Action To: Schoenfeld, OEDO
Due: 3/30/01
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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March 2, 2001

MEMORANDUM TO: William D. Travers
Executive Director for Operations

FROM: Nilesh C. Chokshi, Chief
Materials Engineering Branch
Division of Engineering Technology
Office of Nuclear Regulatory Research

SUBJECT: DPO CONCERNING THE STARTUP OF D.C. COOK, UNITS 1 AND 2

In a memorandum dated December 4, 2000, Dr. Ross B. Landsman of the Decommissioning Branch, Division of Nuclear Materials Safety, Region III, expressed his differing professional opinion (DPO) regarding two issues associated with the startup of D.C. Cook, Unit 2. He identified two issues as: (1) "Agency policy with respect to not following our own guidance in GL91-18;" and (2) "Continuing to allow the licensee to use assumptions in their analysis with which the staff does not agree." By your memorandum dated December 15, 2000, you appointed Mr. K. Steven West, NRR, and myself as Chairman to an ad hoc panel to review Dr. Landsman's DPO. Mr. James A. Gavula, Region III, was appointed as the third member of the panel from a list of individuals provided by Dr. Landsman.

The DPO Panel reviewed a collection of documents complied by the previous Differing Profession View (DPV) Panel on the same issues, and a number of additional documents identified and obtained through personal interviews. The panel conducted personal interviews with Dr. Landsman and several managers and staff members in NRR and Region III on technical and process issues. The panel, as an observer, also attended a meeting between the NRC and the licensee representatives at the D.C. Cook site to get a better understanding of the licensee's activities related to the DPO issues.

The DPO Panel has completed its review and the report is attached.

Attachment: As stated

cc w/attachment:
W. Kane, DEDO
J. Dyer, RA, Region III

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REPORT OF THE

AD HOC DIFFERING PROFESSIONAL OPINION REVIEW PANEL

FOR THE

DIFFERING PROFESSIONAL OPINION CONCERNING THE

STARTUP OF D.C. COOK, UNITS 1 AND 2

Nilesh C. Chokshi, Chairman — Date: 3/2/01

K. Steven West — Date: 03/02/2001

James A. Gavula — Date: 3/2/01

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REPORT OF THE AD HOC DPO REVIEW PANEL FOR THE DIFFERING PROFESSIONAL OPINION CONCERNING THE STARTUP OF D.C. COOK, UNITS 1 AND 2

1 BACKGROUND

1.1 Shutdown and Restart of Donald C. Cook Nuclear Power Plant

On September 9, 1997, American Electric Power (AEP, the licensee) shut down Donald C. Cook Nuclear Power Plant (D.C. Cook), Units 1 and 2, after it declared the emergency core cooling systems inoperable. On September 19, 1997, NRC issued a Confirmatory Action Letter (CAL) describing the licensee's commitments to take appropriate corrective actions and to assess the operability of other safety-related systems. On March 7, 1998, the licensee developed a restart plan which outlined the system readiness reviews, programmatic assessments, and functional area reviews that it needed to complete to address the CAL and other issues to ensure safe plant startup and operation. In April 1998, the NRC initiated focused and coordinated regulatory oversight of D.C. Cook. NRC Region III and the Office of Nuclear Reactor Regulation (NRR) established an oversight panel for D.C. Cook in accordance with NRC Inspection Manual Chapter (MC) 0350, "Staff Guidelines for Restart Approval" (Ref. 1). Later, on July 30, 1998, the NRC issued a case specific checklist that defined the actions and issues that needed to be considered by the NRC in determining whether D.C. Cook implemented the corrective actions necessary for the plant to restart. In support of plant restart, the staff completed a number of inspections and assessments and conducted frequent meetings with the licensee.

The Region III administrator documented the completion of NRC actions necessary prior to restart of D.C. Cook, Unit 2, in a letter to the licensee of June 13, 2000 (Ref. 2). The administrator informed the licensee that the NRC had no further concerns regarding restart of D.C. Cook, Unit 2, and that the MC 0350 restart checklist for Unit 2, was closed. The regional administrator also stated that the licensee's performance improvement initiatives had been sufficiently effective to support restart of Unit 2 and informed the licensee that the MC 0350 oversight panel would continue to provide oversight of D.C. Cook through restart of Unit 1 and until sufficient operating experience has accumulated such that augmented NRC oversight was no longer needed and NRC oversight could occur under the routine inspection program.

The licensee restarted Unit 2 on June 22, 2000, and Unit 1 on December 22, 2000.

1.2 Degraded CEQ Fan Room Concrete Walls

An issue included in the restart checklist concerned the operability of degraded CEQ fan room walls inside containment (Restart Action Matrix (RAM) Item R.2.13.3)[1]. In summary, the

[1]The RAM reviewed by the DPO panel was included as an enclosure to a letter from J.E. Dyer, Region III, to R.P. Powers, AEP, dated June 13, 2000 (Ref. 3).

licensee found that segments of concrete and some reinforcing bars had been removed during initial construction from subcompartment walls inside containment. The walls form part of the boundary between upper and lower containment which is designed to force the steam blowdown during a loss of coolant accident or a main steam line break through the ice condenser to reduce containment pressure buildup. The missing concrete and reinforcing bars could affect the ability of the containment to perform its intended safety function. On the basis of its evaluations, the licensee concluded that the walls were degraded but capable of fulfilling there safety function and, therefore, were operable. The NRC staff review and disposition of this issue are summarized in Section 1.3 of this report.

1.3 Differing Professional View

On June 6, 2000 (Ref. 4), Ross B. Landsman, Region III (the submitter), who was involved in the inspection and review of restart issues, submitted to the Region III administrator a differing professional view (DPV) concerning issues related to (1) the operability of the CEQ fan room walls inside containment (RAM Item R.2.13.3) and (2) the use of Generic Letter (GL) 91-18, Revision 1, "Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions," dated October 8, 1997 (Ref. 5), to establish the operability of the walls in support of unit restart.

The DPV was submitted before the MC 0350 restart panel had completed its review of the operability of the degraded CEQ fan room walls. At the suggestion of the regional administrator (after consultation with the Office of Human Resources), the submitter agreed to hold his DPV in abeyance until the panel completed its review and he could review the panel's conclusions (Ref. 6). In a memorandum of June 7, 2000 (Ref. 7), the regional administrator directed the MC 0350 panel to address the concerns raised in the DPV in its review of the restart issue.

Staff of NRR and Region III had met with the licensee on June 1, 2000, to discuss the issues associated with the subcompartment walls in the Unit 2 containment. The submitter participated in this meeting. As documented in the meeting summary of June 12, 2000 (Ref. 8), the staff concluded that the analysis performed by the licensee demonstrated that the walls in question were operable with some amount of margin. On the basis of information obtained during the meeting, NRR also responded to the regional administrator's request that the MC 0350 restart panel address the issues raised in the DPV[2]. On the basis of its review of the DPV issues, which is documented in a memorandum of June 12, 2000, from S. Singh Bajwa, NRR, to John A. Grobe, Region III (Ref. 9), the panel concluded, in part, that the licensee's evaluation had "adequately shown that the wall, although considered degraded based on the current pressure response analyses, is capable of fulfilling its safety function and is considered operable consistent with the provisions of Part 9900, 'Technical Guidance' of the NRC Inspection Manual and Generic Letter (GL) 91-18, Revision 1."

[2]Given the technical and policy questions associated with the subject issues, the MC 0350 restart panel agreed that NRR would prepare and provide the panel's response (Ref. 9).

After reviewing the panel's responses to the containment wall issues, the submitter requested that his DPV of June 6, 2000 (Ref. 4), go forward as written (Ref. 10). On June 23, 2000, in response to the submitter's request, Region III formed an ad hoc DPV review panel in accordance with NRC Management Directive (MD) 10.159 (Ref. 11). Overall, on the basis of its review, as documented in a memorandum of August 11, 2000, from G.E. Grant, Region III, to J.E. Dyer, Region III (Ref. 12), the ad hoc DPV panel concurred with the results of the MC 0350 panel's review of the containment wall issues as documented in the memorandum of June 12, 2000 (Ref. 9), concluding that the actions taken by the NRC staff were appropriate from both technical and process perspectives. The ad hoc DPV panel recommended that the MC 0350 restart panel address with the licensee the issue of the need for a definitive time frame for final corrective actions.

In a memorandum of August 17, 2000 (Ref. 13), the Region III administrator provided to the submitter the ad hoc DPV review panel's report. In his memorandum, the regional administrator informed the submitter that he agreed with the panel's rationale, conclusions, and recommendation. In response to the panel's recommendation, the MC 0350 restart panel and Region III have addressed with the licensee the time frame for final corrective actions. (This issue is addressed further in Section 3.2 of this report.)

1.4 Differing Professional Opinion

In a memorandum to the Executive Director of Operations (EDO) dated December 4, 2000 (Ref. 14), the submitter submitted a differing professional opinion (DPO). In his DPO, the submitter stated that he disagreed with the disposition of his DPV and indicated that two of his issues were not resolved. The first issue concerned agency policy with respect to the use of GL 91-18, Rev. 1. The second issue concerned the licensee's use of certain assumptions in its technical analysis of the degraded CEQ fan room walls. By memorandum of December 15, 2000 (Ref. 15), the EDO established a DPO review panel to review the issues raised in the submitter's DPO. The panel members were Nilesh C. Chokshi, Chairman (Office of Nuclear Regulatory Research (RES)), K. Steven West (NRR), and James A. Gavula (Region III). Mr. Gavula was selected from a list of individuals provided by the submitter to the panel chairman.

In support of its review, the DPO review panel reviewed the references discussed in this report and listed in Section 5, "References." The panel met a number of times, including meetings at NRC Headquarters, the Region III offices, and the D.C. Cook plant site. On February 15, 2001, the panel attended and observed a meeting at the D.C. Cook plant site between the licensee and Region III and NRR to discuss the licensee's corrective action plans and schedule for the degraded containment walls. The panel held several phone calls with the submitter and met with the submitter in Region III to obtain additional background information and his perspectives on the issues he raised in his DPV and DPO. The panel also met with the NRR and Region III staff and managers listed in the appendix to obtain additional background information and their perspectives regarding the technical and policy issues, the design and licensing bases of the containment structures, the processes that were followed by the licensee and the staff to address the operability of the degraded containment walls prior to Unit 2 restart, the process that was followed by the staff to address the issues raised in the

DPV, and the processes and steps currently being taken by Region III and NRR to follow up on the licensee's corrective action plan and to achieve final resolution of the issues. The panel also met with two Region III reactor inspectors who were not involved in the containment wall issue to discuss their experiences and perspectives on the use of GL 91-18 to establish the operability of degraded or nonconforming structures, systems, and components.

The details of the policy and technical issues raised by the submitter, the results of the panel's reviews of the issues, the panel's conclusions, and the panel's recommendations are provided below.

2 DPO TECHNICAL ISSUES

2.1 Acceptability of Licensee's Analysis of CEQ Fan Room Walls

2.1.1 Issue

As previously mentioned, given the technical and policy questions, NRR prepared and provided the D.C. Cook, Unit 2, MC 0350 restart panel's response to the CEQ fan room concrete wall issues (Ref. 9). On the basis of its review (Ref. 9), the NRR staff concluded, in part, that the licensee's evaluation had "adequately shown that the wall, although considered degraded based on the current pressure response analyses, is capable of fulfilling its safety function and is considered operable consistent with the provisions of Part 9900, 'Technical Guidance' of the NRC Inspection Manual and Generic Letter (GL) 91-18, Revision 1." In his DPV, the submitter asserted that the licensee's operability evaluation was "very nonconservative" for a number of reasons. In its response to the DPV, the ad hoc DPV review panel reviewed the submitter's concerns. Overall, the DPV panel concurred with the staff positions presented in the memorandum of June 12, 2000 (Ref. 9). The panel did not make any recommendations in this area.

In his DPO (Ref. 14), the submitter stated that it is his "professional opinion that the licensee's analysis [of the CEQ fan room walls] was severely flawed and the NRC should immediately inform the licensee that its analysis is not acceptable. Proper consideration of concrete strength, dynamic load factors in concert with dynamic increase factors, use of yield line theory (which is only used in plate theory), and earthquake loads will demonstrate that their refined analysis does not meet design."

During a meeting of February 14, 2001, with the DPO review panel, the submitter stated that he agreed that the load factor of 1.04, which the staff had calculated and accepted in its assessment of the licensee's operability determination (Ref. 9), is correct. However, he did not agree that the load factor of 1.04 was sufficiently conservative to declare the containment subcompartment walls operable. The submitter also informed the panel that he was concerned that the staff's principal technical justification for accepting the load factor, and therefore the operability determination, appeared to be the inherent conservatisms in the licensee's transient mass distribution (TMD) analysis. For these reasons, the submitter informed the panel that he did not agree with the staff's position that the subject walls are operable. During the meeting, the submitter also emphasized his concerns that the staff has

not informed the licensee of its specific concerns with its operability evaluation for Unit 2, and that the licensee was using in its ongoing evaluations of the Unit 1 containment some of the data and methods that the staff had not accepted for Unit 2.

2.1.2 Review

As previously mentioned, on June 1, 2000, the staff of NRR and Region III met with the licensee to discuss the licensee's operability determination evaluation (ODE) for the Unit 2 containment subcompartment walls. From its interviews, the DPO review panel learned that during the meeting the staff had informed the licensee that it had not adequately justified certain data (e.g., concrete strength) or the use of certain methods (e.g., the use of dynamic increase factor). Therefore, they were not accepted by the staff. Consequently, the staff recalculated the limiting loading combination. While this resulted in a reduction in the margin calculated and presented by the licensee, the licensee's operability criterion (wall capacity > 1.0 applied to the pressure load due to a main steam line break)[3] was still exceeded. In its meeting summary, which was documented in a letter of June 12, 2000, to the licensee (Ref. 8), the staff informed the licensee that while it "did not fully agree in the total amount of margin each wall demonstrated, the NRC staff did agree that the analysis performed by your staff demonstrated that each wall in question was operable with some amount of margin."

After the meeting with the licensee, the staff also documented its assessment of the licensee's ODE. In its assessment, as documented for RAM Item R.3.17 (Ref. 16), the staff stated that the licensee "has demonstrated that for operability evaluation of Unit 2 containment structures a load factor of 1.0 on the pressure loading was exceeded. The staff considers this evaluation reasonable and a load factor of 1.0 an acceptable threshold for operability due to the inherent conservatisms in the TMD analysis." In its assessment the staff also addressed areas of agreement and disagreement with the licensee's ODE. For example, the staff considered the licensee's actions "to account for the degraded condition of the walls reasonable and conservative." Conversely, the staff noted that "considering the almost static response of the structure to the applied differential pressure load, the use of DIF [dynamic increase factor], in this case, was not adequately justified by the licensee and therefore was not accepted by the staff."

During its interviews with the technical staff that had reviewed the licensee's ODE, the DPO panel explored the credit given for the inherent conservatisms in the TMD analysis. There are a number of such conservatisms that apply to D.C. Cook. Examples of the more significant factors include conservatisms in the mass and energy release model, the homogeneous equilibrium models, and the assumption of 100 percent entrainment. Other factors, although less significant, include the fact that heat loss to the volume boundaries and the internal

[3]The submitter informed the DPO panel of a discrepancy between the acceptance criteria specified in the licensee's calculation (SD-000510-003, page 17) (1.2 applied to the pressure load) and the acceptance criteria that the licensee presented to the staff at the June 1, 2000, meeting (>1.0 applied to the pressure load). However, because the staff knew that the licensee used the acceptance criteria of >1.0 applied to the pressure load, and accepted this value, the panel did not see any reason to pursue this discrepancy further as part of its review of the DPO issues.

structure are not included in the analysis and the compression of air is ignored. On the basis of its review, the panel concluded that it was reasonable and appropriate for the staff to rely on the conservatisms in the TMD analysis in its assessment of the licensee's ODE. The panel noted that one of the principal staff reviewers indicated during an interview that the staff's primary technical basis for acceptance could have been an ODE which demonstrated a load factor greater than 1.0 without relying on the inherent conservatisms in the TMD analysis.

As previously noted, the staff had discussed with the licensee its specific concerns with the licensee's ODE during the meeting of June 1, 2000. In addition, the staff had documented the areas of disagreement in its assessment of the licensee's operability determination (Ref.16). However, the meeting summary sent to the licensee (Ref. 8), it did not delineate the staff's specific concerns, and although the staff's assessment of the licensee's operability determination (Ref. 16) was publically available, it was not sent to the licensee. When question by the DPO panel, regional and NRR staff responded that there was no requirement to do so, and that the discussion during the meeting with the licensee was sufficient. During the meeting of February 15, 2001, between the staff and the licensee, which the panel observed, the licensee stated that it had retrieved from ADAMS the publically available NRC documents regarding the containment issues, and that it would consider the staff's views as it develops and implements its corrective actions for both Units 1 and 2. The panel noted that the licensee used some of the same data and methods for its Unit 1 assessments that the staff had not accepted for Unit 2 (Ref. 17 and Ref. 18). This includes, for example, concrete strength and the use of yield line methods.

Overall, on the basis of the documentation it reviewed and the additional information and perspectives it obtained from its meetings with the staff and managers involved in this issue, it is the panel's judgement that the staff followed the appropriate processes to assess the operability of the subject walls. The panel also agrees with the results of the staff's assessment and the decision to allow plant restart. The DPO review panel noted that its position on the operability of the subject walls is consistent with the position that had been reached by the ad hoc DPV review panel (Ref. 12).

While the panel believes that the staff's actions were reasonable and appropriate from both process and technical perspectives, it believe's that the staff's bases for accepting the licensee's ODE would have been much clearer if it had included additional detail in the documentation surrounding the subject issues. Two key factors that appeared to have played significant roles in the staff's decisions were the inherent conservatisms in the TMD analysis and the licensee's use of verified as-built plant specific information as inputs to its new TMD analysis. In retrospect, it is the panel's judgement that more substantive discussions in the staff's assessment of the inherent conservatisms in the TMD analysis and the licensee's use of as-built information could have alleviated any potential concerns with the staff's assessment. Thorough documentation about the licensee's use of as-built information is particularly important as the licensee is working to refine its TMD analysis and plans to continue to collect and verify as-built information as part of its corrective action program (Ref. 19). Also, in retrospect, more clarity about how the staff tracked and closed RAM Item R.3.17, "Changes in Input Assumptions and the UFSAR for Transient Mass Distribution (TMD) Analysis: Reconstitution of Sub-Compartment Blowdown Analysis and Assumption Resulted in

Differential Pressures Higher Than in the UFSAR (Ref. 16)," would have provided a better understanding of the staff's positions. It is not clear how the staff's assessment for RAM Item R.3.17 addressed the reconstitution of the sub-compartment analysis. While mindful that judgement plays a key role in staff decisions and actions, the panel believes that the licensee's corrective action activities and the staff's review of those activities could be more effective and efficient had the staff documented its specific concerns with the licensee's ODE in its summary of the meeting of June 1, 2000 (Ref. 8), or in separate correspondence with the licensee, to convey the importance of the differences between the staff's and the licensee's positions.

2.1.3 Conclusions

Overall, on the basis of its review, as documented above, the panel concluded that the staff's actions were reasonable and appropriate from both process and technical perspectives. The panel also concluded that the staff's position that the subject walls, although considered degraded, are capable of fulfilling their safety function and are operable, consistent with the provisions of GL 91-18, Rev. 1, was reasonable and appropriate. See Section 4.1 of this report for the DPO review panel's recommendation.

3 DPO POLICY ISSUES

3.1 Need for Backup Equipment and/or Compensatory Measures

3.1.1 Issue

As previously mentioned, given the technical and policy questions, NRR prepared and provided the D.C. Cook, Unit 2, MC 0350 restart panel's response to the CEQ fan room wall issues (Ref. 9). On the basis of its review, the staff concluded, in part, that the licensee's ODE had "adequately shown that the wall, although considered degraded based on the current pressure response analyses, is capable of fulfilling its safety function and is considered operable consistent with the provisions of Part 9900, 'Technical Guidance' of the NRC Inspection Manual and Generic Letter (GL) 91-18, Revision 1." In its ODE, the licensee did not rely on compensatory measures or backup equipment. In his differing professional view (Ref. 4), the submitter questioned the validity of the licensee's application of GL 91-18, Rev. 1, to establish the operablility of the walls; the absence of compensatory measures and backup equipment; and the Region's decision to allow Unit 2 to restart on the basis of the licensee's ODE. In response to the DPV, an ad hoc DPV review panel reviewed the appropriateness of applying GL 91-18, Rev. 1, to the degraded CEQ fan room walls. On the basis of its review (Ref. 12), the ad hoc DPV panel concluded, in part, "that the licensee use of GL-91-18 [Rev. 1], and the staff acceptance of the licensee operability evaluations... was in accordance with existing guidelines." The panel did not make any recommendations in this area.

In his DPO (Ref. 14), the submitter stated that he disagreed with the disposition of his DPV and that "GL 91-18 states that for equipment to be considered operable within some reasonable assurance of safety, availability of redundant or backup equipment must be assessed, compensatory measures must be in place if the equipment in question fails, and conservatism and adequate margins must exist." The submitter also stated that the "intent of

GL 91-18 was to permit licensees to continue to operate, or startup a plant when equipment performance was degraded (i.e., without the appropriate conservatism and margins) provided the capability of the system (containment in this case) was supported by redundant or backup equipment and compensatory measures were in place until final corrective action was complete."

3.1.2 Review

GL 91-18, Rev. 1 (Ref. 5), was issued to inform licensees of the issuance of a revised section of Part 9900, "Technical Guidance," of the NRC Inspection Manual. The revised section, "Resolution of Degraded and Nonconforming Conditions" (Ref. 20), was attached to the GL. The GL and its associated inspection manual material describe a "generally accepted approach" for evaluating degraded and nonconforming conditions to determine if the affected structure, system, or component (SSC) remains operable (as defined and used in technical specifications).

The technical guidance (Ref. 20) attached to GL 91-18, Rev. 1 states that "if an SSC is degraded or nonconforming but operable, the license establishes an acceptable basis to continue to operate and the licensee does not need to take any further actions." The guidance also states that "if the TS [technical specifications] are satisfied, and required equipment is operable, and the licensee is correcting the degraded or nonconforming condition in a timely manner, continued plant operation does not pose an undue risk to public health and safety." (The timeliness of the licensee's corrective actions is addressed in Section 3.2 of this report.) In contrast to operablility, the technical guidance attached to GL 91-18, Rev. 1, also addresses justifications for continued operation (JCOs). A JCO is the licensee's technical basis for requesting NRC authorization to operate in a manner that is prohibited (e.g., outside TS or license). For JCOs, the technical guidance specifies that the availability of redundant or backup equipment, compensatory measures, conservatism and margins, and other items are appropriate for consideration by the licensee.

As detailed in Section 2.1 of this report, on the basis of the documentation it reviewed and the additional information and perspectives it obtained from its meetings with the staff and managers involved in this issue, it is the panel's judgement that the staff's position that the subject walls, although considered degraded, are capable of fulfilling their safety function and are operable, is consistent with the provisions of GL 91-18, Rev. 1, was reasonable and appropriate. Since the containment walls, although degraded, are considered operable, the guidance regarding operability applies, while the guidance for JCOs does not. Therefore, in accordance with the aforementioned guidance, it is the panel's judgement that there was no need for the licensee to implement compensatory measures or to provide backup equipment to satisfy the guidance of GL 91-18, Rev. 1.

As part of its review, the panel also met separately with two Region III reactor inspectors to discuss their experiences and perspectives regarding GL 91-18, Rev. 1, and its associated technical guidance. Both inspectors noted that operability evaluations and JCOs serve different purposes and are treated differently in GL 91-18, Rev. 1, and in practice. Both inspectors informed the panel that it was their experience and opinion that if an SSC is

determined to be operable, even if it is degraded, neither GL 91-18, Rev. 1, nor its associated technical guidance (Ref. 20) would call for compensatory measures or backup equipment. Both inspectors also noted that JCOs could rely on compensatory measures or backup equipment or other features as justification for operating in a manner that would normally be prohibited. The views of these inspectors helped confirm the panel's judgement on this issue.

The panel also noted that its position on the need for compensatory measures and backup equipment in this case, and the use of GL 91-18, Rev. 1, is consistent with the position that had been reached by the ad hoc DPV panel (Ref. 12).

On the bases of its observations during the review, the panel concluded that Revision 1 to GL 91-18 (Ref. 5), its attachment (Ref. 20), and MC 0350 (Ref. 1) may warrant updating to reflect current processes and staff positions and to ensure that they are consistent with one another. See Section 4.2 of this report for the DPO review panel's recommendation.

3.1.3 Conclusions

On the basis of its review, the DPO panel concluded that the licensee's use of GL 91-18, Rev. 1, to establish the operability of the CEQ fan room walls was appropriate from both process and technical perspectives. The panel also concluded that the staff's review and acceptance of the licensee's ODE for the degraded walls were appropriate and acceptable from both process and technical perspectives. In other words, the panel concluded that both the licensee and the staff followed the guidance of GL 91-18, Rev. 1, and their actions were consistent with past practice. Finally, the panel concluded that the submitter's assertion that GL 91-18 states that for equipment to be considered operable, availability of redundant or backup equipment must be assessed, compensatory measures must be in place, and conservatism and adequate margins must exist is not correct.

3.2 Timeliness of Licensee Actions

3.2.1 Issue

In his DPV (Ref. 4), the submitter questioned the timeliness of the licensee's corrective actions. In its response to the submitter's DPV (Ref. 12), the ad hoc DPV review panel noted that the acceptability of the licensee corrective action program was partially based on verbal agreement from the licensee that adequate corrective actions would be implemented based on a schedule to be presented after Unit 2 restart. While the panel concluded that this was acceptable, it noted that "a more substantive commitment or presentation from the license prior to restart of D.C. Cook Unit 2 would have more closely aligned with the guidance of MC 9900." The panel recommended that the MC 0350 panel address with the licensee the need for a definitive time frame for final corrective action. In response to this recommendation, the regional administrator directed the MC 0350 panel to address this issue with the licensee and to firm up a corrective action schedule (Ref. 21).

In his DPO (Ref. 14), the submitter stated that: "In variance with [the guidance of GL 91-18], the NRC staff has not demanded that the licensee provide a definitive schedule for permanent

resolution of Unit 2 containment issues; instead deferring this restraint until the Unit 1 restart." The submitted also asked: "Because we are addressing the adequacy of the D.C. Cook containment, how can we let them operate beyond the next refueling outage, in conflict with our own GL 91-18 [Rev. 1] guidance?"

3.2.2 Review

By letter dated November 3, 2000 (Ref. 22), Region III requested that the licensee establish a time frame for completing the corrective actions. By letters dated October 15, 2000 (Ref. 23), and November 18, 2000 (Ref. 19), the licensee submitted details regarding the time frame for completing its corrective actions for the containment structural issues. In its letter of November 18, 2000, the licensee stated that its goal is to complete any needed design changes by the end of the next scheduled refueling outage for each unit. The licensee also stated that if it could not implement any needed design changes by the next refueling outage for each units it would provide justification for the time needed to resolve these issues consistent with the guidance in GL 91-18.

The DPO review panel reviewed the relevant documentation, discussed the timeliness issue with certain Region III and NRR staff and managers responsible for follow up of the containment issues, and, on February 15, 2001, attended and observed a meeting at the D.C. Cook plant site between Region III and NRR and the licensee. During the meeting, the licensee presented its plans and schedule and provided the status of its corrective actions for correcting the degraded containment walls.

3.2.3 Conclusions

On the basis of its review, the panel concluded that Region III effectively addressed the issue of the timeliness of the licensee's corrective actions in response to the recommendation of the ad hoc DPV review panel. The panel also concluded that the licensee's commitments for its corrective actions comport with the guidance of GL 91-18, Rev. 1, and that the staff's actions and plans for following up on this issue with the licensee are appropriate and adequate from both process and technical perspectives. The DPO review panel did not have any recommendations in this area.

4 RECOMMENDATIONS

4.1 D.C. Cook

The DPO review panel recommends that the staff review the panel's comments and observations, as documented in Section 2.1.2 of this report, and determine if additional staff actions are warranted with respect to the documentation.

4.2 Inspection Guidance

On the bases of observations the panel made during its review of the DPO, it recommends that the staff review Revision 1 to GL 91-18 (Ref. 5), its attachment (Ref. 16), and MC 0350

(Ref. 1) and update them, if appropriate, to reflect current processes and staff positions and to ensure that they are consistent with one another. For example, since the staff issued the revision to GL 91-18, the Commission has implemented the revised reactor oversight process, has revised 10 CFR 50.59, and has issued new regulatory guides (RG) that address implementation of the revised 10 CFR 50.59 (RG 1.187) and that clarify the 10 CFR 50.2 definition of design bases (RG 1.186).

5 REFERENCES

1. NRC Inspection Manual Chapter 0350, "Staff Guidelines for Oversight of Operating Reactor Facilities in an Extended Shutdown as a Result of Significant Performance Problems."

2. Letter from J.E. Dyer, Region III, to R.P. Powers, AEP, "Closure of NRC Inspection Manual Chapter 0350 Restart Action Plan for Restart of the Donald C. Cook (D.C. Cook) Nuclear Plant - Unit 2," dated June 13, 2000.

3. Enclosure to letter from J.E. Dyer, Region III, to R.P. Powers, AEP, "Closure of NRC Inspection Manual Chapter 0350 Restart Action Plan for Restart of the Donald C. Cook (D.C. Cook) Nuclear Plant - Unit 2," dated June 13, 2000

4. Memorandum from Ross Landsman, Region III, to J.E. Dyer, Region III, "Differing Professional View Concerning the Startup of D.C. Cook, Unit 2," dated June 6, 2000.

5. Generic Letter 91-18, Revision 1, "Information to Licensees Regarding NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions," dated October 8, 1997.

6. E-mail from J.E. Dyer, Region III, to B. Berson, Region III, "DPV on D.C. Cook CEQ Fan Room Concrete Walls," dated June 7, 2000.

7. Memorandum from J.E. Dyer, Region III, to J.A. Grobe, Region III, "Resolution of Degraded CEQ Fan Room Wall," dated June 7, 2000.

8. Letter from J.F. Stang, NRR, to R.P. Powers, Indiana Michigan Power Company, "Donald C. Cook - Summary of June 1, 2000, Public Meeting Regarding Containment Subcompartment Walls," dated June 12, 2000.

9. Memorandum from S. Singh Bajwa, NRR, to J.A. Grobe, Region III, "Resolution of Degraded CEQ Fan Room Wall," dated June 12, 2000.

10. Memorandum to file from J.L. Caldwell, Region III, "DPV File," dated June 23, 2000.

11. Memorandum from J.E. Dyer, Region III, to G.E. Grant, Region III, "Ad Hoc Review Panel for Differing Professional View: CEQ Fan Room Wall Operability (D.C. Cook Unit 2 Startup)," dated June 23, 2000.

12. Memorandum from Geoffrey E. Grant, Region III, to J.E. Dyer, Region III, "Recommendation of Ad Hoc Review Panel for Differing Professional View: CEQ Fan Room Wall Operability," dated August 11, 2000.

13. Memorandum from J.E. Dyer, Region III, to Ross Landsman, Region III, "Resolution of Differing Professional View on CEQ Fan Room Wall Operability (D.C. Cook Unit 2 Startup)," dated August 17, 2000.

14. Memorandum from Ross B. Landsman, Region III, to William D. Travers, EDO, "Differing Professional Opinion Concerning the Startup of D.C. Cook, Units 1 and 2," dated December 4, 2000.

15. Memorandum from W.D. Travers, EDO, to N.C. Chokshi, RES, and K.S. West, NRR, "Differing Professional Opinion (DPO) Panel, dated December 15, 2000.

16. Attachment 7 to the memorandum from Suzanne C. Black, NRR, to John A. Grobe, Region III, "Donald C. Cook Nuclear Plant, Unit 2 - Closeout of Restart Action Matrix Issues Dealing With Generic Letter 91-18 Operablility Evaluations," dated June 9, 2000.

17. Letter from John F. Stang, NRC, to Robert P. Powers, AEP, "Donald C. Cook - Summary of September 27, 2000, Public Meeting Regarding Update on Containment Structures," dated October 13, 2000.

18. Attachment 1 to the memorandum from G.E. Grant, Region III, to the D.C. Cook Nuclear Plant Manual Chapter 0350 Panel, "Minutes of Internal Meeting of the Donald C. Cook Nuclear Plant Manual Chapter 0350 Panel," dated December 5, 2000.

19. Letter from R.P. Powers, AEP, to Geoffrey E. Grant, NRC, "Resolution of Containment Structural Issues at Donald C. Cook Plant Units 1 and 2," dated November 18, 2000.

20. NRC Inspection Manual, Part 9900, STS30DEG, "Resolution of Degraded and Nonconforming Conditions," dated October 8, 1997 (Attachment 1 to GL 91-18, Rev. 1).

21. Memorandum from J.E. Dyer, Region III to Jack Grobe, Region III, "Corrective Action for D.C. Cook CEQ Fan Room Degraded Wall, dated August 22, 2000.

22. Letter from Geoffrey E. Grant, Region III, to R.P. Powers, Nuclear Generation Group, "Resolution of Containment Structural Issues at Donald C. Cook Plant Units 1 and 2," dated November 3, 2000.

23. Letter from M.W. Rencheck, AEP, to NRC Docket Nos.: 50-315 and 50-316, "Donald C. Cook Nuclear Plant Units 1 and 2, Resolution of Containment Structural Issues," dated October 15, 2000.

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Appendix

NRC Staff and Managers Interviewed by
the Ad Hoc DPO Review Panel
for the
Differing Professional Opinion Concerning the
Startup of D.C. Cook, Units 1 and 2

Office of Nuclear Reactor Regulation

Hansraj G. Ashar
S. Singh Bajwa
B.P. Jain
Richard M. Lobel
Raman Pichumani
John F. Stang, Jr.

Region III

Bruce L. Bartlett
Martin J. Farber
Ross B. Landsman,
Patricia V. Lougheed
Geoffrey E. Grant
John A. Grobe
Anton Vegel