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

September 8, 2014

LICENSEE: Northern States Power Company - Minnesota

FACILITY: Monticello Nuclear Generating Plant
Prairie Island Nuclear Generating Plant, Units 1 and 2

SUBJECT: SUMMARY OF AUGUST 5, 2014, **CLOSED** MEETING BETWEEN REPRESENTATIVES OF THE U.S. ARMY CORPS OF ENGINEERS, U.S. NUCLEAR REGULATORY COMMISSION, AND NORTHERN STATES POWER COMPANY – MINNESOTA TO DISCUSS FLOODING ANALYSIS ASSOCIATED WITH MONTICELLO NUCLEAR GENERATING PLANT AND PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2 (TAC NOS. MF3696, MF3697 AND MF3698)

On August 5, 2014, the U.S. Nuclear Regulatory Commission (NRC) staff held a closed meeting with the U.S. Army Corps of Engineers (USACE), and Northern States Power Company – Minnesota, doing business as Xcel Energy (Xcel), to discuss the flooding hazard reevaluation (FHR) for the Monticello Nuclear Generating Plant (MNGP) and Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2. The meeting was held at USACE's offices in Saint Paul, Minnesota. The closed meeting notice dated July 24, 2014, can be found in the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML14205A524. The agenda for the August 5, 2014, meeting, including the list of attendees, can be found in Enclosure 1. Prior to the meeting Xcel provided a list of questions associated with the USACE FHR for the MNGP and PINGP sites. These questions were discussed during the meeting. The questions and their answers can be found in Enclosure 2.

The purpose of the meeting was to discuss the portion of the FHR the USACE is performing under contract to the NRC for MNGP and PINGP, Units 1 and 2. By letters dated March 5, 2014, Xcel requested NRC assistance in having the USACE perform a dam failure analysis for the Mississippi watershed for MNGP and PINGP, Units 1 and 2 (ADAMS Accession Nos. ML14065A112 and ML14064A291, respectively). Xcel requested the NRC's assistance to support Xcel's development of a MNGP and PINGP, Units 1 and 2 flooding hazard reevaluation report (FHRR) in response to the March 12, 2012, request for information issued pursuant to Title 10 of the *Code of Federal Regulations* Part 50, Section 50.54(f) (ADAMS Accession No. ML12073A348).

Meeting Highlights

The USACE described the results of the screening process it performed on the dams upstream of the MGNP and PINGP sites. Consistent with guidance outlined in Japan Lessons-Learned Project Directorate (JLD) Interim Staff Guidance (ISG) JLD-ISG-2013-01, "Guidance for Assessment of Flooding Hazards Due to Dam Failure," (ADAMS Accession No. ML13151A153) the USACE performed an analysis of the 180 dams upstream of Monticello, and 618 dams upstream of Prairie Island, and determined that there are no "potentially critical" dams that

warrant a more detailed dam breach analysis. Although no dams have been identified as "potentially critical" dams, in accordance with the JLD-ISG-2013-01, USACE will be providing the NRC with a recommendation regarding modeling of a basin-wide probable maximum flood (PMF).

Regarding the PINGP basin-wide PMF, USACE indicated that a PMF was developed in 1985 for a dam and lock that is immediately downstream of the PINGP site. USACE considers this PMF to be relevant to PINGP and it is likely that a USACE detailed model for the PINGP basin-wide PMF will not be needed.

Regarding the Monticello basin-wide PMF, USACE indicated that there is no modern basin-wide PMF that is available for this site and that USACE will most likely recommend to the NRC that a basin-wide PMF be developed. If the USACE does develop a basin-wide PMF analysis for Monticello it will be developed in accordance with current guidance and the USACE will also use its knowledge of the river basin and characteristics of the dams in the basin to develop the Monticello basin-wide PMF analysis.

The following action items resulted from the meeting:

- To aid in the USACE's development of a PMF model for Monticello, Xcel will provide a list of the calculations and models that they are developing with target dates for when this information will be available. The NRC will review the list and then inform Xcel of the calculations and models that would be helpful to aid in the development of the USACE's Monticello PMF model. Subsequent to the meeting Xcel provided the list of Monticello PMF calculations. This list can be found in Enclosure 3.

- Xcel will provide a list of the calculations being developed for Prairie Island and the NRC may request these calculations to assess what, if any, differences there are between the basin-wide PMF for Prairie Island that USACE believes is relevant and Xcel's calculations. Subsequent to the meeting Xcel provided the list of Prairie Island PMF calculations. This list can be found in Enclosure 4.

- Xcel will provide a list of locations for hydrographs that Xcel would like to have for the USACE basin-wide PMF analysis. Subsequent to the meeting Xcel identified the hydrograph locations. The locations can be found in Enclosure 5.

- Xcel will determine whether it would like to have PMF levels for secondary events. There was a discussion that the Monticello basin-wide PMF will most likely be based on a rain on snow event. Xcel indicated that although a summer PMF may lead to lower levels at the site, the flood may arrive at the site sooner than the rain on snow event and there could be some benefit in gaining insights from such a secondary event. Subsequent to the meeting Xcel informed the NRC staff that it would not request USACE to perform evaluations of any secondary flood events.

- The NRC took an action to determine whether or not if in addition to providing the hydrographs associated with PMF study, which it believes is relevant to Prairie Island, if USACE would be willing to provide the details, including assumptions, associated with this PMF study. Xcel indicated that having the USACE PMF study as soon as possible, if available, would be helpful in its efforts of developing its own basin-wide PMF for Prairie Island which it intends to base on a site-specific probable maximum precipitation model.

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 me at 301-415-1032 or at Joseph.Sebrosky@nrc.gov.

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

Docket Nos. 50-263, 50-282,
and 50-306

Enclosures:
1. Agenda
2. Xcel Questions and Answers
3. Monticello Related Probable Maximum Flood Calculations
4. Prairie Island Probable Maximum Flood Calculations
5. Location of Hydrographs for Monticello Nuclear Generating Plant and Prairie Island Nuclear Generating Plant (PINGP)

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U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

NRC/USACE Scoping Meeting Monticello and Prairie Island NPPs

Aug 5, 2014

USACE St. Paul District Office
Executive Conference Room, 7th Floor
180 5th St E
St Paul, MN 55101

Attendees:

NRC:	Andy Campbell, Ken See, Brad Harvey, Joe Sebrosky
USACE Omaha:	Roger Kay, Teresa Reinig, Chris Fassero
USACE St. Paul:	Doug Crum, Corby Lewis, Bonnie Greenleaf, Jim Ulrick
Xcel Energy:	Marty Murphy, Brian Zelenak, Richard Rohrer, Bill Partridge, Steve Kaas
Black & Veatch:	Pablo Gonzalez-Quesada, Frank Means

----- Agenda Topics -----		
TUESDAY MORNING AUGUST 5		
Licensee Meeting		
Arrival for Security Screening	NRC/FERC/Xcel	08:45 – 09:00
Introductions	ALL	09:00 – 09:15
• Upper Mississippi River Watershed Management	USACE	09:15 – 09:45
• Hydrologic and Hydraulic Modeling Methods and Results	USACE	09:45 – 10:15
• Licensee's questions and answers (see next page)	Xcel/NRC/USACE	10:15 – 11:00
BREAK		11:00 – 11:30
Continued discussions as necessary	Xcel/NRC/USACE	11:30 – 12:00

Xcel Questions Associated With U.S. Army Corps of Engineers Flooding Hazard Reevaluation

1. For each dam listed in the March 05, 2014 letters [Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML14065A112 and ML14064A291], please provide the inflow and outflow hydrographs at the location of the dam under the following scenarios: all season probable maximum flood (PMF), snow season PMF, spillway design flood (SDF), 500-yr flood, 25-year flood, and "sunny day" breach. (500-yr and 25-yr – only required if seismic failure is found to be credible)

   USACE / NRC Answer: The U.S. Army Corps of Engineers (USACE) has performed a preliminary screening review using the Interim Staff Guidance (ISG) to identify non-critical dams. The results show that all dams upstream of both Nuclear Power Plant (NPP) sites are potentially screened out.

   For the basin-wide PMP/PMF, the USACE will determine if any credible dam failure scenarios would impact the PMF elevation. The USACE will route the resulting hydrographs using their hydrologic / hydraulic models.

   Each licensee will be given in electronic form hydrographs (stage, flow and velocity) at each NPP site. The licensees may request additional hydrographs (stage, flow & velocity) at other locations between the federal dams immediately upstream or downstream from each NPP.

   The process we are proposing involves a meeting among the licensees, the U.S. Nuclear Regulatory Commission (NRC), and USACE after the hydrographs are provided. During this meeting, any and all questions will be answered by subject matter experts (SMEs) from the USACE and NRC. Due to the sensitive security-related information in the report, the report will not be provided. The intent of the meeting is to give each licensee's representatives an opportunity to understand all of the inputs and assumptions in the analysis. We will request a preliminary list of questions be submitted in advance, and recommend you take advantage of the opportunity to the fullest extent.

2. Please describe how cascading effects of dam breaches are accounted for during the events listed above considering that there will be in-line USACE dams and non-USACE dams both upstream and downstream of the individual dams.

   USACE / NRC Answer: The USACE has performed a preliminary screening review using the ISG to identify non-critical dams. The results show that all dams upstream of both NPP sites are potentially screened out.

   For the basin-wide PMP/PMF, the USACE will determine if any credible dam failure scenarios would impact the PMF elevation. The USACE will route the resulting hydrographs using their hydrologic / hydraulic models.

3. For each dam listed, please determine and describe whether a dam failure is credible during a seismic event per [Japan Lessons-Learned Project Directorate (JLD)] JLD-ISG-2013-01 and NUREG/CR-7046.

USACE / NRC Answer: The USACE has performed a preliminary screening review using the ISG to identify non-critical dams. The results show that all dams upstream of both NPP sites are potentially screened out.

4. For each dam listed, please determine and describe whether a dam failure is credible during the dam's PMF or SDF per JLD-ISG-2013-01 and NUREG/CR-7046.

USACE / NRC Answer: The USACE has performed a preliminary screening review using the ISG to identify non-critical dams. The results show that all dams upstream of both NPP sites are potentially screened out.

5. For each dam listed, please determine and describe whether a dam failure is credible during the Monticello Nuclear Generating Plant / Prairie Island Nuclear Plant watershed-wide PMP and snow season PMP/snowmelt combinations per JLD-ISG-2013-01 and NUREG/CR-7046.

USACE / NRC Answer: The NRC and USACE have not begun that phase of the project. For the basin-wide PMP/PMF, the USACE will determine if any credible dam failure scenarios would impact the PMF elevation. The USACE will route the resulting hydrographs using their hydrologic / hydraulic models.

6. Please state whether the USACE dam breach hydrographs are consistent with the watershed-wide all season probable maximum precipitation (PMP) and snow season PMP/snowmelt combinations per JLD-ISG-2013-01 and NUREG/CR-7046. If the hydrographs are not consistent with these inputs, then please describe the differences.

USACE / NRC Answer: Clarification is necessary. The USACE will provide the bounding basin-wide PMP scenario for each NPP site. For the PMF analysis, USACE will use appropriate dam breach assumptions as necessary analysis following JLD-ISG-2013-01 guidance.

7. If the USACE is not able to provide hydrographs at the location of the individual dams, please describe whether hydrographs can be provided at other specific locations within the watershed; e.g. location of hypothetical dams. Xcel Energy would provide these locations to the USACE according to modeling needs.

USACE / NRC Answer: The USACE has performed a preliminary screening review using the ISG to identify non-critical dams. The results show that all dams upstream of both NPP sites are potentially screened out.

Each licensee will be given in electronic form hydrographs (stage, flow and velocity) at each NPP site. The licensees may request additional hydrographs (stage, flow &

velocity) at other locations between the federal dams immediately upstream or downstream from each NPP.

8. Please provide the USACE's assumptions and approach to establishing the initial (starting) pool elevations at the beginning of the flood (for failure mechanisms other than sunny-day). The Dam Failure ISG states the default starting water surface elevation should be the maximum normal pool elevation (i.e., the top of the active storage pool) but that other starting water surface elevations may be used, with appropriate justification (e.g. operating rules and history).

   USACE / NRC Answer: The USACE has performed a preliminary screening review using the ISG to identify non-critical dams. The results show that all dams upstream of both NPP sites are potentially screened out.

   The USACE will provide the bounding basin-wide PMP scenario for each NPP site. For the PMF analysis, USACE will use appropriate starting water surface elevations as necessary analysis following JLD-ISG-2013-01 guidance. This analysis has not been initiated.

9. Please describe the USACE's approach to how failure will be triggered in the hydrologic model for the hydrologic dam failure mechanism. For example, failure could be triggered at the maximum pool during the flood, as determined by the model; the model then works out the combination of hydrographs downstream. The approach does not force peak flows from upstream dam failures to reach the plants simultaneously.

   USACE / NRC Answer: The USACE has performed a preliminary screening review using the ISG to identify non-critical dams. The results show that all dams upstream of both NPP sites are potentially screened out.

   For the PMF analysis, USACE will use engineering judgment to determine the hydraulic dam failure mechanisms as appropriate. This analysis has not been initiated.

10. Please describe the method(s) for developing the breach parameters.

    USACE / NRC Answer: The USACE has performed a preliminary screening review using the ISG to identify non-critical dams. The results show that all dams upstream of both NPP sites are potentially screened out.

    For the PMF analysis, USACE will use accepted methods and engineering judgment to determine the breach parameters as appropriate. This analysis has not been initiated.

11. Please describe the method(s) for routing the breach and flood hydrographs to the plants.

    USACE / NRC Answer: The USACE has performed a preliminary screening review using the ISG to identify non-critical dams. The results show that all dams upstream of both NPP sites are potentially screened out.

For the PMF analysis, USACE and NRC are in the process of determining the path forward in terms of modeling approach. For new PMP/PMF analysis at other sites, HEC-HMS and HEC-RAS will be utilized.

12. If the USACE is unable to provide all the data requested, [Northern States Power Minnesota] NSPM would like to know which items will be provided.

USACE / NRC Answer: Each licensee will be given in electronic form hydrographs (stage, flow and velocity) at each NPP site. The licensees may request additional hydrographs (stage, flow & velocity) at other locations between the federal dams immediately upstream or downstream from each NPP.

The process we are proposing involves a meeting among the licensees, NRC, and USACE after the hydrographs are provided. During this meeting, any and all questions will be answered by SME(s) from the USACE and NRC. Due to the sensitive security-related information in the report, the report will not be provided. The intent of the meeting is to give each licensee's representatives an opportunity to understand all of the inputs and assumptions in the analysis. We will request a preliminary list of questions be submitted in advance, and recommend you take advantage of the opportunity to the fullest extent.

Monticello Probable Maximum Flood Related Calculations

Calculation	Purpose of Calculation	Target Date	Calculation Condition on Target Date
Site Specific PMP	Calculation determines site specific all-season PMP. It also determines the snow-season PMP and provides a meteorological time series (dew point temperature and winds speed) used to define snowmelt conditions during the snow-season PMP. These values are used as an input to determine the PMF for the watershed.	8/29/2014	Draft
		9/12/2014	Approved
Storm Events Meteorological Data	Historical meteorological data has been compiled for the April 1965 and April 2001 events. Data includes precipitation, dew point temperature and snow pack data. Also, snow water equivalent is calculated from snow pack data and other meteorological data. These data are used as inputs to calibrate the HEC-HMS model.	9/5/2014	Draft
		9/19/2014	Approved
180999.51.1003, PMF Hydrology	This calculation has two components. • Calculation uses historical precipitation, snow water content and streamgage data to calibrate the HEC-HMS model • The calibrated model is then used to calculate runoff due to precipitation and snowmelt and routes the runoff to points	8/29/2014	Calculation is in an unapproved state pending the following: • Refinement of Calibration Parameters. Calibration has been completed using limited meteorological data that results in a conservative approximation of calibrated parameters. Additional

Enclosure 3

Calculation	Purpose of Calculation	Target Date	Calculation Condition on Target Date
	upstream of the site using the calibrated HEC-HMS model		meteorological data has been compiled that would allow further refinement of the calibration • Development of the new site specific precipitation and snowmelt unapproved calculation inputs are based on PMP values from HMR-51/52/53. This calculation would be updated with inputs based on site specific PMP values. It is not clear that this calculation in its current state would be of any use for the USACE analysis. It would be expected that the USACE would perform calibrations/validations of their routing models

Calculation	Purpose of Calculation	Target Date	Calculation Condition on Target Date
180999.51.1006, MNGP Probable Maximum Precipitation and Snowmelt	Calculation determined precipitation and snowmelt for determining run-off for the watershed. As part of the hierarchical approach, the calculation was conservatively performed using PMP values based on HMR-51/52/53. This calculation also uses conservative parameters for estimating snowmelt. The conservative approximations used in this calculation are intended to be superseded by the site specific PMP input, and corresponding meteorological conditions (dew point temperatures and wind speeds) that are consistent with the site specific PMP.	8/29/2014	Calculation is in an unapproved state pending receipt of the inputs from the site specific PMP and further refinements of snowmelt calculations. It is not clear that this calculation in its current state would be of any use for the USACE analysis.
180999.51.1007, PMF Hydraulics	Calculation develops the HEC-RAS geometry for routing the output from the HEC-HMS model to determine the water level at the site. Calculation assumes failure of all upstream dams (except inconsequential dams). Hypothetical dams were conservatively used to represent cluster of dams per JLD-ISG-2013-01.	8/29/2014	Calculation is in an unapproved state pending receipt of the inputs from the site specific PMP. The results from this calculation are very conservative and not considered to be realistic. Thus, the intention was to refine these values using the site specific PMP ,additional calibrations and more detailed information regarding the dam failures

Calculation	Purpose of Calculation	Target Date	Calculation Condition on Target Date
			It is not clear that this calculation in its current state would be of any use for the USACE analysis. The HEC-RAS model geometry, however, could be useful for the USACE

Prairie Island Probable Maximum Flood Related Calculations

Calculation	Purpose of Calculation	Target Date	Calculation Condition on Target Date
Site Specific PMP	Calculation determines site specific all-season PMP. It also determines the snow-season PMP and provides a meteorological time series (dew point temperature and winds speed) used to define snowmelt conditions during the snow-season PMP. These values are used as an input to determine the PMF for the watershed.	8/29/2014	Draft
		9/12/2014	Approved
Storm Events Meteorological Data	Historical meteorological data has been compiled for the April 1965 and April 2001 events. Data includes precipitation, dew point temperature and snow pack data. Also, snow water equivalent is calculated from snow pack data and other meteorological data. These data are used as inputs to calibrate the HEC-HMS model.	9/5/2014	Draft
		9/19/2014	Approved
180999.51.1003, PMF Hydrology	This calculation has two main components • HEC-HMS model calibration Calculation uses historical precipitation, snow water content and streamgage data to calibrate the HEC-HMS model • PMF hydrographs The calibrated model is then used to calculate	8/29/2014	Calculation is in an unapproved state pending the following • Refinement of Calibration Parameters Calibration has been completed using limited meteorological data that results in a conservative approximation of calibrated parameters. Additional

Enclosure 4

Calculation	Purpose of Calculation	Target Date	Calculation Condition on Target Date
	runoff due to precipitation and snowmelt and routes the runoff to points upstream of the site using the calibrated HEC-HMS model.		meteorological data has been compiled that would allow further refinement of the calibration • Development of the new site specific precipitation and snowmelt unapproved calculation inputs are based on PMP values from HMR-51/52/53. This calculation would be updated with inputs based on site specific PMP values. It is not clear that this calculation in its current state would be of any use for the USACE analysis. It would be expected that the USACE would perform calibrations/validations of their routing models.

Calculation	Purpose of Calculation	Target Date	Calculation Condition on Target Date
180999.51.1006, PINGP Probable Maximum Precipitation and Snowmelt	Calculation determined precipitation and snowmelt for determining run-off for the watershed. As part of the hierarchical approach, the calculation was conservatively performed using PMP values based on HMR-51/52/53 and uses very conservative approximations to extend the PMP beyond the 20,000 square mile limit of the HMR guidelines This calculation also uses conservative parameters for estimating snowmelt. The conservative approximations used in this calculation are intended to be superseded by the site specific PMP input, and corresponding meteorological conditions (dew point temperatures and wind speeds) that are consistent with the site specific PMP.	8/29/2014	Calculation is in an unapproved state pending receipt of the inputs values from the site specific PMP and further refinements of rain and snowmelt calculations. It is not clear that this calculation in its current state would be of any use for the USACE analysis.
180999.51.1007, PMF Hydraulics	Calculation develops the HEC-RAS geometry for routing the output from the HEC-HMS model to determine the water level at the site. Calculation assumes failure of all upstream dams (except inconsequential dams). Hypothetical dams were conservatively used to represent cluster of dams per JLD-ISG-2013-01.	8/29/2014	Calculation is in an unapproved state pending receipt of the inputs from the site specific PMP. The results from this calculation are very conservative and not considered to be realistic. Thus, the intention was to refine these values using the site specific PMP, additional calibration and more detailed information regarding the dam failures

Calculation	Purpose of Calculation	Target Date	Calculation Condition on Target Date
			It is not clear that this calculation in its current state would be of any use for the USACE analysis.

Location of Hydrographs for Monticello Nuclear Generating Plant (MGNP) and Prairie Island Nuclear Generating Plant (PINGP)

Monticello Nuclear Generating Plant

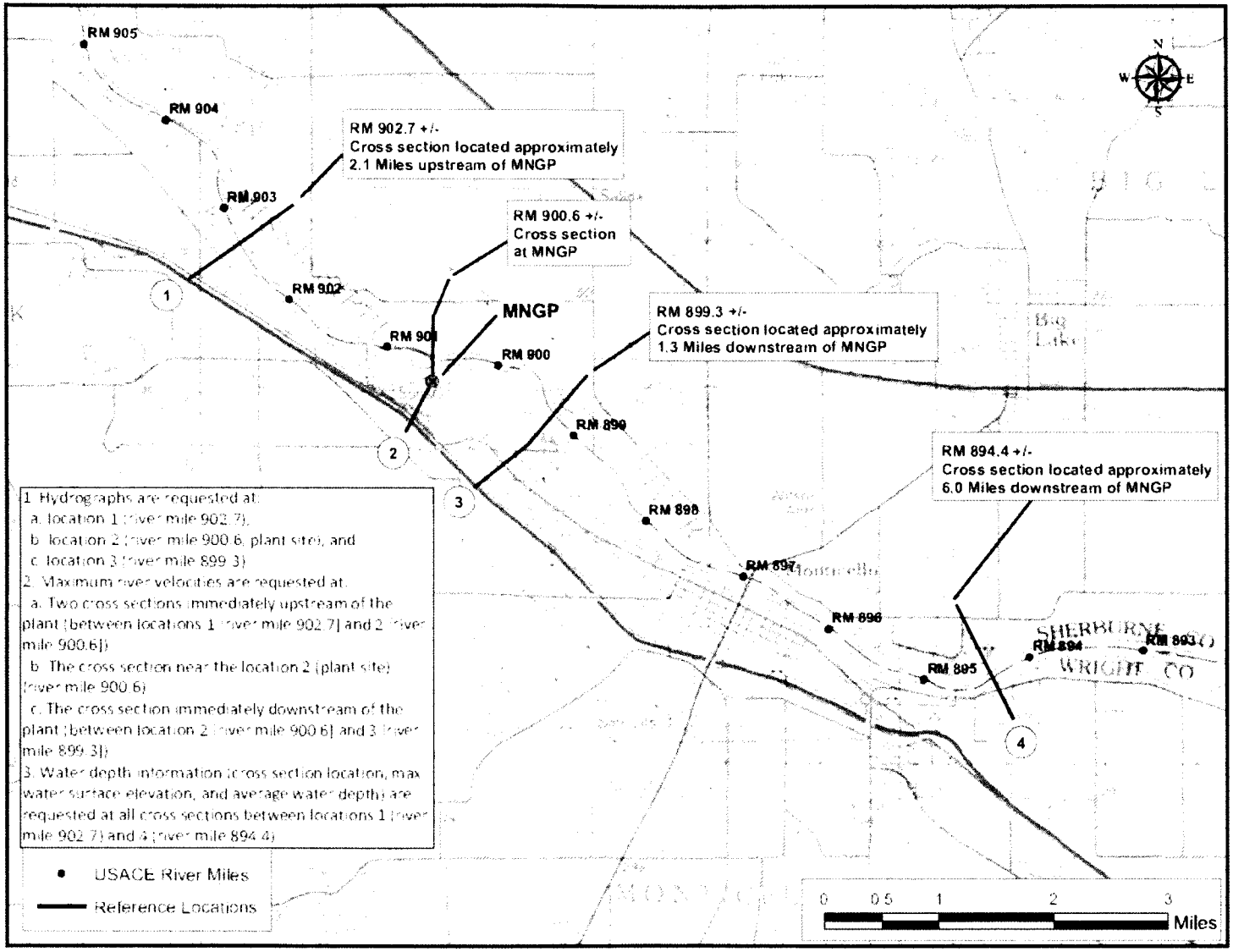
Please provide the following:

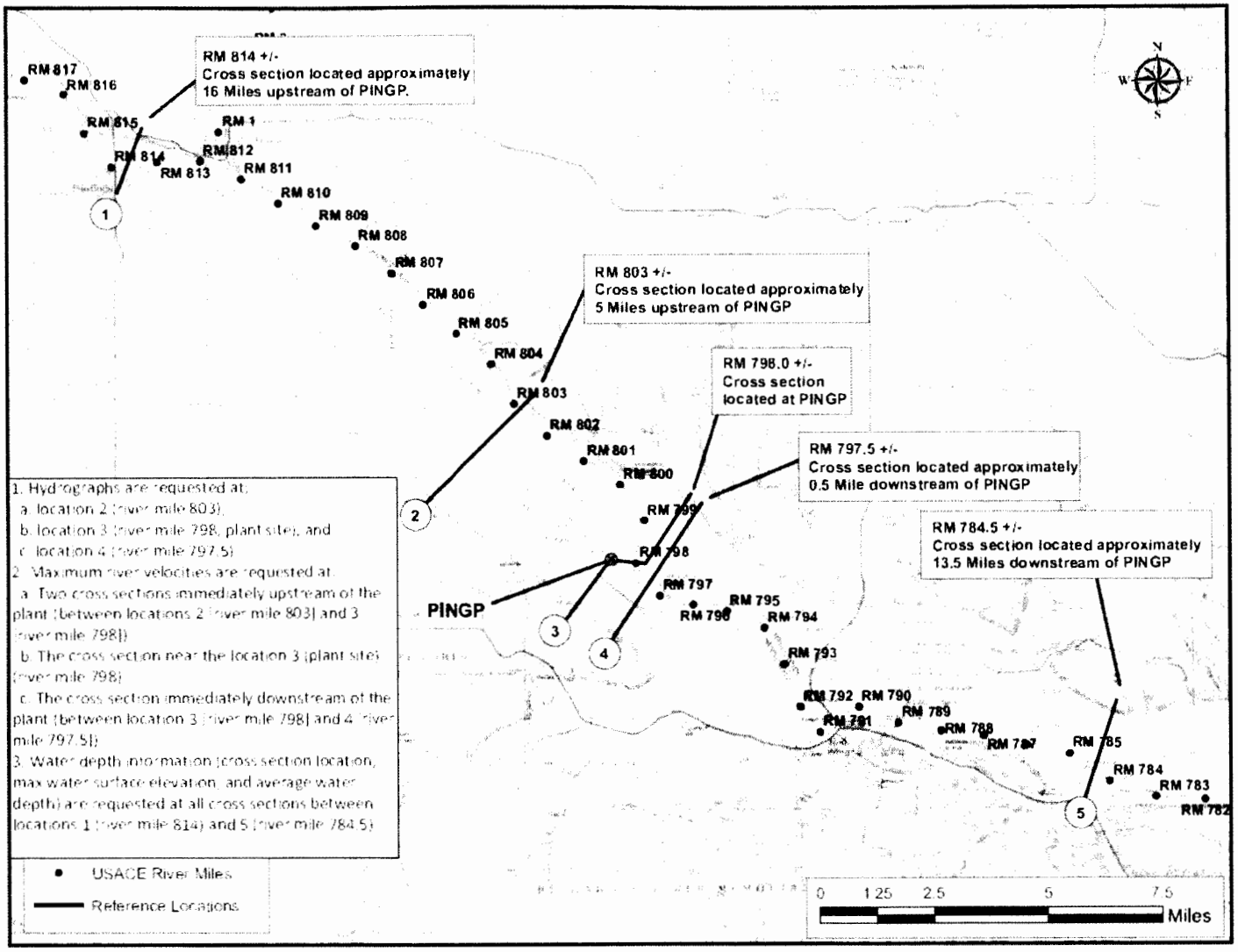
1. Flow and stage hydrographs at three (3) locations:
   - At river mile 902.7,
   - At river mile 900.6 (plant site), and
   - At river mile 899.3.
2. Maximum flow velocities (main channel and left and right overbanks) at four (4) HEC-RAS cross sections near the plant site (plant site=river mile 900.6):
   - At the two (2) cross sections immediately upstream of the plant site
   - At the cross section at the plant site
   - At the cross section immediately downstream of the plant site
   - The exact locations of the USACE HEC-RAS model cross-sections are not known at this time. It is presumed, however, that these four (4) HEC-RAS cross sections will be within river miles 902.7 and 899.3.
3. Information needed to calculate wind fetch lengths and average water depth between river miles 902.7 and 894.4
   - Location (GIS shapefile or equivalent) of all cross sections between river miles 902.7 and 894.4.
   - Maximum water surface elevations at each cross section between river miles 902.7 and 894.4.
   - Average water depth or top width and flow area, during maximum water surface elevation, at each cross section between river miles 902.7 and 894.4.
   - No hydrographs are needed nor requested for these cross sections.
   - The data requested can be generated automatically within HEC-RAS from standard output tables.

Prairie Island Nuclear Generating Plant

Please provide the following:

1. Flow and stage hydrographs at three (3) locations:
    - At river mile 803,
    - At river mile 798 (plant site), and
    - At river mile 797.5.
2. Maximum flow velocities (main channel and left and right overbanks) at four (4) HEC-RAS cross sections near the plant site (plant site=river mile 798):
    - At the two (2) cross sections immediately upstream of the plant site
    - At the cross section at the plant site
    - At the cross section immediately downstream of the plant site
    - The exact locations of the USACE HEC-RAS model cross-sections are not known at this time. It is presumed, however, that these four HEC-RAS cross sections will be within river miles 803 and 797.5.
3. Information needed to calculate wind fetch lengths and average water depth between river mile 814 and 784.5
    - Location (GIS shapefile or equivalent) of all cross sections between river miles 814 and 784.5.
    - Maximum water surface elevations at each cross section between river miles 814 and 784.5.
    - Average water depth (or top width and flow area) at each cross section between river miles 814 and 784.5.
    - No hydrographs are needed nor requested for these cross sections.
    - The data requested can be generated automatically within HEC-RAS from standard output tables.


RM 905
RM 904
RM 903
RM 902
RM 901
RM 900
RM 899
RM 898
RM 897
RM 896
RM 895
RM 894
RM 893
RM 902.7 +/-
Cross section located approximately
2.1 Miles upstream of MNGP
RM 900.6 +/-
Cross section
at MNGP
MNGP
RM 899.3 +/-
Cross section located approximately
1.3 Miles downstream of MNGP
RM 894.4 +/-
Cross section located approximately
6.0 Miles downstream of MNGP
1
2
3
4
1. Hydrographs are requested at:
a. location 1 (river mile 902.7),
b. location 2 (river mile 900.6, plant site), and
c. location 3 (river mile 899.3)
2. Maximum river velocities are requested at:
a. Two cross sections immediately upstream of the plant (between locations 1 (river mile 902.7) and 2 (river mile 900.6))
b. The cross section near the location 2 (plant site) (river mile 900.6)
c. The cross section immediately downstream of the plant (between location 2 (river mile 900.6) and 3 (river mile 899.3))
3. Water depth information (cross section location, max water surface elevation, and average water depth) are requested at all cross sections between locations 1 (river mile 902.7) and 4 (river mile 894.4)
USACE River Miles
Reference Locations
0
0.5
1
2
3
Miles
N
W
E
S
SHERBURNE CO
WRIGHT CO


RM 814 +/-
Cross section located approximately
16 Miles upstream of PINGP.
RM 803 +/-
Cross section located approximately
5 Miles upstream of PINGP
RM 798.0 +/-
Cross section
located at PINGP
RM 797.5 +/-
Cross section located approximately
0.5 Mile downstream of PINGP
RM 784.5 +/-
Cross section located approximately
13.5 Miles downstream of PINGP
PINGP
RM 817
RM 816
RM 815
RM 814
RM 813
RM 812
RM 811
RM 810
RM 809
RM 808
RM 807
RM 806
RM 805
RM 804
RM 803
RM 802
RM 801
RM 800
RM 799
RM 798
RM 797
RM 796
RM 795
RM 794
RM 793
RM 792
RM 791
RM 790
RM 789
RM 788
RM 787
RM 785
RM 784
RM 783
RM 782
1. Hydrographs are requested at:
a. location 2 (river mile 803),
b. location 3 (river mile 798, plant site), and
c. location 4 (river mile 797.5)
2. Maximum river velocities are requested at:
a. Two cross sections immediately upstream of the plant (between locations 2 (river mile 803) and 3 (river mile 798))
b. The cross section near the location 3 (plant site) (river mile 798)
c. The cross section immediately downstream of the plant (between location 3 (river mile 798) and 4 (river mile 797.5));
3. Water depth information (cross section location, max water surface elevation, and average water depth) are requested at all cross sections between locations 1 (river mile 814) and 5 (river mile 784.5)
USACE River Miles
Reference Locations
0 1.25 2.5 5 7.5
Miles

- The NRC took an action to determine whether or not if in addition to providing the hydrographs associated with PMF study, which it believes is relevant to Prairie Island, if USACE would be willing to provide the details, including assumptions, associated with this PMF study. Xcel indicated that having the USACE PMF study as soon as possible, if available, would be helpful in its efforts of developing its own basin-wide PMF for Prairie Island which it intends to base on a site-specific probable maximum precipitation model.

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 me at 301-415-1032 or at Joseph.Sebrosky@nrc.gov.

/RA/

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

Docket Nos. 50-263, 50-282,
and 50-306

Enclosures:
1. Agenda
2. Xcel Questions and Answers
3. Monticello Related Probable Maximum Flood Calculations
4. Prairie Island Probable Maximum Flood Calculations
5. Location of Hydrographs for Monticello Nuclear Generating Plant and Prairie Island Nuclear Generating Plant (PINGP)

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