414 Nicollet Mall
Minneapolis, Minnesota 55401-1993

October 15, 2015

--Via Electronic Filing--

Mr. Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
St. Paul, MN 55101

Re: Application for a Site Permit for the Black Dog Unit 6 Project
Docket No. E002/GS-15-834

Dear Mr. Wolf:

Northern States Power Company hereby respectfully submits this Application for a Site Permit for the Black Dog Unit 6 Project, a result of the Commission's approval of our Competive Resource Acquision filing (Docket E-002/CN-12-1240).

As previously described in our September 16, 2015 Notice of Intent to file this application, the Black Dog Unit 6 Project is a simple-cycle natural gas-fired combustion unit designed to provide approximately 215 MW of nominal peaking capabilities. The Project will be located at our Black Dog Generating Plant in Burnsville, Minnesota. Construction is scheduled to begin in June 2016 with foundation work for the new unit. Initial startup is planned for early 2018, with commercial operation in April 2018.

This application is being submitted pursuant to the alternative permitting process for large electric power generating facilities that use natural gas, as provided in Minnesota Statute 216E.04, Subd. 2. In addition to our ongoing engagement with the city of Burnsville, as required in Minnesota Rules 7850.2100, a notification to the general public, local officials and adjacent property owners will be submitted within 15 days of this site permit application filing.

We look forward to continuing to work with the Commission, the Department of Commerce and the city of Burnsville in conjunction with this application and environmental assessment. Please contact Timothy Edman at

timothy.j.edman@xcelenergy.com or 612-330-2952 if you have any questions or would like further information regarding this matter.

Sincerely,

/S/

Amy S. Fredregill
Manager, Resource Planning and Strategy

APPLICATION TO THE MINNESOTA PUBLIC UTILITIES COMMISSION FOR A SITE PERMIT FOR THE BLACK DOG UNIT 6 PROJECT

DOCKET NO. E002/GS-15-834

OCTOBER 15, 2015

Submitted by
Northern States Power Company

Application for a Site Permit
For The Black Dog Unit 6 Project

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*Note: These Figures are within the body of the application; all other Figures are located at the end of the application.

Appendices

Appendix A Notice of Intent to File Site Permit Application

Appendix B MOU Between Xcel Energy and City of Burnsville

Appendix C State Historic Preservation Office Database Search Results

Application Completeness Checklist

Authority	Application Information Requirement	Application Section
Minn. R. 7850.1300, Subp. 3(C)	Except as provided in part 7850.1500 or 7850.4800, no person shall increase the generating capacity or output of an existing large electric power generating plant without a permit from the commission.	All Chapters
Minn. R. 7850.2800, Subp. 1(B) and 1 (D)	Subpart 1. **Eligible Projects.** An applicant for a site permit or a route permit for one of the following projects may elect to follow the procedures of parts 7850.2800 to 7850.3900 instead of the full permitting procedures in parts 7850.1700 to 7850.2700: large electric power generating plants that are fueled by natural gas;	Section 2.1
Minn. R. 7850.2800, Subp. 2.	Subpart 2. **Notice to PUC**. An applicant for a permit for one of the qualifying projects in subpart 1, who intends to follow the procedures of parts [7850.2800 to 7850.3700], shall notify the PUC of such intent, in writing, at least ten days before submitting an application for the project.	Appendix A
7850.1900, Subp. 1 (per Minn. R. 7850.3100)	**Site Permit Application Contents**	**Application Section**
	(A) a statement of proposed ownership of the facility as of the day of filing the application and after commercial operation	Section 2.1

Authority	Application Information Requirement	Application Section
	(B) the precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated;	Section 2.2
	(C) at least two proposed sites for the proposed large electric power generating plant and identification of the applicant's preferred site and the reasons for preferring the site;	Not Applicable, Minn. R. 7850.3100 Section 2.5
	(D) a description of the proposed large electric power generating plant and all associated facilities, including the size and type of the facility;	Sections 3.1
	(E) environmental information required under Subp. 3;	See checklist below for Minn. R. 7850.1900, Subp. 3.
	(F) the names of the owners of the property for each proposed site;	Section 2.1
	(G) the engineering and operational design for the large electric power generating plant at each of the proposed sites;	Chapter 3
	(H) a cost analysis of the large electric power generating plant at each proposed site, including the costs of constructing and operating the facility that are dependent on design and site;	Section 2.4
	(I) an engineering analysis of each of the proposed sites, including how each site could accommodate expansion of generating capacity in the future;	Section 2.7

Authority	Application Information Requirement	Application Section
	(J) identification of transportation, pipeline, and electrical transmission systems that will be required to construct, maintain, and operate the facility;	Chapter 3
	(K) a listing and brief description of federal, state, and local permits that may be required for the project at each proposed site; and	Section 2.5
	(L) a copy of the Certificate of Need for the project from the Public Utilities Commission or documentation that an application for a Certificate of Need has been submitted or is not required.	Certificate of Need not required. See Docket E002/CN-12-1240, Order issued 4/16/15. Section 2.5.1
Minn. R. 7850.1900, Subp. 3	**Environmental Information Requirements**	
	(A) a description of the environmental setting for each site or route	Chapter 4
	(B) a description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services	Sections 4.4, 4.5, 4.6
	(C) a description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;	Section 4.5
	(D) a description of the effects of the facility on archaeological and historic resources	Section 4.6.4

Authority	Application Information Requirement	Application Section
	(E) a description of the effects of the facility on the natural environment, including effects on air and water quality resources and flora and fauna	Sections 4.1, 4.2, 4.3, 4.7
	(F) a description of the effects of the facility on rare and unique natural resources	Section 4.7.8
	(G) identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route; and	Chapter 4
	(H) a description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items A to G and the estimated costs of such mitigation measures	Chapter 4

1.0 Introduction

1.1 Project Overview

Northern States Power Company, a Minnesota corporation ("Xcel Energy" or the "Company") is pleased to submit this application to the Minnesota Public Utilities Commission ("Commission") for a Site Permit for the Black Dog Generating Plant ("Plant") Unit 6 Project ("Project", "Black Dog Unit 6," or "Unit 6"). Xcel Energy is filing this Application pursuant to the Minnesota Power Plant Siting Act (Minnesota Stat. § 216E and Minnesota Rules Chapter 7850) consistent with the notification provided on September 16, 2015. See **Appendix A** for letter of notification filing.

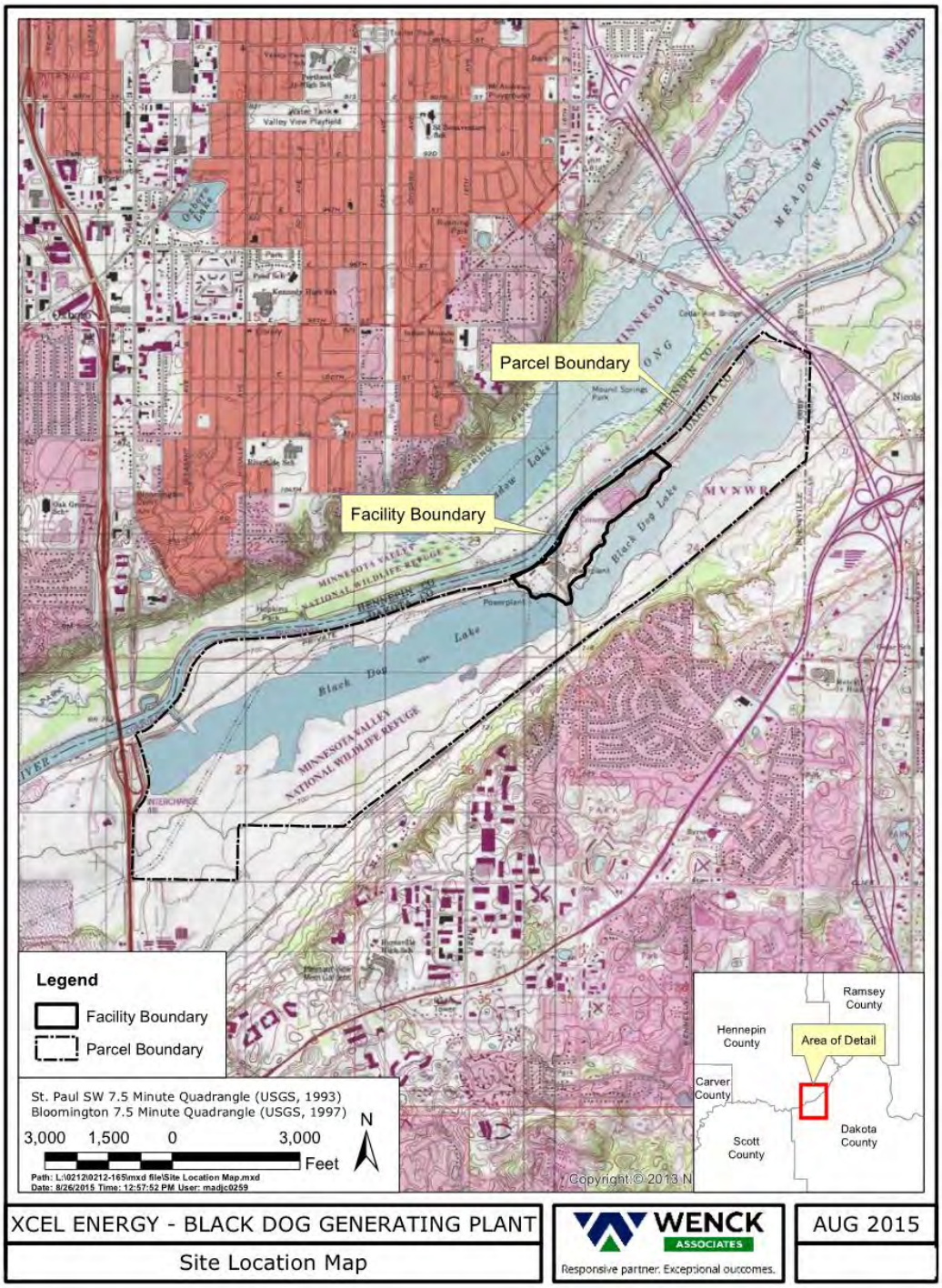
Xcel Energy is proposing to construct a 215 MW natural gas-fired combustion turbine unit (Unit 6) at its existing Black Dog Generating Plant ("Plant" or "Facility") in Burnsville, Dakota County, Minnesota (*see* **Figure 1-1)**. The combustion turbine (CT) will be a simple-cycle unit with dry low-nitrogen oxide (NOx) burners and the use of good combustion practices for emissions control. No add-on emission controls are anticipated.

Black Dog Unit 6 will provide approximately 215 MW of nominal peaking capabilities and will be built in the existing powerhouse building for Unit 4. Both Units 3 and 4 were retired in early spring 2015. Construction is expected to begin in June 2016 with foundation work for the new unit. Initial startup is planned for early 2018, with commercial operation beginning in March 2018.

Xcel Energy has prepared this application for a site permit for the Black Dog Unit 6 Project pursuant to the alternative permitting procedures because the proposed unit will be fueled by natural gas (Minn. Stat. § 216E.04, subd. 2(2) and Minnesota Rules 7850.2800, Subp. 1, Paragraph B).

The Company plans to secure firm natural gas pipeline capacity supply contracts for the Project through a competitive bidding process. Any needed gas pipeline improvements and associated approvals will be the responsibility of the supplier. The gas pipeline is discussed further in **Section 2.4.2**.

Figure 1-1 Black Dog Plant Site



1.2 Site Location

The Black Dog Generating Facility is located south of the Minnesota River in Burnsville, Minnesota, about 15 miles south of Minneapolis and west of the City of Eagan (see **Figure 1-1**). The Facility property covers about 1,900 total acres. Of that total acreage, the Plant site covers about 80 acres, which includes the powerhouse, coal yard, substation, and settling ponds. Black Dog Lake (used for cooling) covers about 500 acres. The majority of the remaining property (1,250 acres) is managed as part of the Minnesota Valley National Wildlife Refuge under an initial 1982 lease agreement (with subsequent amendments/updates) with the U.S. Fish and Wildlife Service (USFWS). The lease allows USFWS to manage the property for wildlife habitat enhancement and associated recreational activities.

1.3 Purpose and Need

The Black Dog Unit 6 Project was selected and approved by the Commission in the Company's competitive resource acquisition filing (Docket E-002/CN-12-1240) and further discussed in the March 16, 2015 Supplement to the Company's 2016-2030 Upper Midwest Resource Plan (Docket E-002/RP-15-21) filing. Black Dog Unit 6 will utilize existing infrastructure at the Plant and feed power directly to the existing 115 kV transmission system that serves distribution substations throughout the largest load center – the Minneapolis-St. Paul metropolitan area. The Black Dog Unit 6 Project is designed to ensure generation at the Black Dog Plant to provide power to the lower voltage system delivery directly to customers. This system configuration exposes customer power supply in the Twin Cities metropolitan area to fewer equipment failures and thus enhances reliability.

1.4 Concurrent Remediation Activities

Numerous remediation activities at the Black Dog Plant are underway and will continue concurrently during the construction and operation of the proposed Unit 6 Project. These remediation activities have been separately approved and permitted and are not part of this site permit application, but are described below to provide context and background information.

The existing Plant was initially developed as a coal and gas-fired generating station. The original Unit 1 boiler/turbine and the Unit 2 boiler, installed in the 1950s and fired with coal, were replaced in 2002 with a natural gas-fired combined cycle unit (Unit 5), which includes a natural gas-fired combustion

turbine-generator combined with a heat recovery steam generator ("HRSG") and utilizes state-of-the-art technology for controlling nitrogen oxides ("NOx") releases. Exhaust heat from Unit 5 produces steam in the HRSG that powers the Unit 2 steam turbine. The Unit 5/2 repowering project, completed in the summer of 2002, increased output from the two original units by more than 100 MW, and resulted in greater operating efficiency and cleaner generation. Unit 5/2 is summer rated at 283 MW. These units will not be modified as part of the Unit 6 Project.

Units 3 and 4 were retired in April 2015. Units 3 and 4 were dual-fuel boilers with steam turbines that utilized low-sulfur western coal as the primary fuel. Natural gas was used as a backup or topping fuel to obtain maximum generation for both units. Unit 3, completed in 1955, was rated at 89 MW. Unit 4 was rated at 164 MW and was completed in 1960. Both of these units have been retired, and there is no further coal-fired generation at the Black Dog Plant.

The existing coal yard and ash ponds are currently being decommissioned. Xcel Energy enrolled in the Minnesota Pollution Control Agency's (MPCA) Voluntary Investigation and Cleanup (VIC) program in 2011 for the purpose of obtaining a "No Further Action" letter for the coal yard and ash pond operational areas (VIC Site). The VIC Site also includes two areas that are adjacent to the operational areas, the North and South Margins (**Figure 1-2**).

A Response Action Plan (RAP) was prepared to describe the work that will be taken to address the direct contact exposure pathway to legacy coal and legacy coal combustion residual (CCR) at the VIC Site. Additionally, the response actions will accommodate the construction of a city bike trail and future Plant service road in the current Black Dog Road corridor.

The RAP also includes the ash pond closure plan which satisfies the conditions of the National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Permit MN0000876 with the cessation of coal and related waste streams.

Since enrolling in the VIC program in 2011, Xcel Energy has submitted to the MPCA a Phase I Environmental Site Assessment, a Phase II Environmental Site Assessment, a comprehensive Risk Evaluation, VIC site subarea summary documents, and other reports and work plans for investigation to collect and analyze sufficient data to prepare the RAP. The response actions presented in

the RAP were developed from the conclusions of the Phase II and Risk Evaluation Reports and modified based on discussions with the MPCA after the submittal of the VIC Site subarea summary documents and completion of the Pre-RAP Design Investigation. A Joint Work in Waters permit application was submitted in October 2014 to the U.S. Army Corps of Engineers, the Minnesota Department of Natural Resources, and the City of Burnsville to address the portion of the remediation work that will impact wetlands or other water resources.

The Phase II Investigation Report documented the nature and extent of legacy coal and legacy coal combustion residual (CCR) contaminants at the VIC Site in both the solid media and groundwater. The Risk Evaluation, which was conducted using MPCA guidance, identified two complete exposure pathways at the VIC site under current conditions: groundwater-to-surface water and direct contact with legacy coal and legacy CCR. The Risk Evaluation concluded that there is low to no potential that ecological receptors will be adversely affected from the impacted groundwater at the site under current conditions (i.e., operating ash ponds with no liners, and a coal storage yard exposed to precipitation).

The proposed response actions will prevent direct contact with legacy coal and legacy CCR with a clean soil cover of four feet in all areas except the South Margin where direct contact with legacy coal and legacy CCR will be reduced with riprap cover in areas with significant surface deposits of legacy coal or legacy CCR. In addition, stretches of the Minnesota River bank along the VIC site will be stabilized with riprap and a sheet pile wall to protect the clean soil cover and underlying legacy coal and legacy CCR along the Minnesota River so that they are not exposed in the future.

Based on the Risk Evaluation, specific response actions are not required for the groundwater to surface water pathway; however, preventing the direct contact pathway, closing the ash ponds, and implementing the decommissioning work are anticipated to benefit groundwater conditions by eliminating infiltration through stockpiled coal in the coal yard, removing the solids discharged to the ash ponds under the NPDES/SDS Permit, eliminating the infiltration of water from the ash ponds by filling in the ash ponds with clean (imported) soil, improving storm water management, and removing legacy coal and legacy CCR from the accessible zone in the North Margin.

A long-term monitoring plan has been submitted and approved by the MPCA to assess the long-term water quality trends. Institutional controls will be put in place to maintain the integrity of the clean soil cover after implementing the response actions.

The Black Dog Plant will continue to operate as an electrical generating station after the RAP has been implemented. The coal yard, ash ponds, and South Margin subareas will remain within the Plant's fenced area and will be inaccessible to the public. Currently, there are no plans to redevelop these areas; however, Xcel Energy will retain ownership and electrical generation/transmission related redevelopment may occur in the future.

The response actions in these areas of the VIC site will be implemented between 2015 and 2020. The response actions in the North Margin subarea will be implemented in 2015. The North Margin will remain accessible to the public with a City bike trail scheduled to be constructed in or around 2016.

After successful completion of the response actions and two years of post-RAP implementation water monitoring, Xcel Energy will request a No Further Action letter from the MPCA.

1.5 Project Description

1.5.1 Size and Type

The Unit 6 Project will consist of installing a simple-cycle natural gas-fired combustion turbine unit in the existing powerhouse where retired Unit 4 is currently located (**Figure 1-3**). The exhaust stack will be approximately 200 feet tall and will be located adjacent to the unit and exit through the existing Unit 4 boiler roof. Unit 6 will be connected to the existing 115 kV switchyard and transmission system. No upgrades of the 115 kV transmission system are anticipated.

The Company will operate Unit 6 as a peaking generator, with an anticipated annual capacity factor of four to ten percent. It is expected that the annual availability will be greater than 95 percent, and that its service life will exceed 35 years.

The Project's Peaking capacity design is based on the performance characteristics of F class combustion turbines. Upon completion, the Project will provide a nominal generating capacity of about 215 MW, which is the net capacity during

summer conditions when the combustion turbine is operated at full capacity. The total summer generating capacity of the Black Dog Generating Plant will be 498 MW once Unit 6 is operational.

The Project will use the latest combustion turbine technology. The model F class combustion turbines have fast start capability, reaching 150 MW in 10 minutes from a cold start, and operating in a range of at least 50 to 100 percent load while meeting emission limits, with faster ramp rates over the load range. Maximum output during summer heat and humidity conditions is approximately 215 MW. The maintenance and overhaul cycles have also been significantly improved from past models. Base performance at full load capacity and heat rate has also been improved.

1.5.2 Project Components

The Black Dog Unit 6 combustion turbine-generator will consist of the following equipment in series:

- **Inlet Air Filter and Evaporative Cooler** - cleans and cools the air entering the turbine;
- **Compressor** - where air is drawn in and compressed;
- **Combustor** - where the air/fuel mixture is ignited;
- **Power Turbine** - where the combusted gases expand to rotate a generator turbine and the compressor;
- **Generator** - converts mechanical energy to electrical energy;
- **Main Step-Up Transformer** - increases the generator voltage to the transmission voltage of 115kV; and
- **Auxiliary Transformer** - converts power to lower voltages for use by the Unit's auxiliary equipment.

The generator step-up transformer will be located next to the generation block. The transformer increases the output voltage to 115 kV. Auxiliary transformers will be used to convert some of the output power to lower voltages for use by the unit's auxiliary equipment.

Unit 6 will be integrated into the Company's remote dispatch control center. Operating as a peaking service, Black Dog Unit 6 will be dispatched after all incrementally lower cost and "must run" units. The units are expected to be

dispatched primarily during higher system load periods in the summer and during peak demand periods in the winter months.

Black Dog 6 will also serve to vary output due to changes in system load requirements, and intermittent or variable non-dispatchable generation such as wind power. Unit 6 will be able to fast start within 10 minutes, and will have the ability to increase power output at approximately 13-15 MW per minute. Unit 6 will be operated and maintained by the staff that will be retained for Units 2 and 5. No additional staff are planned to accommodate the new unit.

Unit 6 will be fueled entirely by natural gas. CenterPoint Energy currently serves the Plant site. Because Unit 6 will increase the Plant's high pressure natural gas need, the Company is conducting a competitive process for gas supply to the Plant. The new pipeline is expected to commence at or near Northern Natural Gas Company's (NNG) Cedar Town Border Station yard, which is located in the 3900 block of Old Sibley Highway, Eagan, Minnesota. The new pipeline will extend approximately two miles to terminate in the Black Dog Generation Plant yard. The Town Border Station is identified in **Figure 4-1**; however, the exact route of the new pipeline is yet to be determined. Permitting for the new line will be the responsibility of the fuel supplier. Bids were due to the Company by August 30, 2015 and bid selection is expected in October 2015.

1.6 Project Environmental Benefits

The Project provides several environmental benefits by replacing coal-fired generation with natural gas-fired generation within an existing generating site. These benefits include:

- Utilizing an existing site and existing transmission system to avoid the proliferation of generating sites and transmission corridors in the state;
- Taking advantage of existing infrastructure available for use at the plant site, such as transmission lines, groundwater and wastewater systems, and transportation infrastructure;
- Reducing air emissions; and
- Enabling Xcel Energy's system to operate reliably with increased wind generating capacity.

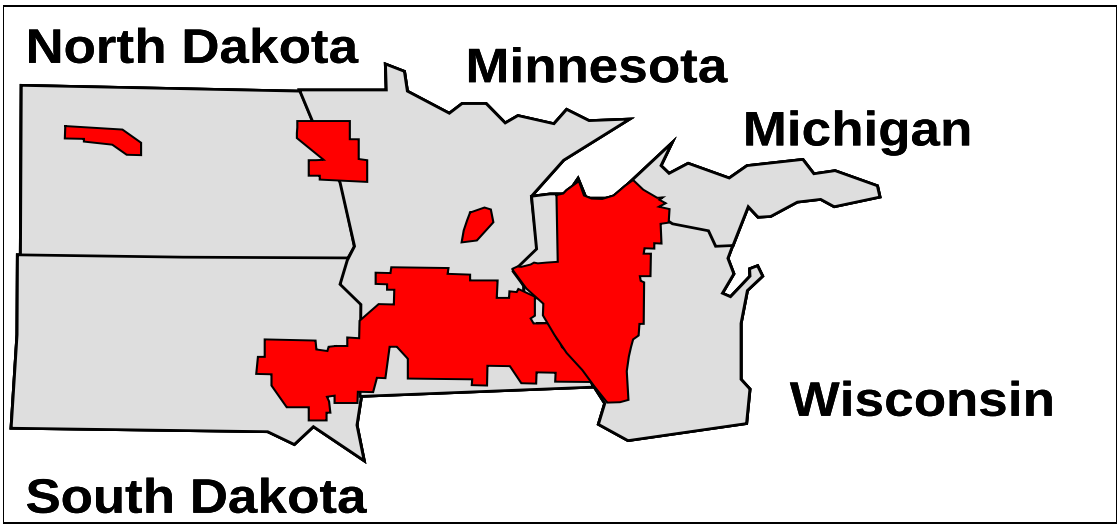
2.0 General Applicant and Project Information

2.1 Statement of Ownership

The Black Dog Generating Plant is owned by Northern States Power Company (NSP), a Minnesota corporation, and the proposed Unit 6 Project will be owned by NSP. NSP and its parent public utility holding company, Xcel Energy, are headquartered in Minneapolis, Minnesota.

Xcel Energy is a public utility that generates electrical power and transmits, distributes, and sells it to approximately 1.5 million residential and business customers on an integrated system basis within service territories assigned by state regulators in parts of Minnesota, South Dakota, and North Dakota, with our affiliate utility (NSPW) serving portions of Wisconsin and the upper peninsula of Michigan (see **Figure 2-1**). The Company owns and operates a number of electric generation facilities serving this area using a variety of technologies and fuels including wind, coal, oil, natural gas, hydro, biomass, refuse derived fuel, and nuclear. Additional wind, landfill gas, biomass and hydropower are also included in our generation portfolio through purchased power agreements (PPA).

Figure 2-1: Xcel Energy Upper Midwest Service Territory



2.2 Permittee

The Permittee and contact person regarding this Project is:

Permittee: **Northern States Power Company**

Contact: Amy S. Fredregill
Manager, Resource Planning and Strategy
414 Nicollet Mall, 7th Floor
Minneapolis, MN 55401
(612) 215-5367
Amy.S.Fredfregill@xcelenergy.com

Transfer of the site permit is not contemplated at this time

2.3 Project Schedule

Xcel Energy currently plans for commercial operation of the Black Dog 6 Project in March 2018. Actual construction is expected to begin in June 2016 with foundation work for the new unit. The existing Units 3 and 4 ceased operation in April 2015. See **Section 3.3** and **Figure 3.3** for more project schedule detail.

2.4 Cost Analysis

The estimated capital cost of the Project is approximately $100 million, based on a March 2018 commercial operation date. This includes design and engineering, procurement of equipment, site preparation, building construction, equipment installation, plant start-up and testing, and other costs associated with the development and construction of the Project.

Annual operating costs will vary depending on how often the unit is run but are anticipated to be between $0.05/kWh and $0.09/kWh including fuel, labor, materials, maintenance and applicable taxes. The Project is expected to have a useful life of at least 35 years.

2.5 Project Permits and Approvals

2.5.1 Certificate of Need

Minnesota Stat. 216B.243, subd. 1 generally requires a Certificate of Need (CON) to construct a generation facility with a total capacity of 50 MW or more. However, a CON is not required if the facility is selected in a bidding process established by the Commission under Minnesota Statutes § 216B.2422, subdivision 5(b). Therefore, a CON is not required for this Black Dog Unit 6 Project because the Project was selected through a Competitive Acquisition

Process and approved by the Minnesota Public Utilities Commission. (See Docket E002/RP-12-1240.)

2.5.2 Gas Pipeline Routing Permit

The Company issued an RFP for firm natural gas pipeline capacity supply to serve Unit 6. The new pipeline is expected to commence at or near Northern Natural Gas Company's (NNG) Cedar Town Border Station yard, which is located in the 3900 block of Old Sibley Highway, Eagan, MN. The new pipeline will extend approximately two miles to terminate in the Black Dog Generation Plant yard. Receiving pressure is 650 pounds per square inch gauge (psig) at the inlet, and delivery pressure is 525 psig at the plant. The exact pipeline size and gas volume has yet to be determined, and is contingent upon the winning bid. The selected provider will apply for a routing permit in accordance with the requirements of Minnesota Statutes Section 216G.02 and Minnesota Rules Chapter 7852, as well as any other necessary authorizations for any gas pipeline construction and operation, such as coverage under a general National Pollutant Discharge Elimination System ("NPDES") State Disposal System ("SDS") permit for Construction Activity, if required by the pipeline project's estimated area of disturbance.

2.5.3 Other Permits and Approvals

Air Emission Permit
Xcel Energy will submit an application to the Minnesota Pollution Control Agency ("MPCA") for an amendment to the Black Dog Generating Plant air emission permit, Permit No. 03700003-011, to accommodate the Project.

NPDES Discharge Permit
By the end of 2015, Xcel Energy will amend the 2012 application to renew the Plant's existing NPDES/SDS discharge permit (MN0000876) to incorporate the additional waste streams associated with the Project. Modifications will entail the process water system and its discharges. Since the 2012 application, the NPDES permit renewal process has not been started by the state, but will begin soon and will address the Project, as well as the future operation of existing Unit 5/2 wastewater operations. In addition, an application may be filed with the Metropolitan Council Environmental Services ("MCES") for approval to direct some Plant wastewater streams to the sanitary sewer system.

NPDES Stormwater Program
The Project may trigger the requirement to apply for coverage under the MPCA's NPDES Stormwater Permit Program for Construction Activities. We

will prepare a Stormwater Pollution Prevention Plan ("SWPPP") and apply for coverage under our state general permit prior to commencement of site work. The SWPPP is developed just before the application for the construction stormwater permit is submitted as much of the SWPPP's content is dependent on specific construction activities. We will require contractors to comply with the SWPPP and the provisions of the Project construction stormwater permit. Training will be provided as needed to reinforce the requirements.

For existing operations, the Plant maintains an Industrial Activity SWPPP as required by the Plant's NPDES permit. The stormwater section of the existing NPDES permit will be incorporated into the renewal and amendment of the permit with any needed updates. Prior to the Project's commercial operation, Xcel Energy will update the Industrial Activity SWPPP as necessary.

Other Permits

The Project may require other permits, approvals or notifications under the following programs:

- Federal Aviation Administration ("FAA") Notice of Proposed Construction or Alteration (for exhaust stack and potentially other structures)
- Exemption to allow burning of natural gas for power production (Department of Energy, 10 Code of Federal Regulations 503)
- Road Crossing Permits (Minnesota Department of Transportation ("MNDOT"), Minnesota Rules Chapter 8810)
- Endangered Species Act ("ESA") Review (United States Environmental Protection Agency ("EPA") and United States Fish & Wildlife Service ("USFWS")
- MNDNR Natural Heritage Review (Potential Takings Permit as per Minnesota Rule 6212.1800)
- Miscellaneous State Permits (Minn. Stat. § 216E.10, subd. 2)
- Local building permits as agreed upon in the 2012 Memorandum of Understanding with the City of Burnsville. A copy of the Memorandum is included as **Appendix B**.

The Company plans to continue to work closely with local government officials to address any reasonable concerns as with the Project during the Site

Permit process. Xcel Energy staff met with City of Burnsville staff prior to submittal of this application to discuss the Project and identify any specific areas of concern by the City.

2.6 Alternative Sites

The Black Dog Unit 6 Project will be fueled entirely by natural gas. As a result, the Project qualifies for the alternative review process as allowed by Minnesota Statutes Section 216E.04 and Minnesota Rule 7850.2800. Under the alternative process, Minnesota Rule 7850.3100 states "…the applicant need not propose any alternative sites or routes to the preferred site or route. If the applicant has rejected alternative sites or routes, the applicant shall include in the application the identity of the rejected sites or routes and an explanation of the reasons for rejecting them."

Black Dog Unit 6 was included in the March 16, 2015 supplement to the Company's 2016-2030 Upper Midwest Resource Plan (Docket No. E-002/RP-15-21). The Project will utilize the footprint of retired Unit 4 at the existing Black Dog Plant. Therefore, no other sites for the Project were considered and alternative sites are not proposed as part of this application.

2.7 Future Expansion

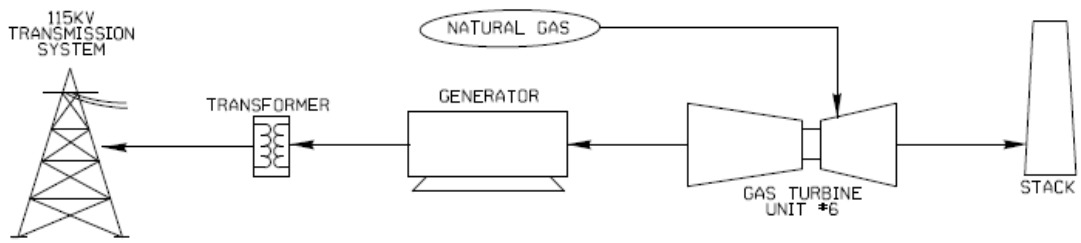
Minnesota Rule 7850.1900, Subpart 1(I) and 2(L) require an applicant to describe the extent to which a proposed generating plant site and transmission line route can accommodate future expansion. The Project, as proposed, will take advantage of available space at an existing generating plant site. Other portions of the site may accommodate future expansion for generation. Xcel Energy has no specific plans at this time to further expand generating capacity at the site beyond what is proposed in this Application.

3.0 Engineering and Operational Design

3.1 Description of Operating Cycle and Plant Components

A simple cycle combustion turbine is an electric generating technology in which electricity is produced from a combustion turbine and an attached generator. A schematic of a single combustion turbine at Black Dog is shown below in **Figure 3-1**.

Figure 3-1
Schematic Diagram of a 1 Unit Simple Cycle Facility – Black Dog



See **Section 1.5** and **Figure 3.2** for additional Project details.

3.1.1 Exhaust Stacks

The exhaust stack will exit out the top of the Unit 4 boiler roof and its height is estimated to be 200 feet from the turbine floor.

3.1.2 Electrical Interconnection

The main step up transformer will connect to the Black Dog 115 kV substation at the former Unit 4 generator breaker. Minor modifications to the existing 115kV switchyard will be required to connect Unit 6 to the transmission system. No upgrades of the 115 kV transmission system are required since Unit 6 will utilize some of the outlet capacity from retired Units 3 and 4, and a new interconnection request with Midcontinent Independent System Operator (MISO) is required to change to Unit 6.

3.1.3 Facility Buildings and Structures

Unit 6 will be located within the former Unit 4 building with the exception of the inlet air filter, exhaust stack and equipment coolers. These items will be located adjacent to the Unit 4 building.

3.1.4 Fuel Supply

The Project will be fueled entirely by natural gas with no backup fuel. The Company plans to secure firm natural gas pipeline capacity contracts through a competitive bidding process. Metering and pressure regulation of the incoming gas will be addressed as part of the pipeline project. Any other needed gas pipeline improvements and associated approvals will be the responsibility of the supplier.

A gas-conditioning station will be installed on-site as part of the combustion turbine project. In addition, if required by final design and quality of the natural gas being supplied, additional gas-conditioning equipment such as scrubbers and/or filter separators will be included to remove moisture and particulates from the gas stream.

3.1.5 Water Supply and Wastewater Management

Water will be needed for the Project for several processes including:

- Domestic-type uses
- Fire protection
- Equipment closed cooling system make-up water
- Turbine inlet air cooling (evaporative cooling)

Domestic-type uses and fire protection are self-explanatory processes. Water used for each of these processes also becomes a source of wastewater. Spent evaporative cooling water is returned to Black Dog Lake before discharge into the Minnesota River. Sanitary sewage flows to a lift station that ties in to the Metropolitan Council Environmental Services (MCES) main sewer line, and eventually flows to the Seneca Wastewater Treatment Plant.

Equipment cooling will use a closed-cycle system that will remove heat to fin fan coolers (radiators) located outside of the building. Water is used for initial filling of the system and to replace any water lost during maintenance.

Water is used for evaporative cooling during summer months to reduce the temperature of inlet air and increase output available. Water for evaporative cooling and closed cooling make-up will be obtained from the existing on-site well. Xcel Energy currently holds a MNDNR Groundwater Appropriations Permit (No. 1961-0271) for an existing well. See **Section 4.2** for further discussion.

3.1.6 Air Emission Control

Air emission control equipment will be included to achieve and maintain compliance with permitted air emission levels. The combustion turbines will be equipped with dry low NOx combustors to limit the production of NOx and carbon monoxide (CO) during combustion. These combustors are designed to maintain the fuel-to-air ratio to a near-stoichiometric level, where the quantity of oxygen in the air introduced into the combustion process is just enough to allow the fuel to burn. This "lean" ratio results in a relatively cool combustion zone. NOx is produced in high-temperature zones; therefore, the lower temperature in the combustion zone will reduce the NOx produced.

3.2 Project Construction and Operation

Generation block construction will begin after site permit and other approvals are obtained. Decommissioning, demolition, and removal of the Unit 4 turbine, generator, boiler and other components will be completed prior to constructing Black Dog Unit 6. Actual construction of Black Dog Unit 6 will begin in third or fourth quarter 2016. See **Figure 3-3** below. Start-up of Unit 6 will occur in early 2018 and is expected to be in commercial operation in the second quarter of 2018.

Figure 3-3
Black Dog Unit 6 Construction Schedule

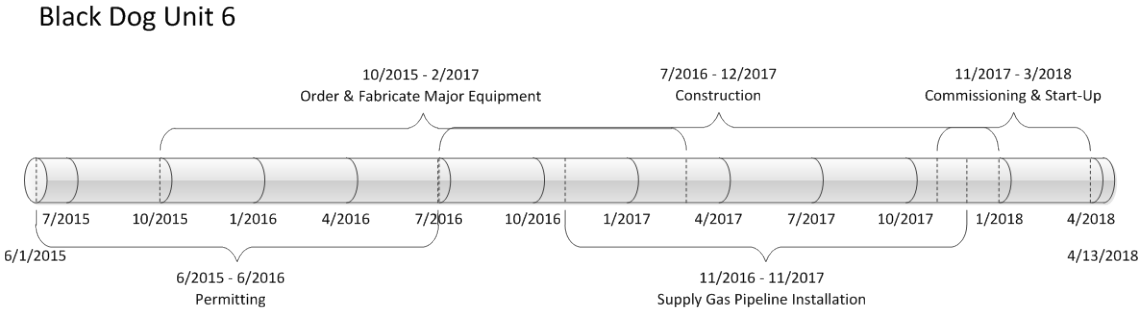


Figure 3-4 is an aerial photograph of the site as it stood in early 2015.

Figure 3-5 provides a preliminary artist's rendering of what the Black Dog Plant will look like after Unit 6 installation, removal of the stacks for Units 1 - 4, and completion of all remediation work by the end of 2020. The remediation work is summarized in **Section 1.4** as background information, but the work is not part of this site permit application.

Figure 3-4
Black Dog Plant, Early 2015

Figure 3-5
Black Dog Plant Rendering, circa 2020

3.3 Operation and Maintenance

Unit 6 will be integrated into the Company's remote dispatch control center. Xcel Energy expects to use the Project's unfired capability for peaking service, dispatching it after all incrementally cheaper and "must run" units have been dispatched.

3.3.1 Load Following

The Project will also serve to load follow as requirements change. The Project will have the ability to ramp at approximately 13-15 MW per minute. Unit 6 will be able to provide capacity of 150 MW within a 10-minute notice, which qualifies the unit with MISO for non-spinning reserve status, (i.e., generating capacity not connected to the grid but capable of supplying power within 10 minutes).

4.0 Environmental Information

The Unit 6 Project will be located at the existing site of the Black Dog Facility and is not anticipated to have significant adverse effects on land use, social, cultural, and economic resources. The Project will be constructed within the existing buildings and entirely within the existing footprint of the Facility site, and therefore, effects on the natural environment, including wetlands, threatened or endangered species or archaeological and historical sites are also not anticipated. The transition of the former coal-fired electric generating facility to a cleaner, less intrusive natural gas-fired facility will have minimal negative impacts and, in many aspects, will have beneficial effects on air quality, water use, wastewater generation, and noise. The potential effects of the Project are discussed below.

This chapter also includes an analysis and discussion of the engineering design and operational features of the Project that enhance the Project's compatibility with the surrounding environment. The Project has been conceived and will be designed and operated with the objective of avoiding adverse environmental effects. The engineering of several Project features described in Chapter 3 has included consideration of the site setting. The Project will employ state-of-the-art equipment to minimize air emissions, solid and liquid waste generation, and control noise.

4.1 Impacts to Air

4.1.1 Sources of Air Emissions

Xcel Energy's Black Dog Generating Plant currently operates a natural gas-fired combined cycle power block, Unit 5/2, which combines Unit 5 combustion turbine-generator and heat recovery steam generator (HRSG), with Unit 2 steam turbine. It utilizes state-of-the-art technology for controlling nitrogen oxides (NO_x) releases. The existing Unit 5/2 is capable of producing approximately 283 MW at peak load during summer conditions. Unit 5/2 replaced Unit 1 and 2 coal-fired boilers in 2002. Other existing emission sources include emergency generators and a recently permitted auxiliary boiler. In April 2015, Unit 3 and 4 coal-fired boilers were decommissioned and all coal handling activities at the facility were ceased.

Black Dog Unit 6 will generate approximately 215 MW at peak load during summer conditions, and will be operated as a peaking service. The unit is expected to be dispatched primarily during higher system load periods in the summer and winter months, during peak demand periods, and will also serve to vary output as system load requirements change, and intermittent or variable generation such as wind power changes. The Unit 6 CT will be a GE 7F.05 Series model. The CT will be an F class combustion turbine with fast start capability and can operate in a range of at least 50 to 100 percent load while meeting emission limits. Base performance at full load capacity and heat rate, as well as the maintenance and overhaul cycles, has also been significantly improved from past models. Low-NO_x burners and good combustion techniques will be employed to limit the formation of pollutants.

Project ancillary equipment will include a new natural gas pipeline and the addition of components from the natural gas distribution system for Unit 6. The necessary 115 kV electrical equipment breakers for Unit 6 will be reused from previously installed breakers serving Units 3 and 4. The existing NG distribution piping system will be a fugitive emissions source for greenhouse gas (GHG) emissions.

An air permit application for the Project will be submitted to the Minnesota Pollution Control Agency (MPCA) concurrently with the site permit application submittal to the Minnesota Public Utilities Commission (MPUC). The Project does require air dispersion modeling to be completed with the air permit application. The associated modeling protocol was submitted to the MPCA for review on September 8, 2015, and was approved on October 7, 2015.

4.1.2 Air Pollutants Emitted, Control Measures & Compliance Testing

4.1.2.1 Air Pollutants Emitted

A "Major Emitting Facility" with respect to Prevention of Significant Deterioration (PSD) is defined as a facility that has the potential to emit greater than 100 tons per year of any regulated New Source Review (NSR) pollutant (i.e., any pollutant listed in **Table 4.1**) and falls into one of 28 specific source categories. The Black Dog Facility currently meets the definition of a major

emitting facility. Therefore, the Project would trigger PSD review, if the increase in emissions from the Project were greater than the PSD major modification threshold. Emissions increases and decreases from recent contemporaneous projects can be taken into account to determine if the Project is subject to PSD review. The following analysis will show that the Project will "net-out" of PSD review.

A permitted annual capacity factor of less than 33 percent is proposed for the CT to keep emissions below PSD major modification thresholds and remain a minor source of hazardous air pollutants (HAPs). In addition, the capacity factor ensures compliance with New Source Performance Standards (NSPS) limits for GHG under Section 111 of the Clean Air Act, as codified in 40 CFR Part 60 Subpart TTTT (§60.5509). The PSD applicability determination also includes emission calculations from startup and shutdown (SUSD). Proposed emission limits for SUSD are proposed as part of the application to the MPCA.

A summary of the net emissions increase demonstrated in the PSD applicability analysis of the draft air permit application is shown in **Table 4.1** below. The first step to determine PSD applicability considers potential emissions associated with the Project only (i.e., addition of the Unit 6 CT which includes fugitive GHG emissions from NG piping system components). The second step to determine PSD applicability takes into account changes in emissions due to creditable contemporaneous decreases and increases at the Facility. Contemporaneous decreases are attributed to the decommissioning of Units 3 and 4, and increases are attributed to the recent addition of an auxiliary boiler. Contemporaneous decreases and increases as part of the second PSD analysis phase are only taken into consideration for pollutants which exceed PSD threshold limits when considering the potential emissions from the Unit 6 CT alone.

As mentioned previously, SUSD limitations are also proposed in the PSD analysis for the Unit 6 CT because emissions during SUSD vary from those during normal operations. An annual limit on the number of hours Unit 6 can operate in SUSD mode has been proposed.

Table 4.1: Potential Emissions & PSD Applicability Thresholds

Pollutant	Unit 6 CT Limited Potential to Emit (tpy)	Net Emissions Increase (tpy)	PSD Major Modification Threshold (tpy)
PM	10.26	10.26	25
PM_{10}	10.26	10.26	15
$PM_{2.5}$	10.26	-44.9	10
NO_x	103.5	-6,017	40
SO_2	10.98	10.98	40
CO	177.3	-18.49	100
VOC	22.02	22.02	40
Lead	1.58E-03	1.58E-03	0.6
CO_2e	3.78E+05	-1.20E+06	75,000
Asbestos	NA	NA	0.007
Beryllium	NA	NA	0.004
Mercury	NA	NA	0.1
Vinyl chloride	NA	NA	1
Hydrogen sulfide	NA	NA	10
Sulfuric acid mist	1.35-03	1.35E-03	7
Total reduced sulfur	NA	NA	10
Reduced sulfur compounds	NA	NA	10

4.1.2.2 Emission Control Measures

Unit 6 CT will be equipped with low-NO_x burners to limit NO_x formation. Unit 6 CT will be subject to New Source Performance Standards (NSPS). Applicable regulations include 40 CFR 60 Subpart KKKK: Standards of Performance for Stationary Combustion Turbines (NSPS KKKK) and Subpart TTTT: Standards of Performance for Greenhouse Gas Emissions (NSPS TTTT). To satisfy NSPS KKKK a NO_x emission limit of 15 ppm, or 0.43 lb NO_x/MWh is proposed, and fuel combusted will be of consistent SO_2 composition. The low-NOx burners will satisfy the NSPS KKKK NO_x emission limit. In addition, Xcel Energy will satisfy NSPS TTTT by limiting fuel combusted in the turbine to natural gas only. This emission control will also minimize NO_x, sulfur dioxide and particulate emissions.

4.1.2.3 Compliance Testing

Compliance with the proposed Unit 6 capacity factor will be demonstrated by maintaining monthly records of the total annual rolling capacity factor. SUSD limitation compliance will be demonstrated through the use of Continuous Emission Monitoring Systems (CEMS), as further described for NSPS compliance below, and by tracking SUSD event hours.

Xcel Energy will satisfy NSPS KKKK compliance demonstration requirements with monitoring exhaust composition by means of CEMS, and demonstrating fuel composition by representative fuel sampling, or by fuel contract specifications. Xcel Energy will be installing CEMS to measure NO_x and O_2 emissions in Unit 6 CT's exhaust. Fuel composition determination will be required for the other pollutants as specified by the MPCA in the Project's air permit. NSPS TTTT compliance will be demonstrated by maintaining fuel purchase records.

4.1.3 Criteria Pollutant Impacts

An air dispersion modeling analysis was performed for the proposed Project. The purpose of the modeling analysis was to determine whether emissions from the Facility would or would not cause or contribute to a violation of the Minnesota Ambient Air Quality Standards (MAAQS) and National Ambient

Air Quality Standards (NAAQS) and PSD increment standards. Preliminary modeling was conducted to determine whether emissions from the proposed Project alone would result in any predicted maximum ambient concentrations of criteria pollutants above the significant ambient impact levels. All modeled impacts were below significant impact levels, as discussed further below.

4.1.3.1 Significant Impact Level Analysis

A Significant Impact Level (SIL) analysis was completed as part of the proposed Project. Pollutants modeled in this SIL analysis were SO_2, CO, $PM_{2.5}$, PM_{10}, and NO_2. The modeled concentrations of each pollutant were compared to their respective SIL value using High First High (H1H) modeled impacts. The results of the SIL modeling analysis and the averaging periods are shown in **Table 4.2** below.

Table 4.2 Class II Significant Impact Level Modeling Results

Pollutant	Averaging Period	Modeled Impact H1H ($\mu g/m^3$)	SILs ($\mu g/m^3$) *As of 10/26/2010	Percent of SIL (%)	Exceed SIL?	Radius of Impact (if exceeds SIL)
SO_2	1-Hour	0.44	7.83	5.61	No	--
	3-Hour	0.40	25	1.60	No	--
	24-Hour	0.12	5	2.33	No	--
	Annual	0.01	1	0.62	No	--
CO	1-Hour	27.22	2,000	1.36	No	--
	8-Hour	13.53	500	2.71	No	--
$PM_{2.5}$	24-Hour	0.07	1.2	5.46	No	--
	Annual	0.01	0.3	2.06	No	--
PM_{10}	24-Hour	0.11	5	2.18	No	--
	Annual	0.01	1	0.62	No	--
NO_2	1-Hour	5.35	4.39	58.33	No	--
	Annual	0.08	0.07	6.59	No	--

Based on the results above, further modeling of the entire site is not required for the MAAQS and NAAQS because the impacts from the proposed project alone do not exceed the SIL.

4.2 Water Use

Water usage associated with operation of the Project will be less than that of Units 3 and 4, as Unit 6 will be a simple cycle combustion turbine that does not require a steam turbine or associated condenser and cooling equipment. As a result, the Project will not have a major impact on water supplies. Water will be needed for the Project for the turbine inlet air evaporative cooling, and potentially for some minor miscellaneous purposes such as pump seal water, H_2 Vacuum Pump Drains, and fire protection. Water and wastewater features are identified in **Figure 4-1** and described below.

4.2.1 Groundwater Use

Groundwater at the Facility is provided by a single well and is used to supply domestic potable water to the Facility administration building, and raw water to the reverse osmosis (RO)/makeup demineralizer systems. Groundwater that is softened then treated by the RO system (or back-up demineralizer system) is used as makeup water to the heat recovery steam generator (HRSG) system. Softened groundwater also supplies the evaporative coolers for cooling incoming combustion air. The on-site well draws groundwater from the Prairie du Chien/Jordan aquifer. The Facility annual average groundwater usage over the last five years was 38 million gallons (72 gpm average).

Xcel Energy currently operates under MNDNR Water Appropriations Permit #1961-0271, which allows withdrawal of up to 50 million gallons per year (MGY) of well water at a peak of 250 gallons per minute (gpm), with a daily average of 200 gpm to be maintained. The main use of the water appropriated under this permit is for natural gas fired combined cycle power generation and cooling of such units via air inlet fogging as well as site domestic usage.

As a simple cycle combustion turbine, Unit 6 can operate without significant quantities of water. Xcel Energy estimates that Unit 6 will operate without water inputs over 80 percent of the time. Xcel Energy anticipates water will be injected for evaporative cooling of inlet air up to 20 percent of the time, when maximum power output is needed. Inlet air cooling enhances operational output of the unit during the warmest days of the year. The evaporative cooling process consumes a small amount of water, but increases power output about 5 to 10 percent depending on the relative humidity during hot summer day operation. Summer time average use when operating is estimated to be approximately 26,820 gallons per day (GPD). Given the retirement of Units 3 and 4 and their associated groundwater usage, no increase in the groundwater appropriation rate or annual withdrawal volume will be required for the Unit 6 Project and may actually decrease.

In summary, the addition of Unit 6 will have no or minimal impact on the groundwater use at the Facility. Groundwater from the existing Facility well will supply most water needs for the Project. No increase in the groundwater appropriation limit in the MNDNR Water Appropriations Permit (#1961-0271) will be required for the Project. The annual withdrawal volumes for future Facility operations (Project plus existing Unit 5/2) are expected to be within the range of existing Facility operations in recent years.

4.2.2 Surface Water Use

Surface water appropriated from the Minnesota River is currently used for cooling water. Equipment cooling for Unit 6 will be accomplished via a closed-cycle system. This cooling system will be a closed-loop containing a glycol solution with heat rejected via a radiator (air heat exchanger). Black Dog Lake will not be used as a water supply for any portion of the Project given restrictions or conditions associated with the U.S. Environmental Protection Agency (USEPA) Clean Water Act Section 316(b) rule. Minnesota River water from the existing auxiliary cooling pumps may be used in the Unit 6 system for pump seal water, pump drains, fire protection, and other minor miscellaneous uses. The anticipated amount for these minor uses is expected to average 5,760 GPD.

The annual average surface water use at the existing Facility over the past five years was 93,000 million gallons (285,426 acre-feet) of water per year. A small percentage of this cooling water is evaporated due to Facility operations. Additional evaporation, yet still a relatively small percent, occurs in Black Dog Lake. Surface water use is permitted by the MNDNR under Surface Water Appropriation Permit (#1961-0270). The Surface Water Appropriations Permit allows Facility withdrawal of up to 458,200 acre-feet of water per year from the Minnesota River. The Project will not require changes to the existing DNR Water Appropriations Permit (#1961-0270) limit.

The closed-loop system make-up will be secured from the well water system. Therefore, no additional surface waters are expected to be utilized for cooling water with the Project. The total surface water appropriations for the Facility (Project plus existing Unit 5/2) will be within the existing MNDNR Water Appropriations Permit (#1961-0270) limitations.

4.2.3 Impingement and Entrainment

Section 316(b) of the federal Clean Water Act (CWA) requires the EPA to regulate cooling water intake structures to assure that these structures reflect the best technology available for minimizing adverse environmental impacts to aquatic species. The EPA published the final 316(b) rule in August 2014. The rule prescribes technology for protecting fish that get stuck on plant intake screens (known as impingement) and describes a process for site-specific determinations by each state for sites that must protect the small aquatic

organisms that pass through the intake screens into the plant cooling systems (known as entrainment).

In 2015, the plant has commenced work to retrofit the existing screen house intake in order to comply with the 316(b) rule. These improvements have included modified roof access, stop log bays, fish friendly traveling screens, and a new fish return line to the Minnesota River. The screens prevent small fish from entering the plant's water intake and cooling system and return them to the river. The installation of this project is scheduled to be complete in 2016. Starting in 2016, a two-year impingement study will begin to assess the survivorship of fish with the new system in place.

The Project will use a closed-cycle system that will entail no additional surface water use for cooling. Therefore, the Project will not impact the Facility's present plans for addressing Impingement and Entrainment in accordance with the site NPDES Permit #MN0000876 and with the EPA's CWA Section 316(b) rule.

4.2.4 Thermal Discharge

The existing thermal discharge at the Plant is cooled in Black Dog Lake prior to discharging within NPDES permit limits via two outfalls to the Minnesota River as shown on **Figure 4-1**. Black Dog Lake is operated by the Plant as its cooling treatment lake per past deliberations with the MPCA and the EPA that resulted in present NPDES permit conditions. The NPDES/SDS permit places thermal limitations on surface water discharges of cooling water from the cooling lake. Clean Water Act Section 316(a) studies have been conducted to either develop appropriate limitations or to demonstrate that the permitted limitations are adequate to protect the Minnesota River from significant impacts due to thermal loading. As described above, the Unit 6 equipment cooling and the evaporative cooler will operate as a closed cycle system primarily using groundwater. Heat is lost/rejected via evaporative cooling, not via a water system.

With closed cycle systems, there will be no or relatively very minimal additional heat rejection to the lake and/or river. Therefore, the Project will have no significant additional thermal loading to surface waters.

4.3 Wastewater Generation

Due to softened well water usage for evaporative cooling, the expected Unit 6 wastewater streams entail softener regeneration and evaporative cooler blowdown. Spent process water is discharged to Black Dog Lake for further cooling, and eventually enters the Minnesota River through one of two discharge gates. The estimated Unit 6 wastewater flows (including return of any miscellaneous Unit 6 river water uses) are 32,580 GPD average operating day and 44,300 GPD (0.044 MGD) maximum during the summer, and 10,080 GPD average operating day and 30,240 GPD maximum during the winter. Note, there is a potential for an additional 60,000 GPD (0.06 MGD) for Unit 5/2 HRSG quench water if future process water chemistry (e.g. pH or TDS) becomes a concern that necessitates utilizing another source (e.g., river) for quench water versus the present pond re-use arrangements. **Table 4.3** provides a summary of existing and anticipated future wastewater discharge at the Facility.

Table 4.3: Wastewater Discharge

System	Existing Facility 5-year Average	Existing Facility Maximum Potential	Expansion Project Maximum Potential	Combined Facility Maximum Potential
Wastewater Discharge (MGD[1])	0.2 long term includes days of no (0) discharge (3.4 over discharge days)	13.5 (for present arrangements: batch pond release over 3 days (48 hours) every 1-4 months) (if establish continuous after discontinuing coal/coal ash/unit 3&4 flows, then 0.15)	0.044 (based on continuous discharge, long term average)	0.19 (0.25 if new U5/2 HRSG quench water source) (based on continuous discharge, long term average), may approach 1 to 2 MGD on periodic basis if future pond design allows batch release similar to present)

Source: Xcel Energy 2015 1: Million Gallons Per Day; Maximum potential is based on 24 hours of operation

4.4 Noise

As discussed below, several noise surveys have been conducted at the Facility and the Unit 6 Project is not expected to result in any significant impact or increase in noise.

In Minnesota, statistical sound levels (L Level Descriptors) are used to evaluate noise levels and identify noise impacts. The L_5 is defined as the noise level exceeded 5% of the time, or for three minutes in an hour. The L_{50} is the noise level exceeded 50% of the time, or for 30 minutes in an hour.

Since human hearing is not equally sensitive to all frequencies of sound, the most noticeable frequencies of sound are given more "weight" in most measurement schemes. The A-weighted scale corresponds to the sensitivity

range for human hearing. Noise levels capable of being heard by humans are measured in dBA, which is the A-weighted sound level recorded in units of decibels.

A noise level change of 3 dBA is barely perceptible to human hearing. A 5 dBA change in noise level, however, is clearly noticeable. A 10 dBA change in noise level is perceived as a doubling of noise loudness, while a 20 dBA change is considered a dramatic change in loudness. **Table 4.4** below shows noise levels associated with common, everyday sources.

Table 4.4: Common Noise Sources and Levels

Sound Pressure Level (dBA)	Noise Source
140	Jet Engine (at 25 meters)
130	Jet Aircraft (at 100 meters)
120	Rock and Roll Concert
110	Pneumatic Chipper
100	Jointer/Planer
90	Chainsaw
80	Heavy Truck Traffic
70	Business Office
60	Conversational Speech
50	Library
40	Bedroom
30	Secluded Woods
20	Whisper

Source: Minnesota Pollution Control Agency (2008).

Land areas, such as picnic areas, churches, or commercial spaces, are assigned to an activity category based on the type of activities or use occurring in the area. Activity categories are then categorized based on their sensitivity to traffic noise. The Noise Area Classification ("NAC") is listed in the MPCA noise regulations to distinguish the categories. Residential areas, churches, and similar type land use activities are included in NAC 1; commercial-type land use activities are included in NAC 2; and industrial-type land use activities are included in NAC 3.

Noise surveys were conducted at the Facility in 2002 and again in 2011. Sampling locations are illustrated in **Figure 4-2.** In 2002, noise testing was completed during operation of Units 3, 4, and 5, while in 2011, noise testing was completed with all units off-line. Both sets of noise surveys included residential sites. Based on the noise survey conducted in 2002 and 2011, the Facility is in compliance of state noise standards. **Table 4.5** identifies the MPCA established daytime and nighttime noise standards by NAC. The standards are expressed as a range of permissible dBA within a one hour period; L_{50} is the dBA that may be exceeded 50 percent of the time within an hour, while L_{10} is the dBA that may be exceeded 10 percent of the time within the hour.

Table 4.5: Applicable Minnesota Noise Standards

Noise Area Classification		**Noise Standard, dB(A)**			
		Daytime (7 am to 10 pm)		**Night time (10 pm to 7 am)**	
		L_{50}	**L_{10}**	**L_{50}**	**L_{10}**
1	Residential	60	65	50	55
2	Commercial	65	70	65	70
3	Industrial	75	80	75	80

Source: MPCA

Noise surveys conducted in 2002 while Units 3, 4 and 5 were in operation indicated noise levels at nearby residences, approximately 1,800 to 3,300 feet away, ranged between daytime L10 noise levels of 48 to L50 noise levels of 47, and L10 noise levels of 47 to L50 noise levels of 46, respectively. Noise surveys of the existing Facility conducted in October 2011 while the Facility was not operating provides information on background noise. The 2011 surveys indicated that Facility noise from maintenance activity during a Facility outage was detected at two of three residential survey sites nearest the Facility, one to the northeast and one to the southeast of the Facility. Background noise, which included traffic, jet airplanes, geese, and leaves, was also recorded at the survey sites while the power units were not in operation. The power units are housed within buildings that minimize potential noise impacts.

Based on the 2011 noise survey, noise standards were not exceeded at the two residential survey sites that recorded Facility noise. Monitoring equipment at Residence 1 (3,500 feet from the Facility) recorded daytime L10 noise levels of 55.7 and L50 of 45.1. Monitoring equipment at Residence 2 (2,100 feet from the Facility) recorded daytime L10 noise levels of 49.1 and L50 of 43.1.

Unit 6 equipment is rated at 85 decibels at a distance of three feet. This is the same rating as the existing Unit 5 combustion turbine. Unit 6, aside from the air inlet and closed-cooling fin-fan heat exchangers, will be inside the existing power house which is located in an isolated area, with the nearest residences located approximately 2,000 feet away. In addition to Units 3 and 4 shutting down in April 2015, many of the outside noise generating sources (such as rail delivery of coal, coal handling, and ash handling activities) have ceased operation as well. It is anticipated that noise generated by the Facility with Unit 6 at full operation will be similar to or less than noise measured during the 2002 survey with three units in operation, which was in compliance with state noise standards. Additionally, Unit 6 will be designed to comply with state and local noise standards and is not expected to have a significant impact.

4.5 Land Use Impacts

The power generation portion of the Project will remain within the existing Facility footprint with the majority of construction occurring within existing buildings (**Figure 1-3)**. As a result, none of the Project-related activities will result in changes in land use at the site. Additionally, construction of the Project will not displace other land uses because the site is already developed for power generation. A new natural gas pipeline will be needed to operate Unit 6. This natural gas pipeline will be evaluated through a separate permitting process, and therefore, is not discussed in detail as part of this site permit application. Existing Land Uses are shown on **Figure 4-10.**

Resources such as groundwater or surface water will be utilized within the established appropriation limits. There are no anticipated changes to the distribution or demand for these resources that could affect other economic activities. Tourism, forestry, and mining activities are not dependent on the site or its immediate environs, and therefore, are unlikely to be increased or decreased as a result of the Project.

Agriculture
The Facility is not located in an agricultural area. Based on recent aerial photographs, the nearest significant tracts of land with evidence of agriculture are south of the City of Apple Valley, approximately six miles from the Facility.

Forestry
Based on property parcel data, there are no forested areas where tree species are harvested within the Facility site. The entire Facility site is owned by Xcel Energy, and the primary tree cover in the area is associated with waterways and along the Xcel Energy railroad spur. The Project does not involve any vegetation removal.

Mining
According to the MNDOT county pit map for Dakota County and USGS topographic maps, there are no active gravel pits, rock quarries, or commercial aggregate sources in the immediate vicinity of the Facility (MNDOT, 2001). Kraemer Mining and Materials, Incorporated has a rock quarry, the Burnsville Quarry, located west of Interstate Highway 35, southwest of the Facility (see **Figure 4-10**). The Burnsville Quarry has been in operation since 1959 and produces dolomitic limestone used for concreate, asphalt, and other road-based or landscape purposes. The Project will not impact known mining resources. Unknown mining resources that may exist in the Facility area would be situated in close proximity to existing utility and roadway rights-of-way, and also located within the Minnesota Valley National Wildlife Refuge, making development unlikely.

Commercial and Residential
The area for the most part is separated from commercial and residential areas by Black Dog Lake, the Union Pacific Railroad and Xcel Energy railroad spur, and Black Dog Park. The closest structure is a residence, located over 1,500 feet south of the Facility. The closest commercial business to the Project Area is located over one half mile away. The Project will be sited entirely within the existing Facility footprint and will not result in any impacts to surrounding commercial or residential areas.

4.5.1 Zoning and Development

Land uses near the Facility are not expected to change as a result of Project construction or operation. No residential or business displacement will occur.

Permanent impacts will be limited to the construction areas described in Chapters 1 and 3, which are currently owned and occupied by Xcel Energy.

The site permit issued by the Minnesota Public Utilities Commission supersedes and preempts local land use and zoning requirements (Minnesota Statutes, section 216E.10). Issues related to land use and zoning should be addressed in the site permit process and not in separate or additional administrative proceedings. Xcel Energy has and will continue to work closely with local units of government to address their land use concerns regarding the existing Facility and the proposed Project as well as facilitate their participation in Commission proceedings.

The entire Project Area is within a Conservancy District as shown on the City of Burnsville's October 2013 Zoning Map (**Figure 4-3**). Utility uses and expansion of existing uses are allowed as conditional uses in the Conservancy District according to the City of Burnsville zoning ordinance. Several overlay districts in the City ordinance, including floodplain and shoreland overlay districts, also apply to the Project Area.

In general, the Project will address the conditions that would be imposed on development within those districts to the extent practicable. The shoreland overlay district requires a 50-foot setback from general development (GD) waterbodies (e.g., Black Dog Lake) for sewered properties, and a 50-foot setback from sewered tributaries and urban streams (e.g., Unnamed Black Dog Lake tributary). The existing Facility meets both of these setback criteria, and therefore, placement of Unit 6 into the existing building will also meet the current structure setbacks.

Erosion control and stormwater management is also required for construction in the shoreland and conservation overlay districts. The Project will include a stormwater management plan, which will also address erosion control measures. The shoreland overlay district limits structure height to 35 feet. The existing Facility currently exceeds this height limit. The Unit 6 project will require a new approximately 200-foot-high stack that will also exceed this height limit. Xcel Energy will continue to work with the City of Burnsville regarding the appropriate permitting requirements consistent with the MOU between Xcel Energy and the City of Burnsville (**Appendix B**). Discussion on aesthetics is provided in **Section 4.5.3** below. Discussion on floodplain regulations is provided in the following section.

4.5.2 Floodplain

By law, Minnesota's flood-prone communities are required to: 1) adopt floodplain management regulations when adequate technical information is available to identify floodplain areas; and 2) enroll and maintain eligibility in the National Flood Insurance Program (NFIP) so that the people of Minnesota may insure themselves from future losses through the purchase of flood insurance. In 1987, the State Flood Plain Management Act was amended to establish a state cost-sharing grant program to help local government units plan for and implement flood hazard mitigation measures. The MNDNR is the state agency with overall responsibility for implementation of the State Flood Plain Management Act.

At the state level, the MNDNR has established minimum standards for floodplain management entitled "Statewide Standards and Criteria for Management of Flood Plain Areas of Minnesota" (Minnesota Rules, parts 6120.5000 - 6120.6200). These standards have two direct applications: 1) all local floodplain regulations adopted after June 30, 1970 must be compliant with these standards; and 2) all state agencies and local units of government must comply with Minnesota Regulations in the construction of structures, roads, bridges or other facilities located within floodplain areas delineated by local ordinance. Local floodplain regulatory programs, administered by county government, predominately for the unincorporated areas of a county, and by municipal government for the incorporated areas of a county, must be compliant with federal and state floodplain management standards. Both federal and state standards identify the 100-year floodplain as the minimum area necessary for regulation at the local level. These regulations are intended to protect new development and modifications to existing development from flood damages when locating in a flood prone area cannot be avoided.

Dakota County has updated their Digital Flood Insurance Rate Map (DFIRM) and Flood Insurance Study (FIS). The re-mapping became effective for the Facility site in December 2011. The existing Facility is currently mapped on the Federal Emergency Management Act (FEMA) Flood Insurance Rate Map (FIRM) as Zone AE, which means these areas are subject to inundation by the 1-percent-annual-chance flood event (i.e., 100-year flood) (see **Figure 4-4**). The 100-year flood level is approximately 715 feet above mean sea level (MSL) at the Facility. The Project will occur within existing buildings. Unit 6 construction activities will not result in placement of fill or alterations to the

floodplain, and therefore, impacts to the floodplain and flood event levels are not anticipated.

4.5.3 Aesthetics

The majority of the landscape at the Facility is commercial/industrial, but the Facility is bordered by a wildlife and recreational area as well as residences. Much of the residential development in the area is on top of bluffs overlooking the Minnesota River Valley.

The Project will result in a new turbine enclosed within an existing building located at the Facility site, which is developed with existing power generation facilities. The Project will be constructed entirely within the existing Facility footprint and adjacent to an existing railroad line, as well as within an area developed with transmission lines and associated infrastructure. Therefore, the installation of Unit 6 will not have significant effects on the visual and aesthetic character of the area.

A new Unit 6 exhaust stack, approximately 200 feet tall as measured from the turbine floor, will be constructed. The top of the new Unit 6 stack will rise to 920 feet above mean sea level (MSL), which is shorter than the existing Unit 5/2 stack, which rises to 935 feet above MSL. Both stacks are much shorter than the Unit 3/4 stack, which is 600 feet tall and reaches 1,305 feet above MSL, and the Units 1 and 2 stacks, which are 300 feet tall and reach 1,005 feet above MSL. The stacks for Units 1, 2, and 3/4 are scheduled for demolition in 2019. **Figures 3-4** and **3-5** illustrate the Plant as it looked at the beginning of 2015, and how it will eventually look once all the construction and remediation activities are complete in 2020.

The existing Unit 5/2 uses an aqueous solution of ammonia for NOx control, which produces a water vapor plume, and may be visible from the stack at times depending on weather and seasonal conditions. The extent and duration of the visible plume varies depending on ambient conditions (temperature, humidity, and wind speed) and Facility load. In general, the plume is shorter on warmer days and more prominent on cooler days, especially on cold winter days with minimal wind. Other times of the year, the plume may be transparent. The new Unit 6 stack is likely to produce less of a visible plume than the existing Unit 5/2 stack, as it does not use an aqueous solution for pollution control. The most likely visible evidence of a plume will be a transparent heat "shimmer" directly above the outlet.

4.5.4 Traffic

The two roads that serve the Facility are closed to public access. Black Dog Road, which runs east/west between Interstate 35W and the Facility entrance along the Minnesota River and the northern shoreline of Black Dog Lake, serves as the main access road to the Facility. Since 2014, Black Dog Road has been a private access for Xcel Energy from approximately the West Black Dog Road bridge, east of Interstate 35W, east to the Facility. The portion of Black Dog Road east of the Facility has been removed and is being replaced with a private service road for Xcel Energy. The second road on the south side of the Facility runs adjacent to the rail spur into the existing Facility. Use of this road is restricted to Facility staff for limited use when Black Dog Road is unavailable.

Annual Average Daily Traffic (AADT) on Interstate 35W is approximately 109,000 (MNDOT, 2012). The nearest county road or state highway to the Facility is State Highway 13, which is approximately 0.8 miles south (**Figure 4-5**). AADT on State Highway 13 is 28,000 vehicles (MNDOT, 2012). Local roads serving residential areas are located over 500 feet south of the Facility. AADT on these roadways averages about 2,000 vehicles (MNDOT, 2010).

Operations traffic has decreased since the coal-burning units at the Facility were retired in April 2015 due to cessation of ash hauling and changes in the access roads. The Unit 6 project is not anticipated to significantly change current traffic levels on local roadways. However, there will be a temporary increase in traffic in the area of the Facility for equipment deliveries and construction personnel. This is likely to impact Black Dog Road the most, which is closed to public access, and therefore, is not anticipated to significantly impact traffic along the main highways or residential streets. Traffic will stabilize and remain similar to existing conditions once construction of Unit 6 is completed.

4.6 Social, Cultural and Economic Impacts

4.6.1 Public Health and Safety

There is a chain link fence around the Facility to secure operations and prevent vandalism. The existing substation has an additional chain link fence to prevent unauthorized access. During Project construction, additional security will be provided to guard equipment and prevent vandalism.

The Project will be equipped with a complete fire protection system, including water and carbon dioxide fire protection measures. This system will be designed in accordance with National Fire Protection Association (NFPA) requirements.

The Project will also be designed in compliance with state, National Electrical Safety Code (NESC), and Xcel Energy standards regarding clearance to ground, clearance to crossing utilities, clearance to buildings, and strength of materials. Xcel Energy construction crews and/or contract crews will comply with state, NESC, and Xcel Energy standards regarding installation of facilities and standard construction practices. This will include clear signage during all construction activities.

4.6.2 Public Service and Infrastructure

The City of Burnsville provides water and sewer service to its residents. The Facility has sewer service, but utilizes an on-site well for water. The Facility is surrounded by moderately to densely populated residential areas that rely on public utilities. No additional impacts on public services beyond that already associated with the existing Facility and transmission lines are anticipated to occur as a result of the proposed Project.

A new natural gas pipeline will be required to operate the Unit 6 project. This natural gas pipeline will be evaluated under a separate permitting process.

4.6.3 Socioeconomics

Socioeconomics examines how social factors and economics influence communities. Population and economic characteristics based on the U.S. Census are presented below in **Table 4.6**. This information provides a baseline of the current conditions within the communities in the immediate vicinity of the Facility.

Table 4.6: Population and Economic Characteristics

Location	Population	Minority Population (Percent)	Caucasian Population (Percent)	Per Capita Income	Percent of Individuals Below Poverty Level
State of Minnesota	5,347,740 (2013)*	14.4 (2013)*	85.6 (2013)*	$30,913 (2013)*	11.5 (2013)*
Dakota County	402,306 (2013)*	14.7 (2013)*	85.3 (2013)*	$34,828 (2013)*	7.6 (2013)*
City of Burnsville	60,838 (2013)*	22.4 (2013)*	77.6 (2013)*	$31,765 (2013)*	11.1 (2013)*
City of Eagan	64,691 (2013)*	19.0 (2013)*	81.0 (2013)*	$39,939 (2013)*	6.9 (2013)*

*The data in this table are calculated by ACS using annual surveys conducted during 2009-2013 and are representative of average characteristics during this period. Source: Economic Profile System-Human Dimensions Toolkit, EPS-HDT. Burnsville city MN, Eagan city MN, Dakota County MN, State of Minnesota. Sept. 9, 2015. (http://headwaterseconomics.org/tools/economic-profile-system)

According to U.S. Census Bureau data, minority groups in the area constitute an average of 14.7 percent of the total population. Per capita incomes within the county and nearest cities to the area are higher than the State of Minnesota. The percentage of persons living below the poverty level in the area is slightly less than 50 percent of the State average. The area does not contain disproportionately high minority populations, low income populations, or high percentages of persons living below the poverty level.

There will be short-term positive economic impacts to the surrounding communities as a result of construction activity and an associated influx of utility personnel and contractor employees during construction of the Project. In addition to the effects that the additional workers will have on the surrounding communities, other local purchases of materials such as concrete may occur.

4.6.4 Archaeological and Historical Resources

In August 2015, a review of records at the Minnesota State Historic Preservation Office (SHPO) identified one archaeological site and two

inventoried historic architectural properties located within one mile of the Project Area (**Appendix C**). The archaeological site (21DK0041) is a mound site, confirmed as burials by excavation. Site 21DK0041, which was dated to the prehistoric Arvilla Complex (AD 500-900), was completely destroyed by development in the 1960s. The Minnesota Private Cemeteries Act (Minnesota Statute, section 307) regulates burials through the Office of the State Archaeologist. Native American burials would also come under the jurisdiction of the Minnesota Indian Affairs Council.

The historic architectural properties within one mile of the Facility are the Union Pacific Railroad and the Black Dog Facility itself. The Union Pacific Railroad runs along the southern edge of the Minnesota River Valley. This rail line between St. Paul and Mankato, which was first built in 1864, represents the early expansion of Minnesota and the transportation network that helped bring the state's agricultural products to the marketplace. A Multiple Property Nomination to the National Register of Historic Places (NRHP) for Railroads in Minnesota 1862-1956 (Schmidt et al., 2002) establishes the criteria for NRHP eligibility for railroad properties. Although the Union Pacific Railroad is not specified as eligible for listing on the NRHP, it does meet the criteria and should be considered potentially eligible. The Black Dog Facility was evaluated in 2015 and was not found to be eligible for the NRHP.

The historic architectural properties identified within one mile of the Project Area will not be directly or indirectly impacted as a result of the Project, as all proposed construction is located entirely within the existing Facility footprint and is consistent with the industrial use of the site.

No impacts on identified archaeological and historic architectural resources have been identified to date. Should a specific impact be identified, Xcel Energy will consult with SHPO on whether the resource is eligible for listing in the NRHP and appropriate mitigation measures will be implemented. While avoidance would be a preferred action, mitigation for Project-related impacts on NRHP-eligible archaeological and historic resources may include resource investigations and/or additional documentation through data recovery.

4.6.5 Recreation

There are two formal recreational areas located near the Project: the Minnesota Valley National Wildlife Refuge and Black Dog Park (**Figure 4-6**). Recreation areas outside of the Xcel Energy property boundary are: Fort Snelling State

Park, located to the northeast, and Black Dog Preserve Scientific and Natural Area, located to the southwest. The Minnesota Valley National Wildlife Refuge surrounds the existing Black Dog Facility and a strip of land hosting a spur off of the Union Pacific Railroad owned by Xcel Energy. The City of Burnsville is home to several other parks, city trails, and general recreational areas; however, they are located within densely populated residential areas well over 0.5 mile from the Facility and are unlikely to experience any direct or indirect impacts as a result of the Project.

Approximately 1,250 acres surrounding the Black Dog Facility is managed as part of the Minnesota Valley National Wildlife Refuge under an initial 1982 lease and agreement (with subsequent amendments/updates) with the U.S. Fish and Wildlife Service (USFWS). The lease allows USFWS to manage the property for wildlife habitat enhancement and associated recreational activities. Minnesota Valley National Wildlife Refuge was established in 1976 to provide habitat for a large number of migratory waterfowl, fish, and other wildlife species threatened by commercial and industrial development, and to provide environmental education, wildlife recreational opportunities, and interpretive programming (USFWS, 2015). The Refuge offers a variety of year-long and free outdoor recreational activities, and has two education and visitors centers, which are located over five and 40 miles, respectively, from the Facility. The Minnesota Valley National Wildlife Refuge is well known for bird watching, which is available year-round. Other recreational opportunities include wildlife observation, wildlife photography, hunting, fishing, environmental education, and interpretation. According to the USFWS website (2015), overall management of the Minnesota River Valley includes, "restoring habitat through biological control, prescribed burning, water control structures, hydroaxing, invasive plant removal, integrated pest management, seeding, planting, encouraging natural regeneration, and working cooperatively with neighboring cities, land management agencies, and organizations."

Xcel Energy began a cooling lake drawdown program in 1989 in cooperation with the USFWS to enhance wetland vegetation growth in Black Dog Lake and thereby increase migratory bird use. The cooling ponds allow numerous species of waterfowl, gulls and wetland birds, such as the American woodcock, to return earlier in spring and to remain in the area longer in winter.

About 350 feet south of the Facility is Black Dog Park, a 38-acre park that includes softball/baseball fields, a football field, walking trails and natural areas (City of Burnsville, 2010a). The closest park-related facilities to the Project

include a softball/baseball field, which is located about 750 feet west and primarily used during the spring, summer, and autumn months. About 200 feet south of the Facility is a walking trail along the south side of west Black Dog Lake.

Under the terms of Development Agreement between Xcel Energy and the City of Burnsville, Black Dog Road was closed to public access in 2014. A new paved public recreation trail (Black Dog Trail) on the Burnsville side of the Minnesota River is under construction. The trail will be completed in 2016 once the remediation activities in the proposed pathway are finished. This trail will generally follow the river, running between the Facility and the river, and will be part of a larger regional trail system.

The Unit 6 Project will occur within an existing building and is not anticipated to disrupt or impact Black Dog Park, or any other trails or recreation facilities in the area. Although no impacts to recreation are anticipated, Xcel Energy will work with appropriate authorities to minimize impacts to recreation during construction.

4.6.6 Cultural Values

Cultural values include those perceived community beliefs or attitudes in a given area, which provide a framework for community unity. The region surrounding the Facility has cultural values tied to the area's strong German, Norwegian, and Irish heritage (ePodunk, 2010), and the manufacturing, retail trade, finance and insurance, and professional, scientific, and technical services economies (ePodunk, 2010a). Local community ties relate to work, worship, celebration, and recreation. An example of area culture and industry includes the annual Dakota County Fair, held in August in Farmington (Minnesota Federation of County Fairs, 2010).

The Project is not expected to conflict with the cultural values of the communities surrounding the Facility, as the Project will not result in a change of land use and is consistent with the existing and continued industrial use of the site.

4.6.7 Economic Benefits

Construction of the Project will take place over 18-24 months and will require high-skill, high-paying positions, including pipefitters, iron workers,

millwrights, boilermakers, carpenters, electricians and other trades, which will contribute to the regional economy. Upon completion, the Project will require employees with certain skills and training for day-to-day operations and will require many more skilled crafts to support periodic major maintenance. The temporary construction, periodic major maintenance needs, and permanent positions benefit society by providing jobs and resource needs in the area.

In 2015, it is anticipated the Black Dog Plant will contribute about $1.9 million in property taxes for the City of Burnsville, Dakota County and the Burnsville School District. This amount will likely decrease in 2016 – 2018 due to the removal of Black Dog Units 3 and 4. However, once completed and fully operational, Unit 6 will further contribute to the amount of property taxes paid to the City of Burnsville, Dakota County and the Burnsville School District. Starting in 2019, it is anticipated that the Black Dog Plant in total will pay about $2.2 million in local property taxes, although this is a preliminary estimate and the final amount will vary depending on a number of factors unknown at this time.

4.7 Natural Environment

4.7.1 Geology and Soils

The topography of this region was formed by the retreat of the Wisconsin glaciers and is characterized by patchwork hilly moraines, flat outwash plains, and shallow to very deep lakes. The soils were formed by glacial retreat and subsequent forest vegetation, resulting in medium to coarse texture loams. The Project is located about seven miles south and west of the junction of the Minnesota and Mississippi Rivers. This eastern-most portion of the Minnesota River is broad lowland averaging one mile wide, with intermittent bedrock outcrops and higher river bluffs on both the north and south sides of the river. Following the last glacial retreat, the river valley was further altered by flooding events and alluvial action, and includes lakes and wetlands on both sides of the river.

Based on the Geologic Atlas of Dakota County, Minnesota (1990), the surficial geology of the Facility site consists of organic deposits and floodplain alluvium (Dakota County Maps and Mapping Services, 1990). These are comprised of peat and organic-rich silt and clay; poorly bedded and moderately sorted sediments; and clayey silt soils in the Minnesota River valley. The bedrock in the area is part of the Prairie Du Chien Group, which is comprised of

Dolostone of the Shakopee Formation and Oneota Dolomite. The upper layer is commonly thin bedded and sandy or oolitic; the lower part is massive to thick bedded and not sandy or oolitic (Dakota County, 1990). Depth to bedrock in the area is typically less than 100 feet.

Based on the Soil Survey of Dakota County (U.S. Department of Agriculture (USDA), 1980), the most predominant soils in the area include the following (**Figure 4 – 7**):

Urban Land (1039): Characterized by level to gently sloping land along the Mississippi and Minnesota Rivers that is covered with buildings, asphalt, concrete, or other impervious surfaces on more than 90 percent of its surface. Identification of original soils is not possible because the soils have been altered by construction activities. Also characterized by high rain runoff potential and, if not properly channeled, severe erosion is common. This is the primary soil series within the existing Facility site.

Udorthents, wet (1027): Consists of 80 percent earthy fill material and 20 percent industrial waste, such as bricks, trash, wire, metal, boards, and pieces of concrete and stones, placed on poorly and very poorly drained mineral or organic soils. Urban land is typically associated with man-made building, road, recreation, or other use sites. Fill material is two feet or more thick, consisting of a mixture of organic and inorganic waste and sandy, gravelly, loamy, and silty soil material. This soil series exists primarily along the strip of narrow land hosting the Xcel Energy railroad spur between the Black Dog Lake sections.

Quam silt loam, ponded: consists of very deep, poorly and very poorly drained soils that formed in silty water-sorted sediments in flats, swales and depressions on glacial moraines and lake plains. These soils are characterized as having moderately slow permeability. Within the Facility site, this soil series is located near the former coal storage area and ponds along the northwest shoreline of Black Dog Lake. Unit 6 construction activities will not disturb this area.

Minneiska loam, occasionally flooded: consists of very deep, moderately well drained soils that formed in calcareous alluvium on floodplains. These soils are characterized as having moderately rapid permeability. These soils are associated with the poorly drained Kalmarville soils that are typically found in lower-lying areas on the floodplains. Within the Facility site, this soil series is

located west of the substation on the northeast shore of Black Dog Lake. Unit 6 construction activities will not disturb this area.

The majority of construction activity will take place within the existing power house building at the Facility. Therefore, there will not be any impacts on local geology or soils.

4.7.2 Waterbodies

The majority of the Facility site is located in a Zone A20, or 100 year, floodplain (FEMA, 1977). A small portion of the railroad spur is located in a Zone B, or 500 year, floodplain. The Facility site is located in the Black Dog Lake – Minnesota River watershed (USDA, 2011) (**Figure 4-8**). A watershed is defined as the entire physical area or basin drained by a distinct stream or riverine system, physically separated from other watersheds by ridgetop boundaries (MNDNR, 2011).

As part of the Metropolitan Surface Water Management Act, the Black Dog Watershed Management Organization (BDWMO) was formed (BDWMO, 2011). Watershed management overseen by the BDWMO covers northwestern Dakota County and a portion of northeastern Scott County, Minnesota. The BDWMO contains portions of the cities of Apple Valley, Burnsville, Eagan, Lakeville, and Savage. Surface water in the BDWMO ultimately discharges to the Minnesota River.

The Facility site is surrounded by several significant surface water features that include the Minnesota River and Black Dog Lake. Some of these waterbodies are also classified by the MNDNR as Minnesota public water basins and watercourses that meet the criteria set forth in Minnesota Statutes, section 103G.005, subdivision 15 and are identified on Public Water Inventory (PWI) maps authorized by Minnesota Statutes, section 103G. Xcel Energy holds title to the lakebed and the lake was developed and is managed for cooling treatment as a "cooling lake" under the site's NPDES Permit. Per the NPDES permit, Black Dog Lake is referred to as a lotic system cooling lake for thermal discharges only.

Project construction will occur primarily within the existing generating building, except for the air inlet, the closed-cooling fin-fan skid, and a new gas valve station, which will be constructed adjacent to the existing building. During construction, as needed, Xcel Energy will apply erosion control

measures identified in the MPCA Storm Water Best Management Practices Manual, such as using silt fence to minimize impacts to adjacent water resources. During construction, Xcel Energy will control operations to minimize and prevent material discharge to surface waters. Disturbed surface soils will be stabilized at the completion of the construction process to minimize the potential for subsequent effects on surface water quality.

The Project does not involve significant grading or excavation and does not involve work in waterbodies. Therefore, impacts from the Project to adjacent waterbodies are not anticipated.

4.7.3 Land Cover and Vegetation

The Facility is located within the Minnesota and Northeast Iowa Morainal Section (222M), a section within the biogeographic province known as the Eastern Broadleaf Forest Province under the Ecological Classification System (ECS) developed by the MNDNR and the U.S. Forest Service (MNDNR, 2011a) (**Figure 4-9**). The Facility is further located on the border of the Anoka Sand Plain and the St. Paul Baldwin Plains and Moraines subsections of the Minnesota and Northeast Iowa Morainal Section. The Facility is primarily surrounded by wetland and riparian habitat and provides habitat for many species of plants and animals. Historically, this area was primarily floodplain and terrace forests of silver maple, cottonwood, box-elder, green ash and elm within and along the terrace forests river valley (MNDNR, 2011b). Wetland complexes associated with the Minnesota River Valley system are present throughout the Facility site.

Generalized land use from the Metropolitan Council (2010) information characterizes the Facility site as industrial. Based on an interpretation of aerial photographs, land use is primarily developed commercial/industrial at the Facility site with sparse woodland along each side of the Xcel Energy railroad spur, and open and scattered woodland south of Black Dog Lake. Outlining the Facility boundaries to the north is the Minnesota River, and west and east along the Union Pacific Railroad is Black Dog Lake. The Facility is within the City of Burnsville, west of the City of Eagan, and within the Minnesota Valley National Wildlife Refuge (**Figure 4- 10**).

The Project does not involve any removal of trees or other vegetation, and does not involve work within any floodplain, wetland complexes, or

waterbodies surrounding the Facility. Therefore, no impacts to land cover and vegetation are anticipated.

4.7.4 Television and Radio Interference

Corona from transmission line conductors can generate electromagnetic "noise" at the same frequencies that radio and television signals are transmitted. This noise can occasionally cause interference with the reception of these signals depending on the frequency and strength of the radio and television signal.

The Project will not result in the construction or operation of new transmission lines, and therefore, the Project is not expected to cause radio and television interference.

4.7.5 Electric and Magnetic Field

The Project will not result in the construction or operation of new transmission lines, and therefore, no adverse impacts from electric and magnetic fields associated with the Project are expected.

4.7.6 Wildlife

The waterbodies, open areas, and scattered woodlands in the area provide habitat for a variety of wildlife. The largest mammal typically found in the area is the white-tailed deer. Other mammals include coyotes, fox, raccoons, beaver, opossum, woodchucks, squirrels, and muskrats. Reptiles near the Facility include snapping turtles, map turtles, softshell turtles, painted turtles, gopher snakes, fox snakes, and northern water snakes. Amphibians include leopard frogs, pickerel frogs, spring peeper, and American toads. Fish species vary depending on the water body. The most commonly distributed fish species in the waterbodies surrounding the Facility area include largemouth bass, sunfish, crappies, northern pike, and multiple species of rough fish such as carp and suckers. Bird species include eagles, turkeys, hawks, pheasants, ducks, gulls, herons, and numerous species of song birds.

The Project is located near the Minnesota Valley National Wildlife Refuge, which provides habitat for a large number of migratory waterfowl, fish, and other wildlife species (USFWS, 2015). Because the Project is located at an existing power generation facility near surrounding urban development, the

fauna generally present within the area are adapted to high levels of anthropogenic disturbance.

Although areas surrounding the Facility are used by numerous types of wildlife, the Project will have minimal impact on the habitat in those areas.
Given that Project construction will occur within the existing Facility footprint and primarily within an existing building, it is unlikely that the construction, operation, and maintenance of Unit 6 would have an adverse effect on fauna present in the area. Construction will be limited to upland areas, and therefore, no impacts to fish and mollusks are anticipated.

It is anticipated that any potential wildlife displacement and habitat impacts will be temporary. Consequently, no wildlife population mitigation measures are proposed.

Xcel Energy has been working with various state and federal agencies for over 20 years to address avian issues at the Facility as quickly and efficiently as possible.

4.7.7 Wetlands

The National Wetlands Inventory (NWI) was reviewed to assess the presence of wetlands within the Project Area. Note that the NWI has not been field verified and sometimes contains inaccuracies; however, it is a good tool for initial wetland identification and assessment. Based on NWI data, the Facility is surrounded by various wetland types including Palustrine Emergent (PEM), and Palustrine Scrub Shrub (PSS). The other wetland types within the vicinity of the Facility are Lacustrine (L2), which are associated with lakes. The PEM and PSS wetlands are primarily associated with the Project Area borders. The L2 wetlands are associated with Black Dog Lake.

The Palustrine System includes all nontidal wetlands dominated by trees, shrubs, emergents, mosses or lichens (Cowardin et al. 1979). Of those wetlands, the majority contains emergent vegetation with some displaying a mixture of shrubs and herbaceous vegetation, while a few have no vegetation and contain unconsolidated bottoms. Lacustrine wetland systems are found in the shallow protected areas of lakes with water depth in the deepest part of the wetland basin greater than 6.6 feet.

The NWI also identifies protected wetlands, of which three are shown to surround the Facility: the Minnesota River and both segments of Black Dog Lake (**Figure 4-11**). Project construction will take place within and adjacent to existing Facility buildings in upland areas, and is not anticipated to directly impact wetlands. Potential indirect (e.g., erosion runoff) wetland impacts will be minimized by applying erosion control measures identified in the MPCA Storm Water Best Management Practices Manual, such as using silt fencing to minimize impacts to adjacent water resources. During construction, operations will be controlled to minimize and prevent material discharge to wetlands. If materials do enter wetlands, they will be promptly removed and properly disposed of to the extent feasible.

No excavation or grading is proposed as part of this project. Disturbed soils will be minimal. Any surface soils that are disturbed will be stabilized at the completion of the construction process to minimize the potential for subsequent effects on wetland quality. Xcel Energy will minimize impacts on public water wetlands to the greatest extent possible.

4.7.8 Rare, Unique or Ecologically Sensitive Resources

Congress passed the Endangered Species Preservation Act in 1966, providing a means for listing native animal species as endangered and giving them limited protection. Through this Act, the Departments of Interior, Agriculture, and Defense were to protect listed species, and preserve the habitats of such species. The Act also authorized the U. S. Fish and Wildlife Service to acquire land as habitat for endangered species. The Act was later amended by Congress in 1973 to the Endangered Species Act (ESA). In 1971, the Minnesota State Legislature passed Minnesota's Endangered and Threatened Species law. The law directs the MNDNR to identify species at greatest risk of disappearing from the state, and regulate the potential impacts to those species.

To identify potentially rare, unique or ecologically sensitive species within the Project vicinity, queries of two databases were conducted. The first query was of the USFWS Endangered Species in Minnesota: County Distribution of Federally-Listed Threatened, Endangered, Proposed, and Candidate Species. This database was last updated and revised in September 2015. The second query was of the Natural Heritage Information System (NHIS) that is maintained by the MNDNR. This database is updated continually as new documented occurrences of rare, sensitive, threatened, or endangered species and habitats are recorded and added to the database.

U.S. Fish and Wildlife Service

The USFWS website was reviewed for a list of species covered under the Endangered Species Act (ESA) that may be present in Dakota County. As of February 2015, there are a total of 19 species listed in Minnesota: 15 animal species and four plant species. Within Dakota County, there are three federally listed species known to be present: Higgins eye pearlymussel (*Lampsilis higginsii*), Northern long-eared bat (*Myotis septentrionalis*), and prairie bush-clover (*Lespedeza leptostachya*).

The Higgins eye pearlymussel is federally listed as endangered and occurs only within the Mississippi River and the lower portion of some of its larger tributaries. The Project is not located in or near the Mississippi River or any of its tributaries. Therefore, the Project will have no effect on the Higgins eye pearlymussel or its habitat.

The Northern long-eared bat is federally listed as threatened and is one of the species of bats most impacted by the disease white-nose syndrome. Due to population declines caused by white-nose syndrome and the continued spread of the disease, the northern long-eared bat received protection under the ESA in 2015. This species occurs throughout eastern and north central United States, including Minnesota. The Northern long-eared bat hibernates in caves and mines, swarming in surrounding wooded areas in autumn. During late spring and summer, it roosts and forages in upland forests. According to the USFWS website, this bat has been found rarely roosting in structures, like barns and sheds. Its primary habitat is caves and upland forests. The Project is not anticipated to affect the Northern long-eared bat because of the absence of suitable habitat at the Project site, and because the Project does not involve any tree removal. However, if the Northern long-eared bat is discovered during Project construction and would be impacted by construction, the USFWS (Twin Cities Ecological Services Field Office) will be contacted.

The prairie bush-clover is federally listed as threatened and occurs within native dry mesic-prairies where the soils are well-drained with high sand or gravel content. The Project is confined to the existing power plant site that is surrounded by a very large wetland complex where only poorly-drained soils exist (see **Section 4.7.1**). Therefore, the Project will have no effect on the prairie bush-clover or its habitat.

State of Minnesota

A request for a search of the MNDNR Natural Heritage Information System (NHIS) and comments regarding rare and/or sensitive species and natural communities for the Project Area was submitted to the MNDNR on August 26, 2015. Xcel Energy will submit the results from the NHIS query request once the results are received from the MNDNR.

A similar review was conducted in July of 2014 for inclusion in the Joint Work in Waters Permit Application submitted to the U.S. Army Corps of Engineers, the MNDNR, and the City of Burnsville. This permit was obtained to support work related to the VIC activities. That search resulted in 45 records of rare species within one mile of the Facility. Although potentially present in the vicinity of the Facility, none of these species have been documented in the Project area. Given that the Project will be constructed within and adjacent to the existing powerhouse building, no impact to rare species or natural communities is anticipated.

The Facility currently has a nest box mounted on the Unit 3/4 smokestack for the peregrine falcon (*Falco peregrinus*), a state-listed species of concern. This nest box is listed in the NHIS database. The nest box was maintained by Xcel Energy in cooperation with the Raptor Resource Center (Decorah, Iowa) and will be removed prior to the end of 2015. Removal has been discussed with the DNR and the USFWS to their satisfaction, and it has been determined that no permit is needed.

5.0 References

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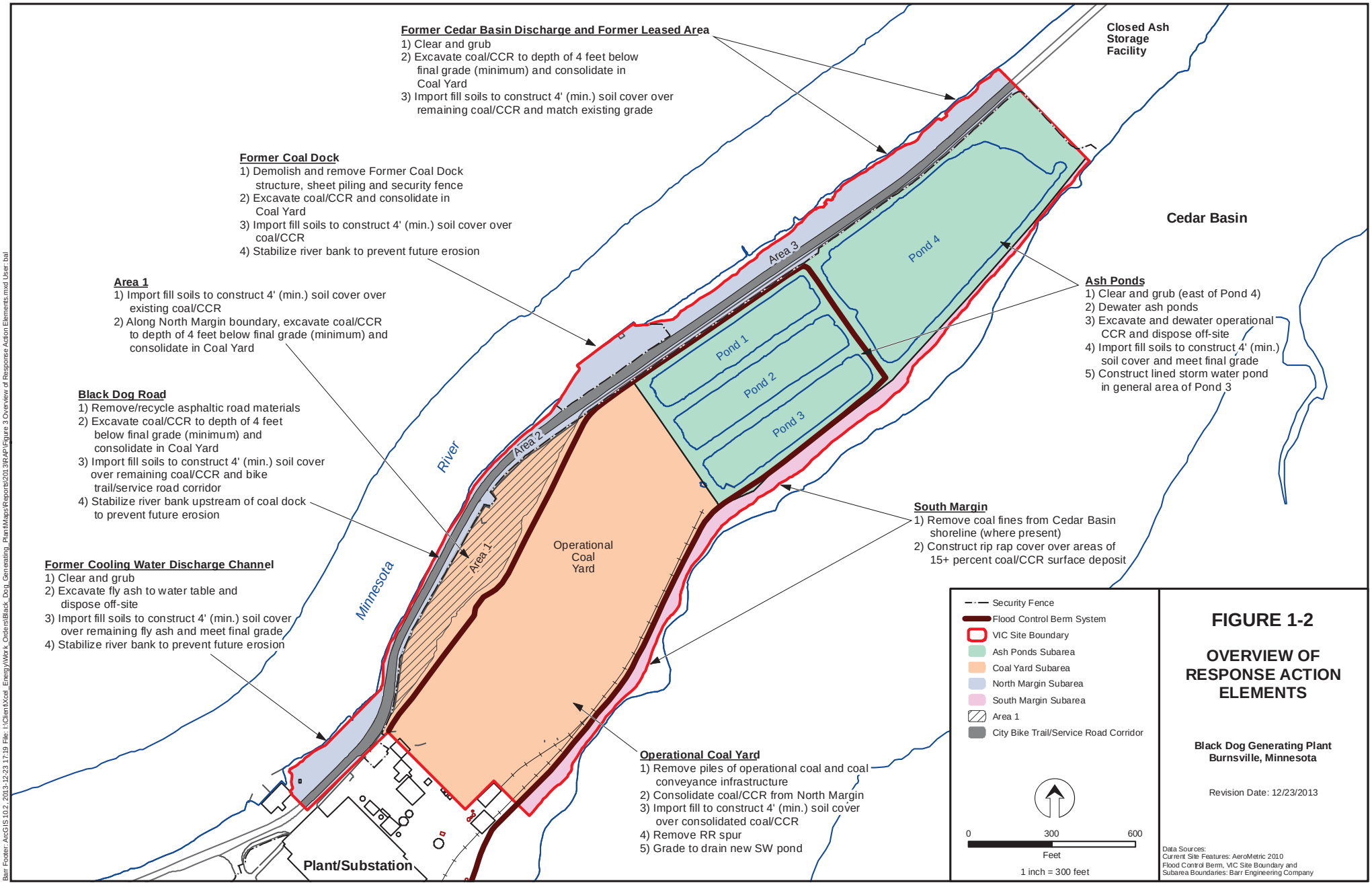
6.0 Acronyms

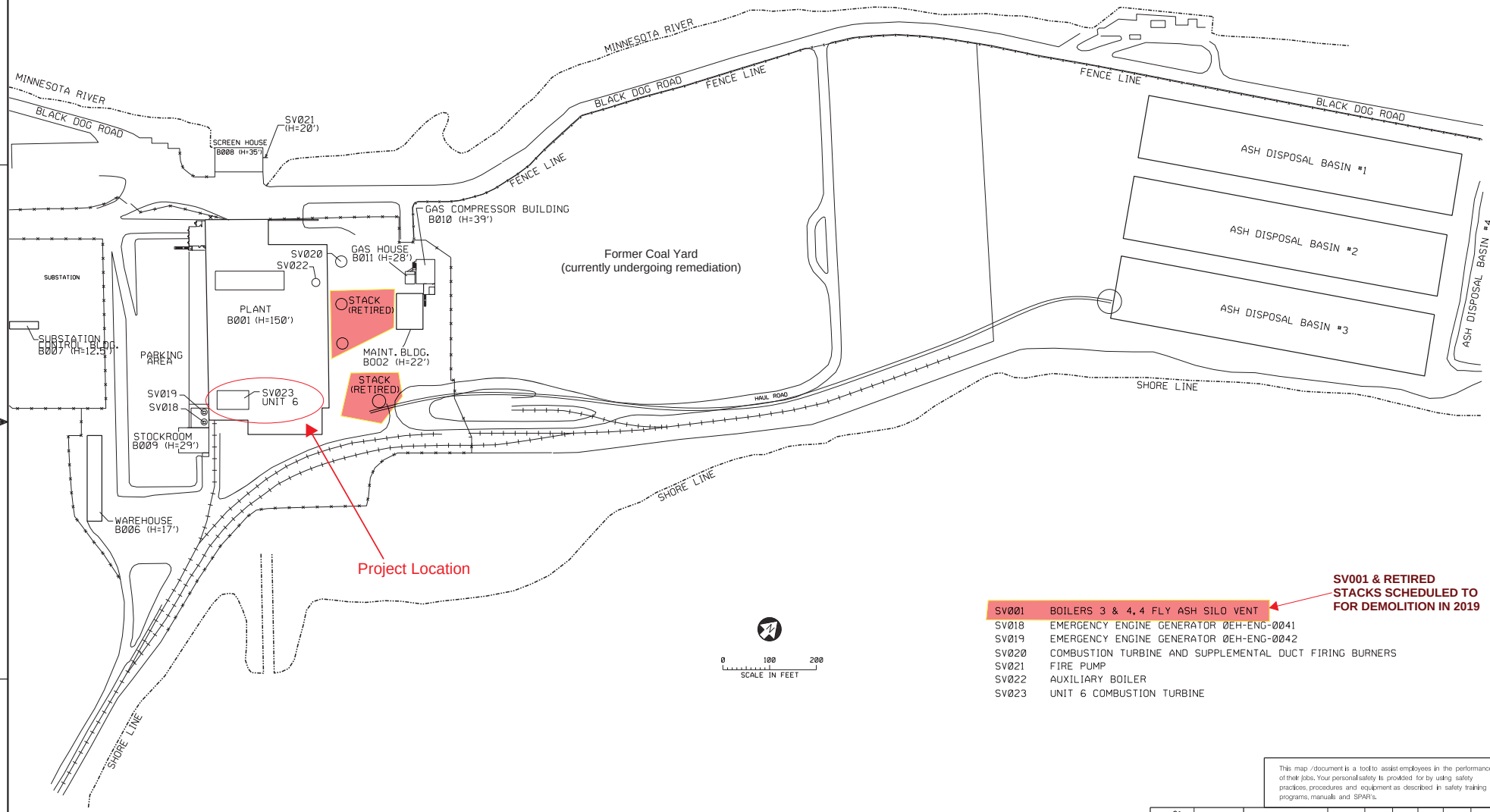
AERA	Air Emissions Risk Analysis
AADT	Annual Average Daily Traffic
BACT	Best Available Control Technology
BMP	Best management practices
CCR	Coal Combustion Residual
CEMS	Continuous Emission Monitoring System
CO	Carbon Monoxide
CON	Certificate of Need
CT	Combustion Turbine
CWA	Clean Water Act
DFIRM	Digital Flood Insurance Rate Map
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
EQB	Environmental Quality Board
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIS	Flood Insurance Study
GHG	Greenhouse Gas
GPM	Gallons per Minute
HAP	Hazardous Air Pollutions
HRSG	Heat Recovery Steam Generator
kV	Kilovolt
MAAQS	Minnesota Ambient Air Quality Standards
MaSBD	Major Source Baseline Date
MCES	Metropolitan Council Environmental Services
MGD	Million Gallons per Day
MISO	Midcontinent Independent System Operation, Inc.
MNDNR	Minnesota Department of Natural Resources
MNDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MPUC	Minnesota Public Utilities Commission
MSL	Mean Sea Level
MW	Megawatts
NAAQS	National Ambient Air Quality Standards
NAC	Noise Area Classification
NESC	National Electric Safety Code
NG	Natural Gas

NFIP	National Flood Insurance Program
NHIS	Natural Heritage Information System
NOx	Nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NSP	Northern States Power Company
NSPS	New Source Performance Standards
NSR	New Source Review
NWI	National Wetlands Inventory
PM	Particulate Matter
PM2.5	Particulate matter less than 2.5 microns
PM10	Particulate matter less than 10 microns
PPA	Power Purchase Agreement
PPMVD	Parts per Million, Volumetric Dry
PSD	Prevention of Significant Deterioration
RAP	Response Action Plan
RO	Reverse Osmosis
SCR	Selective catalytic reduction system
SDS	State Disposal System
SHPO	Minnesota State Historic Preservation Office
SIL	Significant Impact Level
SUSD	Start Up Shut Down
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Service
VIC	Voluntary Investigation and Cleanup


Former Cedar Basin Discharge and Former Leased Area
1) Clear and grub
2) Excavate coal/CCR to depth of 4 feet below final grade (minimum) and consolidate in Coal Yard
3) Import fill soils to construct 4' (min.) soil cover over remaining coal/CCR and match existing grade
Closed Ash Storage Facility
Former Coal Dock
1) Demolish and remove Former Coal Dock structure, sheet piling and security fence
2) Excavate coal/CCR and consolidate in Coal Yard
3) Import fill soils to construct 4' (min.) soil cover over coal/CCR
4) Stabilize river bank to prevent future erosion
Cedar Basin
Area 1
1) Import fill soils to construct 4' (min.) soil cover over existing coal/CCR
2) Along North Margin boundary, excavate coal/CCR to depth of 4 feet below final grade (minimum) and consolidate in Coal Yard
Area 3
Pond 4
Ash Ponds
1) Clear and grub (east of Pond 4)
2) Dewater ash ponds
3) Excavate and dewater operational CCR and dispose off-site
4) Import fill soils to construct 4' (min.) soil cover and meet final grade
5) Construct lined storm water pond in general area of Pond 3
Pond 1
Pond 2
Pond 3
Black Dog Road
1) Remove/recycle asphaltic road materials
2) Excavate coal/CCR to depth of 4 feet below final grade (minimum) and consolidate in Coal Yard
3) Import fill soils to construct 4' (min.) soil cover over remaining coal/CCR and bike trail/service road corridor
4) Stabilize river bank upstream of coal dock to prevent future erosion
River
Area 2
Minnesota
Area 1
Operational Coal Yard
South Margin
1) Remove coal fines from Cedar Basin shoreline (where present)
2) Construct rip rap cover over areas of 15+ percent coal/CCR surface deposit
Former Cooling Water Discharge Channel
1) Clear and grub
2) Excavate fly ash to water table and dispose off-site
3) Import fill soils to construct 4' (min.) soil cover over remaining fly ash and meet final grade
4) Stabilize river bank to prevent future erosion
Operational Coal Yard
1) Remove piles of operational coal and coal conveyance infrastructure
2) Consolidate coal/CCR from North Margin
3) Import fill to construct 4' (min.) soil cover over consolidated coal/CCR
4) Remove RR spur
5) Grade to drain new SW pond
Plant/Substation
Security Fence
Flood Control Berm System
VIC Site Boundary
Ash Ponds Subarea
Coal Yard Subarea
North Margin Subarea
South Margin Subarea
Area 1
City Bike Trail/Service Road Corridor
0
300
600
Feet
1 inch = 300 feet
FIGURE 1-2
OVERVIEW OF RESPONSE ACTION ELEMENTS
Black Dog Generating Plant
Burnsville, Minnesota
Revision Date: 12/23/2013
Data Sources:
Current Site Features: AeroMetric 2010
Flood Control Berm, VIC Site Boundary and Subarea Boundaries: Barr Engineering Company
Barr Footer: ArcGIS 10.2, 2013-12-23 17:19 File: I:\Client\Xcel_Energy\Work_Orders\Black_Dog_Generating_Plant\Maps\Reports\2013\RAP\Figure 3 Overview of Response Action Elements.mxd User: bal

NH- 182707

FACILITY I.D. NO. 03700003
NSP BLACK DOG GENERATING PLANT



SV001	BOILERS 3 & 4, 4 FLY ASH SILO VENT
SV018	EMERGENCY ENGINE GENERATOR 0EH-ENG-0041
SV019	EMERGENCY ENGINE GENERATOR 0EH-ENG-0042
SV020	COMBUSTION TURBINE AND SUPPLEMENTAL DUCT FIRING BURNERS
SV021	FIRE PUMP
SV022	AUXILIARY BOILER
SV023	UNIT 6 COMBUSTION TURBINE

SV001 & RETIRED STACKS SCHEDULED TO FOR DEMOLITION IN 2019

This map / document is a tool to assist employees in the performance of their jobs. Your personal safety is provided for by using safety practices, procedures and equipment as described in safety training programs, manuals and SPAR's.

DWN DC	DATE	SIGNIFICANT NO.	8230		600	100	6210	5560
CHECKED		GROUP	1	2	3	4	5	6
PROJECT NO.		GI-03A FACILITY AND STACK/VENT DIAGRAM JUNE 2018						
FILMED		XCEL ENERGY BLACK DOG GENERATING PLANT BURNSVILLE, MN.			SCALE NTS	REV C	NHC- 182707	

Figure 1-3
Site Layout

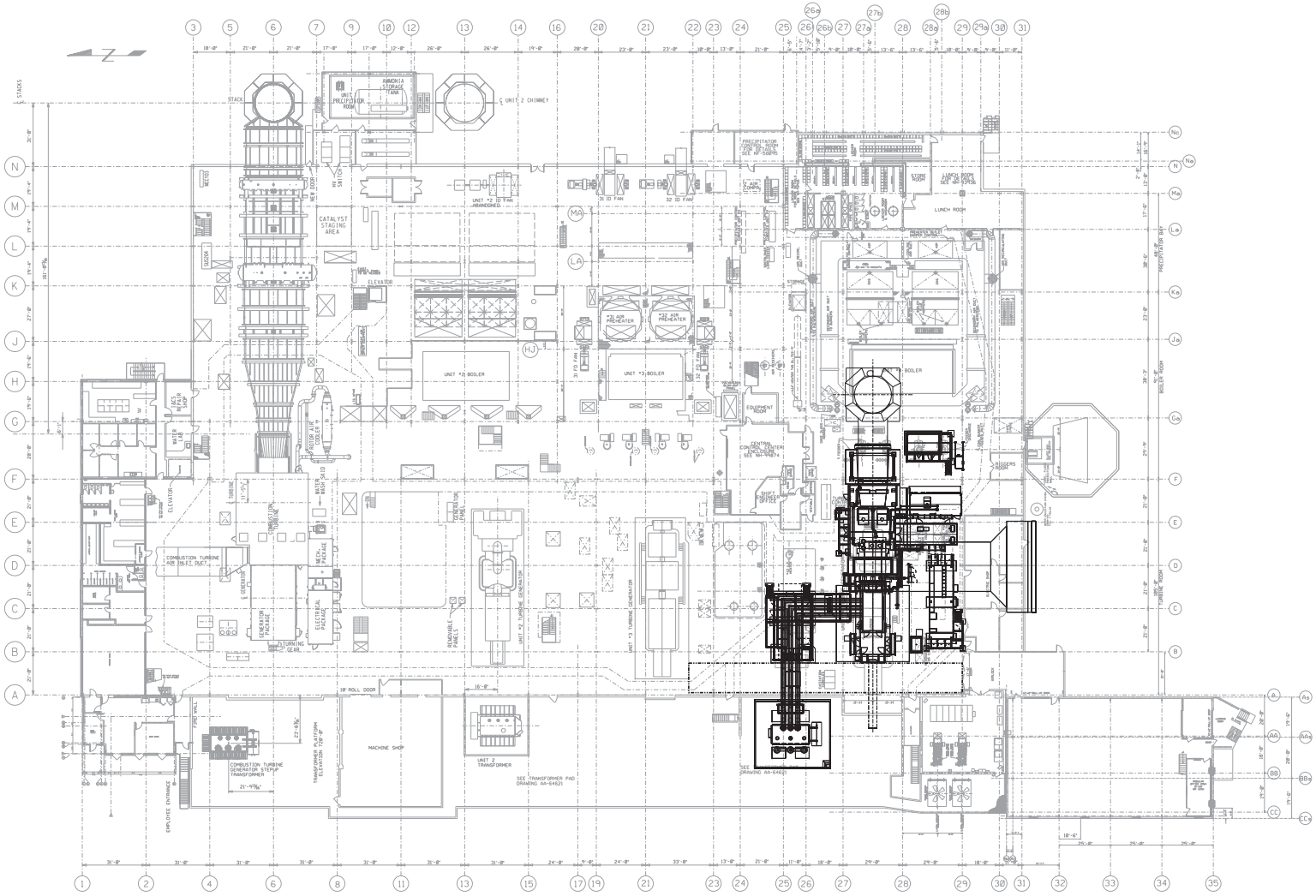


Figure 3-2
Project Layout

NORTH

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION
NOT FOR CONSTRUCTION

20' 0' 20' 40' 60'
GRAPHIC SCALE
DRAWING SCALE
1" = 20'-0"

HOLD INFORMATION

NO.	DESCRIPTION

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUB-CONTRACTOR(S)) PERFORMING THE WORK.

RELEASE INFORMATION

REV.	DATE	DESCRIPTION
A	03-11-2013	FOR CLIENT COMMENT

ISSUE PURPOSE:

SPECIFICATION:

PROJECT NO.: 12258-003

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ENTER NAME.

ENTER NAME
ENTER DATE

MY LICENSE RENEWAL DATE IS: ENTER DATE
PAGES OR SHEETS COVERED BY THIS SEAL:
THIS DOCUMENT ONLY.

CERTIFICATE OF AUTHORIZATION (WHEN REQ'D)

CAD FILE NAME: SK-GA-SGT6-5000F-01A.DGN

PREPARED BY: R. MILLER

REVIEWED BY: S. WARREN

APPROVED BY:

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Xcel Energy®

PROJECT

BLACK DOG
GENERATING PLANT
BURNSVILLE, MINNESOTA
NORTHERN STATES POWER COMPANY
XCEL ENERGY

DRAWING TITLE

PRELIMINARY
GE 7FA SIMPLE CYCLE STAGE
PLAN VIEW

DRAWING NUMBER	REVISION
SK-GA-SGT6-5000F-01A	A
SHEET 1 OF 1	

3/11/2013 11:05:58 AM A
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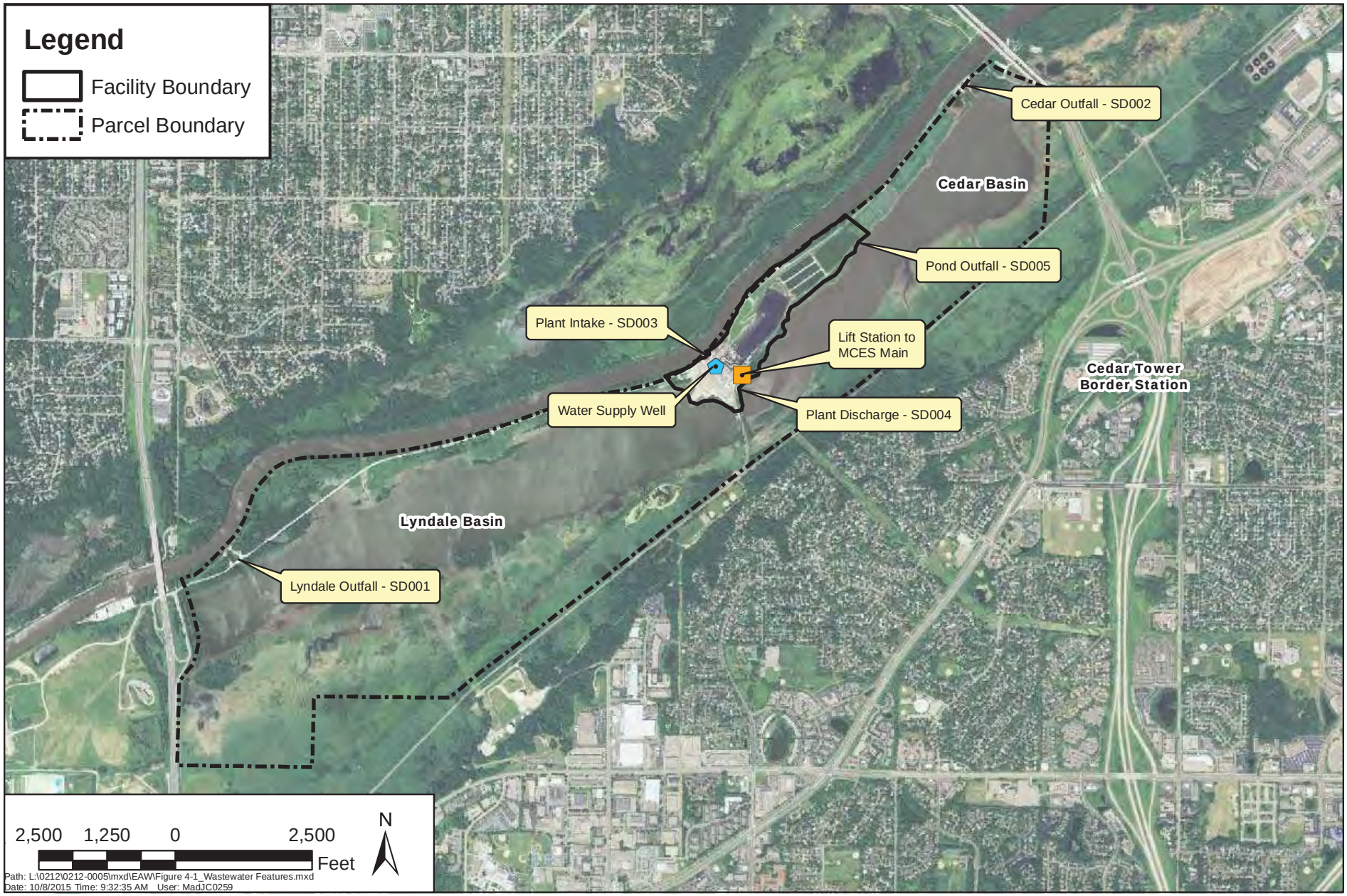
Revision 11A, Revision Date: 04-30-2010



XCEL ENERGY - BLACK DOG GENERATING PLANT

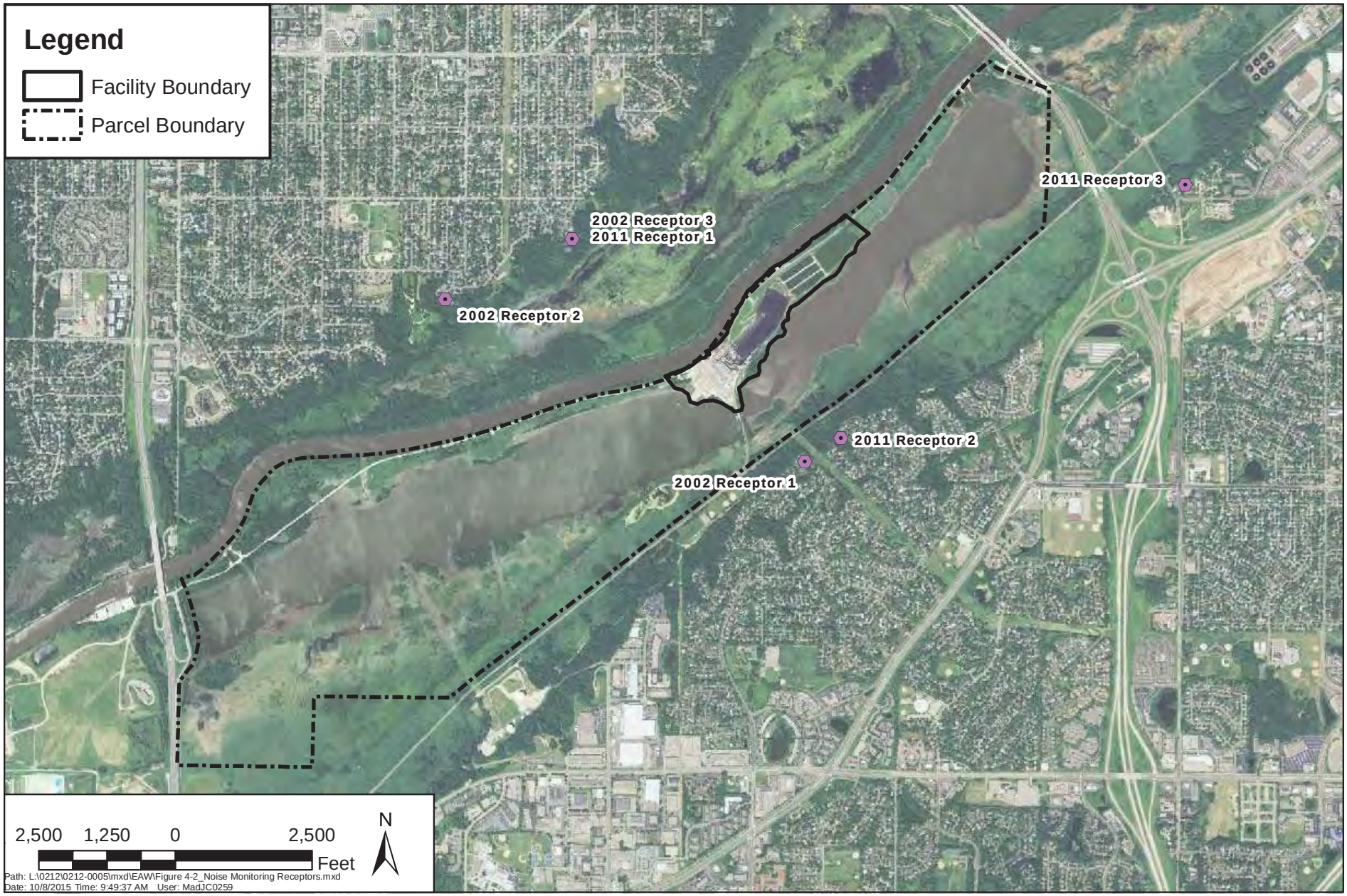
Water and Wastewater Features

WENCK ASSOCIATES

Responsive partner. Exceptional outcomes.

OCT 2015

Figure 4-1



XCEL ENERGY - BLACK DOG GENERATING PLANT

Noise Monitoring Recptor Locations

WENCK ASSOCIATES

Responsive partner. Exceptional outcomes.

OCT 2015

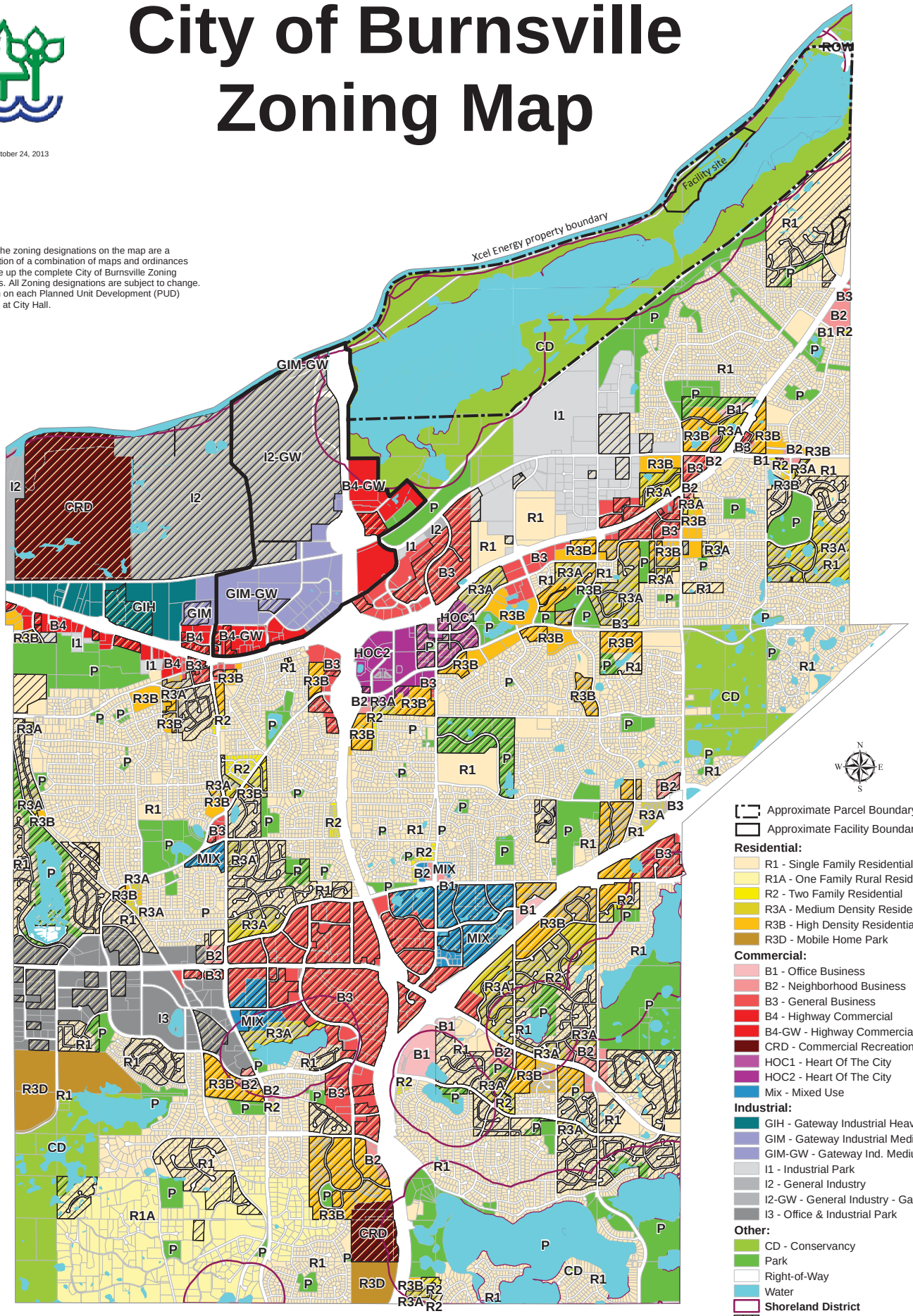
Figure 4-2

Figure 4-3

City of Burnsville Zoning Map

Revised - October 24, 2013

NOTICE: The zoning designations on the map are a representation of a combination of maps and ordinances which make up the complete City of Burnsville Zoning Regulations. All Zoning designations are subject to change. Information on each Planned Unit Development (PUD) is available at City Hall.



Approximate Parcel Boundary
Approximate Facility Boundary

Residential:
- R1 - Single Family Residential
- R1A - One Family Rural Residential
- R2 - Two Family Residential
- R3A - Medium Density Residential
- R3B - High Density Residential
- R3D - Mobile Home Park

Commercial:
- B1 - Office Business
- B2 - Neighborhood Business
- B3 - General Business
- B4 - Highway Commercial
- B4-GW - Highway Commercial - Gateway
- CRD - Commercial Recreation
- HOC1 - Heart Of The City
- HOC2 - Heart Of The City
- Mix - Mixed Use

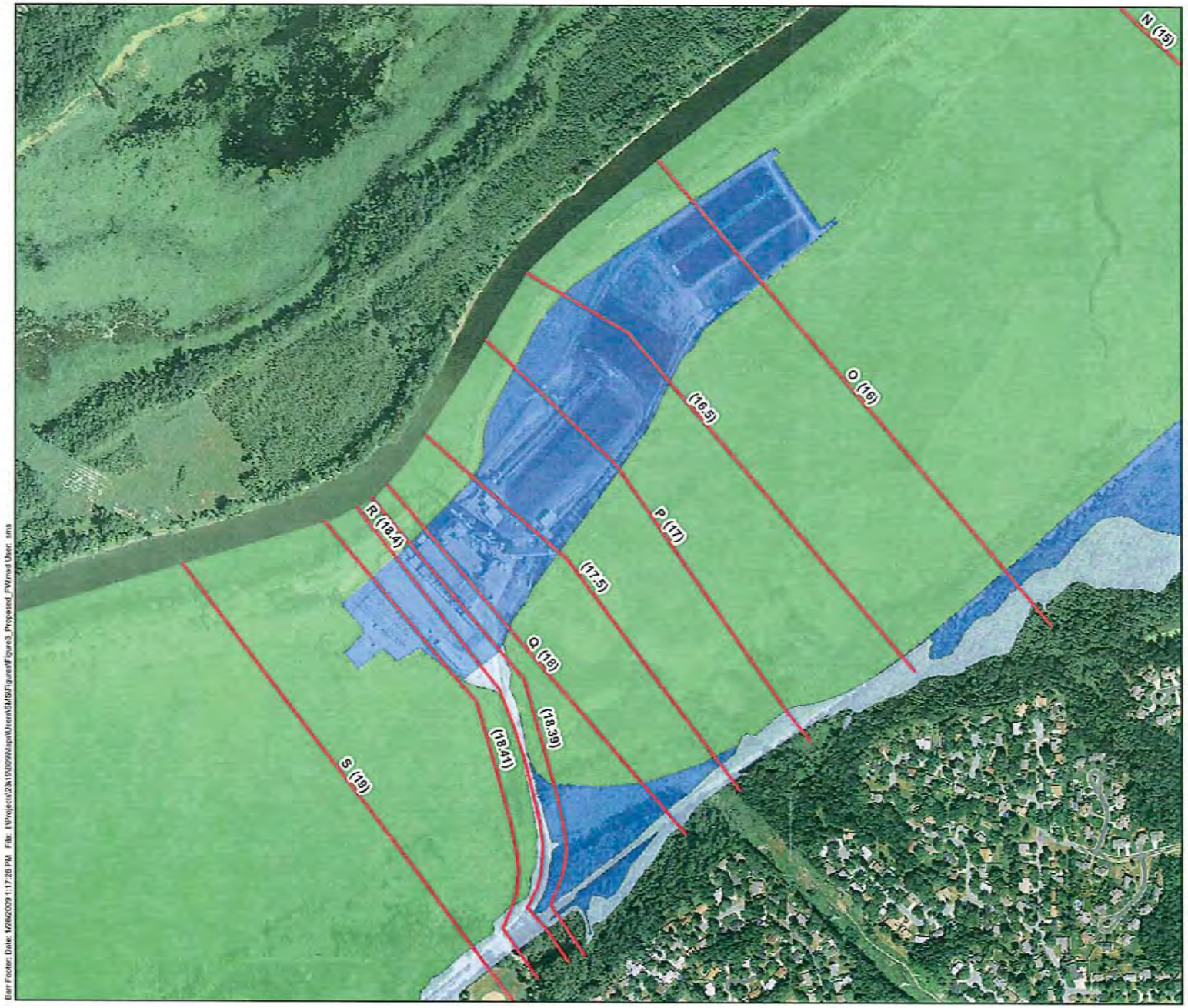
Industrial:
- GIH - Gateway Industrial Heavy
- GIM - Gateway Industrial Medium
- GIM-GW - Gateway Ind. Medium - Gateway
- I1 - Industrial Park
- I2 - General Industry
- I2-GW - General Industry - Gateway
- I3 - Office & Industrial Park

Other:
- CD - Conservancy
- Park
- Right-of-Way
- Water
- **Shoreland District**
- PUD - Planned Unit Development
- **Gateway District**

NOTES: 1. Refer to Zoning Ordinance for additional Environmental Overlay Districts related to Stormwater, Shorelands, Wetlands, Woodlands, Soil Erosion and Restrictive Soils.
2. Refer to individual FEMA Flood Insurance Rate Maps (FIRMs) for specific floodplain designations.

0 0.5 1 Miles

City of Burnsville Planning Department - 100 Civic Center Parkway - Burnsville, MN 55337-3817
Phone (952) 895-4455 - www.ci.burnsville.mn.us



Legend

Corrected Effective Cross Sections

Proposed Floodplain Delineations

- Floodway
- 100-yr Floodplain
- 500-yr Floodplain

Feet

500 0 500 1,000

FIGURE 4-4

PROPOSED FLOODPLAIN DELINEATIONS

Black Dog Generating Plant
City of Burnsville, MN

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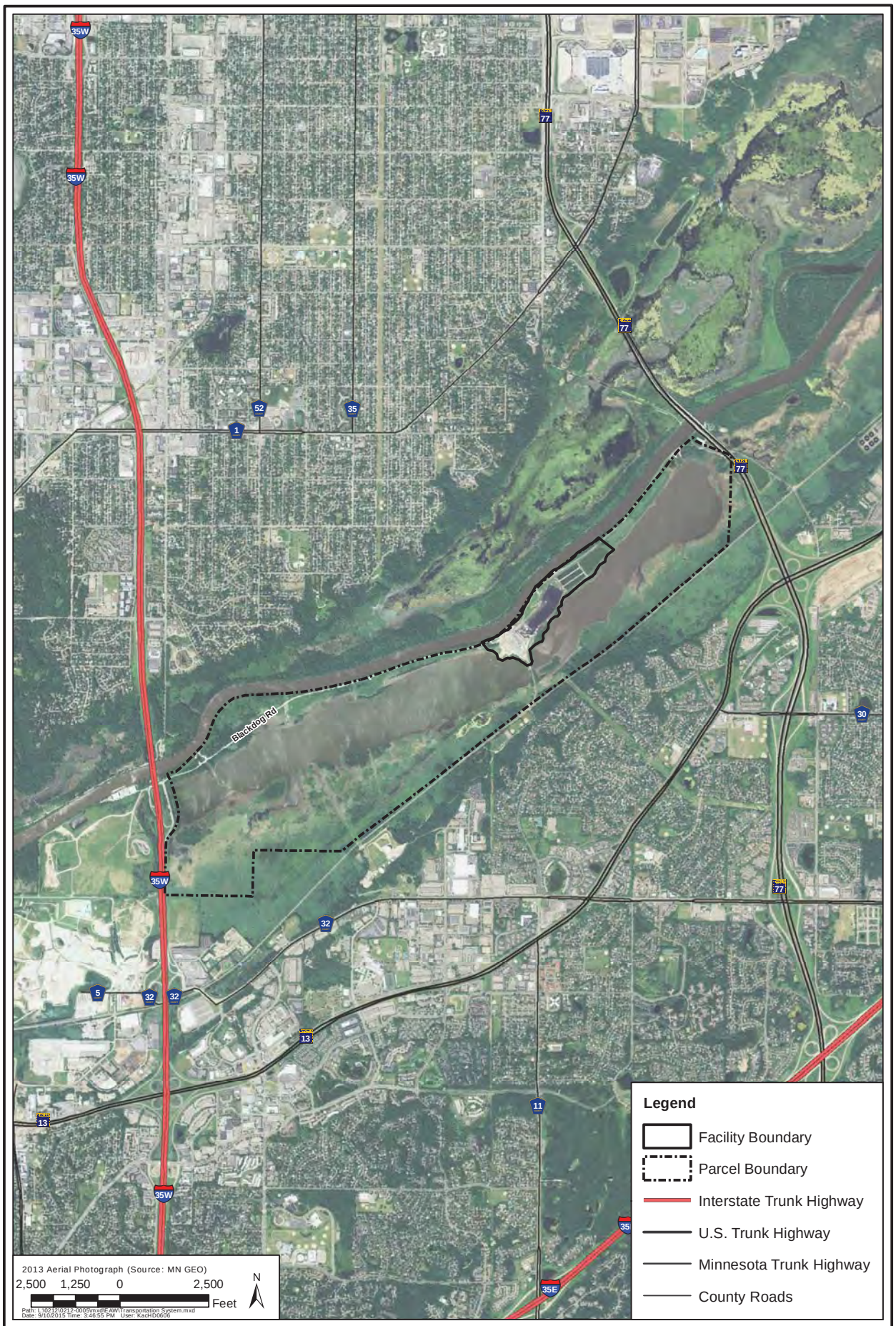
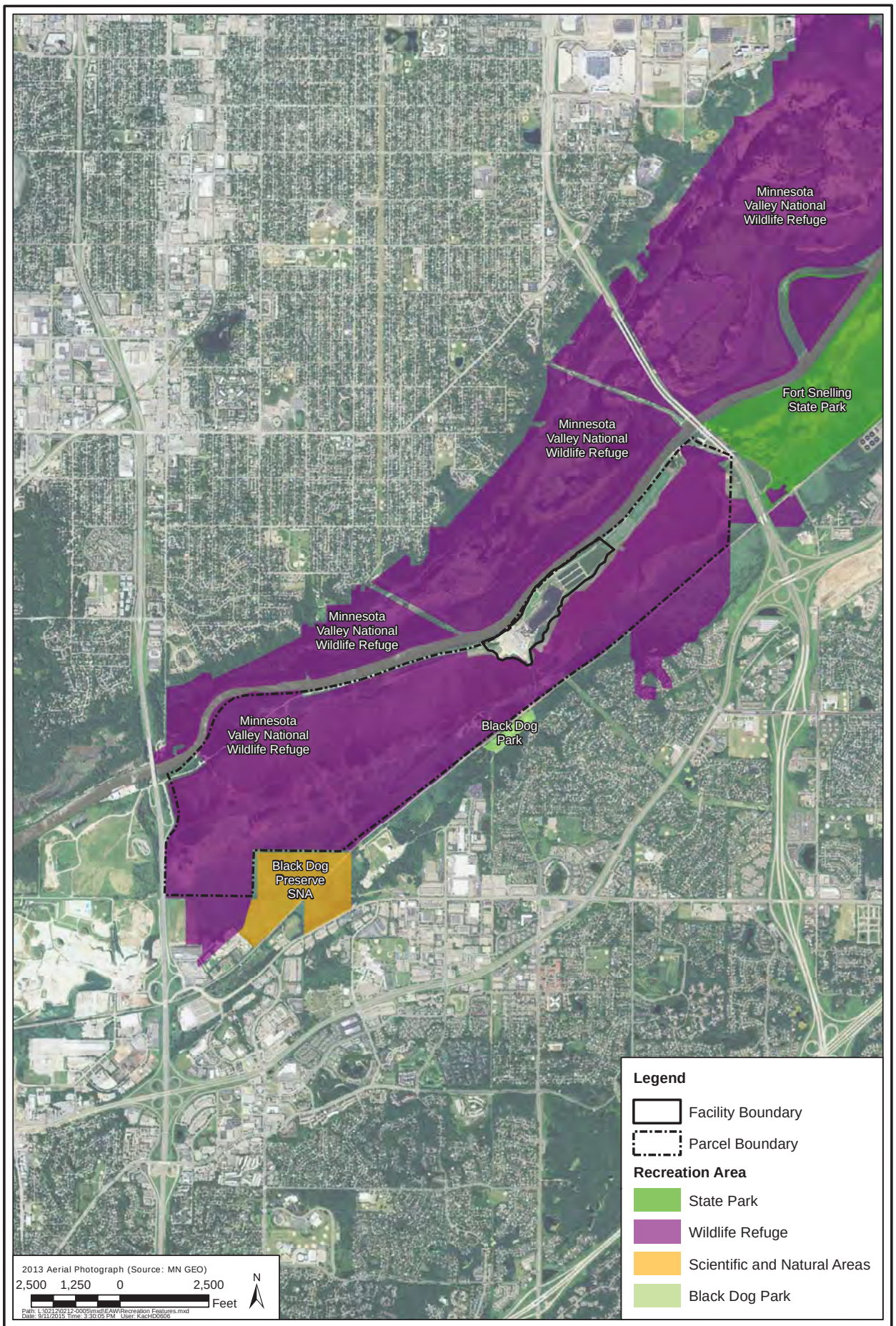
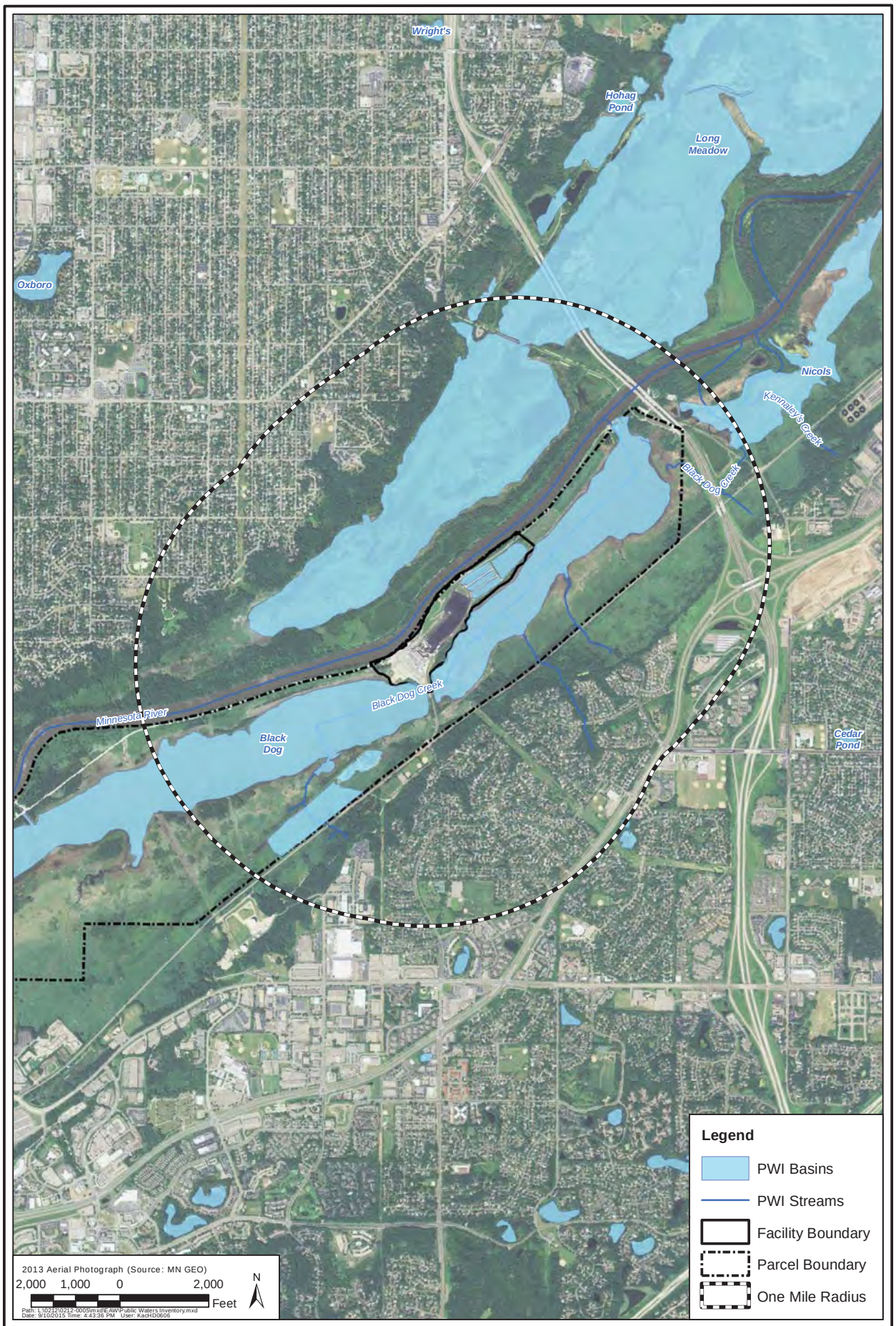


XCEL ENERGY - BLACK DOG GENERATING PLANT	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	OCT 2015
Transportation System		Figure 4-5



XCEL ENERGY - BLACK DOG GENERATING PLANT	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	OCT 2015
Recreation Features		Figure 4-6

XCEL ENERGY - BLACK DOG GENERATING PLANT	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	OCT 2015
Soil Types		Figure 4-7



XCEL ENERGY - BLACK DOG GENERATING PLANT

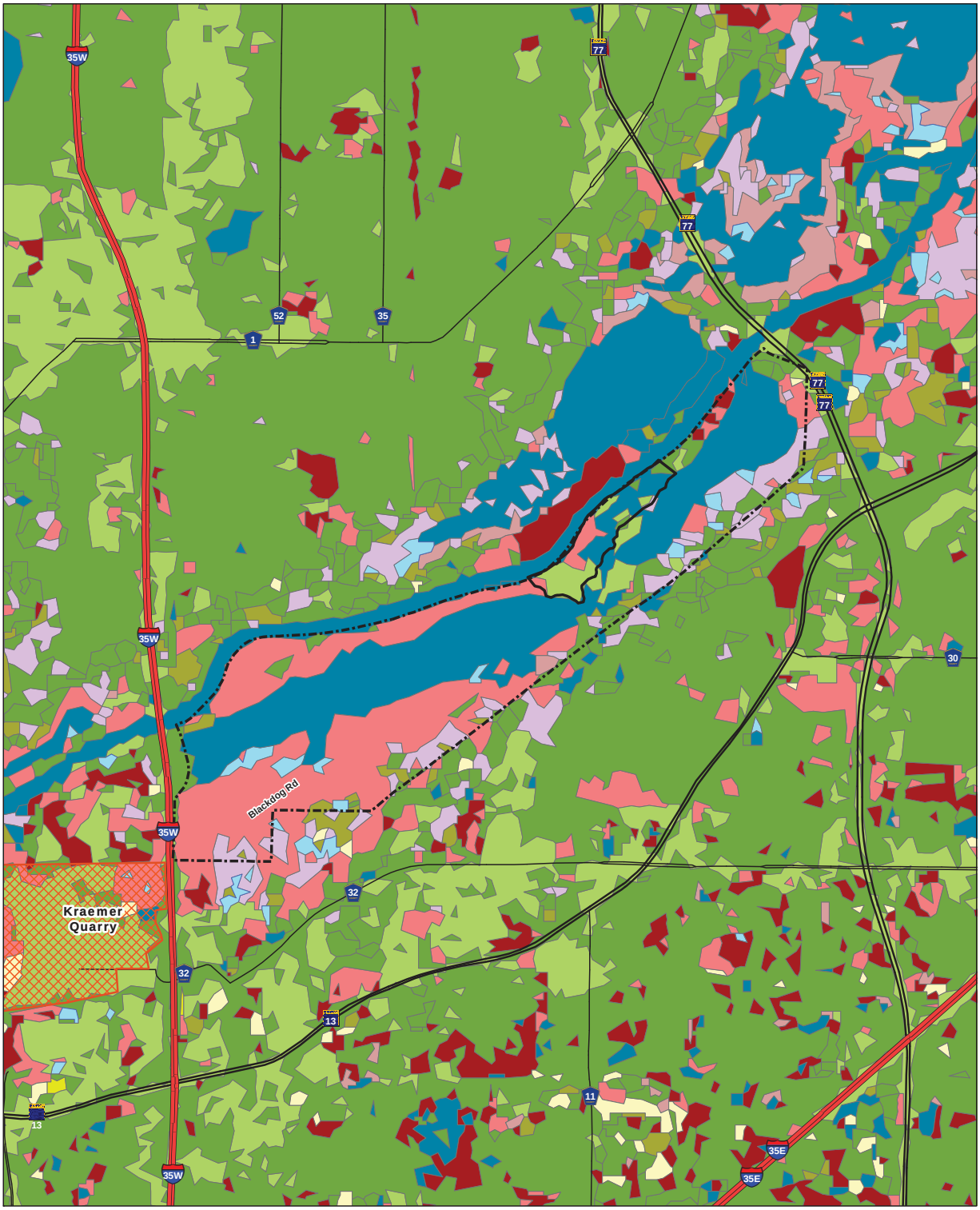
Public Waters Inventory

WENCK ASSOCIATES

Responsive partner. Exceptional outcomes.

OCT 2015

Figure 4-8



Legend

GAP Land Cover

- Upland Deciduous Forest
- Upland Conifer Forest
- Lowland Conifer Forest
- Confer - Deciduous Forest Mix
- Emergent Wetland
- Grassland
- Prairie
- Low Intensity Urban
- High Intensity Urban
- Transportation
- Water
- Facility Boundary
- Parcel Boundary
- Interstate Trunk Highway
- U.S. Trunk Highway
- Minnesota Trunk Highway
- County Roads

N

2,500 1,250 0 2,500

Feet

Generalized Land Use
Metropolitan Council, 2010

Path: L:\0212\0212-0005\mxd\EAW\Figure 4-9_GAP Land Cover.mxd
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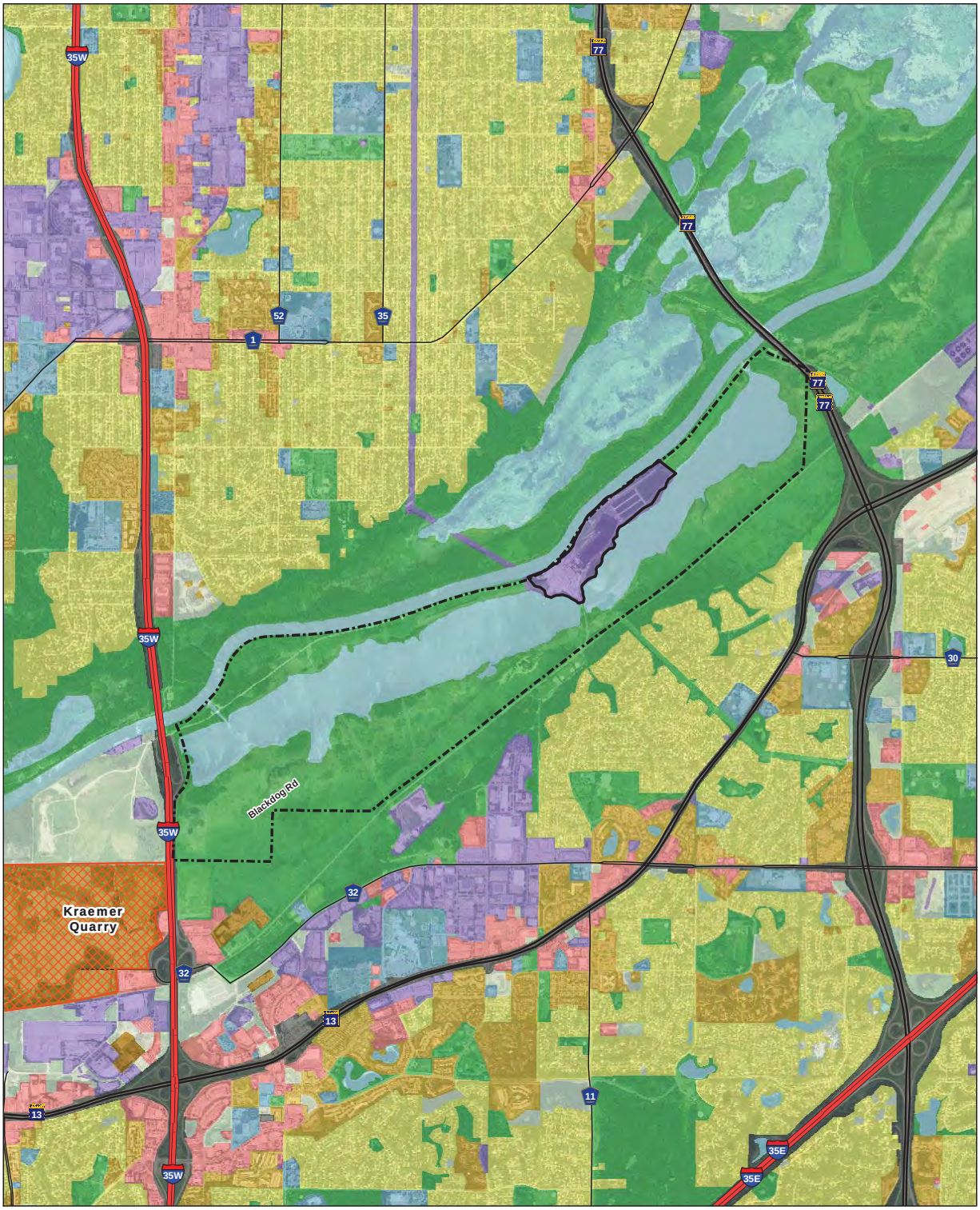
XCEL ENERGY - BLACK DOG GENERATING PLANT	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	OCT 2015
GAP Land Cover		Figure 4-9



Legend

- Single Family
- Multifamily
- Commercial
- Industrial
- Extractive
- Institutional
- Park, Recreation, Open Space
- Transportation
- Agricultural
- Undeveloped
- Water
- Facility Boundary
- Parcel Boundary
- Interstate Trunk Highway
- U.S. Trunk Highway
- Minnesota Trunk Highway
- County Roads

N

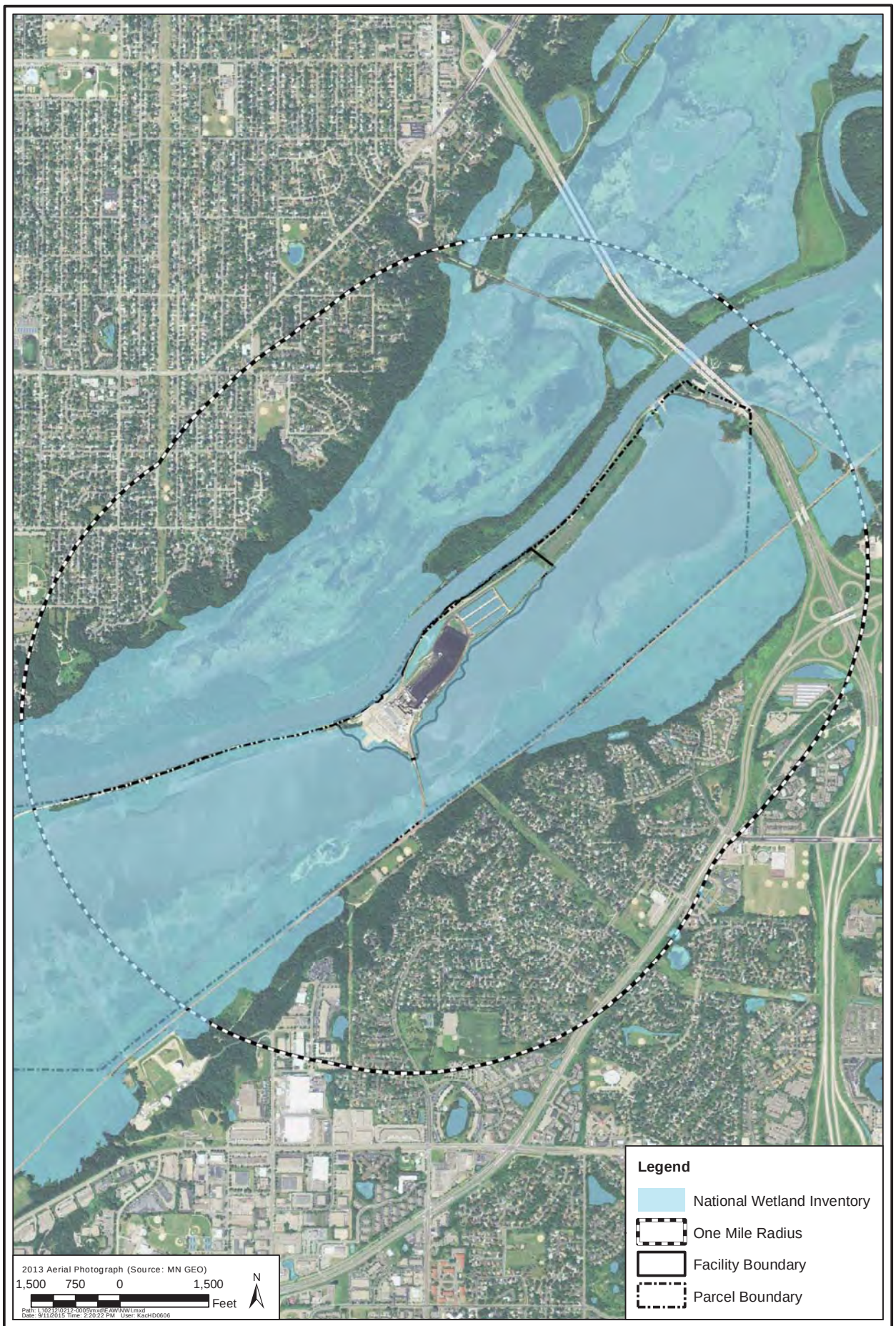
2,500 1,250 0 2,500

Feet

Generalized Land Use
Metropolitan Council, 2010

Path: L:\0212\0212-0005\mxd\EAW\Land Use.mxd
Date: 10/9/2015 Time: 8:47:16 AM User: MadJC.0259

XCEL ENERGY - BLACK DOG GENERATING PLANT	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	OCT 2015
Generalized Land Use		Figure 4-10



XCEL ENERGY - BLACK DOG GENERATING PLANT	WENCK ASSOCIATES Responsive partner. Exceptional outcomes.	OCT 2015
National Wetland Inventory		Figure 4-11

414 Nicollet Mall
Minneapolis, Minnesota 55401-1993

September 16, 2015

--Via Electronic Filing--

Mr. Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
St. Paul, MN 55101

Re: Notification of Intent to File Site Permit Application Under the Alternative Permitting Process for the Black Dog Unit 6 Project Docket No. E002/M-15 –____

Dear Mr. Wolf:

In accordance with Minnesota Rule 7850.2800, Subpart 2, Northern States Power Company hereby notifies the Minnesota Public Utilities Commission of our intent to submit an application in early October, 2015 for a site permit for the Black Dog Unit 6 Project.

We will be submitting our site permit application pursuant to the alternative permitting procedures in Minnesota Rules 7850.2800 to 7850.3900. The Project is eligible for the alternative permitting process under Minnesota Rules 7850.2800, Subp. 1, Paragraph B because the proposed Black Dog Unit 6 will be fueled by natural gas.

The Black Dog Unit 6 project, located at our Black Dog Generating Plant in Burnsville, Minnesota, is a simple-cycle natural gas-fired combustion unit designed to provide approximately 215 MW of nominal peaking capabilities. Actual construction is expected to begin in June 2016 with foundation work for the new unit. Initial startup is planned for early 2018, with commercial operation in April 2018.

We look forward to working with the Commission and the Department of Commerce in conjunction with the application process and environmental assessment. Please contact Timothy Edman at timothy.j.edman@xcelenergy.com or 612-330-2952 if you have any questions or would like further information regarding this matter.

Sincerely,

/S/

Amy Fredregill
Manager, Resource Planning and Strategy

CERTIFICATE OF SERVICE

I, Carl Cronin, hereby certify that I have this day served copies of the foregoing document on the attached lists of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota

xx electronic filing

Service Lists:
Docket No. E002/CN-12-1240, and
Xcel Energy Miscellaneous Electric Service List

Dated this 16th day of September 2015

/s/

_____
Carl Cronin

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
David	Aafedt	daafedt@winthrop.com	Winthrop & Weinstine, P.A.	Suite 3500, 225 South Sixth Street Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_12-1240_Official
Christopher	Anderson	canderson@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022191	Electronic Service	No	OFF_SL_12-1240_Official
Julia	Anderson	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	No	OFF_SL_12-1240_Official
Thomas	Bailey	tbailey@briggs.com	Briggs And Morgan	2200 IDS Center 80 S 8th St Minneapolis, MN 55402	Electronic Service	No	OFF_SL_12-1240_Official
James J.	Bertrand	james.bertrand@leonard.com	Leonard Street & Deinard	150 South Fifth Street, Suite 2300 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_12-1240_Official
William	Borders	wborders@invenergyllc.com	Invenergy LLC	One South Wacker Drive Suite 1900 Chicago, IL 60606	Electronic Service	No	OFF_SL_12-1240_Official
Michael	Bradley	mike.bradley@lawmoss.com	Moss & Barnett	150 S. 5th Street, #1200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_12-1240_Official
Christina	Brusven	cbrusven@fredlaw.com	Fredrikson Byron	200 S 6th St Ste 4000 Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_12-1240_Official
Jeffrey A.	Daugherty	jeffrey.daugherty@centerpointenergy.com	CenterPoint Energy	800 LaSalle Ave Minneapolis, MN 55402	Electronic Service	No	OFF_SL_12-1240_Official
James	Denniston	james.r.denniston@xcelenergy.com	Xcel Energy Services, Inc.	414 Nicollet Mall, Fifth Floor Minneapolis, MN 55401	Electronic Service	No	OFF_SL_12-1240_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Ian	Dobson	ian.dobson@ag.state.mn.us	Office of the Attorney General-RUD	Antitrust and Utilities Division 445 Minnesota Street, 1400 BRM Tower St. Paul, MN 55101	Electronic Service	No	OFF_SL_12-1240_Official
John	Doll	john@johndollsd40.org		10918 Southview Drive Burnsville, MN 55337	Paper Service	No	OFF_SL_12-1240_Official
Betsy	Engelking	betsy@geronimoenergy.com	Geronimo Energy	7650 Edinborough Way Suite 725 Edina, MN 55435	Electronic Service	No	OFF_SL_12-1240_Official
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 500 Saint Paul, MN 551012198	Electronic Service	No	OFF_SL_12-1240_Official
John	Flumerfelt	jflumerfelt@calpine.com	CalpineCorporation	500 Delaware Ave. Wilmington, DE 19801	Electronic Service	No	OFF_SL_12-1240_Official
Edward	Garvey	garveyed@aol.com	Residence	32 Lawton St Saint Paul, MN 55102	Electronic Service	No	OFF_SL_12-1240_Official
Travis	Germundson	travis.germundson@state.mn.us		Board of Water & Soil Resources 520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	OFF_SL_12-1240_Official
Craig	Gordon	cgordon@invenergyllc.com	Invenergy LLC	One South Wacker Dr Suite 1900 Chicago, IL 60606	Electronic Service	No	OFF_SL_12-1240_Official
Todd J.	Guerrero	todd.guerrero@kutakrock.com	Kutak Rock LLP	Suite 1750 220 South Sixth Street Minneapolis, MN 554021425	Electronic Service	No	OFF_SL_12-1240_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Mary	Holly	mholly@winthrop.com	Winthrop & Weinstine, P.A.	225 S Sixth St Ste 3500 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_12-1240_Official
Michael	Hoppe	il23@mtn.org	Local Union 23, I.B.E.W.	932 Payne Avenue St. Paul, MN 55130	Electronic Service	No	OFF_SL_12-1240_Official
Alan	Jenkins	aj@jenkinsatlaw.com	Jenkins at Law	2265 Roswell Road Suite 100 Marietta, GA 30062	Electronic Service	No	OFF_SL_12-1240_Official
Linda	Jensen	linda.s.jensen@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota Street St. Paul, MN 551012134	Electronic Service	Yes	OFF_SL_12-1240_Official
Richard	Johnson	Rick.Johnson@lawmoss.com	Moss & Barnett	150 S. 5th Street Suite 1200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_12-1240_Official
Michael	Krikava	mkrikava@briggs.com	Briggs And Morgan, P.A.	2200 IDS Center 80 S 8th St Minneapolis, MN 55402	Electronic Service	No	OFF_SL_12-1240_Official
Karen	Kromar	karen.kromar@state.mn.us	MN Pollution Control Agency	520 Lafayette Rd Saint Paul, MN 55155	Electronic Service	No	OFF_SL_12-1240_Official
Douglas	Larson	dlarson@dakotaelectric.com	Dakota Electric Association	4300 220th St W Farmington, MN 55024	Electronic Service	No	OFF_SL_12-1240_Official
John	Lindell	agorud.ecf@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	No	OFF_SL_12-1240_Official
Eric	Lipman	eric.lipman@state.mn.us	Office of Administrative Hearings	PO Box 64620 St. Paul, MN 551640620	Electronic Service	No	OFF_SL_12-1240_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Michael	Loeffler	mike.loeffler@nngco.com	Northern Natural Gas Co.	CORP HQ, 714 1111 So. 103rd Street Omaha, NE 681241000	Electronic Service	No	OFF_SL_12-1240_Official
Kavita	Maini	kmaini@wi.rr.com	KM Energy Consulting LLC	961 N Lost Woods Rd Oconomowoc, WI 53066	Electronic Service	No	OFF_SL_12-1240_Official
Pam	Marshall	pam@energycents.org	Energy CENTS Coalition	823 7th St E St. Paul, MN 55106	Electronic Service	No	OFF_SL_12-1240_Official
Thomas	Melone	Thomas.Melone@AllcoUS.com	Minnesota Go Solar LLC	222 South 9th Street Suite 1600 Minneapolis, Minnesota 55120	Electronic Service	No	OFF_SL_12-1240_Official
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Andrew	Moratzka	apmoratzka@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	OFF_SL_12-1240_Official
David W.	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency	Suite 300 200 South Sixth Street Minneapolis, MN 55402	Electronic Service	No	OFF_SL_12-1240_Official
Darrell	Nitschke	dnitschk@nd.gov	North Dakota Public Service Commission	600 E. Boulevard Avenue State Capital, 12th Floor, Dept 408 Bismarck, ND 585050480	Electronic Service	No	OFF_SL_12-1240_Official
Ryan	Norrell	N/A	North Dakota Public Service Commission	600 E. Boulevard Avenue State Capital, 12 th Floor Dept 408 Bismarck, ND 58505-0480	Paper Service	No	OFF_SL_12-1240_Official
Bryan	Nowicki	bnowicki@reinhartlaw.com	Reinhart Boerner Van Deuren s.c.	22 E Mifflin St Ste 600 Madison, WI 53703-4225	Electronic Service	No	OFF_SL_12-1240_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Bob	Patton	bob.patton@state.mn.us	MN Department of Agriculture	625 Robert St N Saint Paul, MN 55155-2538	Electronic Service	No	OFF_SL_12-1240_Official
Kevin	Reuther	kreuther@mncenter.org	MN Center for Environmental Advocacy	26 E Exchange St, Ste 206 St. Paul, MN 551011667	Electronic Service	No	OFF_SL_12-1240_Official
Richard	Savelkoul	rsavelkoul@martinsquires.com	Martin & Squires, P.A.	332 Minnesota Street Ste W2750 St. Paul, MN 55101	Electronic Service	No	OFF_SL_12-1240_Official
Janet	Shaddix Elling	jshaddix@janetshaddix.com	Shaddix And Associates	Ste 122 9100 W Bloomington Frwy Bloomington, MN 55431	Electronic Service	No	OFF_SL_12-1240_Official
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Donna	Stephenson	dstephenson@grenergy.com	Great River Energy	12300 Elm Creek Boulevard Maple Grove, MN 55369	Electronic Service	No	OFF_SL_12-1240_Official
James M.	Strommen	jstrommen@kennedy-graven.com	Kennedy & Graven, Chartered	470 U.S. Bank Plaza 200 South Sixth Street Minneapolis, MN 55402	Electronic Service	No	OFF_SL_12-1240_Official
Eric	Swanson	eswanson@winthrop.com	Winthrop Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	OFF_SL_12-1240_Official
James	Talcott	jim.talcott@nngco.com	Northern Natural Gas Company	1111 South 103rd Street Omaha, Nebraska 68124	Electronic Service	No	OFF_SL_12-1240_Official
SaGonna	Thompson	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	OFF_SL_12-1240_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Lisa	Veith	lisa.veith@ci.stpaul.mn.us	City of St. Paul	400 City Hall and Courthouse 15 West Kellogg Blvd. St. Paul, MN 55102	Electronic Service	No	OFF_SL_12-1240_Official
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Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	Yes	OFF_SL_12-1240_Official

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Julia	Anderson	Julia.Anderson@ag.state.mn.us	Office of the Attorney General-DOC	1800 BRM Tower 445 Minnesota St St. Paul, MN 551012134	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Christopher	Anderson	canderson@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022191	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
James J.	Bertrand	james.bertrand@leonard.com	Leonard Street & Deinard	150 South Fifth Street, Suite 2300 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Michael	Bradley	mike.bradley@lawmoss.com	Moss & Barnett	150 S. 5th Street, #1200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Jeffrey A.	Daugherty	jeffrey.daugherty@centerpointenergy.com	CenterPoint Energy	800 LaSalle Ave Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
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Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 500 Saint Paul, MN 551012198	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Michael	Hoppe	il23@mtn.org	Local Union 23, I.B.E.W.	932 Payne Avenue St. Paul, MN 55130	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Alan	Jenkins	aj@jenkinsatlaw.com	Jenkins at Law	2265 Roswell Road Suite 100 Marietta, GA 30062	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Richard	Johnson	Rick.Johnson@lawmoss.com	Moss & Barnett	150 S. 5th Street Suite 1200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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Douglas	Larson	dlarson@dakotaelectric.com	Dakota Electric Association	4300 220th St W Farmington, MN 55024	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
John	Lindell	agorud.ecf@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Pam	Marshall	pam@energycents.org	Energy CENTS Coalition	823 7th St E St. Paul, MN 55106	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Andrew	Moratzka	apmoratzka@stoel.com	Stoel Rives LLP	33 South Sixth Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
David W.	Niles	david.niles@avantenergy.com	Minnesota Municipal Power Agency	Suite 300 200 South Sixth Street Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Richard	Savelkoul	rsavelkoul@martinsquires.com	Martin & Squires, P.A.	332 Minnesota Street Ste W2750 St. Paul, MN 55101	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
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First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
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James M.	Strommen	jstrommen@kennedy-graven.com	Kennedy & Graven, Chartered	470 U.S. Bank Plaza 200 South Sixth Street Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Eric	Swanson	eswanson@winthrop.com	Winthrop Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
SaGonna	Thompson	Regulatory.records@xcelenergy.com	Xcel Energy	414 Nicollet Mall FL 7 Minneapolis, MN 554011993	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Lisa	Veith	lisa.veith@ci.stpaul.mn.us	City of St. Paul	400 City Hall and Courthouse 15 West Kellogg Blvd. St. Paul, MN 55102	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric
Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	No	GEN_SL_Northern States Power Company dba Xcel Energy-Elec_Xcel Miscl Electric

MEMORANDUM OF UNDERSTANDING REGARDING THE APPLICATION OF THE STATE BUILDING CODE AND FIRE CODE TO THE BLACK DOG POWER PLANT

THIS MEMORANDUM OF UNDERSTANDING ("MOU"), between the City of Burnsville, a Minnesota municipal corporation ("Burnsville" or the "City") and Northern States Power Company, a Minnesota Corporation, doing business as Xcel Energy ("NSP" or "Xcel") is effective upon approval and execution by both parties.

WHEREAS, Xcel owns and operates the Black Dog Power Plant ("Plant") within the City of Burnsville, and;

WHEREAS, the Plant consists of various structures and facilities for the generation and transmission of electricity, shelter for employees and Plant visitors and related activities, and;

WHEREAS, Burnsville has adopted and administers the State Building Code (SBC) and the State Fire Code (SFC) within the City, and;

WHEREAS, the City and Xcel desire to document their joint understanding regarding the City's administration of the SBC and the SFC (collectively, the "Codes") as to installations, construction, alterations, maintenance or repair activities at the Plant and have entered into this MOU to memorialize their understanding as to those activities at the Plant that will require permits.

Definitions. Terms used in this MOU shall be defined consistent with state law and rule definitions. To supplement or clarify those definitions, or to define terms not defined by state law or rule, this MOU uses the following definitions:

- **Alteration** Any construction or renovation to an existing structure other than repair or addition; synonymous with Modification.
- **Building** Any structure used or intended for supporting or sheltering any use or occupancy.
- **Construct** to make or form by combining or arranging parts or elements, that is, to build.
- **Install** to set up for use or service.
- **Maintenance** to keep in an existing state (as of repair): the upkeep of property or equipment.
- **Mechanical Systems** Mechanical systems which are permanently installed and utilized for Occupied Spaces, including the following:
  1. heating and cooling units
  2. plumbing (sanitary sewer and potable water)
  3. sprinklers
  4. natural gas supply (for appliances and unit heaters)
  5. elevators.
- **NEC** National Electric Code: A Code of rules whose purpose is the practical safeguarding of persons and property from hazards arising from the use of electricity.

- **NESC** National Electric Safety Code: A Code of rules for the practical safeguarding of persons during the installation, operation, or maintenance of electrical supply equipment.
- **Occupied Spaces** Areas, rooms, or enclosed spaces designed or used for human occupancy
- **Power Generating Equipment** Any equipment utilized for the generation of power, transmission, and distribution of electrical energy on utility side of the service point.
- **Repair** The reconstruction or renewal of any part of an existing building or mechanical system for the purpose of its maintenance.
- **Structure** That which is built or constructed.

1. **BUILDING PERMITS.** The City and NSP agree that the following activities at the Plant shall require a building permit, unless expressly excluded in this MOU:

   Alterations of Buildings containing Occupied Spaces (but specifically excluding the Power Generating Equipment and enclosures within any Building).

   Installation or construction of new Mechanical Systems, including the Alteration of existing Mechanical Systems.

   Sewer and potable water Alterations as required in accordance with the SBC.

   New construction and new installations or Alterations of Buildings and Mechanical Systems that are not exempt.

   Electrical installations covered by the National Electric Code, NFPA 70, such as electrical installations on the load side of the service point, as opposed to the utility side of the service point.

   Installation or Alteration of elevators and the Repair or replacement of the following:
   1. Speed governors and/or governor rope
   2. Releasing carrier
   3. Rope fastenings and hitch plates

2. **POWER GENERATING EQUIPMENT - NOT SUBJECT TO STATE BUILDING CODE OR STATE FIRE CODE AND PERMITS.** Minnesota Statutes § 326B.36, subdivision 7(2) exempts electrical utilities from obtaining electrical permits and electrical inspection. The exemption applies to generation, transmission, and distribution of electrical energy on utility side of service point. Accordingly, the City and NSP agree that the following are not subject to the Codes and that no permits or inspections shall be required:

   Work on equipment that is an integral part of Power Generating Equipment, generating plant, substation, or control center that is covered by the National Electric Safety Code (IEEE C2).

Electric generating facility Power Generating Equipment and machinery including stairs, platforms and other features integral to the generating equipment, or attached directly thereto.

Fuel gas systems utilized specifically for the production of electricity which are exempted by the International Fuel Gas Code.

3. REPAIRS AND MAINTENANCE.

Customary repairs and maintenance activities do not require permits as follows:

Ordinary repairs to buildings or structures that do not include:

1. Cutting away of all or a portion of any wall or partition
2. Removal or cutting of any structural beam or load bearing support
3. Removal or change of any required means of egress from a Building
4. Rearrangement of parts of structure affecting egress requirements
5. Additions to, Alteration of, or relocation of (a) any piping such as standpipes, water supply, sewer, drainage, drain leader, gas, waste, vent or similar piping; (b) electric wiring or mechanical, or (c) other work affecting public health or general safety

Replacements of any part that does not alter approval of equipment or make the equipment unsafe.

Preventative maintenance work.

4. OTHER PERMITS. This MOU does not address permits related to improvements to the Plant's grounds, such as grading and earthwork permits, right-of-way permits, tree removal permits or landscaping permits.

5 PERMITS ADMINISTRATION. NSP may obtain an annual permit from the City for regular Modifications necessary at the Plant. NSP or its contractor will be responsible for submitting a list of the planned Plant Modifications to the City. The list of planned Modifications subject to the Codes, as provided in this MOU, may be submitted bi-annually or quarterly and the City may inspect accordingly.

6 INTERPRETATION. It is the intent of the City and NSP to comply with state law on Code interpretation and administration of the Codes. The parties agree to revise this MOU if necessary to conform with any subsequent amendment to the Codes. The parties agree to discuss any Work not specifically exempted from the Codes as defined herein, in an effort to determine whether such work requires a permit. The parties also agree that the terms of this MOU including any subsequent amendments shall not be applied retroactively as to any Buildings, Mechanical Systems, Alterations, Construction or similar work that has been completed at the Plant as of the date of this MOU or any amendment, as the case may be.

7 DISPUTE RESOLUTION. Any disputes regarding the interpretation of this MOU or arising from activities undertaken pursuant thereto shall be resolved by the City Manager and Plant

Director. If they are unable to reach an agreement, either may request that the matter be submitted for resolution through mediation.

8 TERMINATION. This MOU may be modified by joint written agreement of the parties and may be terminated with or without cause, following ninety (90) days written notice by any party.

9 NOTICES. All notices, requests and other communications hereunder shall be in writing and shall be deemed given if personally delivered or mailed, certified mail, return receipt requested, to the following addresses:

If to Burnsville:	City of Burnsville Craig Ebeling City Manager 100 Civic Center Parkway Burnsville, MN 55337
With Copy to:	Burnsville City Attorney Campbell Knutson, P.A. 317 Eagandale Office Center 1380 Corporate Center Curve Eagan, MN 55121
If to Xcel:	Plant Director Black Dog Plant 1400 East Black Dog Road Burnsville, MN 55337

3. **WAIVER OF DEFAULT.** Any waiver by either party of a default under the provisions of this MOU by the other party will not operate or be construed as a waiver of a subsequent default.

4. **INVALIDITY OF PROVISIONS.** If any term or provision of this MOU or any application hereof to any person or circumstance is to any extent found to be invalid or unenforceable, the remainder of this MOU or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable will not be effected thereby and each term and provision of this MOU will be valid and be enforced to the fullest extent permitted by law.

5. **ENTIRE AGREEMENT.** This instrument herein contains the entire and only agreement between the parties and no oral statements or representations or prior written matter not contained in this instrument will have any force and effect. This MOU cannot be modified in any way except by writing executed by both parties.

6. **GOVERNING LAW.** This MOU will be governed exclusively by the provisions hereof and by the laws of the State of Minnesota, as the same from time to time exists.

[Signatures on following page.]

IN WITNESS WHEREOF, the parties have hereunto set their hands as of the day and year first above written.

Dated:_____, 2012

CITY OF BURNSVILLE

By:_____
Elizabeth Kautz, Mayor

By:_____
Craig Ebeling, City Manager

Dated: 6/1, 2012

NORTHERN STATES POWER COMPANY, d/b/a XCEL ENERGY

BY:_____
Kent T. Larson

Its Vice President

5051544_4.DOC

Amos, Jonathan M

From: Amy J. Denz <adenz@wenck.com>
Sent: Monday, October 12, 2015 10:58 AM
To: Amos, Jonathan M
Cc: Jeff C. Madejczyk; Jared J. Anderson
Subject: FW: SHPO Database Query Request: Black Dog Unit 6 Project
Attachments: Archaeology.rtf; Historic.rtf

Jonathan,

The following is the email we received from SHPO. The attachments were also received with the following SHPO email.

Thanks,

Amy Denz
Environmental Scientist / Associate

WENCK ASSOCIATES Responsive partner. Exceptional outcomes.

adenz@wenck.com | C 320.979.0274
1800 Pioneer Creek Center | Maple Plain, MN 55359

From: Thomas Cinadr [mailto:thomas.cinadr@mnhs.org]
Sent: Thursday, August 27, 2015 6:57 AM
To: Amy J. Denz
Subject: Re: SHPO Database Query Request: Black Dog Unit 6 Project

THIS EMAIL IS NOT A PROJECT CLEARANCE.

This message simply reports the results of the cultural resources database search you requested. The database search produced results for only previously known archaeological sites and historic properties. Please read the note below carefully.

Archaeological sites and historic properties were identified in a search of the Minnesota Archaeological Inventory and Historic Structures Inventory for the search area requested. **Reports containing the results of the searches are attached.**

The result of this database search provides a listing of recorded archaeological sites and historic architectural properties that are included in the current SHPO databases. Because the majority of archaeological sites in the state and many historic architectural properties have not been recorded, important sites or structures may exist within the search area and may be affected by development or construction projects within that area. Additional research, including field survey, may be necessary to adequately assess the area's potential to contain historic properties.

Properties that are listed in the National Register of Historic Places (NRHP) or have been determined eligible for listing in the NRHP are indicated on the reports you have received. The following codes on the reports you received are:

NR – National Register listed. The properties may be individually listed or may be within the boundaries of a National Register District.

CEF – Certified Eligible to the National Register findings are usually made during the federal review process, these properties have been evaluated as being eligible for listing in the National Register.

SEF – Staff eligible findings to the National Register are properties that have been determined eligible by SHPO staff.

DOE – Determination of Eligibility is made by the National Park Service and typically refers to properties deemed eligible but the owner objects to the listing.

CNEF – Certified Not Eligible to the National Register. SHPO has begun to record properties that have been evaluated as **not eligible** for listing in the National Register. If the box on the form has a check the property has been determined to be **not eligible.**

Properties without **NR, CEF, SEF, DOE, or CNEF** designations in the reports you received may not have been evaluated and therefore no assumption to their eligibility can be made.

If you require a comprehensive assessment of a project's potential to impact archaeological sites or historic architectural properties, you may need to hire a qualified archaeologist and/or historian. If you need assistance with a project review, please contact Kelly Gragg-Johnson in Review and Compliance @ 651-259-3455 or by email at kelly.graggjohnson@mnhs.org.

The Minnesota SHPO Survey Manuals and Database Metadata can be found at **http://www.mnhs.org/shpo/survey/inventories.htm**

SHPO research hours are 8:30 AM – 4:00 PM Tuesday-Friday.

The Office is closed on Mondays.

Tom Cinadr
Survey and Information Management Coordinator
Minnesota Historic Preservation Office
Minnesota Historical Society
345 Kellogg Blvd. West
St. Paul, MN 55102

651-259-3453

On Wed, Aug 26, 2015 at 1:41 PM, Amy J. Denz <adenz@wenck.com> wrote:

Mr. Cinadr,

On behalf of Xcel Energy, we are requesting review of the Minnesota Archaeological Inventory and Historic Structures Inventory for cultural resources within the vicinity of the Black Dog Generating Plant in Burnsville, Minnesota. Additional details regarding the project are provided in the attached letter and project location maps. If you have any questions or need additional information, please let me know.

Thanks,

Amy Denz

Environmental Scientist / Associate

WENCK ASSOCIATES Responsive partner. Exceptional outcomes.

adenz@wenck.com | C 320.979.0274

1800 Pioneer Creek Center | Maple Plain, MN 55359

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Archaeological Site Locations

Site Number	Site Name	Twp.	Range	Sec.	Quarter Sections	Acres	Phase	Site Description	Tradition	Context	Reports	NR	CEF	DOE
County:	**Dakota**													
21DK0041	Pemtom/River Hills	27	24	24	SE-SW	80	3	CEM	A-1					
21DK0068		27	24	13	SE-SE-NE	0.1	1	AS	W-1		DK-99-04			
County:	**Hennepin**													
21HE0016	Hopkins	27	24	22	N-NE-SW	0	2	EW, AS	W-2					
21HE0228		27	24	22	NE-SW-NW-SE	2	2	AS			HE-93-24			
21HE0244	Gideon Pond House	27	24	22	NE-SW-SE-NE	1	3	HD, SR			HE-93-22	Yes		
	Gideon Pond House	27	24	22	NE-SW-SE-NE	1	3	HD, SR			HE-81-08	Yes		
21HEbl	Oak Grove Indian Mission Cemetery	27	24	22	SE-NE-SE-NE	0.1	7	CEM		IC-1,EA-				

History/Architecture Inventory

PROPERTY NAME	ADDRESS	Twp	Range	Sec	Quarters	USGS	Report	NRHP	CEF	DOE	Inventory Number
COUNTY: Dakota											
CITY/TOWNSHIP: Burnsville											
Connelly Farmhouse (razed)	1570 E. Mn. Hwy. 13	27	24	26	SE	Bloomington					DK-BVC-001
Bridge No. L5773	over the outlet of Black Dog Lake	27	24	13		Saint Paul SW					DK-BVC-009
Bridge L5774		27	24	27	NE-SE	St. Paul SW					DK-BVC-013
Bridge 6583	I 35W	27	24	23	NW-SW	Bloomington					DK-BVC-015
Black Dog Generating Plant	1400 E. Black Dog Road	27	24	23		Bloomington	DK-2015-1H				DK-BVC-016
Black Dog Generating Plant		27	24	24		Bloomington	DK-2015-1H				DK-BVC-016
COUNTY: Hennepin											
CITY/TOWNSHIP: Bloomington											
Gideon H. Pond House	401 104th St. E.	27	24	22	NW-SE-NE	Bloomington	HE-96-8H	Y			HE-BLC-020
Gideon H. Pond House		27	24	22	NW-SE-NE	Bloomington	HE-94-29H	Y			HE-BLC-020
Gideon H. Pond House		27	24	22	NW-SE-NE	Bloomington	HE-94-01H	Y			HE-BLC-020
William Davis House	10225 Lyndale Ave. S.	27	24	22	NW-NW-	Bloomington	HE-93-8H				HE-BLC-035
Long Meadow Bridge (Bridge No. 3145)	Cedar Ave. over Long Meadow	27	24	13	W-E-NW	St. Paul SW	HE-94-3H	Y	Y		HE-BLC-064
Hopkins Ferry Landing	12000 Lyndale Ave. S.	27	24	22	NW-SE-SW	Bloomington	HE-93-8H				HE-BLC-066
Bridge No. 3145	MUN 1141 over Long Meadow Creek	27	24	13					Y		HE-BLC-149
CITY/TOWNSHIP: Fort Snelling Military											
Fort Snelling State Park	U.S. Hwy. 5 and Post Rd.	27	24	13		St. Paul SW	xx-96-1H				HE-FSR-0107

CERTIFICATE OF SERVICE

I, Carl J. Cronin, hereby certify that I have this day served copies of the foregoing document on the attached lists of persons.

xx by depositing a true and correct copy thereof, properly enveloped with postage paid in the United States mail at Minneapolis, Minnesota

xx electronic filing

Dated this 15th day of October 2015

/s/

_____

Carl J. Cronin

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