



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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JUL 24 1980

Docket No. 50-155

The Honorable Bob Carr
United States House of
Representatives
Washington, D. C. 20515

Dear Congressman Carr:

This is in response to your note addressed to Chairman Ahearne enclosing a letter from Mr. Chuck Cox, Indamer Company Ltd., Lansing, Michigan (Enclosure 1). Mr. Cox questioned whether an article that appeared in the Lansing Star was correct in stating that the Big Rock Point Nuclear Plant is exempt from the Nuclear Regulatory Commission's safety regulations. By Order dated May 26, 1976, the Commission granted an exemption for the remaining plant lifetime from the failure criterion requirements of 10 CFR 50.46 (acceptance criteria for emergency core cooling systems for light water nuclear power reactors), and Appendix K for two specific cases at the Big Rock Point facility. The exemption was granted subject to the implementation of certain compensatory safety measures. I am enclosing a copy of the Order (Enclosure 2) which provides the bases for granting the exemption.

Currently, there are no other exemptions to the Commission's regulations that are in effect for the Big Rock Point facility. Consumers Power Company has requested a one-year delay in the implementation of certain Commission directed modifications pending the completion of an overall plant risk assessment to determine what modifications are necessary for continued operation of the Big Rock Point plant. The NRC is evaluating this request.

I hope that this letter is responsive to Mr. Cox's letter.

Sincerely,
(Signed) T. A. Rehn

William J. Dircks, Acting
Executive Director for Operations

Enclosures:

1. 5/5/80 letter from
Mr. Chuck Cox
2. Order dtd. 5/26/76

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5 May 1980

Rep. Bob Carr
Sixth District Office
Federal Building
Lansing, Michigan 48933

Dear Bob:

In reading the Lansing Star recently I ran across an article which stated that the Big Rock Point nuclear power plant is exempt from the Nuclear Regulatory Commission's safety regulations. I find this statement a bit hard to believe. Could you find out if the statement is true and if so how it came to be?

Thanks,

Chuck Cox

Big Rock CD training

The Big Rock Point nuclear power generating plant will be the focal point of a legal rally and civil disobedience planned for May 4. Big Rock, near Charlevoix, Michigan, is exempt from Nuclear Regulatory Commission safety regulations and has been rated among the most unsafe nuclear power plants in the U. S.

DO NOT REMOVE

UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 Washington, D. C.



COMMISSIONERS:

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In the Matter of
 CONSUMERS POWER COMPANY
 (Big Rock Point Nuclear
 Power Station)

Docket No. 50-155

MEMORANDUM AND ORDER

I. BACKGROUND

In our Memorandum and Order of December 31, 1975 (CLI-75-15) we granted to Consumers Power Company two limited exemptions from the ECCS acceptance criteria (10 CFR 50.46). We also requested further information from the Director of Nuclear Reactor Regulation and from Consumers Power Company concerning the possibility of granting a requested plant-life exemption from the ECCS failure criterion of 10 CFR, Part 50, 50.46 and Appendix K, Paragraph J.D.1 as applied to a loss-of-coolant accident (LOCA) caused by a break in a core spray line and a concurrent single failure of a valve in the remaining core spray system. In response to this request, the Director submitted comments on January 7, 1976

suggesting that certain additional analyses be performed and possible system modifications be considered by the applicant to enhance operating reliability. Accordingly, Consumers Power Company on February 27, 1976 submitted an extensive "Report on Evaluation of Adequacy of Emergency Core Cooling System," together with a renewed request for a plant-life exemption from the Emergency Core Cooling System (ECCS) failure criterion for the Big Rock nuclear facility.

Receipt of this request was duly noted in the Federal Register on March 15, 1976, and views and comments from the public were invited. An extension of time for comments by the Director of Nuclear Reactor Regulation and by the public was granted by order of April 5, 1976. The extended period for comment has now closed. Two comments opposing the exemption request were received from the public. The Director's comments were submitted on April 19, 1976.

The facility has been shut down for refueling and modifications since January 31, 1976. We informed the applicant on March 10, 1976 that the earlier temporary exemption granted by the Commission's Memorandum and Order of December 31, 1975 (CLI-75-15) had expired and that start-up of Big Rock Point in non-compliance with the failure criterion would not be permitted unless the Commission granted a further appropriate exemption.

The Director recommends that this exemption be granted, subject to several conditions which would have to be met prior to operation.^{1/}

1/ The Director's summarized recommendation is that prior to return to operation the applicant shall:

- a) Provide an analysis of the ECCS performance which properly demonstrates that in the event of a break in a core ring spray line, the feedwater system and the flow through the core spray nozzle will reliably provide sufficient core cooling water unless adequate spray distribution of the nozzle has been demonstrated.
- b) Enhance the reliability of the core ring spray system by augmented surveillance to provide reasonable assurance that the core ring spray system can, by itself, provide reliable and adequate core cooling for a LOCA not allowing reflooding unless adequate spray distribution of the nozzle has been demonstrated.
- c) Modify the emergency procedures to assure a second emergency diesel will be obtained and operational within 24 hours after a LOCA.
- d) Augment the surveillance of ECCS to enhance its reliability in a method acceptable to the staff.
- e) Protect the controls, indication and annunciation circuitry associated with the ECCS, including the core spray valves, as approved by the staff, against the consequences of flooding following a LOCA which affect the ability of the ECCS or plant operator to take corrective action during the course of a LOCA.

The Director would also impose additional conditions to be met before operation resumes after the 1977 refueling outage.^{2/}

The Director's recommendations are based upon an extensive review of the adequacy of the Big Rock Point ECCS initiated by the information request contained in the Commission's December 31, 1975 Memorandum and Order. The above-mentioned "Report on Evaluation of Adequacy of Emergency Core Cooling System," submitted by Consumers Power Company on February 27, 1976, reviewed ECCS performance as a whole, including both short term and long term cooling.

2/ The Director recommends in summary that prior to return to operation following the refueling outage currently scheduled for spring, 1977, the applicant shall:

- a) Modify the fire protection system such that long-term cooling can be accomplished without relying on portions of its underground piping.
- b) Provide test data showing the adequacy of the nozzle spray distribution during expected usage conditions or modify the nozzle spray system to provide adequate spray distribution.
- c) Modify the emergency diesel generator and diesel driven fire pump to bypass protective trips during accident conditions except for retention of engine overspeed and generator differential trips unless additional trips are approved by the staff.
- d) Provide complete on-line testability on the ECCS including the actuation system.

Subsequent interaction between Consumers Power Company and the Nuclear Regulatory Commission Staff refined still further the analysis of the Big Rock Point ECCS. On March 26, 1976 the applicant submitted a detailed supplement to its earlier report and responded to twenty ECCS-related questions from the staff. Also on March 26 the Director submitted comments and a request for extension of time until April 19 for filing recommendations. Pursuant to 10 CFR 2.808(b) the Secretary of the Commission granted the extension and also extended the period for public comment to April 14, 1976. No additional public comments were received.

II. Need for Exemptions

The above-described thorough review by the staff and the applicant has established that several deficiencies exist at Big Rock Point for which exemption from requirements of 10 CFR Part 50, 50.46 and Appendix K is needed if the facility is to resume operation. A rigid requirement that the facility meet the above-referenced provisions of Part 50 prior to start-up and that no alternative measures be considered would postpone significantly the date at which Big Rock Point could return to operation. (The applicant's February 27 report notes, for example, that over a year would be required for delivery of additional valves

needed to bring the facility formally into compliance with the failure criterion as applied to a break in either core spray line).

An exemption can be granted, however, only if reasonable assurance is provided that operation of the plant will meet an acceptable level of safety. We observe that a plant like Big Rock Point, which is a relatively small facility (72 MW(e)), need not necessarily comply with all the requirements applicable to a large plant in order to provide adequate assurance of public health and safety. Moreover, the NRC approach to safety -- built as it is on the defense-in-depth concept -- does not necessarily require each new safety design feature to be incorporated in every nuclear plant to provide protection for the public or that, when backfitting is called for, the timing be inflexibly fixed irrespective of special circumstances. For this reason, the ECCS acceptance regulations provide for the possibility of exemptions when an appropriately high level of safety is in fact achieved and the public interest is served.

This is not to say, however, that older plants like Big Rock Point are allowed to maintain a status quo situation. We have not hesitated to require backfitting at older plants where significant safety improvements would thereby be achieved. At Big Rock Point, for example,

extensive modifications to the ECCS were completed in 1971 (addition of a redundant core spray system) and during the present refueling outage (installation of a reactor depressurization system).^{3/} The overriding question which we must now decide regarding this exemption request is whether an acceptably high level of safety is maintainable at Big Rock Point in its present configuration, or whether further extensive backfitting must be required before the plant may operate.

As we now review in some detail, the Director's technical judgment is that the core cooling capability of the systems installed at Big Rock Point is adequate to provide reasonable assurance of public health and safety under the conditions for operation which the Director recommends. The Director's comments, insofar as they bear directly on the exemption which we now consider, analyze three problems, all relating

^{3/} The two comments opposing the present exemption stress that Big Rock Point has in the past received several exemptions from the ECCS criteria and appear to conclude that the present request represents an attempt to perpetuate a pattern of unjustified non-compliance with the Commission's regulations. These comments fail to mention that significant modifications have been made at the Big Rock Point facility and that the exemptions were in every case granted pursuant to findings of good cause and a determination that public health and safety would be reasonably assured. We do not believe it would be fair to the applicant or in the public interest to follow the rigid approach suggested by the commenters by denying the present request, without regard to its individual merit, largely on the grounds that related exemptions have been granted previously.

ultimately to the consequence of the unavailability of one or the other core spray systems. These are (1) vulnerability to a single failure disabling a core spray line, following a break in the alternate core spray line; (2) vulnerability to a single failure disabling the on-site power supply, following a loss of coolant accident, in the event off-site power is unavailable; and (3) uncertainty regarding adequacy of the nozzle spray distribution.

With respect to the request for a plant-life exemption from the failure criterion as applied to a break in either core spray line, followed by a failure of the alternate core spray system, the Director notes that in these circumstances the feedwater system (a non-ECCS component) provides adequate core cooling capacity. Accordingly, the Director finds good cause to grant a plant-life exemption when the overall program for enhancing ECCS reliability is implemented through the Director's recommended conditions.^{4/}

With respect to the on-site electric power supply, Big Rock Point has only one on-site diesel generator and does not meet the failure criterion requirement that the ECCS short term and long term cooling functions be invulnerable

^{4/} An analysis of feedwater cooling capability was submitted by Consumers Power Company on May 10, 1976 in response to the Director's recommended condition (a) (see note 1 above) and indicates that in the event of a LOCA caused by a break in the core ring spray line the feedwater system will prevent uncovering of the core.

to a single failure which disables on-site power, assuming off-site power is not available. In view of the unusually high availability of off-site power at Big Rock Point,^{5/} together with improved reliability of the on-site diesel and guaranteed availability of a back-up diesel for long term cooling pursuant to the conditions the Director would impose, the Director likewise finds good cause to exempt Big Rock Point from this requirement.

The Director's comments consider in detail the issue of adequacy of the nozzle spray distribution, a question earlier addressed by Consumers Power Company in its March 26 supplement. Pending further tests to demonstrate the adequacy of the spray distribution, the Director takes the conservative position that Consumers Power Company must provide reasonable assurance that the core ring spray system can, by itself, provide reliable and adequate core cooling in the event of a LOCA for which reflooding by means of the feed-water system does not provide adequate cooling. Failure probability calculations performed by the applicant's consultant, NUS Corporation, and attached to the March 26 supplement show that a program of more frequent valve testing

^{5/} The Director's comments note that in view of the small size of this plant compared with the system capacity, trips of the plant due to internal causes are relatively unlikely to cause a loss of off-site power.

can significantly enhance the reliability of the Big Rock Point ECCS. Thus the Director finds that augmented surveillance of the ring spray system provides sufficient assurance of safety to permit operation for a limited period, until the spring, 1977 refueling outage. Prior to start-up following this outage the adequacy of the nozzle spray distribution would have to be confirmed, or the nozzle spray system modified to provide adequate distribution.

III. Conclusions

In view of the considerations outlined in the Director's analysis we are satisfied that granting the requested exemption and thereby permitting Big Rock Point to resume operation, subject to the recommended conditions, would maintain an acceptably high level of protection to public health and safety. The economical production of electric power through operation of this plant in a manner that provides adequate protection of the public is clearly in the public interest. Replacement power would have to be provided by burning expensive fossil fuels. Therefore we find good cause to grant the exemption.

Our review of the Director's comments, however, led us to inquire concerning the procedural question whether the

March 15, 1976 Federal Register Notice of the exemption request directed to the "specific case of a break in either core spray line" is sufficiently comprehensive to encompass the exemption recommended.

Pending resolution of the uncertainty concerning the nozzle spray distribution, we must conservatively treat Big Rock Point as vulnerable to a loss-of-coolant accident from any cause followed by a concurrent single failure in the ring spray system and therefore in this respect in need of exemption from the ECCS failure criterion. At issue is the question whether notice of this exemption sufficient to meet the requirements of Section 189(a) of the Atomic Energy Act of 1954, as amended, and of the Commission's regulation (10 CFR 2.105) has been given. Accordingly, we requested the Director and Consumers Power Company to present views on the question whether the exemption from requirements of 10 CFR 50.46 which Big Rock Point needs to resume operation at the end of the current refueling outage is fairly comprised within the exemption request now pending before the Commission.

The responses of the Director and of the applicant, respectively dated May 17 and May 18, 1976, and our own further analysis persuade us that the March 15 published notice was sufficiently comprehensive. Both the Director

and applicant point to the fact that the components whose reliability is under review in the context of a break in a core spray line are exactly the same components involved in the response of the ECCS to a LOCA caused by a break in some other location. The first public notice that reliability of valving in the Big Rock Point ECCS was at issue appeared August 26, 1975 in the Federal Register notice of receipt of the original plant-life exemption request, treated by our December 31, 1975 Memorandum and Order. On March 15, 1976 expanded notice was given that the reliability of core spray components was at issue in this exemption proceeding.

This notice made clear that the deficiency at Big Rock Point for which exemption was requested is the circumstance that either core spray line may be disabled by a single failure in certain components. Thus, the March 15 Federal Register Notice apprised interested members of the public that the Commission was considering an exemption of the nature and scope of the exemption now recommended by the Director. The introduction of the nozzle spray distribution question did not change the central focus of the inquiry, namely, the reliability of a core spray system to provide needed core cooling when the alternate system is postulated

to be unavailable.

We believe, moreover, that the public received adequate notice that the specific question of nozzle spray distribution adequacy was under consideration in the exemption proceeding. The nozzle spray adequacy question is addressed in the record in the applicant's supplemental submission of March 26, 1976, following which, we note, the Secretary of the Commission granted an extension of the period for public comment. We note, moreover, that actual notice (as contrasted with constructive notice through Federal Register publication) was afforded to those members of the public who had expressed interest in this matter and in the present licensing status of the Big Rock facility. Both the March 26 supplement and the Director's April 19 comments, which considered the nozzle spray question more fully, were served on the two public commenters who opposed the exemption. These documents were also served on the participants in a license amendment proceeding involving Big Rock Point but otherwise unrelated to the exemption request. In view of this direct notice to all parties who have shown interest in the facility as well as to those who have commented in this exemption proceeding, a third, and unrequired, round of

notice in the Federal Register is of dubious practical value.

Finally, because the Director's recommended conditions would enhance the reliability of the existing ECCS and particularly of the core ring spray, no additional safety question is raised when the cause of the postulated LOCA is extended to breaks other than in the core spray line, since the core ring spray is adequate by itself to provide the necessary core cooling following any LOCA up to and including that caused by the double-ended rupture of the largest pipe in the reactor coolant system.

In summary, based on the detailed recommendations in the Director's comments and pursuant to 10 CFR 50.46(a)(2)(vi) we find that good cause has been shown to grant the following exemption from the requirements of 10 CFR 50.46:

a) Consumers Power Company is granted a plant-life exemption, subject to the conditions in paragraph (d) below for the Big Rock Point facility from the failure criterion requirements imposed by 10 CFR Part 50, 50.46 and Appendix K, Paragraph I.D.1, insofar as applied to the specific case of a loss of reactor coolant caused by a break in either core spray system.

b) Consumers Power Company, Big Rock Point facility, is granted an exemption subject to the conditions in paragraph (d) only until the refueling outage currently scheduled

for spring, 1977, from the failure criterion requirements imposed by 10 CFR Part 50, 50.46 and Appendix K, Paragraph I.D.1 as applied to a loss of coolant accident followed by a concurrent single failure in the ring spray system.

c) Consumers Power Company, Big Rock Point facility, is granted a plant-life exemption subject to the conditions in paragraph (d) from requirements in 10 CFR 50.46 that long term recirculation mode cooling be maintainable, despite the failure of the on-site diesel generator, in the absence of off-site power.

d) The stated exemption is granted subject to the following conditions, which must be met to the satisfaction of the Director of Nuclear Reactor Regulations:

(1) Prior to further operation of Big Rock Point, Consumers Power Company shall:

- (i) Provide evidence satisfactorily demonstrating adequate spray distribution of the nozzle, or
- (ii) Provide an analysis of the ECCS performance which properly demonstrates that in the event of a break in the core ring spray line, the feedwater system and the flow through the

core spray nozzle will reliably provide sufficient core cooling water; and enhance the reliability of the core ring spray system by augmented surveillance of the valves and valve actuating circuits, or by other modifications or procedural changes which provide reasonable assurance that the core ring spray system can, by itself, provide reliable and adequate core cooling for a LOCA at a location where reflooding does not provide such cooling.

(2) Prior to further operation of Big Rock Point, Consumers Power Company shall:

- (i) Modify the emergency procedures to assure that a second emergency diesel will be obtained and can be made fully operational within 24 hours after a LOCA.
- (ii) Augment the surveillance of ECCS availability, including the ECCS actuation system, to enhance its reliability;
- (iii) Protect the controls, indication and annunciation circuitry associated with the ECCS, including the core spray valves, against the

consequences of flooding following a LOCA which affects the ability of the ECCS or plant operator to take corrective action during the course of a LOCA.

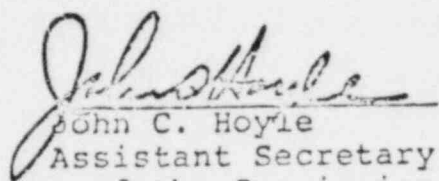
(3) Prior to return to operation following the refueling outage currently scheduled for Spring 1977, Consumers Power Company shall:

- (i) Modify the fire protection system such that long term cooling can be accomplished without relying on portions of its underground piping.
- (ii) Provide test data showing the adequacy of the nozzle spray system to provide adequate spray distribution during expected usage conditions or modify the nozzle spray system to provide adequate spray distribution.
- (iii) Modify the emergency diesel generator and diesel driven fire pump to bypass protective trips during accident conditions except for retention of engine overspeed and generator differential trips, unless additional trips are approved by the Director.

- (iv) Provide complete on-line testability at the ECCS, including the actuation system.

It is so ORDERED.

By the Commission.


John C. Hoyle
Assistant Secretary
of the Commission

Dated at Washington, D. C.
this 26th day of May, 1976

DISSENTING OPINION OF COMMISSIONER GILIN



I am satisfied that granting the pending exemption request for the Big Rock Point nuclear reactor, subject to the conditions recommended by the staff, is consistent with our responsibility to protect the public health and safety. The requirements of the law do not stop there, however. Where a "significant hazards consideration" within the meaning of section 189 of the Atomic Energy Act is involved, as there is in this case, the Commission can issue an amendment to an operating license, in the absence of a request for a hearing, only after a thirty days notice period following publication in the Federal Register of its intent to do so. The relevant notice here is the one published in the Federal Register on March 15, 1976 which proposed exemptions from the failure criterion of 10 CFR 50.46 as it relates to "the specific case of a break in either core spray line." 41 Fed. Reg. 10969. One of the exemptions we now propose to grant relates not to a break in a core spray line -- a small pipe whose rupture would lead to a slow loss of coolant -- but to a possible break in a large pipe whose rupture could lead to rapid loss of coolant. In this case, given an assumed nozzle spray deficiency, emergency cooling is vulnerable to any single failure which disables the core ring spray, for example failure of a core ring spray valve to open. The nozzle spray problem was not referred to until the applicant's March 26, supplement and was not recognized as a serious problem until the staff's April 19, 1976 comments. To provide reliable emergency core cooling in

the event of large breaks,^{1/} the staff has insisted upon a new remedy: augmented surveillance of the core ring spray valves. I am satisfied that this remedy will adequately protect the public during the period of the proposed temporary exemption. It is also plain to me, however, that these new matters are not covered by the Federal Register Notice described above, and that the requirements of the law concerning public notice have not yet been met. I therefore cannot join my colleagues in the grant of this exemption until the public notice requirement has been satisfied.

^{1/} The staff refers to these as "breaks at locations for which reflooding of the core is not possible", Staff Comments p. 13.