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Docket: NRC-2020-0237

Considerations for Estimating Site-Specific Probable Maximum Precipitation at Nuclear Power Plants in the United States of America

Comment On: NRC-2020-0237-0001

Considerations for Estimating Site-Specific Probable Maximum Precipitation at Nuclear Power Plants in the United States of America

Document: NRC-2020-0237-DRAFT-0004

Comment on FR Doc # 2020-28708

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General Comment

See attached file(s)

Attachments

FERC Comments on ID NRC-2020-0237 SSPMP

FEDERAL ENERGY REGULATORY COMMISSION
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March 1, 2021

Mr. Kevin Quinlan
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

RE: Federal Energy Regulatory Commission (FERC) comments on the U.S. Nuclear Regulatory Commission (NRC) draft NUREG entitled “Considerations for Estimating Site-Specific Probable Maximum Precipitation at Nuclear Power Plants in the United States of America” (Docket ID: NRC-2020-0237).

Dear Mr. Quinlan:

The Federal Energy Regulatory Commission is pleased to submit the following comments in response to the Nuclear Regulatory Commission’s proposed draft NUREG entitled “Considerations for Estimating Site-Specific Probable Maximum Precipitation at Nuclear Power Plants in the United States of America” (Docket ID: NRC-2020-0237).

The FERC is responsible for the safety and adequacy of over 2,500 jurisdictional hydroelectric dams. Within the Office of Energy Projects, the Division of Dam Safety and Inspections (D2SI) performs annual inspections and evaluates the safety and adequacy of these dams for all loading conditions, including extreme loading conditions such as the Probable Maximum Flood (PMF). Traditional methods to estimate the PMF include following the guidance provided by the appropriate Hydrometeorological Report (HMR), developed by the National Weather Service, to estimate the probable maximum precipitation for use in flood flow routing to estimate the PMF. Since the HMR’s are not regularly updated, new storm data collection and analysis methods are being employed to develop new Site Specific Probable Maximum Precipitation (SSPMP) estimates.

Although the FERC utilizes a Board of Consultant (BOC) process for the review of the development of SSPMP estimates, we concur that an independent review and analysis of these new data collection and analysis methods is prudent. Our technical staff has reviewed the draft document and have the following comments for our consideration:

1. Storm Screening Procedure - No discussions found on new storm screening or frequency.

Comment: The SSPMP depths are estimated based on recorded extreme storm events up to the time of the study. The draft report (NUREG/KM-0015) does not provide guidance on how future extreme storms should be incorporated into the reassessment of the SSPMP studies. Any new, significant storm event that occurs in the study's storm search area represents an opportunity to add to the available dataset used to develop PMP values. Another benefit of evaluating new storm data is to avoid the possibility of hydrometeorological and hydrologic studies becoming outdated, such as the current suite of HMR's. It is prudent to maintain these studies including evaluating any new storm data and comparing to/or including the information into existing studies.

2. PMP depths validation - No discussions found on validating the PMP depths.

Comment: The NRC draft report does not provide guidance on validating the new PMP depths. The PMP depth should be compared to the HMR developed PMP value, NOAA Atlas 14, or other local rainfall frequency studies to ensure the developed value is "reasonable". It is understood that "reasonable" is a subjective estimate, however, the SSPMP estimate should at a minimum exceed historic records. If it doesn't, it shouldn't be considered the PMP.

3. Moisture Transposition Factor - No discussion was found on upper and lower limits of the MTF.

Comment: The draft report does not provide guidance on the appropriate range of values for the moisture transposition factor. In general, the lower limit is set as 1.0 because of the potential exists for double counting of moisture adjustment. Per HMR 55A, MTF upper level adjustment is limited to an increase of 20% or a factor of 1.2. This limitation was adopted to avoid the unduly increasing of storm moisture beyond to reasonable limits.

4. Comment: DADs for Multicentered Storms - In regard to the method of splitting storm centers and developing multiple DADs, the report states "Given its significant impacts on larger area DAD values, decomposition of multicenter storm events should be avoided or, if used, accompanied by substantive justifications." Recommend that the guidance further clarifies that the justification may include performing a sensitivity analysis to check the effect of applying this method to develop the PMP with respect to the storm area, duration and storm type for the basin in question. Developing a single DAD for a multicenter storm may have the most impact for larger basins that are controlled by long duration, larger area storms. However, developing DAD for individual storm centers may have the most impact for smaller basins that may be controlled by short duration,

smaller area storms. A sensitivity analysis should be performed to evaluate these potential impacts that are specific to the basin of interest.

5. Comment: The draft guidelines do not discuss the development of Statewide Site Specific PMP studies. Currently, multiple states have contracted or completed new Statewide Site Specific PMP's. A discussion addressing how/or if the NRC would consider the use of a Statewide study for use on an NRC jurisdictional facility

6. Comment: Envelopment Process - The draft guidelines notes that the envelopment curve may provide a value at a given storm area by a larger margin than the storm DADs, owing to the desire to produce a smoothed curve. However, the guidelines do not discuss what to look for in the envelopment curve. Typically, it is preferred for the envelopment curve to be concaved down. Additionally, we have found that when the envelopment is significantly greater than the storm DADs at a particular storm area (or range of areas), this identifies a potential need to reevaluate and include additional storms. However, it should also be noted that the development of the envelopment curve is critical only for the range of storm areas that are likely to control for the subject basin. In the case were there is uncertainty for storm areas not applicable to the study basin, the study should clearly identify any limitations in applicability to adjacent watersheds. For example, using the "Example 72-Hour Depth-Area Curve" in the guidelines, the envelopment would appear to be appropriate for a 500 square miles basin. However, if the guidelines were for a 2,000 square miles basin, additional review/sensitivity of envelopment curve and potentially inclusion of additional storms to attempt to fill in the "gap" would be warranted.

We would like to thank the NRC for the opportunity to provide comments on the draft NUREG. Please feel free to contact me at (202) 502-6015, if you have any questions.

Sincerely,



Kenneth B. Fearon, P.E.
Deputy Director
Division of Dam Safety and Inspections