assurance deficiencies. Some, but not all have apparent safety significance and might form the basis for enlarging this contention at some subsequent time. However, we consider it preferable to defer ruling on the enlargement of the contention until we can be more fully informed of the available evidence.

We note that this contention and Contention #1, relating to emergency planning, may raise extensive evidentiary questions. Should the discovery process become cumbersome, the Board is prepared to preside over discussions among the parties designed to make the process work fairly and efficiently.

O R D E R

For all the foregoing reasons and based on consideration of the entire record in this matter, it is this 3rd day of March, 1982,

ORDERED

(1) Sunflower Alliance Inc., et al.'s (Sunflower) December 18, 1981, Motion for Leave to file an additional contention concerning the safety of control systems is denied.

(2) Sunflower's January 8, 1982, motion to expand its quality assurance contention is denied as not ripe for decision.

(3) Sunflower's motion to resubmit its Contention 7 is granted in part. The newly admitted issue is:

> Issue #8: Applicant has not demonstrated that the manual operation of two recombiners in each of the Perry units is adequate to assure that large amounts of hydrogen can be safely accommodated without a rupture of the containment and a release of substantial quantities of radioactivity into the environment.

FOR THE
ATOMIC SAFETY AND LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Jerry R. Kline,
ADMINISTRATIVE JUDGE

Frederick J. Shon
ADMINISTRATIVE JUDGE

Bethesda, Maryland