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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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COMMISSIONERS:

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Thomas M. Roberts  
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In the Matter of

CLEVELAND ELECTRIC ILLUMINATING  
COMPANY, et al.

(Perry Nuclear Power Plant,  
Units 1 and 2)

Docket Nos. 50-440 OL  
50-441 OL

MEMORANDUM AND ORDER

CLI-86- 22

The Commission in today's decision authorizes the NRC staff to issue a full-power license for the Perry, Unit 1 nuclear facility ("Perry-1").<sup>1</sup> This decision is based on the results of the formal adjudicatory proceeding regarding whether the Perry nuclear facility should receive an operating license, and on a review of uncontested matters.<sup>2</sup>

<sup>1</sup>The NRC ordinarily does not consider issuance of a license until a plant is ready to operate. Perry, Unit 2 is not ready to operate. Therefore today's decision, insofar as it addresses actual license issuance, is limited to Perry-1.

<sup>2</sup>The Court of Appeals for the Sixth Circuit on September 4, 1986 stayed the Commission from taking "any possible vote" on operation of Perry-1. The Court on October 14, 1986 lifted that stay. Ohio Citizens for Responsible Energy, Inc. v. NRC, 6th Cir. No. 86-3355.

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The formal adjudicatory proceeding regarding whether the Perry nuclear facility should receive an operating license has now been concluded. Accordingly, the Board decisions in favor of operation become effective without the Commission's conducting an "immediate effectiveness" review under 10 CFR 2.764, and the Commission need not issue any order regarding those decisions. However, as a matter of Commission policy the NRC staff does not issue full-power licenses without Commission approval on uncontested as well as contested issues. See 46 Fed. Reg. 47906 (Sept. 30, 1981). This memorandum explains the Commission's decision to allow the licensing of Perry to proceed. As explained below, the two most significant areas of concern raised outside of the adjudication concern seismic and emergency planning issues. Since concerns about those areas were also raised within the adjudication, this memorandum addresses the specific issues raised in these areas both within and outside of the formal adjudication.

#### I. The Adjudicatory Proceeding

The adjudicatory proceeding concerning whether the Perry nuclear facility should receive an operating license commenced in 1981. Ohio Citizens for Responsible Energy, the Sunflower Alliance, et al., and a third intervenor (who later withdrew) participated in the adjudication, which covered a broad range of issues, including quality assurance, diesel generator reliability, hydrogen control, and emergency planning. The Licensing Board resolved the quality assurance contention in favor of applicants Cleveland Electric Illuminating Co., et al. ("CEI") in a Partial Initial Decision issued in 1983. The Board found that "[t]he uncontradicted evidence is that applicant's quality assurance program has provided adequate overview and control ... and

... has prevented, and will continue to prevent, unsafe conditions at the plant." LBP-83-77, 18 NRC 1365, 1396 (1983). That decision was upheld by the Appeal Board. ALAB-802, 21 NRC 490 (1985).

The Licensing Board's second Partial Initial Decision resolved the other issues in applicants' favor. The Board found that applicants had met their burden of proof on each issue, subject to seven conditions, and that "there is reasonable assurance that the Perry Nuclear Power Plant ... can be operated without endangering the health and safety of the public." LBP-85-35, 22 NRC 514, 588 (1985). That decision was also upheld by the Appeal Board. ALAB-841, \_\_\_ NRC \_\_\_ (1986), reconsideration denied, ALAB-844, \_\_\_ NRC \_\_\_ (1986). The time for Commission review of that decision expired on September 29, 1986.

The Commission's decision not to review the Appeal Board's decision represents a judgment that that decision was legally and factually sound. It means that the Appeal Board's findings constitute final agency action on the issues addressed in the adjudication. In addition, concerns were raised about certain issues that were not part of the adjudication: seismic issues related to the January 1986 Ohio earthquake and emergency planning matters raised by Governor Celeste of Ohio. To put those issues in their proper context, we shall first discuss the handling of seismic and adjudicatory issues in the adjudication.

#### A. Emergency Planning Issues In The Adjudicatory Proceeding

In order for an operating license to issue, the Commission's regulations require that there be "reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency." 10 CFR

50.47(a). Several contentions regarding the adequacy of the Perry emergency plan were litigated before the Licensing Board and resolved favorably to the applicants, subject to certain prelicensing conditions. See LBP-85-35, 22 NRC 514, 518-29 (1985). The Licensing Board found, among other things, that State and local organizations had reviewed evacuation time estimates and that the interests of State and local governments had been given proper consideration. The Board found that adequate medical resources were available to cope with a radiological emergency and that arrangements for care of contaminated individuals met NRC requirements. The Board also concluded that planning deficiencies previously identified in an interim report by the Federal Emergency Management Agency ("FEMA") had been remedied or were in the process of being corrected, and that FEMA in a November 1984 full participation exercise had found no deficiencies affecting public health and safety. In summation, the Board held that the applicants had met their burden of proof on the emergency planning allegations, and dismissed the contentions that the plans were inadequate. Id. at 529. The Appeal Board in upholding this decision pointed out that the intervenor advancing the emergency planning contentions had made no attempt to show error in the Licensing Board's conclusions. ALAB-841, \_\_\_ NRC \_\_\_ (1986), reconsideration denied, ALAB-844, \_\_\_ NRC \_\_\_ (1986).

B. Seismic Issues In The Adjudicatory Proceeding

In the operating license proceeding, the record of which closed in 1985, seismic issues were not raised and therefore were not addressed by the Atomic Safety and Licensing Board. On January 31, 1986, however, an earthquake of magnitude 5.0 occurred approximately ten miles south of the Perry plant. Three days later, intervenor Ohio Citizens for Responsible Energy ("OCRE")

filed a motion with the Appeal Board, which at that time had jurisdiction over the proceeding, asking that the record be reopened to consider its claim that the plant's design was inadequate. In support, OCRE attached a newspaper article indicating that the earthquake had caused vibratory ground motion at the facility of 0.19 to 0.25g, in contrast to the 0.15g nominal peak acceleration for the design spectrum of the Safe Shutdown Earthquake ("SSE") for Perry. Applicants and the NRC staff opposed reopening with voluminous technical filings that were never disputed by OCRE.

The history of OCRE's motion to reopen has been recounted elsewhere. See CLI-86-7, 23 NRC 233 (1986). In brief, the Appeal Board, finding itself unable to determine whether the motion should be granted, scheduled an exploratory hearing to aid its determination. The Commission reversed the Appeal Board and denied the motion to reopen. The Commission held that, as a procedural matter, if the Appeal Board could not grant the motion on the basis of the pleadings, it had to deny the motion. The Commission also noted the lack of safety significance of the earthquake insofar as it affected or had the potential to affect the Perry plant. Indeed, this point was conceded by OCRE in its reply papers. See CLI-86-7, 23 NRC 233 (1986).

Simply by noting that an earthquake has occurred which exceeded certain high frequency ground motions of the Perry SSE design spectrum does not make a per se showing of safety significance sufficient to warrant reopening the record. Given the sound policy reasons for avoiding reopening in the absence of a strong threshold showing,<sup>3</sup> there is a need for some proof that the high

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<sup>3</sup>The Commission recognizes that its standards for reopening and the way  
[Footnote Continued]

frequency exceedances were of a range and magnitude important for safety at Perry, or that they held significant safety implications regarding seismicity in the vicinity of the plant. But the movant offered little beyond speculation on either of these necessary propositions; most importantly it offered no expert testimony that would have supported its position on such critical technical questions. On the other hand, the NRC staff and the applicants provided detailed technical material to support their position that these technical questions did not raise significant safety concerns and that reopening was not justified. Under these circumstances, there was no need or occasion for further inquiry into the merits of the reopening motion. Consistent with the Commission's Waterford doctrine, CLI-86-1, 23 NRC 1 (1986), we held that OCRE's motion to reopen should have been denied. CLI-86-7, 23 NRC 233 (1986).

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[Footnote Continued]

that they are to be applied set a high, although not insuperable, barrier to reopening a closed proceeding. This policy is fully consistent with the approach taken by the United States Supreme Court and the Courts of Appeals that favors finality in administrative proceedings. See, e.g., Bowman Transportation, Inc. v. Arkansas-Best Freight Systems, Inc., 419 U.S. 281, 296 (1974); Interstate Commerce Commission v. Jersey City, 322 U.S. 503, 514-15 (1944); Oystershell Alliance v. NRC, 800 F.2d 1201 (D.C. Cir. 1986). The policy recognizes that once the administrative record has closed, NRC resources should not be diverted from conducting relevant safety studies into preparation for reopened hearings unless there has been a strong showing that reopening is justified. In accordance with this policy, the Commission has on several occasions stepped into adjudicatory proceedings before its subordinate boards to correct, *sua sponte*, procedural errors involving the admission of new contentions. See, e.g., Commonwealth Edison Company (Braidwood Station, Units 1 and 2) (unpublished orders of March 20 and April 24, 1986); United States Energy Research and Development Administration (Clinch River Breeder Reactor Plant), CLI-76-13, 4 NRC 67 (1976). Thus, in recognition of this policy, when the Appeal Board found itself unable to grant the motion on the basis of the pleadings, it should have denied the motion rather than order an exploratory hearing which would further expend the resources of the NRC staff on hearings rather than on technical safety study and reviews.

That the Commission denied the motion to reopen did not mean that the seismic concerns would not receive further study. It meant only that the Commission's standards for reopening had not been met, and that the issue would be considered outside of the formal adjudication as an uncontested issue. As explained below, the further studies that have been conducted confirm the Commission's judgment that the earthquake issue did not warrant a reopening of the adjudicatory record.

## II. Uncontested Issues

As a matter separate from the formal adjudication, the Commission held a public meeting on September 5, 1986, at which it heard from the applicants, the State of Ohio, OCRE, FEMA, and the NRC staff. Two issues raised at that meeting warrant discussion: (1) Governor Celeste's concerns regarding emergency planning; and (2) OCRE's seismic concerns resulting from the January 31, 1986 earthquake near Perry. We will address each in turn.

### A. Emergency Planning Issues Outside The Adjudication

#### 1. Background

On August 15, 1986, long after the adjudicatory record had closed, Governor Celeste advised the Commission that he had "withdraw[n] [his] support for evacuation plans" for Perry. Governor Celeste stated that he had formed a team to review the evacuation plans in light of the accident at Chernobyl and the earthquake near Perry. He requested that "the NRC ... withhold the

license for full power operation ... until [the] review is satisfactorily completed." Governor Celeste had previously indicated his support of the plans in an "Implementing Directive" issued on March 24, 1986.

Representatives for the Governor's Office addressed the Commission at the September 5 meeting. They requested that the Commission not issue a full-power license until the Emergency Evacuation Review Team (EERT), formed by the Governor, had time to meet with public officials, CEI, concerned citizens and experts to discuss all the implications that have been raised regarding the evacuation plan. They felt it would be prudent to reexamine the emergency plan to determine what, if any, improvements should be made to it. To support this request, they cited concerns about the accident at Chernobyl and about details of plan implementation, such as an asserted lack of training and proper equipment and a lack of communication regarding implementation of the plan, which had been raised before the EERT at a public meeting on September 4, 1986.

While the Governor's representatives stated that the State and the Governor would carry out their full responsibility under the state constitution to protect public health and safety, they felt, because of their concerns about the plan, that this responsibility might include taking steps inconsistent with the existing plan. They stated that they would implement those elements of the plan that they felt would best protect Ohio citizens.

A representative from FEMA also spoke at the September 5 Commission meeting. He responded to the comments of the Governor's representatives as follows. With regard to the comment that to protect public health and safety the State might take acts inconsistent with the existing plan, he stated that emergency planning contemplates that protective actions will be adjusted in an

actual emergency to meet the particular situation. With regard to the individual concerns raised by the Governor's representatives, he stated that those types of concerns are not unusual and are often due to a turnover in personnel and the need to continue updating and maintaining training capabilities. The FEMA representative stated that FEMA had reviewed the Perry plans and two exercises which had been held at the Perry site. He advised the Commission that FEMA had no grounds to change its finding that there was reasonable assurance that adequate protective measures can and will be taken at the Perry site in the event of a radiological emergency.

On October 29, 1986 the State of Ohio submitted numerous preliminary findings by the EERT.<sup>4</sup> These preliminary findings included concerns about nuclear accident scenarios, the geographical scope of emergency planning, notification of governmental authorities and the public, capability of area hospitals, and evacuations during adverse weather conditions. The State requested that the Commission postpone a decision on full power operation until it has had an opportunity to review Ohio's evaluation of the plan, and make necessary changes in the plan.

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<sup>4</sup>These preliminary findings were contained in a "Second Supplemental Memorandum In Support of Its Motion To Intervene, And A Request That The Commission Postpone Action On Full Power Operation." The Commission on October 30, 1986 denied the State's Motion To Intervene in the formal adjudicatory proceeding. However, the Commission has considered the State's arguments as part of its review of uncontested issues. See CLI-86-20, 24 NRC (October 30, 1986).

## 2. Analysis

The status of emergency preparedness at Perry has been adjudicated and found adequate. The issue relevant to licensing of Perry now is whether the Governor's concerns, raised outside of the formal adjudication, need further resolution before Perry is licensed for full-power operation.

The Commission's regulations provide that the NRC will base its findings on offsite preparedness on a review of FEMA's finding and determinations. 10 CFR 50.47(a)(2). FEMA has found reasonable assurance that adequate protective actions can be taken at Perry in the event of a radiological emergency. To date FEMA has not advised the Commission of any change in its conclusions.<sup>5</sup>

The Commission appreciates the Governor's desire to improve the status of emergency preparedness. In this regard, we welcome the Governor's ideas and cooperation with the staff and the utility toward this goal. Indeed, like the State of Ohio, the NRC is itself continuing to study the implications of the Chernobyl accident on emergency planning, as well as other matters, and is always eager to improve existing emergency planning. However, the issue relevant to licensing of Perry is not whether continued improvements are a useful goal, but whether there is reasonable assurance that adequate protective steps can and will be taken in the event of a radiological emergency. See 10 CFR 50.47(a).

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<sup>5</sup>While FEMA is satisfied that emergency preparedness is adequate, it has noted that the exercise conducted in May 1986 did not qualify as a "full participation" exercise under NRC regulations. Therefore CEI did not comply with the NRC requirement for a full participation exercise within one year before full-power license issuance and prior to operation above 5% power.

[Footnote Continued]

On October 28, 1986, the Commission staff and a representative from the Federal Emergency Management Agency met with the EERT and in a day-long meeting, discussed many of the concerns now raised by the State and provided the EERT with certain of their preliminary views on these issues. The staff also offered to meet with the EERT as soon as its findings and conclusions were formulated in order to expedite the process. The Commission has encouraged this effort by its staff and urges that the staff, to the fullest extent possible, continue to provide the EERT with all necessary assistance to support the timely and successful completion of its report. However, with regard to the State's request -- grounded upon the EERT's concerns -- that the Commission withhold issuance of the Perry full power license, as noted above the Commission has been advised by the Federal Emergency Management Agency that based on its review of the Perry offsite emergency plans and the results of two exercises of those plans, it has reasonable assurance that in the event of a radiological emergency at Perry, the plans are adequate and capable of being implemented. In considering a requested exemption from the one-year exercise requirement of Section IV.F.1., Appendix E of the Commission's regulations, the NRC was again advised by FEMA in a memorandum from Richard W. Krimm to Edward L. Jordan, dated November 4, 1986, that the "[g]ranting [of] such a request would not alter FEMA's finding that there is reasonable assurance that adequate protective measures can be taken in the event of a radiological emergency at the Perry Nuclear Power Plant." The question thus arises whether, at this late stage of the licensing review, the matters raised by the

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[Footnote Continued]

10 C.F.R. Part 50, App. E, § IV.F.1. The NRC granted CEI an exemption from that requirement on November 6, 1986.

State significantly undercut these FEMA findings. The concerns expressed by the State come to us as summary statements of legal counsel for the State which reflect only preliminary findings from the State's ongoing EERT review. Before these concerns can be satisfactorily evaluated there needs to be some detailed technical and factual support for them, especially since some of them seem counter to previous detailed FEMA findings and findings in the formal adjudicatory proceeding. Without a detailed technical and factual basis, we are unwilling to delay license issuance. Accordingly, the Commission does not believe that it is either necessary or appropriate to postpone the issuance of the Perry license pending the completion of the EERT report. In addition, since the Perry facility will not be prepared to go above 5% of rated power until late November, and the plant will not likely achieve appreciable power levels for yet another 30 days, the staff should have an opportunity to consider the EERT findings prior to the facility achieving full power; we are advised that the EERT's report is now scheduled to be issued sometime in the middle or late December. The NRC staff will review the report and a copy of the report will also be promptly transmitted to FEMA for consideration in conjunction with its ongoing 44 CFR 350 review of the Ohio emergency plans.

B. Seismic Issues Outside The Adjudicatory Proceeding

1. Regulatory Background

The Commission's regulations provide reasonable assurance that nuclear power plants are built to withstand the effects of earthquakes. Each plant is designed to have the capacity to shut down safely following the Safe Shutdown Earthquake (SSE), which is based upon an evaluation of the regional and local geology and seismology and specific characteristics of local subsurface

material. There are several approaches under the Commission's regulations for determining the SSE. The approach to be followed depends on whether the nuclear site is in an area where the seismological features likely to cause earthquakes can be specifically located and identified.

For plants located in areas where earthquakes can generally be associated with specific geological structures, typically in the Western United States, the plants are designed to withstand the maximum vibratory ground motion at the site from an earthquake whose source is an identified fault or geological structure. Under this process, when a fault which has been active in the past is located and identified, it is labelled a "capable fault," and evaluation of the earthquake potential is based on the fault's actual characteristics.<sup>6</sup>

In the Eastern United States, however, the specific geological cause of earthquakes frequently cannot be determined because surface geology bears little relationship to the cause of earthquakes and there is a lack of consensus as to the mechanism which causes earthquakes in the Eastern United States. In order to make quantitative judgments about seismic design in these

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<sup>6</sup>Specifically, a capable fault is defined as a fault which has exhibited one or more of the following characteristics:

- (1) Movement at or near the ground surface at least once within the past 35,000 years or movement of a recurring nature within the past 500,000 years.
- (2) Macro-seismicity instrumentally determined with records of sufficient precision to demonstrate a direct relationship with the fault.
- (3) A structural relationship to a capable fault according to characteristics (1) or (2) of this paragraph such that movement on one could be reasonably expected to be accompanied by movement on the other.

areas, the concept of "tectonic province" was developed.<sup>7</sup> Under this approach, the SSE is determined by assuming that the largest historical earthquake which occurred anywhere in the tectonic province could occur in the vicinity of the plant site. This consideration of the largest historical earthquake over a relatively large area having common geological characteristics is intended to take account of geological structures as yet undetected which might cause earthquakes in the vicinity of a nuclear power plant.

The Perry plant was designed under the "tectonic province" approach. Perry falls within the central stable region tectonic province, which extends from the Appalachians to the Rocky Mountains. Since there were no "capable faults" near Perry, the plant was designed to withstand the vibratory ground motions from the largest historical earthquake from unidentified faults in this relevant tectonic province, i.e., the central stable region. That earthquake was the 1937 Anna, Ohio earthquake of maximum Modified Mercalli intensity VII-VIII and estimated magnitude 5.0-5.3. During the operating license review, the staff found the proposed SSE acceptable when compared to a set of recordings from earthquakes with magnitudes of  $5.3 \pm 0.5$ .

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<sup>7</sup>A "tectonic province" is defined as "a regime of the North American continent characterized by a relative consistency of the geologic structural features contained therein." 10 CFR Part 100, App. A, § III(h).

## 2. OCRE's September 5 Seismic Concerns

At the September 5, 1986 Commission meeting, OCRE criticized NRC regulations as allegedly containing a "Catch-22" -- no further research need be conducted unless there is a capable fault, but the capable fault will not be found without the research. OCRE maintained that the January 31, 1986 earthquake must have been caused by a fault, and clearly a fault which has caused an earthquake is a "capable fault" that can cause more earthquakes. OCRE argued that a small Eastern fault can cause substantial earthquakes, and that the inferred fault rupture aligns with the Akron magnetic boundary. Therefore, OCRE argued, further study should be undertaken to determine what size earthquake to expect from this as yet undiscovered fault.<sup>8</sup>

The NRC staff in response to OCRE's comments explained that the earthquakes in the eastern United States generally are caused by faults, but the fault motion occurs at such depths that the geological features cannot be identified. Since the specific faults cannot be actually located, there are no identifiable "capable faults" as defined by the Commission's regulations, even though there are unidentified faults which may be capable of causing earthquakes. Staff also explained that the magnitude 5.3 earthquake design for Perry is the largest historical earthquake in the central stable region tectonic province, which extends from the Appalachians to the Rocky Mountains.

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<sup>8</sup>OCRE also argued that there are faults intersecting the intake and discharge tunnels under Lake Erie, and that they should be inspected for evidence of movement or damage from the earthquake. The Commission accepts the staff's explanation that the tunnel faults are not properly oriented so as to cause earthquakes in the present stress regime. The 1986 earthquake substantiated this assumption.

Staff explained that consideration of the largest earthquake, not associated with geologic structures, has ensured consideration of what may be extended structures close to plant sites. Staff also stated that the existence of the Akron magnetic boundary does not necessarily imply the existence of a fault.

Applicants stated that the results of its surface and subsurface geological field studies, gravity, aeromagnetic investigations, and historical seismic studies show none of the characteristics which would be attributed to a capable fault, as defined in 10 C.F.R. 100, Appendix A. Applicants stated that this conclusion is shared by the NRC and the USGS. Finally, applicants maintained that the January earthquake was consistent with the geological, geophysical, and seismological characteristics of the tectonic province on which the Perry design is based, and that the original selection of the Perry SSE, based on a tectonic province approach, still remains valid.

### 3. Analysis

As part of the pleadings filed in opposition to the motion to reopen, the NRC staff provided a supplemental safety evaluation report discussing the staff's findings up to that time regarding the January 31, 1986 earthquake. NUREG-0887, Supp. No. 9 (March 1986) ("SSER-9"). With regard to the high frequency exceedances, the report noted the "vast amount of literature which documents the low-damage potential of earthquakes of short duration and high frequencies." Id. at 3-3. Further studies (after the Commission denied the motion to reopen) have been conducted. Those studies support the initial conclusion reached by the staff in opposing the motion to reopen, i.e., the earthquake did not have safety significance for Perry. See, e.g., NUREG-0887,

Supp. No. 10 (Sept. 1986), where the NRC staff concluded that the seismic design for Perry remained acceptable and unaffected by the January earthquake.<sup>9</sup>

OCRE's primary argument seems to be that with enough research the fault that caused the earthquake can be identified. Then the Commission's regulations dealing with "capable faults" would be applicable, and predictions could be based on the actual characteristics of that fault.

Based upon experiences in the Eastern United States, it is unlikely that the fault which caused the January 31 earthquake can be identified, in spite of the significant efforts that were made by the utility. The Commission agrees with OCRE that a fault caused the earthquake, just as faults cause the other earthquakes in the Eastern United States. But predictions cannot be based on the characteristics of those faults, simply because the faults cannot be identified and their characteristics defined. Accordingly, it remains necessary and appropriate to rely on the tectonic province approach for determining seismicity at the Perry site. No significant reason has been given to show that the Commission should depart from its regulatory scheme, either as a general matter or in this specific case. The Commission continues to believe that the tectonic province approach is both reasonable and conservative.

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<sup>9</sup>The Commission at the September 5 meeting also heard from Dr. Johnson, a technical expert who was on the Appeal Board panel that had originally considered OCRE's motion to reopen. Dr. Johnson stated that he was now convinced that the safety related equipment at Perry would function even in the event of an earthquake significantly larger than the Ohio 1986 earthquake, but having the same unusual frequency characteristics that earthquake displayed.

Another question arises in this case from the fact that the SSE design spectrum for ground motion for the Perry plant was exceeded for a very narrow range of high frequencies during the January 31 earthquake. The Perry plant, like many other nuclear power plants, uses the design spectrum described in NRC Regulatory Guide 1.60. See SSER-9 at 2-2. Consistent with section VI(a) of 10 C.F.R. Part 100, App. A, the Reg. Guide 1.60 response spectra are smoothed design spectra which were developed based on the mean plus one standard deviation, i.e., the 84th percentile,<sup>10</sup> of acceleration time history information from a large number of earthquake events of different magnitudes. See, e.g., Long Island Lighting Company (Shoreham Nuclear Power Station, Unit 1), LBP-83-57, 18 NRC 445, 510 (1983). This acceleration time history information is generally from large, relatively distant Western earthquakes. The Reg. Guide 1.60 spectral shape is widely used for sites throughout the United States. See id. at 507.

Data recorded near several recent Eastern earthquakes, including the 1986 Ohio earthquake, have suggested a larger proportion of high frequency energy levels than reflected in the shape characteristic of Reg. Guide 1.60.<sup>11</sup> As noted above, at Perry some of the earthquake motions recorded from the January 1986 earthquake exceeded the Reg. Guide 1.60-based Perry design spectrum for a very narrow range at the high frequency end of the spectrum (above about

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<sup>10</sup>Intuitively, it would not be unreasonable to expect exceedances of a Reg. Guide 1.60-based design response spectrum since the spectrum is derived from the 84th percentile of the data, that is, some 16 percent of the data would be expected to lie above the smoothed spectrum.

<sup>11</sup>The staff is considering the generic implications raised by the high frequency ground motion at these recent earthquakes.

15 Hz). Nonetheless, at the intermediate and low frequencies the Perry design spectrum is very conservative with respect to the 1986 recorded earthquake motions.

It has been general staff practice, in a number of cases over many years, that the "high-frequency peak accelerations have not been used and should not be used in scaling and applying the Reg. Guide 1.60 design spectra because they are usually of short duration and little energy and are not representative of spectral response at lower, more significant frequencies." SSER-9 at 2-3. In this case, the NRC staff has verified that the design basis SSE, without modification of the spectrum, in fact results in a design with ample seismic resistance capacity over the entire frequency range of interest, even at the 20 Hz frequency.

Moreover, for Perry, as in other cases in which site specific data exceeded the design basis spectrum at high frequencies, the NRC staff and its consultants carefully reviewed the records of the January 1986 earthquake to assure that the Perry seismic design, based on the Reg. Guide 1.60 spectrum, could accommodate the 1986 earthquake with adequate seismic margin, even though the design spectrum was exceeded at about 20 Hz. See SSER-9 at Sec. 3. The staff concluded that the 1986 Ohio earthquake represents a negligible effect on the future safe operation of the Perry plant. See SSER-9 at 3-4. The staff also conducted several walkdown inspections and concluded that the earthquake did not have any significance from an engineering point of view on the equipment in the Perry plant. See SSER-9 at 3-11. Further, the staff review of the applicants' evaluations concluded that "the Ohio earthquake of 1986 is judged to have had an insignificant effect on the Perry plant structures," SSER-10 at 3-4, and that "the Perry plant's seismic design has

adequate safety margins to accommodate the recorded 1986 Ohio earthquake even though the design SSE response spectra were exceeded at around 20 Hz." SSER-10 at 3-8. The staff also concluded that "if a similar earthquake of somewhat higher amplitude and longer duration should occur near the Perry site, the current equipment seismic qualification program would be adequate to ensure the equipment would not be damaged." Id.

The Commission is satisfied that the Perry plant seismic design has adequate safety margins to accommodate the recorded Ohio earthquake of 1986 even though the design response spectra were exceeded at around 20 Hz. Accordingly, the Commission concludes that there will be no undue risk to public health and safety from seismic events, taking into consideration both the application of the tectonic province approach and the application of the design spectrum at the Perry plant.

### III. Conclusion

The adjudicatory proceeding to determine whether Perry-1 should be licensed to operate has been concluded in favor of full-power operation. The Commission has reviewed various issues outside of that adjudication, and concluded that they too have been resolved in favor of operation. The

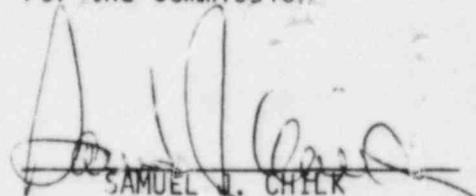
Commission therefore authorizes the NRC staff to issue a full-power license for Perry-1.

Commissioner Asselstine disapproves of this order. His separate views are attached.

It is so ORDERED.



For the Commission

  
SAMUEL J. CHALK  
Secretary of the Commission

Dated at Washington, D.C.

this 7<sup>th</sup> day of November, 1986.

SEPARATE VIEWS OF COMMISSIONER ASSELSTINE

I cannot agree with the Commission's order for several reasons. First, the Commission majority reaffirms a decision it made in this proceeding earlier this year. I did not support the Commission's decision then, and I cannot support it now. "Dissenting Views of Commissioner Asselstine," CLI-86-7, 23 NRC 233 (1986). Second, I believe that the Commission should have provided the State of Ohio a continuing opportunity to informally advise the Commission on emergency planning issues, and the Commission should give more than cursory consideration to the State's concerns on those issues.

1986 Ohio Earthquake

The Commission's order reaffirms its decision in CLI-86-7. In that order, the Commission interjected itself into the Appeal Board's consideration of the Intervenor's motion to reopen the Perry proceeding. The Commission should not have intervened to vacate summarily the order in which the Appeal Board set up a mini-hearing to gather additional information on what effect the 1986 Ohio earthquake had on the safety of the Perry plant. Further, the Commission should not have summarily denied the Intervenor's motion to reopen the Perry licensing proceeding. The Commission clearly should not have taken such significant and final action without first hearing from the parties on the issues presented by the motion.

The Intervenor raised what appeared on its face to be a significant issue -- the fact that, in at least one respect, the 1986 Ohio earthquake exceeded the Safe Shutdown Earthquake (SSE) for the Perry plant. <sup>1/</sup> The Appeal Board was concerned enough about this issue to decide, even after receiving filings from the NRC Staff and the Applicant, that it should conduct a mini-hearing to gather additional information to help determine whether the Ohio earthquake presented a safety significant issue for Perry.

The Commission concluded, however, that the Board should not be permitted to obtain additional information. Instead, the Commission decided that the Board should be limited to whatever information had been provided by the parties in the first round of pleadings. According to the Commission, if the Board could not make a determination that there was a safety significant issue based on the initial pleadings, then the Intervenor obviously had not met its burden on the motion to reopen, and the Board should have dismissed the motion. The Commission then decided to dismiss the motion to reopen. Unfortunately, the conclusion that the Commission drew from the Board's actions is not as obvious as the

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<sup>1/</sup> Once again the Commission seems to attach some importance to the fact that OCRE conceded "that the high frequency exceedances of the SSE design acceleration recorded in the January 31, 1986 earthquake do not have engineering significance" and that the earthquake caused little or no damage to the plant. See page 5 of Commission order. This is largely irrelevant. The Intervenor had not abandoned its claim that the earthquake raised questions about the adequacy of the seismic design basis for the plant and of compliance with NRC regulations. These are the very subjects on which the Appeal Board wished to obtain additional information from the Applicants and Staff.

Commission would have us believe. One could also assume that if the Board was concerned enough that it felt it needed additional information, then the Intervenor had raised an issue which was significant, and the Board should simply have granted the motion to reopen and decided the issue in the adjudicatory proceeding rather than by setting up a mini-hearing.

In any event, the Commission should not have intervened in this proceeding uninvited and without hearing from any party to the Perry proceeding. The Commission argues that its action was within its supervisory authority over the Boards. <sup>2/</sup> While the Commission does have general supervisory authority over the Boards, intervention in Board proceedings and summary action by the Commission should be taken sparingly and only in the clearest of cases. The Commission could not justifiably conclude, either as a procedural matter or as a technical matter, that the Board's action in this case was so clearly in error that the Commission's summary action was necessary.

The Commission had tacitly approved the "mini-hearing" approach used by the Appeal Board by failing to comment or object when the Appeal Board in Diablo Canyon used a similar approach to decide whether a safety

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<sup>2/</sup> It is interesting that the Commission chose to cite its Braidwood decision as an illustration of the exercise of its supervisory authority. (See, p. 6 of Commission order.) That case, when considered together with this case, provides an excellent illustration of when the Commission chooses to exercise its authority, i.e., when it sees an opportunity to dismiss a contention from a licensing proceeding. It also illustrates the fact that the Commission is willing to apply its procedural rules strictly only to public intervenors and not to Applicants or Licensees.

significant issue was presented by a motion to reopen in that case. Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plants, Units 1 and 2), ALAB-756, 18 NRC 1340 (1983). The Waterford case, upon which the Commission relies heavily, deals with dismissal of a motion to reopen based solely upon the fact that an OI investigation remained outstanding. It is not intuitively obvious that Waterford would require dismissal of a motion to reopen which raises a specific, significant safety issue and which is not based merely on the fact of the existence of an outstanding investigation. The procedural issues are, then, not as simple as the Commission's order would suggest. The technical issues raised by OCRE's motion to reopen were also fairly complex. The words of the Appeal Board best illustrate this:

"Even with regard to so seemingly simple an issue as safety significance, it is difficult to make an informed judgment on the basis of preliminary written materials where, as here, the combined and complicated fields of geology, seismology, and engineering mechanics come into play."

Appeal Board Order dated March 20, 1986, at 6.

In fact, the Commission's order today contains several pages of discussion of the technical issues in an eleventh hour attempt to justify the

Commission's dismissal of the motion on technical grounds. <sup>3/</sup> In these circumstances, the Commission's summary action was not justified. Without a clearly incorrect Board decision, the Commission was not justified in intervening at all, much less in taking such final action without seeking comments from the parties.

The Commission has, in the Waterford and Perry decisions, established stringent pleading requirements which, when combined with the Commission's standards for reopening and the Commission's rules on when the Boards can raise issues sua sponte, make it nearly impossible for an intervenor or a Board to raise a new issue. Thus, in the future, whether a Board will be able to consider an issue in some detail will depend upon how adept a particular intervenor is at making an open and shut case in his initial pleading. This elevates form over substance, and makes public participation in our proceedings needlessly difficult.

#### Emergency Planning

The State of Ohio has raised a number of issues relating to emergency planning for the Perry plant and has asked the Commission to postpone

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<sup>3/</sup> The Commission's attempt to bolster its decision in CLI-86-7 by citing analysis of the earthquake which has been completed since the Commission's decision cannot justify the dismissal of the motion to reopen last April. Rather, the issue is, given the information available at that time, was the Commission's action reasonable. Clearly, when one considers the concern of the Appeal Board on the earthquake issue and the complexity of both the technical and procedural issues involved, it was not.

action on a license for Perry until the State's review of those issues is complete. The Commission's review of Ohio's concerns has been cursory at best. The Commission heard from the Governor's representatives early in September, and the staff has met with the State. However, the Commission has refused to meet with the State again or to provide other than a terse explanation for its conclusion that Ohio's concerns do not provide a basis for holding up issuance of the Perry license.

The Commission should provide Ohio with a continuing opportunity to advise the Commission on emergency planning issues. The Commission should, at a minimum, meet once again with the Governor's representatives to discuss the State's concerns before authorizing issuance of a license. And, the Commission should consider the State's concerns in some detail before deciding whether Ohio's issues are significant enough to justify delaying issuance of a license for the plant. The Commission's order states merely that Ohio's concerns are not detailed enough, as presented in the State's recent filing, to warrant holding up license issuance. Ohio seems to be giving the issues thoughtful consideration, and the State deserves more than this back-of-the-hand treatment.