Duke Power Company
P.O. Box 1006
Charlotte, NC 28201-1006

M. S. Tuckman
Senior Vice President
Nuclear Generation
(704)382-2200 Office
(704)382-4360 Fax

DUKE POWER

May 13, 1996

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: McGuire Nuclear Station Units 1 & 2
Docket Nos. 50-369, 370
Catawba Nuclear Station Units 1 & 2
Docket Nos. 50-413, 414
Oconee Nuclear Station, Units 1, 2, & 3
Docket Nos. 50-269, 270, 287
Response to NRC Bulletin 96-02: Movement of Heavy Loads Over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment

NRC Bulletin 96-02, "Movement of Heavy Loads Over Spent Fuel, Over Fuel in the Reactor Core, or Over Safety-Related Equipment," dated April 11, 1996, requested that certain actions be taken by licensees to ensure that the handling of heavy loads is performed safely and within the conditions and requirements specified under Title 10 of the Code of Federal Regulations.

The NRC requested that licensees planning to implement activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment within the next 2 years from the date of this bulletin provide a report, within 30 days of the date of this bulletin, that addresses the licensee's review of its plans and capabilities to handle heavy loads while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) in accordance with existing regulatory guidelines. The report should also indicate whether the activities are within the licensing basis and should include, if necessary, a schedule

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for submission of a license amendment request. Additionally, the report should indicate whether changes to Technical Specifications will be required.

Duke Power is in compliance with existing regulatory guidelines associated with the control and handling of heavy loads while the plant is operating. Duke has ensured that heavy load activities are performed safely and within our licensing basis as previously analyzed.

The methodology used by Duke Power to address the required response was to review the original NUREG-612 responses and identify differences (if any) between the original responses and the way we presently handle and control heavy loads.

Accordingly, Attachments A, B, and C to this letter provide the required information for Catawba, McGuire and Oconee Nuclear Stations, respectively.

I declare under penalty of perjury that these statements are true and correct to the best of my knowledge.

Should you have any questions or require any additional information regarding this submittal, please contact Allison Jones-Young at (704) 382-3154.

Very truly yours,

M. S. Tuckman

M.S. Tuckman
Senior Vice President
Nuclear Generation

Attachments

xc: S.D. Ebneter
Regional Administrator, Region II

V. Nerses, ONRR

P.S. Tam, ONRR

D.E. LaBarge, ONRR

G.F. Maxwell
Senior Resident Inspector (MNS)

R.J. Freudenberger
Senior Resident Inspector (CNS)

P.E. Harmon
Senior Resident Inspector (ONS)

ATTACHMENT A
CATAWBA NUCLEAR STATION'S RESPONSE TO NRC BULLETIN 96-02

CATAWBA NUCLEAR STATION

Requested Action Item (1):

(1) For licensees planning to implement activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment within the next 2 years from the date of this bulletin, provide the following:

A report, within 30 days of the date of this bulletin, that addresses the licensee's review of its plan and capabilities to handle heavy loads while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) in accordance with existing regulatory guidelines. The report should also indicate whether the activities are within the licensing basis and should include, if necessary, a schedule for submission of a license amendment request. Additionally, the report should indicate whether changes to Technical Specifications will be required.

Response to Requested Action (1):

In response to the requested action, Catawba Nuclear Station (CNS) completed a review of the original submittal in response to NUREG-0612 requirements as reported in CNS Safety Evaluation Report, Supplement 4, Appendix F. The results of this review are summarized as follows:

a) The only lifting activities planned within safety related structures are those that use permanently installed lifting devices where an evaluation has been made in accordance with criteria of the NUREG-0612 submittal. A review of all modifications implemented after the submittal of the original response to NUREG-0612 was conducted identifying those that involved installation of a new device or modification to an existing load handling device. This review identified several load handling devices (i.e., monorail, jib crane, hoist) that would be subject to the criteria of NUREG-0612 requirements. The original Duke Power NUREG-0612 response outlined criteria to review the handling of heavy loads. The changes and additions were reviewed to the same criteria. The review of all such modifications made after the original submittals verified compliance with the original criteria in all cases.

b) The Steam Generator Replacement Project scheduled for the upcoming Unit 1 Refueling Outage (June 96) involves handling of heavy loads. All movement of heavy loads associated with this project in containment will be performed in the "No-Mode" period (Defueled). To ensure compliance with CNS response with respect to NUREG-0612, handling of these heavy loads will be controlled by use of existing maintenance procedures and other controlling modification procedures. As a conservative, precautionary measure, a load drop analysis has been performed to address heavy load drop impact on safety related systems that need isolation or for which compensatory measures are needed during the implementation of the Steam Generator Replacement Project.

c) An apparent discrepancy was discovered between the Catawba Safety Evaluation Report, Supplement 4 (SSER), Appendix F and Technical Specifications 3/4.9.7. with respect to handling of heavy loads over the spent fuel assemblies. CNS Safety Evaluation Report, Supplement 4, Appendix F, states that a spent fuel assembly is the heaviest object moved over the spent fuel pool whereas Technical Specification allows movement of the weir gates over the stored fuel provided the spent fuel has decayed for at least 17.5 days since last being part of a core at power. A weir gate is heavier than a spent fuel assembly. This apparent discrepancy is currently under review for determination of a corrective action.

In conclusion, with the possible exception of the matter to be resolved as noted in (1), (c) above, movement of all heavy loads at CNS is in accordance with the CNS response to NUREG-0612; consequently, no additional submittals to the NRC are planned at this time.

Requested Action Item (2):

(2) For licensees planning to perform activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) and that involve a potential load drop accident that has not previously been evaluated in the FSAR, submit a license amendment request in advance (6-9

months) of the planned movement of the loads so as to afford the staff sufficient time to perform an appropriate review.

Response to Requested Action (2):

At Catawba, pending resolution of the discrepancy identified in the response to requested action (1), (c) above, there are no plans to perform activities involving the handling of heavy loads that have not previously been evaluated.

Requested Action Item (3):

(3) For licensees planning to move dry storage casks over spent fuel, fuel in the reactor core, or safety-related equipment while reactor is at power (in all modes other than cold shutdown, refueling, and defueled), include in item 2 above, a statement of the capability of performing the actions necessary for safe shutdown in the presence of a radiological source term that may result from a breach of the dry storage cask, damage to the fuel, and damage to safety-related equipment as a result of a load drop inside the facility.

Response to Requested Action (3):

CNS has no plans to move dry storage casks over spent fuel, fuel in the reactor core, or safety related equipment while reactor is at power within the next two years. Therefore this item is not applicable to CNS.

Requested Action Item (4):

(4) For licensees planning to perform activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled), determine whether changes to Technical Specifications will be required in order to allow the handling of heavy loads (e.g., the dry storage canister shield plug) over fuel assemblies in the spent fuel pool and submit the appropriate information in advance (6-9 months) of the planned movement of the loads for NRC review and approval.

Response to Requested Action (4):

Based on our review for items "1" through "3" of above, CNS has no plans to perform activities involving handling of heavy loads over spent fuel, fuel in the reactor core, or safety related equipment while the reactor is at power within the next two years which would require a change to the Technical Specifications.

ATTACHMENT B
McGUIRE NUCLEAR STATION'S RESPONSE TO
NRC BULLETIN 96-02

Requested Action Item (1):

(1) For licensees planning to implement activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment within the next 2 years from the date of this bulletin, provide the following:

A report, within 30 days of the date of this bulletin, that addresses the licensee's review of its plan and capabilities to handle heavy loads while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) in accordance with existing regulatory guidelines. The report should also indicate whether the activities are within the licensing basis and should include, if necessary, a schedule for submission of a license amendment request. Additionally, the report should indicate whether changes to Technical Specifications will be required.

Response to Requested Action (1):

A review of McGuire's responses and commitments to NUREG-0612 was performed to confirm that handling of heavy loads is being performed in accordance with existing regulatory guidelines. The following observations were made as a result of this review:

- An assortment of cranes, hoists, monorails, and jib booms have been installed in both the reactor buildings and the auxiliary buildings at McGuire since 1985 that were not included in the original load handling systems review performed in response to NUREG-0612. An evaluation performed using the same criteria used on the plant's original load handling systems found that in all cases these new lifting systems are in compliance with the guidelines of NUREG-0612 and are consistent with McGuire's responses and commitments related to handling of heavy loads.

- In the original responses to NUREG-0612, McGuire stated that the reactor building polar cranes would not be used "at power". Since then it was determined that the polar cranes are required for some "at power" activities including lifts associated with removing pressurizer enclosure hatch plugs and polar crane maintenance activities.

In addition, the current polar crane procedures allow for other "at power" uses of the polar crane with prior approval from the Site Lifting Coordinator. The intent of this provision is to allow for handling smaller, heavy loads "at power" that are of the same order of magnitude as the pressurizer hatch plug load (i.e., lifting manbasket to facilitate equipment inspections).

A calculation was performed that verified dropping either a pressurizer enclosure hatch plug (≈ 3500 lb. load) or the polar crane main hook/block (≈ 6000 lb. load) "at power" would not result in damage to the core or to any safe shutdown equipment. A 10CFR50.59 evaluation performed for the associated procedure revision concluded that no USQ exists. The NRC was notified of the deviation from the licensing commitment via a letter dated 10/20/94 that summarized Nuclear Station Modifications, Minor Modifications, Procedure Changes and miscellaneous changes to McGuire Nuclear Station.

- In a letter dated 8/17/84 to the NRC it was stated that McGuire had painted the safe load paths for the fuel handling area cranes on the floors. This letter was the basis for the NRC's acceptance of resolution of an outstanding Technical Evaluation Report (TER) item related to load paths. These load paths are Technical Specification designated load paths for truck casks that are moved to the cask area near the spent fuel pool. At this time, these markings are no longer visible. Repainting of these load paths is considered unnecessary for the following reasons:

    - Moving of truck casks in this area has only been required on a few occasions.

    - The markings would be difficult to follow because the load paths cover two different floor elevations.

    - The load paths are clearly shown in the procedure that controls moving the truck casks.

    - No other load path is visually marked at McGuire.

Although McGuire does not meet its original commitment to have these specific load paths painted on the floor, the lifts are being performed in a manner consistent with the NUREG-0612 guideline related to safe load paths.

- The Steam Generator Replacement Project scheduled for both McGuire units in 1997 will involve the lifting of heavy loads. However, all of these lifts will be made during "No-Mode" and not "at power" and therefore do not require further discussion in this response.

In conclusion, McGuire plans and capabilities related to handling of "heavy loads" at power ***are*** in accordance with existing regulatory guidelines.

Requested Action Item (2):

(2) For licensees planning to perform activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) and that involve a potential load drop accident that has not previously been evaluated in the FSAR, submit a license amendment request in advance (6-9 months) of the planned movement of the loads so as to afford the staff sufficient time to perform an appropriate review.

Response to Requested Action (2):

McGuire has no plans at this time to perform any heavy load handling activities "at power" that involve a potential load drop accident that has not previously been evaluated in the FSAR. Therefore, Item (2) is not applicable to McGuire.

Requested Action Item (3):

(3) For licensees planning to move dry storage casks over spent fuel, fuel in the reactor core, or safety-related equipment while reactor is at power (in all modes other than cold shutdown, refueling, and defueled), include in item 2

above, a statement of the capability of performing the actions necessary for safe shutdown in the presence of a radiological source term that may result from a breach of the dry storage cask, damage to the fuel, and damage to safety-related equipment as a result of a load drop inside the facility.

Response to Requested Action (3):

McGuire has no plans at this time to move dry storage casks over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is "at power". Therefore, Item (3) is not applicable to McGuire.

Requested Action Item (4):

(4) For licensees planning to perform activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled), determine whether changes to Technical Specifications will be required in order to allow the handling of heavy loads (e.g., the dry storage canister shield plug) over fuel assemblies in the spent fuel pool and submit the appropriate information in advance (6-9 months) of the planned movement of the loads for NRC review and approval.

Response to Requested Action (4):

McGuire has no plans at this time to perform activities involving the handling of "heavy loads" that would require changes to Technical Specifications. Therefore, Item (4) is not applicable to McGuire.

ATTACHMENT C
OCONEE NUCLEAR STATION'S RESPONSE TO NRC BULLETIN 96-02

Requested Action Item (1):

(1) For licensees planning to implement activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment within the next 2 years from the date of this bulletin, provide the following:

A report, within 30 days of the date of this bulletin, that addresses the licensee's review of its plan and capabilities to handle heavy loads while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) in accordance with existing regulatory guidelines. The report should also indicate whether the activities are within the licensing basis and should include, if necessary, a schedule for submission of a license amendment request. Additionally, the report should indicate whether changes to Technical Specifications will be required.

Response to Requested Action (1):

BACKGROUND

On December 22, 1980, NRC issued a generic letter (unnumbered) which was supplemented February 3, 1981 (Generic Letter 81-07) regarding NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." This letter requested that licensees with operating reactors implement certain interim actions and provide the NRC information related to heavy loads at their facilities. Submittals were requested in two parts:

- six month response (Phase I), and
- nine month response (Phase II)

Oconee Nuclear Station Units 1, 2 and 3 completed the requirement to perform a review and submit a Phase I and Phase II report. Responses to the December 22, 1980 generic letter (Phase I Control of Heavy Loads) were forwarded to the NRC as attachments to references [1] through [4]. Supplemental information concerning Oconee Nuclear Station's Phase I response was forwarded to the NRC via references [5] and [6].

Safety Evaluation by the Office of the NRR, Control of Heavy Loads - Phase I, Duke Power Company, Oconee Nuclear Station Units No. 1, 2 and 3, Dockets No. 50-269, 50-270 and 50-287 [Reference 7] was transmitted to Duke Power Company by letter dated 20 April 1983 from J. F. Stolz (NRC) to H. B. Tucker (DPC). This letter stated:

> We [NRC] concur with the findings contained in the TER [Reference 8] and conclude that the guidelines of NUREG-0612, Section 5.1.1, have been satisfied. Therefore, we [NRC] find the Control of Heavy Loads, Phase I actions taken for the Oconee units are acceptable.
>
> Our [NRC] evaluation of the Control of Heavy Loads Phase II recommendations will be the subject of future correspondence.

Letter dated 27 June 1985 from H. L. Thompson (NRC) to all licensees with operating reactors[Reference 9] stated:

> Based on the improvements in heavy loads handling obtained from implementation of NUREG-0612 (Phase I), further action is not required to reduce the risks associated with the handling of heavy loads. Therefore, a detailed Phase II review of heavy loads is not necessary and Phase II is considered completed. However, while not a requirement, we [NRC] encourage the implementation of any actions you [licensees] identified in Phase II regarding the handling of heavy loads that you [licensees] consider appropriate.

Based on the above information, Oconee Nuclear Station is required to conform only to those commitments established during its response to NUREG-0612 (Phase I). Oconee plant personnel have reviewed their activities associated with the movement of heavy loads while the reactor is at power (in all modes other than cold shutdown, refueling and defueled) and has found them to be in accordance with existing regulatory guidance and within its licensing basis. No changes to Technical Specifications will be required. Use of the reactor building polar crane and auxiliary hoist is subject to restrictions contained in reference [25]. (See response to item (3) below for a discussion of the movement of dry storage casks.)

In addition to compliance with NUREG-0612 (Phase I) requirements, assurance of personnel and nuclear safety during *all* lifting operations has been further enhanced at Oconee Nuclear Station through implementation of the *Duke Power Company Lifting Program* [Reference 24]. This company-wide program details safe, consistent lifting practices; provides requirements for the safe operation and use of rigging hardware and lifting equipment; and, provides consistent instructional training and qualifications for affected personnel.

Requested Action Item (2):

(2) For licensees planning to perform activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) and that involve a potential load drop accident that has not previously been evaluated in the FSAR, submit a license amendment request in advance (6-9 months) of the planned movement of the loads so as to afford the staff sufficient time to perform an appropriate review.

Response to Requested Action (2):

At the present time, Oconee Nuclear Station is not planning to perform any activity involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment loads while the reactor is at power (in all modes other than cold shutdown, refueling and defueled) that involve a potential load drop accident that has not previously been evaluated in the FSAR. (See response to item (3) below for a discussion of the movement of dry storage casks.)

Requested Action Item (3):

(3) For licensees planning to move dry storage casks over spent fuel, fuel in the reactor core, or safety-related equipment while reactor is at power (in all modes other than cold shutdown, refueling, and defueled), include in item 2 above, a statement of the capability of performing the actions necessary for safe shutdown in the presence of a radiological source term that may result from a breach of

the dry storage cask, damage to the fuel, and damage to safety-related equipment as a result of a load drop inside the facility.

Response to Requested Action (3):

At Oconee Nuclear Station, the dry storage cask is not moved over the reactor core or safety-related equipment at any time. Movement of the dry storage cask over spent fuel and the potential consequences (both radiological and structural) of a load drop inside the facility are the subject of extensive correspondence between Duke Power Company and the NRC (See information contained in references [10] through [16]). Movement of the dry storage cask and the potential consequences of a load drop are also discussed in detail in:

- Oconee Nuclear Station Final Safety Analysis Report [References 18, 19 and 20]
- Oconee Unit 1 SER [Reference 23]
- Independent Spent Fuel Storage Installation Final Safety Analysis Report [Reference 21], and
- Safety Evaluation of the Oconee Nuclear Station Independent Spent Fuel Storage Installation [Reference 17]

Fuel movement and storage in the spent fuel pool is subject to restrictions contained in reference [22].

Requested Action Item (4):

(4) For licensees planning to perform activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled), determine whether changes to Technical Specifications will be required in order to allow the handling of heavy loads (e.g., the dry storage canister shield plug) over fuel assemblies in the spent fuel pool and submit the appropriate information in advance (6-9 months) of the planned movement of the loads for NRC review and approval.

Response to Requested Action (4):

At the present time, Oconee Nuclear Station is not planning to perform any activity involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment loads while the reactor is at power (in all modes other than cold shutdown, refueling and defueled) that would require changes to existing Technical Specifications.

REFERENCES

1. Letter dated 26 June 1981 from W. O. Parker, Jr. (DPC) to H. R. Denton (NRC).

2. Letter dated 30 July 1981 from W. O. Parker, Jr. (DPC) to H. R. Denton (NRC).

3. Letter dated 31 August 1981 from W. O. Parker, Jr. (DPC) to H. R. Denton (NRC).

4. Letter dated 1 October 1981 from W. O. Parker, Jr. (DPC) to H. R. Denton (NRC).

5. Letter dated 8 October 1982 from H. B. Tucker (DPC) to H. R. Denton (NRC).

6. Letter dated 5 November 1982 from H. B. Tucker (DPC) to H. R. Denton (NRC).

7. *Safety Evaluation by the Office of the NRR, Control of Heavy Loads - Phase I, Duke Power Company, Oconee Nuclear Station Units No. 1, 2 and 3, Dockets No. 50-269, 50-270 and 50-287.*

8. *Technical Evaluation Report* (TER-C5506-374/375/376) by Franklin Research Center.

9. Letter dated 27 June 1985 from H. L. Thompson (NRC) to All Licensees for Operating Reactors.

10. Letter dated 22 December 1975 from R. A. Purple (NRC) to W. O. Parker, Jr. (DPC). SUBJECT: Issuance of Amendment Nos. 17, 17, and 14 to Facility Operating Licenses DPR-38, DPR-47, and DPR-55 - Oconee Nuclear Station, Units 1, 2 and 3.

11. Letter dated 10 September 1976 from A. Schwencer (NRC) to W. O. Parker, Jr. (DPC). SUBJECT: Issuance of Amendment Nos. 32, 32, and 29 to Facility Operating Licenses DPR-38, DPR-47, and DPR-55 - Oconee Nuclear Station, Units 1, 2 and 3.

12. Letter dated 19 June 1979 from R. W. Reid (NRC) to W. O. Parker, Jr. (DPC). SUBJECT: Issuance of Amendment Nos. 72, 72, and 69 to Facility Operating Licenses DPR-38, DPR-47, and DPR-55 - Oconee Nuclear Station, Units 1, 2 and 3.

13. Letter dated 24 December 1980 from R. W. Reid (NRC) to W. O. Parker, Jr. (DPC). SUBJECT: Issuance of Amendment Nos. 90, 90, and 87 to Facility Operating Licenses DPR-38, DPR-47, and DPR-55 - Oconee Nuclear Station, Units 1, 2 and 3.

14. Letter dated 29 September 1983 from J. F. Stolz (NRC) to H. B. Tucker (DPC). SUBJECT: Issuance of Amendment Nos. 123, 123, and 120 to Facility Operating Licenses DPR-38, DPR-47, and DPR-55 - Oconee Nuclear Station, Units 1, 2 and 3.

15. Letter dated 6 August 1987 from H. N. Pastis (NRC) to H. B. Tucker (DPC). SUBJECT: Issuance of Amendment Nos. 160, 160, and 157 to Facility Operating Licenses DPR-38, DPR-47, and DPR-55 - Oconee Nuclear Station, Units 1, 2 and 3 (TAC Nos. 61818/61819/61820).

16. Letter dated 16 November 1989 from L. A. Wiens (NRC) to H. B. Tucker (DPC). SUBJECT: Issuance of Amendment Nos. 177, 177, and 174 to Facility Operating Licenses DPR-38, DPR-47, and DPR-55 - Oconee Nuclear Station, Units 1, 2 and 3 (TAC Nos. 68026/68027/68028).

17. *Safety Evaluation Report of the Oconee Nuclear Station Independent Spent Fuel Storage Installation, Docket No. 72-4, Duke Power Company* dated October 1989.

18. *Duke Power Company, Oconee Nuclear Station, Final Safety Analysis Report*, Chapter 3.

19. *Duke Power Company, Oconee Nuclear Station, Final Safety Analysis Report*, Chapter 9.

20. *Duke Power Company, Oconee Nuclear Station, Final Safety Analysis Report*, Chapter 15.

21. *Independent Spent Fuel Storage Installation, Final Safety Analysis Report, Duke Power Company, Oconee Nuclear Station.*

22. *Duke Power Company, Oconee Nuclear Station, Technical Specification 3.8.*

23. Oconee Unit 1 SER dated 29 December 1970, Safety-Evaluation by the Division of Reactor Licensing U.S. Atomic Energy Commission in the Matter of Duke Power Company, Oconee Nuclear Station, Docket No. 50-269.

24. *Duke Power Company Lifting Program*, June 1995.

25. *Duke Power Company, Oconee Nuclear Station, Technical Specification 3.12.*