

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
DUKE POWER COMPANY ) Docket Nos. 50-369  
(William B. McGuire Nuclear ) 50-370  
Station, Units 1 and 2) )

APPLICANT'S MEMORANDUM IN SUPPORT OF ITS MOTION  
FOR SUMMARY DISPOSITION

I. BACKGROUND

On May 30, 1974, Duke Power Company ("Applicant") filed with the Nuclear Regulatory Commission ("Commission" or "NRC") an application for a license to operate the William B. McGuire Nuclear Station, Units 1 and 2 ("McGuire" or "facility"). In response thereto Carolina Environmental Study Group ("CESG") sought leave to intervene. On October 1, 1974 the Atomic Safety and Licensing Board (convened to rule on petitions to intervene ) granted CESG's petition. Thereafter, on December 24, 1974, the Atomic Safety and Licensing Board ("Licensing Board") approved a stipulation between CESG, Applicant and the NRC Staff specifying that the sole issues in controversy regarding the application for an operating license were (1) need for power, (2) cost-benefit analysis of alternative generation, (3) seismology, (4) stud bolts, 1/ (5) financial qualifications, and (6) solar power.

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1/ By Order of April 24, 1976, the Licensing Board dismissed CESG's stud bolt contention.

Subsequently, on April 18, 1979, after extensive hearings, the Licensing Board issued an Initial Decision in this proceeding. Duke Power Company (William B. McGuire Nuclear Station, Units 1 and 2), LBP-79-13, 9 NRC 489 (1979). Therein, the Licensing Board resolved all contested issues in favor of issuance of the full-term operating license. However, the Licensing Board stayed the effectiveness of the Initial Decision "until further order by the Board following the issuance of a supplement to the NRC Staff's Safety Evaluation Report addressing the significance of any unresolved generic safety issues." 9 NRC at pp. 547-8. This supplement was issued in May, 1980, and immediately thereafter, on May 30, 1980, Applicant moved this Board to terminate the stay. 2/

As a result of Applicant's motion to terminate the stay, CESH, on June 9, 1980, moved to reopen the proceeding and add contentions regarding hydrogen generation resulting from a TMI-type accident. On July 29, 1980, the Licensing Board denied Intervenor's motion but provided it an opportunity to amend its pleading to conform, if possible, with Commission requirements. On August 15, 1980, CESH filed

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2/ Applicant maintains that the Board's ongoing consideration of generic safety issues is not an impediment to the issuance of a low-power license inasmuch as there is no "controversy" in this regard (i.e., no "contention"). See 10 CFR §50.57(c). However, so as to insure an orderly progression of this proceeding, Applicant respectfully requests that the Board dispose of this generic safety matter and lift the stay as it relates to the matters contained in the Initial Decision. Applicant suggests that such disposition can be accommodated by an Order of this Board pursuant to 10 CFR §2.730(e).

its amended pleading. Both Applicant and Staff have responded thereto and the matter is presently awaiting decision. 3/

Due to the delay associated with the prospect of reopening and its adverse impact upon the current McGuire schedule for commercial operation, 4/ Applicant, on August 1, 1980, filed a motion requesting issuance of a license authorizing fuel loading, initial criticality, zero power physics testing and low power testing ("low-power operating license") for Unit 1 of the McGuire facility. 5/ 6/ On

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- 3/ The Staff, in its response of September 4, 1980, requested that the Board's resolution of CESC's amended pleading be deferred pending Commission action on a motion to reconsider its ruling in Metropolitan Edison Company (Three Mile Island Station, Unit 1), CLI-80-16, 11 NRC 674 (May 16, 1980). On September 26, 1980, the Commission denied the motion to reconsider. Copies of the Commission decision are attached.
- 4/ See discussion of schedule in Applicant's attached Motion for Summary Disposition.
- 5/ Applicant notes that Chapter 14, "Initial Tests And Operation," of the Final Safety Analysis Report appended to its May 30, 1974 application for a full-power operating license sets forth the basic technical information which is the subject of Applicant's instant motion for a low-power operating license. Additional information is contained in the Canady and Rasin Affidavits attached hereto and made a part hereof.
- 6/ Applicant notes that its motion for a low power license is conditioned upon the grant of CESC's motion to reopen; denial of CESC's motion moots Applicant's motion. Applicant would further note that its filing of the low power motion is not to be viewed as a retreat from its opposition to CESC's motion to reopen, rather its filing was necessitated by the time constraints associated with obtaining a license.

August 15, 1980, CESG filed a response opposing Applicant's motion stating that

The physical possibility of hydrogen generation, CESG believes, is sufficient basis for deferring the fuel loading of a low pressure containment reactor until the record is supplemented and unless a favorable finding is made.

Applicant submits, as discussed below, that with respect to CESG's allegation there are no genuine issues as to any material facts subject to resolution in this proceeding and Applicant is entitled to a favorable decision as a matter of law. Therefore, pursuant to 10 CFR §2.749, Applicant requests that this Board, by Order, grant its motion for summary disposition, and direct the Director of Nuclear Reactor Regulations to take the appropriate actions leading to issuance of the requested low-power operating license. 7/

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7/ Pursuant to 10 CFR §50.57(c) prior to granting Applicant's motion for a low-power operating license, the presiding officer "shall make findings on the matters specified in paragraph (a) of this section as to which there is a controversy . . . ." With regard to those matters with which there is no controversy, the presiding officer shall authorize the Director of Nuclear Reactor Regulations to make all other appropriate findings required for issuance of said license. The Board has previously made findings on all matters in controversy. The Board has not been called upon to make findings regarding hydrogen generation, because this matter is not yet in controversy. In the event the Board allows CESG's hydrogen generation contention, the instant pleading demonstrates that there is no controversy with respect to low power operation as sought herein.

## II. ARGUMENT

### A. General

Pursuant to 10 CFR §2.749(d), upon an appropriate motion for summary disposition, "the presiding officer shall render the decision sought" where it is shown "that there is no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law." To provide more definitive guidance in rendering such judgments, the Commission stated that Section 2.749 "has been revised to track more closely the Federal Rules of Civil Procedure." See 37 Fed. Reg. 15135 (1972). 8/

In accordance with the Federal Rules of Civil Procedure, to defeat an appropriate motion for summary disposition an opposing party must present facts in the proper form; conclusions of law will not suffice. 9/ The opposing party's facts must be material 10/ and of a sub-

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8/ See also, Alabama Power Company (Joseph M. Farley Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 217 (1974); Gulf States Utilities Co. (River Bend Station, Units 1 and 2), LBP-75-10, 1 NRC 246, 247 (1975); Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), LBP-74-36, 7 AEC 877, 878 (1974).

9/ Pittsburgh Hotels Association, Inc. v. Urban Redevelopment Authority of Pittsburgh, 202 F.Supp. 486 (W.D. Pa. 1962), aff'd. 309 F.2d 186 (3rd Cir. 1962), cert. denied, 376 U.S. 916 (1963).

10/ Egyes v. Magyar Nemzeti Bank, 165 F.2d 539 (2nd Cir. 1948).

stantial nature 11/ not fanciful, or merely suspicious. 12/  
One cannot avoid summary disposition

on the mere hope that at trial he will be able to discredit movant's evidence; he must, at the hearing, be able to point out to the court something indicating the existence of a triable issue of material fact. [6 Moore's Federal Practice 56.15(4). (Emphasis added)].

One cannot "go to trial on the vague supposition that something may turn up". 6 Moore's Federal Practice 56.15(3).  
See Radio City Music Hall v. U.S., 136 F.2d 715 (2nd Cir. 1943). See also Orvis v. Brickman, 95 F.Supp. 605 (D.D.C. 1951), wherein the Court in granting the defendant's motion for summary judgment under the Federal rules said:

All that plaintiff has in this case is the hope that on cross-examination . . . the defendants . . . will contradict their respective affidavits. This is purely speculative, and to permit trial on such basis would nullify the purpose of Rule 56, which provides summary judgment as a means of putting an end to useless and expensive litigation and permitting expeditious disposal of cases in which there is no genuine issue to any material facts.

Applicant submits that fundamental precepts of administrative process mandate that CESG be required to present evidence supporting its position at this stage of litigation or that the Licensing Board rule favorably on Applicant's motion. To permit otherwise would be to countenance unwarranted delay. In this regard see 10 CFR §2.749(b) wherein it is stated that:

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11/ Beidler and Bookmeyer v. Universal Ins. Co., 134 F.2d 838, 831 (2nd Cir. 1943).

12/ Griffin v. Griffin, 327 U.S. 220, 236 (1946). Banco de Espana v. Federal Reserve Bank, 28 F.Supp. 958, 973 (S.D.N.Y. 1939) aff'd, 144 F.2d 433 (2nd Cir. 1940)).



When a motion for summary decision is made and supported as provided in this section, a party opposing the motion may not rest upon the mere allegations or denials of his answer; his answer by affidavits or as otherwise provided in this section must set forth specific facts showing that there is a genuine issue of fact. If no such answer is filed, the decision sought, if appropriate, shall be rendered.

B. ISSUES RAISED BY CESG

1. CESG's Previous Contentions Regarding Need For Power, Cost-Benefit Analysis Of Alternative Generation, Seismology, Financial Qualifications, And Solar Power.

Applicant submits that the issues raised by CESG in response to Applicant's initial application for operating licenses for McGuire Units 1 and 2 have no bearing on the instant application regarding issuance of a low-power operating license, and thus, should not weigh against such issuance. In any event, the Licensing Board on April 18, 1979 issued an Initial Decision in this proceeding which, inter alia, resolved all contested issues in favor of issuance of a full-term operating license. Thus, a fortiori, such contested issues do not weigh against issuance of the requested low-power operating license.

2. Issues Regarding Hydrogen Generation In The Event Of A TMI-Type Accident.

CESG alleges that the licensee has not demonstrated that, in the event of a loss-of-coolant accident at McGuire:

1. substantial quantities of hydrogen (in excess of the design basis of 10 CFR §50.44) will not be generated; and
2. that, in the event of such generation, the hydrogen will not combust; and

3. that, in the event of such generation and combustion, the containment has the ability to withstand pressure below or above the containment design pressure, thereby preventing releases of off-site radiation in excess of Part 100 guideline values. 13/

Excessive hydrogen is generated when zirconium and water react in the presence of high temperatures. Affidavit of K.S. Canady at p. 2. In a reactor, such temperatures are achieved when the following conditions are present: (1) a loss of coolant accident ("LOCA") has occurred which results in removal of cooling water from around the core; (2) the emergency core cooling system ("ECCS"), due to failure or premature operator termination, is not available to make-up the water lost during the LOCA; and (3) the fission product inventory within the core is great enough to result in decay heat that cannot be removed from the core by adequate heat transfer mechanisms. Id.

With respect to three of the four phases of activities requested in the subject low power operating license motion, viz., fuel loading, initial criticality, and zero power physics testing, 14/ even in the unlikely event of a LOCA

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13/ CESG has also advanced three other contentions. Each of these matters is premised upon the excessive generation of hydrogen in the McGuire containment and accordingly, the discussion of this matter in the text is dispositive.

14/ A description of the activities scheduled during all phases is contained in the attached Affidavits.



coupled with the complete failure or termination of the McGuire ECCS, the extremely small buildup of fission products resulting in little or no heat generation precludes excessive hydrogen generation. Affidavit of K.S. Canady at p. 3. CESH does not, and indeed cannot, assert a contrary position. Accordingly, CESH's opposition to these activities must be dismissed. 15/

With regard to the low-power testing phase (i.e., up to 5% full power), CESH states that during settlement negotiations between CESH and Applicant "it has learned from the Applicant that core activation by no more than 5 percent full power operation can result in sufficient decay activity to heat the exposed core to the temperature required for [the production of hydrogen]." CESH's Revised Motion at p. 2 and 21. While it is clear that this statement is inadmissible, 16/ Applicant does not refute the statement's theoretical validity. However, Applicant submits that at

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15/ CESH, maintains that "fuel loading in this contested proceeding should be deferred until and unless an ID favorable to a license, based on an updated record, issues." CESH Revised Motion at p. 21. CESH's position is contrary to Commission regulations which authorize issuance of a low-power operating license prior to and separate from issuance of the full-power license. 10 CFR §50.57(c). For this additional reason, CESH's opposition must be dismissed.

16/ Applicant notes that "[o]ffers of settlement and conduct and statements made in the course of settlement negotiations are not admissible to prove the validity of a claim." Florida Power & Light Company (St. Lucie Plant, Unit No. 2), LBP-79-4, 9 NRC 164, 183 (1979). See also, Burns v. City of Des Pres, 534 F.2d 103, 112 n. 9, cert. denied, 429 U.S. 861 (1976).

issue is not whether there is some remote possibility that hydrogen can be generated, but whether the likelihood of excessive hydrogen generation is such as to raise a genuine issue of material fact in the low-power mode of operation. With regard to this issue, as noted above, excessive hydrogen generation can result only from a loss-of-coolant accident in combination with either (1) failure of ECCS operation or (2) premature termination of ECCS operation such as occurred at TMI-2. See attached Affidavit of K.S. Canady at p. 2. Applicant maintains, as is discussed below, that (1) the ECCS will not fail if called upon to operate and (2) the ECCS will not be prematurely terminated by operator action. Further, Applicant maintains that even in the event of a LOCA coupled with the failure of the ECCS, there is sufficient time to assure a flow of cooling water to the core prior to initiation of significant hydrogen generation.

With regard to a hypothetical failure of the ECCS, Applicant notes that the assumption of ECCS operation when needed is one of the prime bases for licensing every nuclear power plant in this nation. The ECCS must be designed in accordance with strict criteria contained in 10 CFR §50.46 and Appendix A and K to 10 CFR Part 50, which include the criteria that (1) the ECCS must be able to perform its

function even assuming "the most damaging single failure of ECCS equipment has taken place" (Section D.1, Appendix K to 10 CFR Part 50) and (2) the ECCS must be able "to transfer heat from the reactor core following any loss of reactor coolant at a rate such that . . . (3) clad metal-water reactors is limited to negligible amounts." (Criterion 35, Appendix A to 10 CFR Part 50). The NRC Staff has evaluated the McGuire ECCS and concluded that it meets all relevant criteria. See NUREG-0422, "Safety Evaluation Report Related To Operation Of McGuire Nuclear Station, Units 1 and 2," Section 6.3 (March 1978); Supplement 2 to NUREG-0422 (March 1979). See also Affidavit of W.H. Rasin at pp. 1-2. Indeed, during the construction permit hearings regarding the McGuire facility, of which CESG was a party, a significant amount of testimony was introduced regarding the adequacy of the ECCS. LBP-73-7, 6 AEC 92, 104-106 (1973). In the Licensing Board's Initial Decision issued in that proceeding, the Licensing Board found that "the emergency core cooling system ("ECCS") will be designed to provide emergency core cooling during those postulated accident conditions where it is assumed that mechanical failures occur in the reactor coolant system piping resulting in a loss of coolant from the reactor vessel greater than the

available coolant makeup capacity using normal operating equipment." Id. at 104. In sum, Applicant submits that the McGuire ECCS will operate if called upon to do so and its operation precludes excessive hydrogen generation.

With regard to the issue of premature operator termination of ECCS operation, the Commission determined that excessive hydrogen generation during the TMI accident was a direct result of operator interference with the ECCS. Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit 1), CLI-80-16, 11 NRC 674, 675 (1980). Therein, the Commission explicitly stated that the critical issue regarding excessive hydrogen generation is "a likelihood of an operator interfering with the ECCS operations." Id. at p. 676. At the McGuire station, procedures have been established and extensive training has been initiated to assure that operators will not prematurely terminate operation of the ECCS. Affidavit of K.S. Canady attached to "Applicant's Response To CESG's Revised Motion To Reopen The Operating License Proceeding And To Raise New Contentions" (September 3, 1980), incorporated herein by reference ("Incorporated Affidavit of K.S. Canady"). 17/ In addition,

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17/ For the convenience of the Board and parties a copy of the Incorporated Affidavit of K.S. Canady is attached.

many other system, procedure, and personnel changes have been made to further assure that a TMI-type accident resulting in excessive hydrogen generation will not occur at the McGuire facility. Id. In short, Applicant submits that in the unlikely event of a LOCA, the ECCS will not be prematurely terminated by operator interference.

In any event, Applicant notes that even if the ECCS fails to operate or is prematurely terminated during a design basis LOCA occurring during the 5% low power testing phase, operators will have in excess of 3900 seconds to react to the situation and restore a minute flow of water to the core (13-15 gallons per minute) to prevent the uncovering of the core and potential hydrogen generation. Affidavit of W.H. Rasin at pp. 2-3. This required make-up could easily be supplied by even partial operation of any one of the following safety grade systems each of which is seismically designed with redundant power sources and diverse multiple flow path water sources: (1) the recipricating charging pump (rated at 98 gpm); (2) either of two centrifugal charging pumps (rated at 150 gpm each); or (3) either of two safety injection pumps (rated at 400 gpm each). Id. In short, it is inconceivable that make-up water at a rate of 13-15 gallons per minute could not be provided from one of the many sources available. Id.

In sum, Applicant submits that based on irrefutable facts noted herein, this Board should rule as a matter of

law that no genuine issue of material fact exists with respect to whether excessive amounts of hydrogen will be generated during low-power operations; they will not. 18/

### III. CONCLUSIONS

From the foregoing, we submit that with respect to issues raised by CESG in opposition to Applicant's initial operating license, such issues clearly have no bearing on the requested application for a low-power operating license, and, in any event, as previously noted such issues have already been resolved by this Licensing Board in favor of issuance of a full-power operating license. With regard to new, TMI-related matters raised by CESG, we submit that such do not weigh against issuance of the requested low-power operating license. In short, we maintain that there are no genuine issues of material fact in dispute regarding the matters raised by CESG, and urge the Licensing Board to grant Applicant's Motion for Summary Disposition. 19/ Such a

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18/ In this regard, Applicant notes that the Commission has granted Sequoyah, Salem Unit 2 and North Anna Unit 2 low-power operating licenses such as requested here. NUREG-0694 "TMI-Related Requirements For New Operating Licenses" at p. 7 (June 1980). The McGuire containment is virtually identical to that at the Sequoyah facility.

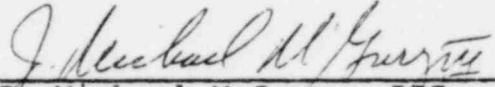
19/ Applicant notes that such actions are consistent with Commission policy which specifies that "the TMI-related operating license requirements list [NUREG-0694] . . . must be the principal basis for consideration of TMI-related issues and thus adjudicatory process." 45



course is consistent with the Commissions direction that, with regard to TMI-related matters, summary disposition should be used "to the maximum extent practicable." 45 Fed. Reg. 41738, 41740 (June 20, 1980).

As noted in the attached Motion for Summary Disposition severe time constraints are involved and accordingly, Applicant requests expedited consideration of this matter.

Respectfully submitted,

  
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OF COUNSEL:

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Associate General Counsel  
Duke Power Company

September 29, 1980

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(Footnote continued from previous page)

Fed. Reg. 41738, 41739-40 (June 20, 1980). In the operating requirements list, the NRC has categorized hydrogen control as an "Internal NRC Action" which is "underway, and [is] scheduled to be completed prior to any near-term operating plant licensee being permitted to operate beyond the low-power testing range." NUREG-0694 "TMI-Related Requirements For New Operating Licenses" at p. 9 and 27 (June 1980) (emphasis added). Significantly, hydrogen control was not categorized as a "Fuel-Loading and Low-Power Testing Requirement" which "must be met by an applicant for an operating license prior to NRC issuance of a license to load fuel and conduct low-power testing." NUREG-0694 at p. 9.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

John F. Ahearne, Chairman  
Victor Gilinsky  
Joseph M. Hendrie  
Peter A. Bradford

In the Matter of  
METROPOLITAN EDISON COMPANY  
Three Mile Island Nuclear  
Station, Unit No. 1



Docket No. 50-289  
(restart)

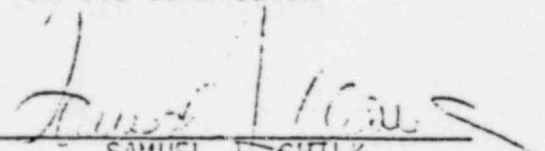
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ORDER

In a Memorandum and Order issued May 16, 1980, CLI-80-16, 11 NRC 674, the Commission decided that it would not suspend or waive 10 CFR 50.44, but that post-accident hydrogen control issues can be litigated under 10 CFR Part 100. On June 4, the Union of Concerned Scientists filed a motion with the Commission requesting reconsideration of that decision. Commissioners Gilinsky and Bradford have voted to grant the motion for reconsideration. Chairman Ahearne and Commissioner Hendrie have voted to deny the motion. Because a majority of the Commission does not favor granting the motion, it is denied. See separate views of Chairman Ahearne and Commissioner Hendrie, and separate views of Commissioners Gilinsky and Bradford, attached.

It is so ORDERED.

For the Commission

  
SAMUEL J. EHILK  
Secretary of the Commission

Dated at Washington, D.C.

*Dupe* this 26<sup>th</sup> of September, 1980.

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SEPARATE VIEWS OF  
CHAIRMAN AHEARNE AND COMMISSIONER HENDRIE

We have carefully reviewed the Union of Concerned Scientists (UCS) Petition for Reconsideration and believe it should be denied. UCS argues that before issuing its order the Commission should have afforded the parties an opportunity to present their views to the Commission. We find this argument groundless. In our view there is no legal requirement that the Commission solicit additional views of the parties before acting upon the request for waiver under 10 CFR 2.758. UCS had the opportunity to present its views to the Licensing Board on the issues it now raises when Mr. Stephen Sholly requested a waiver of 10 CFR 2.744 under 10 CFR 2.758, but elected not to do so. However, we have proceeded below in any event to consider UCS's views on the merits of a waiver.

We find UCS's arguments on the merits to be unpersuasive. UCS argues that the Commission's decision not to waive Section 50.44 was premised on at least three erroneous assumptions: (a) that if TMI operators had not turned off the ECCS the core would have been adequately cooled; (b) that post-TMI instructions to operators should substantially reduce the possibility that the ECCS will be prematurely turned off; and (c) that instructions to operators can compensate for poor design. The UCS arguments seem to be premised on the assumption that the occurrence of the Three Mile Island accident automatically nullified the hydrogen generation control assumptions incorporated in 10 CFR 50.44. However, 10 CFR 2.758(b) of the Commission's regulations provides that a Commission regulation will be waived in a proceeding only if "special circumstances with respect to the subject matter of the particular proceeding" indicate that application of the rule or regulation would not serve the purpose for which the rule

was adopted. The Commission in its May 16 order concluded that because the hydrogen generation control issue is a generic issue applicable to all operating power reactors no "special circumstances" existed in this particular proceeding. The UCS petition fails to challenge that conclusion. In the absence of a showing that special circumstances are present, the Commission's regulations require denial of the petition.

The Union of Concerned Scientists also argues that the Commission's May 16 decision is erroneous because the appropriate dose limits that should be applied to hydrogen control are those contained in Part 20 of the Commission's regulations rather than the higher levels set forth in Part 100. We disagree with this analysis. Part 20 is intended to limit releases of radioactive materials from normal operations and anticipated operational occurrences. A loss-of-coolant accident resulting in hydrogen generation does not fall in this category.

Metropolitan Edison in its reply to the UCS petition for reconsideration also asserted that 50.44 should be waived. Citing Union of Concerned Scientists v. AEC, 499 F.2d 1069 (D.C. Cir. 1974), it argues that the Commission's decision to permit litigation of hydrogen control issues under Part 100 is a misapplication of Part 100 because it would permit a party to inject into any NRC proceeding the adequacy of a design feature covered by a Commission regulation simply by setting forth a credible sequence of events which challenges the adequacy of that design feature and could lead to an accident more severe than that referenced in Part 100. We find Metropolitan Edison's narrow interpretation of the regulation to be unsupportable.

Part 100.11(a) required plants to withstand any "credible" accident without exceeding specified dose guidelines (25 rem to the whole body and 300 rem to the

thyroid) at the edges of the exclusion area and low population zone. There is no limitation in Part 100 regarding the types of accidents that may be analyzed, although longstanding Commission practice is that the likelihood of the accident is the key to "credibility". For the past 18 years the NRC and AEC have implemented Part 100 by postulating an accident that entails release of substantial quantities of fission products from the reactor core. The quantities postulated could only occur if there were a substantial ECCS failure. This arguable inconsistency between Part 100 practice and other NRC and AEC rules intended to assure adequate ECCS design has long been recognized.

This practice was affirmed in Union of Concerned Scientists v. AEC, supra which states that "conformance with the IAC (the predecessor to the current ECCS criteria in 10 CFR 50.46) does not establish conformance with the Reactor Site Criteria", that the Part 100 question raises a question "quite different from the maximum credible accident for purposes of analyzing ECCS performance," and that "AEC has chosen to employ a most conservative (drastic) assumption [ECCS failure] in determining site suitability." While this past practice and the Union of Concerned Scientists decision deal with the relation between Part 100 and the ECCS criteria, this same relationship exists between Part 100 and the hydrogen control criteria in 10 CFR 50.44. If it is proper for the Commission to postulate an accident under Part 100 that entails a "challenge" to the ECCS criteria in 10 CFR 50.46, it should also be proper to postulate an accident under Part 100 that entails a "challenge" to the hydrogen generation criteria in 10 CFR 50.44.

Finally, while it may seem odd to be litigating compliance with Part 100 "site criteria" for a reactor which has already received an operating license,

actual practice under Part 100 makes this reasonable. Part 100 serves a dual function. It provides guidance on site suitability. It also serves as a basis for incorporation of safety features to mitigate the consequences from postulated accidents. It is this second use of Part 100 that the Commission authorized in its May 16 order inviting litigation of hydrogen control issues under Part 100.

For these reasons we believe the UCS motion for reconsideration should be denied.



SEPARATE VIEWS OF COMMISSIONERS GILINSKY AND BRADFORD

We would grant the Union of Concerned Scientists' ("UCS") Petition for Reconsideration of the Commission decision not to waive the hydrogen control rule (10 CFR 50.44) in the TMI-1 restart proceeding. Narrow procedural argument over the special circumstances of this case should not be allowed to obscure the question before the Commission: whether or not to preserve a rule discredited by experience.

Section 50.44 was intended to ensure that safety functions, in particular containment integrity, are not compromised by the burning or explosion of hydrogen generated during the course of an accident. Unfortunately the existing rule is based on the assumption that only a small amount of hydrogen can be generated during an accident and therefore needs to be protected against.

Prior to the Three Mile Island accident, reaction with water of as much as one percent of the reactor fuel's zirconium cladding was regarded as extremely unlikely, even in a major loss of coolant accident. To provide what was thought to be a substantial safety margin the rule requires protection against up to five percent zirconium-water reaction. Now we know that much larger quantities of hydrogen have been generated in a lesser accident. As much as 50 percent of the zirconium cladding in the TMI-2 core is estimated, by the principal investigators of the accident, to have reacted with water, thereby releasing several hundred kilograms of hydrogen to the containment where much of it burned. Therefore the numerical assumptions of the existing rule are discredited by experience and cannot serve the objectives of the rule.

Litigation of the hydrogen control issue under Part 100, as permitted in the Commission's previous decision, <sup>1/</sup> is not equivalent to direct litigation under the hydrogen control provisions of Section 50.44. Part 100 is a siting regulation. It is intended to complement the regulations governing engineered safety features, not to substitute for these regulations which incorporate individual safety margins. Under Part 100 the licensee does not need to demonstrate

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<sup>1/</sup> Commission Order of May 16, 1980 (CLI-80-16). It should be noted that this solution is no longer supported by a majority of the Commission.

that the effects of hydrogen are protected against with a customary margin of safety. This use of Part 100 amounts to a retreat from "defense-in-depth", the guidepost of the Commission's safety doctrine.

Moreover, Chairman Ahearne and Commissioner Hendrie are, in effect, saying that even after experience has amply demonstrated the inadequacy of safety regulations covering the internal components of the reactor the burden is still on a challenger to lay out a specific accident sequence to the Commission which leads to containment failure and public radiation exposures in excess of those permitted by Part 100. It is an unreasonable burden. It amounts to saying that accidents we have not thought of cannot happen.

As theoretical studies show, and the TMI accident demonstrates, large hydrogen releases almost inevitably accompany large releases of radiation since both result from fuel cladding degradation at high temperatures. The use of Part 100 in this context would make a minimum of sense only if a large amount of hydrogen was simply postulated to be present in the containment, just as a large amount of radioactivity, roughly corresponding to the amount resulting from a core melt accident, is postulated to be present within the containment when Part 100 is used to test containment tightness.