

US EPA ARCHIVE DOCUMENT

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**Coal Combustion Waste Impoundment  
Round 7 - Dam Assessment Report**

*Black Dog Power Station (Site 024)*

*Surface Impoundments  
Northern States Power  
d/b/a Xcel Energy  
Burnsville, Minnesota*

**Prepared for:**

United States Environmental Protection Agency  
Office of Resource Conservation and Recovery

**Prepared by:**

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## INTRODUCTION, SUMMARY CONCLUSIONS AND RECOMMENDATIONS

The release of over five million cubic yards from the Tennessee Valley Authority's Kingston, Tennessee facility in December 2008, which flooded more than 300 acres of land, damaging homes and property, is a wake-up call for diligence on coal combustion waste disposal units. We must marshal our best efforts to prevent such catastrophic failure and damage. A first step toward this goal is to assess the stability and functionality of the ash impoundments and other units, then quickly take any needed corrective measures.

This assessment of the stability and functionality of the Black Dog Power Station Coal Combustion Waste (CCW) ponds is based on a review of available documents and on the site assessment conducted by Dewberry personnel on Thursday, September 23, 2010. We found the supporting technical documentation provided to be adequate for preparation of this report (Section 1.1.3).

In summary, the Black Dog Power Station CCW Ponds are **FAIR** for continued safe and reliable operation, with no recognized existing or potential management unit safety deficiencies.

## PURPOSE AND SCOPE

The U.S. Environmental Protection Agency (EPA) is embarking on an initiative to investigate the potential for catastrophic failure of Coal Combustion Surface Impoundments (i.e., management unit) from occurring at electric utilities in an effort to protect lives and property from the consequences of a dam failure or the improper release of impounded slurry. The EPA initiative is intended to identify conditions that may adversely affect the structural stability and functionality of a management unit and its appurtenant structures (if present); to note the extent of deterioration (if present), status of maintenance and/or a need for immediate repair; to evaluate conformity with current design and construction standard practices; and to determine the hazard potential classification for units not currently classified by the management unit owner or by a state or federal agency. The initiative will address management units that are classified as having a Less-than-Low, Low, Significant or High Hazard Potential ranking.

In February 2009, the EPA sent letters to coal-fired electric utilities seeking information on the safety of surface impoundments and similar facilities that receive liquid-borne material that store or dispose of CCW. This letter was issued under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104(e), to assist the Agency in assessing the structural stability and functionality of such management units, including which facilities should be visited to perform a safety assessment of the berms, dikes, and dams used in the construction of these impoundments.

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EPA requested that utility companies identify all management units including surface impoundments or similar diked or bermed management units or management units designated as landfills that receive liquid-borne material used for the storage or disposal of residuals or by-products from the combustion of coal, including, but not limited to, fly ash, bottom ash, boiler slag, or flue gas emission control residuals. Utility companies provided information on the size, design, age and the amount of material placed in the units. The EPA used the information received from the utilities to determine preliminarily which management units had or potentially could have High Hazard Potential ranking.

The purpose of this report is to evaluate the condition and potential of waste release from the selected management units. This evaluation included a site visit. Prior to conducting the site visit, a two-person team reviewed the information submitted to EPA, reviewed any relevant publicly available information from state or federal agencies regarding the unit hazard potential classification (if any) and accepted information provided via telephone communication with the management unit Operator. Also, after the field visit, additional information was received by Dewberry & Davis LLC from the Operator about the Black Dog Power Station. The additional information was reviewed and also used in preparation of this report.

Factors considered in determining the hazard potential classification of the management unit(s) included the age and size of the impoundment, the quantity of coal combustion residuals or by-products that were stored or disposed of in these impoundments, its past operating history, and its geographic location relative to down gradient population centers and/or sensitive environmental systems.

This report presents the opinion of the assessment team as to the potential of catastrophic failure and reports on the condition of the management unit(s).

## LIMITATIONS

The assessment of dam safety reported herein is based on field observations and review of readily available information provided by the owner/operator of the subject coal combustion waste management unit(s). Qualified Dewberry engineering personnel performed the field observations and review and made the assessment in conformance with the required scope of work and in accordance with reasonable and acceptable engineering practices. No other warranty, either written or implied, is made with regard to our assessment of dam safety.

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## 1.0 CONCLUSIONS AND RECOMMENDATIONS

### 1.1 CONCLUSIONS

Conclusions are based on visual observations from a one-day site visit, September 23, 2010, and review of technical documentation provided by Northern States Power, d/b/a Xcel Energy, which is provided in Appendix A.

#### 1.1.1 Conclusions Regarding the Structural Soundness of the Management Unit(s)

The four Coal Combustion Waste (CCW) ponds did not show any areas of significant structural concern during the one-day site visit. As Xcel Energy acknowledged in their March 26, 2009 letter to EPA, no record of any documentation concerning the structural integrity of the ponds is available.

Design drawings provided in Appendix A together with information provided by Xcel Energy to EPA in their March 26, 2009 letter indicate that the footprint of the four ponds is incised on the eastern, western and northern perimeters. Along these perimeters the maximum operating range of the CCW (EL. 702 ft) does not appear to be in contact with any manmade fill. Along the southern perimeter of Ponds 3 and 4, manmade embankment material was placed adjacent to Black Dog Lake in the mid 1950's. The design top elevation of the embankment when it was first constructed is estimated to be 705 ft. In the mid 1970's to mid 1980's three dikes were constructed that formed the four ponds that were investigated.

In 2002, the Operator constructed a flood berm around Ponds 1, 2, and 3, and the plant's coal storage area located to the immediate west of the ponds. The flood control berm raised the grades around Ponds 1, 2 and 3 from 705 ft to 715 ft. The flood control berm is designed to keep floodwaters from the Minnesota River and Black Dog Lake out of the three ponds and coal storage area. The flood berm was not built with the intent of providing additional storage capacity for CCW. The Operator noted during the site visit that Minnesota DNR does not consider the embankment of the four ponds to be dams that are subject to State review.

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## 1.1.2 Conclusions Regarding the Hydrologic/Hydraulic Safety of the Management Unit(s)

Hydrologic/Hydraulic calculations were not provided, so no conclusion regarding hydrologic/hydraulic safety of the four ponds can be made at this time.

## 1.1.3 Conclusions Regarding the Adequacy of Supporting Technical Documentation

The supporting technical documentation provided is adequate for preparation of this report. Data reviewed by Dewberry did not contain structural stability or hydrologic/hydraulic calculations. The supporting technical documentation reviewed is referenced in Appendix A.

## 1.1.4 Conclusions Regarding the Description of the Management Unit(s)

The description of the four CCW ponds provided by the Operator was an accurate representation of what Dewberry observed in the field.

## 1.1.5 Conclusions Regarding the Field Observations

During the site visit, Dewberry was provided access to all areas in the vicinity of the four CCW ponds as well as the coal storage area, fly ash loading area, and bottom ash loading area located adjacent to the Plant. There were no visible signs of significant erosion, seepage, settlement clogged spillways or other signs of instability. During the site visit there were no indications of unsafe conditions or conditions needing immediate remedial action.

## 1.1.6 Conclusions Regarding the Adequacy of Maintenance and Methods of Operation

Maintenance and methods of operation appear to be adequate for all four CCW ponds. According to the Operator, the ponds receive approximately 5 % of the CCW, including bottom ash sluice produced by the Plant; the remaining 95 % (i.e. bottom ash plus nearly 100% of fly ash) is hauled offsite for permitted disposal. On average, the ponds are dredged approximately once per year, if needed. The operating range of the ponds is between EL. 697 ft and EL. 702 ft. The design top of bank elevation at Ponds 1, 2, 3 and 4 for CCW storage is 705 ft. The Plant has adopted a Storm Water Pollution Prevention Plan as a Plant Management Directive, which requires site inspections every two months during non-frozen

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conditions including the four CCW ponds. One of the inspections is performed while storm water is discharging. Inspections are performed to determine the maintenance requirements for the ponds and other structural and non-structural onsite storm water management practices. The Operator also noted that the protective flood control berm is inspected monthly by Plant staff.

Note: according to the Xcel Energy Upper Midwest Resource Plan (2011-2025) filed by the Operator with the Minnesota Public Utilities Commission, the two remaining coal burning units (Black Dog 3 and 4) will likely be retired in 2013.

## 1.1.7 Conclusions Regarding the Adequacy of the Surveillance and Monitoring Program

The surveillance and monitoring program appears to be adequate for all four CCW ponds. The ponds are not instrumented; however, based on the relatively small size of the impoundments, the history of satisfactory performance, and current methods of operation and inspection, a pond monitoring system is not needed at this time.

## 1.1.8 Classification Regarding Suitability for Continued Safe and Reliable Operation

**The four (4) CCW ponds are classified as FAIR for continued safe and reliable operation. Acceptable performance is expected under all applicable loading conditions (static, hydrologic, seismic) in accordance with the applicable safety criteria.** While structural stability documentation has not been found by the Operator, a FAIR rating is justified because the Pond 3 and Pond 4 south perimeter embankment discussed under Section 1.1.1 has remained stable with no significant stability problems or failures identified by the Operator since it was constructed in the 1950's. The Fair classification given is for the original Pond 3 and 4 embankment and not for the perimeter flood control berm that was constructed in 2002 as it is considered to be a separate piece of infrastructure that the Operator constructed to mitigate flood risk associated with the Minnesota River. The flood control berm was not constructed to provide additional capacity for CCW.

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## 1.2 RECOMMENDATIONS

### 1.2.1 Recommendations Regarding the Structural Stability

Maintain frequent inspections of the Pond 3 and Pond 4 embankments along Black Dog Lake. Operator inspections should occur at least once per month; plus during and after significant rain events, and during and after the rise and fall of flood events on Black Dog Lake.

### 1.2.2 Recommendations Regarding the Hydrologic/Hydraulic Safety

Hydrologic and Hydraulic calculations of the four ponds were not provided. It is recommended that a hydrologic and hydraulic analysis be provided or performed to evaluate the capacity of the ponds' existing spillway system and its ability to handle internal drainage flows from the Plant site for a large localized storm event (i.e. 100-year storm).

### 1.2.3 Recommendations Regarding the Supporting Technical Documentation

No recommendations appear warranted at this time.

### 1.2.4 Recommendations Regarding the Description of the Management Unit(s)

No recommendations appear warranted at this time.

### 1.2.5 Recommendations Regarding the Field Observations

See comment below, Section 1.2.6.

### 1.2.6 Recommendations Regarding the Maintenance and Methods of Operation

It was noted during the field assessment that there was significant vegetation and tree growth along the outside slope of the earthen embankment between Black Dog Lake and Ponds 3 and 4 that made it difficult to observe its condition. It is recommended that the outside slope of this embankment be maintained in such a way that adequate inspections of the slope can be made in the future.

### 1.2.7 Recommendations Regarding the Surveillance and Monitoring Program

No recommendations appear warranted at this time.

### 1.2.8 Recommendations Regarding Continued Safe and Reliable Operation

No recommendations appear warranted at this time.

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## 1.3 PARTICIPANTS AND ACKNOWLEDGEMENT

### 1.3.1 List of Participants during the September 23, 2010 site assessment:

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Scott Clarke, P.E., Dewberry

### 1.3.2 Acknowledgement and Signature

We acknowledge that the four CCW ponds referenced herein were assessed on September 23, 2010.

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Cleighton D. Smith, P.E.

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Scott C. Clarke, P.E.

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## 2.0 DESCRIPTION OF THE COAL COMBUSTION WASTE MANAGEMENT UNIT(S)

### 2.1 LOCATION AND GENERAL DESCRIPTION

Black Dog Power Station is located in Dakota County within the northern region of Burnsville, Minnesota and is operated by Northern States Power d/b/a Xcel Energy. The Plant is bordered by two major bodies of waters: the Minnesota River to the north and Black Dog Lake to the south. The Plant functions as a combined coal and natural gas-fired steam electric plant. The facility operates under five generator units, two of which utilize coal as the primary fuel. The coal units were built in the 1950s. See Appendix A, Documents 1 and 2 for a map location of the Plant and an aerial view of the Plant looking east, respectively. Photos taken during the site visit are provided in Appendix B.

Today, approximately 95% of the CCW (i.e. part bottom ash plus part nearly 100% dry ash) produced by the coal units is transported offsite for permitted disposal. Four CCW ponds, which are connected in series, are used to manage the remaining 5% of CCW (primarily bottom ash sluice), demineralizer regeneration wastewater, boiler blow-down, yard wastewater, and reverse osmosis reject water.

Since ground breaking of the Plant in 1949, flooding from the Minnesota River has hampered operations from time to time. Under normal conditions the river level is at approximate EL. 693 ft and CCW is managed in the ponds at an operating elevation between 697 ft and 702 ft. The highest flood crest recorded at the Plant occurred in 1965 at EL. 719.40 ft., and in 2001 a flood crest of 714.80 ft was recorded.

In 2002, the Operator constructed a flood control berm around CCW Ponds 1, 2, and 3 to keep floodwater out of the three ponds and coal storage area. The top of the flood control berm was constructed to EL. 715.00 ft, which is just above the 2001 flood crest. It is Dewberry's understanding that the flood control berm was not constructed around CCW Pond 4 due to cost and also because Pond 4 is the last settling basin in the "treatment train" of ash settling and considered to be primarily treated water before being released into Black Dog Lake.

Table 2.1 summarizes the dimension of the four CCW ponds that were assessed during the site visit.

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| <b>Dimensions <sup>1</sup></b>   | <b>Pond 1</b> | <b>Pond 2</b> | <b>Pond 3</b> | <b>Pond 4</b> |
|--|---------------|---------------|---------------|---------------|
| <b>Top Width (ft)</b>  | <b>140</b>    | <b>140</b>    | <b>140</b>    | <b>*</b>      |
| <b>Bottom Width (ft)</b>   | <b>100</b>    | <b>100</b>    | <b>100</b>    | <b>*</b>      |
| <b>Top Length (ft)</b>   | <b>700</b>    | <b>700</b>    | <b>700</b>    | <b>*</b>      |
| <b>Bottom Length (ft)</b>  | <b>660</b>    | <b>660</b>    | <b>660</b>    | <b>*</b>      |
| <b>Depth (ft)</b>  | <b>10</b>     | <b>10</b>     | <b>10</b>     | <b>10</b>     |
| <b>Side Slopes</b>   | <b>2:1</b>    | <b>2:1</b>    | <b>2:1</b>    | <b>2:1</b>    |
| <b>* - Information not available but the approximate surface area is 9.3 acres as determined by the Operator</b> |               |               |               |               |
| <b><sup>1</sup> - Appendix A, Documents 4 thru 6</b>   |               |               |               |               |

## 2.2 SIZE AND HAZARD CLASSIFICATION

CCW Ponds 1, 2, and 3 each have a design storage capacity of 13 acre-feet with a maximum design height for storage of 10 feet. CCW Pond 4 has a design storage capacity of approximately 93 acre-feet with a maximum design height of 10 feet. Based on Table 2.2a, all four ponds are classified as small size impoundments.

| <b>Category</b> | <b>Impoundment</b>       |                       |
|-----------------|--------------------------|-----------------------|
|                 | <b>Storage (Ac-ft)</b>   | <b>Height (ft)</b>    |
| <b>Small</b>    | <b>50 and &lt; 1,000</b> | <b>25 and &lt; 40</b> |
| Intermediate    | 1,000 and < 50,000       | 40 and < 100          |
| Large           | > 50,000                 | > 100                 |

The four CCW ponds have a Low Hazard Classification based on Table 2.2b. Loss of life would not be expected if a failure were to occur and given the relatively small size of the impoundments, economic, environmental and lifeline losses would be low and generally limited to the Operator's property.

# DRAFT

| <b>Table 2.2b: FEMA Federal Guidelines for Dam Safety Hazard Classification</b> |                                |   |
|---|--------------------------------|---|
|   | <b>Loss of Human Life</b>      | <b>Economic, Environmental, Lifeline Losses</b> |
| <b>Low</b>  | <b>None Expected</b>           | <b>Low and generally limited to owner</b>       |
| Significant   | None Expected                  | Yes   |
| High  | Probable. One or more expected | Yes (but not necessary for classification)      |

The four CCW ponds are all small, low hazard impoundments.

## 2.3 AMOUNT AND TYPE OF RESIDUALS CURRENTLY CONTAINED IN THE UNIT(S) AND MAXIMUM CAPACITY

The data reviewed by Dewberry did not include the volume of residuals stored in the four CCW ponds at the time of inspection. Table 2.1 summarizes the storage capacity of the four CCW ponds.

| <b>Table 2.1: Storage Capacity of CCW Ponds</b> |                |                |                |                |
|---|----------------|----------------|----------------|----------------|
| <b>Item <sup>1</sup></b>                        | <b>Pond 1</b>  | <b>Pond 2</b>  | <b>Pond 3</b>  | <b>Pond 4</b>  |
| <b>Surface Area (ac)</b>                        | <b>2.2</b>     | <b>2.2</b>     | <b>2.2</b>     | <b>9.3</b>     |
| <b>M.D.S.C. (cy)</b>                            | <b>20,975</b>  | <b>20,975</b>  | <b>20,975</b>  | <b>104,870</b> |
| <b>M.D.S.C. (ac-ft)</b>                         | <b>13</b>      | <b>13</b>      | <b>13</b>      | <b>65</b>      |
| <b>M.D.S.E.(ft)</b>                             | <b>702</b>     | <b>702</b>     | <b>702</b>     | <b>702</b>     |
| <b>T.S.C.T.O.B (cy)</b>                         | <b>30,655</b>  | <b>30,655</b>  | <b>30,655</b>  | <b>150,040</b> |
| <b>T.S.C.T.O.B (ac-ft)</b>                      | <b>19</b>      | <b>19</b>      | <b>19</b>      | <b>93</b>      |
| <b>T.O.B. (ft)</b>                              | <b>705</b>     | <b>705</b>     | <b>705</b>     | <b>705</b>     |
| <b>N.P. (varies) (ft)</b>                       | <b>697-702</b> | <b>697-702</b> | <b>697-702</b> | <b>697-702</b> |
| <b>Pond Invert (ft)</b>                         | <b>695</b>     | <b>695</b>     | <b>695</b>     | <b>695</b>     |

**1 - Calculated from Appendix A, Documents 4 thru 6; Pond 4 surface area estimated by Operator**

**M.D.S.C. = Max. Design Storage Capacity**

**M.D.S.E = Max. Design Storage Elevation**

**T.S.C.T.O.B = Total Storage Capacity to Top of Bank**

**T.O.B. = Top of Bank Elevation**

**N.P. = Normal Pool Operation Range**

# DRAFT

## 2.4 PRINCIPAL PROJECT STRUCTURES

### 2.4.1 Earth Embankment

When the Plant was put into service in the mid 1950s, there was a single pond that collected CCW. The eastern, western, and northern perimeters of the single pond were incised and the southern perimeter consisted of an earthen embankment between the single pond and Black Dog Lake. The assumed design top elevation of the earthen embankment when it was constructed was 705 ft based on information provided to Dewberry. The single pond was divided into four smaller ponds in 1975, whereby three interior dikes were constructed to a top design elevation of 705 ft. In 2002, the Operator constructed a flood control berm around Ponds 1, 2, and 3 as well as the coal storage area located immediately west of the ponds to prevent floodwaters from the Minnesota River and Black Dog Lake from entering the three ponds. This construction increased the height of the southern earthen embankment from 705 ft to 715 ft.

### 2.4.2 Outlet Structures

The primary outlet structure is located in the south-east corner of pond 4 (Appendix A, Document 3; Appendix B, Figures 9 thru 12 and 13). The outlet structure consists of a concrete drop inlet spillway with a 42-inch CMP. The spillway also contains a 12-inch sluice gate which serves as a low level drain for dewatering the ponds when required.

## 2.5 CRITICAL INFRASTRUCTURE WITHIN FIVE MILES DOWN GRADIENT

There is no critical infrastructure immediately downstream of the four CCW ponds; however, the following infrastructure does exist.

- Cedar Ave. MN – 77 Bridge over Minnesota River located approximately 0.8 miles NE.
- I-494 Bridge over Minnesota River located approximately 3.7 miles NE.
- Minnesota-St. Paul International Airport (MSP) and Fort Snelling State Park located approximately 4.5 miles NE.

# DRAFT

## 3.0 SUMMARY OF RELEVANT REPORTS, PERMITS, AND INCIDENTS

### 3.1 SUMMARY OF LOCAL, STATE, AND FEDERAL ENVIRONMENTAL PERMITS.

Minnesota DNR has a dam safety program; however, according to the Operator, Minnesota DNR has provided verbal confirmation to the Operator that the embankment and internal dikes of the four ponds are not subject to their review.

The impoundment has been issued a National Pollutant Discharge Elimination System Permit. Permit No. MN0000876 was issued March 24, 2008, and expires February 28, 2013 (Appendix A, Document 8).

### 3.2 SUMMARY OF SPILL/RELEASE INCIDENTS

Data reviewed by Dewberry did not indicate any spills, unpermitted releases, or other performance related problems associated with the four CCW ponds.

# DRAFT

## 4.0 SUMMARY OF HISTORY OF CONSTRUCTION AND OPERATION

### 4.1 SUMMARY OF CONSTRUCTION HISTORY

#### 4.1.1 Original Construction

The Black Dog Power Station broke ground in 1949. A single pond located in the approximate footprint of today's four CCW ponds was constructed in the mid 1950's to manage CCW.

#### 4.1.2 Significant Changes/Modifications in Design since Original Construction

In the mid 1980's the single CCW pond was divided into four smaller CCW ponds. In addition, the outlet structure spillway in Pond 4 was designed and constructed. In 2002, a flood control berm was constructed around CCW ponds 1, 2, and 3.

#### 4.1.3 Significant Repairs/Rehabilitation since Original Construction

Other than those described under Section 4.1.2, data reviewed by Dewberry did not indicate any significant repairs/rehabilitation to the four ponds since original construction.

### 4.2 SUMMARY OF OPERATIONAL PROCEDURES

#### 4.2.1 Original Operational Procedures

Data reviewed by Dewberry did not contain the original operational procedures for the single CCW pond constructed in the mid 1950s.

#### 4.2.2 Significant Changes in Operational Procedures and Original Startup

Significant changes in operation procedures and original startup cannot be confirmed based on the data reviewed by Dewberry.

#### 4.2.3 Current Operational Procedures

Storm water runoff and approximately 5% of the total CCW is sluiced into settling Pond 3, which flows into settling Pond 2, which flows into settling Pond 1, which flows into settling Pond 4, and finally discharges through the Pond 4 spillway into Black Dog Lake. The effluent leaving Pond 4 is equivalent to approximately 5 MGD every 1-2 months. The discharge is intermittent, according to plant personnel; but it was a steady stream during the site visit probably due to recent rains and fire water discharged

# DRAFT

to the ponds from a power plant fire. The remaining 95% of CCW is hauled offsite for permitted disposal, and includes nearly 100% of the processed fly ash. CCW pond water includes a combination of bottom ash sluice, boiler blow down, yard wastewater and reverse osmosis reject water.

#### 4.2.4 Other Notable Events since Original Startup

No additional information was provided to Dewberry concerning notable events impacting the operation of the ponds; however, the following is a **list of the recorded flood crests** that likely hampered operations after the Plant was constructed in the mid 1950's.

- 719.40 ft on 04/15/1965
- 716.90 ft on 04/15/1969
- 715.20 ft on 04/13/1997
- 714.80 ft on 04/19/2001
- 714.50 ft on 04/29/2001
- 714.20 ft on 04/16/1952
- 713.70 ft on 06/26/1993
- 711.70 ft on 04/15/1951
- 710.92 ft on 03/24/2010 (ponds 1, 2, 3 protected by flood berm)
- 708.40 ft on 06/29/1957
- 708.10 ft on 05/06/1986

# DRAFT

## 5.0 FIELD OBSERVATIONS

### 5.1 PROJECT OVERVIEW AND SIGNIFICANT FINDINGS

Dewberry personnel, Cleighton D. Smith, P.E. and Scott C. Clarke, P.E., performed a site visit on September 23, 2010 in company with the participants listed in Section 1.3.1.

The site visit began at 7:30 AM. The weather was cold and rainy. Photographs were taken of conditions observed. Please refer to photographs in Appendix B and the Dam Inspection Checklist in Appendix C. All pictures were taken by Dewberry personnel during the site visit.

As discussed under Section 2.4.1, there is one earthen embankment located between Black Dog Lake and the southern perimeter of Ponds 3 and 4. The footprint of the four ponds is incised on the eastern, western and northern perimeters. Section 5.0 focuses on the earthen embankment and outlet structure between Black Dog Lake and Ponds 3 and 4, which is considered the “critical” embankment if it were to fail. The three interior dikes that create the four ponds are not considered “critical” structures; however, all four ponds and dikes were documented with photographs provided in Appendix B.

In general, the overall assessment of the four ponds was that they were in FAIR condition and no significant findings were noted.

### 5.2 EARTHEN EMBANKMENT 1 OF 1

#### 5.2.1 Crest

The crest of the embankment had no signs of significant depressions, tension cracks or other indications of settlement or shear failure. Figure 5.2.1-1 and Figure 5.2.1-2 show the typical crest condition of the embankment along Pond 3 and Pond 4, respectively.

# DRAFT



**Figure 5.2.1-1:** Crest of embankment looking east; Pond 3 is to the left and Black Dog Lake is to the right; Crest also serves as the flood control berm; Note flood control berm wrapping to the left in the distance around Ponds 3, 2, and 1



**Figure 5.2.1-2:** Crest of embankment looking west; Pond 4 is to the right and Black Dog Lake is to the left. The crest does not serve as the flood control berm. Note the flood control berm wrapping to the right in the distance around Ponds 3, 2, and 1, which are not shown in the photo

# DRAFT

## 5.2.2 Upstream/Inside Slope

The inside slope of the embankment, including all groins, had a coverage of mixed grasses/weeds and gravel adjacent to Pond 3, and mixed grasses/weeds adjacent to Pond 4. There were no observed scarps, sloughs, bulging, cracks, depressions or other indications of slope instability. Figures 5.2.2-1 and 5.2.2-2 show a representative section of the embankment looking east and west from Pond 3 and Pond 4, respectively.



**Figure 5.2.2-1:** Inside slope of embankment looking east; Pond 3 is located to the immediate left

# DRAFT



**Figure 5.2.2-2:** Inside slope of embankment looking west; Pond 4 is located to the immediate right

### 5.2.3 Downstream/Outside Slope and Toe

The outside slope of the embankment is vegetated with various species of tall grasses and weeds. The toe of the embankment follows the shoreline of Black Dog Lake where there are trees also growing. Heavy overgrowth along the outside slope of the embankment and toe made close observation of the embankment difficult. Based on what could be observed, there were no scarps, sloughs, bulging, cracks, depressions or other indications of slope instability. Figures 5.2.3-1 and 5.2.3-2 show a representative section of the embankment looking west from Pond 3 and Pond 4.

# DRAFT



**Figure 5.2.3-1:** Outside slope of embankment to the left looking west; Pond 3 is located to the immediate right



**Figure 5.2.3-2:** Outside slope of embankment to the left looking west; Pond 4 is located to the immediate right

## 5.2.4 Abutments and Groin Areas

The eastern embankment abutment was heavily vegetated with no visible signs of erosion or stress. The western embankment abutment could not be assessed due to the presence of heavy vegetation and the existing flood

# DRAFT

control berm that was constructed along the top of the original embankment. Description of the groin areas is provided in Section 5.2.2.

## 5.3 OUTLET STRUCTURES

### 5.3.1 Overflow Structure

The system of four CCW ponds discharges into Black Dog Lake through a spillway structure located in the south-east corner of Pond 4. The spillway was observed to be working properly, discharging flow from the pond, and visually appeared to be in satisfactory condition. There were no signs of clogging of the spillway and the water exiting the structure was flowing clear. Figure 5.3.1- 1 shows the spillway overflow structure.



**Figure 5.3.1-1:** Overflow spillway structure looking north across Pond 4 from top of embankment

### 5.3.2 Outlet Conduit

The outlet conduit consists of a 42-inch pipe with a trash rack on its downstream outfall at Black Dog Lake. The conduit appeared to be in good shape with no visible signs of clogging and the water exiting the outlet was flowing clear. Figure 5.3.2-1 shows the outfall of the outlet conduit.



**Figure 5.3.2-1:** Outfall of outlet conduit in operation

### 5.3.3 Emergency Spillway

A separate emergency spillway was not observed. It is unclear, based on the documentation provided, if the overflow spillway also serves as the emergency spillway for the impoundment (i.e. a combined drop-inlet principle/emergency spillway).

### 5.3.4 Low Level Outlet

The overflow spillway structure contains a 12-inch sluice gate that can be manually operated to serve as a low level outlet/drain when dewatering of the impoundment is required (Appendix A, Document 3).

# DRAFT

## 6.0 HYDROLOGIC/HYDRAULIC SAFETY

### 6.1 SUPPORTING TECHNICAL DOCUMENTATION

#### 6.1.1 Flood of Record

The Minnesota River flood of record at the Plant is 719.40 ft, which crested on 04/15/1965. No information was provided for a localized flood elevation of record inside of the four ponds.

#### 6.1.2 Inflow Design Flood

Data reviewed by Dewberry did not contain Inflow Design Flood information.

#### 6.1.3 Spillway Rating

Data reviewed by Dewberry did not contain Spillway Rating information.

#### 6.1.4 Downstream Flood Analysis

Data reviewed by Dewberry did not contain a downstream flood analysis; however, the FEMA Flood Insurance Rate Map for Burnsville, Minnesota reflects a Base Flood Elevation (100-year water-surface elevation) of 716 ft on the Minnesota River at the Plant location.

### 6.2 ADEQUACY OF SUPPORTING TECHNICAL DOCUMENTATION

Data reviewed by Dewberry did not contain the necessary documentation to make a proper determination on adequacy of hydrologic and hydraulic safety factors that were or were not considered in the design of the four CCW ponds.

### 6.3 ASSESSMENT OF HYDROLOGIC/HYDRAULIC SAFETY

Hydrologic/Hydraulic calculations were not provided. See response provided under Section 6.2.

# DRAFT

## 7.0 STRUCTURAL STABILITY

### 7.1 SUPPORTING TECHNICAL DOCUMENTATION

#### 7.1.1 Stability Analyses and Load Cases Analyzed

As Xcel Energy acknowledged in their March 26, 2009 letter to EPA, no record of any documentation concerning the structural integrity of the ponds is available. Dewberry did not receive technical documentation regarding the structural stability of the four impoundments.

#### 7.1.2 Design Parameters and Dam Materials

Same response as provided under Section 7.1.1.

#### 7.1.3 Uplift and/or Phreatic Surface Assumptions

Same response as provided under Section 7.1.1.

#### 7.1.4 Factors of Safety and Base Stresses

Same response as provided under Section 7.1.1.

#### 7.1.5 Liquefaction Potential

Same response as provided under Section 7.1.1.

#### 7.1.6 Critical Geological Conditions

Same response as provided under Section 7.1.1.

### 7.2 ADEQUACY OF SUPPORTING TECHNICAL DOCUMENTATION

Data reviewed by Dewberry did not contain the necessary documentation to make a proper determination on structural stability factors that were or were not considered in the design of the four CCW ponds.

### 7.3 ASSESSMENT OF STRUCTURAL STABILITY

Though structural stability technical documentation could not be provided, overall, the structural stability of the southern earthen embankment between CCW ponds 3 and 4 and Black Dog Lake appears to be Fair based on the following facts:

- No observed or documented obvious signs of erosion damage, cracks, sloughs or release of materials reported from inspections;

# DRAFT

- Outlet works are clear and appear to be in good working condition;
- The embankment has been in-place since the mid 1950's with no evidence of documented failures;
- The Plant has an adequate inspection program though their Plant Management Directive, Storm Water Pollution Prevention Plan, which requires inspections of the pond facilities; and,
- Since 1950, at least eleven major floods have inundated the embankment, which resulted in no documented failures of the embankment.

# DRAFT

## 8.0 ADEQUACY OF MAINTENANCE AND METHODS OF OPERATION

### 8.1 OPERATING PROCEDURES

Approximately 5% of the total CCW is sluiced into settling Pond 3, which flows into settling Pond 2, which flows into settling Pond 1, which flows into settling Pond 4 before being discharged from Pond 4 into Black Dog Lake. The effluent leaving Pond 4 is approximately 5 MGD every 1-2 months and is reported as intermittent. The remaining 95% of CCW is hauled offsite for permitted disposal.

According to the Xcel Energy Upper Midwest Resource Plan (2011-2025) that was filed by the Operator with the Minnesota Public Utilities Commission, the two remaining coal burning units (Black Dog 3 and 4) are planned to be retired in 2013.

### 8.2 MAINTENANCE OF THE DAM AND PROJECT FACILITIES

The Plant has adopted a Storm Water Pollution Prevention Plan as a Plant Management Directive, which requires site inspections every two months during non-frozen conditions including the four CCW ponds. One of the inspections is performed while storm water is discharging. Inspections are performed to determine the maintenance requirements for the ponds and other structural and non-structural onsite storm water management practices. The Operator also noted that the protective flood control berm is inspected monthly by Plant staff. Minnesota DNR has verbally confirmed to the Operator that the embankments associated with the four CCW ponds do not fall under their review.

### 8.3 ASSESSMENT OF MAINTENANCE AND METHODS OF OPERATIONS

#### 8.3.1 Adequacy of Operating Procedures

Based on documentation provided by the Operator, discussions with the Operator, and the one-day field assessment performed by Dewberry, it appears that operating procedures for the four CCW ponds are adequate.

#### 8.3.2 Adequacy of Maintenance

Based upon visual observations as well as the maintenance procedures in place per the Plant's Storm Water Pollution Prevention Plan, the four CCW ponds, appear to be adequately maintained. However, further consideration to maintaining vegetation and tree growth along the outside slope of the embankment between Black Dog Lake and Ponds 3 and 4 needs to be addressed so that full inspections of the embankment slope can occur in the future.

# DRAFT

## 9.0 ADEQUACY OF SURVEILLANCE AND MONITORING PROGRAM

### 9.1 SURVEILLANCE PROCEDURES

See Section 8.2.

### 9.2 INSTRUMENTATION MONITORING

The Black Dog Power Station CCW ponds do not have an instrumentation monitoring system.

### 9.3 ASSESSMENT OF SURVEILLANCE AND MONITORING PROGRAM

#### 9.3.1 Adequacy of Inspection Program

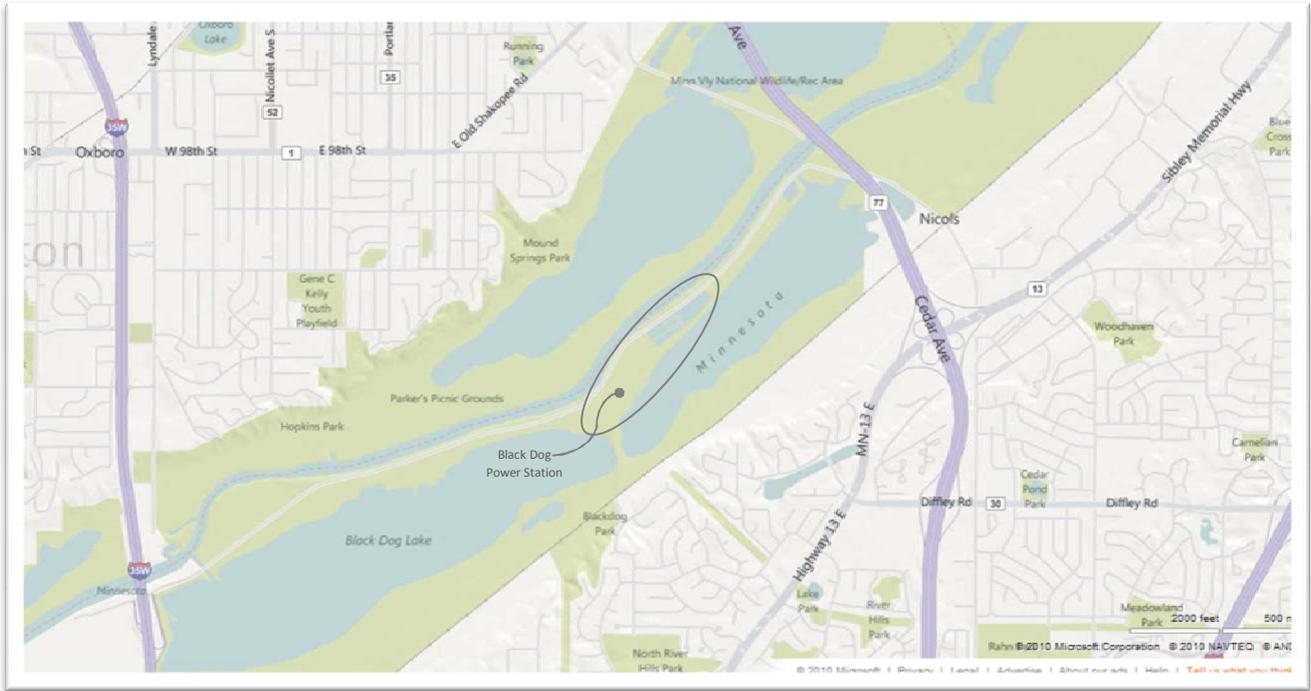
Based on the data reviewed by Dewberry, including observations during the site visit, the inspection program appears to be adequate.

#### 9.3.2 Adequacy of Instrumentation Monitoring Program

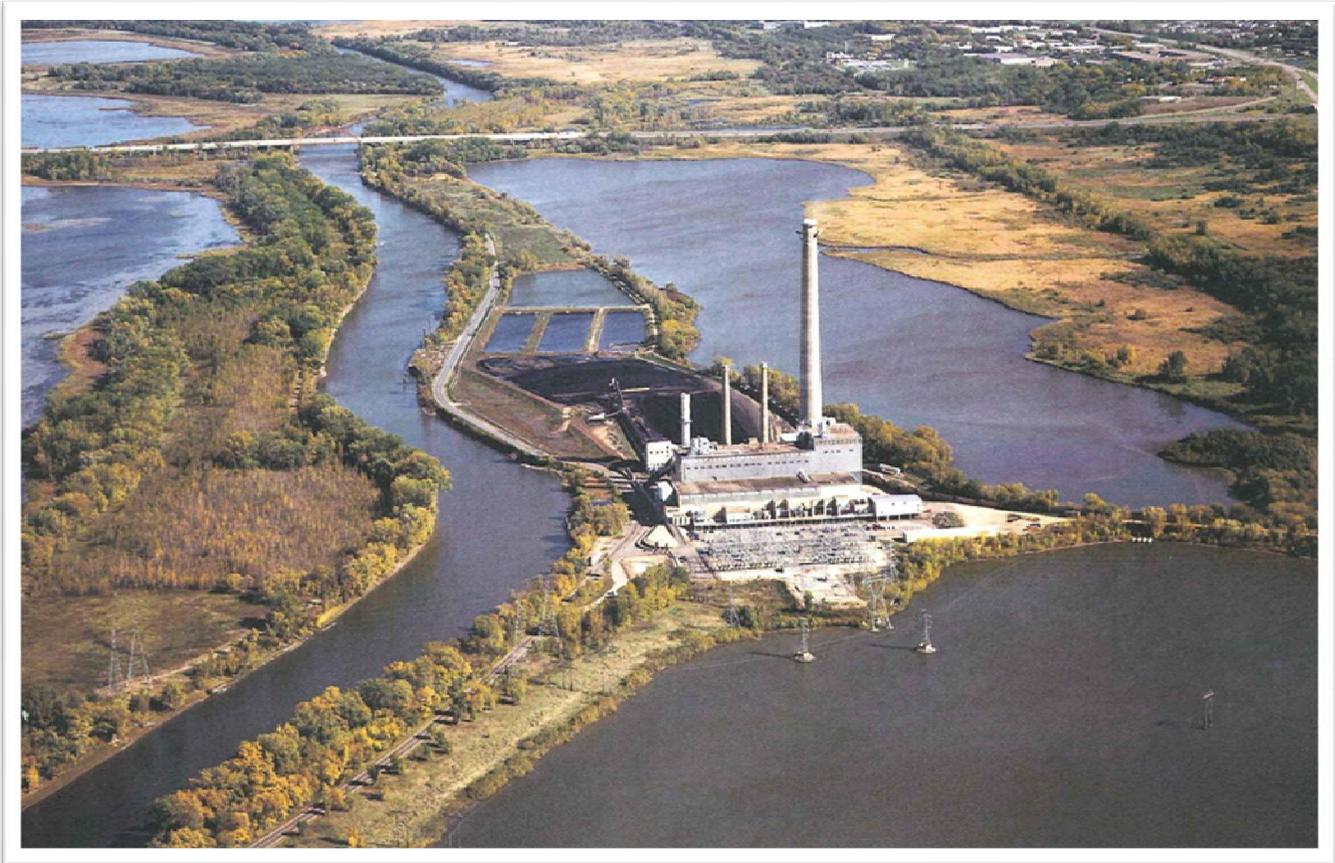
No instrumentation is present at the four CCW ponds

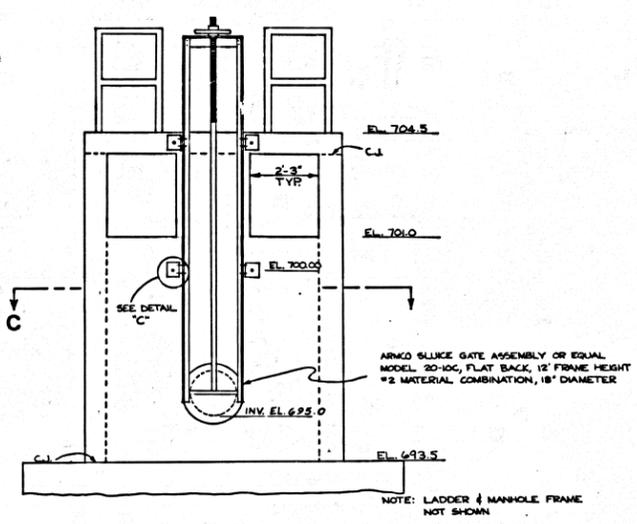
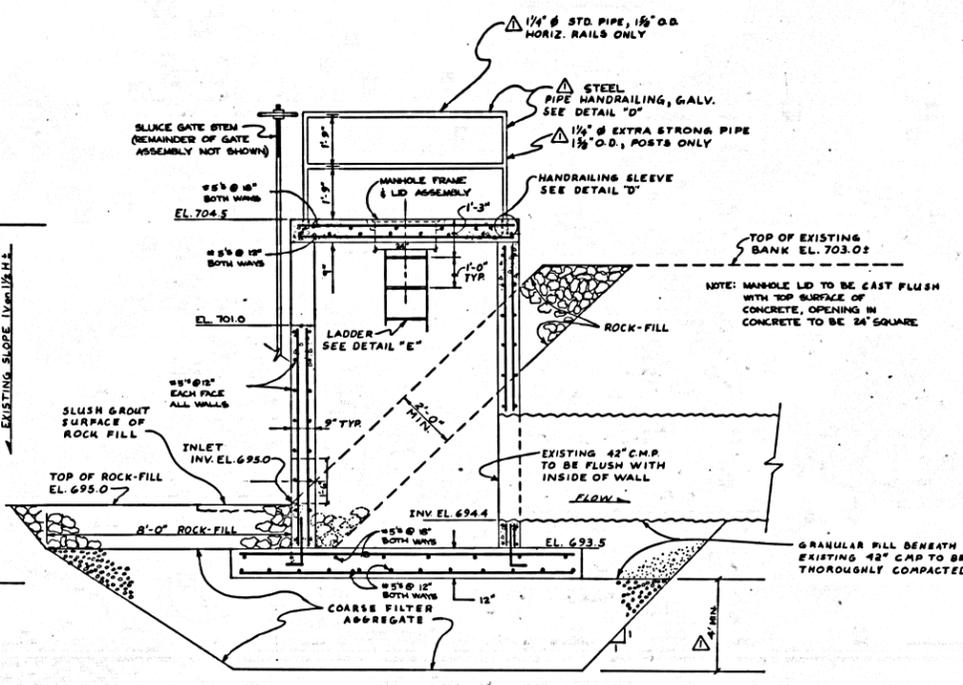
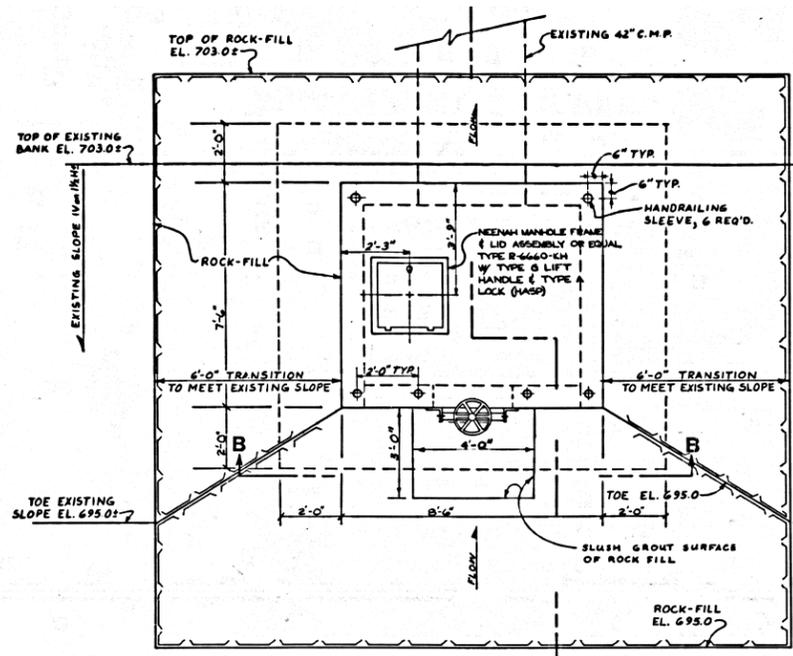
# APPENDIX A Documents

Document 1: Site Map

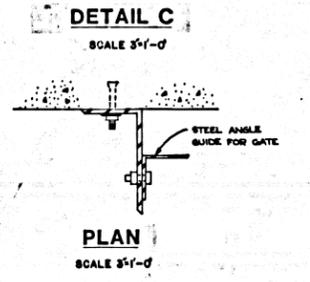
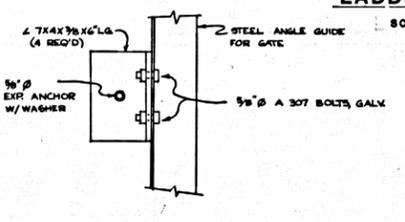
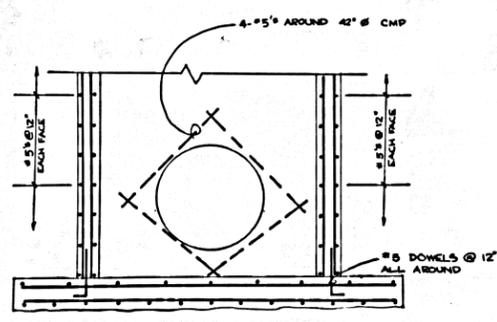
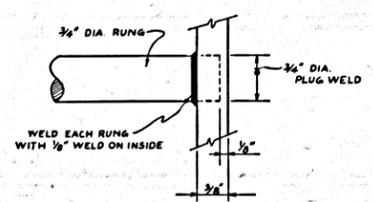
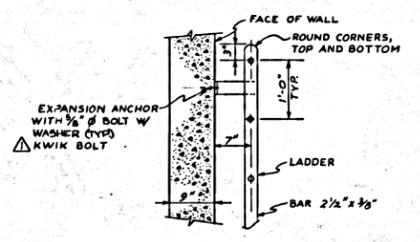
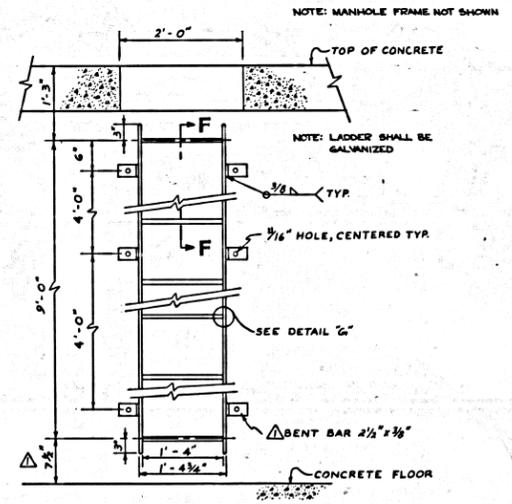
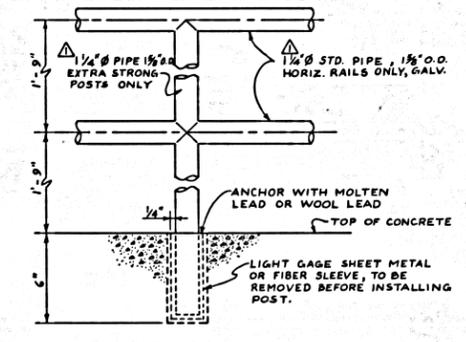
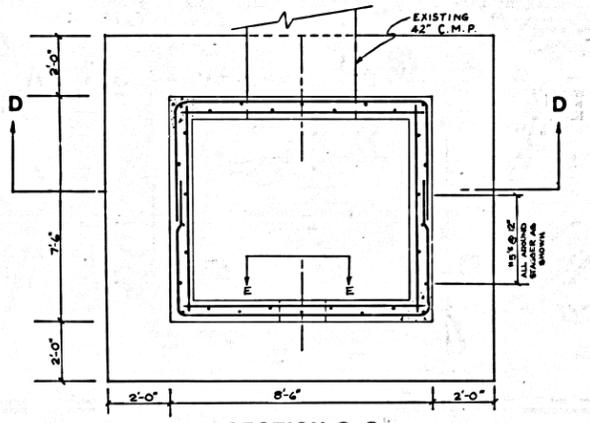


Document 2: Aerial Photograph





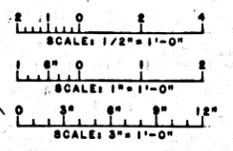
NOTE:  
UPON EXCAVATION OF EXISTING 42" C.M.P. A CONCRETE HEADWALL STRUCTURE WAS ENCOUNTERED. THIS REQ'D THAT THE NEW OUTLET STRUCTURE BE MOVED 3' PONDWARD. A 3' LONG EXTENSION PIECE OF 42" C.M.P. AND A COLLAR WERE REQ'D FOR THIS CHANGE. THE EXISTING HEADWALL STRUCTURE WAS LEFT IN PLACE.



- NOTES:
- SLUICE GATE SHALL BE ATTACHED AS PER MANUFACTURER'S RECOMMENDATIONS.
  - ALL STEEL TO BE A36 EXCEPT AS NOTED.
  - GALVANIZING SHALL BE AS PER ASTM A123-78.
  - TOP SLAB MAY BE PRECAST AND PLACED UPON A MORTAR BEDDING.
  - EXPANSION ANCHORS SHALL MEET FEDERAL SPEC. FF-S-323 GROUP II TYPE A CLASS 1, GROUP III TYPE I OR GROUP VIII TYPE I ANCHORS SHALL BE GALVANIZED.
  - EXISTING TIMBER OUTLET STRUCTURE TO BE REMOVED.
- REFERENCES:
- GENERAL CONCRETE NOTES, . . . SHEET 7
  - LOCATION . . . . . SHEET 1

- REFERENCES:
- NF-9198 PLAN
  - NF-9199 PLAN / PROFILE
  - NF-9192 TYPICAL SECTIONS
  - NF-9191 MANHOLES
  - NF-9192 SLUICE GATE BOX DETAILS
  - NF-9193 BOILER ROOM DETAILS AT NEW PUMPS
  - NF-9194 INLET STRUCTURE-POND #2
- △ ADDED AS BUILT DATA

△ AS BUILT



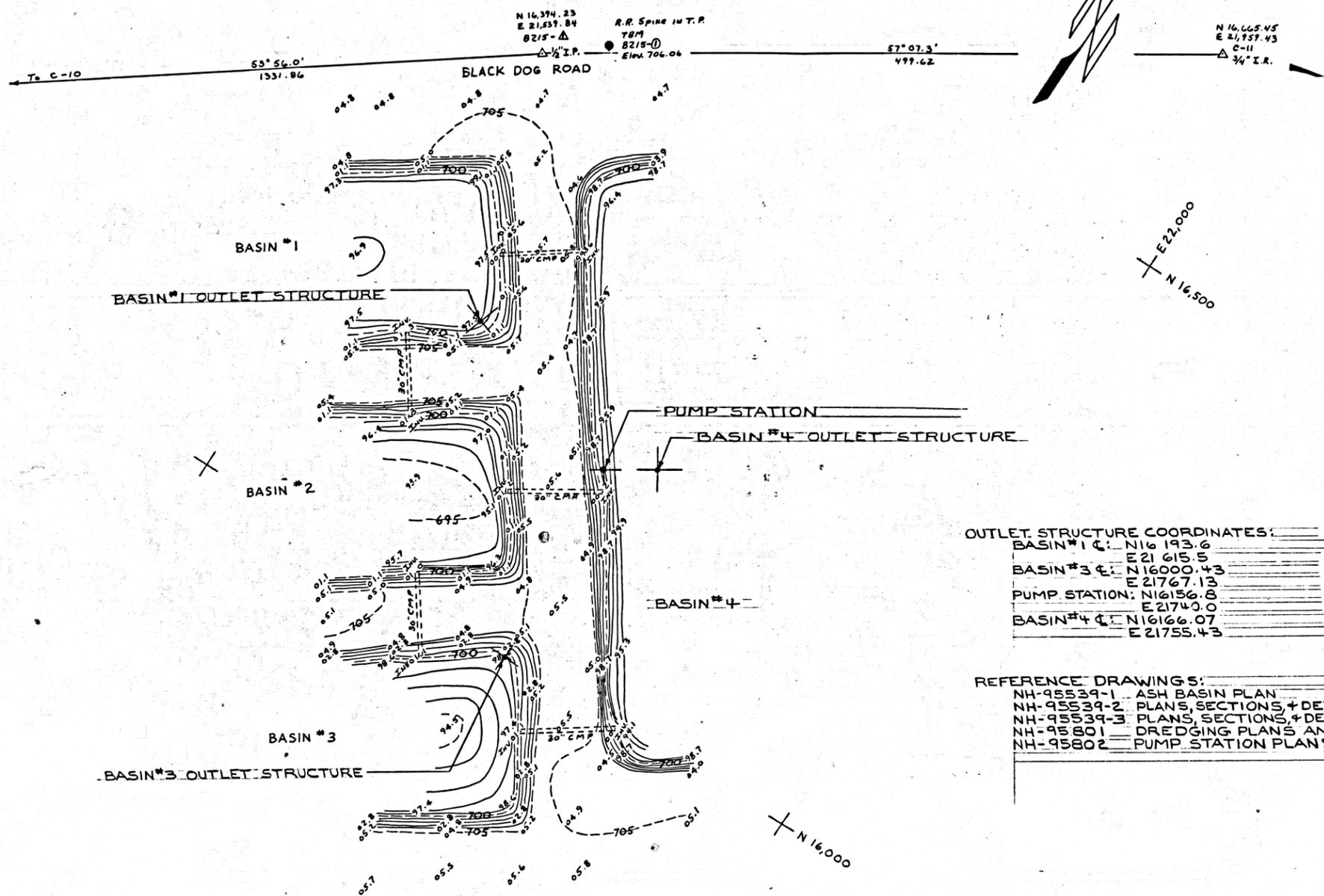
I CERTIFY THAT THIS DRAWING WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*John J. Rantzen*  
 JOHN J. RANTZEN REG. NO. 13574  
 6/5/80  
 DATE **indeco**

|                         |                                     |
|-------------------------|-------------------------------------|
| SHEET 8 OF 8            |                                     |
| DATE: 6/5/80            | SCALE: AS SHOWN (SEE 2/2/80 6.8)    |
| CHECKED BY: [Signature] | PROJECT: BLACK DOG GENERATING PLANT |
| DRAWN BY: [Signature]   | ASH POND ZERO DISCHARGE PROJECT     |
| APP'D & CERT.:          | OUTLET STRUCTURE-POND #4            |
| DATE: 6/5/80            | NORTHERN STATES POWER COMPANY       |
| DATE: [Signature]       | ENGINEERING DEPARTMENT              |
| DATE: [Signature]       | MINNEAPOLIS                         |
| DATE: [Signature]       | NF-91923                            |

US EPA ARCHIVE DOCUMENT

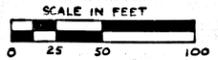
NF-91923



OUTLET STRUCTURE COORDINATES:

|               |            |
|---------------|------------|
| BASIN #1 C:   | N 16 193.6 |
|               | E 21 615.5 |
| BASIN #3 C:   | N 16000.43 |
|               | E 21767.13 |
| PUMP STATION: | N 16156.8  |
|               | E 21740.0  |
| BASIN #4 C:   | N 16166.07 |
|               | E 21755.43 |

- REFERENCE DRAWINGS:
- NH-95539-1 ASH BASIN PLAN
  - NH-95539-2 PLANS, SECTIONS, & DETAILS
  - NH-95539-3 PLANS, SECTIONS, & DETAILS
  - NH-95801 DREDGING PLANS AND SECTIONS
  - NH-95802 PUMP STATION PLANS, SEC. & DETAILS.



NOTE  
 HORIZONTAL AND VERTICAL CONTROL ARE IN BLACK DOG PLANT DATUM.  
 SURVEY TAKEN 5/21/82 BY JOHN W. GORMAN, INC.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota  
 Date 8-17-82 Reg. No. 19977  
James B. Kuebler

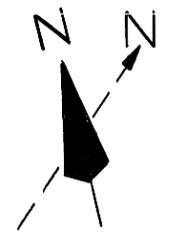
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|--|--------------|---------------------------------------|------|-----|-----|------|--|
| DWN. E.E.C.                                  | DATE 5/24/82 | SIGNIFICANT NUMBER                    | 8230 | 950 | 100 | 6000 | 6230                                     |
| CHECKED JLK                                  |              | GROUP                                 | 1    | 2   | 3   | 4    | 5  |
| PROJ. NO. E-80BK01                           |              | BLACK DOG, GEN. PLT. BURSVILLE, MINN. |      |     |     |      |  |
| APP'D. & CERT. <u>J. Kuebler</u>             |              | ASH POND ZERO DISCHARGE               |      |     |     |      |  |
| FILMED 9-3-82                                |              | CONTOURS AND CONTROL POINTS           |      |     |     |      |  |
| NORTHERN STATES POWER COMPANY<br>MINNEAPOLIS |              |                                       |      |     |     |      | SCALE AS SHOWN   REV.<br><b>NH-95803</b> |

NH-95803

REVISIONS

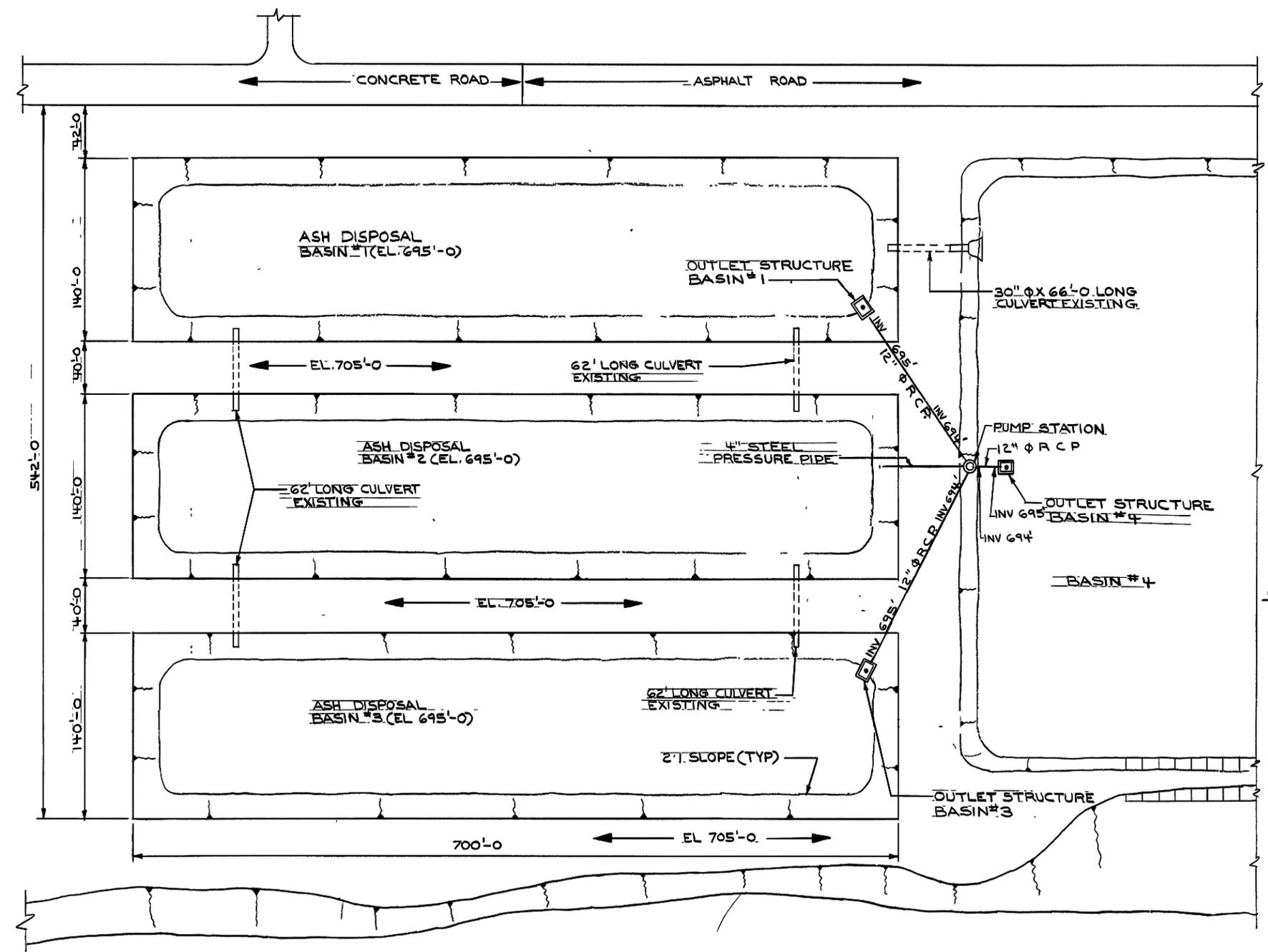
|   |   |
|---|---|
| 1 | AS BUILT - ASH POND #4 CULVERT REPAIRS AS PER DET #808121 DWG: K 8-29-88 CHK: JD 5 9-16-88 PROJ: 88D030 FILMED: 12-7-88             |
| 2 | AS BUILT - REMOVED CULVERTS FROM POND 2 & 3 (2002 PROJECT) PER DWS B05-10-048 DWG: DC 6/16/10 CHK: PARIS PROJECT: FILMED: JULY 2010 |

Document 5: Ash Pond Zero Discharge Ash Basin Plan, NH-95539-1



GENERAL NOTES

1. ALL STEEL TO BE A36 EXCEPT AS NOTED.
2. REINFORCING SHALL CONFORM TO ASTM A615 GR60.
3. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.
4. REINFORCING BARS SHALL BE PLACED TO PROVIDE 3 INCHES OF COVER WHERE CONCRETE IS PLACED AGAINST THE GROUND AND 2 INCHES OF COVER ELSEWHERE UNLESS OTHERWISE SHOWN, OR NOTED.
5. SPLICES IN REINFORCING BARS SHALL BE LAPPED A MINIMUM OF 40 DIAMETERS OF THE SMALLER BAR
6. GALVANIZING SHALL BE AS PER ASTM A123 7B
7. CONCRETE COMPRESSIVE STRENGTH 4000 PSI
8. CHAMFER EXPOSED EDGES 1 INCH UNLESS OTHERWISE SHOWN
9. SLUICE GATE SHALL BE ATTACHED AS PER MANUFACTURER'S RECOMMENDATIONS.



OUTLET STRUCTURE WORKING PT. COORDINATES

|              |           |           |
|--------------|-----------|-----------|
| BASIN #1 C   | N16193.6  | E21615.5  |
| BASIN #3 C   | N16000.43 | E21767.13 |
| PUMP STATION | N16156.8  | E21740.0  |
| BASIN #4 C   | N16166.07 | E21755.43 |

SEE SH. NH-95803 FOR COORDINATE LOCATIONS.

- REFERENCE DRAWINGS:
- NH-95539-2 PLANS, SEC + DTL'S
  - NH-95539-3 PLANS, SEC + DTL'S
  - NH-95801 DREDGING PLANS, SEC.
  - NH-95802 PUMP STATION PLANS, SEC + DTL'S
  - NH-95803 CONTOURS AND CONTROL POINTS.

NOTE:  
 HORIZONTAL AND VERTICAL CONTROL ARE IN BLACK DOG PLANT DATUM  
 FOR DETAILS ON BASIN #4 CULVERT ENDS, SEE NH-95801.

ASH BASIN PLAN  
 SCALE: 1=50'-0"

US EPA ARCHIVE DOCUMENT

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.  
 Date: 8-17-82 Reg No. 14929  
 [Signature]

|             |             |         |
|-------------|-------------|---------|
| DWN         | DATE        | 6-20-82 |
| CHECKED     | JLK         |         |
| PROJECT NO. | E-808K01    |         |
| APPROVED    | [Signature] |         |
| DRAWN       | [Signature] |         |

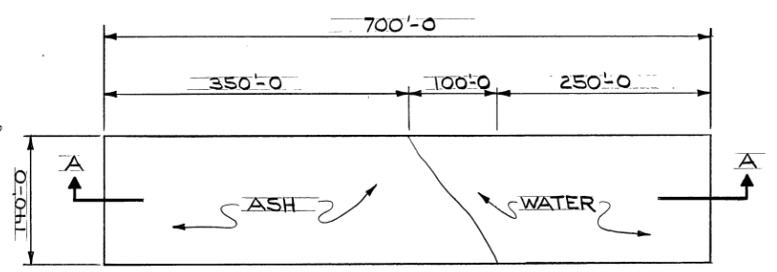
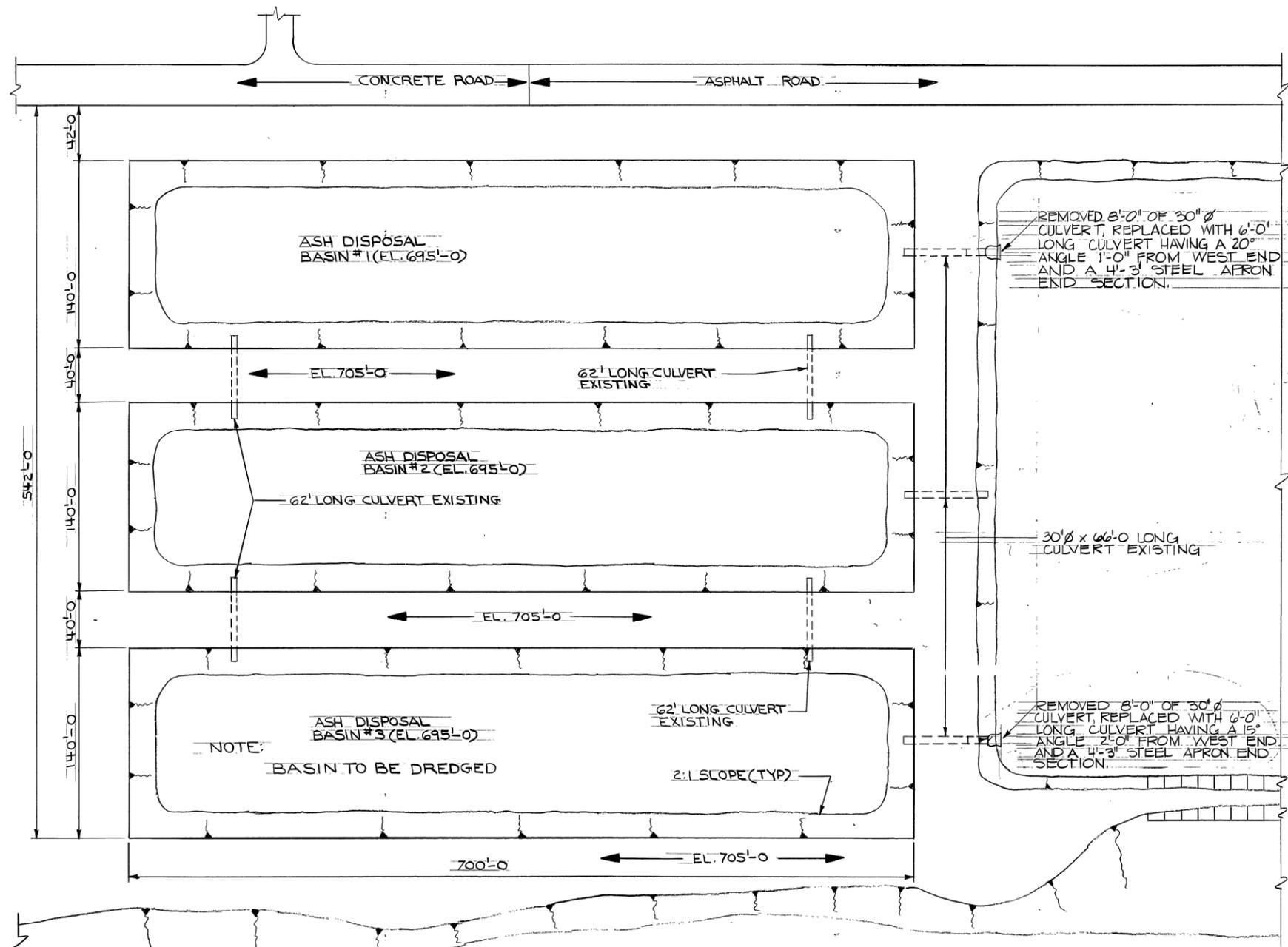
|  |                   |
|--|-------------------|
| This map / document is a tool to assist employees in the performance of their jobs. Your personal safety is provided for by using safety practices, procedures and equipment as described in safety training programs and manuals. |                   |
| SIGNIFICANT NO.  | 8230 950 100 5200 |
| GROUP  | 1 2 3 4 5 6 8     |
| ASH POND<br>ZERO DISCHARGE ASH BASIN<br>PLAN   |                   |
| SCALE NOTED  | REV B             |
| BLACK DOG GENERATING PLANT<br>BURNSVILLE, MINNESOTA  |                   |
| NH-95539-1   |                   |



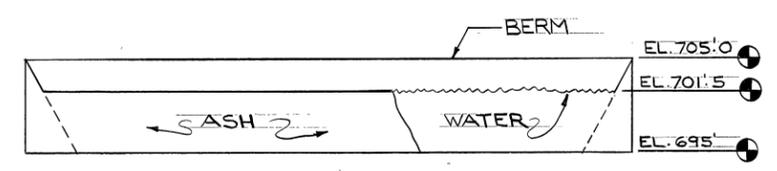
Document 6: Ash Pond Zero Discharge Ash Basin - Dredging Plans and Sections, NH-95801



| REVISIONS |   |
|-----------|---|
| Δ         | AS BUILT ASH POND #4 CULVERT REPAIRS AS PER DRR # BD-88-121 |
|           | DWN: K.K. 8-29-88   |
|           | CHK'D: JDS 9-16-88  |
|           | PROJ#: 88D030   |
|           | FILMED: 11-11-88  |



PLAN ASH BASIN #3 (EXISTING CONDITIONS)  
SCALE: 1"=100'-0"



SECTION A-A  
VERT. SCALE: 1"=100'-0"  
HORZ. SCALE: 1"=10'-0"  
NOTE: DIMENSIONS SHOWN ARE APPROXIMATE

ASH BASIN PLAN  
SCALE: 1"=50'-0"

- REFERENCE DRAWINGS:
- NH-95539-1 ASH BASIN PLAN
  - NH-95539-2 PLANS, SECTIONS, & DETAILS
  - NH-95539-3 PLANS, SECTIONS, & DETAILS
  - NH-95802 PUMP STATION PLANS, SEC. & DTLS.
  - NH-95803 CONTOURS AND CONTROL POINTS.

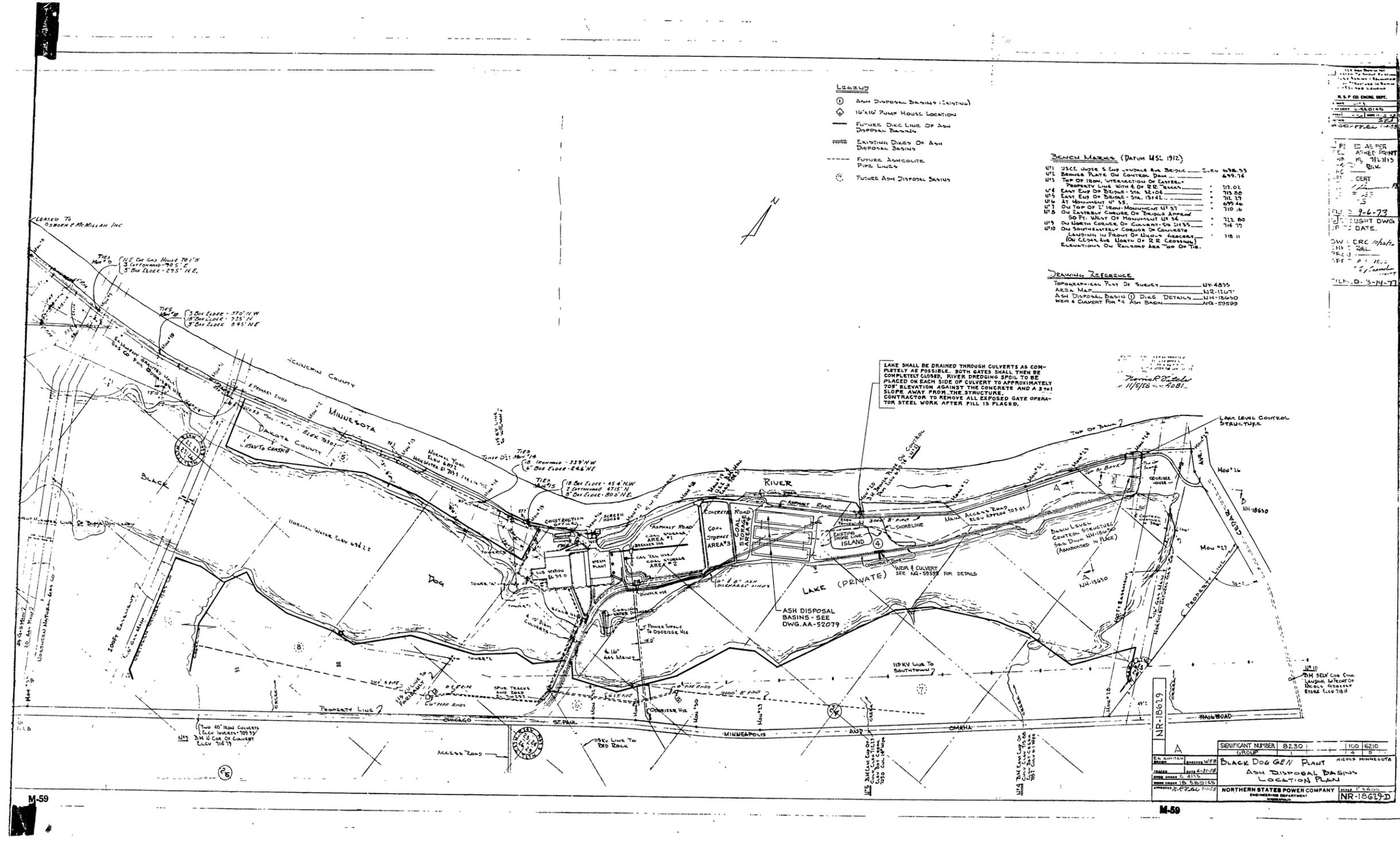
|          |         |      |
|----------|---------|------|
| NO. REV. | INITIAL | DATE |
| REVISOR  |         |      |
| FOREMAN  |         |      |



|  |               |   |      |                      |      |
|--|---------------|---|------|----------------------|------|
| DWN: 2/10/82   | DATE: 8/14/82 | SIGNIFICANT NUMBER  | 8230 | 100                  | 6250 |
| CHECKED: J.L.K.  |               | GROUP   | 1    | 2                    | 3    |
| APP'D. & CERT.:  |               | BLACK DOG GEN. PLT. BURNSVILLE, MINN.                         |      |                      |      |
| APP'D. & CERT. <i>J. Knight</i><br>State of Minnesota    |               | ASH POND ZERO DISCHARGE ASH BASIN DREDGING PLANS AND SECTIONS |      |                      |      |
| Date: 8-17-82 Reg. No. 14979<br><i>James H. Pouchler</i> |               | NORTHERN STATES POWER COMPANY<br>MINNEAPOLIS                  |      | SCALE NOTED   REV. A |      |
|  |               | NH-95801  |      |                      |      |

US EPA ARCHIVE DOCUMENT

NH-95801





Date: 4/8/2008

To: Jon Lahti; Dan Watts; Barry Peterson; Chris Keefe; Tom Leverentz

From: Jim Bodensteiner

Reference: NPDES Permit #MN0000876  
Final Permit  
Conditions, Requirements, and Submittals Reminder

Enclosed is the reissued NPDES Permit (#MN0000876) for the Black Dog Generating Plant. Please review and have other appropriate personnel review the permit thoroughly to ensure compliance with all conditions of the permit. The permit incorporates language and conditions for discharges (and the intake) associated with Clean Water Act Section 316 past and recent studies. The permit incorporates languages and conditions associated with our requested cooling lake thermal discharge springtime and flood overflow allowances. The MPCA addressed major comments/items identified in our comment letters in February and March. Some significant changes from the plant's former permit include the following:

Incorporation of the thermal discharge energy emergency clause;

Significant relief of springtime constraint/derates with a differential temperature allowable up to 15 F when river flows are above 8000 cfs in March-May. Please advise ES when such conditions arise and we will provide a courtesy notice for the first implementation of the higher differential. You may want to document avoided derates that had occurred about annually;

Significantly reducing ash pond area monitoring with the potential elimination of seep locations and the reduction in the frequency to once per year;

A starting point for a minimum cooling lake outlet flow threshold at 5 MG, but only in March and April;

Incorporation of flood overflow language utilizing the most current elevation triggers provided by the plant;

Incorporation of both the general industrial stormwater permit and the SDS dredge operation permit into the one site NPDES permit;

A mercury minimization plan tailored in accordance with our comments/concerns;

A phosphorus management plan tailored in accordance with our comments/concerns. Phosphorus monitoring is to be conducted at least monthly on SD-005 (ash pond) discharges. Therefore, please plan accordingly with Chestnut lab for sampling and analyses for the next pond batch discharge.

Requirement to develop conceptual plans for addressing impingement mortality/entrainment, with an extension to file 24-months post-issuance, i.e. March 24, 2010.

US EPA ARCHIVE DOCUMENT

Besides monthly DMRs (discharge monitoring reports) due to ES by the 18<sup>th</sup> of each month, below is a synopsis of other report, data or plan submittal deadlines:

#### Limits and Monitoring Matrix

Continue present monitor including mercury (plant, lab& ES)

Add phosphorus to SD005 monitoring---presently, with 1st pond release and then monthly when releases are conducted. (plant&lab)

#### Chapter 1: Parts 4.3 and 4.6

##### Ash Pond Area Water Quality Monitoring

Annual Report-----February 15 (ES)

Detailed Analysis of Monitoring to Date-----June 24, 2008 (ES)

#### Chapter 3: Part 6 and Chapter 9 Part 1.48

##### Application for Permit Reissuance

Priority pollutant monitoring-----between September 24, 2011 and June 24, 2012 (ES&lab)

File application for renewal----- September 24, 2012 (plant&ES)

#### Chapter 4: Part 2.10 (or part 6)

##### Energy Emergency

Biological Monitoring Plan-----April 23, 2008 (ES)

#### Chapter 4: Part 4.8

##### 316(b) Compliance

Impingement mortality and entrainment reduction plan-----March 24, 2008 (plant&ES)

#### Chapter 5

##### Storm Water Pollution Prevention Plan (SWPPP)

Initiate bimonthly inspections (non-frozen conditions): April, June, August, October (plant)

Update and submit most current version of industrial SWPPP-----September 19, 2008 (plant)

Start and maintain log of dust suppressant usage that may runoff (Part 8)-prior to use (plant)

Annual Report (including Chemical Dust Suppressant Report-----March 31 (plant)

#### Chapter 6

##### Dredged Material Management

Characterize sediment & file results with MPCA-prior to dredge project start (plant,ES&lab)

Determine temporary storage and re-use or disposal options, secure necessary reviews for approval----prior to dredge project start (plant&ES)

Site Inspections---prior to initial placement then monthly and within 24 hours of rain events

Annual Report (even if no projects during year)--complete and file with ES by 01/10 each year, starting 01/10/09 (plant)

#### Chapter 7

##### Mercury Pollutant Minimization Plan

Continue quarterly monitoring of background river and pond effluent (lab and ES)

Minimization plan with past/future reduction measures----March 24, 2010 (plant, lab&ES)

Implement plan's future reduction measures-----by March 24, 2013 (plant)

Chapter 8

Phosphorus Management Plan

Implement SD005 phosphorus monitoring----by next pond discharge (plant & lab)

Management plan with reduction goals-----September 24, 2012 (plant & lab)

Implement plan's goals-----by September 24, 2017 (plant)

Chapter 9

Changes to the Facility or Permit

Request for review for approval (conditional approval or denial) of an increase in an additive or a new chemical/additive-----at least 60 days prior to planned increase or use (plant)

Thanks for your work on this permit, and thanks for your attention to permit compliance matters.

A meeting to discuss compliance items may be helpful. Please advise ES on a workable date/time.

Cc: ES Records Center  
Kim Mechelke (w/o att)  
Tom Smith (w/o att)  
Dan Orr  
Chuck Donkers  
Steve Davis  
Pat Flowers (w/o att)





# Minnesota Pollution Control Agency

520 Lafayette Road North | St. Paul, MN 55155-4194 | 651-296-6300 | 800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us

March 24, 2008

**CERTIFIED MAIL NO. 7007 3020 0000 0961 2638**  
**RETURN RECEIPT REQUESTED**

Ms. Pamela K. Graika  
Xcel Energy  
414 Nicollet Mall  
Minneapolis, MN 55401-1993

RE: Final Reissued NPDES/SDS  
Permit No. MN0000876  
Xcel - Black Dog Generating Plant  
T27N, R20W, Section 24, Burnsville, Dakota County, Minnesota

Dear Ms. Graika:

Enclosed is the final National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) permit for your facility. This permit supersedes an earlier NPDES/SDS permit that was issued on February 1, 2003. All comments submitted in writing during the public notice comment period have been considered in the formulation of the terms and conditions of the permit.

It is the responsibility of the Permittee to maintain compliance with all of the terms and conditions of this permit. Please carefully review the entire permit. Special attention to be paid to the following:

#### Limits and Monitoring Requirements

You are required to monitor the level of phosphorus in boiler blowdown waste stream from the facility via SD005 for a period of at least two years. The MPCA strongly encourages you to identify and eliminate/reduce sources of phosphorus to, and optimize phosphorus management within, your facility.

#### Chapter 4 Steam Electric

The draft permit includes new requirements related to thermal discharges during periods of energy emergencies. The draft permit also includes additional requirements associated with Section 316(b) of the Clean Water Act. Per section 4.7 of this chapter, once the MPCA staff have reviewed the January 23, 2008, Impingement and Entrainment Characterization Report, the permit may be reopened to include a compliance schedule consistent with Section 316(b) of the Clean Water Act and the best professional judgment of the MPCA staff.

#### Chapter 5 Stormwater Management

Effective with the issuance of this permit, Xcel Energy general permit coverage for storm water discharges with an industrial activity for the Black Dog Generating Plant, individually identified as A00007481 is hereby terminated.

#### Chapter 6 Dredge Material Management

Effective with the issuance of this permit, Xcel Energy permit coverage for dredge material management for the Black Dog Generating Plant, individually identified as MN0053520 is hereby terminated.

Ms. Pamela K Graika

Page 2

Chapter 7: Mercury Management Plan

This draft permit includes a requirement to prepare and submit a Mercury Pollutant Minimization Plan (MMP). This requirement was added in response to the U.S. Environmental Protection Agency's approval of the Minnesota state-wide Mercury Total Maximum Daily Load (TMDL) plan. Guidance for completing the MMP is available on the MPCA internet site at

<http://www.pca.state.mn.us/water/wastewater.html#permits>. More information on the TMDL can be found on the MPCA internet site at <http://www.pca.state.mn.us/water/tmdl/tmdl-mercuryplan.html>.

Chapter 8: Phosphorus Management Plan

You are required to prepare a Phosphorus Management Plan (PMP) and submit it to the MPCA within 180 days of permit expiration. While the PMP does not require specific reductions at this time, the MPCA strongly encourages you to identify and eliminate/reduce sources of phosphorus to, and improve phosphorus management within, your facility. Please review these permit requirements carefully.

Guidance for considering phosphorus in your wastewater treatment system and preparing a PMP has been included with this permit. You can also find information on the web at:

<http://www.pca.state.mn.us/water/phosphorus.html> or <http://mntap.umn.edu/potw/pmp/htm>.

Questions about your permit should be directed to the appropriate staff contacts listed on the first page of your permit.

Sincerely,



Jeff Stollenwerk  
Supervisor, Water Quality Permits Unit  
Duluth Office  
Industrial Division

JS/KK:img

Enclosures

cc: Mr. Thomas A. Smith, Xcel Energy, Minneapolis  
Mr. James Bodensteiner, Xcel Energy, Burnsville  
George Azevedo, US EPA Region 5, Chicago



STATE OF MINNESOTA  
**Minnesota Pollution Control Agency**

**Industrial Division**

**National Pollutant Discharge Elimination System (NPDES)/  
State Disposal System (SDS) Permit MN0000876**

**PERMITTEE:** Northern States Power Co dba Xcel Energy  
**FACILITY NAME:** Black Dog Generating Plant  
**RECEIVING WATER:** Minnesota River (Class 2C,3B,3C,4A,4B,5,6 water)

**CITY OR TOWNSHIP:** Burnsville                      **COUNTY:** Dakota  
**ISSUANCE DATE:** March 24, 2008                      **EXPIRATION DATE:** February 28, 2013

The state of Minnesota, on behalf of its citizens through the Minnesota Pollution Control Agency (MPCA), authorizes the Permittee to operate a disposal system at the facility named above and to discharge from this facility to the receiving water named above, in accordance with the requirements of this permit.

The goal of this permit is to protect water quality in accordance with Minnesota and US statutes and rules, including Minn. Stat. chs. 115 and 116, Minn. R. chs. 7001, 7050, and the US Clean Water Act.

This permit is effective on the issuance date identified above, and supersedes the previous permit that was issued for this facility on February 1, 2003. This permit expires at midnight on the expiration date identified above.

Signature:   
Michael (Mike) Tibbetts, Manager                      for The Minnesota Pollution Control Agency  
Land and Water Quality Permits Section  
Industrial Division

**Submit DMRs to:**

Attention: Discharge Monitoring Reports  
Minnesota Pollution Control Agency  
520 Lafayette Rd N  
St Paul, MN 55155-4194

**Submit Other WQ Reports to:**

Attention: WQ Submittals Center  
Minnesota Pollution Control Agency  
520 Lafayette Rd N  
St Paul, MN 55155-4194

**Questions on this permit?**

- For DMR and other permit reporting issues, contact:  
Linda Brooks, 651-296-7239.
- For specific permit requirements or permit compliance status, contact:  
Scot Sokola, 651-297-8479.
- General permit or NPDES program questions, contact:  
MPCA Customer Assistance Center,  
651-297-2274 or 800-646-6247.

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### Required Submittals

|   |  |
|---|--|
| Plan for Monitoring during Energy Emergencies | within 30 days of permit issuance      |
| Stormwater Pollution Prevention Plan          | within 180 days of permit issuance     |
| Stormwater Annual Report                      | March 31                               |
| Chemical Dust Suppressant Report              | March 31*                              |
| Dredge Annual Report                          | February 1                             |
| Ash Pond Monitoring Annual Report             | February 15**                          |
| Detailed Analysis of Ash Pond Monitoring      | within three months of permit issuance |
| Conceptual Design Plan to Reduce IM/E         | within 24 months of permit issuance    |
| Mercury Minimization Plan                     | within 24 months of permit issuance    |
| Phosphorus Management Plan                    | 180 days prior to permit expiration    |
| DMR Report                                    | 21 days after the end of each month    |
| Permit Application                            | 180 days prior to permit expiration    |

\* The Chemical Dust Suppressant Report is due as part of the Stormwater Annual Report on March 31 of calendar year following the application of a chemical dust suppressant

\*\* The requirement to submit the Ash Pond Monitoring Annual Report may change upon MPCA review and approval of the Detailed Analysis of Ash Pond Monitoring

## Facility Description

---

The Black Dog Generating Plant (Facility) is located at Sections 23 and 24, Township 27 North, Range 24 West, Burnsville, Dakota County, Minnesota.

The Northern States Power Company (doing business as Xcel Energy) Black Dog Generating Plant is a combined coal and natural gas fired steam electric generating plant with a generating capacity of 538 megawatts (MW). The original coal-fired Unit 1 boiler/turbine and Unit 2 boiler installed in the 1950s were replaced with a natural gas combined-cycle unit (Unit 5), which includes a natural gas-fired turbine generator combined with a heat recovery steam generator. Exhaust heat from Unit 5 powers the Unit 2 steam turbine. The re-powering project was completed in June 2002. Units 3 and 4 are dual-fuel boilers with steam turbines that continue to utilize coal as the primary fuel. Natural gas is the backup or topping fuel used to obtain maximum generation for both units. The generating capacity of the individual units at the Facility are as follows; Unit 2 – 98 MW, Unit 3 – 108 MW, Unit 4 – 170 MW, and Unit 5 – 162 MW.

The Facility has five separate discharge locations, a cooling lake and an ash settling pond system. The cooling lake (Black Dog Lake), which lies adjacent to the Facility, is referred to as a lotic system cooling lake for thermal discharges only and is not considered a navigable water or Waters of the State. The cooling lake consists of two cooling ponds: Lyndale to the west and Cedar to the east. SD001 is the outlet from the cooling lake, Black Dog Lake, where primarily cooling waters are discharged to the Minnesota River at Lyndale Avenue. The average and maximum flows from SD001 are 325 and 650 million gallons per day (mgd), respectively. SD002 is the outlet from the opposite end of Black Dog Lake at Cedar Avenue where primarily cooling waters are discharged. Besides cooling waters, the cooling lake receives runoff from surrounding areas including Burnsville developments and adjacent roadways. The average and maximum flows from SD002 are 175 and 650 mgd, respectively. SD003 is the Facility cooling water intake screen system backwash where river water used to backwash the intake screens is discharged to the Minnesota River. Fire pump cooling and test water, eyewash drains, screenhouse floor and roof drains, screenhouse sumps, and intake deicing are discharged to the intake. The average and maximum flows from SD003 are 1 and 6 mgd, respectively. SD004 is the Facility cooling water discharge where condenser and noncontact cooling waters are discharge to the cooling lake, Black Dog Lake. Cooling waters are treated with biocides (chlorine and/or bromine) for biofouling control. The average and maximum flows from SD004 are 300 and 431 mgd, respectively. SD005 is the discharge from the Facility ash pond system. The four-cell ash pond settling system is used to treat ash transport wastewaters and other plant process waters. The last ash pond cell, pond 4 discharges to Black Dog Lake. A considerable portion of the ash sluicing wastewater generated is recycled back to the Facility and reused. The average and maximum flows from SD005 are 4.5 and 13.5 mgd, respectively. Black Dog Lake, Cooling waters are treated with biocides (chlorine and/or bromine) for biofouling control.

The Facility has a system for monitoring groundwater adjacent to the ash pond system. Groundwater monitoring has been conducted for more than 10 years at the Facility wells and “seeps” located adjacent to the ash ponds and the river. The permit requires monitoring once per year at five locations to assess effects to and as a result of the site’s groundwater and requires the Permittee to submit a revised Groundwater Monitoring Plan for the MPCA staff review.

The conversion of coal-fired Units 1 and 2 to the gas fired Unit 5 resulted in changes in the wastewater produced at the Facility. The ash wastewater formerly produced from Units 1 and 2 was eliminated along with the demineralizer regenerate wastewater produced as a result of supplying boiler water to the former Units 1 and 2. Boiler water makeup and other water needs for the new gas fired unit are supplied by a

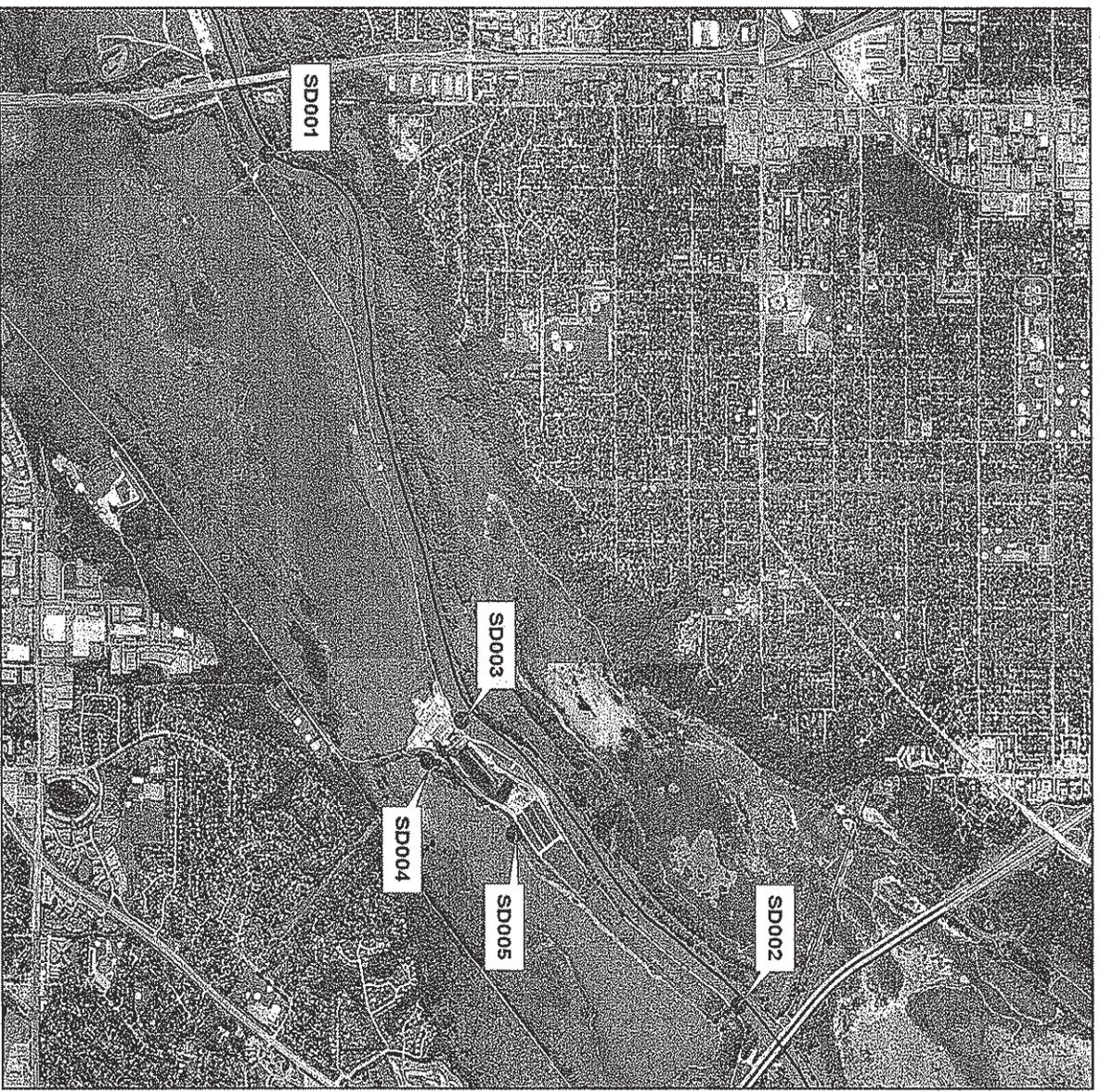
reverse osmosis (RO) system. Although the RO system has a small discharge no chemicals are added to regenerate the system. Ash wastewater and demineralizer regenerate continue to be produced by Units 3 and 4. The former cooling water flows associated with Unit 1 have been eliminated resulting in some reduction in cooling water flow discharge rates from the Facility. The cooling water flows associated with the new gas fired unit are approximately the same as the old Unit 2. The cooling water discharge temperatures are also approximately the same as the previous operations. Based on an increase in capacity factor for the natural gas-fired unit relative to the previous coal-fired units, the duration the thermal discharge from the re-powered Facility is likely longer over the course of a year. To assess the effects of the potential increase of thermal discharges on the indigenous community of shellfish, fish, and wildlife of the Minnesota River the Permittee completed a revised 316(a) demonstration during 2003 – 2006.

The Facility has been evaluated for compliance with Section 316(a) and Section (b) of the Clean Water Act.

The location of designated monitoring stations is specified on the attached "Summary of Stations and Station Locations" report.

The location of the Facility is shown on the following aerial photograph.

The January 1, 1988, calculated design **average wet weather/maximum daily** flow for this Facility is 650 mgd. In accordance with the MPCA rules regarding nondegradation for all waters, the design **average wet weather/maximum daily** flow of the Facility as of January 1, 1988, and associated mass loading are the baseline design flow and mass loading. This baseline flow and mass loading will be used to determine whether nondegradation review is required for any change in the discharge. Any change that results in an increase in design flow greater than 0.2 mgd and an increased loading of one or more pollutants, or any change in a discharge containing a toxic pollutant that results in a mass loading rate likely to increase the concentration of the toxicant in the receiving water by greater than one percent over the baseline quality, is subject to nondegradation review in accordance with Minn. R. 7050.0185.



520 Lafayette Rd. N.; St. Paul, MN 55155-4194; 651-296-6300 (voice); 651-282-5332 (TTY)  
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## Xcel - Black Dog Generating Plant Summary of Stations

### Surface Discharge Stations

| <u>Station</u> | <u>Type of Station</u>    | <u>Local Name</u>              | <u>PLS Location</u>  |
|----------------|---------------------------|--------------------------------|--|
| SD001          | Effluent To Surface Water | Cooling Lake Discharge/Lyndale | NE Quarter of the NE Quarter of Section 23, Township 27 North, Range 24 West                   |
| SD002          | Effluent To Surface Water | Cooling Lake Discharge/Cedar   | SE Quarter of the NW Quarter of Section 13, Township 27 North, Range 24 West                   |
| SD003          | Effluent To Surface Water | Intake Screen Backwash         | SE Quarter of the NE Quarter of the NE Quarter of Section 23, Township 27 North, Range 24 West |
| SD004          | Effluent To Surface Water | Condenser Cooling Discharge    | SE Quarter of the NE Quarter of the SE Quarter of Section 23, Township 27 North, Range 24 West |
| SD005          | Effluent To Surface Water | Ash Pond Effluent              | NE Quarter of the NW Quarter of Section 24, Township 27 North, Range 24 West                   |

### Surface Water Stations

| <u>Station</u> | <u>Type of Station</u>    | <u>Local Name</u>          | <u>PLS Location</u> |
|----------------|---------------------------|----------------------------|---------------------|
| SW003          | Stream/River/Ditch, Other | Minnesota River Monitoring |                     |



## Xcel - Black Dog Generating Plant Limits and Monitoring Requirements

The Permittee shall comply with the limits and monitoring requirements as specified below.

**SD 001: Cooling Lake Discharge/Lyndale**

| Parameter          | Limit        | Units | Limit Type    | Effective Period | Sample Type             | Frequency | Notes |
|--------------------|--------------|-------|---------------|------------------|-------------------------|-----------|-------|
| Flow               | Monitor Only | mgd   | Daily Average | Jan-Dec          | Estimate                | 1 x Day   |       |
| Temperature, Water | 93           | Deg F | Daily Maximum | Jan-Dec          | Measurement, Continuous | 1 x Day   | 2     |

**SD 002: Cooling Lake Discharge/Cedar**

| Parameter          | Limit        | Units | Limit Type    | Effective Period | Sample Type             | Frequency | Notes |
|--------------------|--------------|-------|---------------|------------------|-------------------------|-----------|-------|
| Flow               | Monitor Only | mgd   | Daily Average | Jan-Dec          | Estimate                | 1 x Day   |       |
| Temperature, Water | 93           | Deg F | Daily Maximum | Jan-Dec          | Measurement, Continuous | 1 x Day   | 2     |

**SD 003: Intake Screen Backwash**

| Parameter | Limit        | Units | Limit Type    | Effective Period | Sample Type | Frequency | Notes |
|-----------|--------------|-------|---------------|------------------|-------------|-----------|-------|
| Flow      | Monitor Only | mgd   | Daily Average | Jan-Dec          | Grab        | 1 x Day   | 8     |

**SD 004: Condenser Cooling Discharge**

| Parameter                                  | Limit        | Units  | Limit Type             | Effective Period | Sample Type             | Frequency | Notes |
|--|--------------|--------|------------------------|------------------|-------------------------|-----------|-------|
| Chlorination                               | 2            | hr/day | Cumulative Total       | Jan-Dec          | Measurement             | 1 x Day   |       |
| Flow                                       | Monitor Only | mgd    | Daily Maximum          | Jan-Dec          | Measurement, Continuous | 1 x Day   | 9     |
| Oxidants, Total Residual                   | 27.2         | kg/day | Daily Maximum          | Jan-Dec          | Grab                    | 1 x Day   | 3     |
| Oxidants, Total Residual                   | 0.2          | mg/L   | Daily Maximum          | Jan-Dec          | Grab                    | 1 x Day   | 3     |
| Plant Capacity Factor, Percent of Capacity | Monitor Only | %      | Calendar Month Average | Jan-Dec          | Calculation             | 1 x Month |       |

**SD 005: Ash Pond Effluent**

| Parameter   | Limit        | Units  | Limit Type             | Effective Period | Sample Type | Frequency   | Notes |
|---|--------------|--------|------------------------|------------------|-------------|-------------|-------|
| Copper, Total (as Cu)                               | 1.5          | kg/day | Daily Maximum          | Jan-Dec          | Grab        | 1 x Week    | 6     |
| Copper, Total (as Cu)                               | 1            | mg/L   | Daily Maximum          | Jan-Dec          | Grab        | 1 x Week    | 6     |
| Flow  | Monitor Only | mgd    | Daily Average          | Jan-Dec          | Estimate    | 1 x Day     | 5     |
| Iron, Total (as Fe)                                 | 1.5          | kg/day | Daily Maximum          | Jan-Dec          | Grab        | 1 x Week    | 1     |
| Iron, Total (as Fe)                                 | 1            | mg/L   | Daily Maximum          | Jan-Dec          | Grab        | 1 x Week    | 1     |
| Mercury, Total (as Hg)                              | Monitor Only | ng/L   | Daily Maximum          | Jan-Dec          | Grab        | 1 x Quarter | 10    |
| Oil & Grease, Total Recoverable (Hexane Extraction) | 510          | kg/day | Calendar Month Average | Jan-Dec          | Grab        | 1 x Week    | 5     |

## Xcel - Black Dog Generating Plant Limits and Monitoring Requirements

The Permittee shall comply with the limits and monitoring requirements as specified below.

**SD 005: Ash Pond Effluent**

| Parameter   | Limit        | Units  | Limit Type             | Effective Period | Sample Type | Frequency | Notes |
|---|--------------|--------|------------------------|------------------|-------------|-----------|-------|
| Oil & Grease, Total Recoverable (Hexane Extraction) | 10           | mg/L   | Calendar Month Average | Jan-Dec          | Grab        | 1 x Week  | 5     |
| Oil & Grease, Total Recoverable (Hexane Extraction) | 765          | kg/day | Daily Maximum          | Jan-Dec          | Grab        | 1 x Week  | 5     |
| Oil & Grease, Total Recoverable (Hexane Extraction) | 15           | mg/L   | Daily Maximum          | Jan-Dec          | Grab        | 1 x Week  | 5     |
| pH  | 9.0          | SU     | Calendar Month Maximum | Jan-Dec          | Grab        | 1 x Week  | 5     |
| pH  | 6.0          | SU     | Calendar Month Minimum | Jan-Dec          | Grab        | 1 x Week  | 5     |
| Phosphorus, Total (as P)                            | Monitor Only | mg/L   | Calendar Month Average | Jan-Dec          | Grab        | 1 x Month | 7     |
| Solids, Total Suspended (TSS)                       | 1531         | kg/day | Calendar Month Average | Jan-Dec          | Grab        | 1 x Week  | 5     |
| Solids, Total Suspended (TSS)                       | 30           | mg/L   | Calendar Month Average | Jan-Dec          | Grab        | 1 x Week  | 5     |
| Solids, Total Suspended (TSS)                       | 5103         | kg/day | Daily Maximum          | Jan-Dec          | Grab        | 1 x Week  | 5     |
| Solids, Total Suspended (TSS)                       | 100          | mg/L   | Daily Maximum          | Jan-Dec          | Grab        | 1 x Week  | 5     |

**SW 003: Minnesota River Monitoring**

| Parameter           | Limit        | Units | Limit Type   | Effective Period | Sample Type | Frequency | Notes |
|---------------------|--------------|-------|--------------|------------------|-------------|-----------|-------|
| Iron, Total (as Fe) | Monitor Only | mg/L  | Single Value | Jan-Dec          | Grab        | 1 x Week  | 4     |

**Notes:**

1 -- Limitation is for net total iron. Background iron is determined at SW003. Monitoring required only during periods of discharge. Discharge of any discrete metal cleaning type wastewaters to the ash pond system shall not occur just prior to and during a discharge from the ash pond system via SD005. Chemical metal cleaning wastes shall not be discharged to the ash pond system except as a secondary protection in the event of a failure or leak or under prior approval from the MPCA.

2 -- Maximum daily average not to exceed 93 degrees F. See Chapter 4 Section 2 for complete thermal discharge limitations.

3 -- Measured during bromination and chlorination. Total residual oxidants are expressed as chlorine.

4 -- Monitoring is required only during periods of discharge from SD005, to determine iron natural background levels.

5 -- Monitoring required only during periods of discharge.

6 -- Monitoring required only during periods of discharge. Discharge of any discrete metal cleaning type wastewaters to the ash pond system shall not occur just prior to and during a discharge from the ash pond system via SD005. Chemical metal cleaning wastes shall not be discharged to the ash pond system except as a secondary protection in the event of a failure or leak or under prior approval from the MPCA.

7 -- Monitoring required only during periods of discharge. May request a reduction or elimination of monitoring after 2 years of monitoring.

8 -- SD003 is limited solely to river water used to backwash intake screens. Large debris collected at the intake screens shall be disposed of to prevent entry to waters of the state.

9 -- SD004 is limited to condenser cooling water, low service noncontact cooling water, powerhouse roof drains, some site runoff, and at times, SD005 waters. SD005 waters are monitored separately.

10 -- See Chapter 1 Section 4.7 for mercury sampling and analytical requirements.

## **Chapter 1. Surface Discharge Stations**

### **1. Sampling Location**

1.1 Samples for Station SD001 shall be taken at a point representative of the cooling water discharge from Black Dog Lake to the Minnesota River at the discharge point designated Lyndale. Samples for Station SD002 shall be taken at a point representative of the cooling water discharge from Black Dog Lake to the Minnesota River at the discharge point designated Cedar. Samples from Station SD003 shall be taken at a point representative of the intake screen backwash prior to discharge to the Minnesota River. Samples for Station SD004 shall be taken at a point representative of the condenser cooling and non-contact cooling water prior to discharge to Black Dog Lake. Samples for Station SD005 shall be taken at a point representative of the discharge from the process wastewater settling ponds just prior to discharge to Black Dog Lake.

### **2. Surface Discharges**

- 2.1 Floating solids or visible foam shall not be discharged in other than trace amounts.
- 2.2 Oil or other substances shall not be discharged in amounts that create a visible color film.
- 2.3 The Permittee shall install and maintain outlet protection measures at the discharge stations, if necessary, to prevent erosion.

### **3. Winter Sampling Conditions**

3.1 The Permittee shall sample flows at the designated monitoring stations including when this requires removing ice to sample the water. If the station is completely frozen throughout a designated sampling month, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR) and note the ice conditions in Comments on the DMR.

### **4. Special Requirements**

#### **Black Dog Lake Water Level Management**

4.1 In conjunction with the Cooperative Water Management Plan and the U.S. Fish and Wildlife Service Black Dog Lake levels may be lowered from a normal operating level of about 695.0 ft - 695.5 ft to about 693.0 ft from mid-May through mid-July, after which normal operating lake levels shall be re-established. The drawdown period may be delayed due to river levels. The purpose of the drawdowns is for wetland and wildlife enhancement. The frequency of these drawdowns or lowering of lake levels will be about once every 2-3 years. During these periods of drawdown the following conditions apply:

- a. The temperature limitations (difference) of 9 degrees F, 13 degrees F, and 15 degrees F above ambient as described in Chapter 4 Section 2 are allowed a maximum of 10 excursions per month, except that the 93 degree F limitation shall be met at all times. The Permittee shall minimize the extent of these excursions to the extent possible based on weather and river flow conditions.
- b. If the dissolved oxygen level in the lake falls below 4 mg/l as monitored by the U.S. Fish and Wildlife Service river water shall be pumped back into the lake in order to raise the dissolved oxygen level to 4 mg/l or greater, to the extent that the dissolved oxygen levels in the river allow, in order to protect the lake fisheries.
- c. The Permittee shall report all occurrences of lake drawdown for the purpose of wetland and wildlife enhancement.

#### **Operation During Flood Overflows**

## Chapter 1. Surface Discharge Stations

### 4. Special Requirements

- 4.2 The plant will operate in Flood Overflow Status when the Minnesota River elevation exceeds 696.0 MSL at either SD001 or SD002. Flood Overflow Status will cease once the Minnesota River elevation lowers below 695.5 ft at both SD001 and SD002.

During Flood Overflow Status discharge gates at both SD001 and SD002 will be kept in the full open position. Temperature monitoring will be maintained as long as river elevation does not require removal of the monitoring shacks. The Permittee shall report the differential temperatures within the DMR but the thermal limitations will not apply during Flood Overflow Status, due to the lack of cooling lake control under the high river flow regime. During Flood Overflow Status, the daily discharge flow will be reported as 0 MGD for the upstream discharge SD001 and the daily discharge flow SD002 will be based on the plant intake withdrawal determinations from pump operation hours and water appropriation flow rates. The reporting assumes a typical overflow arrangement in which plant input (SD004) to the cooling lake passes along with river water input into the upstream outfall SD001 down through the cooling lake and out the downstream outfall SD002.

#### Ash Pond Area Water Quality Monitoring

- 4.3 The Permittee shall conduct water quality monitoring at wells and seeps located adjacent to the ash pond system, surface water locations on the Minnesota River, and the ash pond water. The purpose of the water quality monitoring is to continue the assessment of any water quality impacts from the ash ponds upon groundwaters and surface waters (river). The Permittee shall sample and analyze from the following monitoring locations during June 21-July 31:

Ash pond water

Monitoring well #12

Monitoring well #14

Minnesota River (upstream from plant at the Highway I35W bridge junction, at a point midstream)

Minnesota River (downstream from plant at Fort Snelling boat landing, at a point midstream)

- 4.4 An annual report for all data compiled for the monitoring locations shall be submitted by February 15 of each year following the sampling and analysis. The Permittee shall interpret the data where applicable.

- 4.5 The monitoring locations shall be sampled and analyzed for the following parameters: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, copper, iron, lead, mercury, nickel, silver, selenium, strontium, thallium, zinc, sulfate, total dissolved solids, pH, specific conductance, alkalinity, calcium, chloride, magnesium, manganese, phosphorus, nitrate+nitrite as N, silica, temperature, and total suspended solids.

Low level analysis for mercury in the ash pond water using EPA Method 1631 is required. The low level mercury analyses required quarterly for SD005 may be used for this analysis.

In addition to the above parameters monitoring wells #12 and #14 shall be evaluated for general water quality appearance, and well depths shall be taken at the time of sampling.

Sampling and analysis shall be conducted in accordance with the Water Monitoring Work Plan submitted by the Permittee for the plant, dated October 1996.

## Chapter 1. Surface Discharge Stations

### 1. Special Requirements

- 4.6 The Permittee shall prepare a detailed analysis of the ash pond monitoring done at the facility to date and provide recommendations for the future of the program. The Permittee may propose an alternative monitoring program for MPCA review. If MPCA approves the alternative monitoring program, the alternative monitoring plan shall become an enforceable part of the permit. The Permittee shall submit the detailed analysis and alternative monitoring proposal for MPCA review within 3 months of permit issuance.

#### Mercury Sampling and Analysis

- 4.7 Low level mercury analysis is required to be completed quarterly for SD005. Mercury analysis shall be done using the most recent revision of Environmental Protection Agency (EPA) Method 1631. Sampling for mercury shall be done using EPA Method 1669. In the event the EPA approves another low level mercury analytical method the Permittee may use that method, upon request and approval by the MPCA.

Mercury sampling and analysis is required for SD005 during the quarterly period only if a discharge occurs.

### 5. Requirements for Specific Stations

- 5.1 SD 001: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.
- 5.2 SD 002: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.
- 5.3 SD 003: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.
- 5.4 SD 004: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.
- 5.5 SD 005: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

### 6. Discharge Monitoring Reports

- 6.1 The Permittee shall submit monitoring results for discharges in accordance with the limits and monitoring requirements for this station. If no discharge occurred during the reporting period, the Permittee shall check the "No Discharge" box on the Discharge Monitoring Report (DMR).

## Chapter 2. Surface Water Stations

### 1. Sampling Location

- 1.1 Samples for Station SW003 shall be taken at a point representative of the upstream or ambient river water at the river junction with the Highway 35W bridge. Continuous thermal data shall be collected at this point from midnight to midnight. The temperature differential calculations required by Chapter 4 Section 2.1 shall be done using the data compiled each day during this period.

### 2. Discharge Monitoring Reports

- 2.1 The Permittee shall submit monitoring results in accordance with the limits and monitoring requirements for this station. If flow conditions are such that no sample could be acquired, the Permittee shall check the "No Flow" box and note the conditions on the Discharge Monitoring Report (DMR).

## Chapter 2. Surface Water Stations

### 3. Winter Sampling Conditions

- 3.1 The Permittee shall sample flows at the designated monitoring stations including when this requires removing ice to sample the water. If the station is completely frozen throughout a designated sampling month, the Permittee shall check the "No Flow" box on the Discharge Monitoring Report (DMR) and note the ice conditions in Comments on the DMR.

### 4. Requirements for Specific Stations

- 4.1 SW 003: Submit a monthly DMR monthly by 21 days after the end of each calendar month following permit issuance.

## Chapter 3. Industrial Process Wastewater

### 1. Authorization

- 1.1 This permit authorizes the Permittee to treat and dispose of industrial process wastewater in accordance with the provisions of this chapter.

### 2. Prohibited Discharges

- 2.1 This permit does not authorize the discharge of sewage, wash water, scrubber water, spills, oil, hazardous substances, or equipment/vehicle cleaning and maintenance wastewaters to ditches, wetlands or other surface waters of the state except as permitted in the site's NPDES systems.
- 2.2 The Permittee shall prevent the routing of pollutants from the facility to a municipal wastewater treatment system in any manner unless authorized by the pretreatment standards of the MPCA and the municipal authority.
- 2.3 The Permittee shall not transport pollutants to a municipal wastewater treatment system that will interfere with the operation of the treatment system or cause pass-through violations of effluent limits or water quality standards.

### 3. Toxic Substance Reporting

- 3.1 The Permittee shall notify the MPCA immediately of any knowledge or reason to believe that an activity has occurred that would result in the discharge of a toxic pollutant listed in Minnesota Rules, pt. 7001.1060, subp. 4 to 10 or listed below that is not limited in the permit, if the discharge of this toxic pollutant has exceeded or is expected to exceed the following levels:
- for acrolein and acrylonitrile, 200 ug/L;
  - for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol, 500 ug/L;
  - for antimony, 1mg/L;
  - for any other toxic pollutant listed in Minnesota Rules, pt. 7001.1060, subp. 4 to 10, 100 ug/L; or
  - five times the maximum concentration value identified and reported for that pollutant in the permit application. (Minnesota Rules, pt. 7001.1090, subp. 2.A)
- 3.2 The Permittee shall notify the MPCA immediately if the Permittee has begun or expects to begin to use or manufacture as an intermediate or final by-product a toxic pollutant that was not reported in the permit application under Minnesota Rules, pt. 7001.1050, subp. 2.J. (Minnesota Rules, pt. 7001.1090, subp. 2.B)

### 4. Hydrotest Discharges

- 4.1 The Permittee shall notify the MPCA prior to discharging hydrostatic test waters from units from which discharges are not authorized as part of this permit.

## Chapter 3. Industrial Process Wastewater

### 5. Polychlorinated Biphenyls (PCBs)

5.1 PCBs, including but not limited to those used in electrical transformers and capacitors, shall not be discharged or released to the environment.

### 6. Application for Permit Reissuance

6.1 The permit application shall include analytical data as part of the application for reissuance of this permit. These analyses shall be done on individual samples taken during the twelve-month period before the reissuance application is submitted.

6.2 The permit application shall include analytical data for at least the following parameters at monitoring stations SD001, SD002, SD004, and SD005 for parameters in accordance with Minnesota Rules 7001.1060 and 7001.1061 and instructions of the applicable EPA Permit Application Form 2C.

## Chapter 4. Steam Electric

### 1. Authorization

1.1 The Permittee is authorized to discharge once-through, noncontact cooling water, including condenser and equipment cooling water, in accordance with and in compliance with the effluent limitations, restrictions, and conditions contained elsewhere in this permit.

1.2 The Permittee is not prohibited from a discharge of cooling water for use as a de-icing agent at the intake structure should the need arise.

### 2. Applicable Effluent Limitations - Thermal Limitation

#### Thermal Discharge Limitations

2.1 The discharges from SD001 and SD002 shall not exceed the temperature of the Minnesota River at the point of discharge subject to the following:

a. When the ambient river temperature is less than 39 degrees F and the river flow is greater, equal to, or less than 1000 cfs, the difference between ambient river temperature and the discharge temperature shall not be greater than a 24 hour flow weighted average of 13 degrees F above ambient, except as specified in subpart d below.

b. When the ambient river temperature is greater than 39 degrees F and the river flow is less than 1000 cfs, the temperature difference between ambient river temperature and the discharge temperature shall not be greater than a 24 hour flow weighted average of 9 degrees F above ambient.

c. When the ambient river temperature is greater than 39 degrees F and the river flow is equal to or greater than 1000 cfs, the temperature difference between ambient river temperature and the discharge temperature shall not be greater than a 24 hour flow weighted average of 13 degrees above ambient, except as specified in subpart d below.

d. During the months of March, April, and May when the river flow is equal to or greater than 8000 cfs, the temperature differential between ambient river temperature and the discharge temperature shall not be greater than a 24 hour flow weighted average of 15 degrees F above ambient.

e. The maximum daily average discharge temperature of SD001 and SD002 shall not exceed 93 degrees F at the monitoring stations.

## Chapter 4. Steam Electric

### 2. Applicable Effluent Limitations - Thermal Limitation

2.2 The thermal limitations defined in Chapter 4 Section 2.1 subparts a - d above shall be effective each calendar day for discharge (outfall) volumes greater than 5 million gallons at SD001 or SD002. During the months of March and April outfall volumes of 5 million gallons or less will be considered minimal in relation to normal cooling lake outfall flows.

All discharges from SD001 or SD002, including discharges of less than 5 million gallons per day, shall be subject to a 93 degrees F maximum daily average discharge temperature limit.

- 2.3 The thermal waste streams shall not impact the safety and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the Minnesota River.
- 2.4 The thermal discharge limitations and monitoring requirements in this permit are based on the results of the original 316(a) Black Dog Report completed by the Texas Instruments Science Services Division in 1979, a 316(a) study of the cooling lake completed by Xcel Energy's Environmental Services Department from 1997 to 1998, and the May 2007 316(a) Demonstration Environmental Study completed by Xcel Energy's Environmental Services Department. The original 316(a) study evaluated the impact of the thermal discharge from the 1950s coal-fired plant on the biota of the Minnesota River consistent with section 316(a) of the Clean Water Act. The May 2007 assessment focused on the thermal impact to the Minnesota River resulting from the 2002 transition from coal fired Units 1 and 2 to natural gas fueled Unit 2 steam turbine and Unit 5 combustion turbine. The May 2007 demonstration examined the cumulative impact of the thermal discharge together with all other significant impacts to assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in the Minnesota River. The May 2007 report compares the biological results of the 1979 report to data collected from October 2003 through October 2005. The 2007 demonstration concluded that no appreciable harm has resulted, or will result, from the thermal discharge from the repowered facility.
- 2.5 In accordance with the Federal Water Pollution Control Act, this permit may be re-opened to insert more restrictive thermal limits or to require a new 316(a) study if it has been shown that the thermal component(s) of the surface water discharges affect the safety and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the Minnesota River.

#### Exceedance of Permit Thermal Limitations Under Energy Emergencies

- 2.6 This provision is meant to provide for limited and infrequent short-term exceedances of the permit thermal limitations solely under extreme and relatively unique circumstances (such as an unusual heat wave). This provision does not preclude the MPCA from subsequently requiring Xcel Energy to resolve any recurring thermal limitation exceedances through installation of additional cooling equipment, or other measures to remove excess heat, in the event that thermal exceedances become relatively frequent or are the result of inadequate design under normal (non-emergency) conditions.

This provision does not preclude the MPCA from taking any enforcement action pursuant to thermal limitation exceedances if the above conditions are not followed.

- 2.7 The thermal limitations of this permit may be exceeded for a limited period under extreme conditions of electrical energy emergencies or under conditions that are the immediate result of electrical energy emergencies. Exceedance of the thermal limitations may occur only during electrical energy emergencies. For purposes of this permit an "electrical energy emergency" is defined as the time period when Northern States Power Company's, d/b/a Xcel Energy (Permittee or Xcel Energy), generating system is in System Conditioning Operating Code Red, or when in System Code Orange (danger) if degradation to Code Red appears likely absent corrective action.

## **Chapter 4. Steam Electric**

### **2. Applicable Effluent Limitations - Thermal Limitation**

2.8 System Code Red (emergency) occurs when the energy supply is subject to, but not limited to, partial power interruptions, curtailment of energy supply to controlled customers and peak controlled customers, power interruption to commercial customers, and reduction of peak voltage. It represents a situation where all electrical reserves have been exhausted, the electrical grid is unstable, and electrical demand has exceeded electrical supply. Code Red is also commonly referred to as a "brown-out". A Code Red may also lead to interruption to retail customers and power interruption, commonly referred to as a rotating "black-out".

System Code Orange (danger) occurs when the entire electrical system is vulnerable to instability due a single failure, such as a potential transmission fault, loss of a generating unit, or other technical failure. It represents a situation where electric power demand is currently being met but utility equipment is being operated at or near maximum dependable capacity and remaining energy reserves are extremely low or non-existent. Under Code Orange energy controlled customers and energy peak customers are being curtailed, external energy is unavailable, and loss of an Xcel electrical generating unit or external purchase would result in Xcel being unable to meet required NERC (North American Electric Reliability Council) operating requirements.

2.9 Thermal limitation exceedances may occur only under the following conditions:

1. Thermal limitation exceedances will only be considered under an electrical energy emergency. Xcel Energy shall base decisions regarding thermal limitation exceedances on engineering and operational measures necessary to maintain stable regional energy supplies and protect critical generation and transmission equipment. Xcel Energy shall take all reasonable corrective actions available to avoid thermal limitation exceedances.
2. Thermal limitation exceedances are allowable only after Xcel Energy has exhausted all other reasonable alternatives or determined them to be inadequate. These alternatives include, but are not limited to, use of all available Xcel Energy power generation including Xcel Energy oil burning facilities and reserves, energy purchases, demand side management measures, curtailment of non-essential auxiliary load, and public appeals for voluntary energy conservation measures. Energy costs, either incurred at Xcel Energy generating facilities or through energy purchased, shall not be a factor in exhausting these alternatives.
3. Xcel Energy shall restore operations to return to compliance with permit thermal limitations as soon as possible upon termination of the electrical energy emergency, that is, upon return to a stable system Code Orange (danger) or better system code. The duration of thermal limitation exceedances shall be minimized.

## Chapter 4. Steam Electric

### 2. Applicable Effluent Limitations - Thermal Limitation

- 2.10 4. Xcel Energy shall limit the severity of thermal limitation exceedances to the extent possible. Xcel Energy shall maintain any existing cooling tower systems and other cooling systems used to remove heat from cooling water to be discharged, so that these cooling systems are completely available during energy emergencies.
5. Xcel Energy shall attempt to notify the MPCA in advance of its intent to exercise this provision to exceed the permit thermal limitations under an electrical energy emergency. If Xcel Energy is unable to provide advance notification, due to sudden problems caused by storms, unplanned loss of critical generation or transmission, or similar circumstances causing conditions to rapidly deteriorate, Xcel Energy shall notify MPCA staff as soon as possible after the initial response actions are completed. If the event occurs after normal business hours or a weekend Xcel Energy shall notify the State Duty Officer and provide follow up notification to MPCA the next business day.
6. Xcel Energy shall institute monitoring for any environmental impacts during exceedances of the thermal limitations. Specifically Xcel Energy shall institute periodic biological observations of the zone of influence of the thermal discharge on the receiving water and any plant discharge canal, to monitor for signs of dead or distressed fish and other aquatic life. Any dead or distressed fish observed shall be tabulated and recorded by Xcel Energy staff and reported within one day, or the next business day if on a weekend, to the MPCA and the Minnesota Department of Natural Resources (MDNR). Xcel Energy shall submit a monitoring plan for biological observations during electrical energy emergencies, within 30 days after issuance of this permit.
- 2.11 7. Xcel Energy shall comply with the Minnesota Department of Natural Resources (MDNR) requirements concerning any costs or charges levied by the MDNR for fish or other aquatic organisms lost due to any thermal limitation exceedances.
8. Unless otherwise specified by the MPCA, during an electrical energy emergency Xcel Energy shall provide a daily summary of the status of plant operations, the nature and extent of any permit deviations or exceedances of the thermal limitations, any mitigating actions being taken, and any observed environmental impacts. The daily summaries shall be provided by telephone and e-mail message to the MPCA during business days. Daily summaries during the weekend shall be provided by e-mail message.
- 2.12 9. Xcel Energy shall provide a written summary of any thermal limitation exceedances pursuant to an electrical energy emergency within 30 days of termination of the energy emergency. The summary shall address at a minimum:
- a. The specific cause of the electrical energy emergency and information describing the conditions leading to the energy emergency which may include, but are not limited to, weather conditions and power demands.
  - b. The system code that Xcel Energy was operating under and all steps that Xcel took to lower energy demand and/or increase energy output in order to prevent a thermal limitation exceedance. These steps include, but are not limited to, items such as operation of peaking and oil burning plants, internal load reduction measures, energy purchases, public appeals for voluntary energy reduction, implementation of curtailment of service to interruptible customers, power interruption to commercial customers, etc.
  - c. A statement confirming that the electrical energy emergency leading to exceedances of thermal limitations was unintentional and that there was no known, viable engineering alternative for deviation from the plant's permitted thermal limitations. A similar statement confirming that the electrical energy emergency leading to exceedances of thermal limitations resulted from factors beyond Xcel Energy's control and did not result from operator error, improperly designed facilities, lack of preventative maintenance, or increases in production beyond the design capacity of the treatment facility (cooling equipment).

## Chapter 4. Steam Electric

### 2. Applicable Effluent Limitations - Thermal Limitation

- 2.13 d. A written summary of the technical aspects of the facility that are involved with cooling and maintaining compliance with thermal limitations.
- e. Information on any alternatives to a thermal limitation exceedance and impacts that would likely have occurred if power generation was reduced in order to avoid a thermal limitation exceedance. Such impacts may include public health and safety, public security issues, damage to generating plants, disruption of commercial and industrial processes, and related potential impacts.
- f. If it is determined that the thermal limitation exceedance was the result of inadequate design, operations or maintenance, the actions Xcel Energy will take to avoid a future thermal limitation exceedance.

#### Fish Kill Liability

- 2.14 The Permittee shall be responsible for fish kills in the receiving water Minnesota River due to thermal shock and chemical treatments.

### 3. Chlorination

- 3.1 Consistent with best available economically technology achievable (BTA) guidelines in 40 CFR 423.13 subparts (b)(1) and (b)(2) and consistent with past toxicity studies with site water, the maximum concentration of total residual oxidants (expressed as chlorine) is limited to 0.2 mg/l and the duration of brominating and/or chlorination is limited to 2 hours per day.

### 4. Intake Screens

- 4.1 Water used to rinse the intake screens shall be free of chlorine and chemical additives.
- 4.2 The Permittee shall dispose of large debris collected off of the trash racks in such a manner so as to prevent the materials from reentering waters of the state.
- 4.3 The Permittee shall be responsible for fish kills in the receiving water due to thermal shock and chemical treatments. Impingement and entrainment effects have been the subject of past studies as reported to the state, and intake technology research, development and installation are the subject of Chapter 4 Parts 4.7 to 4.8 per Section 316(b) of the Clean Water Act.

#### 316(b) Compliance

- 4.4 The Permittee shall operate the intake structures consistent with Section 316(b) of the Clean Water Act and consistent with the MPCA-approved 1978 report "Black Dog 316(b) Report" completed by NUS Corporation. Impingement mortality studies were conducted at the plant from April 1976 through April 1977. Entrainment monitoring studies were conducted between April 14 and September 30, 1976. A wintertime impingement mortality study was conducted from November to March for two winter seasons: 1996-1997 and 1997-1998. MPCA approved the studies based on best professional judgement. The Permittee shall operate the screens in such a way that minimizes undesirable and unacceptable adverse environmental impacts, including entrainment and impingement; reductions of threatened, endangered, or other protected species; damage to critical aquatic organisms, including important elements of the food chain; diminishment of a population's compensatory reserve; losses to populations, including reductions of indigenous species populations, commercial fishery stocks, and recreational fisheries; and stresses to overall communities or ecosystems as evidenced by reductions in diversity or other changes in system structure or function.

## **Chapter 4. Steam Electric**

### **4. Intake Screens**

- 4.5 On January 7, 2008 the Permittee submitted the Source Water Physical Description, the Cooling Water Intake Structure Data, and the Cooling Water System Data for MPCA review.

The Source Water Physical Description includes a narrative description and scaled drawings showing the physical configuration of source water body used by the facility, areal dimensions, depths, salinity and temperature regimes, identification of hydrological and geomorphological features, as well as the methods used to conduct any physical studies to determine the area of influence of the intakes and the results of such studies and maps.

The Cooling Water Intake Structure Data includes a narrative description of the configuration the facility cooling water intake structures and where the intake(s) are located in the water body and the water column; latitude and longitude in degrees, minutes, and seconds for the intake structure, design intake flows, daily hours of operation, number of days of the year in operation, and seasonal changes.

The Cooling Water System Data includes a narrative description of the operation of each cooling water system, its relationship to the cooling water intake structures, proportion of the design intake flow that is used in the system, the number of days of the year the system is in operation, and seasonal changes in the operation of the system.

- 4.6 The Permittee submitted a Proposal for Information Collection (PIC) for MPCA review and approval on October 28, 2005. The MPCA approved the PIC on November 2, 2005. Consistent with the MPCA approved PIC the Permittee completed one year of 24-hour impingement sampling during April 2005 through March 2006 and one season of weekly 24-hour entrainment sampling during 2006.
- 4.7 The Permittee electronically submitted the results of the impingement mortality and entrainment sampling efforts to the MPCA on January 25, 2008. The results should include a list of actions the Permittee is considering to reduce impingement mortality and entrainment at the facility.

Upon completion of the review of the results and upon review of the conceptual design plan required per Chapter 4 Section 4.8 of this permit, the permit may be reopened to include a compliance schedule developed using best professional judgment to reduce impingement mortality and entrainment at the facility.

- 4.8 The Permittee shall submit a conceptual plan to reduce impingement mortality and entrainment for MPCA staff review within twenty four months of permit issuance.

## **Chapter 5. Stormwater Management**

### **1. Authorization**

- 1.1 This chapter authorizes the Permittee to discharge stormwater associated with industrial activity in accordance with the terms and conditions of this chapter. The agency may initiate modification of this chapter in accordance with Minn. R. 7001.0170 and Minn. R. 7001.0190 Subp.1 to incorporate revised requirements in response to the reissuance or modification of the General Stormwater Permit for Industrial Activity (MNG611000).
- 1.2 The Permittee shall comply with the general stormwater permit for industrial activity once it is reissued and becomes effective. The Permittee will retain coverage for stormwater discharges under this NPDES/SDS permit and therefore is not required to apply for coverage under the general stormwater permit for industrial activity. However, the Permittee shall comply with any steam electric generating specific requirements included in the yet-to-be-reissued general stormwater permit for industrial activity that do not appear in this permit.

### **2. Prohibited Discharges**

- 2.1 This permit, unless specifically authorized by another chapter, does not authorize the discharge of sewage, wash water, scrubber water, spills, oil, hazardous substances, or equipment/vehicle cleaning and maintenance wastewaters to ditches, wetlands or other surface waters of the state.

## Chapter 5. Stormwater Management

### 2. Prohibited Discharges

- 2.2 This permit does not authorize discharges from sites for which Environmental Assessment Worksheets or Environmental Impact Statements are required, in accordance with Minn. R. ch. 4410, until that environmental review is completed.

### 3. Water Quality Standards

- 3.1 The Permittee shall operate and maintain the facility and shall control runoff, including stormwater, from the facility to prevent the exceedance of water quality standards specified in Minnesota Rules, chs. 7050 and 7060.
- 3.2 The Permittee shall limit and control the use of materials at the facility that may cause exceedances of ground water standards specified in Minnesota Rules, ch. 7060. These materials include, but are not limited to, detergents and cleaning agents, solvents, chemical dust suppressants, lubricants, fuels, drilling fluids, oils, fertilizers, explosives and blasting agents.

### 4. Stormwater Pollution Prevention Plan

- 4.1 The Permittee has developed and implemented a Stormwater Pollution Prevention Plan (Plan) to address the specific conditions at the industrial facility. The Permittee shall maintain an up-to-date Plan. The goal of the Plan is to eliminate or minimize contact of stormwater with significant materials that may result in pollution of the runoff. If contact cannot be eliminated or reduced, stormwater that has contacted significant material should be treated before it is discharged from the site.
- 4.2 Submit the most recent version of the facility Stormwater Pollution Prevention Plan within 180 days of permit issuance. Subsequent plan revisions shall be maintained on site and made available for review upon request.
- 4.3 The Plan shall be implemented at the site before the Permittee is covered under this permit.
- 4.4 The Stormwater Pollution Prevention Plan shall include a description of appropriate Best Management Practices for protection of surface and ground water quality at the facility, and a schedule for implementing the practices. The Plan shall also include the procedures to be followed by designated staff employed by the Permittee to implement the plan.
- 4.5 The Permittee shall comply with its Stormwater Pollution Prevention Plan.

#### Plan Contents

- 4.6 Complete a drainage map. The map should indicate the following items at or adjacent to the facility:
- drainage areas and directions of stormwater runoff (indicated by arrows);
  - discharge outfalls from the site (structures that carry stormwater runoff from the facility such as ditches or storm sewers);
  - the name and location of waters of the state that receive facility stormwater runoff (if waters of the state are too distant from the facility to be indicated on the site map, indicate the name, direction and shortest distance to the lake, river, stream or wetland that receives runoff from your site);
  - areas where significant materials are exposed to stormwater;
  - locations of storm sewer inlets and an indication of which, if any, structures have floor drains or loading dock drains that are connected to storm sewers; and
  - locations and types of Best Management Practices (BMPs) currently installed at the facility to reduce or eliminate pollutants to stormwater.

## Chapter 5. Stormwater Management

### 4. Stormwater Pollution Prevention Plan

- 4.7 Complete an inventory of exposed significant materials. Indicate the types of significant materials handled or stored at the site that may potentially contact stormwater. The following are examples of materials that, if exposed to stormwater, must be included in the inventory:
- a. raw materials, such as fuels; solvents; petroleum products; detergents; plastic pellets; materials used in food processing or production; stockpiled sand, salt or coal;
  - b. by-products or intermediate products, such as wood dust, chips or bark; screened limestone, taconite or gravel by-product, recycled blacktop;
  - c. finished materials, such as metallic products, including scrap metal and recycled or scrap motor vehicle parts, old process equipment/machinery, taconite pellets;
  - d. waste products, such as ashes, sludge, solid and liquid waste, slag;
  - e. hazardous substances designated under section 101(14) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA);
  - f. any chemical the facility is required to report under section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA).
- 4.8 Evaluate facility areas for exposure of significant materials to stormwater. In creating the inventory of exposed significant materials, the Permittee must, at a minimum, evaluate the following areas at the industrial site (as well as other areas where appropriate) to determine whether or not significant materials are exposed in these areas:
- a. vehicle and equipment maintenance, parking and storage areas including fueling and washing/cleaning areas, to determine if there is discolored soil in these areas as a result of fuel and lubricant leaks and spills;
  - b. liquid storage tanks and other bulk material stockpile areas;
  - c. loading and unloading areas;
  - d. outdoor manufacturing, processing or storage areas and industrial plant yards, to determine if there is discolored soil in these areas as a result of leaked or spilled solvents, fuels, or lubricants;
  - e. dust or particulate generating areas including dust collection devices that may release dust;
  - f. rooftops contaminated by industrial activity or operation of a pollution control device;
  - g. on-site waste disposal areas, such as waste ponds, dumpsters, solid waste storage or management areas; and
  - h. exposed (non-vegetated) soil areas where there is a potential for erosion to occur.

## Chapter 5. Stormwater Management

### 4. Stormwater Pollution Prevention Plan

4.9 Describe appropriate BMPs, including structural and non-structural BMPs, that will be used at the facility to minimize or eliminate pollution of stormwater at the site. The description must include an objective for each BMP, as well as a description of how to evaluate proper functioning of the BMP and any maintenance requirements of the BMP. BMPs should target significant materials and areas identified in subparts 7 and 8 of this part. The following general categories of BMPs shall be considered and one or more shall be incorporated into the facility's Plan if significant materials are exposed to stormwater on-site:

a. Source reduction: reduce or eliminate the significant materials that are exposed to stormwater. Materials management practices should be evaluated to determine whether inventories of exposed materials can be reduced or eliminated. This can include clean-up of equipment yards, periodic checking of dust control equipment to ensure minimal accumulation of dust in the area of control equipment, removal and treatment of petroleum contaminated soil, consolidation of materials from multiple areas into one area, and training employees regarding proper handling and disposal of materials. Significant materials may also be moved indoors or covered with a tarp or structure to eliminate contact with precipitation.

b. Diversion: divert stormwater drainage away from exposed significant materials through use of curbing, berms, sewers or other forms of drainage control or elevate exposed significant material above surrounding drainage.

c. Treatment: where contact of stormwater with significant materials is unavoidable, use treatment devices to reduce the concentration and amount of pollutants in the discharge. Such devices include oil/water separators, stormwater detention/retention ponds, and vegetative swales.

4.10 Evaluate all discharge conveyances from the site (storm sewers, pipes, tile lines, ditches, etc.) to determine if unpermitted liquids other than stormwater are being discharged from these devices. This should be done during dry weather when stormwater discharge is not occurring. The evaluation should cover sewer inlets and floor drains to determine which inlets/drains are connected to sanitary sewer lines, storm sewer lines, or septic tanks/drainage fields; appropriate methods such as dye or smoke testing or video imaging should be used to determine the source of discharges.

The Plan must certify that discharges from the site have been evaluated for the presence of non-stormwater discharges. The certification shall indicate the date of testing, location of testing, describe the method used to determine the source of discharges and the results of testing. Discharge of non-stormwater (such as sanitary sewer or floor drain connections to storm sewers) is not authorized by this permit; before such discharge may continue, authorization under an appropriate NPDES permit must be obtained.

4.11 Develop a preventive maintenance program. The program must require regular inspection and maintenance of stormwater management devices (e.g. cleaning oil/water separators and catch basins), as well as inspecting and testing plant equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants (e.g. hydraulic leaks, torn bag-house filters) to surface waters.

4.12 Develop a spill prevention and response procedure. In order to develop this procedure, Permittees should evaluate where spills have occurred and where they have the potential to occur. Determine drainage points for potential spill areas and develop appropriate spill prevention and containment measures, should a spill occur. Detailed procedures for cleaning-up spills shall be identified and made available to appropriate personnel. If your facility has any other spill contingency plan that satisfies the above requirements, that plan may be incorporated by reference into this Plan to satisfy this requirement.

4.13 Develop and implement an employee training program to inform appropriate personnel of the components and goals of the Plan. Training shall address spill response, good housekeeping and materials management practices. The Plan shall identify periodic dates for such training.

4.14 Identify personnel responsible for managing and implementing the Plan as well as those responsible for the reporting requirements of this permit. This should include the facility contact person as indicated on the permit application. Identified personnel must be available at reasonable times of operation.

## Chapter 5. Stormwater Management

### 5. Temporary Protection and Permanent Cover

- 5.1 The Permittee shall provide and maintain temporary protection or permanent cover for the exposed areas at the facility.
- 5.2 Temporary protection methods are used to prevent erosion on a short-term basis, such as the placement of mulching straw, wood fiber blankets, wood chips, erosion control netting, or temporary seeding.
- 5.3 Permanent cover or final stabilization methods are used to prevent erosion, such as the placement of rip rap, sodding, or permanent seeding or planting. Permanent seeding and planting must have a uniform perennial vegetation cover of at least 70 percent density to constitute final stabilization.

### 6. Inspection and Maintenance

- 6.1 Site inspections shall be conducted at least once every two months throughout the calendar year. During winter months, the inspections shall be conducted during non-frozen conditions. Inspections shall be conducted by an appropriately trained personnel at the facility site, as identified in part 4.13 of this chapter. The purpose of inspections is to: 1) determine whether structural and non-structural BMPs require maintenance or changes, and 2) evaluate the completeness and accuracy of the Plan.

At least one inspection during a reporting period shall be conducted while stormwater is discharging from the facility. Inspections may be documented using an inspection form provided by the MPCA. A Storm Water Site Inspection Form is provided in the appendices section of this permit.

- 6.2 Inspections shall be documented and a copy of all documentation shall remain on the permitted site whenever Permittee staff are available on the site, and be available upon request. The inspection form developed for the General Storm Water Permit for Industrial Activity may be used for recording inspection results, and is included in the appendices section of this permit.
- 6.3 The following compliance items will be inspected, and documented where appropriate:
  - a. evaluate the facility to determine that the Plan accurately reflects site conditions as described in subpart 6 of this part, and document any inaccuracies;
  - b. evaluate the facility to determine whether new exposed materials have been added to the site since completion of the Plan, and document any new significant materials;
  - c. during the inspection conducted during the runoff event, observe the runoff to determine if it is discolored or otherwise visibly contaminated, and document observations; and,
  - d. determine if the non-structural and structural BMPs as indicated in the Plan are installed and functioning properly.
- 6.4 The Permittee shall ensure that temporary protection and permanent cover for the exposed areas at the site are maintained.
- 6.5 Indicate the date and time of the inspection as well as the name of the inspector on the inspection form.
- 6.6 If a sedimentation basin is utilized or installed, when the depth of sediment collected in the final sedimentation basin above the outfall reaches one-half of the riser height, or one-half of the basin design hydraulic storage volume, the Permittee shall drain the basin and remove the sediment within 60 days of discovery. No outflow from the sedimentation basin shall occur while sediment is being removed from that basin. The sediment removed from the basin shall be disposed of at a site which drains to sedimentation basin(s) at the facility.
- 6.7 If conditions are observed at the site that require changes in the Plan, such changes shall be made to the Plan prior to submission of the annual report for that calendar year.
- 6.8 The Permittee shall minimize vehicle tracking of gravel, soil or mud onto paved surfaces at the facility.

## Chapter 5. Stormwater Management

### 5. Inspection and Maintenance

- 6.9 If the findings of a site inspection indicate that BMPs are not meeting the objectives as identified in subpart 4.9 of this part, corrective actions must be initiated within 30 days and the BMP restored to full operation as soon as field conditions allow.
- 6.10 The Permittee shall remove tracked material from the road surface and return it to the facility within one (1) day of discovery so that the materials are retained on site or drained to sedimentation basin(s) at the facility.

### 7. Sedimentation Basin Design and Construction

#### New Sedimentation Basins

- 7.1 Sedimentation basins shall be designed by a registered professional engineer, and installed under the direct supervision of a registered professional engineer.
- 7.2 The basin shall provide at least 1800 cubic feet, per acre drained, of hydraulic storage volume below the top of the outlet riser pipe.
- 7.3 Inlet(s) and outlet(s) shall be designed to prevent short circuiting and the discharge of floating debris.
- 7.4 The inlet(s) shall be placed at an elevation at least above one-half of the basin design hydraulic storage volume.
- 7.5 The outlet(s) shall consist of a perforated riser pipe wrapped with filter fabric and covered with crushed gravel. The perforated riser pipe shall be designed to allow complete drawdown of the basin(s).
- 7.6 Permanent erosion control, such as rip rap, splash pads or gabions shall be installed at the outlet(s) to prevent downstream erosion.
- 7.7 The basins shall be designed to allow for regular removal of accumulated sediment by a backhoe or other suitable equipment.
- 7.8 The Permittee may propose an alternative infiltration or sedimentation basin design for MPCA review and approval.

### 8. Application of Chemical Dust Suppressants

- 8.1 If chemical dust suppressants are applied in areas that drain directly (untreated) to surface waters, the Permittee shall submit a Chemical Dust Suppressant Annual Report along with the Stormwater Annual Report due March 31 of each year.
- 8.2 The Chemical Dust Suppressant Annual Report shall include:
- a record of the dates, methods, locations and amounts by volume of chemical application at the facility;
  - whether the product was applied in the preceding year; and,
  - the results of a chemical analysis of the materials applied each year.
- 8.3 If a material applied is mixed with water or another solvent before application, the chemical analysis shall be done on the aqueous or other mixture that is representative of the solution applied. This analysis shall be conducted during the same calendar year of application. This analysis shall include the parameters that may be determined by U.S. Environmental Protection Agency (EPA) Methods 624 and 625 which are described in 40 CFR Part 136.
- 8.4 Chemical dust suppressants, if used, shall not be applied within 100 feet that runoff to surface receiving waters identified in the 'Facility Description' section of this permit. These materials also shall not be applied within 100 feet of ditches that conduct surface flow to the surface receiving waters identified on Page 1 of this permit.

## Chapter 5. Stormwater Management

### 9. Reporting

- 9.1 Submit a Stormwater Annual Report by March 31 of each year following permit issuance. A copy of the Stormwater Annual Report Form is provided in the appendices section of this permit.
- 9.2 The Permittee shall, upon request of the Agency, submit within a reasonable time the information and reports that are relevant to compliance with this Chapter, including the Plan, inspection reports, annual reports, original laboratory sheets from analyses conducted on the waste stream, and BMP plans and specifications.

### 10. Records

- 10.1 The Plan shall be retained for the duration of the permit. A copy of the Plan shall remain on the permitted site whenever Permittee staff are available on the site, and be available upon request. The Permittee shall maintain the following records for the period of permit coverage:
  - a. dates of inspections;
  - b. findings of inspections;
  - c. corrective actions taken;
  - d. documentation of all changes to the Plan; and,
  - e. a copy of annual reports.

### 11. Notification

- 11.1 If the Permittee discharges stormwater into a municipal storm sewer, the Permittee shall notify the operator of the municipal storm sewer of the existence of this permit.

### 12. Request for Termination of Stormwater Permit Coverage

- 12.1 All Permittees regulated by 40 CFR 122.26(b)(14)(i) through (ix) and (xi) may request termination of permit coverage by applying for the no exposure exclusion from permitting. The Permittee must submit (form provided by the Agency) a written certification that a condition of no exposure exists at the facility and that the facility meets the definition of no exposure of industrial activities and materials to storm water.

The application for the no exposure exclusion must be completed by the Permittee and sent to: MPCA, Industrial Storm Water Program, 520 Lafayette Rd N, St Paul, MN 55155-4194.

Failure to complete an accurate application will result in the facility being denied the no exposure exclusion from permitting. The facility must submit the application to the Agency once every five years.

- 12.2 The no exposure exclusion is conditional. The facility must maintain a condition of no exposure at the facility in order for the no exposure exclusion to remain applicable. In the event of any change or circumstance that causes exposure of industrial activities or materials to stormwater, the facility must comply with the stormwater requirements of this chapter.
- 12.3 The no exposure certification is non-transferrable. In the event that the facility operator changes, then the new operator must submit a new no exposure certification to the MPCA, Industrial Stormwater Program, 520 Lafayette Rd N, St Paul, MN 55155-4194.
- 12.4 The Commissioner retains the authority to require the facility operator to comply with the requirements of this chapter, even when an industrial operator certifies no exposure, if the Commissioner has determined that the discharge is contributing to the violation of, or interfering with the attainment or maintenance of water quality standards, including designated uses.

## Chapter 5. Stormwater Management

### 13. Definitions

- 13.1 "No exposure" means all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snow melt, and/or runoff. industrial activities or materials include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products.
- 13.2 "Non-stormwater discharge" means any discharge not comprised entirely of stormwater discharges authorized by a NPDES permit.
- 13.3 "Runoff" means any liquid that drains over land from any part of a facility.

## Chapter 6. Dredged Material Management

### 1. Authorization

- 1.1 This permit is intended to regulate the storage, disposal and/or reuse of dredged material.
- 1.2 This permit authorizes the Permittee to store, dispose, and/or reuse dredged material in accordance with the provisions of this permit.
- 1.3 This permit does not authorize or otherwise regulate dredging activity. However, dredging activity is subject to the water quality standards specified in Minnesota Rules chs. 7050 and 7060.

Initiation of dredge activities shall not commence until the Permittee has obtained all federal, state and/or local approvals that may be required for a particular project, including but not limited to state permits regulating activities in the bed of public waters as defined in Minn. Stat. sec. 105 from the Minnesota Department of Natural Resources (DNR), federal permits for dredged or fill material from the US Army Corps of Engineers (USCOE), and local permits from the appropriate Soil and Water Conservation District, county or local unit of government (LUG).

- 1.4 Compliance with the terms and conditions of this permit releases the Permittee from the requirement to obtain a separate permit for construction and/or industrial activities at the storage, disposal and/or reuse site that would otherwise require the Permittee to obtain a construction and/or industrial storm water permit in accordance with the Clean Water Act and Agency rules, except where the use or reuse of dredged material is occurring at a location separate from other activity covered by this permit.

### 2. Sampling and Analyses

- 2.1 An initial characterization of found sediment in the routine maintenance area to be primarily silt. A round of confirmation characterization sediment samples from the proposed dredge site must be completed prior to the next dredge maintenance project. Subsequent characterizations will be conducted only if needed due to expansion of the maintenance dredging area and/or due to review of the confirmation characterization data. Results of the sediment confirmation characterization must be compiled and submitted to the MPCA prior to the start of the next maintenance project. Characterization shall consist of at least a grain size analysis and, if applicable, baseline and additional sediment analysis per Tables 1 and 2 of Appendix 1. The Permittee completed this characterization for previously permitted dredge activities.

Any expansion in maintenance dredging areas or a request from the MPCA may trigger additional characterization activities consistent with this permit.

## Chapter 6. Dredged Material Management

### 2. Sampling and Analyses

#### 2.2 Grain Size Analysis

The Permittee shall complete a sieve grain size analysis using ASTM Method C-136 for the gradation analysis and ASTM Method D-2487 for classification. The minimum number of samples required for the analysis shall be determined using table 3 in Appendix 1. If the sieve analysis obtained is greater than 95 percent sands then the material is acceptable for Tier 1 or 2 use and additional analytical sampling is not required.

#### 2.3 Baseline Sediment Analysis

Dredged material not excluded from additional analysis (as determined by the grain size analysis), must be analyzed for the constituents listed in Table 1 of Appendix 1.

#### 2.4 Additional Analysis

If it is established through a review of past activities at the site that there is a reasonable likelihood for a pollutant to be present in sediment at a dredge site, the dredged material must be analyzed for additional analyte(s) in accordance with Table 2 and Table 4 in Appendix 1.

### 3. Rehandling, Off-Loading and Transportation of Dredged Material

- 3.1 Dredged materials shall be managed in a manner so as to minimize the amount of material returned by spillage, erosion or other discharge to waters of the state during rehandling, off-loading and/or transportation activities.
- 3.2 Dredged material hauled on federal, state, or local highways, roads, or streets must be hauled in such a way as to prevent dredged material from leaking, spilling, or otherwise being deposited in the right-of-way. Dredged material deposited on a public roadway must be immediately removed and properly disposed.
- 3.3 Tracked soil and/or dredged material shall be removed from impervious surfaces that do not drain back to the dredged material storage, disposal and/or reuse facility within 24 hours of discovery, and placed in the storage, disposal and/or reuse facility site.
- 3.4 Areas for the rehandling and/or off-loading of dredged material shall be sloped away from surface water or otherwise controlled.

### 4. Storage, Disposal and/or Reuse of Dredged Material

- 4.1 Authorization. Prior to the use of a new (different from already disclosed) site for the storage, disposal, and/or reuse of dredged material, the Permittee shall obtain written MPCA approval for such use.
- 4.2 General. Any site used for the storage, disposal and/or reuse of a dredged material shall be operated and maintained by the Permittee to control runoff, including stormwater, from the facility to prevent the exceedance of water quality standards specified in Minnesota Rules, chs. 7050 and 7060.
- 4.3 The Permittee may dispose of dredged material at a permitted solid waste landfill, through on-site disposal, or through reuse for a beneficial purpose, as follows:
  - a. Temporary storage and/or treatment of dredged material at the dredge project site. Temporary storage of dredged material is subject to the requirements of part 4.4 of this chapter.
  - b. Disposal of dredged material at the dredge project site. Disposal of dredged material is subject to parts 4.5 through 4.36 of this chapter.
  - c. Reuse of dredged material for beneficial purposes. Reuse of dredged material is subject to parts 4.37 through 4.39 of this chapter.

#### A. Temporary Storage and/or Treatment of Dredged Material

## Chapter 6. Dredged Material Management

### 4. Storage, Disposal and/or Reuse of Dredged Material

- 4.4 All of the following requirements apply to the temporary storage and/or treatment of dredged material:
- Temporary storage shall not exceed 1 year. Storage or accumulation of dredged material for more than 1 year constitutes disposal, and is subject to the disposal facility requirements of parts 4.5 through 4.36 of this chapter.
  - Dredged materials shall be managed in a manner so as to minimize the amount of material returned by spillage, erosion or other discharge to waters of the state. Best management practices for the management of dredged materials are outlined in the MPCA fact sheet, "Best Management Practices for the Management of Dredged Material".
  - If dikes, berms or silt fences have been constructed to contain temporary stockpiles of dredged material, they shall not be removed until all material has been removed from the stockpile.

#### B. Disposal of Dredged Material

- 4.5 The existing dredge dewatering and disposal facilities have been reviewed and approved by MPCA staff precluding review in regard to Parts 4.6 to 4.17. Notification of a new dredge disposal facility or expansion in the existing facility shall be submitted for MPCA review and approval.
- 4.6 Disposal facilities shall be constructed/operated in accordance with local requirements, including the requirement to obtain a permit, license, or other governmental approval to initiate construction.
- 4.7 Initial Site Plan. An initial site plan shall be prepared and submitted for MPCA review and approval. The initial site plan shall consist of volume calculations for the final permitted capacity and a map of the facility. The map of the facility shall include the permitted boundaries, dimensions, site contours (at contour intervals of two feet or less), soil boring locations with surface elevations and present and planned pertinent features, including but not limited to roads, screening, buffer zone, fencing, gate, shelter and equipment buildings, and surface water diversion and drainage. The initial site plan must be signed by a land surveyor registered in Minnesota or a professional engineer registered in Minnesota.

An initial site plan consistent with this requirement was previously submitted to the MPCA. If a new disposal location is proposed a new site plan shall be prepared and submitted for MPCA review and approval.

- 4.8 Delineation and Identification of Permitted Waste Boundary. The perimeter or outer limit of a dredged material disposal facility shall be indicated by permanent posts or signage. In addition, a permanent sign, identifying the operation and showing the permit number of the site, shall be posted at the dredged material disposal facility.

#### Site Selection and Use

- 4.9 Locational Prohibitions. All of the following locational standards apply to any facility for the disposal of dredged material:
- The disposal facility must be located entirely above the high water table.
  - The disposal facility must not be located within a shoreland or wild and scenic river land use district governed by Minn. R. chapters 6105 and 6120.
  - The disposal facility must not be located within a wetland, unless the Permittee has obtained all federal, state and/or local approvals that may be required for a particular project.
  - The disposal area shall not be located in an area which is unsuitable because of topography, geology, hydrology, or soils.
- 4.10 Separation Distances. A minimum separation distance of 50 feet must be maintained between the boundaries of the disposal facility and the site property line.

#### Design Requirements

## Chapter 6. Dredged Material Management

### 4. Storage, Disposal and/or Reuse of Dredged Material

- 4.11 The following design standards apply to a facility used for the disposal of dredged materials:
- a. An earthen containment dike, or other MPCA approved embankment and/or other sediment control measure(s), shall be established around the perimeter of the dredged material disposal facility (permitted waste boundary).
  - b. Site preparation shall allow for orderly development of the site. Initial site preparations shall include clearing and grubbing, topsoil stripping and stockpiling, fill excavation, if appropriate, drainage control structures, and other design features necessary to construct and operate the facility.
  - c. Surface water runoff shall be diverted around dredged materials disposal facilities to prevent erosion, and protect the structural integrity of exterior embankments from failure.
  - d. Slopes and drainageways shall be designed to prevent erosion. Slopes longer than 200 feet shall be interrupted with drainageways.
  - e. Final slopes for the fill area shall be a minimum two percent and a maximum 20 percent, and shall be consistent with the planned ultimate use for the site.
  - g. Final cover shall consist of at least 18 inches of soil with the top 12 inches capable of sustaining vegetative growth.
  - h. For a system that will impound water (e.g. hydraulic dredging) with a constructed dike over 6 feet in height, or that impound more than 15 acre-feet of water, the system is subject to Minn. R. parts 6115.0300 through 6115.0520 [state Dam Safety Program]. Contact state Dam Safety Program staff at (651) 296-0521 for more information.
- 4.12 Site Stabilization. The Permittee shall stabilize the dredged material disposal facility before any disposal in the facility is allowed, as follows:
- a. The exterior slope of all permanent dikes or berms shall be no steeper than 3 to 1 (horizontal to vertical). The exterior slopes of all permanent dikes or berms must be seeded and a soil fixative (e.g. mulch, blanket) applied within 72 hours of the completion of any grading work on the slopes.
  - b. If grading work is completed too late in the growing season to seed or plant the desired species, then the Permittee must propagate an annual cover crop that can be dormant seeded or planted and must apply a soil fixative to the site. At the very minimum, the Permittee must apply a soil fixative to the exterior slopes of all permanent dikes or berms prior to the first snowfall.
  - c. Silt fences, if used, must be properly installed. The silt fences shall be tall enough and installed at a sufficient distance from the base of the permanent dikes/berms or temporary stockpiles to create a reasonable secondary containment area.
- 4.13 Operational Plan. An Operational Plan of the site and immediately adjacent area shall be developed and implemented, and shall show progressive development of trench and/or area fills and any phase construction. The scale of the development plan shall not be greater than 200 feet per inch.
- 4.14 Facilities for the disposal of dredged material shall be designed by a professional engineer registered in the state of Minnesota, and in accordance with the criteria in parts 4.11 and 4.12 of this chapter. The Permittee shall construct the facility in accordance with these design plans and specifications under the direct supervision of a professional engineer registered in the state of Minnesota.
- 4.15 Certification Required. Prior to use of a facility for the disposal of dredged material under this part, the Permittee shall obtain and submit written certification from an engineer licensed in Minnesota stating that the disposal facility meets the requirements of parts 4.11 and 4.12 of this chapter, and has been constructed in accordance with the design plans and specifications.

### Site Management, Limitations, and Restrictions

## Chapter 6. Dredged Material Management

### 4. Storage, Disposal and/or Reuse of Dredged Material

- 4.16 New or Expanded Facilities. All of the following requirements apply to the construction of new or expanded facilities used for the disposal of dredged material:
- The Permittee shall plan for and implement construction practices that minimize erosion and maintain dike integrity.
  - Erosion control measures shall be established on all downgradient perimeters prior to the initiation of any upgradient land-disturbing construction activities.
  - Surface runoff must be directed around and away from the storage and/or disposal facility site, until the site is stabilized, usually by assuring that vegetative cover is well-established.
  - Sediment control practices shall be designed and implemented to minimize sediment from entering surface waters. The timing of the installation of sediment control practices may be adjusted to accommodate short-term activities such as equipment access. Any short-term activity must be completed as quickly as possible and the sediment control practices must be installed immediately after the activity is completed. However, sediment control practices must be installed before the next precipitation event even if the activity is not complete.
  - All erosion and sediment control measures shall remain in place until final stabilization has been established. Permanent cover or final stabilization methods are used to prevent erosion, such as the placement of rip rap, sodding, or permanent seeding or planting. Permanent seeding and planting must have a uniform perennial vegetation cover of at least 70 percent density to constitute final stabilization.
- 4.17 Management of Disposal Facilities. The following standards apply to a facility used for the disposal of dredged material:
- Each fill phase shall be outlined with grade stakes, and staked for proper grading and filling.
  - All trenches or fill areas shall be staked with permanent markers.
  - A permanent benchmark shall be installed on-site and show its location on the facility as-built plan.
  - Run-on and run-off of stormwater shall be controlled. The owner or operator must implement management practices designed to control run-on and run-off of stormwater from the disposal facility.
  - Vegetative cover shall be established within 120 days of reaching the final permitted capacity of the dredged material disposal facility, or within 120 days of the inactivation or completion of a phase of the facility thereof.
  - If the disposal facility contains any particulate matter that may be subject to wind dispersion, the owner or operator shall cover or otherwise manage the dredged material to control wind dispersion.
  - Nuisance conditions resulting from the disposal of dredged material shall be controlled and managed by the facility owner or operator.
  - Cover slopes shall be surveyed and staked during placement.

### Inspection and Maintenance

- 4.18 Periodic Site Inspections. The Permittee shall inspect the disposal facility to ensure integrity of the erosion control measures, system stability and dredged material containment. At a minimum, the facility shall be inspected:
- prior to the initial placement of any dredged material in the facility; and,
  - within 24 hours of each significant storm event and/or the subsidence of flood events; or,
  - at least once per month if a and/or b, above, are not occurring.
- Inspections may be less frequent once a project is complete assuming all material has been transported to an off-site permitted facility; has been reused in accordance with this permit and is vegetated; or has been stabilized within the facility.
- 4.19 Recordkeeping. The Permittee shall record the date of each inspection, any problem identified with the facility, and the action(s) taken to correct any identified problem. The Permittee shall keep these inspection records on site and available to MPCA staff upon request.
- 4.20 Nonfunctioning erosion and sediment control measures shall be repaired, replaced or supplemented with functioning erosion and/or sediment control measures within three days of discovery.
- 4.21 Dikes and berms constructed to contain hydraulically dredged material and the attendant liquid must be maintained free of all types of animal burrows. Animal burrows should be backfilled with compacted material within three days of discovery.

## **Chapter 6. Dredged Material Management**

### **4. Storage, Disposal and/or Reuse of Dredged Material**

4.22 Where dredging and disposal have been suspended due to frozen ground conditions, the inspections and maintenance shall begin as soon as weather conditions warrant, or prior to resuming dredged material placement in the disposal facility, whichever occurs first.

#### **Sediment Removal and Disposal**

4.23 Dredged material shall be removed from disposal facilities in a manner so as to not damage the integrity and effectiveness of the containment structure or area.

4.24 Dredged material removed from a storage, disposal, and/or reuse facility shall be managed in accordance with this chapter.

4.25 Recordkeeping. The Permittee shall record the dates, the volume of dredged material removed from the disposal facility, and the method and location of the disposition (disposal or reuse) of such materials. This information shall be submitted with the annual 'Dredged Material Report', as specified in the 'Annual Report' part of this chapter.

#### **Closure and Post-Closure Requirements**

4.26 The Permittee must cease to dispose of dredged materials and immediately close the dredged material disposal facility when:

- a. the Permittee declares the dredged material disposal facility closed;
- b. all fill areas reach final permitted capacity;
- c. an agency permit held by the facility expires, and renewal of the permit is not applied for, or is applied for and denied;
- d. an agency permit for the facility is revoked; and/or,
- e. an agency order to cease operations is issued.

4.27 Closure Plan. The Permittee shall prepare and submit a 'Closure Plan' for the final closure of a dredged material disposal facility for MPCA review and approval.

4.28 The 'Closure Plan' shall identify the steps needed to close the entire site at the end of its operating life. The closure plan shall include the following elements:

- a. A description of how and when the entire facility will be closed. The description shall include the estimated year of closure and a schedule for completing each fill phase.
- b. An estimate of the maximum quantity of dredged material in storage at any time during the life of the facility.
- c. A cost estimate including an itemized breakdown for closure of each fill phase and the total cost associated with closure activities at dredged material disposal facilities.

4.29 A copy of the approved 'Closure Plan' and all revisions to the plan shall be kept at the facility until closure is completed and certified. At the time of closure, the agency will issue a closure document in accordance with Minn. R. part 7001.3055.

4.30 Amendment of Plan. The Permittee may amend the 'Closure Plan' (plan) any time during the life of the facility. The Permittee shall amend the plan whenever changes in the operating plan or facility design affect the closure procedures needed, and whenever the expected year of closure changes. Required amendments shall be completed within 60 days of any change or event that affects the closure plan.

4.31 Notification of Final Facility Closure. The Permittee shall notify the commissioner at least 90 days before final facility closure activities are to begin, except if the permit for the facility has been revoked.

4.32 Closure Performance Standard. The Permittee must close the dredged material disposal facility in a manner that eliminates, minimizes, or controls the escape of pollutants to ground water or surface waters, to soils, or to the atmosphere during the postclosure period.

## **Chapter 6. Dredged Material Management**

### **4. Storage, Disposal and/or Reuse of Dredged Material**

- 4.33 Completion of Closure Activities. Within 30 days after receiving the last shipment of dredged material for disposal, the Permittee must begin the final closure activities outlined in the approved 'Closure Plan' for the dredged material disposal facility. Closure activities must be completed according to the approved 'Closure Plan'. The commissioner may approve a longer period if the owner or operator demonstrates that the closure activities will take longer due to adverse weather or other factors not in the control of the Permittee.
- 4.34 Closure Procedures.
- a. Complete the appropriate activities outlined in the approved 'Closure Plan'.
  - b. Complete final closure activities consisting of submitting to the county recorder and the commissioner a detailed description of the waste types accepted at the facility and what the facility was used for, together with a survey plat of the site. The plat must be prepared and certified by a land surveyor registered in Minnesota. The landowner must record a notation on the deed to the property or on some other instrument normally examined during a title search, that will in perpetuity notify any potential purchaser of the property of any special conditions or limitations for use of the site, as set out in the 'Closure Plan' and closure document.
- 4.35 Certification of Closure. When final facility closure is completed, the Permittee shall submit to the commissioner certification by the Permittee and an engineer registered in Minnesota that the facility has been closed in accordance with this chapter.

The certification shall contain the following elements:

- a. a completed and signed 'Site Closure Record';
  - b. documentation of closure, such as pictures, showing the construction techniques used during closure; and,
  - c. a copy of the notation carrying the recorder's seal which has been filed with the county recorder.
- 4.36 Post-Closure Care. After final closure, the Permittee shall comply with the following requirements:
- a. restrict access to the facility by use of gates, fencing, or other means to prevent further disposal at the site, unless the site's final use allows access;
  - b. maintain the integrity and effectiveness of the final cover, including making repairs to the final cover system as necessary to correct the effects of settling, subsidence, gas and leachate migration, erosion, root penetration, burrowing animals, or other events;
  - c. prevent run-on and run-off from eroding or otherwise damaging the final cover;
  - d. protect and maintain surveyed benchmarks

#### **C. Beneficial Use or Re-Use of Dredged Material**

- 4.37 Prior to the use or reuse of a dredged material, the Permittee shall determine the appropriate "suitable reuse category" of the dredged material to be used or reused, as described below.

## **Chapter 6. Dredged Material Management**

### **4. Storage, Disposal and/or Reuse of Dredged Material**

4.38 **Suitable Reuse Categories.** The suitable reuse category of a dredged material is based on the analyzed characteristics of the dredged material (sampled prior to dredging or in a spoil pile after dredging) and appropriately applied Soil Reference Values (SRVs), which are listed in Table 1 and Table 2 of Appendix 1 to this permit.

For the purposes of this permit, dredged material intended for the beneficial use or reuse is categorized into three tiers: Tier 1, Tier 2, and Tier 3. If the sieve analysis obtained by a #200 sieve is greater than 95 percent sands then the material is acceptable for Tier 1 or 2 use and additional analytical sampling is not required.

- a. Tier 1 material is authorized to be used or reused at/on sites with a residential property use category. Tier 1 material is characterized by a contaminant level that is at or below all respective analyte concentrations listed in the Tier 1 SRV column for any contaminant that can be reasonably expected to be present in the dredged material.
- b. Tier 2 material is authorized to be used or reused on/at sites with an industrial or recreational use category. Tier 2 material is characterized by a contaminant level that is at or below all respective analyte concentrations listed in the Tier 2 SRV column for any contaminant that can be reasonably expected to be present in the dredged material.
- c. Tier 3 material is NOT authorized to be used or reused under this permit. Tier 3 material is characterized by a contaminant level that is greater than any respective analyte concentrations listed in the Tier 2 SRV column for any contaminant that can be reasonably expected to be present in the dredged material.

4.39 **Storage Prior to Reuse.** Storage of dredged material prior to reuse or use is subject to the temporary storage requirements of this chapter, or the disposal requirements of this chapter, as applicable.

### **5. Annual Report**

5.1 Submit an annual 'Dredged Material Report' by February 1 of each year following permit issuance, for the preceding calendar year. The Permittee shall provide this report even if no dredging occurred during the preceding calendar year. Report on the form provided by the MPCA in the Appendices section of this permit, or another MPCA approved form.

## **Chapter 6. Dredged Material Management**

### **5. Annual Report**

- 5.2 The annual 'Dredged Material Report' shall be on a form provided by the Commissioner, or another MPCA approved form, and shall include the following elements:
- a. Dates of dredging;
  - b. Volume of material placed into storage or disposal facility;
  - c. Any incidents, such as spills, unauthorized discharge and/or other permit violations which may have occurred;
  - d. Water level records for the disposal facilities of hydraulic dredging projects;
  - e. Such information as the MPCA may reasonably require of the Permittee pursuant to Minn. R. 7001 and Minn. Stat. chap. 115 and 116 as amended;
  - f. For disposal facilities, the dates of 'Periodic Site Inspections' required by this chapter, and the status of erosion control measures at the disposal facility;
  - g. For disposal facilities, the dates, the volume of dredged material removed from the disposal facility, and the method and location of the disposition (disposal or reuse) of such materials.
  - h. For facilities that used or reused dredged material during the previous calendar year, the following information shall also be provided:
    - i. A written description of the use or reuse of the dredged material;
    - ii. A written determination of the use category and appropriate Soil Reference Values (SRVs), as described by part this chapter; and,
    - iii. The results of an evaluation of the level of contaminants in the dredged material proposed for reuse for the respective SRVs, as described in part 4.42 of this chapter.

### **6. Definitions**

- 6.1 "Beneficial Re-use" means the re-use of dredged material, after the material has been dewatered, in projects such as, but not limited to: road base, building base or pad, etc.
- 6.2 "Carriage, or Conveyance, Water" means the water portion of a slurry of water and dredged material.
- 6.3 "Carriage Water Return Flow" means the carriage water which is returned to a receiving water after separation of the dredged material from the carriage water in a disposal, rehandling or treatment facility.
- 6.4 "Disposal Facility" means a structure, site or area for the disposal of dredged material.
- 6.5 "Dredged Material" means any material removed from the bed of any waterway by dredging.
- 6.6 "Dredging" means any part of the process of the removal of material from the beds of waterways; transport of the material to a disposal, rehandling or treatment facility; treatment of the material; discharge of carriage or interstitial water; and disposal of the material.
- 6.7 "Erosion Control" means methods employed to prevent erosion. Examples include: soil stabilization practices, horizontal slope grading, temporary or permanent cover, and construction phasing. (look for SW definition)
- 6.8 "Flood Event" means that the surface elevation of a waterbody has risen to a level that causes the inundation or submersion of areas normally above the Ordinary High Water Level.
- 6.9 "Interstitial, or Pore, Water" means water contained in the interstices or voids of soil or rock in the dredged material.

## Chapter 6. Dredged Material Management

### 6. Definitions

- 6.10 "Ordinary High-Water Level (OHWL)" means the boundary of waterbasins, watercourses, public waters, and public waters wetlands, and shall be an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the ordinary high water level is the elevation of the top of the bank of the channel. For reservoirs and flowages, the ordinary high water level is the operating elevation of the normal summer pool. (Minn. Stat. chap. 103G.005 Subd. 14 and MN Rule 6120.2500 Subp. 11.)
- 6.11 "Rehandling Facility" means a temporary storage site or facility used during the transportation of dredged material to a treatment or disposal facility.
- 6.12 "Stabilized" means staked sod, riprap, wood fiber blanket, or other material that prevents erosion from occurring and has covered the exposed ground surface. Grass seed is not stabilization.
- 6.13 "Upland Disposal" means the disposal of dredged materials landward from the ordinary high-water level of a waterway or waterbody.
- 6.14 "Impoundment" means a natural or artificial body of water or sludge confined by a dam, dike, floodgate, or other barrier.
- 6.15 "Beach Nourishment" means the disposal of dredged material on the beaches or in the water waterward starting at or above the Ordinary High Water Level (OHWL) for the purpose of adding to, replenishing, or preventing the erosion of, beach material.
- 6.16 "Discharges of Dredged Material" means any addition of dredged material into waters of the state and includes discharges of water from dredged material disposal operations including beach nourishment, upland, or confined disposal which return to waters of state. Material resuspended during normal dredging operations is considered "de minimis" and is not a dredged material discharge.
- 6.17 "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover (a density of 70 percent cover for unpaved areas and areas not covered by permanent structures) has been established or equivalent permanent stabilization measures have been employed. Examples of vegetative cover practices can be found in Supplemental Specifications to the 1988 Standard Specifications for Construction (Minnesota Department of Transportation, 1991).
- 6.18 "Unconfined Disposal" means the deposition of dredged material, in water, on the bed of a waterway.
- 6.19 "Design capacity" means the total volume of compacted dredged materials, along with any topsoil, intermittent, intermediate, and/or final cover, as calculated from final contour and cross-sectional plan sheets that define the areal and vertical extent of the fill area.
- 6.20 "Storage Facility" means a structure, site or area for the holding of dredged material for more than 48 hours in quantities equal to or greater than ten cubic yards. Storage for more than 1 year constitutes disposal.
- 6.21 "Significant Storm Event" means a storm event that is greater than 1.0 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 1.0 inch rainfall) storm event. The 72-hour storm event interval may be waived where:
- the preceding measurable storm event did not result in a measurable discharge from the facility; or,
  - the Permittee documents that less than a 72-hour interval is representative for local storm events during the season when sampling is being conducted.

## **Chapter 8. Phosphorus Management Plan**

### **1. General Requirements**

- 1.1 Phosphorus is a common constituent in many wastewater discharges and a pollutant that has the potential to negatively impact the quality of Minnesota's lakes, wetlands, rivers and streams. Therefore, phosphorus discharges are being carefully evaluated throughout the state.

The Permittee is required to complete and submit a Phosphorus Management Plan (PMP) to the MPCA as detailed in this section. If the Permittee has already submitted a PMP, the Permittee must update that PMP and submit the updated PMP to the MPCA as detailed in this section.

While the PMP does not require specific reductions at this time, the MPCA strongly encourages the Permittee to identify and eliminate/reduce sources of phosphorus to, and improve phosphorus management within, the permitted wastewater treatment facility. The PMP for this facility should include a detailed account of the phosphorus added during operations, phosphorus monitoring completed to date, and steps taken to control the amount of phosphorus added to water systems that contribute to discharge at the facility.

For additional information about completing the PMP below, please contact the MPCA's Customer Assistance Center at (800)646-6247.

- 1.2 The Permittee shall submit a Phosphorus Management Plan (PMP) to the MPCA 180 days prior to permit expiration.

At a minimum, the PMP shall include the following:

- a. A summary the monitoring data including, if available, influent and effluent concentrations and mass loadings.
  - b. Identification of existing and potential sources of elevated phosphorus concentrations and/or loading to the facility.
  - c. An evaluation of past and present operations to determine those operating procedures that minimize phosphorus use affecting discharge.
  - d. A summary of any phosphorus reduction activities implemented during the last five years.
  - e. Phosphorus management and reduction goals for the next five years using the information collected in A through D above.
  - f. A plan to implement phosphorus management and reduction measures during the next five years. Submit a Phosphorus Management Plan by 180 days before permit expiration.
- 1.3 The Permittee shall monitor phosphorus concentration at SD005 once a month for at least two years. After two years of monthly phosphorus monitoring of the ash pond effluent the Permittee may request a reduction or elimination of the phosphorus monitoring requirement. A reduction in monitoring frequency or elimination of monitoring requirements is not effective until approved by the MPCA. The Permittee shall be notified in writing if a change to the monitoring requirements has been authorized.

## **Chapter 9. Total Facility Requirements**

### **1. General Requirements**

#### **General Requirements**

## Chapter 7. Non-waste Streams -- Mercury Minimization Plan

### 1. Mercury Pollutant Minimization Plan

- 1.1 Mercury is present in all municipal and many industrial wastewater discharges. Mercury is a powerful neurotoxin that affects human health and the environment. A naturally-occurring element, mercury does not break down into less-harmful substances over time. Instead, mercury released into the environment accumulates in fish and animal tissues, a process known as bioaccumulation. Widespread mercury contamination has prompted the Minnesota Department of Health (MDH) to issue fish consumption advisories throughout the state. Most of Minnesota's impaired waters are contaminated by mercury and other bioaccumulative toxins. The MPCA is carefully evaluating all mercury discharges in the state.
- 1.2 The Permittee is required to complete and submit a Mercury Pollutant Minimization Plan (MMP) to the MPCA as detailed in this section. If the Permittee has previously submitted a MMP, it must update its MMP and submit the updated MMP to the MPCA. The purpose of the MMP is to evaluate collection and treatment systems to determine possible sources of mercury as well as potential mercury reduction options. Guidelines for developing a MMP are detailed in this section.
- 1.3 The Permittee shall submit a Pollutant Minimization Plan within 24 months of permit issuance. At a minimum, the MMP must include the following:
  - a) A summary of mercury influent and effluent concentrations data using the most recent five years of monitoring data, if available.
  - b) Identification of existing and potential sources of mercury concentrations and/or loading to the facility. As appropriate for your facility, you should consider residential, institutional, municipal, and commercial sources (such as dental clinics, hospitals, medical clinics, nursing homes, schools, and industries with potential for mercury contributions). You should also consider other influent mercury sources, such as stormwater inputs, ground water (inflow & infiltration) inputs, and waste streams or sewer tributaries to the wastewater treatment facility.
  - c) An evaluation of past and present operations to determine those operating procedures that maximize mercury removal.
  - d) A summary of any mercury reduction activities implemented during the last five years.
  - e) A plan to implement mercury management and reduction measures during the next five years.

### 2. General Requirements

- 2.1 The permit may be reopened to insert a mercury limit or alternative mercury monitoring requirements based on the Implementation Plan for the State Wide Mercury TMDL.

## Chapter 9. Total Facility Requirements

### 1. General Requirements

- 1.1 Incorporation by Reference. The following applicable federal and state laws are incorporated by reference in this permit, are applicable to the Permittee, and are enforceable parts of this permit: 40 CFR pts. 122.41, 122.42, 136, 403 and 503; Minn. R. pts. 7001, 7041, 7045, 7050, 7060, and 7080; and Minn. Stat. Sec. 115 and 116.
- 1.2 Permittee Responsibility. The Permittee shall perform the actions or conduct the activity authorized by the permit in compliance with the conditions of the permit and, if required, in accordance with the plans and specifications approved by the Agency. (Minn. R. 7001.0150, subp. 3, item E)
- 1.3 Toxic Discharges Prohibited. Whether or not this permit includes effluent limitations for toxic pollutants, the Permittee shall not discharge a toxic pollutant except according to Code of Federal Regulations, Title 40, sections 400 to 460 and Minnesota Rules, parts 7050.0100 to 7050.0220 and 7052.0010 to 7052.0110 (applicable to toxic pollutants in the Lake Superior Basin) and any other applicable MPCA rules. (Minn. R. 7001.1090, subp.1, item A)
- 1.4 Nuisance Conditions Prohibited. The Permittee's discharge shall not cause any nuisance conditions including, but not limited to: floating solids, scum and visible oil film, acutely toxic conditions to aquatic life, or other adverse impact on the receiving water. (Minn. R. 7050.0210 subp. 2)
- 1.5 Property Rights. This permit does not convey a property right or an exclusive privilege. (Minn. R. 7001.0150, subp. 3, item C)
- 1.6 Liability Exemption. In issuing this permit, the state and the MPCA assume no responsibility for damage to persons, property, or the environment caused by the activities of the Permittee in the conduct of its actions, including those activities authorized, directed, or undertaken under this permit. To the extent the state and the MPCA may be liable for the activities of its employees, that liability is explicitly limited to that provided in the Tort Claims Act. (Minn. R. 7001.0150, subp. 3, item O)
- 1.7 The MPCA's issuance of this permit does not obligate the MPCA to enforce local laws, rules, or plans beyond what is authorized by Minnesota Statutes. (Minn. R. 7001.0150, subp.3, item D)
- 1.8 Liabilities. The MPCA's issuance of this permit does not release the Permittee from any liability, penalty or duty imposed by Minnesota or federal statutes or rules or local ordinances, except the obligation to obtain the permit. (Minn. R. 7001.0150, subp.3, item A)
- 1.9 The issuance of this permit does not prevent the future adoption by the MPCA of pollution control rules, standards, or orders more stringent than those now in existence and does not prevent the enforcement of these rules, standards, or orders against the Permittee. (Minn. R. 7001.0150, subp.3, item B)
- 1.10 Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.
- 1.11 Compliance with Other Rules and Statutes. The Permittee shall comply with all applicable air quality, solid waste, and hazardous waste statutes and rules in the operation and maintenance of the facility.
- 1.12 Inspection and Entry. When authorized by Minn. Stat. Sec. 115.04; 115B.17, subd. 4; and 116.091, and upon presentation of proper credentials, the agency, or an authorized employee or agent of the agency, shall be allowed by the Permittee to enter at reasonable times upon the property of the Permittee to examine and copy books, papers, records, or memoranda pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit; and to conduct surveys and investigations, including sampling or monitoring, pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit. (Minn. R. 7001.0150, subp.3, item I)

## Chapter 9. Total Facility Requirements

### 1. General Requirements

1.13 Control Users. The Permittee shall regulate the users of its wastewater treatment facility so as to prevent the introduction of pollutants or materials that may result in the inhibition or disruption of the conveyance system, treatment facility or processes, or disposal system that would contribute to the violation of the conditions of this permit or any federal, state or local law or regulation.

#### Sampling

1.14 Representative Sampling. Samples and measurements required by this permit shall be conducted as specified in this permit and representative of the discharge or monitored activity. (40 CFR 122.41 (j)(1))

1.15 Additional Sampling. If the Permittee monitors more frequently than required, the results and the frequency of monitoring shall be reported on the Discharge Monitoring Report (DMR) or another MPCA-approved form for that reporting period. (Minn. R. 7001.1090, subp. 1, item E)

1.16 Certified Laboratory. A laboratory certified by the Minnesota Department of Health shall conduct analyses required by this permit. Analyses of dissolved oxygen, pH, temperature and total residual oxidants (chlorine, bromine) do not need to be completed by a certified laboratory but shall comply with manufacturers specifications for equipment calibration and use. (Minn. Stat. Sec. 144.97 through 144.98 and Minn. R. 4740.2010 and 4740.2050 through 4740.2120) (Minn. R. 4740.2010 and 4740.2050 through 2120)

1.17 Sample Preservation and Procedure. Sample preservation and test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and Minn. R. 7041.3200.

1.18 Equipment Calibration: Flow meters, pumps, flumes, lift stations or other flow monitoring equipment used for purposes of determining compliance with permit shall be checked and/or calibrated for accuracy at least twice annually. (Minn. R. 7001.0150, subp. 2, items B and C)

1.19 Maintain Records. The Permittee shall keep the records required by this permit for at least three years, including any calculations, original recordings from automatic monitoring instruments, and laboratory sheets. The Permittee shall extend these record retention periods upon request of the MPCA. The Permittee shall maintain records for each sample and measurement. The records shall include the following information (Minn. R. 7001.0150, subp. 2, item C):

- a. The exact place, date, and time of the sample or measurement;
- b. The date of analysis;
- c. The name of the person who performed the sample collection, measurement, analysis, or calculation; and
- d. The analytical techniques, procedures and methods used; and
- e. The results of the analysis.

1.20 Completing Reports. The Permittee shall submit the results of the required sampling and monitoring activities on the forms provided, specified, or approved by the MPCA. The information shall be recorded in the specified areas on those forms and in the units specified. (Minn. R. 7001.1090, subp. 1, item D; Minn. R. 7001.0150, subp. 2, item B)

Required forms may include:

#### Supplemental Report Form (Supplemental)

Individual values for each sample and measurement must be recorded on the Supplemental which, if required, will be provided by the MPCA. Supplementals shall be submitted with the appropriate DMRs. You may design and use your own Supplemental; however it must be approved by the MPCA. Note: Required Summary information MUST also be recorded on the DMR. Summary information that is submitted ONLY on the Supplemental does not comply with the reporting requirements.

## Chapter 9. Total Facility Requirements

### 1. General Requirements

1.21 Submitting Reports. DMRs and Supplementals shall be submitted to:

MPCA  
Attn: Discharge Monitoring Reports  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194.

DMRs and Supplementals shall be postmarked by the 21st day of the month following the sampling period or as otherwise specified in this permit. A DMR shall be submitted for each required station even if no discharge occurred during the reporting period. (Minn. R. 7001.0150, subps. 2.B and 3.H)

Other reports required by this permit shall be postmarked by the date specified in the permit to:

MPCA  
Attn: WQ Submittals Center  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194

- 1.22 Incomplete or Incorrect Reports. The Permittee shall immediately submit an amended report or DMR to the MPCA upon discovery by the Permittee or notification by the MPCA that it has submitted an incomplete or incorrect report or DMR. The amended report or DMR shall contain the missing or corrected data along with a cover letter explaining the circumstances of the incomplete or incorrect report. (Minn. R. 7001.0150 subp. 3, item G)
- 1.23 Required Signatures. All DMRs, forms, reports, and other documents submitted to the MPCA shall be signed by the Permittee or the duly authorized representative of the Permittee. Minn. R. 7001.0150, subp. 2, item D. The person or persons that sign the DMRs, forms, reports or other documents must certify that he or she understands and complies with the certification requirements of Minn. R. 7001.0070 and 7001.0540, including the penalties for submitting false information. Technical documents, such as design drawings and specifications and engineering studies required to be submitted as part of a permit application or by permit conditions, must be certified by a registered professional engineer. (Minn. R. 7001.0540)
- 1.24 Detection Level. The Permittee shall report monitoring results below the reporting limit (RL) of a particular instrument as "<" the value of the RL. For example, if an instrument has a RL of 0.1 mg/L and a parameter is not detected at a value of 0.1 mg/L or greater, the concentration shall be reported as "<0.1 mg/L." "Non-detected," "undetected," "below detection limit," and "zero" are unacceptable reporting results, and are permit reporting violations. (Minn. R. 7001.0150, subp. 2, item B)
- Where sample values are less than the level of detection and the permit requires reporting of an average, the Permittee shall calculate the average as follows:
- If one or more values are greater than the level of detection, substitute zero for all nondetectable values to use in the average calculation.
  - If all values are below the level of detection, report the averages as "<" the corresponding level of detection.
  - Where one or more sample values are less than the level of detection, and the permit requires reporting of a mass, usually expressed as kg/day, the Permittee shall substitute zero for all nondetectable values. (Minn. R. 7001.0150, subp. 2, item B)
- 1.25 Records. The Permittee shall, when requested by the Agency, submit within a reasonable time the information and reports that are relevant to the control of pollution regarding the construction, modification, or operation of the facility covered by the permit or regarding the conduct of the activity covered by the permit. (Minn. R. 7001.0150, subp. 3, item H)

## Chapter 9. Total Facility Requirements

### 1. General Requirements

1.26 Confidential Information. Except for data determined to be confidential according to Minn. Stat. Sec. 116.075, subd. 2, all reports required by this permit shall be available for public inspection. Effluent data shall not be considered confidential. To request the Agency maintain data as confidential, the Permittee must follow Minn. R. 7000.1300.

#### Noncompliance and Enforcement

1.27 Subject to Enforcement Action and Penalties. Noncompliance with a term or condition of this permit subjects the Permittee to penalties provided by federal and state law set forth in section 309 of the Clean Water Act; United States Code, title 33, section 1319, as amended; and in Minn. Stat. Sec. 115.071 and 116.072, including monetary penalties, imprisonment, or both. (Minn. R. 7001.1090, subp. 1, item B)

1.28 Criminal Activity. The Permittee may not knowingly make a false statement, representation, or certification in a record or other document submitted to the Agency. A person who falsifies a report or document submitted to the Agency, or tampers with, or knowingly renders inaccurate a monitoring device or method required to be maintained under this permit is subject to criminal and civil penalties provided by federal and state law. (Minn. R. 7001.0150, subp.3, item G., 7001.1090, subps. 1, items G and H and Minn. Stat. Sec. 609.671)

1.29 Noncompliance Defense. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (40 CFR 122.41(c))

1.30 Effluent Violations. If sampling by the Permittee indicates a violation of any discharge limitation specified in this permit, the Permittee shall immediately make every effort to verify the violation by collecting additional samples, if appropriate, investigate the cause of the violation, and take action to prevent future violations. Violations that are determined to pose a threat to human health or a drinking water supply, or represent a significant risk to the environment shall be immediately reported to the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 (toll free) or (651)649-5451 (metro area). In addition, you may also contact the MPCA during business hours. Otherwise the violations and the results of any additional sampling shall be recorded on the next appropriate DMR or report.

1.31 Unauthorized Releases of Wastewater Prohibited. Except for conditions specifically described in Minn. R. 7001.1090, subp. 1, items J and K, all unauthorized bypasses, overflows, discharges, spills, or other releases of wastewater or materials to the environment, whether intentional or not, are prohibited. However, the MPCA will consider the Permittee's compliance with permit requirements, frequency of release, quantity, type, location, and other relevant factors when determining appropriate action. (40 CFR 122.41 and Minn. Stat. Sec 115.061)

## Chapter 9. Total Facility Requirements

### 1. General Requirements

1.32 Discovery of a release. Upon discovery of a release, the Permittee shall:

a. Take all reasonable steps to immediately end the release.

b. Notify the Minnesota Department of Public Safety Duty Officer at 1(800)422-0798 (toll free) or (651)649-5451 (metro area) immediately upon discovery of the release. In addition, you may also contact the MPCA during business hours at 1(800) 657-3864.

c. Recover as rapidly and as thoroughly as possible all substances and materials released or immediately take other action as may be reasonably possible to minimize or abate pollution to waters of the state or potential impacts to human health caused thereby. If the released materials or substances cannot be immediately or completely recovered, the Permittee shall contact the MPCA. If directed by the MPCA, the Permittee shall consult with other local, state or federal agencies (such as the Minnesota Department of Natural Resources and/or the Wetland Conservation Act authority) for implementation of additional clean-up or remediation activities in wetland or other sensitive areas.

d. Collect representative samples of the release. The Permittee shall sample the release for parameters of concern immediately following discovery of the release. The Permittee may contact the MPCA during business hours to discuss the sampling parameters and protocol. In addition, Fecal Coliform Bacteria samples shall be collected where it is determined by the Permittee that the release contains or may contain sewage. If the release cannot be immediately stopped, the Permittee shall consult with MPCA regarding additional sampling requirements. Samples shall be collected at least, but not limited to, two times per week for as long as the release continues.

e. Submit the sampling results as directed by the MPCA. At a minimum, the results shall be submitted to the MPCA with the next DMR.

1.33 Upset Defense. In the event of temporary noncompliance by the Permittee with an applicable effluent limitation resulting from an upset at the Permittee's facility due to factors beyond the control of the Permittee, the Permittee has an affirmative defense to an enforcement action brought by the Agency as a result of the noncompliance if the Permittee demonstrates by a preponderance of competent evidence:

a. The specific cause of the upset;

b. That the upset was unintentional;

c. That the upset resulted from factors beyond the reasonable control of the Permittee and did not result from operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or increases in production which are beyond the design capability of the treatment facilities;

d. That at the time of the upset the facility was being properly operated;

e. That the Permittee properly notified the Commissioner of the upset in accordance with Minn. R. 7001.1090, subp. 1, item I; and

f. That the Permittee implemented the remedial measures required by Minn. R. 7001.0150, subp. 3, item J.

### Operation and Maintenance

## **Chapter 9. Total Facility Requirements**

### **1. General Requirements**

- 1.34 The Permittee shall at all times properly operate and maintain the facilities and systems of treatment and control, and the appurtenances related to them which are installed or used by the Permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall install and maintain appropriate backup or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit and, for all permits other than hazardous waste facility permits, if these backup or auxiliary facilities are technically and economically feasible Minn. R. 7001.0150, subp. 3, item F.
- 1.35 In the event of a reduction or loss of effective treatment of wastewater at the facility, the Permittee shall control production or curtail its discharges to the extent necessary to maintain compliance with the terms and conditions of this permit. The Permittee shall continue this control or curtailment until the wastewater treatment facility has been restored or until an alternative method of treatment is provided. (Minn. R. 7001.1090, subp. 1, item C)
- 1.36 Solids Management. The Permittee shall properly store, transport, and dispose of biosolids, septage, sediments, residual solids, filter backwash, screenings, oil, grease, and other substances so that pollutants do not enter surface waters or ground waters of the state. Solids should be disposed of in accordance with local, state and federal requirements. (40 CFR 503 and Minn. R. 7041 and applicable federal and state solid waste rules)
- 1.37 Intake screen backwash water and contents are returned to the river, which can help with the protection of fish and other aquatic organisms.
- 1.38 Scheduled Maintenance. The Permittee shall schedule maintenance of the treatment works during non-critical water quality periods to prevent degradation of water quality, except where emergency maintenance is required to prevent a condition that would be detrimental to water quality or human health. (Minn. R. 7001.0150, subp. 3, item F and Minn. R. 7001.0150, subp. 2, item B)
- 1.39 Control Tests. In-plant control tests shall be conducted at a frequency adequate to ensure compliance with the conditions of this permit. (Minn. R. 7001.0150, subp. 3, item F and Minn. R. 7001.0150, subp. 2, item B)

#### **Changes to the Facility or Permit**

- 1.40 Permit Modifications. No person required by statute or rule to obtain a permit may construct, install, modify, or operate the facility to be permitted, nor shall a person commence an activity for which a permit is required by statute or rule until the Agency has issued a written permit for the facility or activity. (Minn. R. 7001.0030)

Permittees that propose to make a change to the facility or discharge that requires a permit modification must follow Minn. R. 7001.0190. If the Permittee cannot determine whether a permit modification is needed, the Permittee must contact the MPCA prior to any action. It is recommended that the application for permit modification be submitted to the MPCA at least 180 days prior to the planned change.

- 1.41 Construction. No construction shall begin until the Permittee receives written approval of plans and specifications from the MPCA (Minn. Stat. Sec. 115.03(f)).

Plans, specifications and MPCA approval are not necessary when maintenance dictates the need for installation of new equipment, provided the equipment is the same design size and has the same design intent. For instance, a broken pipe, lift station pump, aerator, or blower can be replaced with the same design-sized equipment without MPCA approval.

If the proposed construction is not expressly authorized by this permit, it may require a permit modification. If the construction project requires an Environmental Assessment Worksheet under Minn. R. 4410, no construction shall begin until a negative declaration is issued and all approvals are received or implemented.

- 1.42 Report Changes. The Permittee shall give advance notice as soon as possible to the MPCA of any substantial changes in operational procedures, activities that may alter the nature or frequency of the discharge, and/or material factors that may affect compliance with the conditions of this permit. (Minn. R. 7001.0150, subp. 3, item M)

## Chapter 9. Total Facility Requirements

### 1. General Requirements

1.43 Chemical Additives. The Permittee shall receive prior written approval from the MPCA before increasing the use of a chemical additive authorized by this permit, or using a chemical additive not authorized by this permit, in quantities or concentrations that have the potential to change the characteristics, nature and/or quality of the discharge.

The Permittee shall request approval for an increased or new use of a chemical additive at least 60 days, or as soon as possible, before the proposed increased or new use.

This written request shall include at least the following information for the proposed additive:

- a. The process for which the additive will be used;
- b. Material Safety Data Sheet (MSDS) which shall include aquatic toxicity, human health, and environmental fate information for the proposed additive;
- c. A complete product use and instruction label;
- d. The commercial and chemical names and Chemical Abstract Survey (CAS) number for all ingredients in the additive (If the MSDS does not include information on chemical composition, including percentages for each ingredient totaling to 100%, the Permittee shall contact the supplier to have this information provided); and
- e. The proposed method of application, application frequency, concentration, and daily average and maximum rates of use.

Upon review of the information submitted regarding the proposed chemical additive, the MPCA may require that additional information be submitted for consideration. Also, this permit may be modified to restrict the use or discharge of a chemical additive and include additional influent and effluent monitoring requirements. (Minn. R. 7001.0170)

- 1.44 MPCA Initiated Permit Modification, Suspension, or Revocation. The MPCA may modify or revoke and reissue this permit pursuant to Minn. R. 7001.0170. The MPCA may revoke without reissuance this permit pursuant to Minn. R. 7001.0180.
- 1.45 TMDL Impacts. Facilities that discharge to an impaired surface water, or to a watershed or drainage basin that contains impaired waters, may be required, at some future date, to comply with additional permits, or permit requirements, including additional restriction or relaxation of limits and monitoring as authorized by the CWA 303(d)(4)(A) ) and 40 CFR 122.44.1.2.i, based on the conclusions of any applicable US EPA approved Total Maximum Daily Load (TMDL) studies, their associated implementation plans or additional sampling or monitoring.
- 1.46 Permit Transfer. The permit is not transferable to any person without the express written approval of the Agency after compliance with the requirements of Minn. R. 7001.0190. A person to whom the permit has been transferred shall comply with the conditions of the permit. (Minn. R., 7001.0150, subp. 3, item N)

## Chapter 9. Total Facility Requirements

### 1. General Requirements

1.47 Facility Closure. The Permittee is responsible for closure and postclosure care of the facility. The Permittee shall notify the MPCA of a significant reduction or cessation of the activities described in this permit at least 180 days before the reduction or cessation. The MPCA may require the Permittee to provide to the MPCA a facility Closure Plan for approval.

Facility closure that could result in a potential long-term water quality concern, such as the ongoing discharge of wastewater to surface or ground water, may require a permit modification or reissuance.

The MPCA may require the Permittee to establish and maintain financial assurance to ensure performance of certain obligations under this permit, including closure, postclosure care and remedial action at the facility. If financial assurance is required, the amount and type of financial assurance, and proposed modifications to previously MPCA-approved financial assurance, shall be approved by the MPCA. (Minn. Stat. Sec. 116.07, subd. 4)

1.48 Permit Reissuance. If the Permittee desires to continue permit coverage beyond the date of permit expiration, the Permittee shall submit an application for reissuance at least 180 days before permit expiration. If the Permittee does not intend to continue the activities authorized by this permit after the expiration date of this permit, the Permittee shall notify the MPCA in writing at least 180 days before permit expiration.

If the Permittee has submitted a timely application for permit reissuance, the Permittee may continue to conduct the activities authorized by this permit, in compliance with the requirements of this permit, until the MPCA takes final action on the application, unless the MPCA determines any of the following (Minn. R. 7001.0040 and 7001.0160):

- a. The Permittee is not in substantial compliance with the requirements of this permit, or with a stipulation agreement or compliance schedule designed to bring the Permittee into compliance with this permit;
- b. The MPCA, as a result of an action or failure to act by the Permittee, has been unable to take final action on the application on or before the expiration date of the permit;
- c. The Permittee has submitted an application with major deficiencies or has failed to properly supplement the application in a timely manner after being informed of deficiencies.

**Table 1. Baseline Sediment Parameter List**

| <b>Parameter</b>              | <b>Analytical Method</b>                   | <b>Method<br/>Detection<br/>Limit</b><br><i>(mg/kg, dry weight<br/>unless noted)</i> | <b>Residential<br/>Soil<br/>Reference<br/>Value (SRV)</b><br><i>(mg/kg, dry weight<br/>unless noted)</i> | <b>Industrial<br/>Soil<br/>Reference<br/>Value (SRV)</b><br><i>(mg/kg, dry weight<br/>unless noted)</i> |
|-------------------------------|--|--|--|---|
| <b>Inorganics – Metals</b>    |  |  |  |   |
| Arsenic                       | SW-846 3050B/6010B EPA 6010 or 7060        | 0.42   | 5  | 20  |
| Cadmium                       | SW-846 3050B/6010B EPA 7131                | 0.02   | 25   | 200   |
| Chromium III                  | SW-846 3050B/6010B EPA 6010 or 7191        | 0.058  | 44,000   | 100,000   |
| Chromium VI                   | SW-846 3050B/6010B EPA 6010 or 7191        | 0.058  | 87   | 650   |
| Copper                        | SW-846 3050B/6010B EPA 6010 or 7211        | 0.1  | 11   | 9,000   |
| Lead                          | SW-846 3050B/6010B EPA 6010 or 7421        | 0.22   | 300  | 700   |
| Mercury                       | SW-846 7471A EPA 7471                      | 0.02   | 0.5  | 1.5   |
| Nickel                        | SW-846 3050B/6010B EPA 6010                | 0.36   | 560  | 2,500   |
| Selenium                      | SW-846 3050B/6010B                         | 0.43   | 160  | 1,300   |
| Zinc                          | SW-846 3050B/6010B EPA 6010 or 7951        | 0.35   | 8,700  | 75,000  |
| <b>Inorganics – Nutrients</b> |  |  |  |   |
| Total Phosphorus              | EPA 365.2/365.3                            | 50   |  |   |
| Nitrate + Nitrite             |  |  |  |   |
| Ammonia-Nitrogen              |  |  |  |   |
| Total Kjeldahl Nitrogen       |  |  |  |   |
| <b>Organics</b>               |  |  |  |   |
| PCBs (Total)                  | SW-846 8082<br>EPA 8082, 3540B, 3541, 3545 | 0.02   | 1.2  | 8   |
| Total Organic Carbon          | SW846-EPA 9060                             | 0.2%   |  |   |
| <b>Physical Tests</b>         |  |  |  |   |
| Sieve and Hydrometer Analysis | ASTM D-422                                 |  |  |   |
| Moisture Content              | ASTM D-2216                                |  |  |   |



**Table 2. Additional Sediment Parameter List**

| <b>Parameter</b>  | <b>Analytical Method</b>            | <b>Method Detection Limit</b><br><i>(mg/kg, dry weight unless noted)</i> | <b>Residential Soil Reference Value (SRV)</b><br><i>(mg/kg, dry weight unless noted)</i>   | <b>Industrial Soil Reference Value (SRV)</b><br><i>(mg/kg, dry weight unless noted)</i> |
|---|-------------------------------------|--|--|---|
| <b>Inorganics – Metals</b>  |                                     |  |  |   |
| Barium  | SW-846 3050B/6010B                  | 0.049  | 1,200  | 18,000  |
| Cyanide   | SW-846 9012A                        | 0.5  | 62   | 5,000   |
| Manganese   | SW-846 3050B/6010B                  | 0.39   | 3,600  | 8,100   |
| <b>Inorganics – Nutrients</b>   |                                     |  |  |   |
| Oil & Grease  | SW-846 9070                         |  |  |   |
| <b>Organics</b>   |                                     |  |  |   |
| Aldrin  | SW-846 8081 EPA 8081, 354440B, 3541 | 0.00044  | 1  | 2   |
| Chlordane   | SW-846 8081 EPA 8081, 354440B, 3541 | 0.01   | 13   | 74  |
| Endrin  | SW-846 8081 EPA 8081, 354440B, 3541 | 0.00073  | 8  | 56  |
| Dieldrin  | SW-846 8081 EPA 8081, 354440B, 3541 | 0.00091  | 0.8  | 2   |
| Heptachlor  | SW-846 8081 EPA 8081, 354440B, 3541 | 0.00077  | 2  | 3.5   |
| Lindane (Gamma BHC)   | SW-846 8081 EPA 8081, 354440B, 3541 | 0.00029  | 9  | 15  |
| DDT   | SW-846 8081 EPA 8081, 354440B, 3541 | 0.00063  | 15   | 88  |
| DDD   | SW-846 8081 EPA 8081, 354440B, 3541 | 0.0002   | 56   | 125   |
| DDE   | SW-846 8081 EPA 8081, 354440B, 3541 | 0.0002   | 40   | 90  |
| Toxaphene   | SW-846 8081                         | 0.003  | 13   | 28  |
| 2,3,7,8-dioxin, 2,3,7,8-furan and 15 2,3,7,8-substituted dioxin and furan congeners | EPA 8290                            | 1-10 pg/g  | 0.00002  | 0.00003   |
| <b>Polycyclic Aromatic Hydrocarbons (PAHs)</b>                                      |                                     |  |  |   |
| Naphthalene   | EPA 8310                            | 176 ug/kg  | 10   | 28  |
| Pyrene  | EPA 8310                            | 195 ug/kg  | 890  | 5,800   |
| Fluorene  | EPA 8310                            | 77.4 ug/kg   | 850  | 4,120   |
| Acenaphthene  | EPA 8310                            | 6.7 ug/kg  | 1,200  | 5,260   |
| Anthracene  | EPA 8310                            | 57.2 ug/kg   | 7,880  | 45,400  |
| Fluoranthene  | EPA 8310                            | 423 ug/kg  | 1,080  | 6,800   |
| Benzo (a) pyrene (BAP)/BAP equivalent   | EPA 8310                            | 150 ug/kg  | 2  | 3   |
| Benzo (a) anthracene  | EPA 8310                            | 108 ug/kg  | The results for these analytes should be added together and treated as the BAP equivalent, which is compared against the soil reference value for Benzo (a) pyrene, above. |   |
| Benzo (e) pyrene  | EPA 8310                            | 150 ug/kg  |  |   |
| Benzo (b) fluoranthene  | EPA 8310                            | 240 ug/kg  |  |   |
| Benzo (ghi) perylene  | EPA 8310                            | 170 ug/kg  |  |   |
| Benzo (k) fluoranthene  | EPA 8310                            | 240 ug/kg  |  |   |



Table 3. Minimum number of samples for sediment evaluation.

| <b>VOLUME PLANNED FOR<br/>REMOVAL in CUBIC YARDS</b> | <b>NUMBER OF CORE<br/>SAMPLE SITES</b> |
|--|--|
| 0 -30,000  | 3                                      |
| 30,000-100,000                                       | 5                                      |
| 100,000-500,000                                      | 6                                      |
| 500,000-1,000,000                                    | 8                                      |
| >1,000,000   | >8                                     |









**Minnesota Pollution Control Agency**

520 Lafayette Road North  
St. Paul, MN 55155-4194

# Annual Report Form

**NPDES/SDS General Stormwater Permit for Industrial Activity, MNG610000**

Due March 31st

The purpose of the Annual Report is to summarize the Permittee's compliance with its stormwater permit over the last calendar year. It assures that the Stormwater Pollution Prevention Plan (SWPPP) adequately represents site conditions and that Best Management Practices (BMPs) are working properly in the treatment of industrial stormwater. All discharges of stormwater associated with industrial activity shall be composed entirely of stormwater. Discharges of any material other than stormwater are prohibited unless authorized under a separate National Pollutant Discharge Elimination System (NPDES) Permit.

**Note: If this is the first time you have ever completed an Annual Report, it should cover the period from when the facility received authorization under the permit to December 31st of the reporting year.**

## Annual Reporting Year

January 1, \_\_\_\_\_ to December 31, \_\_\_\_\_

## Facility Information

Facility name: \_\_\_\_\_

Facility address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip code: \_\_\_\_\_

SIC Code(s): \_\_\_\_\_ Facility activity(ies): \_\_\_\_\_

Facility ID#: \_\_\_\_\_ Site contact name: \_\_\_\_\_

## SWPPP Information

Does your SWPPP accurately describe site conditions?  Yes  No

Are there any newly exposed materials since last SWPPP revision?  Yes  No

Summarize below your facility's SWPPP. Be sure to include a general site description, modifications to the SWPPP, newly created BMPs, newly exposed materials and activities, and new personnel responsible for SWPPP implementation. (Attach additional sheets if necessary.)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Inspection Information

Have inspections occurred every two months during the last year, except during freezing conditions?  Yes  No

Has at least one of these inspections occurred during a rain event?  Yes  No

Do any of your BMPs inspected require maintenance or changes?  Yes  No

Were corrective actions initiated within 30 days after deficiencies were found?  Yes  No

Describe below site areas and BMPs inspected, and corrective actions taken for BMP maintenance or SWPPP deficiencies discovered during inspections. (Attach additional sheets if necessary.)

| Date | Time | Inspector | BMPs inspected | Corrective actions/Comments |
|------|------|-----------|----------------|-----------------------------|
|      |      |           |                |                             |
|      |      |           |                |                             |
|      |      |           |                |                             |
|      |      |           |                |                             |
|      |      |           |                |                             |
|      |      |           |                |                             |
|      |      |           |                |                             |
|      |      |           |                |                             |
|      |      |           |                |                             |
|      |      |           |                |                             |

**Certification**

Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete (Minn. R. 7001.0070).

Printed name of owner/operator: \_\_\_\_\_

Title: \_\_\_\_\_

Signature of owner/operator: \_\_\_\_\_

Date: \_\_\_\_\_

**Return Annual Report Form to:** Industrial Stormwater Permit Program  
 Minnesota Pollution Control Agency  
 520 Lafayette Road North  
 St. Paul, Minnesota 55155-4194

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
| <b>Plant Management Directive</b> |  | <b>Revision: 1</b> |
| <b>TITLE:</b>                     | <i>Storm Water Pollution Prevention Plan</i> | Page 1 of 25       |

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**US EPA ARCHIVE DOCUMENT**

|   |  |
|---|--|
| <b>Prepared By:</b> <i>John Chelstrom</i> | <b>Approved By:</b> Thomas G Fallgren  |
| <b>Reviewed By:</b> <b>Dan Watts</b>      | <b>Effective Date:</b> <i>7/9/2010</i> |

*Caution: Any hard copy reproductions of this directive should be verified against the on-line system for current revisions*

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
| <b>Plant Management Directive</b> |  | <b>Revision: 1</b> |
| <b>TITLE:</b>                     | <i>Storm Water Pollution Prevention Plan</i> | Page 2 of 25       |

## 1.0 Document History

This document was prepared for and is retained at  
Northern States Power Company d/b/a Xcel Energy  
Black Dog Generating Plant  
1400 Black Dog Road  
Burnsville, MN 55337

Initial Issue: November 2, 1993

Revised: March 23, 1998

April 1, 1998

May 27, 1999

February 8, 2000

March 8, 2000

April 4, 2000

May 8, 2000

June 19, 2001

June 20, 2001

March 20, 2002

April 25, 2003

July 01, 2004

December 27, 2005

July 30, 2010

## 2.0 Site Maps

The following documents site maps are included for this document:

**Note:** These figures are located in the Black Dog Emergency Procedures Plan

[Figure 1 Site Layout Black Dog Emergency Plan, SWPPP](#)

[Figure 3 Drainage Map Black Dog Emergency Plan, SWPPP](#)

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
| <b>Plant Management Directive</b> |  | <b>Revision: 1</b> |
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### 3.0 Description of Potential Pollutants – Material inventory

This section identifies all significant materials stored, handled, managed, processed, fabricated, manufactured, transported, or transferred at the facility. The drainage area for the material is described. Those materials that are exposed or if their storage container is exposed to precipitation a best management plan (BMP) ID number is given in the right hand column. The ID number is used in section 4.0 to identify the material. Refer to section 4.0 for existing controls in place to prevent storm water contamination for exposed materials.

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**Table 1 – Oil Containers/ Operational Equipment/ Outside Storage & Load/  
Unload Areas**

| Contents                                | Tank # | Volume (gal) | Location  | Containment   | Controls  | SWPPP BMP # |
|---|--------|--------------|---|---|---|-------------|
| Diesel fuel unloading                   | 20, 21 | 2 x 4750     | Transfer connection outside SE corner of plant, tank inside bldg.                     | Dirt area with runoff to plant pond system                                    | Visual monitoring during filling                          | 2           |
| Diesel fuel unloading                   | 27     | 270          | Transfer connection inside Screen house bldg  | Building, fill line connection is inside spill bucket.                        | Visual monitoring during filling                          | 2           |
| Diesel fuel (UST) & unload/ fueling     | 387    | 10,000       | N of Dumper Bldg and W of Switch Engine Bldg.   | Dirt, grass, soil. Area runoff goes to plant pond system via yard runoff sump | ATG on the tanks. Also leak testing & cathodic protection | 3           |
| Gasoline (UST) & unload/ fueling        | 388    | 1000         | NE of 3/4 stack, scraper fuels E of Dumper, locomotive SE end                         |   |   | 3           |
| Barrel/Tote delivery of oils            | NA     | Totes/ drums | SW corner of the plant, brought inside plant  | Runoff to parking area, which drains to plant pond system                     | Materials loaded inside                                   | 4           |
| Barrel/Tote delivery of misc. chemicals | NA     | Totes/ drums | SW corner of the plant, brought inside plant, Dust suppressant used in coal conveyors | Runoff to parking area, which drains to plant pond system                     | Materials loaded inside                                   | 4           |
| Dust suppression Chemical unloading     | 4062   | 6000         | Transfer connection on behind scraper garage  | Tank inside concrete containment. Runoff to drains to plant pond system       | Visual monitoring during filling                          | 5           |
| Caustic unloading                       | 25     | 4600         | Transfer connection SE corner of plant, tank inside bldg                              | Runoff to parking area, which drains to plant pond system                     | Visual monitoring during filling                          | 6           |
| Sulfuric Acid unloading                 | 24     | 5000         | Transfer connection SE corner of plant, tank inside bldg                              | Runoff to parking area, which drains to plant pond system                     | Visual monitoring during filling                          | 6           |
| 28% Aqueous Ammonia unloading           | 2591   | 20,000       | Transfer connection NE corner of plant, tank inside bldg                              | Runoff to parking area, which drains to plant pond system                     | Visual monitoring during filling                          | 7           |
| Liquid Propane gas unloading            | NA     | 30,000       | Transfer connection SE corner of plant  | Runoff to parking area, which drains to plant pond system                     | Visual monitoring during filling                          | 8           |
| Softner Brine Tank dry unloading        | NA     | 2000         | Transfer connection NE corner of plant,, adjacent to wall                             | Runoff to parking area, which drains to plant pond system                     | Visual monitoring during filling                          | 9           |

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| Contents                     | Tank # | Volume (gal)         | Location                              | Containment  | Controls                             | SWPPP BMP # |
|------------------------------|--------|----------------------|---------------------------------------|--|--------------------------------------|-------------|
| Scrap Metal and Waste Debris | NA     | Dumpsters            | NE corner of plant                    | Runoff to parking area, which drains to Minnesota River. | Waste kept in dumpsters              | 10          |
| Waste oil Pickup             | NA     | varies, Tanker truck | Plant waste oil room, scraper garage  | Waste oil pumped inside plant bldgs                      | Oils pumped inside on concrete floor | 11          |
| Coal and coal fines          | NA     | Coal pile            | East side of plant and coal haul road | Runoff leads to plant pond system                        | Asphalt surfaces periodically swept  | 12          |
| Bottom ash                   | NA     | Truck loadout        | East side of main plant bldg.         | Partially enclosed, runoff leads to plant pond system    | Partially enclosed, area swept       | 13          |
| Flyash                       | NA     | Tanker truck loadout | East side of main plant bldg.         | Partially enclosed, runoff leads to plant pond system    | Partially enclosed, area swept       | 13          |

**Table 2–Mineral Oil-Filled Electric Equipment**

| Description                           | Volume (gal) | Location / Other Info.                          | Containment Description  | Containment Sizing               | SWPPP BMP # |
|---------------------------------------|--------------|---|--|----------------------------------|-------------|
| #1 Res Sta Aux Transformer (Alstom)   | 2600         | Outdoors on west side of plant, transformer pad | Concrete containment around each unit with drains that are plugged except when emptying stormwater. Discharges to ash sump, but valving on discharge line permits diversion of oil to drums. | 41.5' x 27.5' x 1' , 8,500 gal   | 1           |
| #2 Gen Transformer (Alstom)           | 9000         |   |  | 31' x 22.5' x 2.25' , 11,700 gal |             |
| #2 Res Sta Aux Transformer (West)     | 5,523        |   |  | 25' x 21' x 3' , 11,400 gal      |             |
| #3 Gen Transformer (Farrant)          | 8,530        |   |  | 38' x 22' x 3' 18,750 gal        |             |
| #4 Gen Transformer (Waul)             | 14100        |   |  | 42.5'x29.5'x3' 28,100 gal.       |             |
| #5 Gen Transformer (Alstom)           | 11100        |   |  | 35'x3'x2' 15,700 gal.            |             |
| #21X & 21Y Sta Aux. Transformers (ME) | 2 x 1110     |   |  | 20'x15.75'x1.5 3,500 gal.        |             |
| #31 Sta Aux. Transformer (ABB)        | 1360         |   |  | 18' x 15.75' x 1.25' , 2,650 gal |             |
| #41 Sta Aux. Transformer (ABB)        | 2160         |   |  | 25.4' x 21.25' x 1.5' 6,080 gal  |             |

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**Table 2–Mineral Oil-Filled Electric Equipment**

| Description                                       | Volume (gal)       | Location / Other Info.     | Containment Description                      | Containment Sizing          | SWPPP BMP #  |
|---|--------------------|----------------------------|--|-----------------------------|--------------|
| #2 Precip Transformers (GE)                       | 3 @ 140,<br>3 @ 87 | Indoors                    | Plant concrete floors and walls              | NA                          | NA - Indoors |
| #3 Precip Transformers (NWL)                      | 6 @ 140            |                            |  |                             |              |
| #4 Precip Transformers (NWL)                      | 5 @ 140            |                            |  |                             |              |
| #2 Precip Transformers (GE)                       | 3 @ 140,<br>3 @ 87 | Outdoors E side of plant.  | Yard Drainage System                         | NA                          | 1            |
| #3 Precip Transformers (NWL)                      | 6 @ 140            |                            |  |                             |              |
| #4 Precip Transformers (NWL)                      | 6 @ 140            |                            |  |                             |              |
| #111 Yard Aux Transformer                         | 250                | W side Breaker Bldg.       |  |                             |              |
| #112 Yard Aux Transformer (Penn)                  | 250                |                            |  |                             |              |
| #114 Transformer (A/C)                            | 162                |                            |  |                             |              |
| Coal Dock Service Transformer (Old Tr 114) (Penn) | 300                | On S wall of Breaker Bldg, |  |                             |              |
| Oil circuit breakers (3 containers per unit)      | 14 x<br>3@1060     | Substation                 | Gravel and mostly bermed substation          | NA                          | 1            |
| 115 KV PT's                                       | 2x100              |                            |  |                             |              |
| Spare transformer #1 (old #3GSU)                  | 5900               |                            | Sand/ poly containment along with substation | 26'x29'x0.75<br>4,230 gal.  |              |
| Spare transformer #2 (old 32 MSA)                 | 1765               |                            | gravel                                       | 15.5'x12'x1.3'<br>1,850 gal |              |

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**Table 3 – Indoor Oil Containers/ Operational Equipment**

| Contents             | Tank #     | Volume (gal) | Location   | Containment  | Controls   |
|----------------------|------------|--------------|--|--|--|
| Diesel Fuel          | 20, 21     | 2 x 4750     | U4 Oil Room, Mez level, SE corner of plant             | Concrete floors & walls (12,000 gal)                       | Hi/Lo level alarm  |
| Diesel Fuel          | 1099, 1100 | 2 x 300      | Emergency generator room SW corner of plant (main flr) | Floor & walls of room. Filled by indoor piping from 20, 21 | Hi/Lo level alarm  |
| Diesel Fuel          | 27         | 270          | Indoors on 2 <sup>nd</sup> fl of Screenhouse.          | Double walled w/ interstitial monitor. Pan under pump.     | Level & leak sensors w/ alarm                                    |
| Turbine Oil (Makeup) | 478        | 1200         | U2 Oil Room, NE corner of plant, Mez level             | Concrete room, (18,800 gal)                                | Sight glass  |
| Turbine Oil (Rest)   | 814        | 4700         |  |  |  |
| Turbine Oil (Rest)   | 815        | 2700         |  |  |  |
| Turbine Oil          | 477        | 3000         | U2 turbine oil reservoir (Mez)                         | Plant concrete floors and walls. Sumps in basement         | Pressure, temperature & level sensors w/ alarms in control room. |
| Turbine Oil          |            | 380          | U2 turbine filter (bsmt)                               |  |  |
| Turbine Oil          |            | 2 x 100      | U2 turbine oil coolers (Mez)                           |  |  |
| Hydraulic Oil        |            | 200          | U2 turbine control skid (mez)                          | Plant concrete floors and walls. Sumps in basement         | Pressure, temperature & level sensors w/ alarms in control room. |
| Turbine Oil          |            | 60           | U2 seal oil skid (bsmt)                                |  |  |
| Turbine Oil          | 813        | 3000         | U3 turbine oil reservoir (Mez)                         |  |  |
| Turbine Oil          |            | 2 x 100      | U3 turbine oil cooler (Mez)                            |  |  |
| Turbine Oil          |            | 180          | U3 turbine oil filter (bsmt)                           |  |  |
| Turbine Oil          | 475        | 3000         | U4 turbine oil reservoir (bsmt)                        |  |  |
| Turbine Oil          |            | 2 x 100      | U4 turbine oil coolers (bsmt)                          |  |  |
| Turbine Oil          |            | 250          | U4 turbine oil cond skid (bsmt)                        |  |  |
| Turbine Oil          | 1764       | 5600         | U5 turbine oil reservoir (mainflr)                     |  |  |
| Hydraulic Oil        |            | 130          | U5 turbine control skid (Mez)                          |  |  |
| Lube Oils            | NA         | 12 drums     | Various loc in bsmt,                                   |  | NA   |

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**Table 3 – Indoor Oil Containers/ Operational Equipment**

| Contents  | Tank # | Volume (gal)  | Location                                  | Containment                                     | Controls                    |
|-----------|--------|---------------|---|---|-----------------------------|
| Used Oil  | 22,23  | 2x 730        | #1 Oil Rm. Mez level. NE corner of plant. | Concrete room. (1000 gal)                       | Sight stick                 |
| Lube Oils | NA     | 15-20 drums   |   |   | NA                          |
| Lube Oil  | NA     | 2 x 55        | Gas Compressor Building                   | Building provides containment                   | Sight glass                 |
| Lube Oil  | NA     | 4 drums       |   |   | NA                          |
| Used Oil  | NA     | 180           |   |   | Containment pan under tank. |
| Lube Oils | NA     | 15 -20 drums. | #3 Oil Room, Mez level                    | Concrete floors & walls of oil room or building | NA                          |
| Lube Oils | NA     | 15-20 drums   | Yard Oil Room                             |   | NA                          |

**Table 4 - Spill & Emergency Supplies**

| <b>Spill Response and Cleanup Equipment</b> |  |
|---|--|
| Item  | Location/Comment   |
| Spill response Kits                         | Staged in various areas around plant (Oil room, Scraper garage, Turbine floor, Oil room) |
| Sorbent booms, pad, sheets, sweeps          | 3-4 Common Stack   |
| Empty Drums                                 | 3-4 Common Stack   |
| Floating boom with curtain                  | 3-4 Common Stack   |
| Rakes, shovels, pumps, etc.                 | Locker Behind the Elevator on Turbine level.   |
| Front-end loader                            | Yard, #3 Euclid Garage   |
| Boats – one pontoon, one aluminum boat      | Under Stock Room   |
| <b>Fire Response Equipment</b>              |  |
| Diesel fire pump                            | Screen House   |
| Portable Fire Extinguishers                 | Throughout site - 152 Dry Chemical, 36 Halon, 6 CO2, 5 Water                             |
| CO2 System                                  | Unit #5  |
| Fire Hydrants                               | Yard   |
| <b>First Aid Supplies</b>                   |  |
| First Aid Kits                              | Throughout site  |
| Chemical Showers                            | Around the pump room.  |
| Eye Wash Stations                           | Various locations around the plant. Mainly the pump room and the turbine level.          |
| Combustible Gas meters                      | LOTO room and Control Room   |

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**4.0 Best Management Practices and Existing Controls**  
**(includes existing controls for exposed materials)**

Each of the items with an ID number in section 3.0 is listed along with pertinent information, ie. period of exposure, quantity exposed, location or storage method. This section also lists the best management practices, either non-structural or structural controls to further help prevent storm water contamination and lists existing controls already in place.

The best management practices or existing controls will be amended when needed. If spills or other areas of concerns are identified, more best management practices will be included to address each situation.

At least the following BMPs were considered for development and implementation in this facility's SWPPP.

- 1) source reduction - preventative maintenance, spill prevention and response procedures, chemical substitution, materials management practices, employee training.
- 2) containment/diversion - segregating, separating, covering, berming, diverting flow, dust control
- 3) treatment - oil/water separator, storm water detention pond, recycling

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**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
 (include information, ie. period of exposure, quantity exposed, location or storage method)

(# 1) Plant and substation mineral oil filled electrical equipment.

Located inside and outside the plant bldg and substation yard.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

Transformers will be properly operated and maintained.

The plant's Emergency Response Plan and SPCC plan shall be followed to prevent and/or to respond to a spill.

Leaking transformers will not be transferred from the site unless containment is provided or the oil is drained.

Inspections for evidence of leaks or potential releases of oil from damaged/malfunctioning equipment will be performed periodically.

Containment areas will be kept free of debris.

Substation maintenance will be informed of spills discovered by plant personnel.

Spill containment materials are readily accessible in stockroom and stockroom personnel are trained in spill response.

**Preventive Measures:**  
 Weekly equipment readings are taken and equipment is visual monitored for abnormalities.

Monthly inspections are performed per plant policy.

Containment areas inspected and drained per operating procedure OC-5.1.1.

**STRUCTURAL CONTROLS & METHODOLOGY**

Concrete containment is provided for the large transformers on west side. The containment areas are drained as necessary and logged in a containment discharge log stating there is no oil contamination.

The other transformers are within the gravel substation.

The substation is elevated to prevent storm water running onto the area.

The substation is gravel, which allows storm water to infiltrate and if a spill occurs the gravel can be readily removed where necessary.

Vegetation surrounds the borders of the substation that are adjacent to the lake.

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**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
(include information, ie. period of exposure, quantity exposed, location or storage method)

( # 2 ) Fuel oil tanker truck unload

8,800 gallon ignition oil tanks - located inside the plant with a loading pipe at the southeast corner of the plant.

270 gallon fuel oil tank – located inside screenhouse bldg.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

The plant's Emergency Response Plan, SPCC plan and MN AST Rules 7151 requirements shall be followed to prevent and/or respond to a spill.

Transfer connections will be inspected prior to transfer.

Plant personnel procedures have been developed for diesel delivery.

Unloading operator will not leave the transfer operation unattended.

Spill containment materials are readily accessible in stockroom and stockroom personnel are trained in spill response.

**Preventive Measures:**  
Inspected monthly per Above Ground Storage Tank program.

Room tanks are located within will contain any leaks.

**STRUCTURAL CONTROLS & METHODOLOGY**

The tanks are stored inside the plant.

The piping is adjacent to the plant wall, away of storm drains.

Loading pipe is labeled.

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**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
 (include information, ie. Period of exposure, quantity exposed, location or storage method)  
 ( # 3 ) Underground storage tanks:

500 gallon gasoline - located near the U3/4 stack.

10,000 gallon diesel fuel tanks - located near the switch engine garage.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

The plant's Emergency Response Plan and SPCC plan shall be followed to prevent and/or respond to a spill.

Transfer connections will be inspected prior to transfer.

Unloading operator will not leave the transfer operation unattended.

Dry cleanup methods shall be used in the transfer area.

Employees will be discouraged from "topping off " vehicle tanks.

Fill pipes are covered with plastic drums to prevent water from getting into fuel catchment basin. A plan is in place to raise the fill pipes above grade in 2010.

Spill containment materials are readily accessible in stockroom and stockroom personnel are trained in spill response.

**Preventive Measures:**  
 Monthly In-tank and Line Leak Testing performed per Underground Storage Tank program.

Cathodic tank inspection performed with vendor every three years.

**STRUCTURAL CONTROLS & METHODOLOGY**

The two tanks are located underground.

The gasoline dispensing area is located over gravel, within the controlled yard drainage system.

The fuel oil dispensing area is located over concrete and gravel, within the controlled yard drainage system.

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**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
(include information, ie. period of exposure, quantity exposed, location or storage method)

( # 4 ) Stock room loading dock

Located on SW corner of plant.

Drums and totes of lube oils, hydraulic oils, dust suppressant chemicals, sodium hydroxide and other misc chemicals are shipped and received at the loading dock. Materials are brought inside plant and managed appropriately.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

**Preventive Measures:**

Controlled handling by trained personnel.

Spill containment materials are readily accessible in stockroom and stockroom personnel are trained in spill response.

**STRUCTURAL CONTROLS & METHODOLOGY**

Loading area is asphalt and concrete inside building.

There are no storm drains nearby in loading dock area. Drainage slopes SE to dirt and gravel area.

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**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
 (include information, ie. period of exposure, quantity exposed, location or storage method)

( # 5 ) Dust Suppression Chemical Loading

6000 gallon tank- located behind scraper garage near coal yard.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

MN AST Rules 7151 requirements shall be followed.

Transfer connections will be inspected prior to transfer.

Unloading operator will not leave the transfer operation unattended.

The transfer area shall be kept clean.

Spill containment materials are readily accessible in stockroom and stockroom personnel are trained in spill response.

**Preventive Measures:**  
 Inspected weekly as per Above Ground Storage Tank program.

**STRUCTURAL CONTROLS & METHODOLOGY**

The tank is within concrete containment.

The transfer connection is located over concrete. The containment area is drained as necessary and logged in a containment discharge log.

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| <p><b>EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN</b><br/>(include information, ie. period of exposure, quantity exposed, location or storage method)</p> <p>( # 6 ) 5,000 gallon sulfuric acid tank<br/>4,600 gallon sodium hydroxide tank.</p> |
|--|

|   |
|---|
| <p><b>NON-STRUCTURAL CONTROLS &amp; METHODOLOGY</b></p> <p>MN AST Rules 7151 requirements shall be followed.</p> <p>Transfer connections will be inspected prior to transfer.</p> <p>Unloading operator will not leave the transfer operation unattended.</p> <p>The transfer area shall be kept clean.</p> <p>Spill containment materials are readily accessible in stockroom and stockroom personnel are trained in spill response.</p> <p><b>Preventive Measures:</b><br/>Inspected monthly per Above Ground Storage Tank program.</p> |
|---|

|  |
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| <p><b>STRUCTURAL CONTROLS &amp; METHODOLOGY</b></p> <p>The tanks are stored indoors within containment.</p> <p>Safety shower located nearby.</p> <p>The transfer area is located over a gravel area with no storm drains nearby.</p> |
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**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
 (include information, ie. period of exposure, quantity exposed, location or storage method)  
 (#7 ) 20,000 gallon aqueous ammonia storage tank

Located in ammonia storage room on east side of plant with a loading pipe in the same area on the outside.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

The Black Dog Ammonia Risk Management Program Compliance Manual, aqueous ammonia unloading procedure and the MN AST Rule 7151 requirements shall be followed.

Transfer connections will be inspected prior to transfer.

Unloading operators will not leave the transfer operation unattended.

Storm drain is covered during product transfer.

The transfer area will be kept clean.

Spill containment materials are readily accessible in stockroom and stockroom personnel are trained in spill response.

**Preventative Measures:**  
 Inspected monthly per Above Ground Storage Tank program.

**STRUCTURAL CONTROLS & METHODOLOGY**

The tank is installed indoors within concrete wall containment.

The transfer area has a concrete pad that is sloped to contain small spills. A large scale spill would overflow concrete containment area and enter the rectangular sump drain near by and drain to the ash water piping system.

**US EPA ARCHIVE DOCUMENT**

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
| <b>Plant Management Directive</b> |  | <b>Revision: 1</b> |
| <b>TITLE:</b>                     | <i>Storm Water Pollution Prevention Plan</i> | Page 17 of 25      |

|  |                                  |
|--|----------------------------------|
| <b>BEST MANAGEMENT PRACTICES<br/>&amp;<br/>EXISTING CONTROLS</b> | <b>Last Update: July 1, 2010</b> |
|--|----------------------------------|

**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
 (include information, ie. period of exposure, quantity exposed, location or storage method)

( # 8 ) Softener Brine Unloading

2000 gallon tank- located inside north side of plant with outside loading pipe on north side adjacent to plant wall.

Material is unloaded dry and is blown into tank. Water is added to tank inside.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

MN AST Rules 7151 requirements shall be followed.

Transfer connections will be inspected prior to transfer.

Unloading operator will not leave the transfer operation unattended.

The transfer area shall be kept clean.

Any spills that occur can be swept up quickly.

Plant storm drain is protected with fabric bales.

Spill containment materials are readily accessible in stockroom and stockroom personnel are trained in spill response.

**STRUCTURAL CONTROLS & METHODOLOGY**

The tank is inside the plant.

The transfer connection is located over asphalt surface for easy cleanup.

**US EPA ARCHIVE DOCUMENT**

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
| <b>Plant Management Directive</b> |  | <b>Revision: 1</b> |
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|  |                                  |
|--|----------------------------------|
| <b>BEST MANAGEMENT PRACTICES<br/>&amp;<br/>EXISTING CONTROLS</b> | <b>Last Update: July 1, 2010</b> |
|--|----------------------------------|

**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
 (include information, ie. period of exposure, quantity exposed, location or storage method)  
 ( # 9) Scrap metal and waste dumpsters and waste/recycle bins

Located outside near the warehouse and by east side ash gate entrance.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

Scrap metal and refuse shall be stored in the dumpsters.

Waste materials will not allowed to be stored outside of dumpsters.

Waste materials will not be allowed to contain residual oil or chemicals.

**Preventive Measures:**  
 Dumpsters shall include only materials that will be handled appropriately per plant policies.

Dumpsters shall be emptied on a regular basis.

**STRUCTURAL CONTROLS & METHODOLOGY**

Loading dock area waste bin drainage goes to gravel area with no storm drains nearby.

Ash gate area for waste dumpster storage drains to ash pond system.

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
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|  |                                  |
|--|----------------------------------|
| <b>BEST MANAGEMENT PRACTICES<br/>&amp;<br/>EXISTING CONTROLS</b> | <b>Last Update: July 1, 2010</b> |
|--|----------------------------------|

**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
 (include information, ie. period of exposure, quantity exposed, location or storage method)  
 (# 10) Waste Oil Pickup  
 #1 oil room waste oil tanks 2- 730 gallon each, inside NE side of plant  
 Scrapper maintenance garage – waste oil storage in barrels.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**  
 MN AST Rules 7151 requirements shall be followed.  
 Transfer connections will be inspected prior to transfer and is done inside plant.  
 Unloading operator will not leave the transfer operation unattended.  
 The transfer area shall be kept clean.  
 Spill containment materials are readily accessible in stockroom and stockroom personnel are trained in spill response.  
**Preventive Measures:**  
 Inspected monthly per Above Ground Storage Tank program.

**STRUCTURAL CONTROLS & METHODOLOGY**  
 Containment is provided for the tanks inside plant on concrete floor.  
 Transfer connection piping for loadout is inside plant buildings.

US EPA ARCHIVE DOCUMENT

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
| <b>Plant Management Directive</b> |  | <b>Revision: 1</b> |
| <b>TITLE:</b>                     | <i>Storm Water Pollution Prevention Plan</i> | Page 20 of 25      |

|  |                                  |
|--|----------------------------------|
| <b>BEST MANAGEMENT PRACTICES<br/>&amp;<br/>EXISTING CONTROLS</b> | <b>Last Update: July 1, 2010</b> |
|--|----------------------------------|

**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
 (include information, ie. period of exposure, quantity exposed, location or storage method)

( # 11 ) Coal.

Located northeast of the plant.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

Coal will be kept within the controlled yard drainage area.

**Preventive Measures:**  
 Coal handling equipment maintained and operated to meet our fugitive dust plan.

Hard surface areas are swept periodically to control fugitive dust.

**STRUCTURAL CONTROLS & METHODOLOGY**

The entire coal yard is surrounded by a flood control berm.

Coal yard runoff is directed to the ash settling basins.

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
| <b>Plant Management Directive</b> |  | <b>Revision: 1</b> |
| <b>TITLE:</b>                     | <i>Storm Water Pollution Prevention Plan</i> | Page 21 of 25      |

|  |                                  |
|--|----------------------------------|
| <b>BEST MANAGEMENT PRACTICES<br/>&amp;<br/>EXISTING CONTROLS</b> | <b>Last Update: July 1, 2010</b> |
|--|----------------------------------|

**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
(include information, ie. period of exposure, quantity exposed, location or storage method)

( # 12) Ash

Fly ash is stored in a dry storage silo. Bottom ash is primarily sluiced to the bottom ash dewatering bin.

Water overflows to the ash settling basins, east of the plant..

Bottom ash that is sluiced to the ash settling basins is dewatered there.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

Ash will be kept within the controlled yard drainage area.

**Preventative Measures:**  
Equipment maintained and operated to meet fugitive dust permit.

**STRUCTURAL CONTROLS & METHODOLOGY**

Fly ash is loaded into sealed tanker trucks in an asphalt area. A retractable hose is used to fill fly ash into tanker trucks where fugitive emissions are minimized.

Drainage from this area is part of the yard drainage to the ash settling basins.

Bottom ash is unloaded from the bottom ash dewatering bin and shipped to Sherco for disposal or shipped elsewhere for utilization. Bottom ash from the settling ponds is shipped to Sherco.

Drainage from this area is part of the yard drainage to the ash settling basins.

Ash Settling Ponds 1, 2, and 3 are located within a flood control berm.

**US EPA ARCHIVE DOCUMENT**

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
| <b>Plant Management Directive</b> |  | <b>Revision: 1</b> |
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|  |                                  |
|--|----------------------------------|
| <b>BEST MANAGEMENT PRACTICES<br/>&amp;<br/>EXISTING CONTROLS</b> | <b>Last Update: July 1, 2010</b> |
|--|----------------------------------|

**EXPOSED SIGNIFICANT MATERIAL OR AREA OF CONCERN**  
 (include information, ie. period of exposure, quantity exposed, location or storage method)

(#13) Sediment erosion.

Located anywhere erosion is occurring.

**NON-STRUCTURAL CONTROLS & METHODOLOGY**

The site will be inspected every two months during non-frozen conditions and any excessively eroded areas will be identified and repaired.

The inspections are due in April, June, August, and October.

Only one inspection needs to be done while storm water is discharging.

**STRUCTURAL CONTROLS & METHODOLOGY**

Culverts, storm drains, swales and grading are provided at the facility to provide adequate drainage of storm water to prevent excessive erosion.

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
| <b>Plant Management Directive</b> |  | <b>Revision: 1</b> |
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## 5.0 Management and Response Procedures

### 5.1 PURPOSE:

The purpose of the Storm Water Pollution Prevention Plan is to eliminate any unnecessary contact between storm water and materials. If contact cannot be prevented then means of control are provided. Storm water discharges must be free of pollutants. This plan is designed to meet the requirements of the facility's NPDES General Storm Water Permit.

### 5.2 APPLICABILITY:

This applies to steam electric generating plant sites. All significant materials at the site need to be listed, all exposed materials must be addressed to provide the best management controls to prevent contaminated storm water discharges.

### 5.3 CERTIFICATION:

All discharges from the site have been evaluated as non-storm water discharges except those covered by the existing NPDES Permit. The evaluation is based on review of current site drawings & visual site inspection.

### 5.4 RESPONSIBILITIES:

Management is responsible for the following:

Approval and implementation of the Storm Water Pollution Prevention Plan,

Ensuring the Storm Water Pollution Prevention Plan is reviewed at least once annually, (Maximo PM).

Ensuring that this plan is revised whenever there is a change in materials or materials management practices which may discharge pollutants in storm water,

Ensuring that the plan is revised whenever it is determined that the plan is not controlling the discharge of pollutants in storm water.

Certifying that discharges from the site have been evaluated for the presence of non-storm water discharges and that no non-storm water discharges from the site exist not covered by an NPDES permit.

Ensuring that facility personnel have an adequate understanding of the Storm Water Pollution Prevention Plan and the NPDES General Storm Water Permit.

Identifying the personnel that will be responsible for managing this Storm Water Pollution Prevention Plan, implementation, and reporting requirements. These persons shall be available at reasonable times of operation. Contingencies will be provided so that unanticipated absences do not prevent adequate management of the plan.

Training for appropriate personnel will be provided in the year following new permit issuance.

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
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| <b>TITLE:</b>                     | <i>Storm Water Pollution Prevention Plan</i> | Page 24 of 25      |

**5.5 RESPONSIBLE INDIVIDUALS:**

Management responsible for meeting plan and permit requirements:

Thomas Fallgren (952) 895-4219  
Plant Director

Gary Juip (952) 895-4218  
Manager of Operations and Maintenance

Daniel Watts (952) 895-4205  
Manager of Engineering/Technical Support

Responsible for inspections, documentation and regulatory requirements:

John Chelstrom (952) 895-4268  
Environmental Analyst

Spill response procedures are detailed in the Emergency Response Plan.

**6.0 INSPECTIONS AND DOCUMENTATION**

The site shall be inspected every two months during non-frozen conditions. The inspections are due in April, June, August, and October. Only one inspection needs to be done while storm water is discharging. The inspection shall be conducted for the purpose of determining the maintenance of structural and non-structural storm water management practices. Inspections shall identify any necessary changes to assure adherence to the pollution prevention plan and permit. The inspection report form shall be fully completed.

Inspection forms and the first and second annual report shall be maintained along with a copy of this storm water pollution prevention plan (presently in a binder in Engineering Library).

|                                   |  |                    |
|-----------------------------------|--|--------------------|
| <b>BLACK DOG GENERATING PLANT</b> |  | <b>PMD – 7.7</b>   |
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| <b>TITLE:</b>                     | <i>Storm Water Pollution Prevention Plan</i> | Page 25 of 25      |

## 7.0 Drainage Summary

Black Dog Generating Plant site has one storm drain located near the NE corner of the plant. This drain receives runoff from an asphalt area. The area is swept periodically as needed to keep sand, coal and ash fines from building up near area. This storm drain is also protected with filter media to prevent solids from going to Minnesota River. One other storm drain exists on Black Dog Road near the greenhouse which also drains to the Minnesota River. No materials are stored near this drain.

### Drainage Summary:

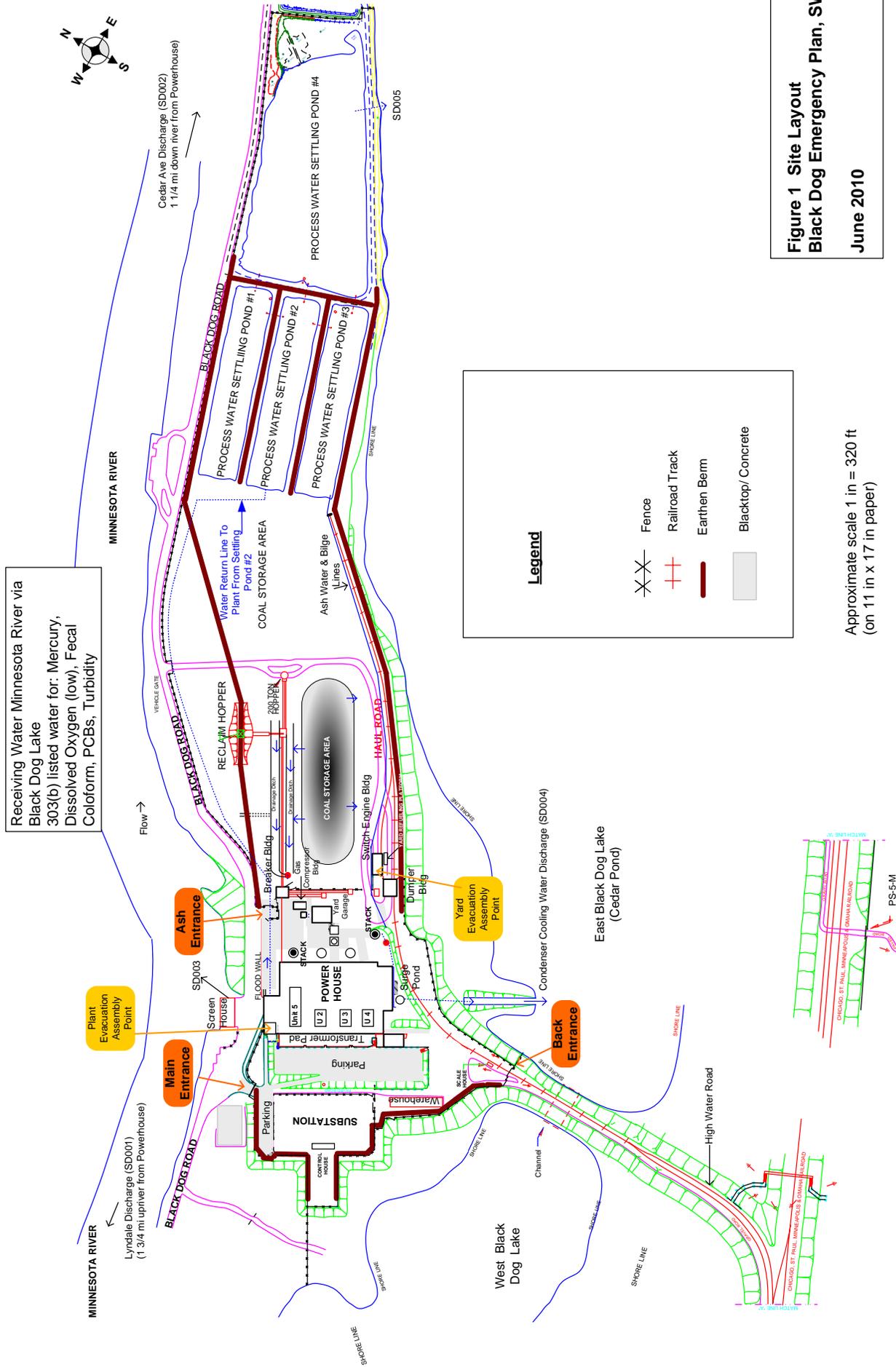
Transformers adjacent to the plant are within concrete brick containment. Uncontaminated storm water that accumulates within the transformer containment is released to the plant bottom ash pumps. The bottom ash pumps then transport the water to the ash basins.

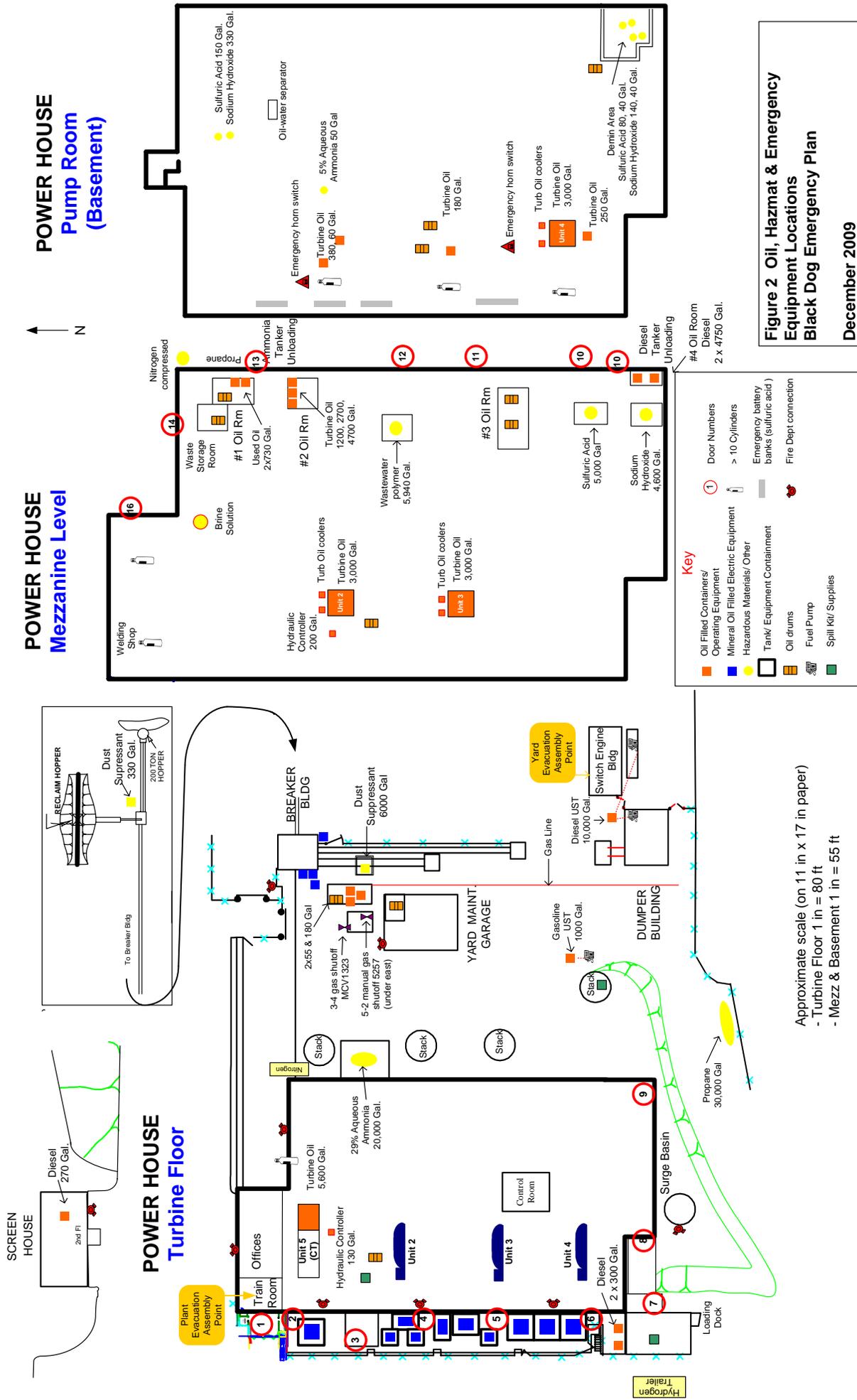
Substation has infiltration or sheet runoff of storm water.

The east side of the plant has a yard drainage system directing runoff to the ash settling ponds. There, runoff from the coal yard, transfer areas (fuel oil, caustic, sulfuric acid, dust suppression, and gasoline tank), dumpsters, fly ash loading, and access road is directed to the ash settling ponds.

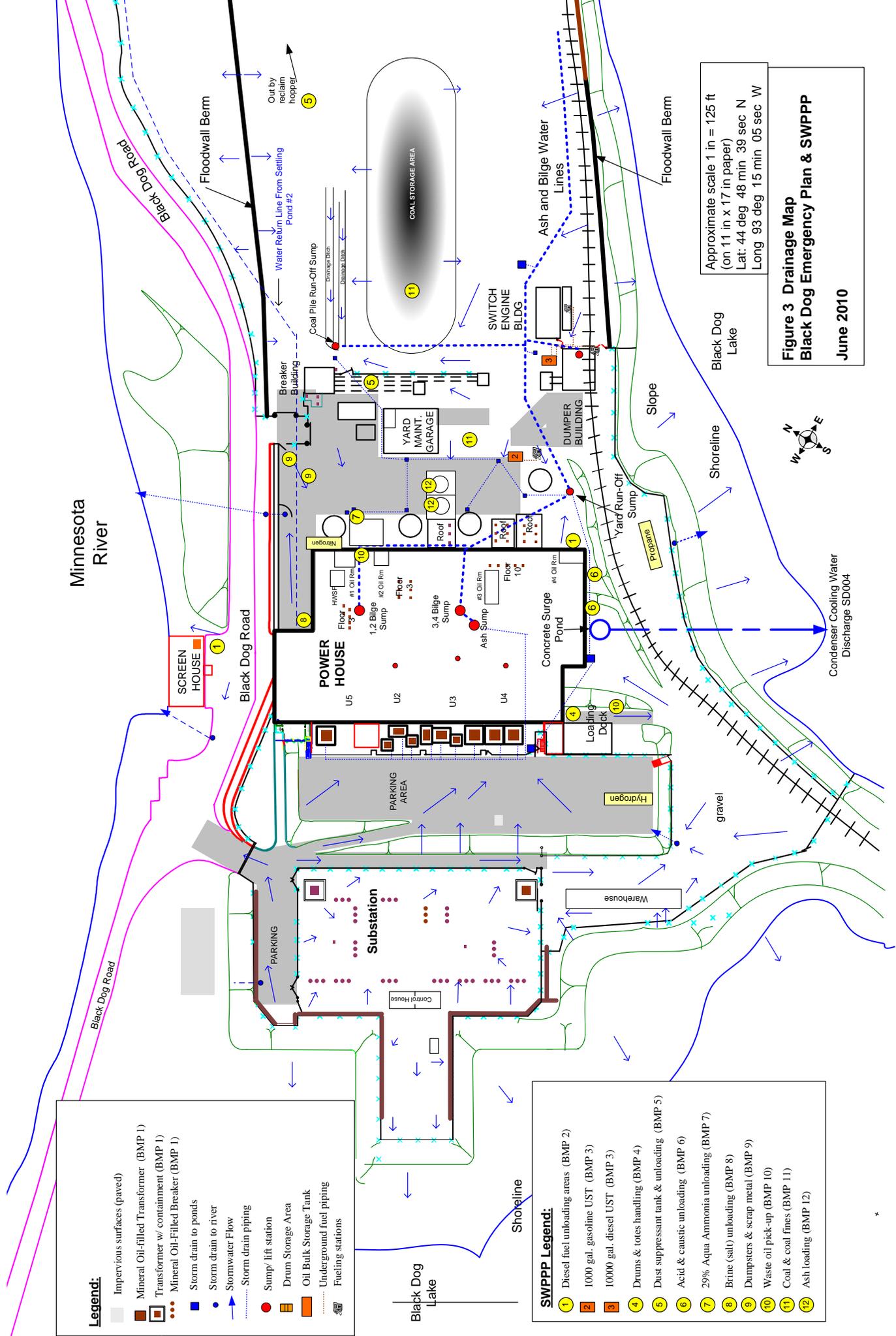
The closed/capped temporary ash storage area runoff goes to pond #4.

Drains at the inactive coal dock, discharge storm water to the ash ponds.





Approximate scale (on 11 in x 17 in paper)  
 - Turbine Floor 1 in = 80 ft  
 - Mezz & Basement 1 in = 55 ft



**Legend:**

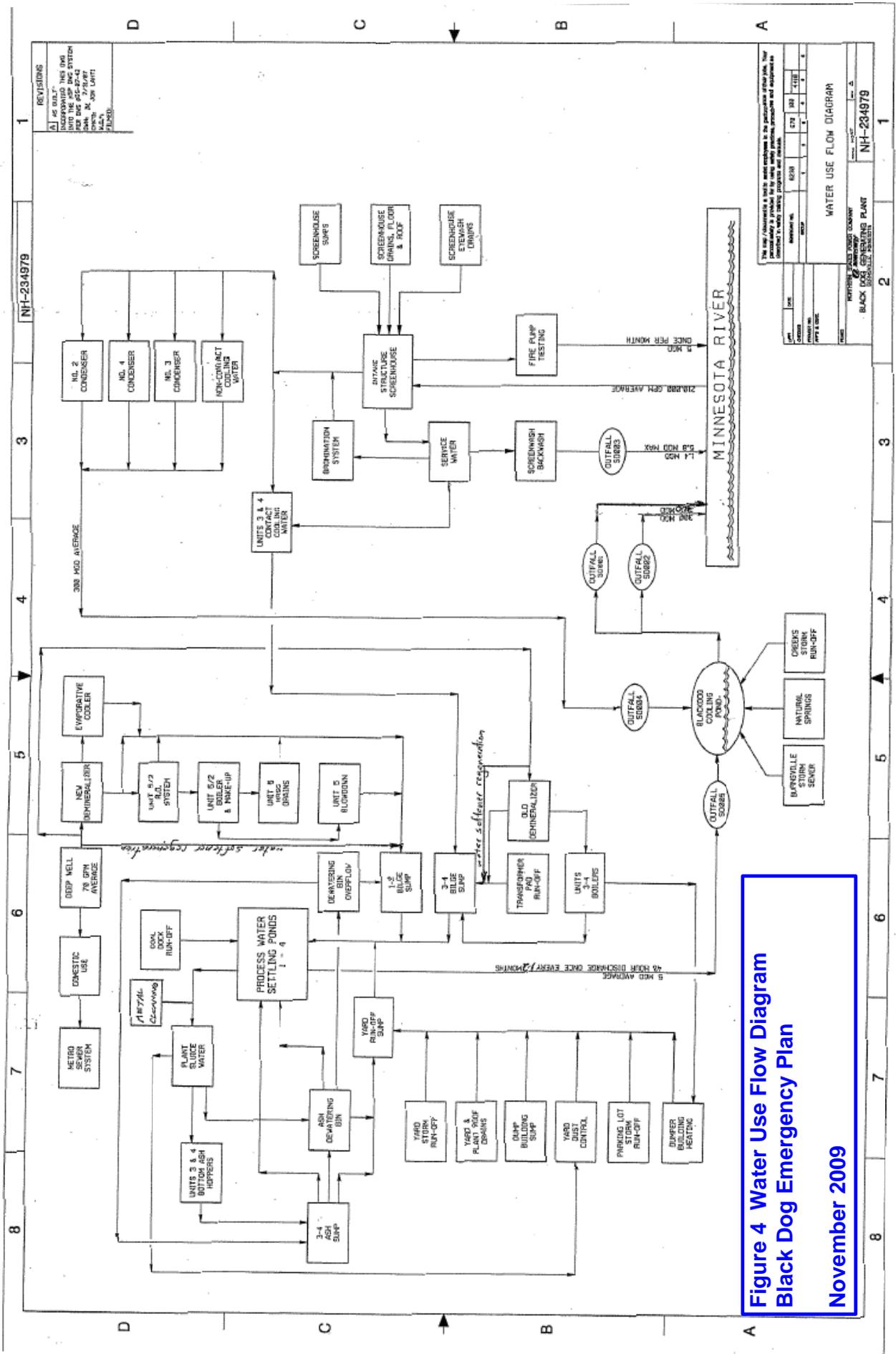
- Impervious surfaces (paved)
- Mineral Oil-filled Transformer (BMP 1)
- Transformer w/ containment (BMP 1)
- Mineral Oil-Filled Breaker (BMP 1)
- Storm drain to ponds
- Storm drain to river
- Stormwater Flow
- Storm drain piping
- Sump/ lift station
- Drum Storage Area
- Oil Bulk Storage Tank
- Underground fuel piping
- Fueling stations

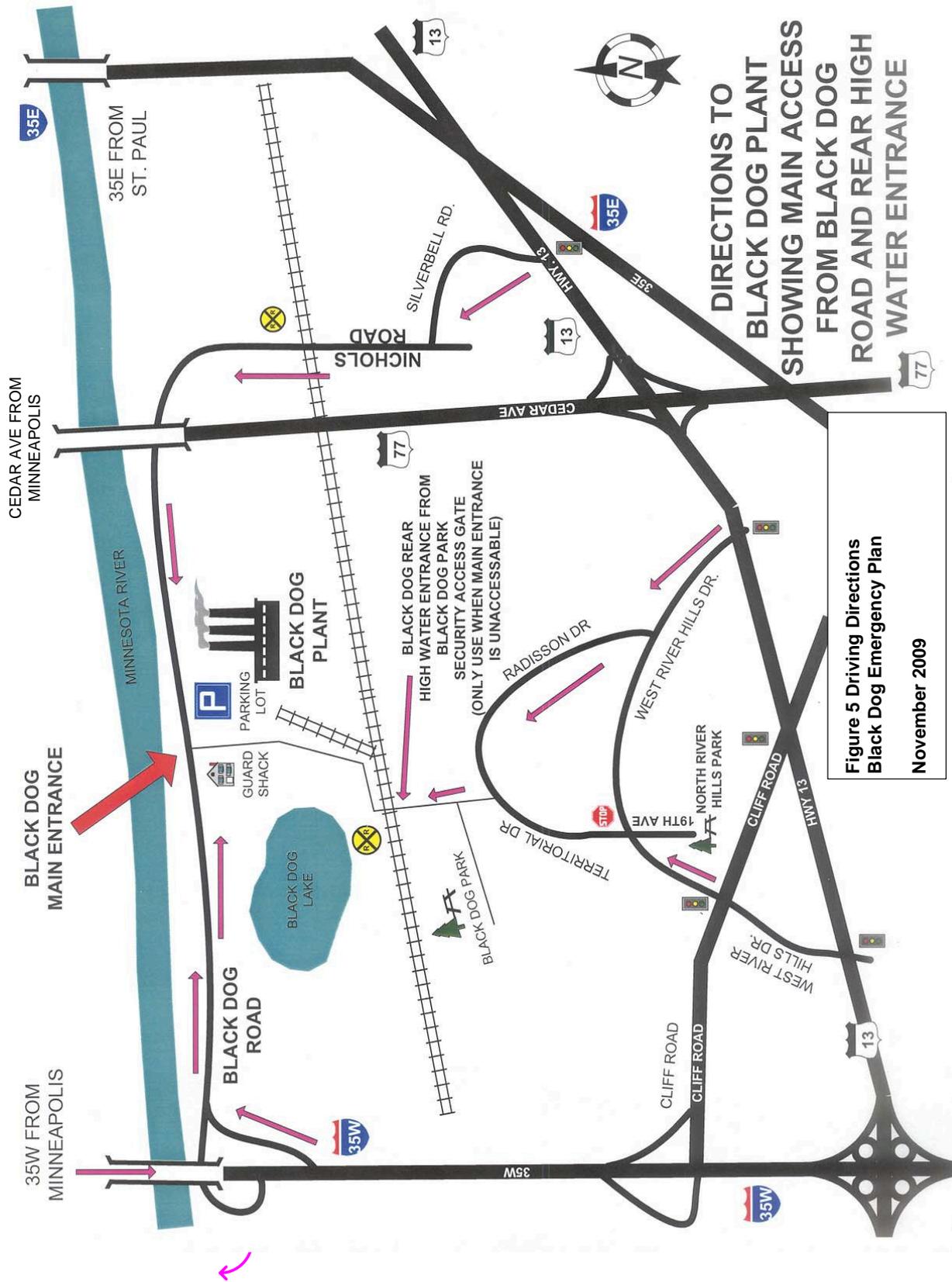
**SWPPP Legend:**

- 1 Diesel fuel unloading areas (BMP 2)
- 2 1000 gal. gasoline UST (BMP 3)
- 3 10000 gal. diesel UST (BMP 3)
- 4 Drums & totes handling (BMP 4)
- 5 Dust suppressant tank & unloading (BMP 5)
- 6 Acid & caustic unloading (BMP 6)
- 7 29% Aqua Ammonia unloading (BMP 7)
- 8 Brine (salt) unloading (BMP 8)
- 9 Dumpsters & scrap metal (BMP 9)
- 10 Waste oil pick-up (BMP 10)
- 11 Coal & coal fines (BMP 11)
- 12 Ash loading (BMP 12)

Approximate scale 1 in = 125 ft  
 (on 11 in x 17 in paper)  
 Lat: 44 deg 48 min 39 sec N  
 Long 93 deg 15 min 05 sec W

**Figure 3 Drainage Map**  
**Black Dog Emergency Plan & SWPPP**  
 June 2010





APPENDIX B  
Photographs



Figure 1: Ash Water and Bilge Line Outlet to Process Water Settling Pond # 3



Figure 2: Process Water Settling Pond # 3, Northeast



Figure 3: Process Water Settling Pond # 3, East



Figure 4: Process Water Settling Pond # 3, East



Figure 5: Process Water Settling Pond # 3, North



Figure 6: Process Water Settling Pond # 3, West



Figure 7: Process Water Settling Pond Divide for Ponds #1-#3 and #4, Northwest



Figure 8: Process Water Settling Pond # 4, North



Figure 9: Process Water Settling Pond # 4 Outlet to Black Dog Lake



Figure 10: Black Dog Lake at Process Water Settling Pond # 4 Outlet



Figure 11: Process Water Settling Pond # 4 Inlet to Black Dog Lake



Figure 12: Process Water Settling Pond # 4 Access Ladder for Inlet to Black Dog Lake



Figure 13: Process Water Settling Pond # 4, North



Figure 14: Process Water Settling Pond # 4, Northwest



Figure 15: Process Water Settling Pond # 4, West



Figure 16: Process Water Settling Pond # 4, Southwest



Figure 17: Southeast Corner of Process Water Settling Pond # 2, Northwest



Figure 18: Process Water Settling Pond # 3 and Pond # 2, West



Figure 19: Process Water Settling Pond # 3 Inlet to Process Water Settling Pond # 2



Figure 20: Process Water Settling Pond # 3 Inlet to Process Water Settling Pond # 2



Figure 21: Process Water Settling Pond # 3 Outlet to Process Water Settling Pond # 2



Figure 22: Process Water Settling Pond # 3, South



Figure 23: Process Water Settling Pond # 2, Northwest



Figure 24: Process Water Settling Pond # 2, East



Figure 25: Water Return Line to Plant Inlet from Process Water Settling Pond # 2



Figure 26: Process Water Settling Pond # 2. Northwest



Figure 27: Pump Station at Process Water Settling Pond # 2, Northwest



Figure 28: Water Return Line to Plant Inlet from Process Water Settling Pond # 2



Figure 29: Outlet Pipes to Process Water Settling Pond # 1, North



Figure 30: Process Water Settling Pond # 2 Outlet, West



Figure 31: Process Water Settling Pond # 2 Inlet to Process Water Settling Pond # 1



Figure 32: Process Water Settling Pond # 2 Outlet to Process Water Settling Pond # 1



Figure 33: Process Water Settling Pond # 1 Inlet to Process Water Settling Pond # 4



Figure 34: Process Water Settling Pond # 2, South



Figure 35: Process Water Settling Pond # 1 Inlet to Process Water Settling Pond # 4



Figure 36: Process Water Settling Pond # 1 Inlet to Process Water Settling Pond # 4



Figure 37: Process Water Settling Pond # 1 Outlet to Process Water Settling Pond # 4



Figure 38: Process Water Settling Pond # 4, East



Figure 39: Process Water Settling Pond # 1, West



Figure 40: Black Dog Road and Process Water Settling Pond # 1, West



Figure 41: Process Water Settling Pond # 4 and Pond #1, Northeast Corner



Figure 42: Process Water Settling Pond # 1, South



Figure 43: Process Water Settling Pond #1, East



Figure 44: Black Dog Rd and Minnesota River from Coal Storage Area, West



Figure 45: Black Dog Rd and Minnesota River from Coal Storage Area, North



Figure 46: Black Dog Rd and Minnesota River from Coal Storage Area, North



Figure 47: Black Dog Rd and Minnesota River from Coal Storage Area, Northwest



Figure 48: Black Dog Power Station and Coal Storage Area



Figure 49: Black Dog Rd and Minnesota River from Coal Storage Area



Figure 50: Black Dog Power Station and Black Dog Road from Coal Storage Area



Figure 51: Dry Ash Loading Facility

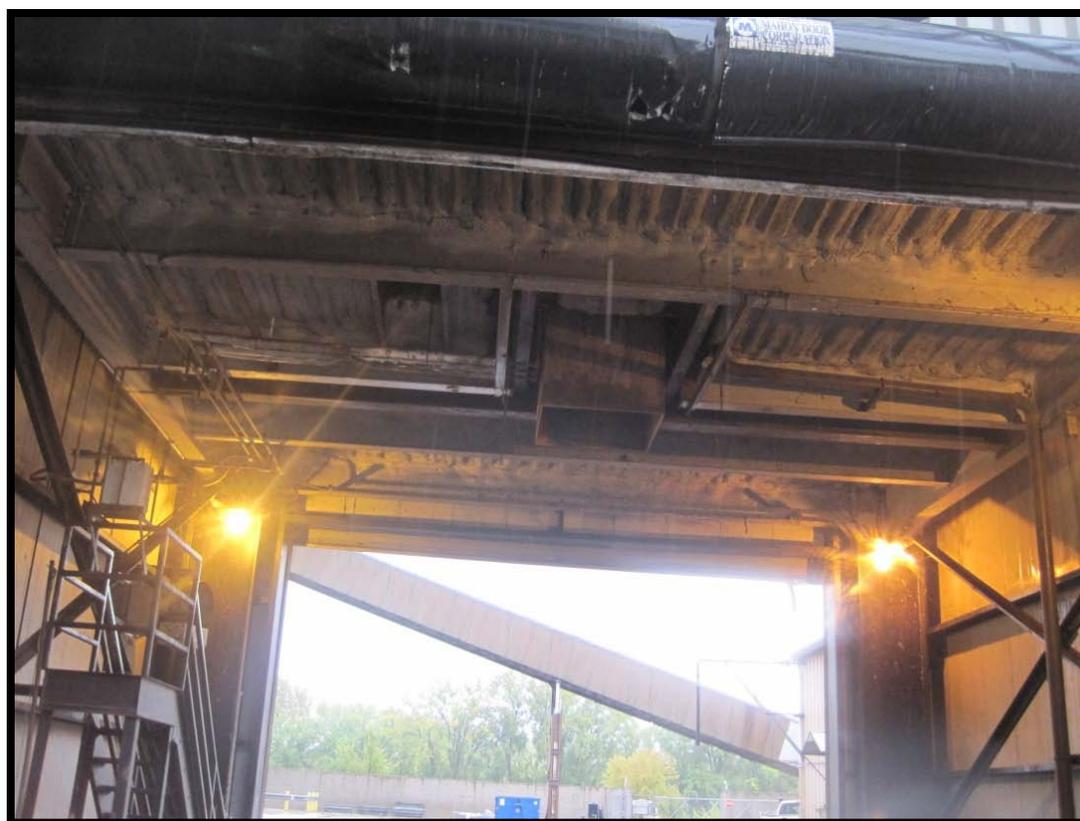


Figure 52: Bottom Ash Loading Facility



Figure 53: Westside view of Railroad Bridge over Black Dog Lake



Figure 54: Westside view of Railroad Bridge over Black Dog Lake



|                   |                            |  |  |
|-------------------|----------------------------|--|--|
| Site Name:        | Black Dog Generating Plant | Date:  | 9-23-2010  |
| Unit Name:        | Ponds Units 1, 2 ,3 and 4  | Operator's Name:                                   | Northern States Power DBA Xcel Energy  |
| Unit I.D.:        | Ponds Units 1, 2 ,3 and 4  | Hazard Potential Classification:                   | High <input type="checkbox"/> Significant <input type="checkbox"/> Low <input checked="" type="checkbox"/> |
| Inspector's Name: |                            | Cleighton D. Smith, P.E. and Scott C. Clarke, P.E. |  |

Check the appropriate box below. Provide comments when appropriate. If not applicable or not available, record "N/A". Any unusual conditions or construction practices that should be noted in the comments section. For large diked embankments, separate checklists may be used for different embankment areas. If separate forms are used, identify approximate area that the form applies to in comments.

|  | Yes | No  |   | Yes | No  |
|--|-----|-----|---|-----|-----|
| 1. Frequency of Company's Dam Inspections?   | 1   |     | 18. Sloughing or bulging on slopes?   |     | X   |
| 2. Pool elevation (operator records)?  | 2   |     | 19. Major erosion or slope deterioration?   |     | N/A |
| 3. Decant inlet elevation (operator records)?  | 3   |     | 20. Decant Pipes:   |     |     |
| 4. Open channel spillway elevation (operator records)?   | N/A |     | Is water entering inlet, but not exiting outlet?  |     | X   |
| 5. Lowest dam crest elevation (operator records)?  | 4   |     | Is water exiting outlet, but not entering inlet?  |     | X   |
| 6. If instrumentation is present, are readings recorded (operator records)?                                  | N/A |     | Is water exiting outlet flowing clear?  | X   |     |
| 7. Is the embankment currently under construction?   |     | 5   | 21. Seepage (specify location, if seepage carries fines, and approximate seepage rate below): |     |     |
| 8. Foundation preparation (remove vegetation, stumps, topsoil in area where embankment fill will be placed)? | 6   | 6   | From underdrain?  |     | X   |
| 9. Trees growing on embankment? (If so, indicate largest diameter below)                                     | X   |     | At isolated points on embankment slopes?  |     | X   |
| 10. Cracks or scarps on crest?   |     | X   | At natural hillside in the embankment area?   |     | X   |
| 11. Is there significant settlement along the crest?   |     | X   | Over widespread areas?  |     | X   |
| 12. Are decant trashracks clear and in place?  |     | N/A | From downstream foundation area?  |     | X   |
| 13. Depressions or sinkholes in tailings surface or whirlpool in the pool area?                              |     | X   | "Boils" beneath stream or ponded water?   |     | X   |
| 14. Clogged spillways, groin or diversion ditches?   |     | X   | Around the outside of the decant pipe?  |     | X   |
| 15. Are spillway or ditch linings deteriorated?  |     | N/A | 22. Surface movements in valley bottom or on hillside?  |     | X   |
| 16. Are outlets of decant or underdrains blocked?  |     | X   | 23. Water against downstream toe?   | X   |     |
| 17. Cracks or scarps on slopes?  |     | X   | 24. Were Photos taken during the dam inspection?  |     | X   |

Major adverse changes in these items could cause instability and should be reported for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, volume, etc.) in the space below and on the back of this sheet.

| Issue # | Comments  |
|---------|---|
| 1.      | Perimeter flood dike is inspected monthly by operator; otherwise, the earthen embankment between Black Dog Lake and Ponds 3 and 4 are inspected every two months during non-frozen conditions. One of the inspections is performed while stormwater is discharging  |
| 2.      | CCW pool operating elevations vary between +/- 697 ft to 702 ft for ponds 1, 2, 3 and 4.  |
| 3.      | +/- 695 ft  |
| 4.      | +/- 705.0 along southern perimeter embankment between Black Dog Lake and Pond 4   |
| 5.      | The only earthen embankment occurs between Black Dog Lake and Ponds 3 and 4. The earthen embankment was constructed in the mid 1950 as part of a single impoundment. Three internal dikes were constructed in the mid 1970s to mid 1980s to create the four ponds known today. In 2002, the Operator constructed a flood control berm |

US EPA ARCHIVE DOCUMENT



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|    |   |
|----|---|
|    | around the perimeter of Ponds 1, 2 and 3. This berm was constructed to keep floodwaters from the Minnesota River and Black Dog Lake out of these three ponds. It is not the intent of the berm to provide additional CCW capacity. As of the date of the site visit no parts of the earthen embankment were under construction. |
| 6. | Unknown – no supporting documentation to confirm.   |



## Coal Combustion Waste (CCW) Impoundment Inspection

**Impoundment NPDES Permit** MM0000876                      **INSPECTOR** Brandon Smith

**Date** March 24, 2008  
**Impoundment Name** Pond Units 1, 2, 3, and 4

**Impoundment Company** Northern States Power DBA Xcel Energy  
**EPA Region** 5

**State Agency (Field Office) Address** MN Pollution Control Agency; 520 Lafayette Rd North, St Paul, MN 55155-4194  
**Name of Impoundment** Ponds Units 1, 2 ,3 and 4

*(Report each impoundment on a separate form under the same Impoundment NPDES Permit number)*

**New**                       **Update**

|   |                                     |                                     |
|---|-------------------------------------|-------------------------------------|
|   | <b>Yes</b>                          | <b>No</b>                           |
| <b>Is impoundment currently under construction?</b>                 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| <b>Is water or ccw currently being pumped into the impoundment?</b> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |

**IMPOUNDMENT FUNCTION:** Water quality for NPDES permit requirements

**Nearest Downstream Town Name:** Eagan at State Hwy 77 Bridge

**Distance from the impoundment:** 0.8 mile

**Location:**

**Latitude**      44      Degrees      49      Minutes      0      Seconds      **N**

**Longitude**    93      Degrees      14      Minutes      30      Seconds      **W**

**State** MN.                                      **County** Dakota

|   |                          |                                     |
|---|--------------------------|-------------------------------------|
|   | <b>Yes</b>               | <b>No</b>                           |
| <b>Does a state agency regulate this impoundment?</b> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**If So Which State Agency?**

US EPA ARCHIVE DOCUMENT



**HAZARD POTENTIAL** *(In the event the impoundment should fail, the following would occur):*

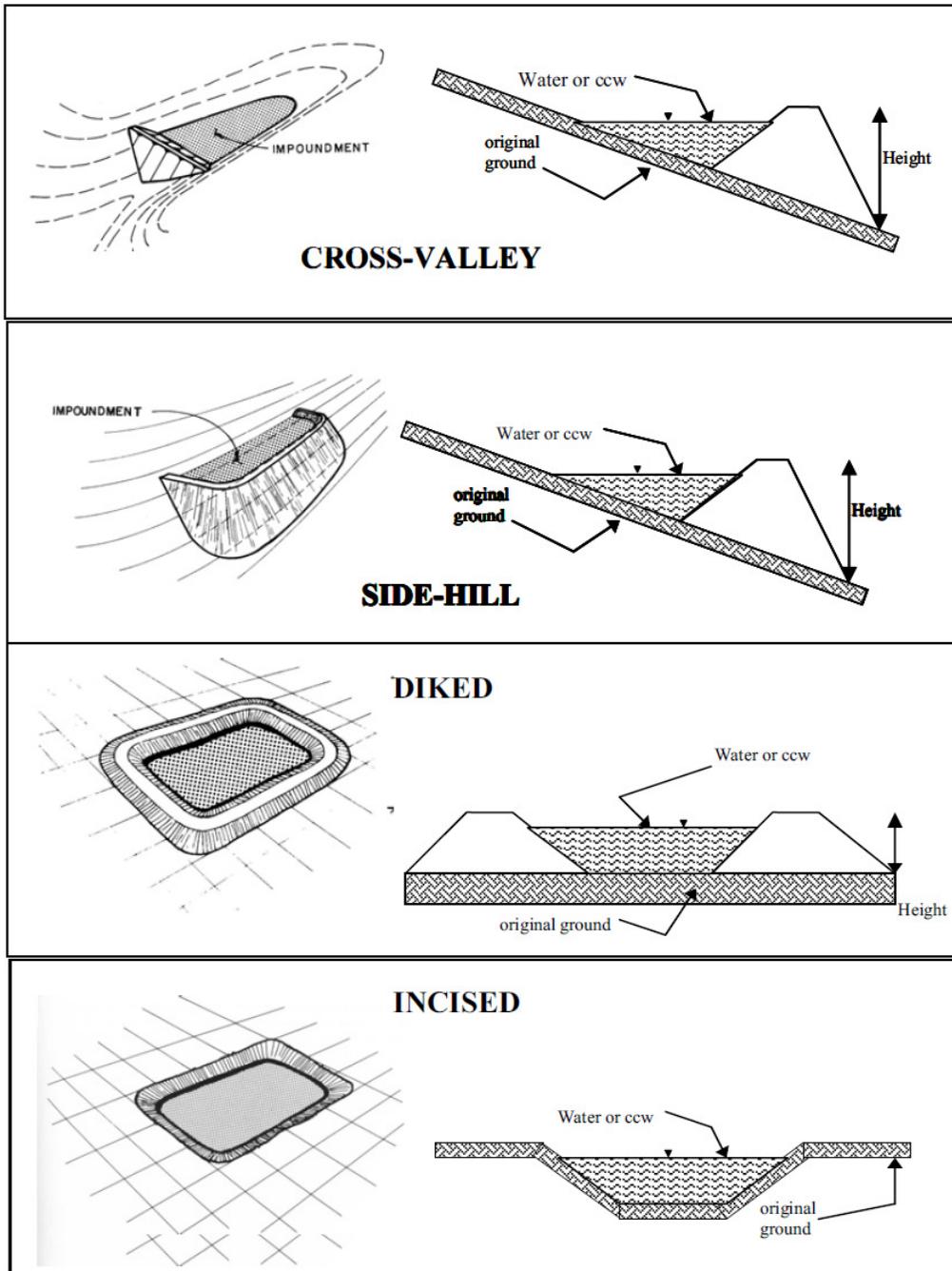
- LESS THAN LOW HAZARD POTENTIAL:** Failure or misoperation of the dam results in no probable loss of human life or economic or environmental losses.
- LOW HAZARD POTENTIAL:** Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.
- SIGNIFICANT HAZARD POTENTIAL:** Dams assigned the significant hazard potential classification are those dams where failure or misoperation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.
- HIGH HAZARD POTENTIAL:** Dams assigned the high hazard potential classification are those where failure or misoperation will probably cause loss of human life.

**DESCRIBE REASONING FOR HAZARD RATING CHOSEN:**

- There are no inhabited structures and/or public facilities immediately downstream of the impoundment should it fail.
- It is anticipated that the small impoundment area represented by Ponds 1, 2, 3, and 4 would be absorbed by Black Dog Lake should a dam failure occur.
- If a dam failure were to occur it is anticipated that there would be little to no structural damage offsite.
- Economic, environmental and lifeline losses would be low and generally limited to the Operator of the Plant.



**CONFIGURATION:**



- Cross-Valley
- Side-Hill
- Diked
- Incised (form completion optional)
- Combination Incised/Diked

|                               |                                |                            |         |
|-------------------------------|--------------------------------|----------------------------|---------|
| <b>Embankment Height (ft)</b> | +/- 10                         | <b>Embankment Material</b> | Unknown |
| <b>Pool Area (ac)</b>         | 2.2, Ponds 1-3;<br>9.3, Pond 4 | <b>Liner</b>               | None    |
| <b>Current Freeboard (ft)</b> | 3 (705-702)                    | <b>Liner Permeability</b>  | N/A     |



**TYPE OF OUTLET (Mark all that apply)**

**Open Channel Spillway**

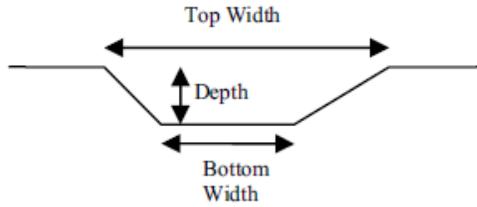
- Trapezoidal
- Triangular
- Rectangular
- Irregular

depth (ft)

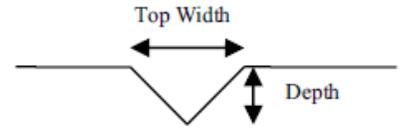
average bottom width (ft)

top width (ft)

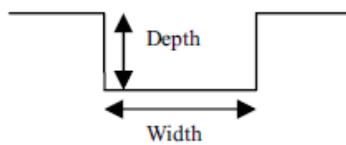
TRAPEZOIDAL



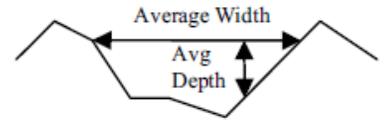
TRIANGULAR



RECTANGULAR



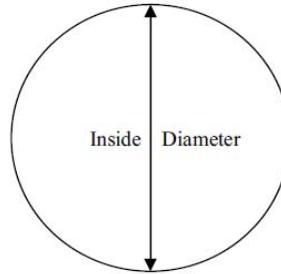
IRREGULAR



**Outlet**

**Material**

- corrugated metal
- welded steel
- concrete
- plastic (hdpe, pvc, etc.)
- other (specify):



**Is water flowing through the outlet?**

Yes

No

**No Outlet**

**Other Type of Outlet**  
(specify):

**The Impoundment was Designed By**

Unknown who designed original 1950s single pond. Glen S. Bengtson, P.E and James K. Poucher, P.E. certified early 1980s design drawings that apparently



were used to transform the single pond into the four ponds known today. However, their exact involvement in the project at that time is not known.

|   | Yes                      | No                                  |
|---|--------------------------|-------------------------------------|
| Has there ever been a failure at this site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**If So When?**

**If So Please Describe :**



Has there ever been significant seepages  
at this site?      Yes      No  
           
   If So When?

If So Please Describe :



|   | Yes                      | No                                  |
|---|--------------------------|-------------------------------------|
| Has there ever been any measures undertaken to monitor/lower Phreatic water table levels based on past seepages or breaches at this site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

If so, which method (e.g., piezometers, gw pumping,...)?

If So Please Describe :





**ADDITIONAL INSPECTION QUESTIONS**

*Concerning the embankment foundation, was the embankment construction built over wet ash, slag, or other unsuitable materials? If there is no information just note that.*

To the best of our knowledge this information does not exist.

*Did the dam assessor meet with, or have documentation from, the design Engineer-of-Record concerning the foundation preparation?*

To the best of our knowledge this information does not exist.

*From the site visit or from photographic documentation, was there evidence of prior releases, failures, or patchwork on the dikes?*

To the best of our knowledge this information does not exist.