



**Nebraska Public Power District**

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NLS2022003  
January 20, 2022

50.46(a)(3)(ii)

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D.C. 20555-0001

**Subject:** Annual Report of Changes and Errors in Emergency Core Cooling System  
Evaluation Models for 2021  
Cooper Nuclear Station, Docket No. 50-298, DPR-46

**Reference:** Letter from Linda Dewhirst, Nebraska Public Power District, to U.S. Nuclear  
Regulatory Commission, dated January 20, 2021, "Annual Report of Changes and  
Errors in Emergency Core Cooling System Evaluation Models for 2020"

Dear Sir or Madam:

The purpose of this letter is to submit the 2021 annual report of changes and errors in the  
Emergency Core Cooling System (ECCS) evaluation models pursuant to 10 CFR 50.46(a)(3)(ii)  
for Cooper Nuclear Station (CNS).

Per the reference letter, Nebraska Public Power District previously reported errors/changes in the  
ECCS evaluation models for GNF2 fuel, these errors continued to apply to the ECCS evaluation  
methodologies for 2021. There were two zero-degree errors for the GNF2 fuel type reported in  
2021 applicable to the licensing basis peak clad temperature (PCT). CNS continues to comply  
with the PCT limit of 2200°F specified in 10 CFR 50.46(b)(1).

Attachment 1 to this letter itemizes the changes/errors in the ECCS evaluation models that  
remained applicable in 2021 and Attachment 2 provides data that demonstrates compliance with  
the ECCS performance requirements of 10 CFR 50.46.

This letter makes no regulatory commitments.

If you have any questions regarding this report, please contact Ryan VanderPlas, Engineer, at  
(402) 825-5409.

Sincerely,

Linda Dewhirst  
Regulatory Affairs & Compliance Manager

/tf

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Attachments: 1) Changes/Errors in Emergency Core Cooling System Evaluation Models  
Applicable in 2021

2) 10 CFR 50.46 Criteria in Emergency Core Cooling System Evaluation Models  
for 2021

cc: Regional Administrator w/attachments  
USNRC - Region IV

Cooper Project Manager w/attachments  
USNRC - NRR Plant Licensing Branch IV

Senior Resident Inspector w/attachments  
USNRC - CNS

NPG Distribution w/attachments

CNS Records w/attachments

**Changes/Errors in Emergency Core Cooling System Evaluation Models Applicable in 2021**

GNF2 Fuel

GE Hitachi 10 CFR 50.46 Notification Letter	Date	Subject	PCT Impact
2017-01	6/12/17	GNF2 Lower Tie Plate Leakage	-20°F
2017-02	8/2/17	Fuel Rod Plenum Temperature Update	0°F
2019-05	11/1/19	SAFER Lower Limit on Differential Pressure for Bypass Leakage	0°F
2020-01	4/14/20	PRIME Code Errors for Evaluation Model Fuel Rod Condition Inputs	0°F
2021-01	2/18/21	Fuel Pellet to Plenum Spring Conductance Input to ECCS LOCA Calculations	0°F
2021-02	2/18/21	Inner Cladding Surface Roughness Input to Gap Conductance Model	0°F
			Total = -20°F

**10 CFR 50.46 Criteria in Emergency Core Cooling System Evaluation Models for 2021**

Fuel Type	Licensing Basis PCT	Local Oxidation	Core-Wide Metal-Water Reaction
GNF2	2130°F	<6.00%	<0.10%