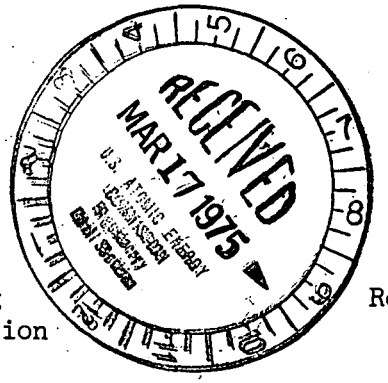
Regulatory File Cy.

Consumers Power Company

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • Area Code 517 788-0550

March 11, 1975



Director of Reactor Licensing
US Nuclear Regulatory Commission
Washington, DC 20555

Re: Docket 50-255
License DPR-20
Palisades Plant

Gentlemen:

On August 9, 1974, we transmitted an amendment to the Palisades Plant Final Safety Analysis Report (FSAR). This amendment was a new Appendix J entitled, "Evaluation of Postulated Cask Drop Accidents." A review of this amendment has disclosed a number of errors which are discussed below:

1. On Page J-34, fifth line from the bottom, the words "inorganic and organic" have been transposed. The correct filter efficiencies were used in the dose calculation.

2. The dose calculation utilized old X/Q values. The proper X/Q values (taken from FSAR, Page 14.22-7, Rev 5/26/71) have been used in recirculation of accident consequences.

Attached are Pages J-33, J-34, J-35 and J-37 which have been appropriatedly revised.

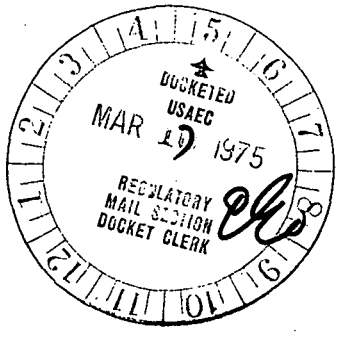
Yours very truly,

Ralph B. Sewell

RBS/ce

Ralph B. Sewell
Nuclear Licensing Administrator

CC: JGKeppler, USNRC



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2) Fuel racks and assemblies.

This equipment could only become damaged as a result of cask tipping. Section 5.2 discusses the modification which will be made to preclude this.

Even in the event the cooling water return lines to the spent fuel pool were impacted, it is highly unlikely that the system performance would be degraded to the extent that pool boiling would occur. In any event, sufficient makeup would be available from the Safety Injection and Refueling Water Storage Tank and the Fire Protection system to preclude uncovering of the fuel.

For the case that the cask tilts and impacts the fuel racks, 22 fuel assemblies would have to be crushed before offsite doses would approach 10 CFR 100 limits. This analysis, presented in Section 4.3, is based on an extremely conservative set of assumptions.

J.4.3 ENVIRONMENTAL EFFECTS

In the unlikely event of a cask drop into the cask loading area, it is considered extremely unlikely that any fuel assemblies could be damaged. This is based on the fact that cask movement is made in an east-west direction, between cask washdown pit and cask loading area. Consequently, cask tipping in the cask loading pit would be expected to affect

only the portion of the pool west of the loading area as defined by Figure 2. This area contains no stored spent fuel assemblies.

The spent fuel pool can hold 272 fuel bundles, but only 1/3 of a core (91) could have the exposure hypothesized in the previous analysis. The remaining bundles (if they are in the fuel pool) would contribute much less to the site boundary dose. Even in the event that the cask could tip in a southerly direction and impact the stored fuel assemblies, a total of 22 stored fuel assemblies, could be damaged before current dose limitations (10 CFR 100) would be violated.

The preceeding study was based on the following assumptions:

1) Cask drop occurs 48 hours after shutdown with some number of recently unloaded fuel assemblies resident in the pool.

2) Fuel handling area air filters are operative, with all airborne activity released to the atmosphere via charcoal filtration using Regulatory Guide 1.25 filter efficiencies for inorganic and organic iodine of 90 percent and 70 percent, respectively.

3) Total activity released from the fuel during the accident is assumed to be uniformly released from the building over a two hour period without credit being

taken for radioactive decay after release from the fuel.

4) The dose calculations were based on radioactive releases from the maximum irradiated fuel assembly. This damaged assembly is assumed to have been removed from the core 48 hours before the accident.

5) In accordance with the FSAR design basis peaking factor curve, the peaking factor for the maximum irradiated fuel assembly was taken as 2.0.

6) The decay schemes used are from "Table of Isotopes" Lederer, etal, and used in the Bechtel Computer code NE602, SOURCE2 to obtain activities 48 hours after shutdown.

7) The semi-infinite cloud dose model was used for external doses.

8) Radioactivity is released at ground level.

9) X/Q values are calculated from the format presented in Appendix D of the Palisades FSAR. X/Q values tabulated for 667 meters ($2.56X10^{-4}$ sec/m^3) and 4820 meters ($2.80X10^{-5}$ sec/m^3) were used for the site boundary and low population zone boundary.

TABLE 4.3
CASK DROP ACCIDENT DOSES
PALISADES

CLAD FAILURE AND GAP RELEASE WITH 23' WATER OVERCOVER AND FUEL HANDLING AREA RADIOLOGICAL FILTERS

	rem
WHOLE BODY	
Site Boundary	.396
LPZ Boundary	.044
SKIN	
Site Boundary	1.75
LPZ Boundary	.188
THYROID	
Site Boundary	13.5
LPZ Boundary	1.48
ASSUMPTIONS	
RP Factor	2
Partition Factor in Spent Fuel Pool	
Iodine	.01
Noble Gases	1.0
Organic Iodine	.25
Inorganic Iodine in FHA Atmosphere	.75
Fraction of Total Assembly Released From Full Assembly	
I-XE-KR (except KR85)	.1
KR85	.3

NOTE: Results are for a single maximum irradiated fuel assembly damaged 48 hours after shutdown.