ATTACHMENT 1

PROPOSED CHANGE TO

DPR-25

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5.0 DESIGN FEATURES

5.1 Site

Dresden Unit 3 is located at the Dresden Nuclear Power Station which consists of a tract of land of approximately 953 acres located in the northeast quarter of the Morris 15-minute quadrangle (as designated by the United States Geological Survey), Goose Lake Township, Grundy County, IL. The tract is situated in portions of Sections 25, 26, 27, 34, 35 and 36 of of Township 34 North, Range 8 East of the Third Principal Meridian.

5.2 Reactor

A. The core shall consist of not more than 724 fuel assemblies.

B. The reactor core shall contain 177 cruciformshaped control rods. The control material shall be boron carbide powder (B_4C) compacted to approximately 70% of theoretical density, or Hafnium metal.

5.3 Reactor Vessel

The reactor vessel shall be as described in Table 4.1.1 of the SAR: The applicable design codes shall be as described in Table 4.1.1 of the SAR.

5.4 Containment

A. The principal design parameters and applicable design codes for the primary containment shall be as given in Table 5.2.1 of the SAR.

B. The secondary containment shall be as described in Section 5.3.2 of the SAR and the applicable codes shall be as described in Section 12.1.1.3 of the SAR.

C. Penetrations to the primary containment and piping passing through such penetrations shall be designed in accordance with standards set forth in Section 5.2.2 of the SAR.

5.5 Fuel Storage

A. The new fuel storage facility shall be such that the K_{eff} dry is less than 0.90 and flooded is less than 0.95.

B. The K_{eff} of the spent fuel storage pool shall be less than or equal to 0.95.

5.6 Seismic Design

The reactor building and all contained engineered safeguards are design for the maximum credible earthquake ground motion with an acceleration of 20 percent of gravity. Dynamic analysis was used to determine the earthquake acceleration, applicable to the various elevations in the reactor building.

ATTACHMENT 2

TECHNICAL SPECIFICATION AMENDMENT FOR

ASEA-ATOM CONTROL BLADES

Eight ASEA-ATOM (A-A) control blades are planned for testing by use in Dresden Unit 3 during Cycle 9 (D3C9). The use of these blades requires NRC approval because a Technical Specifications change is necessary to allow the use of Hafnium metal as a control material (Attachment 1). The impact of using these blades will be factored into the quantitative cycle specific analysis of D3C9, by Exxon Nuclear Company, and during every other cycle these blades are used.

The ASEA-ATOM blades are approximately 9% higher in reactivity worth than the existing GE blades. The A-A blades have been designed to have nuclear and mechanical compatibility with all reactor components (fuel, channels, control rod drives, fuel support pieces, etc.). The A-A blade is slightly lighter than the current blades so that scram times for the A-A blades should be as good as or better than for the existing blades. Therefore no nuclear, mechanical, or safety problems are expected to result from the use of the A-A blades. There will be two types of A-A blades used in D3C9, 4 will have only Boron Carbide (B_4C) as an absorber material, and 4 will have both B_4C and Hafnium metal as absorber materials. The Hafnium will comprise the top six inches (of a total length of 143.9 inches) of the absorber section of these 4 blades. The Hafnium section of the A-A blade is almost identical in worth to the GE blade.

The higher control blade worth of the A-A design has been evaluated for two sets of events. The first set of events are positive reactivity insertion events i.e., Rod Withdrawal Error-RWE, and the Control Rod Drop Accident-RDA, where the blade (and its' negative reactivity) is removed from the core thereby inserting positive reactivity into the core.

The impact of having a higher worth A-A blade involved in a RWE is expected to be minimal. For D3C9, these blades will be in control cells controlling high exposure (low reactivity, and therefore lower power) fuel. The higher worth blade controlling lower reactivity fuel will result in lower ΔCPR and ΔLHGR than the limiting RWE for D3C9 involving a current GE blade controlling high reactivity fuel. For future cycles where A-A blades may be in non-control cell locations, the higher worth of these blades will be explicitly factored into the limiting RWE analysis as appropriate.

The current RDA limit is that the enthalpy deposited in the fuel be less than 280 cal/gm. Using Dresden Unit 3, Cycle 8 neutronic parameters and a 9% higher worth control blade results in only a 16 cal/gm increase (from 151 to 167 cal/gm) in deposited enthalpy which indicates considerable margin exists for higher worth blades in this event. Hence acceptable margin to safety is expected to be calculated for these events.

The second set of events are negative reactivity insertion events (scram events - turbine trip without bypass, etc). Since the A-A blades have more negative reactivity than the current GE blades the impact of the A-A blades on these events is expected to be beneficial. Due to the A-A blades' higher worth and lower weight, more negative reactivity will be inserted faster than with the standard blades. The cycle specific analysis will use conservative scram times and scram reactivity for these events, and acceptable margin to safety is expected to be calculated for these events.

Although not a direct safety concern, Commonwealth Edison has evaluated the impact of the higher worth A-A blade design on the possibility of short reactor periods during startup. The 9% higher worth could result in slightly faster periods than a standard blade under identical conditions. However, the added risk of short periods is considered minimal due to the extensive procedural and rod sequencing controls implemented in response to previous BWR short period events throughout the industry.

Details on the use of A-A blades in D3 Cycle 9 will be provided with our reload licensing submittal later this summer.

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ATTACHMENT 3

Proposed Amendment to DPR-25 to Allow Use of
Hafnium Metal in Control Blades
Evaluation of Significant Hazards Consideration

Commonwealth Edison proposes to amend Operating License DPR-25 for Dresden Unit 3 to allow the use of Hafnium metal as a neutron absorber material in control blades. Previous control blades used at Dresden utilized boron carbide as the absorber material. The use of Hafnium in place of or in addition to boron is desired to provide comparable neutron absorption characteristics while eliminating or reducing the production of Helium gas. This will reduce the source of internal pressure on the control blade structure, thereby reducing material stresses and the likelihood of stress corrosion cracking.

This change is requested primarily to allow the insertion of demonstration control blades manufactured by ASEA-ATOM (A-A) in Dresden 3 for cycle 9 operation. The A-A blades, although mechanically different than the General Electric control blades currently in use, have been designed to be mechanically compatible with all reactor components and neutronically similiar to the existing blades. The A-A blades are expected to have significantly longer in-reactor lifetimes compared to control blades curently in use. Substantial operating experience with A-A blades has been accumulated in European reactors with no indication of blade failure. The use of Hafnium in control blades has previously been approved for G.E. test blades in Peach Bottom (Refer to NEDO 24231 dated December, 1979).

One of the Commission's examples (48 FR 14871) involving no significant hazards relates to a change which either may result in some increase to the probability or consequences of a previously analyzed accident or may reduce in some way a safety margin, but where the results of the change are clearly within all acceptable criteria with respect to the system or component.

Due to the similiar weight of the A-A and General Electric control blades, scram performance is expected to be very similiar. The A-A blades have approximately 9% greater reactivity worth, indicating an overall improvement in scram reactivity characteristics. The greater worth may result in a slightly larger reactivity insertion for the Rod Drop Accident Event (RDA) or the Rod Withdrawal Error (RWE). However, the change will be insignificant since substantial margin is available to the RDA acceptance criteria and the RWE results, including the effect of the higher worth blades, will remain bounded by other, more severe operational transients which typically establish the operational margin to safety.

Based on the preceeding discussion, it is concluded that the proposed change clearly falls within all acceptable criteria with respect to the system or component, the consequences of previously evaluated accidents will not be increased, and the margin to safety will not be decreased. Therefore, based on the guidance provided in the Federal Register and the criteria established in 10CFR50.92(e), the proposed change does not constitute a significant hazards consideration.

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A F F I D A V I T

I, Göran G.A. Bernander, hereby say and depose:

1. I am Manager, Reactor Core Design, for AB ASEA-ATOM ("AA"), and as such I am authorized to execute this Affidavit.

2. I am familiar with AA's detailed document control system and policies which govern the protection and control of information.

3. I am familiar with the document entitled "Performance Verification of an improved BWR Control Blade Design (TR/BR 82-98)", referred to as "Document". Information contained in this Document has been classified by AA as proprietary in accordance with the system and policies established by AA for the control and protection of information.

4. The Document contains information of a proprietary and confidential nature and is of the type customarily held in confidence by AA and not made available to the public. Based on my experience, I am aware that other companies regard information of the kind contained in the Document as being proprietary and confidential.

5. The Document has been made available to the United States Nuclear Regulatory Commission in confidence, with the request that the information contained in the document not be disclosed or divulged.

6. The Document contains information which is vital to a competitive advantage of AA and would be helpful to competitors of AA when competing with AA.

7. The information contained in the Document is considered to be proprietary by AA because it reveals certain distinguis[illegible] features of a proven, unique BWR longlife control blade desig[illegible] and includes information utilized by AA in its business which affords AA an opportunity to obtain a competitive advantage over its competitors who do not or may not know or use the information contained in the Document.

8. The disclosure of the proporietary information contained in the Document to a competitor would permit the competitor to reduce its expenditure of money and manpower and to improve its competitive position by giving it extremely valuable insights into AA's BWR control blade design and performance data and would result in substantial harm to the competitive position of AA.

9. The Document contains proprietary information which is held in confidence by AA and is not available in public sources.

10. In accordance with AA's policies governing the protection and control of information, proprietary information contained in the Document has been made available, on a limited basis, to others outside AA only as required and under suitable agreement providing for non-disclosure and limited use of the information.

11. AA policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

12. This Document provides information which reveals AA control blade design developed by AA over the past fifteen years. AA has invested substantial amounts of money and many man-years of effort in the related development and has more than ten years of successful reactor operation experience with this unique control blade design. Assuming a competitor had available the same background data and incentives as AA, the competitor might, at a minimum, develop the information for the same expenditure of manpower, money and reactor operating time as AA.

Based on my experience in the industry, I do not believe that the background data and incentives of AA's competitors are sufficiently similar to the corresponding background data and incentives of AA to reasonably expect such competitors would be in a position to duplicate AA's proprietary information contained in the Document.

THAT the statements made hereinabove are, to the best of my knowledge, information, and belief, truthful and complete.

FURTHER AFFIANT SAYETH NOT.

Göran G.A. Bernander

CONFIRMED AND SUBSCRIBED
before me this 27th day of
September, 1982.

Ex officio

NOTARY PUBLIC

CARL-GUSTAF WESTHOLM
Notary Public of the
City of Västerås, Sweden

Fee 40 SEK