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- References:
- (a) License No. DPR-3 (Docket No. 50-29)
 - (b) Docket No. 72-31
 - (c) USNRC to YAEC, dated June 26, 1985, NYR 85-106, "Completion of Phase II of Control of Heavy Loads at Nuclear Power Plants, NUREG-0612 (Generic Letter 85-11)."
 - (d) USNRC, NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants."

Subject: Yankee Nuclear Power Station Defueled Technical Specifications Bases Change

Enclosed is a change to the Yankee Nuclear Power Station (YNPS) Defueled Technical Specifications Bases. This change was made pursuant to the requirements of 10 CFR 50.59 and was reviewed and approved in accordance with the plant's Independent Safety Review process. This change is being provided for issuance by the NRC Staff. Specific details associated with the Bases change are provided in the enclosure for informational purposes. Annotated and retyped versions of the affected Bases page have been included in the Enclosure.

Should you have any questions regarding this letter, please contact Mr. James A. Kay, Manager of Regulatory Affairs, at (978) 568-2302.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

Kenneth J. Heider
Vice President

Enclosure

c: J. Hickman, USNRC, Project Manager
R.B. Bellamy, USNRC, Region I

NYSSO / Public

Enclosure

DESCRIPTION AND JUSTIFICATION FOR CHANGE

Defueled Technical Specifications Bases Section 3/4.2, "Crane Travel – Spent Fuel Pit," stated that "the use of a single-failure-proof crane ensures that the cask hatch cover and the cask components and associated lifting devices, which are permitted over the spent fuel in the cask, cannot be dropped on the spent fuel." This statement seemingly eliminated the use of the Yard Crane auxiliary hook for moving the cask hatch or for placement of the spent fuel cask shield lid when the cask is loaded with spent fuel.

Consequently, an evaluation was performed, in accordance with 10 CFR 50.59, that assessed a change to the Technical Specification Bases to address the use of the auxiliary hook to move the cask hatch cover and the cask components and associated lifting devices over the spent fuel cask while there is spent fuel in the cask.

Basis

Reference (c) provided an assessment of Yankee Atomic Electric Company's compliance with NUREG-0612 (Reference d). NRC stated in the conclusion that "Based on the above, we believe that the Phase I implementation has provided sufficient protection such that the risk associated with potential heavy load drops is acceptably small. We further conclude that the objective identified in Section 5.1 of NUREG-0612 for providing "maximum practical defense in depth" is satisfied by Phase I compliance... ." Therefore, if use of the auxiliary hook meets the requirements of NUREG-0612, Phase I, then the risk of a load drop is acceptably small (i.e., not credible) and use of the auxiliary hook is acceptable. NUREG-0612, Phase I addresses the following areas.

- Definition of safe load paths
- Development of load handling procedures
- Periodic inspection and testing of cranes
- Qualifications, training, and specified conduct of operators
- Special lifting devices should satisfy the guidelines of ANSI N14.6
- Lifting devices that are not specially designed should be installed and used in accordance with the guidelines of ANSI B30.9
- Design of cranes to ANSI B30.2 or CMAA-70

An evaluation was performed that concluded that if use of the auxiliary hook met the requirements of Phase I of NUREG-0612 then the risk of a load drop was acceptably small (i.e., not credible) and therefore use of the auxiliary hook was acceptable. The auxiliary hook is designed with a factor of safety of 5 against failure when lifting its rated load (15 tons). While lifting loads over spent fuel, the auxiliary hook shall be limited to a lifted load of 7.5 tons, thus ensuring a factor of safety of 10 against failure. The shield lid weighs less than 2 tons and the cask hatch weighs approximately 1.2 tons.

Assessment

A review of Phase I of NUREG-0612 as applied to the auxiliary hook is provided below:

Safe Load Paths

For the purpose of this evaluation, safe load paths minimize the time that components are lifted over the spent fuel in the cask. The safe load path for the cask hatch when stored on the roof is to lift the hatch vertically as required and then travel directly east to the cribbing on the SFPB roof. The safe load path for other hatch storage locations is to lift the hatch vertically as required and then travel directly north. These load paths have been added to the appropriate procedure. The safe load path for the transportable storage canister (TSC) shield lid and other cask components is through the north wall opening and then into position as required. This load path has been described in the appropriate procedure.

Load Handling Procedures

General use of the Yard Crane, including the auxiliary hook is controlled by plant procedure. This procedure also provides requirements for handling the cask hatch. More specific load handling procedures for the shield lid and other cask components are being developed.

Periodic inspection and Maintenance

Requirements for periodic inspection of the Yard Crane, including the auxiliary hook, are provided in plant procedures.

Qualifications, Training, and Specified Conduct of Operators

Crane operators who will perform lifts during fuel transfer operations will be trained and qualified as required by plant procedure. These requirements include a license from the Commonwealth of Massachusetts, which has strict licensing requirements. Qualification and training of specific operators is documented.

Lifting Devices

Use of special lifting devices is not planned for lifting the cask hatch and cask components. The rigging will consist of a combination of slings, shackles, swivel hoist rings, turnbuckles, and shoulder eye bolts, as appropriate. Rigging will meet the requirements of NUREG-0612 and, as appropriate, ASME B30.9. Slings and other components will have a minimum safety factor of 10 against failure for the load being lifted.

As such, the third paragraph of Bases Section 3/4.2 was changed (new text in bold) to read as follows:

“The use of **the Yard Crane single-failure-proof main hook, or the auxiliary hook in accordance with NUREG-0612 and TS 3/4.2** provides assurance that a failure **resulting in a load drop is not credible and** will not result in the shipping and/or transfer cask, the cask set-down pad, the cask hatch cover, and the cask components and associated lifting devices having an adverse effect on the spent fuel pit or the irradiated fuel in the spent fuel pit. The restriction on movement of the shipping and/or transfer cask, the cask set-down pad, the cask hatch cover, and the cask components and lifting devices further ensures that these items cannot be dropped

on spent fuel in the spent fuel pit storage racks. The use of **the Yard Crane single-failure-proof main hook, or the auxiliary hook in accordance with NUREG-0612 and TS 3/4.2** ensures that the cask hatch cover and the cask components and associated lifting devices, which are permitted over the spent fuel in the cask, cannot be dropped on the spent fuel. The safe load path is established to support the defense-in-depth approach to safety concerning heavy loads over the spent fuel pit. Deviations from or changes to the safe load path shall be performed in accordance with approved written procedures which have been reviewed by an Independent Safety Reviewer and approved by the Decommissioning Manager or designee.”

Revised Technical Specifications Bases Page

Annotated Version

B3/4-4

3/4.2 CRANE TRAVEL - SPENT FUEL PIT

BASES

The restriction on movement of loads in excess of the nominal weight of a fuel assembly over fuel assemblies in the spent fuel pit ensures that in the event this load is dropped (1) the activity release will be limited to that contained in a single fuel assembly, and (2) any possible distortion of the fuel in the storage racks will not result in a critical array. This assumption is consistent with the activity release assumed in the accident analysis.

Handling of the present Spent Fuel Storage Building roof hatches under administrative control will assure safe handling of the roof hatches. The restriction of movement of the spent fuel inspection stand, the spent fuel assembly nondestructive test equipment, the cask hatch cover, the volume reduction equipment, and the shipping cask liners over spent fuel ensures that these items cannot be dropped on spent fuel. Dropping any one of these items from its maximum height will not result in loss of integrity of the spent fuel pit floor. Handling of the fuel handling equipment for infrequent maintenance under administrative control will ensure the safe handling of any fuel handling components.

The use of ~~a~~ the Yard Crane single-failure-proof crane main hook, or the auxiliary hook in accordance with NUREG-0612 and TS 3/4.2 provides assurance that a ~~credible single-failure~~ resulting in a load drop is not credible and will not result in the shipping and/or transfer cask, the cask set-down pad, the cask hatch cover, and the cask components and associated lifting devices having an adverse effect on the spent fuel pit or the irradiated fuel in the spent fuel pit. The restriction on movement of the shipping and/or transfer cask, the cask set-down pad, the cask hatch cover, and the cask components and lifting devices further ensures that these items cannot be dropped on spent fuel in the spent fuel pit storage racks. The use of the Yard Crane a single-failure-proof crane main hook, or the auxiliary hook in accordance with NUREG-0612 and TS 3/4.2 ensures that the cask hatch cover and the cask components and associated lifting devices, which are permitted over the spent fuel in the cask, cannot be dropped on the spent fuel. The safe load path is established to support the defense-in-depth approach to safety concerning heavy loads over the spent fuel pit. Deviations from or changes to the safe load path shall be performed in accordance with approved written procedures which have been reviewed by an Independent Safety Reviewer and approved by the Decommissioning Manager or designee.

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The use of the Yard Crane single-failure-proof main hook, or the auxiliary hook in accordance with NUREG-0612 and TS 3/4.2 provides assurance that a failure resulting in a load drop is not credible and will not result in the shipping and/or transfer cask, the cask set-down pad, the cask hatch cover, and the cask components and associated lifting devices having an adverse effect on the spent fuel pit or the irradiated fuel in the spent fuel pit. The restriction on movement of the shipping and/or transfer cask, the cask set-down pad, the cask hatch cover, and the cask components and lifting devices further ensures that these items cannot be dropped on spent fuel in the spent fuel pit storage racks. The use of the Yard Crane single-failure-proof main hook, or the auxiliary hook in accordance with NUREG-0612 and TS 3/4.2 ensures that the cask hatch cover and the cask components and associated lifting devices, which are permitted over the spent fuel in the cask, cannot be dropped on the spent fuel. The safe load path is established to support the defense-in-depth approach to safety concerning heavy loads over the spent fuel pit. Deviations from or changes to the safe load path shall be performed in accordance with approved written procedures which have been reviewed by an Independent Safety Reviewer and approved by the Decommissioning Manager or designee.