Evaluation of Xcel Energy Request to Relocate and Consolidate the Emergency Operations Facilities for Monticello Nuclear Generating Plant and Prairie Island Nuclear Generating Plant

1.0 BACKGROUND

By letter dated November 15, 2021 (Agencywide Documents Access and Management System Accession No. ML21320A226), as supplemented by letter dated June 10, 2022 (ADAMS Accession No. ML22161A915), Northern States Power Company, a Minnesota corporation doing business as Xcel Energy, requested U.S. Nuclear Regulatory Commission (NRC) approval of a proposed license amendment for the Monticello Nuclear Generating Plant (MNGP) and the Prairie Island Nuclear Generating Plant (PINGP) emergency plans. Xcel Energy proposes to replace the existing MNGP and PINGP emergency operation facilities (EOFs) (located 1.0 miles and 0.5 miles, respectively from the MNGP and PINGP sites), and their common backup EOF (located 45 miles and 55 miles, respectively, from those sites) with a proposed consolidated EOF centrally located in the Xcel Energy's Corporate Offices at 414 Nicollet Mall, Minneapolis, MN. The existing common backup EOF is located at the Headquarters Emergency Center in downtown Minneapolis, MN. The distance from the proposed EOF to the MNGP technical support center (TSC) is approximately 37 miles, and the distance to the PINGP TSC is approximately 40 miles. As such, prior Commission approval is required per paragraph IV.E.8.b of Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to Part 50, "Domestic Licensing of Production and Utilization Facilities," of Title 10 of the *Code of Federal Regulations* (10 CFR).

By letters dated October 27, 1983 (ADAMS Accession No. ML112991195), the NRC approved the primary EOFs for MNGP and PINGP, and the location of the common backup EOF.

2.0 REGULATORY REQUIREMENTS AND GUIDANCE

The NRC staff considered the following relevant regulations in its evaluation of Xcel Energy's request to relocate the existing MNGP and PINGP EOFs, and their common backup EOF to a consolidated EOF centrally located in the Xcel Energy headquarters:

- Paragraph 50.47(b)(1) of 10 CFR Part 50 states, in part: "Primary responsibilities for emergency response by the nuclear facility licensee…have been assigned…and each principal response organization has staff to respond and to augment its initial response on a continuing basis."
- Paragraph 50.47(b)(3) of 10 CFR Part 50 states, in part, that ". . . arrangements to accommodate State and local staff at the licensee's Emergency Operations Facility have been made. . .."
- Paragraph 50.47(b)(8) of 10 CFR Part 50 states: "Adequate emergency facilities and equipment to support the emergency response are provided and maintained."
- Paragraph 50.47(b)(9) of 10 CFR Part 50 states: "Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use."
- Section E of Appendix E to 10 CFR Part 50 states, "Adequate provisions shall be made and described for emergency facilities and equipment, including: . . .

8.a.(1) . . . an emergency operations facility from which effective control can be exercised during an emergency. . ..”

- Paragraph IV.E.8.b of Appendix E to 10 CFR Part states: “For a nuclear power reactor licensee's emergency operations facility required by paragraph 8.a of this section, either a facility located between 10 miles and 25 miles of the nuclear power reactor site(s), or a primary facility located less than 10 miles from the nuclear power reactor site(s) and a backup facility located between 10 miles and 25 miles of the nuclear power reactor site(s). An emergency operations facility may serve more than one nuclear power reactor site. A licensee desiring to locate an emergency operations facility more than 25 miles from a nuclear power reactor site shall request prior Commission approval by submitting an application for an amendment to its license. For an emergency operations facility located more than 25 miles from a nuclear power reactor site, provisions must be made for locating NRC and offsite responders closer to the nuclear power reactor site so that NRC and offsite responders can interact face-to-face with emergency response personnel entering and leaving the nuclear power reactor site.”

As required by paragraph IV.E.8.b of Appendix E to 10 CFR Part 50, if the EOF is located more than 25 miles from a nuclear power reactor site, the near-site facility for NRC and offsite responders must meet the following requirements:

- Space for members of an NRC site team and Federal, State, and local responders;
- additional space for conducting briefings with emergency response personnel;
- communication with other licensee and offsite emergency response facilities;
- access to plant data and radiological information; and
- access to copying equipment and office supplies.

Paragraph IV.E.8.c to Appendix E of 10 CFR Part 50 further establishes the following minimum capabilities for an applicant or licensee EOF:

- The capability for obtaining and displaying plant data and radiological information for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves;
- the capability to analyze plant technical information and provide technical briefings on event conditions and prognosis to licensee and offsite response organizations for each reactor at a nuclear power reactor site and for each nuclear power reactor site that the facility serves; and
- the capability to support response to events occurring simultaneously at more than one nuclear power reactor site if the emergency operations facility serves more than one site.

Revision 2 to NUREG-0654/FEMA [Federal Emergency Management Agency]-REP [Radiological Emergency Preparedness]-1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants” (NUREG-0654) (ML19347D139), provides the following guidance that establishes evaluation criteria related to the EOF under 10 CFR 50.47(b)(3) and (b)(8):

- Section II.C, “Emergency Response Support and Resources,” Evaluation Criterion 1, states that “Emergency response support and resources to the licensee’s EOF, as agreed upon, are described.”
- Section II.H, “Emergency Facilities and Equipment,” Evaluation Criterion 3, states that “An EOF is established, using current Federal guidance, as the primary base of emergency operations for the licensee during a radiological incident. The EOF facilitates the management and coordination of the overall emergency response, including the sharing of information with Federal, State, local, and Tribal government authorities.”

The NRC’s issuance of the guidance document, NUREG-0696, “Functional Criteria for emergency response facilities” (ML051390358), in 1981, established criteria for the NRC staff to use in evaluating whether an applicant or licensee has met the requirements in paragraph IV.E.8 to Appendix E of 10 CFR Part 50. Section 4, “Emergency Operations Facility,” of NUREG-0696 provides compliance criteria for the EOF in the following categories:

- Functions (section 4.1);
- Location, structure, and habitability (section 4.2);
- Staffing and training (section 4.3);
- Size (section 4.4);
- Radiological monitoring (section 4.5);
- Communications (section 4.6);
- Instrumentation, data system equipment, and power supplies (section 4.7);
- Technical data and data system (section 4.8); and
- Records availability and management (section 4.9).

Section VI.1 of the Office of Nuclear Security and Incident Response (NSIR)/Division of Preparedness and Response (DPR) Interim Staff Guidance (ISG) document, NSIR/DPR-ISG-01, “Emergency Planning for Nuclear Power Plants,” dated November 2011 (ADAMS Accession No. ML113010523), provides guidance for a performance-based approach for evaluating changes to a consolidated EOF.

3.0 U.S. NUCLEAR REGULATORY COMMISSION STAFF EVALUATION

3.1 Functions

The new consolidated EOF will provide a facility for Xcel Energy’s management of offsite emergency response, coordination of radiological assessment, and management of initial recovery operations, including notification of events, and protective action recommendations as assigned in the proposed Xcel Energy Standard Emergency Plan. Section H.3 of the proposed Xcel Energy Standard Emergency Plan states that the EOF provides:

- Overall management of emergency response;
- coordination of emergency response activities with Federal, State, and local agencies;
- coordination of offsite radiological and environmental assessments;
- determination of recommended public protective actions;
- notification of State/local offsite agencies;
- management of recovery actions; and

- response and coordination of response for events occurring simultaneously at both MNGP and PINGP.

In section 3.1.1, “Functions,” to enclosure 4, “Consolidation of Emergency Operations Facilities,” to Xcel Energy’s letter dated November 15, 2021, Xcel Energy stated that operation of the proposed consolidated EOF will not significantly alter the overall approach to emergency response at MNGP and PINGP. The licensee did, however, identify some differences with the current EOF responsibilities for emergency response for each site. First, these differences involve changes in the responsibility for making the required NRC notifications using the Emergency Notification System (ENS) and the responsibility for the direct control of Field Monitoring Teams (FMTs), both of which will be transferred from the current EOFs to the respective TSCs.

With regard to making NRC notifications, Xcel Energy states that the proposed change removes the ENS Communicator position in the EOF and performs ENS communications with the NRC in the TSC, with the position being staffed within 60 minutes of an event requiring activation of the emergency response organization (ERO). Xcel Energy further states that maintaining communications from the TSC is appropriate since the facility is on-site and the TSC ENS Communicator has direct access to plant status information which is being provided to the NRC.

With regard to control of FMTs, Xcel Energy states that the proposed change removes the position of Field Team Coordinator in the EOF with the function being assumed by the Field Team Monitor in the TSC. The proposed organizational change for the EOF supports the primary EOF function of offsite agency coordination of emergency response actions enabling the EOF to focus on off-site notifications, dose assessment and Protective Action Recommendation (PAR) development. Implementation of a common Xcel Energy EOF, staffed by corporate resources, also minimizes the impact to site resources. FMT coordination is performed in the TSC, thereby not requiring site resources to travel to the common Xcel Energy EOF facilitating the more efficient use of Xcel Energy resources to support site response actions. FMT information will be provided as needed by the existing FMT Communicator.

The proposed Xcel Energy Standard Emergency Plan states that the EOF contains dedicated work areas and resources for Federal personnel, consistent with the criteria in section II.H.2 of NUREG-0654 and section 4.1 of NUREG-0696. Enclosure 4 of the application provides details of resources and capabilities of the proposed Xcel Energy consolidated EOF. Section 3.1.1, “Functions,” to enclosure 4 of the Xcel Energy submittal states: “If the proposed EOF is unavailable, the affected site(s) have the capability to determine PARs for the public, notify offsite agencies, and perform offsite dose assessments.

Section 4.1 of NUREG-0696 suggests that a licensee should use normal industrial security for the EOF. Access to the proposed consolidated EOF will be controlled using electronic card readers to allow entry only to authorized personnel, and access to the Xcel Energy’s Corporate Offices will be provided via industrial security, which is consistent with section 4.1 of NUREG-0696.

Based on its review of the licensee’s submittal, the NRC staff has determined that these facility functions and responsibilities are consistent with those currently described in MNGP and PINGP emergency plans, and the differences in responsibility discussed above are acceptable. As such, the NRC staff did not identify any concerns with the licensee’s changes to these existing EOF functions, or responsibilities, with the proposed changes described above. In addition to the working space provided for representatives from Federal agencies, the new consolidated

EOF will also provide a dedicated conference room for NRC personnel in the EOF. Similar to the current MNGP and PINGP EOFs, local agencies are not expected to respond to the new consolidated EOF.

Section IV.1 of NSIR/DPR-ISG-01, which supplements the guidance in section 4.1 of NUREG-0696, states, in part, that the EOF will have facilities and capabilities for: "effectively responding to and coordinating response efforts for events occurring simultaneously at more than one site for a co-located or consolidated EOF." In section 2.1 to enclosure 4 of its letter dated November 15, 2021, Xcel Energy stated the following:

> Xcel Energy plans to conduct a proof-of-concept demonstration involving response to concurrent events requiring EOF activation with both MNGP and PINGP prior to implementation.

Xcel Energy further states:

> This proof-of-concept demonstration may be observed by NRC staff and representatives of the FEMA [Federal Emergency Management Agency]. Offsite response agencies will be invited to participate or observe.

While not required by regulation, the NRC staff and representatives from FEMA intend to observe the two-site simultaneous demonstration drill to further verify the ability of the Xcel Energy EOF to perform the functions designated in the Xcel Energy Standard Emergency Plan.

Based on its review of the licensee's submittal, the NRC staff finds that the new consolidated EOF does not negatively alter the functions of the existing EOFs as currently described in the MNGP and PINGP emergency plans, respectively. The NRC staff used section 4.1 of NUREG-0696, as supplemented by NSIR/DPR-ISG-01, to evaluate the functions of the proposed Xcel Energy consolidated EOF and found it acceptable. Therefore, the NRC staff has concluded that the proposed Xcel Energy consolidated EOF meets the standards of 10 CFR 50.47(b) and requirements of paragraph IV.E.8 of Appendix E to 10 CFR Part 50.

3.2 Location, Structure, and Habitability

3.2.1 Location

Section 4.2 of NUREG-0696, as supplemented by section IV.I of NSIR/DPR-ISG-01, provides guidance on considerations of EOFs at a single location. Specifically, footnote 1 to Table 2, "Relation of EOF Location to Habitability Criteria," in section IV.I of NSIR/DPR-ISG-01 states, in part, "Specific Commission approval is required for EOF locations beyond 25 miles of the TSC." The proposed Xcel Energy consolidated EOF is located in Xcel Energy's Corporate Offices at 414 Nicollet Mall, Minneapolis, MN. Xcel Energy states that the structure was constructed in 1964. The distances from this location to the MNGP TSC and the PINGP TSC are approximately 37 miles and 40 miles, respectively.

Xcel Energy states that the proposed consolidation is expected to have the following positive effects on the affected stations' emergency response capability:

- Increased pool of site ERO members available for assignment to other positions in the TSC and the Operational Support Center (OSC);

- implementation of a common Xcel Energy EOF, staffed by corporate resources, also minimizes the impact to site resources;
- increased efficiency using common practices and procedures in a single facility; and
- enhanced availability for emergency response by relocating the EOF away from a reactor site that could be affected by a large-scale external event, hostile action, or radioactivity release.

Xcel Energy states that the greater distance of the proposed EOF from MNGP and PINGP will not impede implementation of EOF functions by MNGP and PINGP EROs, or the NRC. Offsite response organization (ORO) emergency plans provide for EOF interface from their respective emergency operations centers (EOCs), primarily the Minnesota State EOC/Joint Information Center (JIC), although a representative may be sent to the proposed EOF. The Xcel Energy Executive Spokesperson represents Xcel Energy and interfaces with State officials at the Minnesota State EOC/JIC, and the State Liaison at the Minnesota State EOC/JIC serves as an interface between Xcel Energy and the states of Minnesota and Wisconsin. The EOF Offsite Agency Liaison coordinates ERO and ORO activities. Xcel Energy Field Monitoring Team (FMT) activities are coordinated with the State Planning Chief at the Minnesota State EOC. In addition, County Liaisons serve as an interface between County and Xcel Energy personnel. The Minnesota State EOC is located at 445 Minnesota St, St Paul, MN (11 miles from location of the proposed common Xcel Energy EOF), thus the location of the proposed EOF does not impede ORO mobilization. Likewise, due to the relative proximity to the Minneapolis-Saint Paul International Airport, the time it would take for the NRC Region III Incident Response Site Team to arrive at the proposed EOF should be less than that needed to travel to the existing MNGP EOF or PINGP EOF. Additionally, the proposed consolidated EOF will obviate the need for NRC Site Teams to staff both the MNGP EOF and the PINGP EOF for concurrent events.

As discussed previously the Commission found the existing common backup EOF located at the Headquarters Emergency Center in downtown Minneapolis, MN acceptable. However, per section IV.E.8.b to Appendix E of 10 CFR Part 50, a backup EOF is only required when the primary EOF is located within 10 miles of the nuclear power reactor site. As such, a backup EOF would no longer be required for the MNGP and PINGP sites upon approval of the proposed Xcel Energy consolidated EOF.

The NRC staff finds that relocation of the MNGP and PINGP EOFs to Xcel Energy's Corporate Offices will continue to fulfill the necessary emergency response functions and will effectively support Xcel Energy's emergency response at all the sites that the facility serves. This determination is based, in part, on the NRC staff's determinations (below) regarding the proposed EOF's capability to fulfill its required emergency response functions for MNGP and PINGP; the facility's location and size; the anticipated staffing and training of licensee emergency response personnel at the facility; the transfer of responsibilities from the EOF to the TSC, thereby not requiring site resources to travel to the common Xcel Energy EOF; the facility's communications capabilities and data systems; the facility's capacity for accommodating a multi-site event; and the facility's ability to accommodate personnel from the NRC and/or State and local response organizations. Further, the NRC staff considered the views expressed by FEMA on the proposed EOF relocation and consolidation, discussed in Section 3.2.1.1 below. The NRC staff also considered prior Commission statements regarding other consolidated EOF approvals, and Xcel Energy's provision of an acceptable near-site location for NRC and other responders at all its reactor sites that are more than 25 miles from the proposed EOF. The NRC staff therefore finds the EOF location change to greater than 25 miles from the MNGP and PINGP sites acceptable.

Based on these findings, the NRC staff finds that the physical location of the new consolidated EOF meets the requirements of paragraph IV.E.8 of Appendix E to 10 CFR Part 50.

3.2.1.1 Offsite Agreement

Planning standard 10 CFR 50.47(b)(3) requires that arrangements be made to accommodate State and local staff at the licensee's EOF. State and local agencies do not currently respond to the existing EOFs for MNGP and PINGP. In section 2.2, "Reason for the Proposed Changes," to enclosure 4 of its letter dated November 15, 2021, Xcel Energy stated that ORO plans provide for interface from their respective (EOCs, mainly the Minnesota State EOC/JIC), although a representative may be sent to the proposed Xcel Energy consolidated EOF. The State of Minnesota maintains a combined JIC/EOC for use by Xcel Energy and the State of Wisconsin. Xcel Energy staff who mobilize at the Minnesota State EOC/JIC provide interface between Xcel Energy and the states of Minnesota and Wisconsin. Further, Xcel Energy states that JIC operations are unaffected by the proposed consolidation of the Xcel Energy EOFs. In its June 10, 2022, response to the NRC staff's questions, Xcel Energy stated that neither the States nor local agencies requested any changes to their coordination with Xcel Energy for emergency response activities.

Section 4.2 to NUREG-0696, as supplemented by section IV.1 of NSIR DPR-ISG-01, states that "It is strongly recommended that the EOF location be coordinated with State and local authorities to improve the relationship between the licensee and offsite organizations." In enclosure 5, "ORO Letters," to Xcel Energy's letter dated November 15, 2021, signed letters of concurrence were provided from the following offsite response agencies:

- Minnesota Department of Public Safety, and
- State of Wisconsin.

Per the "Memorandum of Understanding Between the Department of Homeland Security/Federal Emergency Management Agency and Nuclear Regulatory Commission Regarding Radiological Response, Planning and Preparedness," dated December 7, 2015 (ADAMS Accession No. ML15344A371), the NRC requested that FEMA evaluate the impact of the proposed consolidation of the Xcel Energy existing EOFs on offsite radiological emergency plans and preparedness and provide its findings to the NRC. By letter dated June 1, 2022 (ADAMS Accession No. ML22154A125), FEMA stated:

> FEMA Region 5 personnel visited the proposed facility to review its capabilities. FEMA concurs that, with the retention of near-site facilities for NRC and Federal responders in proximity to each plant as stated in the utility's application, the location of the site beyond 25 miles from each plant does not adversely affect its ability to provide the needed functions. Based upon offsite response organization concurrence from the states of Minnesota and Wisconsin, and review of the memorandum of understanding between FEMA and the NRC, FEMA concurs that the proposed Xcel Energy EOF relocation does not have an unintended negative impact on offsite radiological emergency preparedness plans. FEMA will monitor the drill at the facility scheduled for August of 2022 and will notify you if the results impact this determination in any way.

Based on these findings, the NRC staff has determined that the proposed Xcel Energy consolidated EOF meets the requirements of 10 CFR 50.47(b)(3).

3.2.1.2 Impact on NRC's Incident Response

MNGP and PINGP Near-site NRC and Offsite Responder Locations

Paragraph IV.E.8.b of Appendix E to 10 CFR Part 50 requires that, for an EOF located more than 25 miles from a nuclear reactor site, provisions be made for locating NRC and offsite responders closer to the reactor site to facilitate face-to-face interaction with emergency personnel entering and leaving the site. Section IV.I of NSIR/DPR-ISG-01 states, in part, that the EOF will have facilities and capabilities for "Locating NRC and offsite agency staff closer to a site if the EOF is greater than 25 miles from the site," and establishes guidance on minimum provisions at this location.

Xcel Energy's near-site response locations will be at the MNGP training building and the PINGP training center. Xcel Energy states that each near-site response location will provide provisions consistent with the guidance in section IV.I to NSIR/DPR-ISG-01, which includes space for an NRC site team and Federal responders (ORO plans provide for interface from their respective EOCs, primarily the Minnesota State EOC/JIC), conference areas and presentation boards for conducting briefings with emergency response personnel, communication capability with other licensee and offsite emergency response facilities, computer access to plant data and radiological information, radiation monitoring capability, access to copying equipment and office supplies.

Based on its review of the licensee's submittal, the NRC staff finds that Xcel Energy has provided near-site response locations for locating NRC and offsite responders closer to the reactor site. The NRC staff used section 4.1 of NUREG-0696, as supplemented by NSIR/DPR-ISG-01, to evaluate the establishment of near-site response locations and found it acceptable. Therefore, the NRC staff finds that the physical location of the proposed Xcel Energy consolidated EOF and the near-site response locations meet the requirements of paragraph IV.E.8.b of Appendix E to 10 CFR Part 50.

MNGP and PINGP Alternate Emergency Response Facilities (ERFs)

Paragraph IV.E.8.d of Appendix E to 10 CFR Part 50, requires licensees to provide ". . . an alternative facility (or facilities) that would be accessible even if the site is under threat of or experiencing hostile action, to function as a staging area for augmentation of emergency response staff. . .." In addition, guidance in NUREG-0654, Revision 2, Element H.4. states: "An alternative facility (or facilities) is established, using currently provided and/or endorsed guidance, which would be accessible even if the nuclear power plant site is under threat of or experiencing hostile action." Hostile action events warrant the timely activation of the ERO, supporting a rapid response to mitigate site damage as soon as the site is secured. To accomplish this, licensees must identify an alternative facility (or multiple facilities) to support response functions when ERFs are not accessible because of a hostile action. In addition, during a hostile action event, ERO members would likely not have access to the site, but these events still warrant timely ERO augmentation.

Xcel Energy's alternative ERFs are currently designated as the MNGP training building and the Red Wing Service Center for PINGP. These facilities are accessible in the event of an onsite Hostile Action and provide the ability to perform the following functions:

- Communication with the Control Room and onsite Security Forces;
- notification of offsite EROs; and

- Engineering Assessment Activities including damage control team preparation and planning.

Xcel Energy is not proposing any changes to the alternative ERFs. The NRC staff finds this to be acceptable.

Therefore, the NRC staff finds that the MNGP and PINGP alternate ERFs, as identified in current site emergency plans and the proposed Site Annexes to the Xcel Energy Common Emergency Plan, meet the requirements of 10 CFR 50.47(b)(8) and paragraph IV.E.8.d of Appendix E to 10 CFR Part 50.

3.2.2 Structure

Section 4.2 of NUREG-0696, as supplemented by Table 2 to Section IV.1 of NSIR/DPR-ISG-01, provides guidance that, for an EOF located at or beyond 10 miles from a nuclear power reactor site, the structure be “Well engineered for design life of plant,” and provides the “Uniformed Building Code” as an example building code. In addition, the structure must be able to withstand adverse conditions of high winds (other than tornadoes) and floods. The guidance further provides that winds and floods with a 100-yr recurrence frequency are acceptable for a design basis. In should be noted that the Uniform Building Code was replaced by the International Building Code in 2000.

In section 3.1.2, “Locations, structure, and habitability,” to enclosure 4 of its November 15, 2021, letter, Xcel Energy stated that the proposed consolidated EOF meets the intent of the guidance in NUREG-0696 that the building be “well engineered for the design life of plant.” Xcel Energy states that the structure was constructed in 1964 and designed for a live wind load of 30 pounds per square foot (greater than 100 miles per hour).

The structure was built prior to the establishment of building codes in the State of Minnesota. The Minnesota Building Codes were initially approved in 1972. In 2008, legislation established that the State Building Code is the applicable statewide standard for the construction and remodeling of buildings. The current 2020 Minnesota State building code describes criteria for determining wind loads based on a recurrence frequency of 50 years. Additionally, the designed live wind load of 30 pounds per square foot (greater than 100 miles per hour) for the structure exceeds the current 2020 Minnesota State building code.

Although the guidance in NUREG-0696 describes criteria for determining wind loads based on a recurrence frequency of 100 years, both the current 2020 Minnesota Building Code and International Building Code use a recurrence frequency of 50 years, which are events with a higher probability of occurring than a 100-year event. In addition, the NRC staff has approved the use of a 50-year wind design for other facilities, such as the Duke Energy consolidated EOF as set forth in a 2016 by letter dated August 21, 2017 (ADAMS Accession No. ML17188A387). In this regard, Duke Energy had stated in its application dated April 29, 2016 (ADAMS Accession No. ML16120A076),

> Phase 2 of the Energy Center is capable of withstanding wind loads and live loads equal to or greater than those specified in the current 2012 North Carolina State Building Code (which is based on the 2009 International Building Code).

Section 1609.3, “Basic wind speed” of the 2009 International Building Code states,

> In non[-]hurricane-prone regions, when the basic wind speed is estimated from regional climatic data, the basic wind speed shall be not less than the wind speed associated with an annual probability of 0.02 (50-year mean recurrence interval). . ..

Additional precedence includes the NRC’s letter to Southern Nuclear Operating Company (SNC), dated July 26, 2018 (ADAMS Accession No. ML18183A073), approving the relocation of the SNC Common EOF. SNC stated in its application dated August 30, 2017 (ADAMS Accession No. ML17243A202),

> The new EOF is built to withstand wind loads and live loads of the 2009 International Building Code as adopted by the State of Alabama.

As discussed above, the 2009 International Building Code uses a recurrence frequency of 50 years.

The NRC staff finds the Xcel Energy proposed consolidated EOF structure’s design to withstand adverse conditions of high winds (other than tornadoes) acceptable, because 1) the design exceeds the current 2020 Minnesota Building Code, and 2) the design is consistent with other EOF structures’ wind load design that the NRC has approved in the past. Therefore, the NRC staff finds the building structure’s wind load design to be acceptable.

Additionally, in section 3.1.2, “Locations, structure, and habitability,” to enclosure 4 of its letter of November 15, 2021, Xcel Energy stated the proposed consolidated EOF structure is located in a minimal flood hazard zone, which is outside the 0.2 percent annual chance (500-year) flood plain. The NRC staff finds this to be acceptable.

In sum, the NRC staff finds that the proposed consolidated EOF meets the intent of the guidance in NUREG-0696 that the building be “well-engineered for the design life of the plant,” and be able to withstand adverse conditions of high winds (other than tornadoes) and floods. Therefore, the NRC staff finds the building structure to be acceptable.

As discussed above, the NRC staff used section 4.2 of NUREG-0696, as supplemented by NSIR/DPR-ISG-01, to evaluate the structure of the proposed consolidated EOF and found it acceptable. Therefore, the NRC staff finds that the physical structure of the proposed consolidated EOF meets the requirements of 10 CFR 50.47(b)(8).

3.2.3 Habitability

Section 4.2 to NUREG-0696, as supplemented by Table 2 of NSIR/DPR-ISG-01 provides guidance that would ensure radiological protection for EOF personnel by providing an adequate ventilation system and radiological protection factor in the EOF. Similar to the existing Xcel Energy backup EOF, the proposed consolidated EOF will be located beyond 10 miles from any of the MNGP and PINGP sites, or other nuclear power plant sites. EOF functions are unlikely to be impacted by a radiological release from any Xcel Energy or other site due to the distance of the EOF from each respective site. Since the EOF is located at or beyond 10 miles from the TSC from each respective site, Table 2 of NSIR/DPR-ISG-01 states that no specialized ventilation system or protection factor is needed. Therefore, measures to assure the habitability

for the proposed consolidated EOF, as described in NUREG-0696 and NSIR/DPR ISG 01, are not needed, and the proposed consolidated EOF meets the requirements of 10 CFR 50.47(b)(8).

3.3 Staffing and Training

Section 4.3 of NUREG-0696, as supplemented by section IV.1 of NSIR/DPR-ISG-01, provides guidance on EOF staffing and training to provide for the overall management of licensee resources, and the continuous evaluation and coordination of licensee activities during and after an accident. In addition, section 4.3 to NUREG-0696 provides guidance on the conduct of periodic EOF activation drills in accordance with the licensee's emergency plan.

Xcel Energy states that the proposed Xcel Energy consolidated EOF is located in Xcel Energy's Corporate Offices, and thereby allows for prompt response by corporate support and management personnel with expertise from various disciplines. The proposed consolidated EOF is required to be activated within 90 minutes following the declaration of an alert or higher classification. This time frame is the same as that of the MNGP EOF and PINGP EOF under provisions of their current emergency plans and in the proposed Xcel Energy Standard Emergency Plan.

Xcel Energy further stated that training for key ERO members supporting MNGP and PINGP will include station-specific differences related to their roles (e.g., technical data display systems, plume exposure pathway risk jurisdictions, release pathways, station ingress and egress routes, offsite geopolitical subareas, and evacuation time estimates). Training will be evaluated in accordance with the principles of the systematic approach to training practices to ensure effectiveness and to identify areas that need improvement or correction.

Based on its review of the licensee's submittal, the NRC staff finds that the proposed Xcel Energy consolidated EOF staffing, and training provide for the overall management of licensee resources, and the continuous evaluation and coordination of licensee activities during and after an accident. The NRC staff used section 4.3 to NUREG-0696, as supplemented by section IV.1 to NSIR/DPR-ISG-01 to evaluate the staffing and training of the proposed Xcel Energy consolidated EOF and found it acceptable. Therefore, the NRC staff concludes that the staffing and training for the proposed Xcel Energy consolidated EOF meets the requirements of 10 CFR 50.47(b)(8).

3.4 Size

Section 4.4 to NUREG-0696, as supplemented by section IV.1 to NSIR/DPR-ISG-01, provides guidance that the EOF building will be large enough to provide adequate workspace for personnel assigned to the EOF as specified in the licensee's emergency plan, at the maximum level of occupancy without crowding, as well as provide separate office space to accommodate NRC staff and other Federal personnel.

Attachment 1, "Consolidated Emergency Operations Facility Images," to enclosure 4 of Xcel Energy's letter dated November 15, 2021, provides the layout for the proposed Xcel Energy EOF, illustrating the different areas in the proposed Xcel Energy consolidated EOF, such as: the command center, dose assessment area, technical assessment area, communications area, NRC conference room and lower bay conference room areas. Xcel Energy also provided images of the proposed EOF facility.

Xcel Energy's submittal also stated that the total usable space and working space of the proposed EOF is approximately 2,849 square feet. Xcel Energy further states that based on the 75 square-foot per-person guidance of NUREG-0696, the proposed Xcel Energy EOF provides adequate working space for the number of ERO staff at the projected maximum level of occupancy without crowding.

As part of its evaluation, the NRC staff verified that the proposed Xcel Energy consolidated EOF provides for sufficient workspace, which will enhance Xcel Energy's ability to effectively support simultaneous events at multiple nuclear power reactor sites, while providing dedicated workspace for NRC site team and State representatives responding to the facility.

Based on its review of the licensee's submittal, the NRC staff finds that the proposed Xcel Energy consolidated EOF will be of sufficient size to accommodate and support Federal, State, and licensee ERO personnel, equipment, and documentation in the EOF. The NRC staff used section 4.4 of NUREG-0696, as supplemented by NSIR/DPR-ISG-01, to evaluate the size of the proposed Xcel Energy consolidated EOF and found it acceptable. Therefore, the NRC staff concludes that the size of the proposed Xcel Energy consolidated EOF meets the requirements of 10 CFR 50.47(b)(8) and paragraph IV.E.8.c to Appendix of 10 CFR Part 50.

3.5 Radiological Monitoring

The guidance in section 4.5 to NUREG-0696 specifies that to ensure adequate radiological protection of EOF personnel, radiation monitoring systems are to be provided in the EOF. The proposed Xcel Energy consolidated EOF will be located beyond 10 miles from the MNGP and the PINGP plants. No other NRC-license nuclear power reactor site is located within 10 miles of the proposed Xcel Energy consolidated EOF. The staff finds that based on the physical location of the proposed Xcel Energy consolidated EOF, EOF personnel are unlikely to be impacted by a radiological release from any nuclear power plant site. Therefore, radiological monitoring capabilities for EOF personnel, as described in NUREG-0696, as supplemented by NSIR/DPR-ISG-01, are not needed, and the Xcel Energy consolidated EOF meets the requirements of 10 CFR 50.47(b)(8).

3.6 Communications

Section 4.6 of NUREG-0696 provides guidance to ensure that the EOF has reliable voice communications facilities for communication with the respective site's TSC and control room, the NRC, and State and local EOCs, and describes the primary functions of the EOF voice communications facilities.

In section 3.1.6, "Communications," to enclosure 4 of its letter dated November 15, 2021, Xcel Energy provides the communications systems available in the proposed EOF. These include reliable voice communications to each site's main control room, TSC, OSC, and State and County EOCs. Also, provisions exist for communications with FMTs within the emergency planning zones. Xcel Energy states that access to the ENS, Health Physics Network (HPN), NRC counterpart links, and the Security Bridge from the proposed consolidated EOF is provided via the commercial telephone network which is separate from MNGP and PINGP local telephone switches. Where applicable, site facilities continue to use direct access lines to access ENS, HPN, and NRC counterpart links via the Federal Government's long-distance network. In addition, three telephone lines will be available for NRC use when the proposed consolidated EOF is activated.

The NRC staff confirmed that the description of the EOF facilities and equipment related to communications for the proposed consolidated EOF remains consistent with that which is currently described in section 7.0, “Emergency Facilities and Equipment,” of the current MNGP and PINGP Emergency Plans, as well as sections F., “Emergency Communications,” of the proposed MNGP and PINGP Annexes, and is equivalent to the existing facility.

Based on its review of the licensee’s submittal, the NRC staff finds that the proposed Xcel Energy consolidated EOF has sufficient internal and external telecommunications capabilities to support EOF functions for simultaneous events at MNGP and PINGP. The NRC staff used section 4.6 of NUREG-0696 to evaluate the communications of the proposed Xcel Energy consolidated EOF and found it acceptable. Therefore, the NRC staff has concluded that the proposed Xcel Energy consolidated EOF will provide for reliable EOF voice and data communications, and information collection and therefore, it meets the requirements of 10 CFR 50.47(b)(8).

3.7 Instrumentation, Data System Equipment, and Power Supplies

Section 4.7 of NUREG-0696 provides guidance on equipment to gather, store, and display data needed in the EOF to analyze and exchange information on plant conditions, as well as criteria to perform these functions.

In section 3.1.7, “Instrumentation, data system equipment, and power supplies,” to enclosure 4 of its letter dated November 15, 2021, Xcel Energy stated:

> Instrumentation used to continuously monitor vital plant parameters in the MCR [main Control Room] is described in the site Updated Safety Analysis Report (USARs). Essential plant data monitoring capability is available in the emergency facilities through facility computer and display systems.
>
> Xcel Energy uses site-specific versions of the Unified RASCAL [Radiological Assessment System for Consequence Analysis] Interface (URI) off site dose projection computer model.

Xcel Energy’s submittal further states that the normal power to the proposed consolidated EOF is from reliable offsite sources and that backup power for the proposed consolidated EOF is supplied by onsite diesel generation. Xcel Energy also stated that essential equipment is backed up by the diesel generation system; therefore, a loss of primary commercial power would not cause loss of any stored data vital to EOF functions. Xcel Energy states that historical data from the site will be accessible from a historical database.

In its letter dated June 10, 2022, Xcel Energy further states that the proposed consolidated EOF will provide sufficient redundancy in power, data network, and communications capabilities to ensure that the EOF operational availably goals are met.

Based on its review of the licensee’s submittal, the NRC staff finds that the proposed Xcel Energy consolidated EOF provides for reliable EOF instrumentation, data system equipment, and power supplies. The NRC staff used section 4.7 of NUREG-0696 to evaluate the instrumentation, data system equipment, and power supplies of the proposed Xcel Energy consolidated EOF and found it acceptable. Therefore, the NRC staff concludes that the proposed Xcel Energy consolidated EOF will provide for reliable equipment to gather, store, and display data needed in the EOF to analyze and exchange information on plant conditions and

that it meets the requirements of 10 CFR 50.47(b)(8)-(9) and paragraph IV.E.8.c of Appendix E to 10 CFR Part 50.

3.8 Technical Data and Data Systems

Section 4.8 of NUREG-0696 provides guidance on the technical data system needed to receive, store, process, and display information sufficient to perform assessments of the actual and potential onsite and offsite environmental consequences of an emergency condition.

In section 3.1.8, “Technical data and data systems,” to enclosure 4 of its letter dated November 15, 2021, Xcel Energy stated that the proposed consolidated EOF has the capability to display vital plant data and radiological information for each site and unit, in near real-time.

Xcel Energy further states that the MNGP safety parameter display system (SPDS) is an integrated function of the plant process computer system and displays critical plant variables. The displays are based on emergency operating procedures and General Electric generic Emergency Response Information System, including meteorological data, are available in the proposed consolidated EOF.

Xcel Energy states that the PINGP emergency response computer system (ERCS) collects and processes data for display in the proposed consolidated EOF. Xcel Energy also states that requirements for an SPDS are met by a system of displays provided by the ERCS and display of this data is also available through the business computer network.

Xcel Energy states that the URI model is used to provide offsite radiological dose and dose rate estimates based on near real-time or hypothetical inputs. The dose projection results are given for various locations from the applicable site boundary to 10 miles. URI can provide dose assessment results for multiple release points from each site.

Based on its review of the licensee’s submittal, the NRC staff finds that the proposed Xcel Energy consolidated EOF provides for reliable EOF technical data and data systems. The NRC staff used section 4.8 of NUREG-0696 to evaluate the technical data and data systems of the proposed Xcel Energy consolidated EOF and found it acceptable. Therefore, the NRC staff concludes that the proposed Xcel Energy consolidated EOF will provide for the sufficient receipt, storage, processing, and display of information to perform assessments of the actual and potential onsite and offsite environmental consequences of an emergency condition and that it meets the requirements of 10 CFR 50.47(b)(8)-(9) and paragraph IV.E.8.c of Appendix E to 10 CFR Part 50.

3.9 Records Availability and Management

Section 4.9 of NUREG-0696 provides guidance on ready access to up-to-date plant records, procedures, and emergency plans, etc., needed to exercise overall management of licensee emergency response resources. In section 3.1.9, “Records availability and management,” to enclosure 4 of its letter dated November 15, 2021, Xcel Energy stated that the proposed consolidated EOF has access to site reference materials that may be needed for supporting emergency response, including:

- Plant technical specifications;
- plant operating procedures;
- emergency operating procedures;

- updated safety analysis reports;
- standard emergency plan and its annexes, and State emergency plans;
- offsite population distribution data;
- evacuation plans; and
- selected plant drawings, diagrams, and other design information.

Based on its review of the licensee's submittal, the NRC staff finds that the proposed Xcel Energy consolidated EOF provides for adequate records availability and management. The NRC staff used section 4.9 of NUREG-0696 to evaluate the records availability and management of the proposed Xcel Energy consolidated EOF and found it acceptable. Therefore, the NRC staff finds that the proposed Xcel Energy consolidated EOF provides for records availability and management and meets the requirements of 10 CFR 50.47(b)(8).

4.0 CONCLUSION

On the basis of its evaluation, the staff concludes that the Xcel Energy proposal to replace the existing MNGP and PINGP EOFs, and their common backup EOF with a consolidated EOF centrally located in the Xcel Energy's Corporate Offices would fulfill necessary emergency response functions, meet applicable regulations in 10 CFR 50.47 and appendix E of 10 CFR Part 50, and the criteria set forth in applicable guidance. Given the technological capabilities of the new Xcel Energy consolidated EOF, its capacity to address multi-site events, and the staffing of emergency response organizations comprised of experienced and diverse personnel from the Xcel Energy corporate offices, the replacement of the existing MNGP and PINGP EOFs, and their common backup EOF with a consolidated EOF would not adversely impact the ability of the EOF to continue to effectively support Xcel Energy's emergency response at MNGP and PINGP. Moreover, the staff concluded that the provisions made for locating NRC and offsite responders closer to the nuclear power reactor site so that they can interact face-to-face with emergency response personnel entering and leaving the reactor site are acceptable. As such, the NRC would have reasonable assurance that adequate protective measures can and will be implemented in the event of a radiological emergency at the reactor sites that the Xcel Energy consolidated EOF serves.