



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 8, 2014

LICENSEE: Energy Northwest

FACILITY: Columbia Generating Station

SUBJECT: SUMMARY OF JUNE 10, 2014, MEETING BETWEEN REPRESENTATIVES OF THE U.S. ARMY CORPS OF ENGINEERS, U.S. DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION, NUCLEAR REGULATORY COMMISSION, AND ENERGY NORTHWEST TO DISCUSS FLOODING ANALYSIS ASSOCIATED WITH COLUMBIA GENERATING STATION (TAC NO. MF3039)

On June 10, 2014, the U.S. Nuclear Regulatory Commission (NRC) staff had a closed meeting with the U.S. Army Corps of Engineers (USACE), U.S. Department of the Interior Bureau of Reclamation, and Energy Northwest to discuss the flooding hazard reevaluation (FHR) for the Columbia Generating Station (CGS). The meeting was held at USACE's offices in Seattle, Washington. The closed meeting notice dated June 2, 2014, can be found in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML14149A101. The participants in the meeting included the following individuals:

- NRC – George Wilson, Chris Cook, Brad Harvey, Joe Sebrosky, Ken See*, and Warren Sharp*
- USACE – Teresa Reinig, Roger Kay, Lynn Daniels, Sara Marxen, Travis Ball and Tracy Schwarz
- U.S. Department of the Interior Bureau of Reclamation – Karen Weghorst and Chris Regilski*
- Energy Northwest – Lisa Williams and Andy Langdon
- Energy Northwest contractors (Enercon) – Suraj Balan and Chris Pauley

* indicates individual participated via phone

The purpose of the meeting was to discuss the portion of the FHR the USACE is performing under contract to the NRC for CGS. By letter dated October 4, 2013 (ADAMS Accession No. ML13284A075), Energy Northwest requested NRC assistance in having the USACE perform a dam failure analysis for the Columbia River watershed to support Energy Northwest's development of an FHR in response to the March 12, 2012, request for information (ADAMS Accession No. ML12073A348).

The USACE presented the methodology it used to perform a screening analysis to identify potentially critical dams within the CGS watershed. The USACE and NRC provided Energy

Northwest a high-level summary of the results of the screening analysis and the next steps in the process. The next steps include USACE completing a detailed analysis of the potentially critical dams and the NRC transmitting the USACE results to Energy Northwest.

The agenda for the June 10, 2014, meeting can be found in Enclosure 1. Two questions that Energy Northwest had regarding USACE's dam failure analysis can be found in Enclosure 2. Summary answers to the two questions provided at the meeting can also be found in Enclosure 2.

The following action items were identified during the meeting:

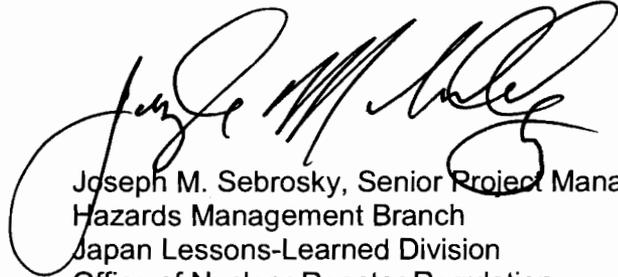
- Based on a question from Energy Northwest, the NRC staff took an action to provide guidance on how Energy Northwest should consider the dam failure analysis results when responding to the Mitigating Strategies Order that was issued on March 12, 2012 (ADAMS Accession No. ML12054A735). Energy Northwest indicated that some of the strategies for flying equipment into nearby airports from the regional response center could be difficult to perform if the dam failure analysis led to flooding inundation levels that resulted in the nearby airports and roads to the site not being useable.
- Energy Northwest took an action to inform the NRC staff if it wanted hydrographs for locations other than at the CGS site. For example, some licensees have requested hydrographs for locations upstream of the nuclear power plant so that they can use the hydrographs as inputs into a two-dimensional model that will provide river velocities at multiple locations at the nuclear power plant site. The USACE hydrographs are one-dimensional models that provide for only a main channel, left bank, and right bank velocity. Energy Northwest noted that based on the guidance it provided in response to the NRC action item above, it may also need hydrographs for the Tri-City's area downstream of the CGS site to assess whether or not there is an impact on its ability to take actions in accordance with its response to the Mitigating Strategies Order.

Subsequent to the meeting and in response to the above action item, the NRC staff informed Energy Northwest that the response to the Mitigating Strategies Order does not have to consider inundation levels provided in the USACE FHR. The Order requires licensees to develop strategies to address current design/licensing basis external hazards. The NRC staff will evaluate whether to modify the licensing basis flood hazard required to be considered for the Order as part of the broader FHR activities. However, it would be prudent for licensees to consider appropriate modifications to their strategies, based on changes in the knowledge of the external hazards (such as, considering alternate means to get equipment to the site from the regional response centers if airports and roads are not available due to the results of a dam failure).

Subsequent to the meeting and in response to the above action item, Energy Northwest provided the locations for the hydrographs it is requesting from USACE. The locations are provided in Enclosure 3 of this summary.

The USACE was provided an opportunity to comment on this summary prior to its issuance and their comments were addressed in the final version of this summary.

Please direct any inquiries to the NRC CGS project manager, Andrea George, at 301-415-1081 or at Andrea.George@nrc.gov.



Joseph M. Sebrosky, Senior Project Manager
Hazards Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:

1. Agenda
2. Energy Northwest Questions and Answers
3. Energy Northwest Requested Hydrograph Locations

cc w/encls: Distribution via ListServ



**US Army Corps
of Engineers®**



NRC/USACE Scoping Meeting Columbia NPP

June 10, 2014

**USACE Seattle District
The Oxbow Building,
4735 East Marginal Way South, Seattle, WA 98134**

----- Agenda Topics -----

TUESDAY MORNING JUNE 10

Licensee Meeting

| | | |
|--|---------------------------------------|---|
| Arrival for Security Screening | ALL | 08:45 – 09:00 |
| Introductions | ALL | 09:00 – 09:15 |
| <ul style="list-style-type: none"> • Columbia River Watershed Management • Hydrologic and Hydraulic Modeling Methods • Licensee's questions and answers | USACE USACE EN- NW/NRC/USACE | 09:15 – 09:45 09:45 – 10:15 10:15 – 11:00 |
| BREAK | | 11:00 – 11:30 |
| Continued discussions as necessary | EN- NW/NRC/USACE | 11:30 – 12:00 |

Energy Northwest's Questions on USACE's Dam Failure Analysis

Following are two questions from Energy Northwest regarding United States Army Corps of Engineers (USACE) Dam Failure Analysis for the Columbia Generating Station (CGS) watershed.

Information: General storm probable maximum precipitation (PMP) (72-hour Storm), 100-year rainfall on probable maximum snowpack (24-hour Storm), Cool Season: (November – February or March) PMP on 100-Year Snowpack (72-hour Storm) were the three flood causing precipitation alternatives evaluated in the CGS probable maximum flood (PMF) analysis (CE-02-13-18). Cool Season PMP on snow with 100-Year snowpack is the controlling PMP for CGS.

Question: Will the USACE dam failure analysis provide hydrographs for all season and cool season PMP including snowmelt alternatives?

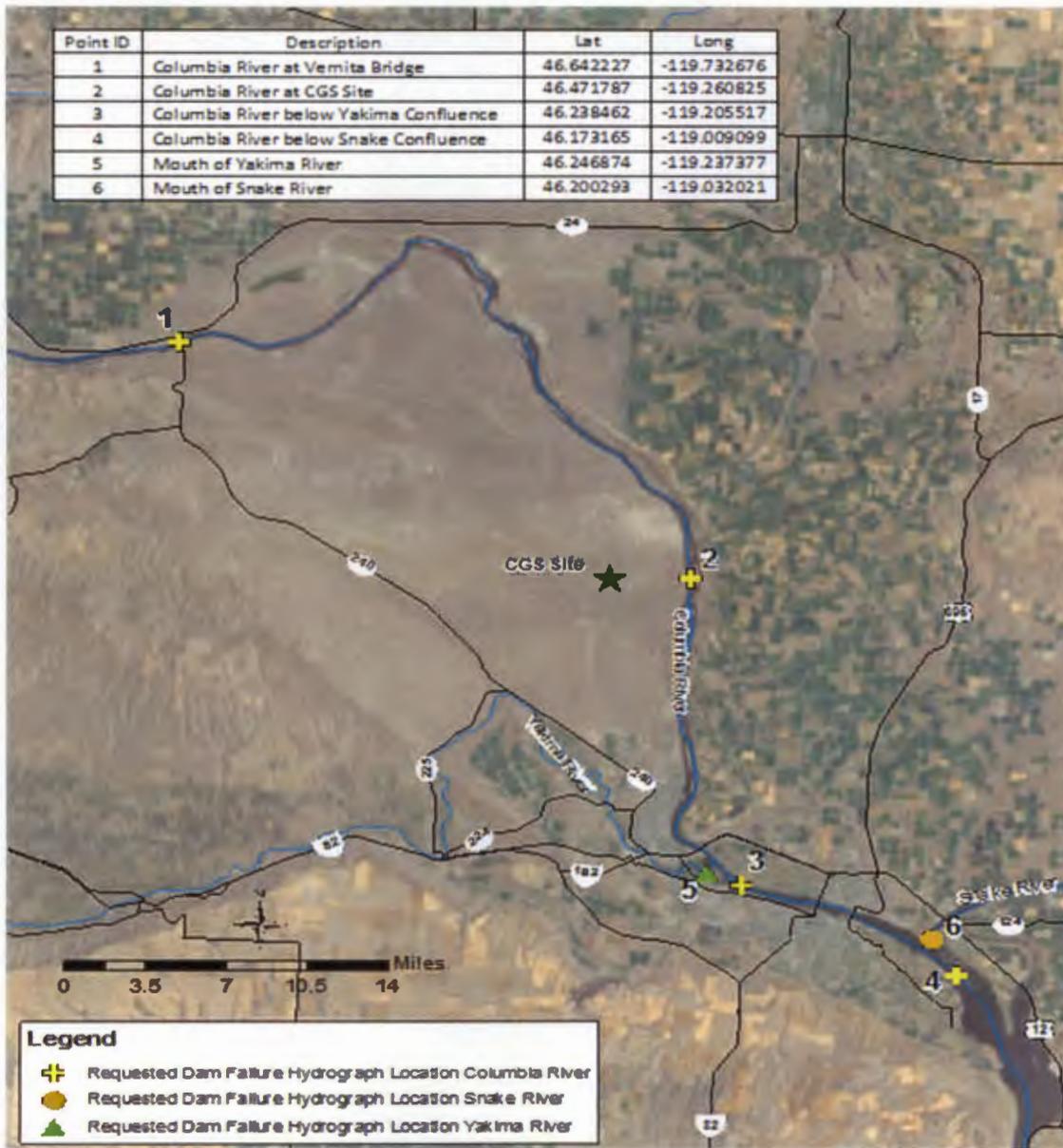
Answer: Energy Northwest explained that CE-02-03-18 is a civil engineering calculation that is being performed by its contractor (Enercon) to capture Energy Northwest's portion of the CGS flooding hazard reevaluation (FHR). The NRC staff indicated that the USACE dam failure analysis will be performed in accordance with the guidance found in JLD-ISG-2013-01, "Guidance for Assessment of Flooding Hazards Due to Dam Failure," (ADAMS Accession No. ML13151A153) and ANSI/ANS-28-1992, "Determining Design Basis Flooding at Power Reactor Sites." The dam failure hydrographs for each applicable dam failure scenario will be provided in accordance with the ISG and ANSI guidance for the given failure mechanism assumed for the dam failure scenario (e.g., sunny day failure, hydrologic failure, and seismic failure).

Information: Flood levels on the Columbia River near the CGS site are influenced by backwater conditions created by Wallula Gap and McNary Dam. Backwater effects on the Columbia are further influenced by the contribution of PMF flows from the Yakima and Snake Rivers, both of which have their confluence with the Columbia River downstream of the CGS site. There were NO potentially critical dams based on Interim Staff Guidance Section 3.2.1 volume screening for the Yakima River drainage basin.

Question: Will the USACE dam failure analysis provide hydrologic, seismic, and "sunny day" dam failure hydrographs for the Columbia and Snake Rivers dam failure discharge?

Answer: The NRC staff noted that the USACE will use the screening guidance provided in the NRC ISG to identify potentially critical dams. Potentially critical dams will then undergo further detail analyses as described in the ISG. The USACE will utilize the ISG guidance and expert judgment to determine whether a hydrologic failure or a seismic failure analysis is appropriate to perform for each of the potentially critical dams. At a minimum, for dams that screen in for detailed dam breach analysis, Energy Northwest will be provided with the hydrographs for the "sunny day" failure mechanism. If the USACE analysis determines that hydrologic or seismic failures are plausible, then hydrographs for these failure scenarios will also be provided. USACE will provide hydrographs on those rivers with dam failures and not on tributaries without dam failures.

Energy Northwest Requested Hydrograph Locations



Note: Latitude and longitude of each point was provided in lieu of river miles. Points 3 and 4 are on the Columbia River and would include the dam failure flows from Yakima River and Snake River. Points 5 and 6 are included to identify the contribution of Yakima River and Snake River to the overall dam failure flow.

The USACE was provided an opportunity to comment on this summary prior to its issuance and their comments were addressed in the final version of this summary.

Please direct any inquiries to the NRC CGS project manager, Andrea George, at 301-415-1081 or at Andrea.George@nrc.gov.

/RA/

Joseph M. Sebrosky, Senior Project Manager
Hazards Management Branch
Japan Lessons-Learned Division
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures:

1. Agenda
2. Energy Northwest Questions and Answers
3. Energy Northwest Requested Hydrograph Locations

cc w/encls: Distribution via ListServ

DISTRIBUTION:

| | | | |
|------------------------------|----------------|--------------|---------------|
| PUBLIC | JNick, EDO RIV | BHarvey, NRO | DBradley, RIV |
| LPL4-1 Reading | CCook, NRO | KSee, NRO | AGeorge, NRR |
| RidsNrrDorlLpl4-1 Resource | NTiruneh, NRO | WSharp, NRO | |
| RidsNrrLAJBurkhardt Resource | SFlanders, NRO | NTaylor, RIV | |
| RidsNrrPMColumbia Resource | GWilson, NRR | JGroom, RIV | |

ADAMS Accession Nos.: Meeting Notice ML14149A101 Meeting Summary ML14168A045*via email

| | | | |
|--------|---------------------|--------------------|-------------------|
| OFFICE | NRR/DORL/LPLIV-1/PM | NRR/DORL/LPL4-1/LA | NRO/DSEA/RHM1/BC* |
| NAME | AGeorge | JBurkhardt | CCook |
| DATE | 7/7/14 | 6/17/14 | 7/8/14 |
| OFFICE | NRR/JLD/JHMB/BC | NRR/JLD/JHMB/PM | |
| NAME | MMitchell | JSebrosky | |
| DATE | 7/8/14 | 7/8/14 | |

OFFICIAL RECORD COPY