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Draft January 8, 2003
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MEMORANDUM TO: Hubert T. Bell
Inspector General

From: Richard A. Meserve
Chairman

Subject: Report on NRC's Regulation of Davis-Besse Regarding Damage to Vessel Head
~~Event Inquiry into NRC Regulation of Davis-Besse~~ (Case No. 02-03S)

I am responding on behalf of the Commission to your report of December 30, 2002, regarding the staff's decision to allow a slight delay in the shutdown of the Davis-Besse reactor in connection with the investigation of possible cracks in the Control Rod Drive Mechanism (CRDM) nozzles in the reactor pressure vessel head. The report includes five specific findings with regard to the staff's action. I conclude that one of these findings is correct in part, but that the others are unjustified, ~~unfair,~~ and misleading. could be unsubstantiated

There are several significant failings in the report. First, and perhaps most important, the report incorrectly indicates that the decision to allow the brief period of continued operation was driven in large part by the interest in reducing the financial impact on the licensee. ~~Report, 23.~~ Assuring the public health and safety is the highest priority of the NRC. ~~In this case, the~~ and we believe we have fulfilled this responsibility underlying inspections of reactor pressure vessel heads at all pressurized water reactors were undertaken as a result of staff safety concerns about circumferential nozzle cracking. And, as your report has found, the NRC staff allowed the Davis-Besse reactor to continue to operate only after the relevant expert staff reached unanimous agreement that there was no significant safety concern relating to nozzle cracks that would preclude the brief period of extended operation. ~~Report, 19.~~ It is a significant failing that the report does not acknowledge this fact in its findings.

Second, the findings are deficient by failing to represent accurately the context for the staff's action. The findings seem to be premised on the notion that December 31 -- the target date for completion of inspections -- was an inflexible deadline. It is correct, as the report states, that this date was articulated in Bulletin 2001-01. ~~Report, 8.~~ But the findings fail to acknowledge that the Bulletin provided that, if licensees at highly susceptible plants (like Davis-Besse) did not intend to perform inspections by that date, those licensees should provide their basis for concluding that the regulatory requirements discussed in the Bulletin would continue to be met until the inspections were performed. ~~Bulletin 2001-01, 8.~~ The licensee for Davis-Besse provided information that, in conjunction with the independent analysis conducted by the staff, was seen to justify ~~an alternative~~ slightly delayed, inspection. We note that your inquiry does not challenge the staff's assessment of this information. In any event, the staff's action in this case was ~~fully~~ consistent with the Bulletin.

Third, the report fails to acknowledge that the technical judgment of the staff concerning the extent of axial and circumferential cracking of the CRDM nozzles was correct. Specifically, the size and type of cracking in the CRDM nozzles that were found during the plant inspections were within the range predicted by the staff and none posed an immediate safety hazard. The inspection served to validate the staff's conclusion that the likelihood of a CRDM nozzle ejection due to circumferential cracking during the brief period of operation from December 31, 2001, to

p. 1/3

February 16, 2002, was acceptably small. It is unfortunate that the report fails even to mention this significant fact.

Fourth, the report's shortcomings are particularly unfortunate because it should have been anticipated that the report could be misconstrued to suggest staff acceptance of the unexpected head corrosion at the Davis-Besse plant. Indeed, this has already happened in the case of the New York Times. As you know, the NRC has itself been highly self-critical in connection with the programmatic deficiencies in connection with the head-corrosion event. The NRC has prepared an extensive lessons-learned report to examine that matter and to ensure that all issues relating to the head-corrosion matter are forthrightly addressed and corrected.[1] ~~But, in my view,~~ ~~it is unfair to~~ criticize the staff for its decision to allow a brief period of extended operation before inspection of the nozzles because of the subsequently discovered head corrosion. The staff did not know about the head corrosion at the time of its decision and, quite frankly, it is Monday-morning quarterbacking to question the decision in the false light of subsequent knowledge.

Finally, the report makes much of the fact that the staff prepared a draft shutdown order for Davis-Besse. At various points, the report cites the draft order as if it reflected the staff's final analysis. ~~Report, 18, 19, 24.~~ In fact, during the relevant period, the staff maintained a continuing dialog with senior NRC officials, the Commissioners and their staff, on all aspects of the situation in connection with the Davis-Besse plant. As stated in the November 21, 2001 transmittal memorandum that forwarded the draft shutdown order, and as was made clear in discussions with myself and my colleagues on the Commission, the staff was continuing to engage the licensee in discussions and was open to reviewing new and relevant information that might justify operation beyond December 31, just as the Bulletin 2001-01 contemplated. In short, the staff was preparing an order in the event that one was required. Although the licensee initially planned operation until March 31, 2002, it ultimately agreed to shut down by February 16, subject to certain compensatory measures. ~~The staff's acceptance of this proposal was fully consistent with the Bulletin and~~ made the issuance of the order unnecessary. It is unfair to cite the staff's prudent efforts to prepare for a situation that did not occur as evidence that the staff's actions were somehow improper.

In sum, ~~I~~ believe that the report is seriously inaccurate and misleading. You have done a significant disservice by your release of such an unfair analysis. ~~My~~ response to the five specific findings is provided in the attachment.

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[1] Degradation of the Davis-Besse Nuclear Power Station Reactor Pressure Vessel Head Lessons-Learned Report, Final Report (Sep 30, 2002).

RESPONSE TO OIG FINDINGS
EVENT INQUIRY INTO NRC'S REGULATION OF DAVIS-BESSE
(CASE NO. 02-03S)

OIG Finding 1.

> During its review of the potential hazardous condition at Davis-Besse, the NRC staff considered the financial impact to the licensee of an unscheduled plant shutdown. This is in keeping with one of NRC's performance goals — established to support agency strategic goals — which is the reduction of unnecessary regulatory burden on licensees. However, the goal of NRC Bulletin 2001-01 was, in the interest of public health and safety, to have plants that were identified as being highly susceptible to vessel head penetration nozzle cracking perform inspections by December 31, 2001, to confirm the structural integrity of the nozzles with the intent to avoid a possible control rod drive mechanism nozzle ejection and possible loss-of-coolant accident. The fact that FENOC sought and staff allowed Davis-Besse to operate past December 31, 2001, without performing these inspections was driven in large part by a desire to lessen the financial impact on FENOC that would result from an early shutdown. Consequently, while the decision by the staff to allow Davis-Besse to continue to operate was in keeping with the NRC performance goal to reduce unnecessary regulatory burden, it was contrary to the goal of NRC Bulletin 2001-01 to have at-risk plants conduct timely inspections to ensure NRC regulatory requirements related to reactor coolant leakage were met.

Response to Finding 1.

This finding is incorrect. The NRC's primary obligation is to ensure adequate protection of the public health and safety. Only if this goal is satisfied is there consideration of other goals, such as the goal to avoid undue regulatory burden.

The finding states that the NRC staff's decision to allow operation through February 16th was driven in large part by economic concerns. But this is not correct. The report elsewhere acknowledges that "NRR staff reached unanimous agreement . . . that there was no significant safety concern that would preclude continued operation until [February 16]." Report, 13 (emphasis added). Guided by the conclusion that safety was not compromised, the staff agreed to allow continued operation. The implication in the finding that there was a clash of conflicting goals and that safety was subordinated to economic considerations is wrong.

Moreover, the assertion that the staff's action was inconsistent with Bulletin 2001-01 is also incorrect. The Bulletin specifically contemplated that the licensee might seek to justify the postponement of the inspection past December 31. Bulletin 2001-01, 8. The licensee provided exactly that justification here. And your report does not challenge the adequacy of the staff's assessment of the licensee information.

OIG Finding 2.

> NRC Bulletin 2001-01, dated August 3, 2001, advised that inspections by December 31, 2001, would be an appropriate way to handle plants identified as having experienced or being highly susceptible to vessel head penetration

nozzle cracking. This date was not rooted in scientific analysis but was viewed by the staff as practical in that it would allow a 5-month window for plants to either perform the inspections during already-scheduled outages or to plan for and conduct an unscheduled outage. However, when questioned about the importance of that particular date, NRC staff were called to justify why December 31, 2001, was any more safety significant than any other date, e.g., January 1, 2002. As a result, NRR staff found themselves unsuccessfully trying to defend the December 31, 2001, date even though the NRR Director stated that adequate protection of the public health and safety could not be assured without performing the inspections at Davis-Besse.

Response to Finding 2.

This finding is misleading. The finding criticizes the staff for addressing the issue that was presented to it. The issue was not whether inspections would be performed at Davis-Besse; by order or by agreement, the inspections were going to be performed. Rather, the issue was whether December 31 should be required as a deadline or whether some later date would be acceptable. Although the finding fails to acknowledge the fact, Bulletin 2001-01 contemplated that licensees might provide a safety justification for operation beyond December 31, 2001. In this case, the licensee provided such a safety justification and the expert staff reached a unanimous agreement that there was no significant safety concern that would preclude continued operation until February 16. The staff should not be criticized for exercising reasonable judgment consistent with the Bulletin – judgment that subsequent inspection showed to be correct.

of CRDM Nozzles

OIG Finding 3.

NRC appears to have informally established an unreasonably high burden of requiring absolute proof of a safety problem, versus lack of reasonable assurance of maintaining public health and safety, before it will act to shut down a power plant. The staff articulated this standard to OIG as a rationale for allowing Davis-Besse to operate until February 16, 2002, even in light of information that strongly indicated Davis-Besse was not in compliance with NRC regulations and plant technical specifications and may have operated with reduced safety margins.

Response to Finding 3.

The report does not provide a basis for this finding and, in any event, the finding is incorrect.

The NRC staff's actions in issuing Bulletin 2001-01, in crafting the draft order, and in considering the licensee's safety arguments for operation beyond December 31, 2001, were clearly and appropriately focused on maintaining reasonable assurance of public health and safety. The issuance of an order on this basis does not require absolute proof.

The finding may be the result of OIG confusion about the basis for the order. The staff acknowledges it could not construct the shutdown order based on a violation of technical specifications unless a violation were established -- here, known leakage from the primary

reactor coolant system boundary. But this was not the basis on which the staff contemplated proceeding.

In any event, the possibility that CRDM cracking was present should not be confused with the conclusion that Davis-Besse was unsafe to operate for an additional short period. Although no CRDM cracking was known to exist, the staff's safety evaluation considered the potential for circumferential nozzle cracking and concluded that the likelihood of an accident due to CRDM nozzle ejection during the period of operation from December 31, 2001, to February 16, 2002, was acceptably small, assuming predicted types and sizes of CRDM cracking. These predictions were determined to be correct, as shown by the inspections conducted during the shutdown of Davis Besse in early 2002.

OIG Finding 4.

> On November 21, 2001, the NRR Director forwarded a draft shutdown order for Davis-Besse through the EDO to the NRC Commission for its information. However, contrary to the strong justification presented in the order, the NRR Director told OIG he never intended to actually issue the order because he lacked a regulatory basis. OIG learned that the order was concurred in by all cognizant NRC staff to include the EDO and the Office of General Counsel, and OIG learned of no concerns by the staff that the NRC lacked a basis to issue the order.

Response to Finding 4.

I am informed that no senior member of the staff recalls that the NRR Director raised the doubts that are attributed to him. In fact, all of the relevant senior agency management (as well as the Commission) understood that, if the licensee could not justify an alternate inspection date, a regulatory foundation for ordering the plant to shutdown clearly existed. I have no doubt that the order would have been issued if the licensee had not provided sufficient safety justification for an alternate inspection date.

OIG Finding 5.

> NRC staff developed a well-documented technical basis for preparing an order to shut down Davis-Besse, and on November 21, 2001, the EDO informed the NRC Commission of the intent of the NRR Director to shut down the plant on or before December 31, 2001. However, contrary to the strong justification presented in the order, the NRR Director did not force a shutdown. Instead, on November 29, 2001, the NRR Director concluded that FENOC could safely operate Davis-Besse until February 16, 2002, provided the licensee implemented several compensatory measures it had developed. OIG found that, in reaching this decision in November 2001, NRR lacked a full understanding of those compensatory measures, and the NRR staff did not document its analytical bases and conclusions that supported its decision.

Response to Finding 5.

I agree with this finding, but only in part.

I agree that the staff should have documented the basis for the decision at an earlier stage and should have assured that there was mutual, detailed understanding of the compensatory measures. I have directed the Executive Director for Operations to ensure that actions are taken to ensure that these oversights do not occur again.

Nonetheless, the finding is misleading in various respects. First, as noted above, the finding fails to recognize that Bulletin 2001-01 provided that an alternate inspection schedule would be considered by the staff if an adequate safety rationale could be provided. At every stage, the order was understood to reflect an action that would be taken if an adequate rationale for an alternative date was not provided. Second, the finding is misleading because the staff did publish the details of its safety evaluation and did document the basis on which the staff accepted an alternative inspection schedule (albeit belatedly).[2] The finding thus conflicts with the facts, as acknowledged elsewhere in the report. Report, 14-15. Third, while there was an initial misunderstanding with regard to one of the compensatory measures proposed by the licensee (the use of an additional dedicated control room operator), this issue was quickly resolved. I understand that this misunderstanding did not affect either the assumptions or the conclusions arising from the staff's risk assessment concerning extended operation.

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[2] Memorandum to J. A. Zwolinski from R.J. Barrett and G. M. Holahan (Nov 5, 2002).