STATE OF MINNESOTA
BOARD OF ARCHITECTURE, ENGINEERING,
LAND SURVEYING, LANDSCAPE ARCHITECTURE, GEOSCIENCE
AND INTERIOR DESIGN

In the matter of C. Scott Thomas
PROFESSIONAL ENGINEERING
License Number 18185

STIPULATION AND ORDER

Board File No. 2010-0010

TO: Mr. C. Scott Thomas
Xcel Energy
414 Nicollet Mall, MP7
Minneapolis, Minnesota 55401

The Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design ("Board") is authorized pursuant to Minnesota Statutes section 214.10 (2010) and Minnesota Statutes section 326.111 (2010) to review complaints against architects, professional engineers, land surveyors, landscape architects, geoscientists, and certified interior designers, and to take disciplinary action whenever appropriate.

The Board received information concerning C. Scott Thomas ("Respondent"). The Board's Complaint Committee ("Committee") reviewed the information. The parties have agreed that the matter may now be resolved by this Stipulation and Order.

STIPULATION

IT IS HEREBY AGREED by and between Respondent and the Committee as follows:

1. Jurisdiction. The Respondent has held a license to practice professional

engineering from the Board since February 2, 1987. Respondent is subject to the jurisdiction of the Board with respect to the matters referred to in this Stipulation.

2. Facts. This Stipulation is based upon the following facts:

a. Respondent was first licensed to practice professional engineering in the State of Minnesota on February 2, 1987.

b. On June 30, 2008, Respondent's license to practice professional engineering in the State of Minnesota expired.

c. On August 11, 2009, Respondent's Minnesota professional engineering license was reinstated.

d. On August 5, 2009, Respondent self reported to the Board Investigator, Lynette DuFresne that he practiced without a license and held himself out as a professional engineer during the time his license lapsed. Respondent stated this lapse was unintentional and Respondent was very cooperative.

e. On August 6, 2009, the Board received the Respondent's Application for License/Certificate Reinstatement through 6/30/2010. A true and correct copy of the Application for License/Certificate Reinstatement through 6/30/2010 is attached as Exhibit A.

f. In a letter dated August 6, 2009, Respondent states: "As we discussed yesterday, I am self reporting a violation in my practice as a Professional Civil Engineer. The violation was inadvertent and without intent, but I accept full responsibility for my action and accept whatever disciplinary

action the board deems fit." "The root of my violation is that, under the presumption that I was licensed; I have signed five documents for Xcel Energy plants representing myself as a Professional Engineer. The documents signed are as follows:

1. Construction Certification Report: Phase 2B/3B Construction, Redwing Landfill, Red Wing, Minnesota, dated July 30, 2008

2. Construction Certification Report: Cell 3/4/5 Closure, Wilmarth Landfill, Mankato, Minnesota, dated September 3, 2008

3. Spill Prevention Control and Countermeasure (SPCC) Plan for Riverside Plant, Minneapolis, MN, dated November 12, 2008

4. SPCC Plan for A. S. King Plant, Oak Park Heights, MN, dated April 6, 2009

5. Construction Certification Report: Cell 8 Construction, Wilmarth Landfill, Mankato, Minnesota, dated July 23, 2009."

A true and correct copy of the August 6, 2009 letter is attached as Exhibit B.

g. Respondent submitted a copy of the Construction Documentation Report for the Red Wing Ash Disposal Facility, Phase 2B/3B Construction project, prepared, signed and dated by him on July 15, 2008. A true and correct copy of the Construction Documentation Report for the Red Wing Ash Disposal Facility, Phase 2B/3B Construction project, dated July 15, 2008 is attached as Exhibit C.

h. Respondent submitted a copy of the Construction Documentation

Report for the Wilmarth Ash Disposal Facility, Cell 3, 4 & 5 Partial Closure project, prepared, signed and dated by him on September 3, 2008. A true and correct copy of the Construction Documentation Report for the Wilmarth Ash Disposal Facility, Cell 3, 4 & 5 Partial Closure project, dated September 3, 2008 is attached as Exhibit D.

i. Respondent submitted a copy of the Riverside Generating Plant, Spill Prevention Control and Countermeasure (SPCC) Plan and Minnesota Spill Bill Plan, prepared, signed and dated by him on November 12, 2008. A true and correct copy of the Riverside Generating Plant, Spill Prevention Control and Countermeasure (SPCC) Plan and Minnesota Spill Bill Plan, dated November 12, 2008 is attached as Exhibit E.

j. Respondent submitted a copy of the Spill Prevention Control and Countermeasure (SPCC) Plan and Minnesota Spill Bill Plan, Allen S. King Generating Plant, prepared, signed and dated by him on April 6, 2009. A true and correct copy of the Spill Prevention Control and Countermeasure (SPCC) Plan and Minnesota Spill Bill Plan, for the Allen S. King Generating Plant, dated April 6, 2009 is attached as Exhibit F.

k. Respondent submitted a copy of the Construction Documentation Report, Wilmarth Ash Disposal Facility, Cell #8 Construction project, prepared, signed and dated by him on July 23, 2009. A true and correct copy of the Construction Documentation Report, Wilmarth Ash Disposal Facility, Cell #8 Construction project, dated July 23, 2009 is attached as Exhibit G.

3. Violations. Respondent admits that the facts specified in paragraphs 2 (d), and 2(f) through 2 (k) above constitute violations of Minnesota Statutes sections 326.02, subdivisions 1 and 3 and 326.03, subdivision 1 (2010) and are sufficient grounds for the action specified below.

4. Enforcement Action. Respondent and the Committee agree that the Board should issue an Order in accordance with the following terms:

a. Reprimand. Respondent is reprimanded for the foregoing conduct.

b. Civil Penalty. Respondent shall pay to the Board a civil penalty of Three Thousand Dollars ($3,000.00). Respondent shall submit a civil penalty of Three Thousand Dollars ($3,000.00) by cashier's check or money order to the Board within sixty (60) days of the Board's approval of this Stipulation and Order.

5. Additional Discipline for Violations of Order. If Respondent violates this Stipulation and Order, the Board may impose additional discipline pursuant to the following procedure:

a. The Committee shall schedule a hearing before the Board. At least thirty days prior to the hearing, the Committee shall mail Respondent a notice of the violation alleged by the Committee and of the time and place of the hearing. Within fourteen days after the notice is mailed, Respondent shall submit a response to the allegations. If Respondent does not submit a timely response to the Board, the allegations may be deemed admitted.

b. At the hearing before the Board, the Complaint Committee and

Respondent may submit affidavits made on personal knowledge and argument based on the record in support of their positions. The evidentiary record before the Board shall be limited to such affidavits and this Stipulation and Order. Respondent waives a hearing before an administrative law judge and waives discovery, cross-examination of adverse witnesses, and other procedures governing administrative hearings or civil trials.

c. At the hearing, the Board will determine whether to impose additional disciplinary action, including additional conditions or limitations on Respondent's practice or suspension or revocation of Respondent's license.

6. Waiver of Respondent's Rights. For the purpose of this Stipulation, Respondent waives all procedures and proceedings before the Board to which Respondent may be entitled under the Minnesota and United States constitutions, statutes, or the rules of the Board, including the right to dispute the allegations against Respondent, to dispute the appropriateness of discipline in a contested case proceeding pursuant to Minnesota Statutes Chapter 14 (2010), and to dispute the civil penalty imposed by this Agreement. Respondent agrees that upon the application of the Committee without notice to or an appearance by Respondent, the Board may issue an Order containing the enforcement action specified in paragraph 4 herein. Respondent waives the right to any judicial review of the Order by appeal, writ of certiorari, or otherwise.

7. Collection. In accordance with Minnesota Statutes section 16D.17 (2010), in the event this order becomes final and Respondent does not comply with the

condition in paragraph 4(b) above, Respondent agrees that the Board may file and enforce the unpaid portion of the civil penalty as a judgment without further notice or additional proceedings.

8. Board Rejection of Stipulation and Order. In the event the Board in its discretion does not approve this Stipulation and Order or a lesser remedy than specified herein, this Stipulation and Order shall be null and void and shall not be used for any purpose by either party hereto. If this Stipulation is not approved and a contested case proceeding is initiated pursuant to Minnesota Statutes Chapter 14 (2010), Respondent agrees not to object to the Board's initiation of the proceedings and hearing the case on the basis that the Board has become disqualified due to its review and consideration of this Stipulation and the record.

9. Unrelated Violations. This settlement shall not in any way or manner limit or affect the authority of the Board to proceed against Respondent by initiating a contested case hearing or by other appropriate means on the basis of any act, conduct, or admission of Respondent justifying disciplinary action which occurred before or after the date of this Stipulation and Order and which is not directly related to the specific facts and circumstances set forth herein.

10. Record. The Stipulation, related investigative reports and other documents shall constitute the entire record of the proceedings herein upon which the Order is based. The investigative reports, other documents, or summaries thereof may be filed with the Board with this Stipulation.

11. Data Classification. Under the Minnesota Government Data Practices Act, this Stipulation and Order is classified as public data upon its issuance by the Board, Minnesota Statutes section 13.41, subdivision 5 (2010). All documents in the record shall maintain the data classification to which they are entitled under the Minnesota Government Data Practices Act, Minnesota Statutes Chapter 13 (2010). They shall not, to the extent they are not already public documents, become public merely because they are referenced herein. A summary of this Order will appear in the Board's newsletter. A summary will also be sent to the national discipline data bank pertaining to the practice of professional engineering.

12. Entire Agreement. Respondent has read, understood, and agreed to this Stipulation and is freely and voluntarily signing it. The Stipulation contains the entire agreement between the parties hereto relating to the allegations referenced herein. Respondent is not relying on any other agreement or representations of any kind, verbal or otherwise.

13. Counsel. Respondent is aware that he may choose to be represented by legal counsel in this matter. Respondent knowingly waived legal representation.

14. Service. If approved by the Board, a copy of this Stipulation and Order shall be served personally or by first class mail on Respondent. The Order shall be effective and deemed issued when it is signed by the Chair of the Board.

RESPONDENT

C. Scott Thomas

Dated: August 12, 2010

COMPLAINT COMMITTEE

By: Billie Lawton
Billie Lawton, Public Member,
Committee Chair

Dated: 8/23, 2010

ORDER

Upon consideration of the foregoing Stipulation and based upon all the files, records and proceedings herein, all terms of the Stipulation are approved and hereby issued as an Order of this Board on this the 23rd day of August, 2010.

MINNESOTA BOARD OF
ARCHITECTURE, ENGINEERING,
LAND SURVEYING, LANDSCAPE
ARCHITECTURE, GEOSCIENCE AND
INTERIOR DESIGN

By: Kristine A. Kubes
Kristine A. Kubes, J. D.
Board Chair

Submit By Email | Print Form

Minnesota Board of Architecture, Engineering, Land Surveying,
Landscape Architecture, Geoscience and Interior Design
85 E. 7th Place, Suite 160, St. Paul, MN 55101
www.aelslagid.state.mn.us

AUG - 6 2009

Application for License/Certificate Reinstatement through 6/30/2010

The licensee or certificate holder is responsible for completing ALL sections of this form. If any information is missing or the form is not signed, the application will be considered incomplete and be returned.

Please be advised, reinstating your license does not preclude the possibility that the Board may initiate an investigation of you for possible violations of Minnesota Statute §§ 326.02-326.15, or Minnesota Rule Chapters 1800 and 1805. Please read the enclosed Tennessen Warning.

Personal Information

Name: Charles Scott Thomas
Profession: Civil Engineer
License/Certificate #: 18185
Mailing Address: X Home ___ Business
Is this a new address? X Yes ___ No

Company Name: ___
Address 1: 1930 Crestview Circle
Address 2: ___
City, State, Zip: Excelsior, MN 55331
Country: United States
Contact Phone #: (952) 470-0006

Continuing Education

Requirement: 24 Professional Development Hours earned on or after July 1, 2006, unless you are exempt. Continuing education requirements can be found at www.aelslagid.state.mn.us/conted.html.

___ I am exempt from reporting continuing education for this renewal (select reason below):
___ My MN license/certificate was issued on or after July 1, 2006. (Automatic exemption)
___ I requested an exemption from the Board and it was granted. (Attach Board approval)
* Exemption requests must be pre-approved. Renewal will not be processed prior to approval.
* Continuing education cannot be carried over from an exempt period.

Processed 8/18/09

X I am not exempt from the continuing education requirement.
Do not call the Board office to request your carry-over hours!
Total PDH earned 7/1/2006 – 6/30/2008: 23
Carryover from previous renewal: 11
Total PDH submitted: 34

Fees and Affidavit

If postmarked on/before 7/1/09: **$180**
If postmarked on/after 7/1/09: **$192***

Make checks payable to: MN Board of AELSLAGID
US Funds Only
Your canceled check is your receipt.

* This licensure fee notice contains an electronic licensing surcharge. The Minnesota Office of Enterprise Technology (OET) recently sponsored and the Minnesota Legislature passed legislation requiring a 10% surcharge of no less than $5 and no more than $150 on each business, commercial, professional or occupational license. The funding from this surcharge will go to OET, which will establish an electronic licensing system for the state. The surcharge will be in place through June 30, 2015. See Laws of Minnesota 2009, Chapter 101, Article 2, Section 59.

Since your last renewal, have you had a license disciplined, denied, surrendered, suspended or revoked?
(If yes, provide a statement of explanation.) ___ Yes X No

I swear or affirm that I have read the foregoing renewal application and that the statements are true and complete.

C
Signature

August 6, 2009
Date

EXHIBIT A

The data you furnish on this form will be used by the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design to assess your qualifications for renewal of your license and/or certificate. You are not legally required to provide this data; however if you fail to do so, the Board may be unable to renew your license. Information contained on this application is public pursuant to Minnesota Statutes §13.41, Subd. 4.

AFFIDAVIT FOR REINSTATEMENT

State of MINNESOTA)

County of HENNEPIN)

I, CHARLES SCOTT THOMAS, being duly sworn, do hereby depose and swear that:

1. I have read and will comply with the provisions of Minnesota Statutes §§ 326.02 – 326.15 (2006) and the Rules and Regulations adopted thereunder;
2. I am not now under any disciplinary proceeding or action, pending or otherwise, in any other jurisdiction;
3. I have never been convicted of a felony;
4. ~~I have not represented myself as an architect, professional engineer, land surveyor, landscape architect, professional geologist, professional soil scientist, or certified interior designer, without proper licensure or certification, either verbally or on any printed matter, in the State of Minnesota, nor will I do so until such time as my license or certificate has been reinstated by the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design; and~~
5. ~~I have not performed or offered to perform architectural, professional engineering, land surveying, landscape architectural, professional geological, professional soil scientific, or certified interior designer services, without proper licensure or certification in the State of Minnesota, nor will I do so until such time as my license or certificate has been issued by the Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design.~~

(SEE ATTACHED LETTER)

(CHARLES SCOTT THOMAS)
Signature of Applicant

SUBSCRIBED and sworn to before me this 6th day of August 2009

JUDITH FROEMMING
NOTARY PUBLIC – MINNESOTA
MY COMMISSION EXPIRES 1-31-2010

Notary Public

My Commission Expires:

1-31-10

Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience, and Interior Design

TENNESSEN WARNING
for
SUBJECT OF AN INVESTIGATION

The Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience, and Interior Design (the "Board") is seeking information from you that may be considered private or confidential under the Minnesota Government Data Practices Act. Minnesota Statutes section 13.04(2) requires the Board to notify you of the following matters before you are asked to supply any private or confidential information about yourself.

1. This information is being collected as part of an investigation into your conduct, and the information you supply to the Board may be used to determine whether you have violated any statutes or rules enforced or administered by the Board.

2. You are not required to voluntarily cooperate with the investigations of the Board. However, if you choose to not voluntarily cooperate the Board may subpoena you to obtain the information it is seeking. You are advised that you are not required to incriminate yourself in any possible criminal investigation and you may exercise your constitutional right to refuse to supply any information on grounds that you might incriminate yourself.

3. If you supply the information requested and it shows a violation of any of the statutes or rules enforced by the Board, then you may be subject to legal action by the Board.

4. If you choose to not supply the Board with any requested information, whether or not that choice is based on your constitutional right to refuse to supply the Board with the requested information, then the Board has the right to base its decision whether to pursue action against you based on the other information which is available to the Board

5. You are advised that the information that you supply will be accessible to staff of the Board and the Office of the Attorney General. It may be released to other persons and/or governmental entities who have statutory authority to review the information, investigate specific conduct and/or take appropriate legal action, including but not limited to law enforcement agencies, courts and other regulatory agencies. If the Board institutes a formal disciplinary action against you, then your name and the information you supply could become public.

State of Minnesota
Board of AELSLAGID
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August 6, 2009

Minnesota Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design (AELSLAGID)
85 E. 7th Place, Suite 160
St. Paul, MN 55101

Atten: Ms. Lynette Dufresne, Investigator

Re: Self Reported Violation for Charles Scott Thomas, Mn P.E. No. 18185

Dear Ms. Dufresne:

As we discussed yesterday, I am self reporting a violation in my practice as a Professional Civil Engineer. The violation was inadvertent and without intent, but I accept full responsibility for my action and accept whatever disciplinary action the board deems fit.

I have been a registered Professional Engineer in Minnesota since 1986 and have been continuously licensed through that period. In the past, upon receiving a renewal notice, I would give it to my wife to pay. However, I moved in October, 2006 and changed jobs in March, 2007, so it is possible that I did not receive the notice. I fully understand that not receiving a notice does not absolve me of my responsibility to renew my license in a timely manner. But, I have been under the assumption that my renewal was received and I was licensed to practice.

As part of my work with Xcel Energy, I am becoming involved with projects in Colorado that require I become a Professional Engineer in that state. During review of my files for professional licensing, I could not find a record of my Minnesota renewal for 2008. I called the Board last week to inquire if I was licensed and found that I had not renewed my license.

The root of my violation is that, under the presumption that I was licensed; I have signed five documents for Xcel Energy plants representing myself as a Professional Engineer. The documents signed are as follows:

1. Construction Certification Report: Phase 2B/3B Construction, Redwing Landfill, Red Wing, Minnesota, dated July 30, 2008

2. Construction Certification Report: Cell 3/4/5 Closure, Wilmarth Landfill, Mankato, Minnesota, dated September 3, 2008

EXHIBIT B

3. Spill Prevention Control and Countermeasure (SPCC) Plan for Riverside Plant, Minneapolis, MN, dated November 12, 2008

4. SPCC Plan for A. S. King Plant, Oak Park Heights, MN, dated April 6, 2009

5. Construction Certification Report: Cell 8 Construction, Wilmarth Landfill, Mankato, Minnesota, dated July 23, 2009

I have contacted the persons within Xcel Energy for which I signed these documents and have informed them that I was not a registered Professional Engineer at the time of the signature. These documents are not design drawings, but either post construction documentation of construction documents prepared and certified by another Professional Engineer or changes to SPCC Plans that required a Professional Engineering signature. These construction certification documents were submitted to the Minnesota Pollution Control Agency and the SPCC plans are held at the plants for inspection and have not been submitted to any regulatory agency. Any of these documents are available to the Board for review upon request.

Pending final outcome of this investigation and based on advice from the Board, I will inform Xcel Energy of the outcome and they will take whatever steps is needed to properly certify these documents.

I fully understand the seriousness of this situation. It is the reason that I have self-reported this violation and will fully cooperate with the Board's investigation. Needless to say, I will never again take a passive attitude regarding licensing and will make sure this situation never happens again.

Thank you for your attention to this matter. I look forward to your review and response as to how I can rectify this situation.

Best Regards,

Charles Scott Thomas

Encl.

File# 2010-0010

Construction Documentation Report

Red Wing Ash Disposal Facility

Phase 2B / 3B Construction

MPCA Permit No. SW-307

July 2008

EXHIBIT C

1 Introduction

This report documents construction methods and quality control test for the construction of the Red Wing ADF, East Cell Liner, Phases 2B & 3B. Construction specifications, drawings and the Construction Quality Control Plan, prepared by Wenck, governed the construction and field-testing documented in this report. Deviations from the specifications, drawings, or permit are noted on the enclosed record drawings and described in appropriate sections of this report. The construction project consisted of subgrade excavation, subgrade structural fill, berm construction, placement and compaction of a one foot thick clay liner, placement of geosynthetic clay liner, installation of 60-mil high density polyethylene (HDPE) liner, placement of granular drainage layer, electronic leak detection and independent surveying of the site.

Construction monitoring and documentation was preformed by an Xcel Energy construction superintendant through out the project. This monitoring included recording work preformed by the contractors and subcontractors, taking photographs, facilitating interpretation of specifications/drawings, coordinating material testing, approving phases of construction as necessary and preparing the certification report.

1.1 Project Schedule

Table 1 Project Milestones

Task	Start	End
Mobilization & Storm Water BMPs, Clearing Vegetation,	4/28/08	5/2/08
Structural Fill Density check #1 Density check #2 Density check #3 Survey #1	5/5/08 5/7/08 5/14/08 5/20/08 5/27/08	5/27
Clay Placement Density check #1 & Shelby tubes Density check #2 Survey #2	6/2/08 6/3/08 6/5/08 6/5/08	6/5/08
GCL & HDPE Installation	6/10/08	6/18/08
GDL placement Survey #3	6/17/08 6/23/08	6/20/08
Leak Detection of Geomembrane	6/23/08	6/24/08
Misc & Demobilization	6/24/08	7/10/08

1.2 Key Personnel

An Xcel Energy QA/QC inspector was on site through out the construction project. Scott Thomas, the project engineer, was informed of all site developments and personally inspected the site during each phase of construction. Key project staffs are identified in the table below.

Table 2 Key Project Staff

Company	Staff	Duties	Phone Number
Xcel Energy	Scott Thomas Chuck Donkers	Proj Engineer Construction Superintendant & QA/QC Inspector	612-330-6083 612-330-6082
Dahn Construction	Jeff Fye Randy Sandstrom	Proj Mgr Construction Foreman	651-480-1911 651-775-6231
Wenck	Dave Parenteau	Design Engineer	763-479-4243
Industrial Environmental Concepts (IEC) *(Geomembrane installer)*	Mike Morgan Phil Comstock	Proj Mgr Construction foreman	952-829-0731 952-829-0731
Braun Intertech	Greg Bauer Jim Strier	Soil Testing Geomembrane Testing	612-221-3618 952-995-2304
Johnson & Scofield Inc	Mitch Scofield	Lic Surveyor	651-388-1558

2 Construction Activities & Methods

This section describes the components and construction methods employed during the construction of Phases 2B / 3B. Construction activities involved are listed below:

1. Subgrade Preparation
2. Clay Liner Placement
3. Geosynthetic Clay Liner (GCL) installation
4. HDPE geomembrane liner installation
5. Granular drainage layer placement
6. Turf restoration

The certified area constructed is approximately 1.8 acres.

2.1 Subgrade Preparation

Dahn Construction of Rosemount MN, was the prime earthwork contractor and prepared the subgrade. Storm water BMP's were implemented prior to soil disturbance. A survey delineated the protected areas as identified on permit drawings and was subsequently roped off to prevent soil disturbance. Vegetation was cleared, topsoils stripped and stockpiled on site. Silt fence was established around stockpiles, which would drain off site.

Subgrade preparation consisted of some minor excavation however it was primarily a fill operation. An on-site borrow pit provided all fill material. Generally the on-site fill consisted of sandy silts and highly weathered sandstone rock. The weathered rock was ripped and broken up to fragments less than 6" diameter prior to placement. The weathered rock was broken up further during compaction of the material so that there were few weathered rock fragments remaining in the fill.

Harder rock which did not break-up completely, was placed deep with in the fill area and mixed well with soils to minimize the potential of voids. One-foot horizontal lifts were placed and compacted with a vibrating sheep's foot roller. Up to sixteen feet of structural fill was placed in the central portion of the development area. Structural fill was compacted to 95% of the standard proctor; compaction test locations are illustrated in Figure 1.

A dozer was used to cut excess fill to final grade. The edge of the existing liner for Phases 2A and 3A were exposed by hand excavation. Temporary grading stakes were established as necessary by construction staff using GPS. A licensed surveyor verified final grades.

2.2 Clay Liner Placement

A lean clay, taken from New Trier MN, was utilized for the compacted clay liner. It was deposited at the toe of the slope and immediately pushed upslope to spread it. The clay was spread by dozers in approximately 8" loose or 6" compacted lifts. A sheep's foot vibrating compactor made several passes until the knobs on the sheep foot drum

"walked out" of the clay. The clay surface was maintained in a rough condition, by the sheep foot tracks, to promote bonding between lifts. A second lift was constructed in the same manor to achieve a final thickness of one foot compacted clay. Upon achieving final clay thicknesses, a self-propelled smooth drum roller was used to seal the final clay lift. Temporary grading stakes were established as necessary by construction staff using GPS. A licensed surveyor verified final grades

All clay was delivered at 0 - 5% wet of optimum moisture and free of clods greater than 2" diameter. Due to cool, cloudy conditions with periodic light rains, no moisture conditioning of the clay was needed after initial placement. Clay was compacted to 95% of the standard proctor; the locations of compaction tests are illustrated in Figure 2.

2.3 Geosynthetic Clay Liner (GCL)

Both Phases 2B and 3B were lined with GCL, which is made from bentonite sandwiched between two geo-textiles. The geo-textile layers are needle punched together to improve shear strength. Bentofix Technologies, located in Spearfish SD, manufactured the GCL. The GCL arrived in rolls having the dimensions of 15 ft x 150 ft. The material was protected with plastic wraps and the rolls were also covered with poly tarps until it was deployed. Visual inspection of the GCL confirmed rolls delivered were consistent with certifications, needle punched and undamaged.

Industrial & Environmental Concepts (IEC) preformed GCL installation. IEC also installed the geomembrane. Prior to installing the GCL, IEC, and Xcel Energy would inspect the subgrade for suitability and certify it was acceptable for GCL & HDPE installation. The underlying clay was inspected for smoothness, absence of rocks, and cracking of the compacted clay.

GCL panels were pulled down slope off a suspended roll. The upper end of each panel was anchored in a 2foot deep trench. Panels were overlapped by approximately 6 inches. A line of granular bentonite was sandwiched between overlapped areas. GCLs seams were then heat-sealed using a torch to prevent panel slippage and catching winds. To prevent hydration of the GCL, no more GCL was pulled than could be covered with HDPE geomembrane in the same day. GCL panel layout is illustrated in Figure 3.

2.4 HDPE Geomembrane Liner

Twenty-two foot (22ft) wide rolls of textured 60-mil high-density polyethylene material produced by Solmax of Canada were delivered by IEC. Materials were shipped and stored on site prior to placement, thus allowing time to verify material certification. All materials delivered and used passed production quality control specifications.

The 60-mil textured HDPE was installed over the entirety of Phases 2B and 3B. Panels were seamed in a direction parallel to the slope. Split-wedge (fusion) welding was the primary method to join membrane panels. Extrusion welding was used for patches and the tie-in to existing panels (southern edge). Panel splices were cut and welded along a 45-degree orientation. No butt joints were made, nor were any adjacent panels spliced

at the same location on the side slope. Panel orientation and repairs are shown in Figures 4 and 5.

Panels were anchored at the upper end in a two foot deep anchor trench which was later backfilled with soils to prevent the panel from slipping. A berm to control run-off was constructed along the western edge of Phase 2B. The berm is covered with a temporary 60 mil HDPE flap, which was welded along a line, parallel to and approximately 11 feet from the edge of the certified liner. All HDPE liner edges were covered with ½" x 4' plywood sheeting and buried under a temporary run-off / run-on control berm.

2.5 Granular Drainage Layer (GDL)

Clean poorly graded sands (USCS "SP" Classification) were utilized for the granular drainage layer (GDL). Sand was placed along the down slope edge of the geomembrane; trucks would dump in one of five locations depending on where the GDL was being placed. Dozers then pushed the sand upslope, maintaining a minimum thickness of one foot. Xcel Energy's QA/QC inspector observed all aspects of GDL placement.

The GDL for existing Phases 2A & 3A were exposed by hand shoveling to ensure GDL connectivity between the new and existing cells. No leachate collection pipe was installed during this project.

2.6 Turf Establishment

On-site topsoil, originally cleared for construction purposes, was placed on berms and disturbed areas. Soil Guard was applied to the upper slopes, which were too steep for equipment to operate safely. Other areas were disked, seeded, and straw mulch applied.

Concrete filled, 6" diameter, PVC posts were established to mark the edge of the certified liner. Posts were placed at an approximate interval of 100 feet or when there was a significant change in the edge direction.

3 Construction Quality Assurance And Testing

To ensure that the construction was preformed as permitted, an independent testing company tested materials used in the construction. Xcel Energy personnel were on-site, full time, directing the testing and observing construction practices. The result of the CQA testing and observations are presented below for the 1.8 acre constructed area to be certified.

3.1 Subgrade Testing

Soils from an on-site borrow pit were used for structural fill, no off site soils were utilized. Soil classification, grain size analysis, atterberg limits and proctor tests were preformed on each type of fill material utilized. Filled areas were tested for compaction using a nuclear density probe. Approximately 13,990 cy yards of fill was placed. Testing frequency, and results are summarized in the table below. Figure 1 illustrates test locations, and Tables 3 and Appendix B present sub-grade field and laboratory test results.

Although native barrow soils were classified as SP or SP-SM, maximum dry densities were sufficiently high enough (97, 110 & 112 pcf) to be accepted as structural fill.

Table 3: Sub-Grade Testing Summary

Test	Require freq (tests req)	Actual	Required Test Result	Actual Test Result
Dry Density	1/ac/lift (18)	18	95%	All > 95%
USCS Classification	1/ac (2)	3	CL, GM, SM, SC	SP, SP SM
Std Proctor	1 minimum	3	na	na

3.2 Clay Testing

Compaction testing was checked by nuclear density on a 100x100ft grid for each 6 inche compacted lift. A Braun Intertec technician was on site to perform compaction tests through out the clay placement period. The technician checked moisture content, and compaction density of the placed clay. All clay was placed at 0 to 5% wet of optimum moisture. Testing frequency, and results are summarized in Table 4 and Appendix C. Figure 2 illustrates test locations. Mistakenly only one grain size analysis was preformed rather than the two required. The one grain size test reported results well with in the acceptable criteria and the other tests (Atterberg & Permeability) suggest the clay is very homogenous.

No clods greater than two (2) inches diameter, and no roots were observed in the clay delivered. Cool, overcast weather prevented significant desiccation of the clay. Prior to GCL placement, some cracking was observed, in western 1/3 of certified area. Cracks were less than 1 ½ inches in depth. A conference with the Xcel's Project Engineer and the MPCA Engineer concluded it was acceptable if the area was covered with

geomembrane within 24 hours. The site was completely "blacked out' in less than 24 hours.

Table 4: Clay Testing Summary

Test	Required freq (tests req)	Actual	Required Test Result	Actual Test Result
Dry Density / Moisture	5 / ac / ft (18)	18	95% of proctor 0-5% moisture	All > 95%
Std Proctor	1 / ac / ft (2)	2	na	na
Atterberg	1 / ac / ft (2)	2	LL>25% PI = 10	LL = 27 & 33 PI = 17 & 18
Grain size	1 / ac / ft (2)	1	50% P200 max 5% gravel Clay >25%	62% 3.3% 30.4%
USCS classification	1 / ac / ft (2)	2	SC, CL, CH	CL
Permeability ASTM D5084 (falling head)	1 / ac / ft (2)	2	$1x10^{-7}$ cm/sec or less	$1.5x10^{-8}$ cm/sec $4.3x10^{-9}$ cm/sec

3.3 GCL and Geomembrane Testing

Documentation describing the physical and performance characteristics of the liner was received from the manufacturer for each roll of GCL and HDPE liner used on the project, (Appendices D2 & D3). Each roll was numbered and the documentation for each roll was reviewed to ensure that the roll characteristics met or exceed the specified project requirements. The resin used to make the HDPE liner was also tested and those results were reviewed to determine that the minimum requirements were met.

Xcel Energy personnel provided review of the quality control information submitted by the manufacturer prior to installer mobilization. The manufacturer quality assurance tests were in accordance with the project specifications and quality assurance manual.

Xcel Energy personnel were responsible for observing and reviewing the contractor's daily work report consisting of:

- Panel placement
- Trial welds
- Subgrade acceptance
- Seams
- Destructive Tests
- Repair log

All the quality control information submitted by the manufacturer and quality control testing of the geomembrane is presented in Appendix D. The data in these appendices were reviewed and found to be in compliance with the project specifications.

Eight destructive tests were taken of the installed geomembrane. This equates to a rate of one destructive test sample for every 500 lineal feet of seam. Each sample was split into thirds; 1/3 was tested on site, 1/3 was tested by an independent lab (Braun Intertec) and 1/3 has been archived. All shear and peel test results surpassed project minimum criteria.

Table 5: GCL & Geomembrane Testing Summary

Test	Require freq	Method	Pass / Fail Criteria	Actual Test Result
GCL material Properties	Every Roll	GRI GM	Meets or does Not Meet	All rolls met
HDPE Material Properties	Every Roll Provided	GRI GM 13	Meets or does Not Meet	All rolls met
Visual Inspection	All Panels placed	Sec 5.4.1 in Tech Spec	Damage or Not	No Damage noted
HPDE Non-destructive Seam Testing	All seams & Patches	Sec 5.4.1 in tech Spec	2 PSI drop in 5 min / bubble in vacuum box	All Passed
HPDE Destructive Test	1 / 500 lin ft	ASTM D6392	Shear > 120lb/in Peel > 78 lb/in	All passed All Passed
HPDE Trial Welds	Start of Seaming process, 4 hr min, each tool, each technician	Section 5.4.3 in Tech Spec	Shear > 120lb/in Peel > 78 lb/in	All passed

3.4 Granular Drainage Layer

The Xcel Energy QA/QC inspector observed the placement of the GDL focusing on wrinkles in the liner and the potential for liner damage due to the dozer cleats or blade. If damage were suspected, the area would be cleared of sand using a square tipped shovel and the liner inspected. No damage was ever noted from these inspections.

Sieve analysis and permeability tests were preformed on sand used for the drainage layer. Samples were collected at various times during the placement process, thus providing an even spatial representation. GDL test results are summarized in Table 6 and compete results are presented in Appendix E.

Table 6 Granular Drainage Layer Testing Summary

Test	Require freq (tests req)	Actual	Required Test Result	Actual Test Result
Grain size	1/1000 cy (3)	3	100% < 3/8" < 5% passing #200	Pass Pass Pass 1% 0.6%, 1%
USCS Classification	1/1000 cy (3)	3	-	SP, SP, SP
Permeability	1/ac (2)	2	> $1x10^{-3}$ cm/sec	$3.8x10^{-2}$ cm/sec $3.2x10^{-2}$ cm/sec

3.5 Electrical Leak Detection

Foth of Lake Elmo MN, performed electrical leak testing after the placement of the GDL. The leak location method used was in accordance with ASTM D7007 for earth material covering a geomembrane.

A watering truck was employed each day of testing to wet the sand layer and improve testing sensitivity. A calibration test was conducted at the beginning and end of each day's survey. This calibration test determined the survey's grid spacing. A spacing of ten feet for both days was used. The leak location instrument was then used to record readings at each grid point. When the readings were indicative of a hole in the liner, the grid resolution was refined to pinpoint the anomaly; at which time the sand layer was cleared and the liner physically inspected.

One anomaly was identified during the survey. Upon inspecting the liner no hole was located. The complete report by Foth on the electrical leak location test is provided n Appendix F.

3.6 Surveying

An independent registered land surveyor, Johnson & Scofield of Red Wing Mn, was retained by Dahn Construction to provide independent elevation, grade, and thickness verification for the finished sub grade, finished compacted clay thickness, and finished GDL thickness. Elevations were taken on a pre-defined 50' x 50' survey grid established within the certified boundary. Grading requirements and survey results are summarized in Table 7 and complete survey results are included in Appendix G. Grading requirements were met for the sub-grade, compacted clay thickness and GDL thickness.

Table 7 Survey Results

Soil Layer / Surface	Measurement	Frequency	Pass Fail Criteria	Actual results
Top of subgrade	Elevation	100 ' grid	-0.2' to 0.0'	Pass
Top of Clay	Thickness	100 ' grid	1.0' to +1.2'	Pass
Top of GDL	Thickness	100 ' grid	1.0' to +1.2'	Pass

4 Conclusions and Certification

4.1 Summary of Modifications to the Approved Design

The construction was completed in substantial conformance with the approved plans and specifications. The following items were modified as a result of the conditions found in the field or as a result of changes for constructability. None of the changes made during the construction materially impact the performance of the facility. The changes to the facility are summarized below:

- Fill included SP and SP-SM soils contrary to design specifications. Maximum dry densities achieved with these soils were in excess of 97pcf and were deemed adequate to be used as a fill material.
- Clay testing was short, one sample for grain size analysis. The other test requirements were met and indicate the clay is sufficiently homogenous and will perform as designed.
- The western edge of Phase 2B utilized a 11 ½ foot wide geomembrane flap to construct the berm rather than a 18 foot flap. The berm height remained unchanged. The berm will function as designed.
- The anchor trench, located at the top of the slope (Phases 2B & 3B), was excavated with a backhoe creating a vertical walled trench rather than a 2:1 sloped wall trench.

4.2 *Project Certification*

Based on the observation of personnel located at the site, personal on-site observation made thought-out the course of the construction and the review of all field and laboratory testing performed for the project, it is my opinion as a registered Professional Engineer in the State of Minnesota that the construction of Phases 2B & 3B Liner for the Red Wing Ash Disposal Facility has been constructed in accordance with the approved plans, specifications, and QA/QC manual.

Charles Scott Thomas, P.E.
Project Engineer
Minnesota P.E. Registration No. 18185

July 15, 2008
Date

4019SW.055
FILE#2010-0010

Construction Documentation Report

Wilmarth Ash Disposal Facility

Cell 3, 4 & 5 Partial Closure

MPCA Permit No. SW-298

August 2008

EXHIBIT D

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Record Drawings

1 Introduction

This report documents construction methods and quality control test for the construction of the Wilmarth ADF, Cell 3, 4 & 5 partial closure. Construction specifications, drawings and the Construction Quality Control Plan, prepared by Wenck, governed the construction and field-testing documented in this report. Deviations from the specifications, drawings, or permit are noted on the enclosed record drawings and described in appropriate sections of this report. The construction project consisted of ash grading, subgrade preparation, installation of 40-mil Linear Low-Density Polyethylene (LLDPE), placement of granular drainage layer (GDL), placement of cover rooting soil, partial excavation of future sedimentation pond, placement of topsoil, seeding, quality control and independent elevation surveys.

Construction monitoring and documentation was preformed by an Xcel Energy construction superintendant through out the project. This monitoring included recording work performed by the contractors and subcontractors, taking photographs, facilitating interpretation of specifications/drawings, coordinating material testing, approving phases of construction as necessary and preparing the certification report.

1.1 Construction schedule

Table 1: Project Milestones

Milestone	Start	End
Mobilization, Ash Grading	6/10/08	6/16/08
6" Buffer Soil Placement	6/18/08	6/24/08
Survey Certification #1	6/24/08	
LLDPE Liner Placement	6/25/08	6/27/08
12" Granular Drainage Layer Placement	7/01/08	7/09/08
Survey Certification #2	7/09/08	
12" Rooting Soil Placement	7/10/08	7/16/08
Survey Certification #3	7/16/08	
Erosion Control Berm Construction	7/16/08	7/25/08
Survey Certification #4	7/28/08	
Turf Establishment and Demobilization	7/30/08	7/30/08

1.2 Key Personnel

Matt Birkel, the Xcel Energy QA/QC inspector was on site through out the construction project. Scott Thomas, the project engineer, was informed of all site developments and personally inspected the site during each phase of construction. Key project staffs are identified in Table 2 below.

Table 2: Key Project Personnel

Company	Staff	Duties	Phone Number
Xcel Energy	Scott Thomas Chuck Donkers Matt Birkel	Project Engineer Project Manager Construction Superintendant & QA/QC Inspector	612-330-6083 612-330-6082 715-308-2422
Southern Minnesota Construction	Curtis Wadd Steve Larsen	Project Manager Construction Foreman	507-625-4848 507-327-5260
Wenck	Dave Parenteau	Design Engineer	763-479-4243
Canamer Services Inc. *(LLDPE installer)*	Luke Dotterwick Karl Schmitt	Project Manager Construction Foreman	608-687-9800 507-382-6870
Braun Intertech	Jim Strier	Soil Testing & LLDPE Testing	952-995-2304
Bolton & Menk	Travis Javens	Licensed Surveyor	507-625-4171
Erosion Control Inc	Helen Nagel	Erosion Control	507-455-1867

2 Construction Activities & Methods

This section describes the components and construction methods employed during the partial capping of cells 3, 4 and 5. Construction activities involved are listed below:

1. Ash grading
2. Subgrade preparation
3. LLDPE geomembrane liner installation
4. Granular Drainage Layer (GDL) placement
5. Turf restoration

The certified area capped is approximately 1.81 acres.

2.1 Ash Grading

The final ash grading was performed by Southern Minnesota Construction Inc. (SMC), of Mankato MN, who was the primary contractor on the project. The final ash grades shown in the Plan Drawings (Appendix D) were achieved by 6/24/08.

Before preparing the subgrade with a layer of buffer soil, Erosion Control Inc., of Mankato MN, provided erosion control by installing temporary silt fence below the North and East Slopes. This location deviated from the original erosion control plan to avoid pump power lines. The temporary silt fence still provided the erosion control necessary.

2.2 Subgrade Preparation

Following ash grading, SMC prepared the subgrade for liner placement. To apply the buffer soil and cover soils, two roads were constructed using rooting soil. These roads were located on the bottom of the new cap construction on the East and North slopes.

The buffer soil layer was constructed by placing six (6) inches of buffer soil over the ash. The buffer soil was obtained from an onsite borrow area. The finished grade was smoothed drum rolled and picked for rocks to provide an acceptable surface for the placement of the geomembrane.

Bolton & Menk performed an independent elevation survey (Appendix C) of the buffer soil layer and slopes. There were several points along liner tie-in areas where elevations exceeded liner final grades shown on construction drawings. These as-built elevations allowed for smooth liner tie-ins. All interior and finished edge points are at or below liner final grade.

The contractor exposed and cleaned a strip of the existing 40-mil LLDPE cap along the west and bottom edges of the North Slope and the north edge of the East Slope. The contractor also exposed and cleaned a strip of the existing 60-mil HDPE liner along the bottom of the East slope where the existing anchor trench is located. There was a protective layer of plywood on all of the existing tie-ins. This resulted in very few tears to the existing liner during this process. The liner installation crew repaired all tears to the existing liner.

2.3 LLDPE Geomembrane Liner

Twenty-two foot (22ft) wide rolls of textured 40-mil linear low-density polyethylene (LLDPE) material were produced by Agru of South Carolina and delivered to the site by Canamer Services Inc. SMC unloaded and stored the rolls on site. Material certification was done prior to installation. All material delivered and used passed production quality control certification.

Canamer Services Inc. inspected and approved the subgrade on 6/25/08. Installation of the geomembrane cap material began on 6/25/08 on the west side of the North Slope. The installation moved east on the North Slope until the Northeast Corner was covered and then moved south along the East Slope. The installation was complete on 6/27/08. Testing and repair work was done during the entire installation process.

The panels were seamed in the direction parallel to the slope. Split-wedge fusion welding was the primary method used to seam the panels. Extrusion welding was used for patches and the tie-in to existing panels except on the north edge of the East Slope where the split-wedge fusion welder was used. Panel splices were cut and welded along a 45-degree orientation. No butt joints were made, nor were any adjacent panels spliced at the same location on the side slope. Panel orientation and repairs are shown in Appendix B.

2.4 Cover Soils

2.4.1 Granular Drainage Layer (GDL)

Clean, poorly graded sand from an offsite location was utilized for the Granular Drainage Layer (GDL). Sand was placed along the down slope edge of the geomembrane using the previously built roads. The trucks would dump in one of two locations depending on where the GDL was being placed. The dump trucks only drove on areas that had at least 3 feet of cover material. Dozers then pushed the sand upslope, maintaining a minimum thickness of one-foot. Xcel Energy's QA/QC inspector observed all aspects of GDL placement.

While placing the GDL there were three 4" perforated CPEP Interceptor Drain Tiles installed. These were used in the water diversion swales on both slopes. As the sand was pushed up the slopes it was then hand shoveled to cover and position the drain tile.

The GDL for the exiting tie-in areas were uncovered to ensure connectivity between the new and existing drainage layers.

2.4.2 Rooting Soil Layer

After certification of the GDL thickness, the 12" rooting soil layer was placed. The rooting soil material was obtained from an onsite borrow area. The rooting soil was dumped on the bottom of the slopes and then pushed up the slope in one-foot lifts. There were two areas along the North Slope west tie-in and along the East Slope north tie-in where the rooting soil was greater than the allowed tolerance of 1.2'. This allowed for smooth tie-in transitions and clean 4:1 slopes on the final grade.

The rooting soil was certified to ensure a thickness of at least 12". Then the water diversion swale berms were installed. These berms were constructed by either pushing rooting soil up the slope or down the slope depending on the location of the berm.

2.4.3 Topsoil Layer

The 6" topsoil layer was placed by pushing topsoil up from the bottom of the slopes. In the areas where topsoil was stripped to expose the existing liner the topsoil was push back on top of the rooting soil layer. The rest of the topsoil was obtained from an onsite borrow area and trucked to the bottom of the slopes.

After placement of the topsoil the liner boundary markers were installed. To establish the boundaries 6" concrete filled PVC posts were installed every 100' at the edge of liner or when there was a significant change in direction.

2.4.4 Seeding and Mulching

Erosion Control Inc. performed the seeding, mulching and erosion control blanket installation. The seeded areas were disked, seeded and then mulched. Erosion control blankets were installed in the swales and down slopes of the surface water diversion berms.

3 Construction Quality Assurance & Testing

To ensure that the construction was performed as permitted, an independent testing company tested materials used in the construction. Xcel Energy personnel were on-site, full time, directing the testing and observing construction practices. The result of the CQA testing and observations are presented below for the 1.81 acre capped area to be certified.

3.1 LLPDE Geomembrane Testing

Documentation describing the physical and performance characteristics of the liner was received from the manufacturer for each roll of the LLDPE liner used on the project, (Appendices B1 & B2). Each roll was numbered and the documentation for each roll was reviewed to ensure that the roll characteristics exceeded the specified project requirements. Resin used to make the LLDPE liner was also tested; results were reviewed to determine minimum requirements were met.

Xcel Energy personnel provided review of the quality control information submitted by the manufacturer prior to installer mobilization. The manufacturer quality assurance tests were in accordance with the project specifications and quality assurance manual.

Xcel Energy personnel were responsible for observing and reviewing the contractor's daily work, consisting of:

- Panel placement
- Trial welds
- Subgrade acceptance
- Seams
- Destructive Tests
- Repair log

All quality control information submitted by the manufacturer and quality control testing of the geomembrane is presented in Appendix B. Appendix B is organized in this fashion; first Xcel Energy QA data, second Canamer Inc. data, and third if necessary certified testing data, The data in these appendices were reviewed and found to be in compliance with project specifications.

Ten destructive tests were taken of the installed geomembrane seams. This equates to a rate of one destructive test sample for every 500 lineal feet of seam. Each sample was split into thirds; 1/3 was tested on site, 1/3 was tested by an independent lab (Braun Intertec) and 1/3 has been archived. All shear and peel test results surpassed project minimum criteria. Table 3 summarizes the LLDPE Geomembrane testing.

Table 3: LLDPE Geomembrane Testing Summary

Test	Required Frequency	Method	Pass / Fail Criteria	Test Results
LLDPE Material Properties	Every Roll	GRI GM 17	Meets or does Not Meet	All rolls met
Visual Inspection	All Panels placed	Sec 3.07 in Tech Spec	Damage or Not	No Damage
LLDPE Non-destructive Seam Testing	All seams & Patches	Sec 3.07 in tech Spec	2 PSI drop in 5 min / bubble in vacuum box	All Passed
LLDPE Destructive Test	1 / 500 lin ft	ASTM D6392	Shear > 53lb/in Peel > 44 lb/in	All Passed
LLDPE Trial Welds	At start of seaming process, every 4 hr min, each tool and each technician	Section 3.05 in Tech Spec	Shear > 53lb/in Peel > 44lb/in	All passed

3.2 Granular Drainage Layer

The Xcel Energy QA/QC inspector observed the placement of the GDL focusing on wrinkles in the liner and the potential for liner damage due to the dozer cleats or blade. If damages were suspected, the area would be cleared of sand using a square tipped shovel and the liner inspected. No damage was ever noted from these inspections.

Sieve analysis and permeability tests were preformed on the sand used for the GDL. Samples were collected at various times during the placement process, thus providing an even spatial representation. GDL test results are summarized in Table 4 and compete results are presented in Appendix C.

Table 4: Granular Drainage Layer Testing Summary

Test	Required Frequency	Actual	Required Test Result	Test Result
Grain size	1/1000 cy (3)	3	100% < 3/8" < 5% passing #200	Pass Pass Pass 1.7% 2.3% 1.7%
USCS Classification	1/1000 cy (3)	3	-	SP, SP, SP
Permeability	1/ac (2)	2	> $1x10^{-3}$ cm/sec	$2.1x10^{-2}$ cm/sec $2.4x10^{-2}$ cm/sec

3.3 Survey Certifications

A survey of the project area was taken at each milestone throughout the project. An independent survey contractor, Bolton & Menk, provided these surveys. The surveys were taken on 100' x 100' grid and along water diversion swales to ensure the required thickness of each construction layer; buffer soil, GDL, rooting soil and topsoil. The survey results are shown in Appendix D.

Grading requirements and survey results are summarized in Table 5. Complete survey results are shown in Appendix D. Grading requirements were met for the buffer soil, GDL, rooting soil and topsoil thicknesses. There are several instances were the final grade is higher than the required tolerances. These points incorporate the berm height that is not included in the pass fail/criteria. All points that did not lie within the berms were at final grade.

Table 5: Survey Certifications

Soil Layer / Surface	Measurement	Frequency	Pass Fail Criteria	Results
Top of Subgrade	Elevation	100 ' grid	-0.2' to 0.0'	Pass
Top of GDL	Thickness	100 ' grid	1.0' to +1.2'	Pass
Top of Rooting Soil	Thickness	100 ' grid	1.0' to +1.2'	Pass
Final Grade	Thickness	100 ' grid	0.5' to + .7'	Pass

4 Conclusion and Certification

4.1 Summary of Modifications to Approved Design

The construction was completed in substantial conformance with the approved plans and specifications. The following items were modified as a result of the conditions found in the field or as a result of changes for constructability. None

of the changes made during the construction materially impact the performance of the facility. The changes to the facility are summarized below:

- The length of the West tie-in on the North Slope was shortened from 135' to 77' since the existing ash grades were not meet in that area. An area 58' x 56', approximately 3250 ft^2, was not capped. This is shown in the record drawings on sheets 4 & 6.
- The area capped on the top of the East Slope was extended out 25' to reduce the length of the diagonal edge and to increase the capped area. The increase in the capped area was approximately 950 ft^2. This slightly increased the length of the water diversion berm on the East Slope and moved the location of the temporary drain basin 18' south 4' east. This did not affect the performance of the water diversion swale or temporary drain.
- There were several points along liner tie-in areas where elevations exceeded liner final grades shown on construction drawings. These as-built elevations allowed for smooth liner tie-ins. The as-built elevations are shown in Appendix D.

4.2 Project Certification

Based on the observation of personnel located at the site, personal on-site observation made thought-out the course of the construction and the review of all field and laboratory testing performed for the project, it is my opinion as a registered Professional Engineer in the State of Minnesota that the partial capping of Cells 3, 4 & 5 for the Wilmarth Ash Disposal Facility has been constructed in accordance with the approved plans, specifications, and QA/QC manual.

Charles Scott Thomas, P.E.
Project Engineer
Minnesota P.E. Registration No. 18185

Sept 3, 2008
Date

File 2010-0010

Xcel Energy℠

Riverside Generating Plant

SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN AND MINNESOTA SPILL BILL PLAN

Rev 7

November 2008

3100 Marshall Street NE
Minneapolis, Minnesota 55418

EXHIBIT E

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I. Professional Engineer Certification [40 CFR 112.3(d)]

In accordance with the requirements of 40 CFR 112.3(d), I certify that I or my agent have visited and examined the facility, I am familiar with the requirements of this regulation, and this Spill Prevention Control and Countermeasure Plan is adequate for the facility and has been prepared to satisfy the following requirements:

(a) The plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of this part;

(b) Procedures for required inspections and testing have been established.

Signature: _____ Date: NOVEMBER 12, 2008

Printed Name: CHARLES S. THOMAS

Registration Number: 19185 State: MN

II. Management Approval [40 CFR 112.7]

In accordance with 40 CFR 112.7, I certify that I am familiar with the elements of this plan and that this plan has the full approval of management at a level of authority to commit the necessary resources to fully implement the plan.

Management Signature: _____ Date: 14 November 2008

Printed Name: Kenneth Beadell Title: Plant Manager

III. Amendment of SPCC Plan by Regional Administrator [40 CFR 112.4]

This plan shall be amended and submitted to the EPA Regional Administrator in accordance with the requirements of 40 CFR 112.4 whenever the facility:

(a) Has discharged more than 1,000 U.S. gallons of oil in a single discharge as described in 40 CFR 112.1(b); or

(b) Has discharged more than 42 U.S. gallons of oil in each of two discharges as described in 40 CFR 112.1(b), occurring within any twelve month period.

This facility has not had a discharge of oil in harmful quantities (as described in 40 CFR 112.1(b)) that meets the thresholds described in this section.

IV. Amendment and Review of SPCC Plan by Owners and Operators [40 CFR 112.5]

This plan shall be reviewed and amended whenever the following conditions apply:

(a) In accordance with 40 CFR 112.5(a), the plan shall be amended whenever there is a change in the facility design, construction, operation, or maintenance that materially affects its potential for a discharge as described in 40 CFR 112.1(b); and/or

(b) In accordance with 40 CFR 112.5(b), complete a review and evaluation of the plan at least once every 5 years from the date the last review was required.

The plan must be amended within six months of the change and/or review and implemented within six months following preparation of the amendment. The review and evaluation of the plan will be documented and signed using the form below.

In accordance with 40 CFR 112.5(c), any technical amendments to the plan must be certified by a Professional Engineer. Examples of technical amendments include, but are not limited to, commissioning or decommissioning containers; replacement, reconstruction, or movement of containers; reconstruction replacements, or installation of piping systems; construction or demolition that might alter secondary containment structures; changes of product or service; or revision of standard operation or maintenance procedures at the facility.

Non-technical amendments do not require certification by a Professional Engineer. Non-technical amendments include, but are not limited to, phone numbers, name changes, or non-technical text changes.

Log of Plan Review and Amendments

Statement	Signature	Description of Amendment (sections or pages affected, etc.)	P.E. Certification Required? (Yes or No)
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			

V. Applicability of the Substantial Harm Criteria
(from 40 CFR Part 112 – Appendix C, Attachment C-II)

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

Yes [ ] No [X]

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?

Yes [ ] No [X]

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to Appendix C of 40 CFR Part 112 or a comparable formula[1]) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (59 FR 14713, March 29, 1994) and the applicable Area Contingency Plan.

Yes [ ] No [X]

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to Appendix C of 40 CFR Part 112 or a comparable formula[1]) such that a discharge from the facility would shut down a public drinking water intake[2]?

Yes [ ] No [X]

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years.

Yes [ ] No [X]

[1] If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form.

[2] For the purposes of 40 CFR Part 112, public drinking water intakes are analogous to public water systems as described at 40 CFR 143.2(c).

Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining information, I believe that the submitted information is true, accurate, and complete.

Signature:_____ Date:_____

Printed Name:_____ Title:_____

1.0 Introduction

The Riverside Generating Plant is a coal fired electrical generating facility, undergoing repowering to become a gas fired combined cycle electrical generating plant. Coal units 6 & 7 were permanently shutdown in September 2008, and unit 8 will permanently shutdown in late 2009. The building housing the coal units is identified as the Steam Turbine Building. The combined cycle plant includes combustion turbine (CT) units 9 & 10, each with a heat recovery steam generator (HRSG) that will drive a single steam turbine electric generator. Combined cycle plant operation is scheduled to begin in late 2008. The new building includes the CT section (east) and HRSG section (west), and is collectively referred to as the CT-HRSG Building. The 70 acre site is located about five miles north of downtown Minneapolis in Hennepin County, Minnesota on the east side of the Mississippi River (river mile 856) in a commercial/industrial/ residential area.

The site consists of the powerhouses described above, coal/ash handling buildings, intake houses, and vehicle garage, training buildings, construction office/warehouse, coal yard, treatment ponds and substation. Oil is used mainly as a lubricant or fuel in the powerhouses and garage areas of the facility, but is also contained in large quantities in plant and substation electrical equipment (e.g., transformers, oil circuit breakers).

2.0 General Facility Information

1.1 Facility Name, Location, and Telephone Number

Riverside Generating Plant
3100 Marshall Street NE
Minneapolis, Minnesota 55418
612-520-6997

1.2 Owner/Operator Information

Northern States Power Company d/b/a Xcel Energy
414 Nicollet Mall
Minneapolis, Minnesota 55401

1.3 Facility Contacts

Ken Beadell	Plant Director	612-520-6801
Randy Capra	Mgr Engineering	612-520-6229

Emergency contact numbers are located in Appendix 1.

3.0 Conformance with Requirements [40 CFR 112.7(a)(1)]

Include a discussion of the facility's conformance with the SPCC requirements of 40 CFR Part 112.

This Spill Prevention Control and Countermeasure (SPCC) Plan has been prepared and implemented in response to, and in conformance with, the requirements of the Environmental Protection Agency's Oil Pollution Prevention Regulation Title 40 Code of Federal Regulations (CFR) Part 112. This SPCC Plan identifies and established procedures, methods, and equipment at the facility to minimize the potential for discharges of oil into waters of the United States.

The SPCC planning requirement applies to this facility because, as described in 40 CFR 112.1(b), it could reasonably be expected to "discharge oil in quantities that may be harmful, as described in part 110 of this chapter, into or upon the navigable waters of the United States or adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources

under the Magnuson Fishery Conservation and Management Act)..." Part 110 describes discharges of oil in harmful quantities as discharges that: "(a) violate applicable water quality standards; or (b) cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines." This definition of a "discharge" will be used throughout this SPCC Plan.

In accordance with 40 CFR 112.3(e), a complete copy of this plan will be maintained at the facility and the plan will be available to the Regional Administrator for on-site review during normal working hours.

4.0 Deviation from Requirements [40 CFR 112.7(a)(2)]

Where the Plan does not conform to the applicable requirements of 40 CFR Part 112, as described in 40 CFR 112.7(a)(2), except the secondary containment requirements, state the reasons for nonconformance and describe in detail alternate methods and how the facility will achieve equivalent environmental protection.

In the event that the facility's spill planning deviates from the requirements, the reasons for the nonconformance and the alternate methods will be discussed in the applicable section(s) of this Plan.

5.0 Physical Layout of Facility [40 CFR 112.7(a)(3)]

Describe the physical layout of the facility and include a facility diagram, which must mark the location and contents of each container. The facility diagram must also include the locations of completely buried and bunkered tanks (including those covered under 40 CFR Part 280 or 281), the locations of drum and portable container storage areas, and the locations of transfer stations and connecting pipes.

Figure 1 indicates the on-site locations where oil is stored or used in equipment. Also included are oil transfer areas.

6.0 Facility Oil Storage [40 CFR 112.7(a)(3)(i)]

Describe the type of oil in each storage container and its storage capacity.

Table 1 lists all oil storage containers and describes their: location, capacity, contents, and secondary containment. Table 2 lists similar information for oil containing electrical equipment.

7.0 Discharge Prevention Measures [40 CFR 112.7(a)(3)(ii)]

Describe the discharge prevention measures including procedures for routine handling of products (loading, unloading, and facility transfers, etc.).

It is unlikely that a discharge from this facility to navigable water will occur. The facility has on-site spill prevention and control equipment in place to minimize any threat to the environment. Routine visual tank inspections and routine planned maintenance activities help reduce the potential for oil releases to navigable waters.

Personnel are routinely trained in spill awareness and response. The facility has developed written procedures for unloading of oil from tanker trucks to bulk oil storage containers, and provides secondary containment and diversionary structures for containers and equipment to prevent a discharge of oil to navigable waters. These discharge prevention measures are discussed throughout this SPCC plan and in Tables 1 and 2.

8.0 Discharge or Drainage Controls [40 CFR 112.7(a)(3)(iii)]

Describe the discharge or drainage controls such as secondary containment around containers and other structures, equipment, and procedures for the control of a discharge.

Individual container and oil filled equipment containment provisions are described in Tables 1 & 2, and a summary overview follows:

- Steam Turbine Building – containers/ oil filled equipment are located in areas with concrete containment (e.g., U7 & U8 oil rooms) OR in areas that would drain to the basement trench & sump system. The sumps are operated in a manner that retains oil, and prevents its discharge beyond the building (see Table 3 & Figure 2). These sumps discharge into the process water treatment system where the final stage is a settling pond equipped with a curtain boom and oil specific sorbent boom across the outlet. The pond is located in an area regularly traversed by plant employees, and detection of oil or sheen would trigger response actions. The pond discharges to the Mississippi river under an NPDES permit.
- CT-HRSG Building – turbine oil tanks have concrete containment, and floor drains in the building lead to an oil/ water separator, which discharges to the Steam Turbine Building process water treatment system via a number of sumps (see Table 3 & Figure 2).
- Outdoor Storage Tanks (i.e., diesel, used oil) are double walled and located in areas that drain to the north coal yard pond via a dedicated self-contained storm water drainage system (See Figure 3). These areas are heavily used by personnel involved in coal & ash handling, who would easily detect a release from a tank and initiate response. Yard personnel regularly review the pond, and after rainfall events. Detection of oil or sheen would trigger response actions. As necessary the pond is discharged to the city sanitary sewer.
- Steam Turbine Building Transformers –power transformers (i.e., GSU, RSA, MSA) are equipped with oil level or temperature alarms that provide indications of a release in the control room. Operations personnel inspect each transformer a minimum of once per shift (twice per day). All exterior plant transformers (Table 2 # 13) are provided with concrete containment that drains to an indoor sump, which discharges to the process water treatment system described above, after passing through an oil/water separator.
- CT-HRSG Building Power Transformers - are provided with concrete containment that drains to both the storm sewer AND an oil/ water separator located in the building basement. These transformers are regularly reviewed, and the containment is inspected after rainfall. Containment valves are kept closed and padlocked, and discharge from them requires a documented inspection (Appendix 5).
- Substation – transformers are equipped with liquid level or temperature alarms that provide indications of a release in the control room, and Operations personnel inspect the 2 largest transformers once per shift (twice per day). The 2 largest transformers will be enclosed in concrete secondary containment by 1/1/2009. In the meantime a layer of gravel that will retain oil in void spaces underlies the substation, and runoff flows across gravel/ dirt, into a ditch along the west side of the substation, and then into a depression approximately 40 ft. by 40 ft. by 1 ft. with a capacity of over 10,000 gallons. Oil retained in gravel/ dirt, as well as pooling in the depression would contain far more than the largest transformer oil volume of 7,910 gallons. Beyond the depression is a paved road with storm drains going to the river.
- Oil Transfer Areas: unloading/ dispensing areas have gravel or concrete pads/containment. Spills in these areas will soak into surrounding soil or be captured by the coal yard drainage system as described above (Figure 3).
- Warehouse Loading Dock (oil drum handling): the area below the dock is asphalt, and the nearest storm drain is over 50 feet. Spill response materials are available in the stock room to facilitate rapid response to oil spills.

9.0 Countermeasures for Discharge Discovery, Response, and Cleanup [40 CFR 112.7(a)(3)(iv)]

Discuss the countermeasures for discharge discovery, response, and cleanup (both the facility's capability and those that might be required of a contractor).

Adequate equipment and materials are kept on-site to control and cleanup spilled oil. Bags of granular sorbent, booms, pads, and pillows are stock items in the Steam Turbine Building warehouse, and spill response kits are maintained throughout the facility. Equipment available onsite includes: a front-end loader, vacuum truck, shovels, rakes, pumps and drums. Personal protective equipment is also available in the warehouse.

Xcel Energy power generating facilities have response arrangements with the Xcel Energy's Electric Utility Construction group, and the company as a whole has arrangements with local spill/ emergency response contractors. Both are well supplied for land and water oil spill response, and have access to additional subcontractor and supplies. Contact information for these resources is located in the Notification Call List in Appendix 1.

10.0 Methods of Disposal [40 CFR 112.7(a)(3)(v)]

Discuss the methods of disposal of recovered materials in accordance with applicable legal requirements.

Spilled oil, cleanup sorbents, contaminated soil, etc., are disposed of in accordance with applicable local, state and federal regulations. Contaminated sorbents and soil are generally sent to a licensed industrial waste landfill, while recovered oil may be reused or burned for energy recovery. Disposal assistance is provided by Xcel Energy's Environmental Services Department.

11.0 Contact List and Phone Numbers [40 CFR 112.7(a)(3)(vi)]

This section addresses the contact list and phone numbers for the facility response coordinator, National Response Center, cleanup contractors, and all appropriate Federal, State, and local agencies who must be contacted in case of a discharge as described in Section 112.1(b).

Appendix 1 contains the facility's "Notification Call List". This call list contains phone numbers for facility and company response staff, appropriate federal, state and local agencies (e.g., the National Response Center) and local cleanup organizations/contractors. The most current version of the list is maintained on the plants web site. The Environmental Services Department is contacted immediately of any oil spills greater than one gallon and any oil sheens on navigable waters, and they have primary responsibility for government agency contacts.

12.0 Discharge Reporting Procedures [40 CFR 112.7(a)(4)-(5)]

Unless the facility has submitted a response plan under 40 CFR 112.20, provide information and procedures in this SPCC plan to enable a person reporting a discharge to relate the following information:

(a) exact address or location and phone number;
(b) date and time of the discharge;
(c) type of material discharged;
(d) estimates of the total quantity discharged;
(e) estimates of the quantity discharged as described in 40 CFR 112.1(b);
(f) the source of the discharge;
(g) a description of all affected media;
(h) the cause of the discharge;
(i) any damages or injuries caused by the discharge;
(j) actions being used to stop, remove, and mitigate the effects of the discharge;
(k) whether an evacuation may be needed;
(l) names of individuals and/or organizations who have also been contacted.

This facility is not required to submit a response (OPA) plan under 40 CFR 112.20. This is documented on the "Applicability of Substantial Harm Criteria" certification page (p. iii) of this SPCC Plan.

Appendix 2 is a copy of the facility's "Incident Reporting" form that is used for reporting spills to Environmental Services and documenting spill information.

13.0 Spill Prediction [40 CFR 112.7(b)]

Where experience indicates a reasonable potential for equipment failure, include a prediction of the direction, rate of flow, and total quantity of oil that could be discharged from the facility as a result of each type of major equipment failure.

In the past five years, the facility has averaged several oil spills per year. Most of these spills were small (<50 gal) and resulted from equipment failures/ malfunctions inside the powerhouse or in the coal yard. Larger oil spills have occurred on occasion, but these spills have been captured in secondary containment or in sumps.

A worst-case oil spill could involve the outdoor 10,000-gallon diesel fuel tank or a substation transformer. It is unlikely a release from the diesel tank would reach surface waters since the tank is double walled with an interstitial monitor alarm. It is also located in the portion of the facility that drains to the self-contained coal yard storm water system that is further described in Section 8.0.

The substation includes transformers with capacities of 7900 and 6400 gallons. All other substation equipment has an oil capacity of less than 100 gallons. The transformers will be enclosed with concrete secondary containment by1/1/2009. Underlying gravel and a depression with several thousand gallons capacity is described in detail in section 8.0, and would prevent an oil release to navigable waters.

The largest oil filled transformer at the site (#7 step up), is located on the west side of the Steam Turbine Building. Although this transformer's containment capacity (11,575 gal.) is slightly less than its oil volume (12,200 gal.), more than adequate containment is provided by leaving its drain to an indoor sump open at all times. , As previously described, the sump system is operated in a manner that ensures even a total release of the largest transformer would be contained and prevented from reaching the process water treatment system. (See Figure 2 and Table 3).

An indication of the predicted surface flow path for any major oil spill is indicated on the site map (Figure 1).

14.0 Containment and Diversionary Structures [40 CFR 112.7(c)]

Provide appropriate containment and/or diversionary structures or equipment to prevent a discharge to navigable water, as described in Section 112.1(b). The entire containment system, including walls and floor, must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank or pipe, will not escape the containment system before cleanup occurs. At a minimum, the facility must use one of the following prevention systems or its equivalent: dikes, berms, or retaining walls sufficiently impervious to contain oil; curbing; culverting, gutters, or other drainage systems; weirs, booms, or other barriers; spill diversion ponds; retention ponds; or sorbent materials.

Facility sumps, drainage systems, concrete secondary containment structures and the ash treatment pond are utilized to prevent oil discharges from reaching navigable waters as detailed in section 8.0, Tables 1 & 2, and Figures 2 & 3.

15.0 Impracticable Containment [40 CFR 112.7(d)]

If the facility has determined that structures or equipment for spill containment is impracticable, explain why such measures are not practicable, and include one of the following:

(a) an oil spill contingency plan

(b) a written commitment of manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful.

As described in preceding sections, all containers and tanks are provided with sufficient containment to prevent a release to a navigable water.

16.0 Inspections, Tests, and Records [40 CFR 112.7(e)]

Conduct inspections and tests required by this part in accordance with written procedures that the facility or the certifying engineer develop for the facility. These written procedures and a record of the inspections and tests, signed by the appropriate supervisor or inspector, must be kept with the SPCC Plan for a period of three years. Records of inspections and tests kept under usual and customary business practices will suffice for the purposes of this paragraph.

Visual inspections are conducted and documented monthly as required by the Minnesota AST Rules Chapter 7151. More detailed annual external inspections are performed on the three STI/ UL small above ground storage tanks (i.e., 10,000 gal. diesel, 280 gal. used oil, 325 gal. portable diesel). Inspection forms are included in Appendix 4.

17.0 Personnel, training, discharge prevention procedures [40 CFR 112.7(f)]

(f)(1) At a minimum, train oil-handling personnel in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of the facility SPCC Plan.

Personnel receive annual SPCC refresher and evacuation training, and receive Emergency Response Training every other year. If determined to be necessary, additional spill training may be provided.

(f)(2) Designate a person at each applicable facility who is accountable for discharge prevention and who reports to facility management.

The facility's Environmental Analyst is the designated person accountable for discharge prevention.

(f)(3) Schedule and conduct discharge prevention briefings for oil-handling personnel at least once a year to assure adequate understanding of the SPCC Plan for that facility. Such briefings must highlight and describe known discharges as described in section 112.1(b) or failures, malfunctioning components, and any recently developed precautionary measures.

Annual SPCC refresher training includes a review of previous year oil releases, a description of the causes, and measures implemented to prevent reoccurrence.

18.0 Security [40 CFR 112.7(g)]

(g)(1) Fully fence each facility handling, processing, or storing oil, and lock and/or guard entrance gates when the facility is not in production or is unattended.

A metal fence surrounds the facility, and there are three primary entries at the plants main entrance. These gates are typically kept closed, with access obtained by an electronic card system. During the Riverside Repowering Project, a guard will staff the main entry during business hours. There is also a gate for construction personnel entry at the south end of the facility, and a locked gate on the boat landing. Warning signs are posted along the fence lines that read "Private Property – No Trespassing. The fence and gate locations are depicted on the facility map.

(g)(2) Ensure that the master flow and drain valves and any other valves permitting direct outward flow of the container's contents to the surface have adequate security measures so that they remain in the closed position when in non-operating or non-standby status.

Oil tanks at the facility are considered to be in-service since they must remain in operational status even when materials are not being added to or withdrawn from the tank.

(g)(3) Lock the starter control on each oil pump in the "off" position and locate it at a site accessible only to authorized personnel when the pump is in non-operating or non-standby status.

Oil pumps are considered to be in-service at all times, unless they are temporarily removed from service for repair or maintenance. Pump starters for all oil tanks are located within the fence line and are only accessible to facility personnel. The diesel fuel dispenser island is within the fenced area.

(g)(4) Securely cap or blank-flange the loading/unloading connections of oil pipelines or facility piping when in standby service for an extended time. This security practice also applies to piping that is emptied of liquid content either by draining or by inert gas pressure.

The facility currently has no oil pipelines that require capping or blank-flanging because the tanks and associated piping must remain in operational status.

(g)(5) Provide facility lighting commensurate with the type and location of the facility that will assist in the:
(i) Discovery of discharges occurring during hours of darkness, both by operating personnel, if present, and by non-operating personnel (the general public, local police, etc.); and
(ii) Prevention of discharges occurring through acts of vandalism.

The entire facility has adequate lighting to observe spills and discourage vandalism. There are floodlights and streetlights located throughout the facility that provide adequate visibility under normal conditions.

19.0 Facility Tank Car and Tank Truck Loading/Unloading Rack [40 CFR 112.7 (h)]

(h)(1) Where loading/unloading area drainage does not flow into a catchment basin or treatment facility designed to handle discharges, use a quick drainage system for tank car or tank truck loading and unloading areas. Any containment system must be designed to hold at least the maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded at the facility.

There are two oil loading/unloading areas at the facility: one outside the #8 Ignition Oil Tank (NE corner Steam Turbine Building) and one by the 10,000 gal diesel fuel tank. For both unloading areas, the facility's coal yard drainage system and pond provide ultimate containment for oil spills and discharges (Figure 3). The capacity of the pond is approximately 3,000,000 gallons, which is much larger than the capacity of any single compartment of a tanker truck.

During filling of the #8 Ignition Oil Tank, tanker trucks park on an outdoor, curbed, concrete pad and fill the tank via a pipe connection that goes into the building and to the tank. Should any oil flow off the pad, it will soak into surrounding soil or enter the coal yard drainage system and flow to the coal yard pond where it will be contained.

A concrete unloading pad exists to the east of the outdoor 10,000-gallon diesel fuel tank. During product transfer, tanker trucks park on the pad and deliver product via a hose connection located within a catch basin. Fueling stations are located on the east and west side of the tank. The concrete pad is used by vehicles accessing the east fueling station, and the west station is used to fill the locomotive. Minor oil spills from the 10,000-gallon tank or fueling station will likely remain on the concrete slab. Larger oil spills may run onto gravel and vegetation surrounding the pad or may run into nearby storm drains that discharge to the coal yard pond where oil can be contained and removed (Figure 3).

(h)(2) Provide an interlocked warning light or physical barrier system, warning signs, wheel chocks, or vehicle break interlock system in loading/unloading areas to prevent vehicles from departing before complete disconnection of flexible or fixed oil transfer lines.

Warning lights and/or barriers to prevent vehicles from departing are not used. Written procedures identify the steps required for filling the #8 Ignition Oil Tank. . The procedure requires that Operations and the truck driver watch for any leaks during unloading and stop unloading when the tank level lights indicate that the tank is full. An alarm also sounds if the tank is filled within 500 gallons of its capacity.

(h)(3) Prior to filling and departure of any tank car or tank truck, closely inspect for discharges the lowermost drain and all outlets of such vehicles, and if necessary, ensure that they are tightened, adjusted, or replaced to prevent liquid discharge while in transit.

Facility personnel rely on the delivery driver to properly inspect all bottom drains and outlets of the tanker trucks prior to leaving the unloading areas to prevent possible leakage from the truck while in transit. The plant's procedure addresses only watching for leaks during product delivery.

20.0 Brittle Fracture [40 CFR 112.7 (i)]

If a field-constructed aboveground container undergoes a repair, alteration, reconstruction, or a change in service that might affect the risk of a discharge or failure due to brittle fracture or other catastrophe, or has discharged oil or failed due to brittle fracture or other catastrophe, evaluate the container for risk of discharge or failure due to brittle fracture or other catastrophe, and as necessary, take appropriate action.

There are no field-constructed aboveground containers located at the facility. All tanks greater than 110 gallons are visually inspected monthly for leaks, cracks, corrosion, settling, etc.

21.0 Discussion [40 CFR 112.7 (j)]

In addition to the minimal prevention standards listed under this section, include a complete discussion of conformance with the applicable requirements and other effective discharge prevention and containment procedures listed in this part or any applicable more stringent State rules, regulations, and guidelines.

This plan has been designed to meet federal and state spill planning requirements for spill planning. Appendix 3 addresses the requirements of Minnesota Statute 115E (Minnesota Spill Bill).

Additional information regarding spill response and emergency response procedures can be found in the Riverside Emergency Procedures Plan located at the facility.

22.0 Facility Drainage [40 CFR 112.8(b)]

(b)(1) Restrain drainage from diked storage areas by valves to prevent a discharge into the drainage system or facility effluent treatment system, except where facility systems are designed to control such discharge. Diked areas may be emptied by pumps or ejectors; however, personnel must manually activate these pumps or ejectors and must inspect the condition of the accumulation before starting, to ensure no oil will be discharged.

Diked storage areas (secondary containment) exist around all outdoor transformers, except in the substation, which will be provided with containment by the end of 2008. Transformers located on the west and north side of the Steam Turbine Building discharge storm water to the plants indoor oily water sump, which is pumped to an oil/water separator before entering the ash water treatment system (Figure 2). Transformers located on the east side of the CT-HRSG Building, are valved to both the storm sewer and an oil/ water separator located in the CT-HRSG Building basement, which ultimately discharges to the Steam Turbine Building process water system. These valves are kept closed and padlocked, and discharge from them requires a documented inspection (Appendix 5). Other diked areas (including the substation transformers which are being equipped with containment by end of 2008) are emptied manually via drain valves or pumps, but only after documented inspections for the absence of oil are completed (Appendix 5).

(b)(2) Use valves of manual, open-and-closed design, for the drainage of diked areas (flapper-type drain valves should not be used). If the facility drainage drains directly into a watercourse and not into an on-site wastewater treatment plant, the facility must inspect and may drain uncontaminated retained stormwater, as provided in paragraphs (c)(3)(ii), (iii), and (iv) of this section.

Following rainfall events, transformer containment areas will be inspected to determine if draining is necessary and whether the stormwater is contaminated by oil. When discharge is necessary, the inspection and discharge will be recorded on a log sheet (Appendix 5). Substation personnel will perform substation transformer containment inspections and discharge.

(b)(3) Design facility drainage systems from undiked areas with a potential for a discharge (such as where piping is located outside containment walls or where tank truck discharges may occur outside the loading area) to flow into ponds, lagoons, or catchment basins designed to retain oil or return it to the facility. Catchment basins must not be located in areas subject to periodic flooding.

The facility coal yard is designed to direct discharges from undiked sources (10,000 gal outdoor diesel fuel tank, 280 gal used oil tank and yard vehicle fueling station) to the coal yard pond (Figure 3). This pond is discharged to the sanitary sewer as needed, and the presence of oil would trigger response actions. The pond is not subject to periodic river flooding.

Discharges onto parking lots may enter storm drains that discharge into the Mississippi River directly or via the city's storm sewer system. Numerous signs are posted in these areas to remind facility staff of this potential problem. Employees receive periodic training to report spills immediately to the control room.

(b)(4) If facility drainage is not engineered as in paragraph (b)(3) of this section, equip the final discharge of all ditches inside the facility with a diversion system that would, in the event of an uncontrolled discharge, retain oil in the facility.

As described in Section 8.0, a rock aggregate base that will retain oil in void spaces underlies the substation. Runoff from the substation flows across gravel/, ultimately pooling in a gravel/ dirt depression with a capacity of over ten thousand gallons. In addition to pooling in the depression, oil would soak into the gravel/ dirt. Beyond the depression is a paved road with storm drains going to the river. The substation transformers will be equipped with secondary containment by 1/1/2009, leaving 200-gallon capacity circuit breakers as the only oil filled equipment in the substation without diked containment. .

(b)(5) Where drainage waters are treated in more than one treatment unit and such treatment is continuous, and pump transfer is needed, provide two "lift" pumps and permanently install at least one of the pumps. Whatever techniques are used, the facility must engineer facility drainage systems to prevent a discharge as described in section 112.1(b) in case there is an equipment failure or human error at the facility.

Lift pumps are not necessary.

23.0 Bulk Storage Containers [40 CFR 112.8(c)]

(c)(1) A facility must not use a container for the storage of oil unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature.

Containers are not used for the storage of oil unless their material and construction are compatible with the materials stored and conditions are, as far as practical, fail-safe engineered or updated into fail-safe engineered installation to avoid spills.

(c)(2) A facility must construct all bulk storage container installations so that a secondary means of containment is provided for the entire capacity of the largest single container and sufficient freeboard to contain precipitation. Ensure that diked areas are sufficiently impervious to contain discharged oil. Dikes, containment curbs, and pits are commonly employed for this purpose. A facility may also use an alternative system consisting of a drainage trench enclosure that must be arranged so that any discharge will terminate and be safely confined in a facility catchment basin or holding pond.

Most of the facility's bulk storage containers are located inside and are contained within concrete storage rooms or vaults (Table 1). Electrical equipment, (e.g., transformers) and other operational uses of oil, (e.g., hydraulic equipment, operating equipment), are not considered to be bulk storage containers by the EPA.).

Outdoor bulk oil storage tanks include a 10,000-gallon diesel fuel tank, a 280-gallon used oil tank, and a portable 325-gallon diesel tank. These outdoor oil storage tanks are double-walled. In the case of a catastrophic tank failure, oil will be contained in the gravel or vegetation surrounding the concrete slab. Although it is unlikely that the oil will travel away from the immediate vicinities of these tanks, runoff from either area will eventually flow to the coal yard pond via the coal yard drainage system (Figure 3). There are no storm water drains that discharge directly to the river in these parts of the facility.

The diked areas around the transformers are made of concrete and are impervious to oil.

(c)(3) A facility must not allow drainage of uncontaminated rainwater from the diked area into a storm drain or discharge of an effluent into an open watercourse, lake, or pond, bypassing the facility treatment system unless the facility will:

i) Normally keep the bypass valve sealed and closed.	Not applicable. There are no bulk storage containers outdoors that have secondary containment dikes.
ii) Inspect the retained rainwater to ensure that its presence will not cause a discharge as described in section 112.1(b).	Not applicable. There are no bulk storage containers outdoors that have secondary containment dikes.
iii) Open the bypass valve and reseal it following drainage under responsible supervision; and	Not applicable. There are no bulk storage containers outdoors that have secondary containment dikes.
iv) Keep adequate records of such events, for example any records required under permits issued in accordance with 40 CFR 122.41(j)(2) and 122.41(m)(3).	Not applicable. There are no bulk storage containers outdoors that have secondary containment dikes.

Note: Although transformers are not considered to be bulk storage containers, most of the plants transformers are located in concrete diked structures. Storm water releases from these diked areas are addressed in Section 22 of this Plan.

(c)(4) A facility must protect any completely buried metallic storage tank installed on or after January 10, 1974 from corrosion by coatings or cathodic protection compatible with local soil conditions. The facility must regularly leak test such completely buried metallic storage tanks.

There are no completely buried metallic storage tanks located at the facility.

(c)(5) A facility must not use partially buried or bunkered metallic tanks for the storage of oil, unless the facility protects the buried section of the tank from corrosion by coating or cathodic protection compatible with local soil conditions.

There are no partially buried or bunkered metallic tanks located at the facility.

(c)(6) A facility must test each aboveground container for integrity on a regular schedule, and whenever the facility makes material repairs.

- *The frequency and type of testing must take into account container size and design (such as floating roof, skid-mounted, elevated, or partially buried).*
- *Visual inspection must be combined with another testing technique such as hydrostatic testing, radiographic testing, ultrasonic testing, acoustic emissions testing, or another system of non-destructive shell testing.*
- *The facility must keep comparison records and must also inspect the container's supports and foundations. In addition, personnel must frequently inspect the outside of the container for signs of deterioration, discharges, or accumulation of oil inside diked areas.*
- *Records of inspections and tests kept under usual and customary business practices will suffice for purposes of this paragraph.*

In addition to formal inspections, operating personnel frequent oil storage areas in daily rounds. Oil drum storage areas and tanks > 110 gallons, including their associated piping, foundation, supports, and secondary containment, are visually inspected monthly. More detailed annual external inspections are performed on the three STI/ UL small above ground storage tanks (i.e., 10,000 gal. diesel, 280 gal. used oil, 325 gal. portable diesel). These inspections are documented on forms found in Appendix 4, which are retained in the Riverside Generating Plant Engineering Office files.

Non-destructive tank shell tests are conducted as needed based on visual inspections, maintenance requirements, engineering assessments, etc.

Routine inspections are also conducted on security devices and operating and structural equipment to help prevent, detect, or response to environmental or human health hazards.

(c)(7) A facility must control leakage through defective internal heating coils by monitoring the steam return and exhaust lines for contamination from internal heating coils that discharge into an open watercourse, or pass the steam return or exhaust lines through a settling tank, skimmer, or other separation or retention system.

There are no internal heating coils at the facility.

(c)(8) A facility must engineer or update each container installation in accordance with good engineering practice to avoid discharges. Provide at least one of the following devices:

(i) High liquid level alarms with an audible or visual signal at a constantly attended operation or surveillance station. In smaller facilities an audible air vent may suffice.	Refer to Table 1.
(ii) High liquid level pump cutoff devices set to stop flow at a predetermined container content level.	Refer to Table 1.
(iii) Direct audible or code signal communication between the container gauge and the pumping station.	Refer to Table 1.
(iv) A fast response system for determining the	Refer to Table 1.

liquid level of each bulk storage container such as digital computers, telepulse, or direct vision gauges. If this alternative is used, a person must be preset to monitor gauges and the overall filling of bulk storage containers.	
(v) Regularly test liquid level sensing devices to ensure proper operation.	Refer to Table 1.

(c)(9) A facility must observe effluent treatment facilities frequently enough to detect possible system upsets that could cause a discharge as described in section 112.1(b).

Inspections of plant effluent disposal facilities are conducted daily.

(c)(10) A facility must promptly correct visible discharges which result in a loss of oil from the container, including but not limited to seams, gaskets, piping, pumps, valves, rivets, and bolts. Promptly remove any accumulations of oil in diked areas.

Visible oil loss from valves, piping, etc. are reported and promptly corrected. Xcel Energy's Environmental Services Department is notified promptly of oil discharges > 1 gallon, oil sheens, etc.

(c)(11) A facility must position or locate mobile or portable oil storage containers to prevent a discharge as described in section 112.1(b). Furnish a secondary means of containment, such as a dike or catchment basin, sufficient to contain the capacity of the largest single compartment or container with sufficient freeboard to contain precipitation.

A 500-gallon portable used oil tank is stored inside the facility. The tank is empty and is rarely used. A 325-gallon double-walled diesel tank is primarily stored at the south end of the South Warehouse. This tank is located on a gravel surface, and over 100 ft from the nearest storm drain. On occasion the tank may be moved to fuel a stationary piece of equipment (e.g., generator, or to refill at the 10,000 gallon diesel tank). When this occurs an operator remains with the tank during fueling, and immediately returns it to the storage location.

24.0 Facility Transfer Operations, Pumping, and Facility Process [40 CFR 112.8(d)]

(d)(1) A facility must provide buried piping that is installed or replaced on or after August 16, 2002, with a protective wrapping and coating, and also cathodically protect such buried piping installations or otherwise satisfy the corrosion protection standards for piping in part 280 of 40 CFR of a State program approved under part 281 of 40 CFR. If a section of buried line is exposed for any reason, the facility must carefully inspect it for deterioration. If corrosion damage is found, the facility must undertake additional examination and corrective action as indicated by the magnitude of the damage.

The facility has no operational underground piping associated with oil storage.

(d)(2) A facility must cap or blank-flange the terminal connection at the transfer point and mark it as to origin when piping is not in service or is in standby service for an extended time.

In 2006 an underground line between the 10,000-gallon diesel tank and a fueling station was removed from service. The pipe was disconnected from the tank, drained, and sealed. The fueling station was moved to just east of the tank, and is connected via aboveground piping.

(d)(3) A facility must properly design pipe supports to minimize abrasion and corrosion and allow for expansion and contraction.

Above ground piping at the facility is primarily located indoors. These pipes are supported in accordance with standard industry practices.

(d)(4) A facility must regularly inspect all aboveground valves, piping, and appurtenances.

- *During the inspection, assess the general condition of items, such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces.*
- *A facility must also conduct integrity and leak testing of buried piping at the time of installation, modification, construction, relocation, or replacement.*

Aboveground valves, piping, and appurtenances are visually inspected monthly, as part of the monthly storage tank inspection, and more detailed annual external inspections are performed on the three STI/ UL small above ground storage tanks. There is no operational buried oil piping at the facility. .

(d)(5) A facility must warn all vehicles entering the facility to be sure that no vehicle will endanger aboveground piping or other oil transfer operations.

There is no aboveground oil piping at the facility in areas that would be endangered by vehicle traffic.

TABLES

Table 1 – Oil Storage Containers

SPCC #	Contents	Capacity (Gallons)	Location	Containment/ Leak Detection Description	Containment Sizing
1	Diesel	10,000	Outdoors, south of the Coal Hopper Building.	Double-walled tank on a concrete slab. The tank and associated piping are equipped with leak detection equipment. Tank system is inspected and alarms are tested monthly.	NA
2	Used Oil	280	Outdoors, north side of Yard Garage.	Double-walled tank on a concrete slab. Runoff from the general area eventually drains to the Yard Pond. Tank system is inspected monthly.	NA
3	Fuel Oil #2	6,000	3rd floor, NE corner Steam Turbine Bldg.	The tank is located in its own room with concrete secondary containment. It has high and low level alarms and a high level cut off. Fill line is located immediately outside and is capped when not in use.	Gross Containment 19.5' x 10.5' x 10.5' = 2150 ft3 Unavailable 850 ft3 Net Containment 1300 ft3, 9750 gallons
4	Used Oil	500	1 st floor, NW corner Steam Turbine Bldg	The tank and oil/water separator are located in a separate room with a concrete floor. A spill from this area would flow to the concrete floor, then into a sump capable of containing the spill.	NA
5	Fuel Oil # 2	2 x 3,000	Unit 7 Oil Room – 1st Floor Steam Turbine Bldg	The #7 Oil Room is constructed of concrete and has a sunken floor designed to provide secondary containment for the oil storage tanks located in the room. There are no floor drains located in the room. The fuel oil has high and low level alarms and high level cut off. Tanks are filled from 6,000 gal fuel oil tank (#3).	Gross Containment 28' x 18' x 1.5' = 756 ft3 Unavailable 280 Net Containment 476 ft3, 3573 gallons
	Turbine Oil Rest Tank	3,500			
	Turbine Lube Oil	1,000			
	Used Oil	450			
	Lube/ hydraulic oil	6 x 125			
6	Turbine Oil Rest Tank	6,000	Unit 8 Oil Room – 1st Floor Steam Turbine Bldg	The #8 Oil Room is constructed of concrete and has a sunken floor designed to provide secondary containment for the oil storage tanks located in the room. There are no floor drains located in the room.	Gross Containment 28' x 25' x 2' = 1400 ft3 Unavailable 360 Net Containment 1040 ft3, 7800 gallons
	Turbine Lube Oil	1,000			
	Lube/ hydraulic oil	7 x 125			
	Lube/ hydraulic oil	12 x 55 gal drums			
7	Used Oil	500	1st floor between #7 and #8 oil rooms	Building sumps and floor drains provide secondary containment. Used oil tank is empty and rarely used.	NA
	Used Oil	8 x 55 gal drums			

Table 1 – Oil Storage Containers

SPCC #	Contents	Capacity (Gallons)	Location	Containment/ Leak Detection Description	Containment Sizing
8	8 Turbine lube oil tank	3,350	1st floor, west side Steam Turbine Bldg	Building floor, trench drains & emergency transformer/ turbine oil sump.	See Figure 2 and Table 3 for sump capture capacities
	8 Turbine lube oil filter	500			
	8 Stator Oil tank	60		Building floor, trench drains & 8 turbine sump.	
	8 Boiler feed pumps	2 x 75			
	7 turbine lube oil tank	5,000		Building floor, trench drains & 6 and 7 turbine sump. (tank equal distance from 2 sumps, trenches go to both)	
	7 Seal Oil tank	100			
	7 turbine lube oil conditioner	500			
	#9 turbine oil tank	5,240	Main floor CT-HRSG building	Containment poured in concrete foundation.	(8'x15'x3')+(11.5'x15'x3')+(3.75'x15'x3) = 1045 ft3 Unavailable NA Net Containment 7,825 gallons
	#10 turbine oil tank	5,240			(8'x15'x3')+(11.5'x15'x3')+(3.75'x15'x3) = 1045 ft3 Unavailable NA Net Containment 7,825 gallons
9	Lube / hydraulic oil	12 x 55 gal drums	3rd floor SE Corner Steam Turbine Bldg	Warehouse located indoors. Building floor, sumps and floor drains provide secondary containment.	NA
10	Diesel Fuel	325	So. Of South Warehouse	Double-wall portable tank	NA
11	Motor Oil	2 x 275	Yard garage oil storage room	Oil storage room is constructed of concrete and has a sunken floor designed to provide secondary containment for the oil storage tanks and drums located in the room. There are no floor drains in the room.	Gross Containment 16' x 15' x 0.5' = 120 ft3 Unavailable 50 ft3 Net Containment 80 ft3, 600 gallons
	Kerosene	1 x 55 gal drum			
	Lube/ hydraulic oil	2 x 55 gal drums			
12	Locomotive lube oil	2 x 55 gal drums	Hopper building	Building provides containment	NA

Table 2 – Oil Filled Electrical Equipment

SPCC #	Description	Qty	Capacity (Gal)	Location	Containment Description	Containment Sizing
Steam Turbine Building Power Transformers						
13	7 Generator Step Up Transformer	1	12220	Outside, west and north walls of Steam Turbine Bldg All have liquid level alarms or high temperature alarms that alarm in the control room.	Each transformer is located within its own concrete secondary containment structure that drains to oily water sump inside plant. 7 GSU containment capacity slightly less than transformer volume, although containment drain to indoor oily water sump is always open.	Gross Containment 29'x27'x2.5' = 1958 ft3 Unavailable 410 ft3 Net Containment 1548 ft3 11,575 gal
	7 Res. Sta. Aux. (RSA) Transformer	1	3270			Gross Containment 29'x22.5'x1.5 = 979 ft3 Unavailable 100 ft3 Net Containment 879 ft3 6,593 gal.
	6-7 Res. AQCS Sta. Aux. Transformer	1	1010			Gross Containment 14'x14'x1' = 196 ft3 Unavailable 10 ft3 Net Containment 186 ft3 1395 gal.
	6-7 ESA Transformer	1	560			Gross Containment 14'x14'x1' = 196 ft3 Unavailable 15 ft3 Net Containment 1357 gal.
	8 Main Transformer (8 GSU)	1	8580			Gross Containment 30'x32'x3.5' = 3360 ft3 Unavailable 390 ft3 Net Containment 3000 ft3 22,500 gal
	81 Bank Transformer (81MSA)	1	2320			Gross Containment 23'x23'x2 = 1058 ft3 Unavailable 329 ft3 Net Containment 729 ft3 5468 gal.
	8 Reserve Sat. Aux. (8RSA) Transformer	1	4070			Gross Containment 26'x22.5'x2 = 1170 ft3 Unavailable 192 ft3 Net Containment 978 ft3 7335 gal.
	Boiler Feed Pump Transformers	4	350			Gross Containment 14'x8.5'x1.5 = 179 ft3 Unavailable 23 ft3 Net Containment 156 ft3 1170 gal.
Electrostatic Precipitator (ESP) Transformers						
14	Buell Transformers	6	160	14th fl, NE corner, Steam Turbine Bldg	Building floors, sumps and floor drains provide secondary containment.	> largest unit
	Research Cottrel Transformers.	6	180	10th Fl, NE corner Steam Turbine Bldg		

Table 2 – Oil Filled Electrical Equipment

SPCC #	Description	Qty	Capacity (Gal)	Location	Containment Description	Containment Sizing
Building Transformers						
15	RTC Aux Transformer	1	260	So. side Training Center building.	Concrete containment with valve for manual removal of stormwater. Inspection & discharge documented on log.	Gross Containment 11'x13.5'x1' = 148.5 ft3 Unavailable 40 ft3 Net Containment 108 ft3, 810 gallons
	MERP Construction Power Transformer	1	260	So. side CT-HRSG building		Gross Containment 12.5'x17'x1' = 212.5 ft3 Unavailable 81 ft3 Net Containment 131.5 ft3, 986 gallons
	803 Sta. Aux. Trans.	1	310	Coal Yard		Gross Containment 12'x11'x0.5' = 66 ft3 Unavailable 20 ft3 Net Containment 46 ft3, 345 gallons
	804 Sta. Aux. Trans.	1	310	Coal Yard		Gross Containment 12'x11'x0.5' = 66 ft3 Unavailable 20 ft3 Net Containment 46 ft3, 345 gallons
	805 Sta. Aux. Trans.	1	150	No. side Yard Garage		Gross Containment 6'x8'x1' = 48 ft3 Unavailable 16 ft3 Net Containment 32 ft3, 240 gallons
Transmission Substation						
16	#1 Transformer 13.8-115KV	1	6450	13.8KV Sub. North of Steam Turbine Bldg	By 1/1/2009 concrete containment with valve for manual removal of stormwater. Inspection & discharge documented on log. Gravel & depression until then.	> 100%, see drawings in engineering office.
	#2 Transformer 13.8-115KV	1	7910			
	Oil Circuit Breakers	11	200		Gravel area	> 100% capacity in gravel void spaces.

Table 2 – Oil Filled Electrical Equipment

SPCC #	Description	Qty	Capacity (Gal)	Location	Containment Description	Containment Sizing
CT-HRSG Building Power Transformers						
17	CT Startup transformer	1	700	East side CT-HRSG building	Concrete containment with closed and locked valves for manual removal of stormwater. Inspected and documented in log before discharge to storm sewer OR combined cycle building oil/ water separator, which discharges to old building process water system.	Gross Containment 21.5'x21.5'x4' = 1849 ft3 Unavailable 300 ft3 Net Containment 1549 ft3, 11600 gallons
	#9 GSU transformer	1	8400			38'x25.5'x4' = 3876 ft3 17.5'x9'x4' = 630 ft3 3246 ft3, 24,280 gallons
	#9 Station Auxiliary transformer	1	3600			28'x25.5'x3' = 2142 ft3 7'x10'x3' = 210 ft3 1932 ft3, 14,450 gallons
	#10 GSU transformer	1	8400			38'x25.5'x4' = 3876 ft3 17.5'x9'x4' = 630 ft3 3246 ft3, 24,280 gal.
	#10 Station Auxiliary transformer	1	3600			28'x25.5'x3' = 2142 ft3 7'x10'x3' = 210 ft3 1932 ft3, 14,450 gallons

Table 3 - Steam Turbine Building Sumps - Oil Capture Capacities

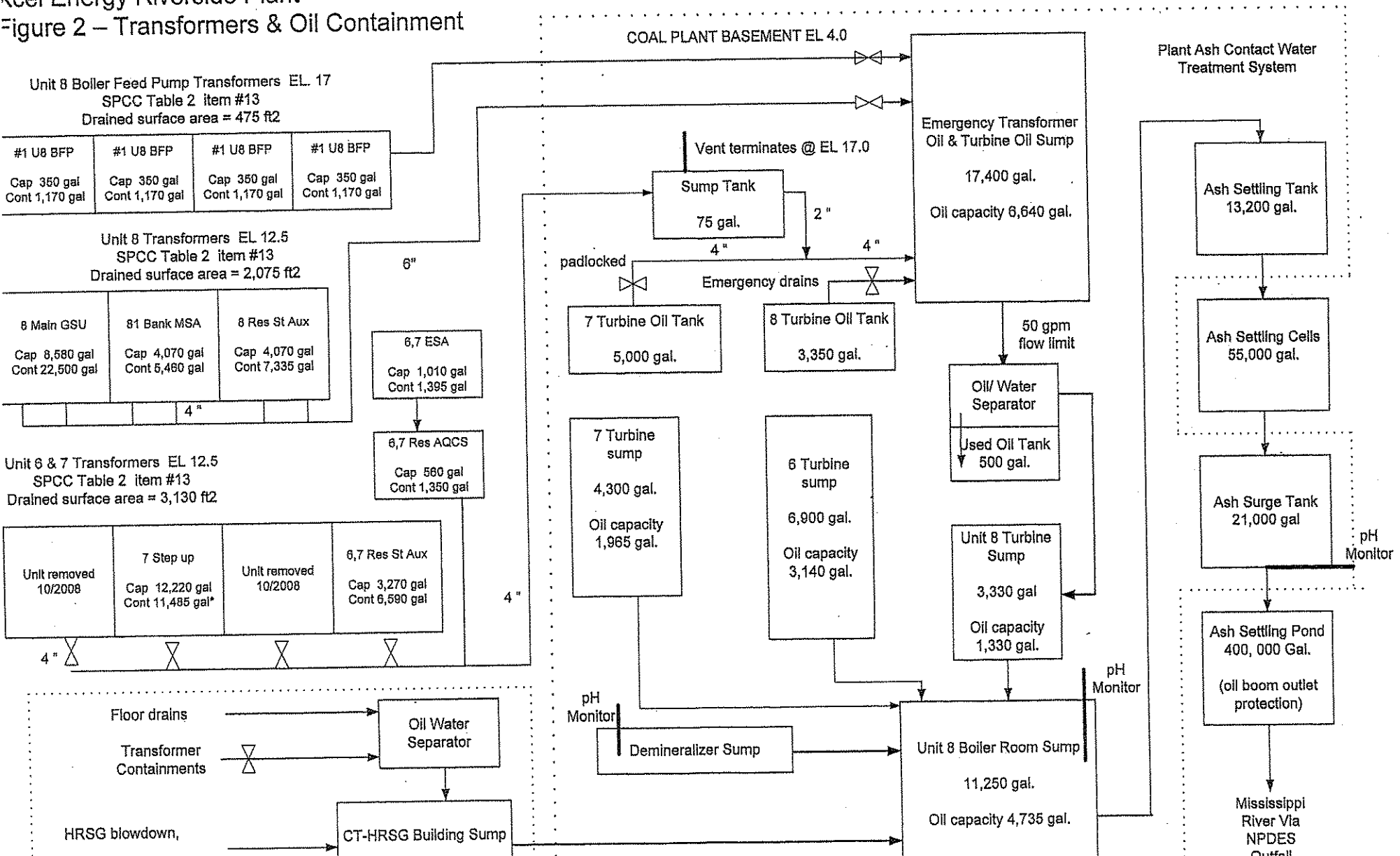
Sump	Length ft	Width ft	Height ft	Volume ft3	Volume gal.	Operating Parameters		
						Level On in.	Level Off in.	Oil Hold Capacity gal.
#8 Oily Water	37.5	17.75	3.5	2,330	17,426	24	22	6,639
#8 Turbine	15.5	5.75	5	446	3,333	33	30	1,333
#8 Boiler Room	25	9.5	6.33	1,503	11,245	41	38	4,737
#7 Turbine	15	7	5.5	578	4,320	48	36	1,964
#6 Turbine	24	7	5.5	924	6,912	48	36	3,142

** Uses level of 6 in. between pump inlet & bottom of sump*

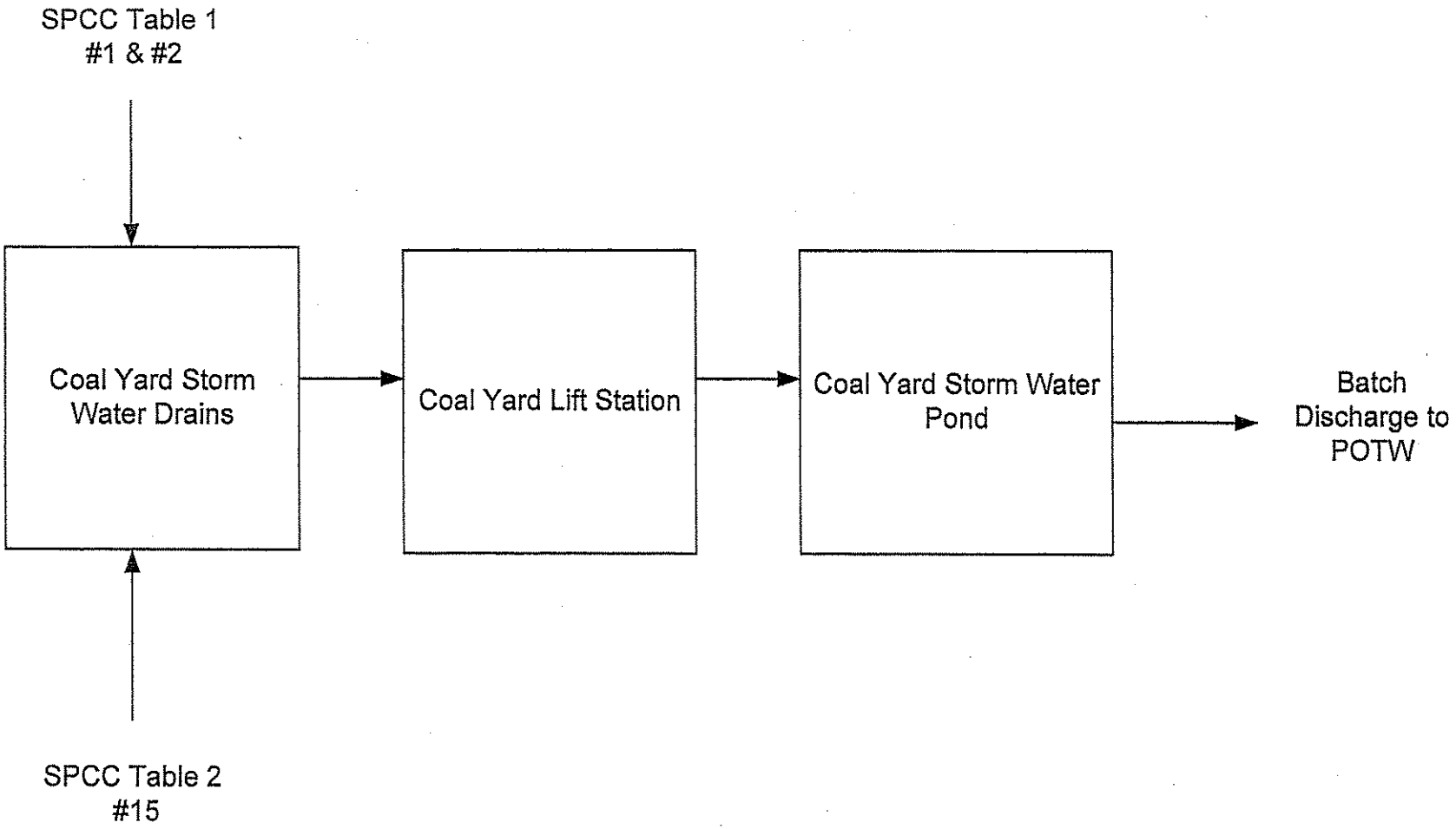
Spill Scenarios	Oil Hold Capacity gal.	Sumps Receiving Spilled Oil
#7 Transformer leak 12,200 gal.	12,709	8 oily water, 8 turbine, 8 boiler)
#7 turbine lube oil leak 5,000 gal	5,105	6 turbine, 7 turbine & floor trenches

FIGURES

Xcel Energy Riverside Plant
Figure 2 – Transformers & Oil Containment



Xcel Energy Riverside Plant
Figure 3 - Coal Yard Tanks & Equipment Containment



10/27/2008

APPENDICES

Riverside Plant Notification Call-List

Address: 3100 Marshall St. N.E., Minneapolis, MN 55418 Hennepin County

1. OUTSIDE RESPONDERS	
Ambulance: North Memorial Medical Center	9-911
Fire: Minneapolis Fire Department	9-911
Police: Minneapolis Police Department	9-911
Sheriff: Hennepin County	9-911
Hospital: North Memorial Medical Center (Switchboard)	763-520-5200
Gas Pipeline Emergencies (Always call 9-911)	
CenterPoint Energy Emergency Line: (local natural gas company)	612-372-5050

2. XCEL ENERGY ENV INCIDENT RESPONSE COORD (EIRC)	
Normal Business Hours	612-330-5972
After Hours – Control Center, General Office, Mpls	800/393-3900, Extension #2
EIRC Pager	612-534-5007
EIRC Cell Phone	612-759-0302

3. PRIMARY PLANT CONTACTS (See p. 2 for other plant contacts and responsibilities)					
Name	**Title**	**Plant No.**	**Pager**	**Cell**	**Home**
Site Emergency No. (Control Room)		X 6999			
Shift Engineer		X 6997	NA	612-437-8946	NA
Duty Production Supt (PS) – after hours		X 6999			
On-Call Production Supt (PS) business hrs		759-0629			
Ken Beadell	Plant Director	X 6801	NA	612-590-9469	See cell
Chris Hoaglund	Mgr Ops & Mnt	X 6805	NA	612-418-3272	NA
Randy Capra	Mgr Eng & Tech	X 6229	NA	612-910-9033	651-430-3513
Karen Lenander	Safety Consultant	X 6850	NA	612-240-0950	651-645-3068
Mark Gerlach	Env Analyst	X 6265	612-530-9883	612-723-1571	612-724-3859

4. OTHER RESOURCES	Primary	Backup/ Pager
Xcel Energy Communications Dep't (Minneapolis)	612-215-5300	
Xcel Energy Human Resources Service Center	800-689-7662	
Xcel Energy Risk Management (Claims)	612-330-6883	612-330-5895
Xcel Energy Industrial Hygiene Gary Weiby	612-330-6615	612-202-7438
Xcel Energy Security Operations Center (SOC)	612-330-7842	612-330-6900
Xcel Energy Electric Utility Construction Keith Olson, Electric Operations Mgr John Hunn	 612-630-4505 612-630-4141	 612-539-0858 612-539-4116
Bay West, Inc. (Cleanup Contractor)	800-279-0456	651-291-0456
West Central Environmental (Cleanup Contractor)	952-980-3247	763-571-4944
Local Regulatory Contacts		
City of Minneapolis Environmental Management	612- 673-5897	
City of Minneapolis Fire Marshall's Office	612- 673-3270	

FOR MOST CURRENT VERSION SEE PLANT WEBSITE OR PLANT LOGGING SYSTEM

Riverside Plant Notification Call-List

5. OTHER PLANT CONTACTS					
Name	**Title**	**Plant No.**	**Pager**	**Cell**	**Home**
Tim Schwietering	PS - Operations	X 6884	NA	612-716-1024	See cell
Charlie Anderson	PS – Planning	X 6883	NA	763-913-5735	See cell
Gary Gorman	PS - Maintenance	X 6865	NA	612-590-1768	763-757-5936
Russ Scheer	PS – MERP & Yd	X 6866	NA	612-581-6582	320-230-1063
Tim Kiel	PS – I&C, Elec	X 6975	NA	612-616-5289	651-739-6037
Jim Schellberg	PS - MERP	X 6223	NA	612-437-9506	See cell
Ken Langr	Engineer	X 6840	612-613-7820		763-767-5952
Responsibilities: Power Piping, Performance Testing, U8 Turbine, Coal Yard & Fuel Handling, Cooling Water, Safety Valves, Fire Protection, City Water, Welding Repair					
Steve LaBissionere	Engineer	X 6820	612-527-1340	612-599-4830	763-493-4438
Responsibilities: Controls, Drawings					
Ben Mosack	Engineer	X 6806	612-520-4087	701-371-6387	See cell
Responsibilities: MERP, #7 Turbine, #8 Boiler, Boiler makeup water, air systems, steam heat system, Lubrication, diesel generators, precipitators					
Chip Radke	Engineer	X 6835	612-510-4631	612-723-3698	952-446-9047
Responsibilities: MERP Generators, Security, Motors, Variable speed drives, UPS & Batteries, 13.8 & 155 KV substation, Switchgear, PEEMPI					
Jeff Ricker	Project Director	X 6804	612-526-7801	612-201-6938	763-497-4381
Ellen Stein	Scheduler	X 6248	612-613-3580	612-618-7457	763-533-1403

Riverside Environmental Incident Reporting Form

GENERAL INFORMATION

TYPE
(oil spill, acid spill, permit exceedance, etc.):

OCCURRED	Date:	Time:	By Whom:
DISCOVERED	Date:	Time:	By Whom:

NOTIFICATIONS

ORGANIZATION	CONTACT PERSON	DATE	TIME	FACILITY CALLER
911/Police/Fire				
Environmental Services				
Security Operations Center				
Contractor (e.g. Bay West)				
Other:				

SPILLS & RELEASES

Chemical/ Substance Name	Quantity	Lb or Gal.

Description of Cause and the Spill/ Release. *Include surfaces affected (dirt, concrete), water resource impacts (stormwater drains, NPDES discharge)*

Description of Response Actions

Did the Release Occur from an MPCA Regulated Tank ? Yes / No
If yes then a documented inspection of the secondary containment must be completed. Contact Environmental Services for Detailed Instruction

MPCA Regulated Tank *= any outdoor tank > 1100 gallons, OR any tank > 100 gallons inside a building if release from the tank was not entirely contained within a secondary containment structure or release escaped from the building through doorways, floors, drains or other routes.*

AIR QUALITY INCIDENTS

Equipment: __Boiler __ AQCS __CEMS
__Breakdown: __Shutdown __Permit Exceedance
Start Date & Time: _____
Stop Date & Time: _____
Estimated Duration: _____hrs

Description / Cause:

Potential Environmental Impacts

Steps Taken/ To Be Taken To Address Impacts:

WATER QUALITY INCIDENTS

__Upset __Bypass __Permit Exceedance
__Unpermitted Release __Unmon Release
__Unauthorized Release __ Fish / Wildlife Kill
__XES Discharge Temperature Policy Exceedance
Start Date & Time: _____
Stop Date & Time: _____

Substance Released / Discharged:

Volume Released / Discharged: gal or lb

Species and No. of Fish / Wildlife Killed:

Description / Cause:

Corrective Actions:

Attach drawings, photos and notes as necessary to document the incident and response

Appendix 3

Minnesota Spill Bill Requirements

115E.02 – Duty to prevent discharges:

The owner or operator of a facility transporting, storing, or otherwise handling hazardous substances or oil shall take reasonable steps to prevent the discharge of those materials in a place or manner that might cause pollution of the land, waters, or air of the state or that might threaten the public's safety or health.

This requirement is applicable for this facility.

115E.03 Subd. 1 - General preparedness

Is the facility prepared to rapidly recover discharged hazardous substances or oil to prevent pollution and protect the public? Describe general preparedness.

The facility is designed, constructed, maintained, and operated to minimize the possibility of any sudden or non-sudden release of oil or hazardous substances to the air, soil, or surface water which could threaten human health and/or the environment. The facility has an Emergency Procedures Plan and employees are trained periodically on accident prevention, spill recognition and effective emergency response actions to safeguard human health and the environment.

115E.03 Subd. 2 – Specific preparedness

If any of the following apply, the facility must comply with 115E.03 subdivisions 3 and 4, and 115E.04.

Owner/operator of transport vessel(s)	Not applicable to this facility.
Owner/operator of railroad car rolling stock greater than 100,000 gallons in any month	Not applicable to this facility.
Owner/operator of facility containing 1,000,000 gallons or more in tank storage at any time	Not applicable to this facility.
Owner/operator of facility where average monthly transfer rate exceeds 1,000,000 gallons	Not applicable to this facility.
Owner/operator of liquid pipeline facility which transfers more than 100,000 gallons in any month	Not applicable to this facility.

115E.03 Subd. 3 – Level of preparedness

If any of the criteria of 115E.03 Subd. 2 are applicable to this facility, the facility shall maintain a level of preparedness that ensures effective response to worst-case discharge.

Not applicable for this facility.

115E.03 Subd. 4 – Demonstration of satisfactory preparedness

If any of the criteria of 115E.03 Subd.2 are applicable to this facility, the facility may demonstrate satisfactory preparedness through one or a combination of the following: 1) adequate response personnel and equipment; 2) adequate response personnel and equipment available through contractors; 3) adequate response personnel and equipment through response cooperative or community awareness and emergency response organization; or 4) adequate response personnel and equipment of local, state, or federal public sector response organizations.

Not applicable for this facility.

115E.03 Subd. 5 – Department of Transportation

The DOT may review evidence of financial responsibility for vessels.

Not applicable for this facility.

115E.04 Prevention and response plans

Facilities identified under 115E.03 Subd. 2 shall prepare and maintain a prevention and response plan for a worst-case discharge.

Not applicable for this facility.

115E.045 Subd. 1 – Response plan for trucks

Owner or operator of trucks or cargo trailer rolling stock transporting average monthly aggregate total of more than 10,000 gallons of oil or hazardous substances as bulk cargo shall prepare a prevention and response plan.

Not applicable for this facility.

115E.045 Subd. 2a – Response plan for tank facilities

Owner or operator of tank facilities that store more than 10,000 gallons but less than 1,000,000 gallons of oil or hazardous substances in aboveground tanks shall prepare and maintain a prevention and response plan in accordance with this subdivision.

This subdivision is applicable to this facility. The following sections describe the required plan information. Detailed information required by this subdivision can also be found in the facility's *Emergency Procedures Plan* and in the *Spill Prevention Control and Countermeasure Plan (SPCC)*. Both located at the facility.

115E.045 Subd. 2a (1)

The name and business and nonbusiness telephone numbers of the individual having full authority to implement response action.

Ken Beadell, Plant Director	Business phone: 612-520-6801	Cell phone: 612-590-9469

115E.045 Subd. 2a (2)

The telephone number of the local emergency response organizations, if the organizations cannot be reached by calling 911.

The local emergency response organizations can be reached by dialing 9-911. For additional telephone numbers, refer to the Notification Call List in Appendix 1.

115E.045 Subd. 2a (3)

Include a description of the facility, tank capacities, spill prevention and secondary containment measures at the facility, and the maximum potential discharge that could occur at the facility.

Facility description	The facility is a electricity generating plant. For the layout of the site, refer to the site map located in Figure 1 of the SPCC Plan.
Tank capacities	Refer to the SPCC Plan
Spill prevention/secondary containment	Refer to the SPCC Plan
Maximum potential discharge	The largest tank on-site contains 10,000 gallons of diesel. The largest transformer on-site contains 12,215 gallons of oil.

115E.045 Subd. 2a (4)

The telephone number of the single answering point system for reporting emergency incidents and conditions involving hazardous substances or oil to agencies of the state.

The Minnesota State Duty Officer (24 hours)	651-649-5451 or 1-800-422-0798

115E.045 Subd. 2a (5)

Documentation that adequate personnel and equipment will be available to respond to a discharge, along with evidence that pre-arrangements for such response have been made.

The facility has attempted to make the necessary arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of the materials stored at the facility, and associated hazards. An annual tour is provided to all shifts of the local fire station. The Company also has contracts with local emergency response cleanup contractors. A *Spill Prevention Control and Countermeasure (SPCC) Plan* has been prepared for oil storage at the facility, and an *Emergency Procedures Plan* has been prepared to address hazards posed by other materials stored at the facility. These documents are located on-site. Xcel Energy power generating facilities have response arrangements with the Xcel Energy's Electric Utility Construction group, and the company as a whole has arrangements with local spill/ emergency response contractors. Both are well supplied for land and water oil spill response, and have access to additional subcontractor and supplies. Contact information for these resources is located in the Notification Call List in Appendix 1.

115E.045 Subd. 2a (6)

A description of the training employees at the facility receive in handling hazardous materials and in emergency response information.

Facility personnel receive annual Right-To-Know and spill response training as described in the SPCC Plan.

115E.045 Subd. 2a (7)

A description of the action that will be taken by the facility owner or operator in response to a discharge.

Employees are trained to recognize discharges and report such events to the Corporate Environmental Services Department. Actual spill response procedures are described in the facility's Emergency Procedures Plan

115E.045 Subd. 2b

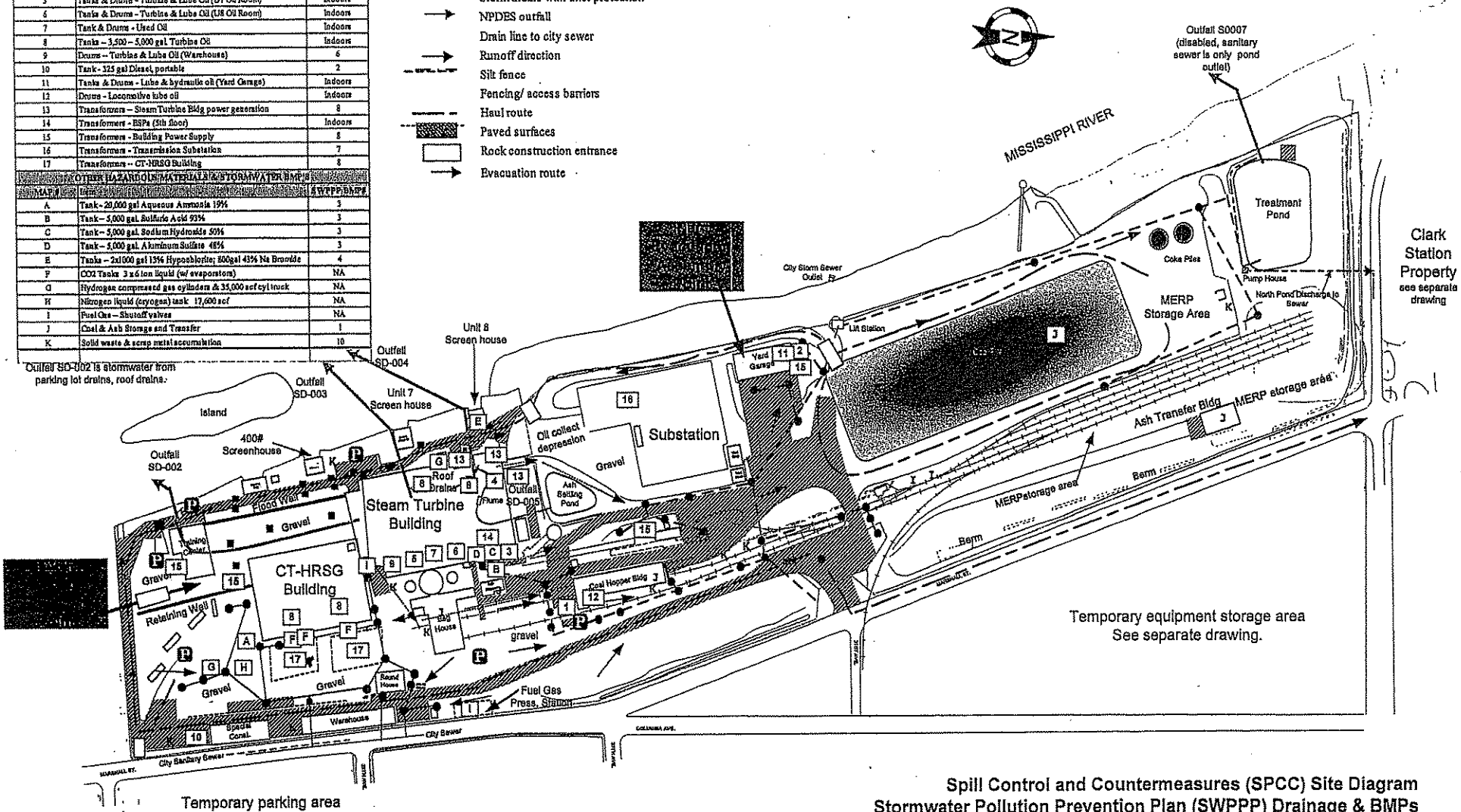
The response plan must be retained on file at the principal place of business.

The response plan documents are available at the facility.

MAP	SPCC #	Item	SWPPP BMP #
	1	Tank - 10,000 gal Diesel	2
	2	Tank - 280 gal. Used Oil	5
	3	Tank - 6000 gal. Fuel Oil	3
	4	Tank - 500 gal. Used Oil	Indoors
	5	Tanks & Drums - Turbine & Lube Oil (U7 Oil Room)	Indoors
	6	Tanks & Drums - Turbine & Lube Oil (U8 Oil Room)	Indoors
	7	Tank & Drums - Used Oil	Indoors
	8	Tanks – 3,500 – 5,000 gal. Turbine Oil	Indoors
	9	Drums – Turbine & Lube Oil (Warehouse)	6
	10	Tank - 325 gal Diesel, portable	2
	11	Tanks & Drums - Lube & hydraulic oil (Yard Garage)	Indoors
	12	Drums - Locomotive lube oil	Indoors
	13	Transformers – Steam Turbine Bldg power generation	8
	14	Transformers - ESPs (5th floor)	Indoors
	15	Transformers - Building Power Supply	8
	16	Transformers - Transmission Substation	7
	17	Transformers – CT-HRSG Building	8
OTHER HAZARDOUS MATERIALS & STORMWATER BMPS			
MAP #		Item	SWPPP BMP #
	A	Tank - 20,000 gal Aqueous Ammonia 19%	3
	B	Tank – 5,000 gal. Sulfuric Acid 93%	3
	C	Tank – 5,000 gal. Sodium Hydroxide 50%	3
	D	Tank – 5,000 gal. Aluminum Sulfate 48%	3
	E	Tanks – 2x1000 gal 13% Hypochlorite; 500gal 43% Na Bromide	4
	F	CO2 Tanks 3 x 6 ton liquid (w/ evaporators)	NA
	G	Hydrogen compressed gas cylinders & 35,000 scf cyl truck	NA
	H	Nitrogen liquid (cryogen) tank 17,600 scf	NA
	I	Fuel Gas – Shutoff valves	NA
	J	Coal & Ash Storage and Transfer	1
	K	Solid waste & scrap metal accumulation	10

Outfall SD-002 is stormwater from parking lot drains, roof drains.

- Storm drain to city sewer
- Storm drain to river
- Storm drain to yard pond
- Storm drains with inlet protection
- NPDES outfall
- Drain line to city sewer
- Runoff direction
- Silt fence
- Fencing/ access barriers
- Haul route
- Paved surfaces
- Rock construction entrance
- Evacuation route



Spill Control and Countermeasures (SPCC) Site Diagram
Stormwater Pollution Prevention Plan (SWPPP) Drainage & BMPs
Riverside Generating Plant
10/10/2008

FOR MOST CURRENT VERSION SEE PLANT ENVIRONMENTAL DOCUMENTS WEBSITE OR PLANT LOGGING SYSTEM

RIVERSIDE GENERATING PLANT

MONTHLY TANKS/ SPCC INSPECTION FORM

Xcel Energy

Checklist Instructions: - Check box if container meets inspection criteria. If doesn't meet criteria, describe problem in comment section at bottom. Initial when completed

Inspection Criteria – See criteria sheet (in ENV8.608)

Contents	Capacity Gals	Location	Special Info	Acceptable
Used Oil	500	N. side #900 elevator		
Fuel Oil # 2	2 x 3,000	#7 Oil Room		
Turbine Lube Oil	1,000, 3,500	#7 Oil Room		
Used Oil	450	#7 Oil Room		
Lube oils, kerosene	7 x 125	#7 Oil Room		
Used oil in drums	5 x 55	N. side #900 elevator	Number of drums will vary	
Lube oils	7 x 125, 10x55	#8 Oil Room	Number of drums will vary	
Turbine Lube Oil	1,000; 6,000	#8 Oil Room		
Used Oil ***(double-walled)***	500	inside - # 8 Oil/Water Separator Room	Check level indicator Note: 2" on indicator = 0" of oil	
Aluminum Sulfate	5,000	inside - 1st fl Unit 8	Verify closed contain. drain valve	
Sodium Hydroxide	5,000	inside - 2nd fl Unit 8	Check piping tank to demin	
Polymer "tote"	400	inside - 3rd fl Unit 8		
Fuel Oil # 2	6,000	inside - 3rd fl Unit 8	Test overfill alarm at unload area	
Sulfuric Acid	5,000	outside - E of Unit 8	Check piping tank to demin	
Fuel Oil* # 1 & 2 ***(double-walled)***	10,000	outside – S of Hop Bldg	Test overflow alarm (press button) Interstitial pop-up indicatr (on top)	
Dust Suppressants	3 x 1000	inside - 2nd fl Hop Bldg		
Lube oil	2 x 55	Inside – main floor hop Bld	Used on locomotives	
Used Oil* ***(double-walled)***	280	outside - N of Yd Gar		
Lube oils	3 x 275, 4 x 55	inside–Yd Eqt Bldg Oil Rm	Number of drums will vary	
Lube oils	5 x 55	Stockroom, north end	Number of drums will vary	
Diesel fuel* ***(double-wall)***	325	South end of So. Warehouse	Portable, used by Spec Const.	
Diesel & Gasoline	2 x 525	N end N warehouse	Verify tank is "not in use", is signed as such, and secured	
Bromicides (NaBr, NaOCl)	800; 2 x 1000	inside - #8 Screenhouse		
Ammonia	10,000	S. end CT building		
#9 & #10 Turbines	2 x 6,000	CT building	Check containment below unit	

*Tanks subject to more thorough annual inspection per Environmental Services procedure ENV8.608

FINDINGS/ COMMENTS

Date	Tank	Finding	Corrective Action

Date: _____ **Signature:** _____

Form Updated 11/5/08

Xcel Energy

Annual Tank, Piping, and Containment Inspection For Small Aboveground Storage Tanks

Riverside Plant

Inspection Date: _____

Inspector: _____

	Acceptable Inspection Criteria	Tank Name		
Tank Containment	Containment structure in satisfactory condition.			
	Drainage pipes/valves in good condition and fit for continued service.			
Tank Foundations & Support	No evidence of tank settlement or washout.			
	No cracking or spalling of concrete pad or ring wall.			
	Tank supports in satisfactory condition.			
	Water able to drain away from tank.			
	Grounding strap secured and in good condition.			
Cathodic Protection	Cathodic protection system functional.	NA	NA	NA
	Rectifier reading:	NA	NA	NA
Tank External Coating	No evidence of significant paint failure. (If unsure, request evaluation by supervisor)			
Tank Shell	No noticeable shell/head distortions, buckling, denting or bulging.			
	No evidence of shell/head corrosion or cracking.			
Tank Appurtenances	Flanged connection bolts tight and fully engaged with no sign of wear or corrosion.			
Tank Roof	No standing water on roof.	NA	NA	NA
	No evidence of coating cracking, crazing (lots of small cracks), peeling, or blistering.	NA	NA	NA
	No holes in roof.	NA	NA	NA
	Vents free of obstructions.	NA	NA	NA
	Emergency vent operable. (Lift as required)	NA	NA	NA
Tank Insulation	No insulation missing.	NA	NA	NA
	No noticeable areas of moisture on the insulation.	NA	NA	NA
	No mold on insulation.	NA	NA	NA
	No signs of damage to the insulation or outer jacket.	NA	NA	NA
	The insulation sufficiently protected from water intrusion.	NA	NA	NA
Level & Overfill Protection	Tank liquid level sensing device been tested to ensure proper operation.			
	The tank liquid level sensing device operates as required.			
	Overfill prevention devices in proper working condition.			
Electrical	Tank grounding lines in good condition.			
	Electrical wiring for control boxes/lights in good condition?			
Other	Double wall tank - Interstitial space monitor working			
	Dispensing equipment in good working order			
	Labeling: no smoking (if fuel), contents, DOT if transported			

References: Environmental Services procedure ENV8.608, STI SP001 (current version)

Note discrepancies on reverse side.
Note items that need further investigation to determine appropriate corrective action(s) to take.

Retention: Location – 3 years

Tank Number	Discrepancies Noted	Tank Number	Discrepancies Noted

Xcel Energy Riverside Plant Containment Discharge Log

Date	Time	Inspector Initials	Location Drained	Oil Sheen/Other Problem (circle)	Observations / Actions
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	
				Yes No	

Instructions: **Containment Bay Valves Must Be Kept in Shut/ Closed Position Unless Draining Stormwater**

CT-HRSG Power Transformers (east of bldg): each has discharge valves to the storm sewer, AND the CT-HRSG building oil/ water separator.

- If no oil sheen is observed, open **storm sewer** valve (marked on valve/ tag) to drain bay, document on this sheet.
- If oil or an oil sheen is observed, contact the Riverside Environmental Analyst and clean-up oil prior to discharge. (Note: The oily water sewer may be used for oil sheen discharge once piping connections are completed in late 2008).

Building Transformers: So. side Training Center, So. side HRSG bldg, No. side Yard garage, west side coal handling bldgs.

- If no oil sheen is observed, open valve and drain/ pump out, document on this sheet.
- If oil or an oil sheen is observed, contact the Riverside Environmental Analyst and clean-up before discharge.

Forward completed logs each month to the Plant Environmental Analyst

Xcel Energy™

SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN AND MINNESOTA SPILL BILL PLAN

Allen S. King Generating Plant
1103 King Plant Road
Bayport, Minnesota 55003
EPA ID #: 000817916

April 2009

EXHIBIT F

Table of Contents

APPENDICES:

Appendix 1 Forms Referenced in SPCC Plan

I. Professional Engineer Certification [40 CFR 112.3(d)]

In accordance with the requirements of 40 CFR 112.3(d), I certify that I or my agent have visited and examined the facility, I am familiar with the requirements of this regulation, and this Spill Prevention Control and Countermeasure Plan is adequate for the facility and has been prepared to satisfy the following requirements:

(a) The plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of this part;

(b) Procedures for required inspections and testing have been established.

Signature: _____ Date: April 6, 2009

Printed Name: CHARLES S. THOMAS

Registration Number: 18185 State: MN

II. Management Approval [40 CFR 112.7]

In accordance with 40 CFR 112.7, I certify that I am familiar with the elements of this plan and that this plan has the full approval of management at a level of authority to commit the necessary resources to fully implement the plan.

Management Signature: _____ Date: _____

Printed Name: Thomas Smith Title: Plant Director

III. Amendment of SPCC Plan by Regional Administrator [40 CFR 112.4]

This plan shall be amended and submitted to the EPA Regional Administrator in accordance with the requirements of 40 CFR 112.4 whenever the facility:

(a) Has discharged more than 1,000 U.S. gallons of oil in a single discharge as described in 40 CFR 112.1(b); or

(b) Has discharged more than 42 U.S. gallons of oil in each of two discharges as described in 40 CFR 112.1(b), occurring within any twelve month period.

This facility has not had a discharge of oil in harmful quantities (as described in 40 CFR 112.1(b)) that meets the thresholds described in this section.

IV. Amendment and Review of SPCC Plan by Owners and Operators [40 CFR 112.5]

This plan shall be reviewed and amended whenever the following conditions apply:

(a) In accordance with 40 CFR 112.5(a), the plan shall be amended whenever there is a change in the facility design, construction, operation, or maintenance that materially affects its potential for a discharge as described in 40 CFR 112.1(b); and/or

(b) In accordance with 40 CFR 112.5(b), complete a review and evaluation of the plan at least once every 5 years from the date the last review was required.

The plan must be amended within six months of the change and/or review and implemented within six months following preparation of the amendment. The review and evaluation of the plan will be documented and signed using the form below.

In accordance with 40 CFR 112.5(c), any technical amendments to the plan must be certified by a Professional Engineer. Examples of technical amendments include, but are not limited to, commissioning or decommissioning containers; replacement, reconstruction, or movement of containers; reconstruction replacements, or installation of piping systems; construction or demolition that might alter secondary containment structures; changes of product or service; or revision of standard operation or maintenance procedures at the facility.

Non-technical amendments do not require certification by a Professional Engineer. Non-technical amendments include, but are not limited to, phone numbers, name changes, or non-technical text changes.

Log of Plan Review and Amendments

Statement	Signature	Description of Amendment (sections or pages affected, etc.)	P.E. Certification Required? (Yes or No)
I have completed review and evaluation of the SPCC Plan for the facility and (will) / will not (circle one) amend the plan as a result.	[signature] 4/6/2009	Added changes for MERP, remove NRG operations, added oil filled equipment	Yes
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			
I have completed review and evaluation of the SPCC Plan for the facility and **will / will not** (circle one) amend the plan as a result.			

V. Applicability of the Substantial Harm Criteria
(from 40 CFR Part 112 – Appendix C, Attachment C-II)

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

Yes [ ] No [X]

2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?

Yes [ ] No [X]

3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to Appendix C of 40 CFR Part 112 or a comparable formula[1]) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Plans: Fish and Wildlife and Sensitive Environments" (59 FR 14713, March 29, 1994) and the applicable Area Contingency Plan.

Yes [ ] No [X]

4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III to Appendix C of 40 CFR Part 112 or a comparable formula[1]) such that a discharge from the facility would shut down a public drinking water intake[2]?

Yes [ ] No [X]

5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years.

Yes [ ] No [X]

[1] If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form.

[2] For the purposes of 40 CFR Part 112, public drinking water intakes are analogous to public water systems as described at 40 CFR 143.2(c).

VI. Certification

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining information, I believe that the submitted information is true, accurate, and complete.

Signature: Mark Gerlach Date: 4-6-2009

Printed Name: Mark Gerlach Title: Environmental Analyst

1.0 Facility Description:

The Allen S. King Generating Plant is a 590 MW single unit coal-fired electrical generating facility. The plant is located on a 188 acre site on the western bank of the St. Croix River, approximately 2 miles south of Stillwater, MN. The surrounding riverbank area is primarily industrial in nature.

The site consists of the powerhouse (and associated coal/ash handling buildings), yard equipment building, rail car unloader building, two construction buildings, warehouse, cooling towers, coal yard settling ponds, Hold Up Pond, discharge canal and substation (see Site Diagram in Appendix 3). Oil is used mainly as a lubricant or fuel in the powerhouse and garage areas of the facility, but is also contained in large quantities in plant and substation electrical equipment (e.g., transformers, oil circuit breakers, etc.).

2.0 General Facility Information

1.1 Facility Name, Location, and Telephone Number

Allen S. King Generating Plant
1103 King Plant Road
Bayport, Minnesota 55003
651-731-5716 (Control Room)

1.2 Owner/Operator Information

Northern States Power, a Minnesota company
414 Nicollet Mall
Minneapolis, Minnesota 55401

1.3 Facility Contacts

Emergency contact numbers are located in Appendix 3.

3.0 Conformance with Requirements [40 CFR 112.7(a)(1)]

Include a discussion of the facility's conformance with the SPCC requirements of 40 CFR Part 112.

This Spill Prevention Control and Countermeasure (SPCC) Plan has been prepared and implemented in response to, and in conformance with, the requirements of the Environmental Protection Agency's Oil Pollution Prevention Regulation Title 40 Code of Federal Regulations (CFR) Part 112. This SPCC Plan identifies and established procedures, methods, and equipment at the facility to minimize the potential for discharges of oil into waters of the United States.

The SPCC planning requirement applies to this facility because, as described in 40 CFR 112.1(b), it could reasonably be expected to "discharge oil in quantities that may be harmful, as described in part 110 of this chapter, into or upon the navigable waters of the United States or adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Magnuson Fishery Conservation and Management Act)..." Part 110 describes discharges of oil in harmful quantities as discharges that: "(a) violate applicable water quality standards; or (b) cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines." This definition of a "discharge" will be used throughout this SPCC Plan.

In accordance with 40 CFR 112.3(e), a complete copy of this plan will be maintained at the facility and the plan will be available to the Regional Administrator for on-site review during normal working hours.

Company personnel have confirmed equipment and controls for SPCC requirements on site.

4.0 Deviation from Requirements [40 CFR 112.7(a)(2)]

Where the Plan does not conform to the applicable requirements of 40 CFR Part 112, as described in 40 CFR 112.7(a)(2), except the secondary containment requirements, state the reasons for nonconformance and describe in detail alternate methods and how the facility will achieve equivalent environmental protection.

In the event that the facilities spill planning deviates from the requirements, the reasons for the nonconformance and the alternate methods will be discussed in the applicable section(s) of this Plan.

5.0 Physical Layout of Facility [40 CFR 112.7(a)(3)]

Describe the physical layout of the facility and include a facility diagram, which must mark the location and contents of each container. The facility diagram must also include the locations of completely buried and bunkered tanks (including those covered under 40 CFR Part 280 or 281), the locations of drum and portable container storage areas, and the locations of transfer stations and connecting pipes.

See Site Diagram and Tables 1-3 in Appendix 3 for detailed information on oil storage containers and oil-filled equipment.

6.0 Facility Oil Storage [40 CFR 112.7(a)(3)(i)]

Describe the type of oil in each storage container and its storage capacity.

See Tables 1-3 in Appendix 3 for detailed information on storage containers, including their locations, capacities, contents, and secondary containment.

7.0 Discharge Prevention Measures [40 CFR 112.7(a)(3)(ii)]

Describe the discharge prevention measures including procedures for routine handling of products (loading, unloading, and facility transfers, etc.).

Discharge prevention measures include:

- Dedicated spill prevention and control equipment, e.g., indoor oil storage rooms, secondary containment structures, yard drainage system, sorbents, etc.
- Routine visual tank inspections, operator rounds and planned maintenance activities.
- Procedures for tank and containment inspections, drainage control, loading and unloading, etc. Procedures and inspection sheets are kept in the plant's files.
- Routine spill awareness and response training for plant personnel.

These discharge prevention measures are discussed throughout this SPCC plan.

8.0 Discharge or Drainage Controls [40 CFR 112.7(a)(3)(iii)]

Describe the discharge or drainage controls such as secondary containment around containers and other structures, equipment, and procedures for the control of a discharge.

A variety of methodologies are used at the facility to control oil discharges and drainage. As described below, nearly all bulk oil containers and oil filled equipment is provided with containment to prevent a release to surface waters. Site drainage (See site diagram Appendix 3) includes numerous stormwater basins/ ponds that require manual discharge, or have an elevated overflow drain. The only location of stormwater discharge to the adjacent St Croix river is via the plants main NPDES discharge (#SD001), which includes floating oil booms. These features help prevent spills/ releases to surface waters, and ensure rapid detection and response in the event of a release.

Bulk Oil Storage Containers

All bulk storage containers with capacity > 55 gal. of oil are provided with containment to prevent its release to surface waters. Many of these containers also have sensors installed with low level alarms to alert personnel of a possible release. See Table 1 in Appendix 3 for details on individual bulk oil storage containers.

- Outdoor aboveground storage tanks are provided with secondary containment structures (763, 764), or are double walled tanks (991, 1664, 2940). Stormwater is manually discharged from containments after inspection and is documented in a log (Log form provided in Appendix 1).
- Turbine oil tanks in the power house (992, 993, 996.1) and a used oil tote & drums are provided containment by a recessed curbed concrete structure, which drains to a 15,000 gal. concrete emergency oil sump located under the basement floor. The sump is equipped with a high level alarm monitored in the control room, and has no outlet. It must be emptied using a portable pump or vacuum truck.
- Other turbine & lube oil tanks (10, 994, 995) are located in a power house basement oil room with drains connected to the emergency turbine oil sump. .
- A second power house basement oil room contains numerous oil drums. Recessed concrete floors and walls provide complete containment for this room.
- Two small emergency generator fuel tanks (1664, 1665) are located in a room where the concrete floor & walls provide containment and the floor drain is routed to the transformer spill basin (See site Diagram Appendix 3).
- Yard garage oil drum storage is primarily in an oil room where recessed concrete floor and walls provide containment. A used oil tote (300 gal) and several drums are stored outside the garage oil room. Releases from these containers would likely be contained in the building, or would be collected by floor drains at the south end of the building that discharge to an underground wastewater tank. Yard personnel monitor liquid level in the tank and it is pumped out as necessary. Liquid removed from the tank is checked for oil contamination, and if present managed appropriately.
- Small numbers (5 or less) of new/ used oil drums are stored in buildings where the building floor provides adequate containment or floor drains go to an oil-water separator. In 2 buildings (Lime Prep & FD Fan) drums are stored on portable spill pallets.

Unloading & Fueling Areas: (see Table 1 Appendix 3 for detailed description)

- Tanker hose connections at the 2 large bulk fuel tanks (763, 764) are provided with concrete secondary containment. The tanker driver and plant operations personnel continually attend unloading at these sites.
- A metal tray that drains to an underground spill collection tank underlies the locomotive fueling area. Yard personnel monitor liquid level in the tank and it is pumped out as necessary. Liquid removed from the tank is checked for oil contamination, and if present managed appropriately.

- The coal scraper fueling area (tank 764) is gravel, underlain by a clay liner encompassing the entire coal yard. Runoff from this area is directed to a coal yard stormwater pond. Fueling is continually monitored so spills may be quickly stopped and remediated. Stormwater ponds are manually discharged after inspections that would detect an oil sheen.
- The gasoline fueling area (991) is gravel and drains to a stormwater drain connected to the oil-water separator. Fueling is continually monitored so spills may be quickly stopped and remediated
- Storm drains around the loading dock are directed to the clay lined upper Hold Up Pond where an oil sheen would be readily detected for response. An oil boom separating the upper and lower Hold Up Pond, and at the discharge would prevent oil migration to the river.

Oil Filled Equipment

All equipment containing > 55 gal. of oil is provided with containment to prevent its release to surface waters. See Table 2 in Appendix 3 for details on equipment oil capacity & location.

- 2 large AQCS transformers are equipped with concrete secondary containment that is manually drained to an oil water separator, which discharges to the upper Hold Up Pond.
- Station transformers located on the south side of the power house are equipped with concrete secondary containment that drains to a clay lined spill/ stormwater basin with no discharge outlet. If stormwater removal via pumping is required, it would be preceded by a documented inspection for contamination.
- Substation equipment is located in a large fenced area underlain by 6 in. of gravel. The gravel would collect & hold most of the release. The reminder of the oil would run-off to adjoining stormwater ponds where it could easily be detected and cleaned up. The largest equipment in the substation is equipped with low level and high temperature sensors that alarm in the plant control room, so equipment failure capable of releasing oil would be quickly detected and responded to. Storm pond overflow is directed to the clay lined upper Hold Up Pond, which facilitates detection, and is separated from the river by several oil booms.
- Oil filled transformers and unloading equipment located on the abandoned barge dock, were drained in January 2009. There are no other bulk oil containers/ pieces of oil filled equipment at the dock.
- 1 small padmount transformer is located along the circ water discharge canal at the east end of the parking lot. This transformer is protected from inadvertent vehicle damage by posts & equipment. A release at this site would flow into the circ water discharge canal, and would be contained by an oil boom that is maintained at the discharge outfall.
- ID Fans & the SDA atomizer building floor drains are directed to an oil water separator.
- Equipment in the power house (boiler feed pumps, circ water pumps) is provided containment by the turbine and boiler room sumps located in the basement. These sumps are > 10,000 gal in capacity and are equipped with baffles to prevent accumulated oil from reaching the sump pump intake.
- Other equipment (Slew Boom, FD Fans) are located in buildings where the floor & walls provide secondary containment.

9.0 Countermeasures for Discharge Discovery, Response, and Cleanup [40 CFR 112.7(a)(3)(iv)]

Discuss the countermeasures for discharge discovery, response, and cleanup (both the facility's capability and those that might be required of a contractor).

Spill and emergency response equipment maintained at the facility are listed in Table 4 of Appendix 3. A portable spill trailer is also equipped and maintained at the site. The plant has access to additional spill response resources such as Xcel Energy Environmental Services and construction personnel. Xcel Energy also has agreements in place with outside emergency response contractors. Contact numbers of these resources are included in the Emergency Notification list found in Appendix 3.

10.0 Methods of Disposal [40 CFR 112.7(a)(3)(v)]

Discuss the methods of disposal of recovered materials in accordance with applicable legal requirements.

Spilled oil, cleanup sorbents, contaminated soil, etc., are disposed of in accordance with applicable local, state and federal regulations. Contaminated sorbents and soil are generally sent to a permitted industrial waste landfills, while recovered oil may be reused or incinerated for energy recovery. Disposal assistance and guidance is provided by Xcel Energy's Environmental Services Department.

11.0 Contact List and Phone Numbers [40 CFR 112.7(a)(3)(vi)]

This section addresses the contact list and phone numbers for the facility response coordinator, National Response Center, cleanup contractors, and all appropriate Federal, State, and local agencies who must be contacted in case of a discharge as described in Section 112.1(b).

See the "Notification Call List" in Appendix 3. Corporate policy requires immediate notification of the Environmental Services Department for all oil spills greater than one gallon.

12.0 Discharge Reporting Procedures [40 CFR 112.7(a)(4)-(5)]

Unless the facility has submitted a response plan under 40 CFR 112.20, provide information and procedures in this SPCC plan to enable a person reporting a discharge to relate the following information:

a) exact address or location and phone number;
b) date and time of the discharge;
c) type of material discharged;
d) estimates of the total quantity discharged;
e) estimates of the quantity discharged as described in 40 CFR 112.1(b);
f) the source of the discharge;
g) a description of all affected media;
h) the cause of the discharge;
i) any damages or injuries caused by the discharge;
j) actions being used to stop, remove, and mitigate the effects of the discharge;
k) whether an evacuation may be needed;
l) names of individuals and/or organizations who have also been contacted.

This facility is not required to submit a response (OPA) plan under 40 CFR 112.20. This is documented on the "Applicability of Substantial Harm Criteria" certification page (p. iii) of this SPCC Plan.

Plant personnel document spill response on the Environmental Incident Reporting Form located in Appendix 3.

13.0 Spill Prediction [40 CFR 112.7(b)]

Where experience indicates a reasonable potential for equipment failure, include a prediction of the direction, rate of flow, and total quantity of oil that could be discharged from the facility as a result of each type of major equipment failure.

Review of the past 10 years of normal operations indicates most oil spills are small in size (average 2.0 gal.), and are associated with turbine or hydraulic systems, vehicles, and construction equipment. Most of these spills occurred outside the plant, but were cleaned up with little soil impact.

Based on the types of spills that have occurred in the past, a summary of worst-case spill predictions is presented below.

Potential Event	Max Volume Released (gals)	Rate of Flow Gal/ Min	Flow/ Containment
Catastrophic failure of largest oil tank and containment	30,000	Instantaneous	Released oil would remain in area for remediation. Elevated road (flood berm) would keep spill from the river.
Catastrophic release from turbine oil tank	10,000	Instantaneous	Collected in containment below tank and 15,000 gal. emergency sump.
Catastrophic failure of largest transformer in substation	27,500	Instantaneous	Substation gravel and adjoining stormwater ponds collect and hold oil for response. No discharge to river.
Release during tanker unloading (including tank overfill) Tanks 763, 764, 991	25	50	Easily detected and stopped by driver, plant observer. Tanks 763, 764 – release to containment. Tank 991 – release localized to dirt/ gravel.
Leak during vehicle/ equipment fueling. Tanks 764, 991, 1664, and Locomotive fueling	25	50	Easily detected and stopped by personnel performing fueling. Estimated 0.5 min to detect & stop flow.

14.0 Containment and Diversionary Structures [40 CFR 112.7(c)]

Provide appropriate containment and/or diversionary structures or equipment to prevent a discharge to navigable water, as described in Section 112.1(b). The entire containment system, including walls and floor, must be capable of containing oil and must be constructed so that any discharge from a primary containment system, such as a tank or pipe, will not escape the containment system before cleanup occurs. At a minimum, the facility must use one of the following prevention systems or its equivalent: dikes, berms, or retaining walls sufficiently impervious to contain oil; curbing; culverting, gutters, or other drainage systems; weirs, booms, or other barriers; spill diversion ponds; retention ponds; or sorbent materials.

Facility sumps, concrete/ clay secondary containment structures, underground collection tanks, gravel surfaces and storm water runoff ponds are utilized to prevent oil discharges from reaching navigable waters. These containment and diversionary structures are described in Section 8.0 of this Plan, and in Tables 1-3 of Appendix 3. As noted in the site diagram (Appendix 3), stormwater discharge from the site only occurs into the upper Hold Up Pond, which has an oil boom installed at the outlet to the upper pond, and by a second boom located at the discharge outfall. Prior oil intercept by gravel, containment & ponds greatly reduces likelihood of oil reaching the Hold Up Pond.

15.0 Impracticable Containment [40 CFR 112.7(d)]

If the facility has determined that structures or equipment for spill containment is impracticable:

a. *explain why such measures are not practicable;*
b. *for bulk storage containers, conduct both periodic and integrity testing of the containers and periodic integrity and leak testing of the valves and piping, and*
c. *provide in the plan (unless a response plan is required under Part 112.20):*
   (1) an oil spill contingency plan
   (2) a written commitment of manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful.

None

16.0 Inspections, Tests, and Records [40 CFR 112.7(e)]

Conduct inspections and tests required by this part in accordance with written procedures that the facility or the certifying engineer develop for the facility. These written procedures and a record of the inspections and tests, signed by the appropriate supervisor or inspector, must be kept with the SPCC Plan for a period of three years. Records of inspections and tests kept under usual and customary business practices will suffice for the purposes of this paragraph.

- Operations personnel perform daily rounds that include areas where most tanks and oil filled equipment are located.
- Regulated MN AST's are subject to weekly visual inspections, which are documented on an inspection form (Appendix 1).
- Monthly visual inspections of bulk oil storage containers are performed and documented on the attached tank inspection form (Appendix 1). These inspections are performed in accordance with MN AST regulations and EPA SPCC rules.
- STI/ UL storage tanks (#764, 991, 1664, 1665, 1666, 2940) are also subject to an additional annual inspection using the criteria of STI SP001 and Xcel Energy procedures, which is documented using the attached annual tank inspection form (Appendix 1).
- Outdoor tanks greater than 5,000 gal. in size (763, 764) are subject to STI/ API inspections that include wall thickness measurement and corrosion rate calculations, every 20 years. Inspection reports are maintained at the facility.
- Tank 763 and associated underground piping to the power house and locomotive fueling station are cathodically protected by anode beds, and are tested every 3 years, as required under state AST regulation. Although not required by regulation, the plant also performs periodic leak testing on the above and below ground fuel lines associated with tank 763. Annual UG leak test rqd. 7157. 72cm 4.C.
- Stormwater in spill containment structures is inspected for contamination prior to discharge, and is documented in a log form (Appendix 1).

17.0 Personnel, training, discharge prevention procedures [40 CFR 112.7(f)]

(f)(1) At a minimum, train oil-handling personnel in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of the facility SPCC Plan.

Personnel receive annual computer based or classroom training in a variety of topics that may include: operations issues, safety issues, material handling, and environmental issues such as spill prevention and response. Computer based spill response training is completed a minimum of every 2 years and personnel involved in oil/ fuel handling annually participate in a discharge prevention briefing (Lesson plan D9236L-005), that is typically taught during block training. The briefing includes the required elements of SPCC regulation. Plant personnel also receive on-the-job training in operating/ maintenance procedures that may involve oil, when taking on new areas of responsibility.

(f)(2) Designate a person at each applicable facility who is accountable for discharge prevention and who reports to facility management.

Tom Smith, Plant Director, is the designated person accountable for discharge prevention and Mary Smith is the site Environmental Coordinator.

(f)(3) Schedule and conduct discharge prevention briefings for oil-handling personnel at least once a year to assure adequate understanding of the SPCC Plan for that facility. Such briefings must highlight and describe known discharges as described in section 112.1(b) or failures, malfunctioning components, and any recently developed precautionary measures.

See (f)(1) above

18.0 Security [40 CFR 112.7(g)]

(g)(1) Fully fence each facility handling, processing, or storing oil, and lock and/or guard entrance gates when the facility is not in production or is unattended.

A wire fence surrounds the entire powerhouse, substation, and coal yard.

A series of gates provides access to the facility. The main gate to the employee parking lot is controlled by an electronic card access system. Other gates leading to the plant and coal yard and all exterior access doors to the powerhouse are also accessed using the pass card system. The facility is never left unattended. Visitors can only gain access by contacting control room or other plant personnel via remote speakers.

Warning signs are posted along the fence lines that read "Private Property – No Trespassing." The legend is written in English and is legible from a distance of at least 25 feet. The fence and gate locations are depicted on the facility diagram (Appendix 3).

The gates to the substation are locked and the keys to the gates controlled. There is a security camera in the substation which is monitored by operations and Xcel Energy Security Operations.

(g)(2) Ensure that the master flow and drain valves and any other valves permitting direct outward flow of the container's contents to the surface have adequate security measures so that they remain in the closed position when in non-operating or non-standby status.

Not applicable, all oil tanks at the facility are considered to be in-service. A safety tag and lock out system is used to control and document valve changes during maintenance activities.

(g)(3) Lock the starter control on each oil pump in the "off" position and locate it at a site accessible only to authorized personnel when the pump is in non-operating or non-standby status.

Pump starters for all tanks are located within the site fence line and are only accessible to site personnel.

(g)(4) Securely cap or blank-flange the loading/unloading connections of oil pipelines or facility piping when in standby service for an extended time. This security practice also applies to piping that is emptied of liquid content either by draining or by inert gas pressure.

Not applicable. There are no out of service or standby pipelines requiring capping or blank-flanging.

(g)(5) Provide facility lighting commensurate with the type and location of the facility that will assist in the:
(i) Discovery of discharges occurring during hours of darkness, both by operating personnel, if present, and by non-operating personnel (the general public, local police, etc.); and
(II)Prevention of discharges occurring through acts of vandalism.

The entire facility has adequate lighting to observe oil spills and discourage vandalism. There are floodlights and streetlights located throughout the facility that provide adequate visibility under normal conditions. Operators perform rounds, both inside and outside the building, checking for spills or equipment problems.

19.0 Facility Tank Car and Tank Truck Loading/Unloading Rack [40 CFR 112.7 (h)]

(h)(1) Where loading/unloading area drainage does not flow into a catchment basin or treatment facility designed to handle discharges, use a quick drainage system for tank car or tank truck loading and unloading areas. Any containment system must be designed to hold at least the maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded at the facility.

Per SPCC definitions, the facility does not have a truck loading/unloading rack.

Tanker unloading and fueling area containment is described in Section 8.0 and Table 1 of Appendix 3. Potential release scenarios in these areas are described in Section 13.0.

(h)(2) Provide an interlocked warning light or physical barrier system, warning signs, wheel chocks, or vehicle break interlock system in loading/unloading areas to prevent vehicles from departing before complete disconnection of flexible or fixed oil transfer lines.

Fuel delivery personnel are trained on proper fuel transfer techniques and stay with the vehicle at all times during fuel transfers. In addition, facility personnel are on-hand to observe all product deliveries.

(h)(3) Prior to filling and departure of any tank car or tank truck, closely inspect for discharges the lowermost drain and all outlets of such vehicles, and if necessary, ensure that they are tightened, adjusted, or replaced to prevent liquid discharge while in transit.

Facility personnel rely on the delivery driver to properly inspect all bottom drains and outlets of the tanker trucks prior to leaving the product transfer areas to prevent possible leakage from the truck while in transit.

20.0 Brittle Fracture [40 CFR 112.7 (i)]

If a field-constructed aboveground container undergoes a repair, alteration, reconstruction, or a change in service that might affect the risk of a discharge or failure due to brittle fracture or other catastrophe, or has discharged oil or failed due to brittle fracture or other catastrophe, evaluate the container for risk of discharge or failure due to brittle fracture or other catastrophe, and as necessary, take appropriate action.

No applicable. There are no in-service field-constructed aboveground containers located at the facility.

21.0 Discussion [40 CFR 112.7 (j)]

In addition to the minimal prevention standards listed under this section, include a complete discussion of conformance with the applicable requirements and other effective discharge prevention and containment procedures listed in this part or any applicable more stringent State rules, regulations, and guidelines.

The facility is also subject to related State of Minnesota requirements:
- Minnesota Rules Chapter 7151 "Aboveground Storage of Liquid Substances"; and
- Minnesota Statute 115E (Minnesota Spill Bill). See Appendix 2.

Additional information regarding spill response and emergency response procedures can be found in the facility's Emergency Response plan located at the facility.

22.0 General Requirements for Petroleum Oil, etc. [40 CFR 112.8(a)]

(a) Meet the general requirements for the Plan listed under Part 112.7 and the specific discharge prevention and containment procedures listed in this section.

The general requirements for the Plan under the regulation have been met.

23.0 Facility Drainage [40 CFR 112.8(b)]

(b)(1) Restrain drainage from diked storage areas by valves to prevent a discharge into the drainage system or facility effluent treatment system, except where facility systems are designed to control such discharge. Diked areas may be emptied by pumps or ejectors; however, personnel must manually activate these pumps or ejectors and must inspect the condition of the accumulation before starting, to ensure no oil will be discharged.

As described in Section 8.0, diked storage areas around AST's and transformers require manual opening of valves, or use of a portable pump for structures without outlets. All manual discharges of stormwater are inspected for contamination, and the inspections are documented on a log sheet (Appendix 1).

(b)(2) Use valves of manual, open-and-closed design, for the drainage of diked areas (flapper-type drain valves should not be used). If the facility drainage drains directly into a watercourse and not into an on-site wastewater treatment plant, the facility must inspect and may drain uncontaminated retained stormwater, as provided in paragraphs (c)(3)(ii), (iii), and (iv) of this section.

Manual open/closed valves or drain plugs are used to drain diked areas that have drainage valves or drains. Flapper-type drain valves are not used. Prior to draining storm water from these diked areas, facility personnel visually inspect the water to verify that oil is not present.

(b)(3) Design facility drainage systems from undiked areas with a potential for a discharge (such as where piping is located outside containment walls or where tank truck discharges may occur outside the loading area) to flow into ponds, lagoons, or catchment basins designed to retain oil or return it to the facility. Catchment basins must not be located in areas subject to periodic flooding.

The facility's yard drainage system is designed to direct discharges from undiked sources, (e.g., outdoor piping, vehicle/ equipment fueling) to onsite stormwater basins that have no outlets, or the SE substation stormwater pond, which overflows to the upper Hold Up Pond. An oil boom is installed on the outlet of the upper Hold Up Pond. Facility personnel would respond with sorbents or a vac trucks to remove oil in the ponds. Facility stormwater ponds and the Hold Up Pond are not impacted by flooding.

Air pollution control equipment and associated building drains (e.g., AQCS transformers, ID Fan building) discharge to an oil/water separator, located West of the ID fan building. The separator is a 200 gpm @25"IDH, with two 5 hp non-clog pumps. It is equipped with two high oil level alarms (with alarm horns and alarm lights) and inclined corrugated plates to prevent accumulation of solids. The oil water separator is designed to produce effluent quality of 15 ppm or less of free oil, and discharges to the SE substation stormwater pond.

Discharges from oil-filled equipment in the substation will be captured in the thick layer of gravel in the substation bed, trenches running along the substation bed, and ditches/ stormwater ponds surrounding the substation. The SE substation stormwater pond is the only one with an outlet

(b)(4) If facility drainage is not engineered as in paragraph (b)(3) of this section, equip the final discharge of all ditches inside the facility with a diversion system that would, in the event of an uncontrolled discharge, retain oil in the facility.

Not applicable.

(b)(5) Where drainage waters are treated in more than one treatment unit and such treatment is continuous, and pump transfer is needed, provide two "lift" pumps and permanently install at least one of the pumps. Whatever techniques are used, the facility must engineer facility drainage systems to prevent a discharge as described in section 112.1(b) in case there is an equipment failure or human error at the facility.

Not applicable. Drainage waters are not "treated".

24.0 Bulk Storage Containers [40 CFR 112.8(c)]

(c)(1) A facility must not use a container for the storage of oil unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature.

Containers are not used for the storage of oil unless their material and construction are compatible with the materials stored and conditions are, as far as practical, fail-safe engineered or updated into fail-safe engineered installation to avoid spills.

(c)(2) A facility must construct all bulk storage container installations so that a secondary means of containment is provided for the entire capacity of the largest single container and sufficient freeboard to contain precipitation. Ensure that diked areas are sufficiently impervious to contain discharged oil. Dikes, containment curbs, and pits are commonly employed for this purpose. A facility may also use an alternative system consisting of a drainage trench enclosure that must be arranged so that any discharge will terminate and be safely confined in a facility catchment basin or holding pond.

Tanks and oil-filled equipment containments are impermeable and have more than adequate freeboard (based on a 25 year, 24-hr rain event ≈ 5 inches; Ref: NOAA records). See Section 8.0 and Table 1 & 2 for bulk oil storage containment information. Containment calculations for tanks 763 & 764 are included in Appendix 1.

(c)(3) A facility must not allow drainage of uncontaminated rainwater from the diked area into a storm drain or discharge of an effluent into an open watercourse, lake, or pond, bypassing the facility treatment system unless the facility will:

i) Normally keep the bypass valve sealed and closed.	Drain valves in diked areas are kept in the closed position.
ii) Inspect the retained rainwater to ensure that its presence will not cause a discharge as described in section 112.1(b).	Rainwater inside diked areas is inspected for sheen and discoloration to ensure that oil is not discharged.
iii) Open the bypass valve and reseal it following drainage under responsible supervision; and	Drain valves are opened if no contamination is observed, and are then closed.
iv) Keep adequate records of such events, for example any records required under permits issued in accordance with 40 CFR 122.41(j)(2) and 122.41(m)(3).	Records of rainwater inspections and discharges are recorded on a log sheet (Appendix 1) and are maintained in the plant files.

(c)(4) A facility must protect any completely buried metallic storage tank installed on or after January 10, 1974 from corrosion by coatings or cathodic protection compatible with local soil conditions. The facility must regularly leak test such completely buried metallic storage tanks.

Not applicable. There are no completely buried metallic storage tanks on-site.

(c)(5) A facility must not use partially buried or bunkered metallic tanks for the storage of oil, unless the facility protects the buried section of the tank from corrosion by coating or cathodic protection compatible with local soil conditions.

Not applicable. There are no partially buried or bunkered metallic tanks located at the facility.

(c)(6) A facility must test each aboveground container for integrity on a regular schedule, and whenever the facility makes material repairs.

- *The frequency and type of testing must take into account container size and design (such as floating roof, skid-mounted, elevated, or partially buried).*
- *Visual inspection must be combined with another testing technique such as hydrostatic testing, radiographic testing, ultrasonic testing, acoustic emissions testing, or another system of non-destructive shell testing.*
- *The facility must keep comparison records and must also inspect the container's supports and foundations. In addition, personnel must frequently inspect the outside of the container for signs of deterioration, discharges, or accumulation of oil inside diked areas.*
- *Records of inspections and tests kept under usual and customary business practices will suffice for purposes of this paragraph.*

See Section 16.0 for a detailed discussion of inspections & testing performed on bulk storage containers, and associated documentation that is maintained.

(c)(7) A facility must control leakage through defective internal heating coils by monitoring the steam return and exhaust lines for contamination from internal heating coils that discharge into an open watercourse, or pass the steam return or exhaust lines through a settling tank, skimmer, or other separation or retention system.

Not applicable, there are no internal heating coils at the facility.

The facility does have oil coolers with cooling water circulated through tubes that are immersed in the oil. The cooling water discharges to the plant circulating water (cooling) system. The coolers protect costly equipment that is essential for operation, and as a result are closely monitored. Eddy current testing of tube wall thickness is performed during major overhauls (6-8 years) and more frequently if recommend by testing professionals. Tube bundles are replaced as necessary.

The cooling systems are typically operated with higher pressure on the water side so a tube leak would result in water entering the oil. Operators monitor the lube oil water extraction system and would note an increase in water, which might signal a tube leak. Circulating water discharges to the upper Hold Up Pond, which is visually checked for oil sheens several times each day by plant operators making rounds.

Company and industry experience, combined with periodic testing and the manner of equipment operation, indicate that an oil release to circulating water is highly unlikely.

(c)(8) A facility must engineer or update each container installation in accordance with good engineering practice to avoid discharges. Provide at least one of the following devices:

(i) High liquid level alarms with an audible or visual signal at a constantly attended operation or surveillance station. In smaller facilities an audible air vent may suffice.	Refer to Table 1, Appendix 3.
(ii) High liquid level pump cutoff devices set to stop flow at a predetermined container content level.	Refer to Table 1, Appendix 3.
(iii) Direct audible or code signal communication between the container gauger and the pumping station.	Refer to Table 1, Appendix 3.
(iv) A fast response system for determining the liquid level of each bulk storage container such as digital computers, telepulse, or direct vision gauges. If this alternative is used, a person must be preset to monitor gauges and the overall filling of bulk storage containers.	Key tanks are monitored and will alarm in the control room, see Table 1, Appendix 3.
(v) Regularly test liquid level sensing devices to ensure proper operation.	Refer to Table 1, Appendix 3.

(c)(9) A facility must observe effluent treatment facilities frequently enough to detect possible system upsets that could cause a discharge as described in section 112.1(b).

Not applicable, there are no effluent treatment facilities.

(c)(10) A facility must promptly correct visible discharges which result in a loss of oil from the container, including but not limited to seams, gaskets, piping, pumps, valves, rivets, and bolts. Promptly remove any accumulations of oil in diked areas.

Visible oil loss from containers, valves, piping, diked areas, etc. are reported and promptly corrected. Xcel Energy's Environmental Services Department is notified promptly of oil discharges > 1 gallon, oil sheens, etc.

(c)(11) A facility must position or locate mobile or portable oil storage containers to prevent a discharge as described in section 112.1(b). Furnish a secondary means of containment, such as a dike or catchment basin, sufficient to contain the capacity of the largest single compartment or container with sufficient freeboard to contain precipitation.

Mobile or portable oil storage containers at the site include tank 1664 and drums. Drums are stored indoors and have containment. Tank 1664 is double walled, and it is always located within the plant drainage system, which prevents release to surface water. The tanks common storage location is noted on the site drawing (Appendix 3).

25.0 Facility Transfer Operations, Pumping, and Facility Process [40 CFR 112.8(d)]

(d)(1) A facility must provide buried piping that is installed or replaced on or after August 16, 2002, with a protective wrapping and coating, and also cathodically protect such buried piping installations or otherwise satisfy the corrosion protection standards for piping in part 280 of 40 CFR of a State program approved under part 281 of 40 CFR. If a section of buried line is exposed for any reason, the facility must carefully inspect it for deterioration. If corrosion damage is found, the facility must undertake additional examination and corrective action as indicated by the magnitude of the damage.

Buried steel piping associated with tank 763 is corrosion protected with anodes, which are tested every 3-years.

(d)(2) A facility must cap or blank-flange the terminal connection at the transfer point and mark it as to origin when piping is not in service or is in standby service for an extended time.

Not applicable, all piping on-site is in service.

(d)(3) A facility must properly design pipe supports to minimize abrasion and corrosion and allow for expansion and contraction.

Not applicable.

(d)(4) A facility must regularly inspect all aboveground valves, piping, and appurtenances.

- *During the inspection, assess the general condition of items, such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces.*
- *A facility must also conduct integrity and leak testing of buried piping at the time of installation, modification, construction, relocation, or replacement.*

Above ground valves, piping, and appurtenances are included in the monthly storage tank inspection, which is documented on an inspection form (Appendix 1).

Cathodic protection on buried piping is tested in accordance with State rules every 3 years, to ensure that the piping is protected against corrosion. Although not required by regulation, the plant also performs periodic leak testing on the above and below ground fuel lines associated with tank 763.

(d)(5) A facility must warn all vehicles entering the facility to be sure that no vehicle will endanger aboveground piping or other oil transfer operations.

Not Applicable

Appendix 1 – Forms Referenced in Plan

ABOVEGROUND STORAGE TANK WEEKLY INSPECTION REPORT

NAME: N 'N S. KING GENERATING PLANT
ADDRESS: 11. - 3 PLANT ROAD
. STATE, ZIP: BAYPORT, MN. 55003
PHONE: (651) 731-5733
CONTACT: Mary Smith

April
2009

OWNER NA: NORTHERN STATES POWER COMPANY
OWNER ADL: 414 NICOLET MALL
CITY, STATE, ZIP: MINNEAPOLIS, MN. 55401
OWNER PHONE:
OWNER CONTACT: ERAD - REN SQUARE 8th FLOOR

REPORT SPILLS OVER 1 GAL TO ERAD

AST Tanks Regulated under Rule 7151 MPCA

PRODUCT	CAP.	LOCATION	INITIAL	DATE	INSPECTION RESULTS	Initial
EL OIL 1-2	30,000	OUTSIDE NORTH OF PLANT				
ill Berm Calculations: Top of Berm 60 x 60 Bottom of Berm 38 x 38 Depth of Berm 42"						
ilculated holding capacity: 51,626 gallons						
ASOLINE	1,000	West of Fly Ash Silo			Check Interstitial Area	
ill Containment Double Wall Style Containment					Check Interstitial Area	
					Check Interstitial Area	
					Check Interstitial Area	
					Check Interstitial Area	
ETZ DUSTREAT	1,500	OUTSIDE BY COAL TH-5				
ill Containment Size: 10' x 10' x 30"						
alculated holding capacity: 1,870 gallons						
ETZ POWERLINE	1,000	OUTSIDE BY TH-1				
ill Containment Size (shared with DC9108 tank @ TH-1) 8' x 16' x 36"						
alculated holding capacity: 2,872 gallons						
ETZ DUSTREAT	1,500	OUTSIDE BY TH-1				
pill Containment Size (shared with 9139 tank @ TH-1) 8' x 16' x 36"						
alculated holding capacity: 2,872 gallons						
ETZ DUSTREAT	1,500	OUTSIDE BY COAL DUMPER SO.				
pill Containment Size: 10' x 10' x 30"						
alculated holding capacity: 1,870 gallons						
UEL OIL 1-2	10,000	OUTSIDE SO. OF EQUIP BLDG				
pill Containment Size: 34' x 22' x 48"						
alculated holding capacity: 22,380 gallons						
Ammonia Tank weekly inspections		South of main warehouse				
ransformers located in SE corner of plant and NW corner of plant						
Check for used oil containers and leaks						

ABOVEGROUND STORAGE TANK MONTHLY INSPECTION REPORT

SITE NAME: NSP ALLEN S. KING GENERATING PLANT
SITE ADDRESS: 1103 KING PLANT ROAD
CITY, STATE, ZIP: BAYPORT, MN. 55003
SITE PHONE: (651) 731-5733
SITE CONTACT: Mary Smith

April
2009
AST ERAD Audit Recommendation

OWNER NAME: NORTHERN STATES POWER COMPANY
OWNER ADDRESS: 414 NICOLLET MALL
CITY, STATE, ZIP: MINNEAPOLIS, MN. 55401
OWNER PHONE: (612) 330-5972 OR 330-6210
OWNER CONTACT: ERAD - REN SQ. 8TH FLOOR

PRODUCT	CAP.	LOCATION	INITIAL	DATE	INSPECTION RESULTS	Initial
SODIUM HYDROXIDE (#5)	7,000	INSIDE PLANT 4.5 FLOOR				
SODIUM HYDROXIDE (day tank)	300	INSIDE PLANT DEMIN. AREA				
SULFURIC ACID (day tank)	300	INSIDE PLANT DEMIN AREA				
AMMONIA (29%) tote	330	INSIDE PLT 2ND FLR CHEM RM				
TURBINE OIL (in-process)	10,000	INSIDE PLANT BASEMENT				
LUBE OIL REST TANK (#10)	14,000	NW CORNER OF BASEMENT				
BFP OIL REST TANK (#994)	2,500	NW CORNER OF BASEMENT				
TURBINE OIL MAKEUP TANK (#995)	2,000	NW CORNER OF BASEMENT				
LUBE OIL ROOM	Varies	South Side of Basement				
Used oil drums, Haz Waste	55	Hazardous Waste Area				
Used oil drums, Stack	55	Bottom of stack				
Used oil drums, Coal Yard	55	Coal Yard Garage				
New oil, oil storage - Yard	55	Oil Room				
SOUTH DIESEL GEN. TANK (1665)	300	DIESEL GEN. ROOM EAST WALL				
NORTH DIESEL GEN. TANK (1666)	300	DIESEL GEN. ROOM EAST WALL				
SODIUM HYPOCHLORITE	750	INSIDE BLDG E. OF PLANT				
FUEL OIL 1-2 (1664)	265	Next to Yard 10,000 Gallon tank			**Checked Interstitial Area**	
CARBON DIOXIDE	2,360	OUTSIDE NE. NEXT TO PLANT				
FUEL OIL 1-2 (#763)	30,000	OUTSIDE NORTH OF PLANT				
GASOLINE (#991)	1,000	West of Fly Ash Silo			**Checked Interstitial Instrument**	
SULPHURIC ACID (2992 or 853.1)	3,600	INSIDE Dewatering Building				
Ammonia tanks (6 total)	57,000	South of Main Warehouse				
Liquid Nitrogen tank		near ammonia storage				
PROPANE	1,000	various places				
FUEL OIL 1-2 (#764)	10,000	OUTSIDE SO. OF EQUIP BLDG				
BETZ DUSTREAT (#12)	1,500	OUTSIDE BY COAL TH-5				
BETZ POWERLINE (#11)	1,000	OUTSIDE BY TH-1				
BETZ DUSTREAT (#13)	1,500	OUTSIDE BY TH-1				
BETZ DUSTREAT (#14)	1,500	OUTSIDE BY COAL DUMPER SO.				
Main plant transformer		South side of building				
aux transformers (5 total)		SE CORNER of site				
AQCS transformers (2 total)		NW CORNER of site				

Modified to reflect removal of all NRG equipment totally removed from site as of June, 2008

SIGNATURE: _____

Xcel Energy

Annual Tank, Piping, and Containment Inspection For Small Aboveground Storage Tanks

King Plant

Inspection Date: _____

Inspector: _____

	Acceptable Inspection Criteria	Tank Name		
Tank Containment	Containment structure in satisfactory condition.			
	Drainage pipes/valves in good condition and fit for continued service.			
Tank Foundations & Support	No evidence of tank settlement or washout.			
	No cracking or spalling of concrete pad or ring wall.			
	Tank supports in satisfactory condition.			
	Water able to drain away from tank.			
	Grounding strap secured and in good condition.			
Cathodic Protection	Cathodic protection system functional.			
	Rectifier reading:			
Tank External Coating	No evidence of significant paint failure. (If unsure, request evaluation by supervisor)			
Tank Shell	No noticeable shell/head distortions, buckling, denting or bulging.			
	No evidence of shell/head corrosion or cracking.			
Tank Appurtenances	Flanged connection bolts tight and fully engaged with no sign of wear or corrosion.			
Tank Roof	No standing water on roof.			
	No evidence of coating cracking, crazing (lots of small cracks), peeling, or blistering.			
	No holes in roof.			
	Vents free of obstructions.			
	Emergency vent operable. (Lift as required)			
Tank Insulation	No insulation missing.			
	No noticeable areas of moisture on the insulation.			
	No mold on insulation.			
	No signs of damage to the insulation or outer jacket.			
	The insulation sufficiently protected from water intrusion.			
Level & Overfill Protection	Tank liquid level sensing device been tested to ensure proper operation.			
	The tank liquid level sensing device operates as required.			
	Overfill prevention devices in proper working condition.			
Electrical	Tank grounding lines in good condition.			
	Electrical wiring for control boxes/lights in good condition?			
Other	Double wall tank - Interstitial space monitor working			
	Dispensing equipment in good working order			
	Labeling: no smoking (if fuel), contents, DOT if transported			

References: Environmental Services procedure ENV8.608, STI SP001 (current version)

Note discrepancies on reverse side.
Note items that need further investigation to determine appropriate corrective action(s) to take.

STORAGE TANK DRAIN LOG

RECORD DATE AND SIGN FOR APPROPRIATE TANK ENCLOSURE DRAIN

DO NOT DRAIN ENCLOSURE IF PRODUCT IS PRESENT

GAS TANK 1,000 GAL	FUEL OIL 10,000 GAL	DUST CHEM. T. H. 5	DUST CHEM. T.H. 1	DUST CHEM. DUMPER	FUEL OIL 30,000 GAL	AQC transformer A North of baghouse	AQC transformer B North of baghouse	Ammonia 6-57,000 GAL	LOCO.FILL GROUND TNK

IF PRODUCT IS PRESENT CALL STEVE FIEBIGER (752) OR MARY SMITH (733)

COMPLETED FORMS: ROUTE TO ENGINEERING

9 TRANSFORMER DRAIN LOG

RECORD DATE AND SIGN ENCLOSURE DRAIN

DO NOT DRAIN ENCLOSURE IF PRODUCT IS PRESENT

DATE SIGNATURE	DATE SIGNATURE	DATE SIGNATURE	DATE SIGNATURE	DATE SIGNATURE	DATE SIGNATURE	DATE SIGNATURE

IF PRODUCT IS PRESENT CALL JOHN IVERS (752) OR MIKE MISER (731)

COMPLETED FORMS: ROUTE TO ENGINEERING

RDNF01 H:/WINEXCEL/TEMPLTS/TNKDRN.XSL

Containment Area Calculations for Bulk Oil Storage Tanks

Tank 763 (30,000 gallons):

Dike specifications:

- Length = 50 feet
- Width = 50 feet
- Height = 4 feet

Tank Diameter = 14 feet

Base area of largest tank in containment area = $\pi(d/2)^2 = \pi(14/2)^2 = 153.9$ feet^2

Volume of largest tank in containment area = 30,000 gallons

Required volume of containment = 110% volume of largest tank in containment = 30,000 x 1.10 = 33,000 gallons

Surface area of dike = (length) x (width) = 50' x 50' = 2,500 square feet

Displacement due to largest tank = base area of largest tank = 153.9 feet^2

Available dike area = 2,500 feet^2 - 154 feet^2 = 2,346 feet^2

Available dike volume = 2,346 feet^2 x 4 feet = 9,384 feet^3 = 70,197 gallons

The available dike volume (70,197 gallons) is greater than 110% of the volume of the tank (33,000 gallons).

Tank 764 (10,000 gallons):

Dike specifications:

- Length = 34 feet
- Width = 22 feet
- Height = 4 feet

Tank Diameter = 9 feet

Base area of largest tank in containment area = $\pi(d/2)^2 = \pi(9/2)^2 = 63.6$ feet^2

Volume of largest tank in containment area = 10,000 gallons

Required volume of containment = 110% volume of largest tank in containment = 10,000 x 1.10 = 11,000 gallons

Surface area of dike = (length) x (width) = 34' x 22' = 748 square feet

Displacement due to largest tank = base area of largest tank = 63.6 feet^2

Available dike area = 748 feet^2 - 64 feet^2 = 684 feet^2

Available dike volume = 684 feet^2 x 4 feet = 2,736 feet^3 = 20,466 gallons

The available dike volume (20,466 gallons) is greater than 110% of the volume of the tank (11,000 gallons).

Appendix 2

Minnesota Spill Bill Requirements

115E.02 – Duty to prevent discharges:
The owner or operator of a facility transporting, storing, or otherwise handling hazardous substances or oil shall take reasonable steps to prevent the discharge of those materials in a place or manner that might cause pollution of the land, waters, or air of the state or that might threaten the public's safety or health.

This requirement is applicable for this facility.

115E.03 Subd. 1 - General preparedness
Is the facility prepared to rapidly recover discharged hazardous substances or oil to prevent pollution and protect the public? Describe general preparedness.

The facility is designed, constructed, maintained, and operated to minimize the possibility of any sudden or non-sudden release of oil or hazardous substances to the air, soil, or surface water which could threaten human health and/or the environment. The facility maintains a *Spill Prevention Control and Countermeasure Plan (SPCC Plan)* to prevent oil spills from occurring and an *Emergency Response Plan* to responds to any spills that may occur. Plant employees are trained periodically on accident prevention, spill recognition and effective emergency response actions to safeguard human health and the environment.

115E.03 Subd. 2 – Specific preparedness
If any of the following apply, the facility must comply with 115E.03 subdivisions 3 and 4, and 115E.04.

Owner/operator of transport vessel(s)	Not applicable to this facility.
Owner/operator of railroad car rolling stock greater than 100,000 gallons in any month	Not applicable to this facility.
Owner/operator of facility containing 1,000,000 gallons or more in tank storage at any time	Not applicable to this facility.
Owner/operator of facility where average monthly transfer rate exceeds 1,000,000 gallons	Not applicable to this facility.
Owner/operator of liquid pipeline facility which transfers more than 100,000 gallons in any month	Not applicable to this facility.

115E.03 Subd. 3 – Level of preparedness
If any of the criteria of 115E.03 Subd. 2 are applicable to this facility, the facility shall maintain a level of preparedness that ensures effective response to worst case discharge.

Not applicable for this facility.

115E.03 Subd. 4 – Demonstration of satisfactory preparedness
If any of the criteria of 115E.03 Subd.2 are applicable to this facility, the facility may demonstrate satisfactory preparedness through one or a combination of the following: 1) adequate response personnel and equipment; 2) adequate response personnel and equipment available through contractors; 3) adequate response personnel and equipment through response cooperative or community awareness and emergency response organization; or 4) adequate response personnel and equipment of local, state, or federal public sector response organizations.

Not applicable for this facility.

115E.03 Subd. 5 – Department of Transporation
The DOT may review evidence of financial responsibility for vessels.

Not applicable for this facility.

115E.04 Prevention and response plans
Facilities identified under 115E.03 Subd. 2 shall prepare and maintain a prevention and response plan for a worst case discharge.

Not applicable for this facility.

115E.045 Subd. 1 – Response plan for trucks
Owner or operator of trucks or cargo trailer rolling stock transporting average monthly aggregate total of more than 10,000 gallons of oil or hazardous substances as bulk cargo shall prepare a prevention and response plan.

Not applicable for this facility.

115E.045 Subd. 2a – Response plan for tank facilities
Owner or operator of tank facilities that store more than 10,000 gallons but less than 1,000,000 gallons of oil or hazardous substances in aboveground tanks shall prepare and maintain a prevention and response plan in accordance with this subdivision.

The facility maintains a *Spill Prevention Control and Countermeasure Plan (SPCC Plan)* to prevent oil spills from occurring and an *Emergency Response Plan* to responds to any spills that may occur. Both plans are located at the facility.

115E.045 Subd. 2a (1)
The name and business and nonbusiness telephone numbers of the individual having full authority to implement response action.

Name: Tom Smith, Plant Director	Business phone: 651-731-5703	Pager: 612-325-9908

115E.045 Subd. 2a (2)
The telephone number of the local emergency response organizations, if the organizations cannot be reached by calling 911.

The local emergency response organizations can be reached by dialing 9-911. For additional telephone numbers, refer to the Notification Call List located in Appendix 3 of the SPCC Plan.

115E.045 Subd. 2a (3)
Include a description of the facility, tank capacities, spill prevention and secondary containment measures at the facility, and the maximum potential discharge that could occur at the facility.

Facility description	See Section 1.0 in the facility SPCC Plan.
Tank capacities	See Table 1 of Appendix 3 in the SPCC
Spill prevention/secondary containment	See Table 1 of Appendix 3 in the SPCC
Maximum potential discharge	See Section 3.0 in the facility SPCC Plan.

115E.045 Subd. 2a (4)
The telephone number of the single answering point system for reporting emergency incidents and conditions involving hazardous substances or oil to agencies of the state.

The Minnesota State Duty Officer (24 hours)	651-649-5451 or 1-800-422-0798

115E.045 Subd. 2a (5)
Documentation that adequate personnel and equipment will be available to respond to a discharge, along with evidence that pre-arrangements for such response have been made.

The facility maintains a *Spill Prevention Control and Countermeasure Plan (SPCC Plan)* to prevent oil spills from occurring and an *Emergency Response Plan* to responds to any spills that may occur. Both plans are located at the facility. The facility has attempted to make the necessary arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of the materials stored at the facility, and associated hazards. The Company has agreements with spill response contractors to supplement plant and internal personnel as needed.

115E.045 Subd. 2a (6)
A description of the training employees at the facility receive in handling hazardous materials and in emergency response information.

Facility personnel receive annual Right-To-Know and spill response training. Oil handlers receive training as required by the SPCC Plan and attend annual discharge prevention briefings.

115E.045 Subd. 2a (7)
A description of the action that will be taken by the facility owner or operator in response to a discharge.

Plant staff are trained to recognize discharges and report such events to the Corporate Environmental Services Department. Actual spill response procedures are described in the facility's SPCC Plan and Emergency Response Plan.

115E.045 Subd. 2b
The response plan must be retained on file at the principal place of business.

Facility prevention and response plans *(i.e., the SPCC Plan and Emergency Resonse plan)* are maintained at the facility.

Appendix 3 – Emergency Procedures Plan & Attachments

Table 1 –Bulk Oil Storage Containers and Load/ Unload Areas

DWG #	Contents	Tank #	Capacity (gallons)	Location	Containment	Controls
J	Fuel Oil	763	30,000	North of power house	Clay lined containment, *50' x 50' x 4'* 74,805 gal.	Hi/Lo level alarm
K	Diesel Fuel	764	10,000	Coal yard scraper building	Concrete containment 34' x 22' x 4' 22,380 gal.	
H	Gasoline, unleaded	991	1,000	Northwest of power house	Double-walled tank	Sight glass, pop-up interst. monitor
E	Turbine Oil (Main)	996.1	10,000	In power house, below turbine, 2nd floor	Containment below, w/ overflow to turbine oil sump (15,800 gal.)	Level mon in control room
E	Turbine Oil (Aux feed pump)	992, 993	2 x 1,000			Sight glass
F	Lube Oil (BFP rest tank)	994	2,500	Power House basement oil room	Oil room floor & walls, drains to turbine oil sump (15,800 gal.)	Sight glass
F	Turbine Oil (Rest Tank)	10	14,000			Hi/Lo level alarm
F	Turbine Oil (Makeup tank)	995	2,000			Sight glass
	Diesel (portable)	1664	265	East of construction bldg	Double-walled tank	Sight glass
A	Diesel	1665, 1666	2 x 300	Emergency Generator Room #3	Concrete floor of building and collection basin	Hi/lo level alarm
B	Diesel	2940	320	Emergency Fire Pump room	Double-walled tank	
Drum & Tote Storage Areas						
	Lube & hydraulic oils	NA	40 x 55-gal. drums	Power House basement oil room	Oil room floor & walls	
	Lube & hydraulic oils – used	NA	2 totes, 4 drums	Yard garage	Concrete floor, drains go to collection tank	
	Lube & hydraulic oils – new	NA	20 x 55-gal. drums	Yard oil room	Oil room floor & walls	
	Lube & hydraulic oils new/used	NA	5 x 55 gal. (each)	AQCS Compress. Bldg ID Fan Bldg	Building drains go to oil water separator	
	Lube & hydraulic oils new/used	NA	4 x 55 gal. (each)	Locomotive shed	Concrete floor of building & dirt/ gravel outside	
	Lube & hydraulic oils new/used	NA	4 x 55 gal. (each)	Lime prep Bldg FD Fan Bldg	Drums on plastic spill containment pallets	
	Lube & hydraulic oils -used	NA	4 x 55-gal. drums	Stack, ground floor	Concrete floor	
	Lube & hydraulic oils -used	NA	1-tote, 4 drums	Basement under turbine oil tank	Turbine oil tank containment/ sump	
Load/ Unload & Fueling Areas						
	Tanker unloading area	763	NA	Tank 763	Curbed concrete area under hose connection.	
	Tanker unload/ vehicle fueling	764	NA	Tank 764 (diesel)	Gravel (clay lined coal storage area)	
	Locomotive fueling	NA	NA	West of locomotive shed	4 ft by 30 ft metal tray, drains to collection tank	
	Vehicle fueling	991	NA	Tank 991 (gasoline)	Gravel, runoff drain to oil-water separator	
	Loading dock	NA	Drums	SW corner power house	Drains to hold up pond	

Table 2–Oil-Filled Equipment

DWG #	Description	Volume (gal.)	Location	Containment Description	Containment Sizing
Oil-Filled Electric Equipment					
	#14 AQCS Transformer	8,000	North side AQCS building	Concrete containment with valved drains to oil water separator.	> 110%
	#15 AQCS Transformer	8,000			
	#1 GSU transformer	27,500	South of power house	Drain to transformer spill/ stormwater basin located south of construction building. No outlet.	> 110%
	#11 MSA transformer	3,371			
	#12 & 13 MSA transformer	2 x 3,100			
	#11 RSA transformer	4,170			
	#12 RSA transformer	2,910			
	#9 transformer	27,500	Substation	6 in. gravel throughout substation will collect & hold. Drains to upper holdup pond.	> 100%
	6 oil circuit breakers	3,435			
	Spare station auxiliary transformer	6,269			
	#101 & 102 transformer	empty	Barge unloader	Emptied 2008	NA
	Circ water reuse pump electric (Anderson)	~ 200 gal	South of power house at circ water outlet	None	None
Oil-Filled Equipment					
I	ID Fans	4 x 150	ID Fan building	Building drains go to oil water separator	> 100%
R	SDA atomizer	6 x 55	Scrubber building		
P	FD Fans	2 x 60	FD Fan Building	Building floor & walls	> 100%
M	Gas Fans	2 x 55	Power house basement	Boiler/ turbine sumps intercept & hold	> 100%
M	Boiler feed pumps	3 x 200			
N	Circ water pumps	2 x 55			
Q	EHC skid	400			
S	Slew boom	85	Coal yard	Building floor & walls	> 100%

Table 3 –Bulk Hazardous Chemical Storage Containers

DWG #	Contents	Tank ID	Volume (gallons)	Location	Containment
	Aqueous Ammonia 19%	3714 - 3720	6 x 54,000	SW corner site layout	Concrete > 110% largest tank
L	Aqueous Ammonia 30%	8	330	Tote tank inside plant – 2nd floor chemical room	Concrete floor, walls & curb.
	Dust suppressant	11	1,000	Coal yard	Concrete containment
	Dust suppressant	12 - 14	3 x 1,500		
	Ethylene glycol	NA	55/drum	Yard House	Stored in oil room
D	Carbon dioxide, liquefied	441	(10 tons)	NE corner of power house	NA
D	Hydrogen, liquefied (trailer)	NA	45000 ft^3		
D	Nitrogen, liquefied (trailer)	NA			
	Oxygen, liquified	NA	450 lbs	1st floor south	NA
	Propane	NA	4 x 1000	Various locations	NA
	Propane	NA	20	Various locations	NA
L	Sodium Hydroxide 50%	5	7,000	Power house demineralizer area. Small tanks 3rd flr, big caustic tank 4th flr.	Concrete containment around large tank, all drains to settling tank
L	Sodium Hydroxide 50%	6	300		
G	Sulfuric Acid 95%	854	300		
C	Sodium hypochlorite 12%	7.1	750	Bleach room, north of circ water inlet	Concrete berm
G	Sulfuric Acid 95%	853.1	3,600	In containment bldg – west of plant, north of stack	Concrete containment
	Compressed gases: argon, CO2, oxygen, nitrogen, hydrogen, air		cylinders	Assorted locations throughout facility	NA

Table 4– Spill & Emergency Supplies

SPILL RESPONSE & CLEANUP EQUIPMENT	
Item	**Location/ Comments**
Sorbent pad/ pillows/ granular,	Stockroom
Spill kits	Stack, turbine containment (basement)
Spill trailer	Coal yard, north of slag storage area
Sorbent booms	East Construction Building, Hold up pond shack
Empty Drums	Under the air heater
Rakes, shovels, pumps, etc…	West construction building
Front-end loader,	Coal yard
Boats	By river
SpillX A and SpillX C	2 –5 gallon pails, for corrosives spills
FIRE RESPONSE EQUIPMENT	
Portable Fire Extinguishers	Strategically located throughout site in numerous shop, office & equipment areas.
Light water carts	Turbine floor
CO2 System	Permanent installation – turbine bearings and relay room
Fire Hydrants	Throughout facility, see site diagram
FIRST AID SUPPLIES	
First Aid Kits	Throughout site
Chemical Showers	Throughout site
Eye Wash Stations	Throughout site
Combustible gas meters (explosimeter)	Control room

Allen S. King Plant Notification Call-List

Address: 5701 St. Croix Trail N., Oak Park Heights, MN 55003 Washington County

1. OUTSIDE RESPONDERS		
Ambulance Lakeview Emergency	9-911	651/439-2651
Fire (Bayport Fire Dept)	9-911	651/439-6992
Police Bayport Police Department	9-911	651/439-4723
Washington County Sheriff Dispatcher	9-911	651/439-9381
Hospital (Lakeview Memorial) Emergency Room	9-911	651/439-5330
NSP Gas Dispatch (Local Natural Gas Distribution Company)		800/895-2999
NSP Gas Control (Transmission Line Isolation)	651/229-2258	651/229-2257

2. XCEL ENERGY ENV INCIDENT RESPONSE COORD (EIRC)	
Normal Business Hours	612-330-5972
After Hours – Control Center, General Office, Mpls	800/393-3900, Extension #2
EIRC Pager	612-534-5007
EIRC Cell Phone	612-759-0302

3. PRIMARY PLANT CONTACTS (See p. 2 for other plant contacts and responsibilities)					
Name	**Title**	**Plant No.**	**Pager**	**Cell**	**Home**
Site Emergency No. (Control Room)		X 333	651-731-5717		
Tom Smith	Plant Director	X 5703	612-325-9908		
Brian Behm	Mgr Ops	X 5740		612-419-7062	
Tim Laplant	Mgr Maintenance	X5746		612-209-0398	
Scott Hiedeman	Mgr Eng & Tech	X5707		612-419-7046	
Mary Smith	Env Analyst	X5733		651-380-1632	651-388-9731
Joe Broberg	Engineer	X 5750	612-510-2375		763-416-3835
Ken Gerhardt	Safety Coord.	X 5710	612-530-9883	612-723-1571	612-724-3859

4. OTHER RESOURCES	Primary	Backup/ Pager
Xcel Energy Communications Department (Minneapolis)	612-215-5300	
Xcel Energy Human Resources Service Center	800-689-7662	
Xcel Energy Risk Management (Claims)	612-330-6883	612-330-5895
Xcel Energy Industrial Hygiene	612-330-6615	612-202-7438
Xcel Energy Security Operations Center (SOC)	612-330-7842	612-330-6900
Xcel Energy Special Construction – Laborer GF	612-749-9099	612-269-2758
Bay West, Inc. (Cleanup Contractor)	800-279-0456	651-291-0456
West Central Environmental (Cleanup Contractor)	952-980-3247	763-571-4944
Washington County Emergency Management (LEPC)	651/430-6725	
Public Works Water Treatment (Intakes)	651/439-6121	
Wastewater Treatment Plant (Sanitary system)	651/439-4123	

King Plant Environmental Incident Reporting Form

REPORTING CRITERIA

Xcel Energy Environmental Services: 612-330-5972 after hours 1-800-393-3900 ext 2

SPILLS/ RELEASES	***AIR QUALITY***	***WATER QUALITY***
Report w/in one hour if: • > 1 gallon turbine/ lube/ nonPCB mineral oil • Any amount of PCBs • Any amount of chemical/ other regulated substance • Any amount if spills is to drain or surface waters	• See King plant document	• See King plant doc • Fish/ wildlife kill • Permit exceedence • Mark, we have no MCES or waste water discharges.

GENERAL INFORMATION

Incident Type: (circle one) Spill Air Water

Start or Discovery	Date:	Time:	By Whom:
End Time (if applys)	Date:	Time:	By Whom:

NOTIFICATIONS (as applicable)

Organization	*Person Contacted*	*Date*	*Time*	*Caller*
911/Police/Fire				
Environmental Services				
Plant Management				
Other:				

DESCRIPTION AND CORRECTIVE ACTIONS

Substance Released/ Spilled and Quantity (Lb/ Gal.)	
Description of Incident, affected media/surface, water resource impacts. ***(storm water drains, river)***	
Description of Response/ Corrective Actions	

Attach drawings, photos and notes as necessary to document the incident and response

Bomb Threat Checklist

LOCATION THREAT MADE AGAINST

TELEPHONE NUMBER RECEIVED ON

TIME RECEIVED

DATE RECEIVED

LENGTH OF CALL

QUESTIONS TO ASK:

1. When is the bomb going to explode?
2. Where is it located (what building)?
3. What does it look like?
4. What kind of bomb is it?
5. What will cause it to explode?
6. Did you place the bomb?
7. Why?
8. What is your address?
9. What is your name?

Sex of the caller: _____ Age: _____ Race: _____

Name of Person receiving call

Report threat to:

Phone:

EXACT WORDING OF THE THREAT
(ask Person to Repeat Threat)

LLERS VOICE:

_____ Calm
_____ Angry
_____ Excited
_____ Slow
_____ Rapid
_____ Soft
_____ Loud
_____ Laughing
_____ Crying
_____ Normal
_____ Distinct
_____ Slurred
_____ Nasal
_____ Stutter
_____ Lisp
_____ Raspy
_____ Deep
_____ Ragged
_____ Clearing Throat
_____ Deep Breathing
_____ Cracking voices
_____ Disguised
_____ Accent
_____ Familiar

If voice is familiar, who did it sound like? _____

BACKGROUND SOUNDS:

_____ Street noises
_____ Crockery
_____ Voices
_____ PA System
_____ Music
_____ House Noises
_____ Motor
_____ Office Machinery
_____ Factory Machinery
_____ Animal noises
_____ Clear
_____ Static
_____ Local
_____ Long distance
_____ Phone Booth

other _____

THREAT LANGUAGE:

_____ Well Spoken Educated
_____ Foul
_____ Irrational
_____ Incoherent
_____ Taped
_____ Message Read by threat maker

REMARKS:

File #2010-0010

Xcel Energy®
RESPONSIBLE BY NATURE™

414 Nicollet Mall
Minneapolis, Minnesota 55401-1993

July 24, 2009

Sherri Nachtigal, P.E.
Minnesota Pollution Control Agency
18 Wood Lake Dr. S.E.
Rochester, MN 55904

Re: Construction Documentation Report: Cell 8 Construction Xcel Energy Wilmarth Landfill, MPCA Permit No. SW-298

Dear Ms Nachtigal:

As required by permit SW-298 Section 1.3.14 Construction Certification, Xcel Energy is hereby providing copies of the Construction Certification Report and Plan Drawings for the construction of Cell 8, which was performed during the months of May, June and July of 2009.

Sincerely,

Manuel Castillo
Sr. Environmental Analyst
612-330-6506

Enclosures

EXHIBIT G

cc:

Scott Fichtner	Blue Earth County	
Dave Kronlokken	Blue Earth County	
Dave Anderson	Wilmarth	
Al Braun	Wilmarth	w/o enclosures
Scott Thomas	MP7	w/o enclosures
Roger Clarke	MP7	w/o enclosures
Chuck Donkers	MP7	w/o enclosures
ES	Record Center	

see 4019SW.057

File Copy
Environmental
Services

File # 2010-0010

Construction Documentation Report

Wilmarth Ash Disposal Facility

Cell #8 Construction

MPCA Permit No. SW-298

July 2009

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Figures

As Built Drawings

1 Introduction

This report documents construction methods and quality control testing for the construction of Wilmarth's ADF Cell #8. Construction specifications, drawings and the Construction Quality Control Plan, prepared by Wenck Associates, Inc, governed the construction and field-testing documented in this report. Deviations from the specifications, drawings, or permit are noted on the enclosed record drawings and described in appropriate sections of this report. The construction was performed by Frattalone Construction Company, serving as the general contractor for all phases of the work. The project consisted of subgrade excavation, placement of structural fill, berm construction, installation of a three foot thick clay liner, the placement of a double liner system(a geonet drainage layer sandwiched between two geomembrane liners), placement of a geosynthetic clay liner (GCL), placement of leachate collection pipe, placement of granular drainage layer, and independent verification of the construction by a registered land surveyor.

Construction monitoring and documentation was performed by the Xcel Energy Construction Superintendant or an American Engineering and Testing (AET) technician throughout the project. This monitoring included recording work performed by the contractors and subcontractors, taking photographs, facilitating interpretation of specifications/drawings, coordinating material testing, approving phases of construction as necessary and preparing the certification report.

1.1 Project Schedule

Table 1 Project Milestones

Task	Start Date
Mobilization & Storm Water BMPs, Clearing Vegetation,	5/18/09
Structural Fill	
Density checks	5/26, 5/29, 6/1, 6/2
Survey #1	5/28
Clay Placement	
Density checks	6/1, 6/3, 6/4, 6/11, 6/15, 6/16, 6/19, 6/20, 6/22
Survey #2	6/26
HDPE & geonet Installation	
Secondary Liner	6/26
Geonet	6/30
Primary Liner	7/2
Leachate Collection Pipe Trench	
Secondary system	7/1
Primary System	7/8
GDL placement	
GDL placement	7/9
Survey #3	7/13

Task	Start Date
Surface water BMP South Culvert installed Turf Restoration	 7/16 7/20
Demobilization	7/20

1.2 Key Personnel

An Xcel Energy QA/QC inspector was on site throughout the construction project. Scott Thomas, the Project Engineer, was informed of all site developments and personally inspected the site during each phase of construction. Key project staff is identified in the table below.

Table 2 Key Project Staff

Company	Staff	Duties	Phone Number
Xcel Energy	Scott Thomas Chuck Donkers	Project Engineer Construction Superintendant & QA/QC Inspector	612-330-6083 612-330-6082
American Engineering and Testing (AET)	Carl Sorenson	QA/QC inspector / Soil testing	507-387-2222
Frattalone	David Nelson Brain Gaffney	Proj Mgr Construction Foreman	651-484-0448 651-484-0448
Wenck Associates, Inc.	Dave Parenteau	Design Engineer	763-479-4243
Industrial Environmental Concepts (IEC) (*Geomembrane installer*)	Mike Morgan Al Fisher	Project Manager Construction Foreman	952-829-0731 952-829-0731
Braun Intertech	Jim Strier	Geomembrane Testing	952-995-2304
Survey Services inc	Michael Eichers	Licensed Surveyor	507-345-1003
Soil Engineering & Testing	John Whelan	Permeability Testing	952-884-6833
Bolton-Menk	Katie Sterk	Independent inspector	507-625-4171

2 Construction Activities & Methods

This section describes components and construction methods employed during the construction of Cell #8. Construction activities involved are listed below:

1. Subgrade preparation
2. Clay liner placement
3. Geosynthetic & geonet installation
4. Construction of the leachate collection pipe trench
5. Granular drainage layer placement
6. Surface water controls & turf restoration

The certified area constructed is approximately one acre.

2.1 Subgrade Preparation

Frattalone Construction of St. Paul, Minnesota was the General Contractor and prepared the subgrade. Storm water BMP's were implemented prior to soil disturbance. A survey delineated the protected areas as identified on permit drawings and was subsequently roped off to prevent soil disturbance. Vegetation was cleared, topsoils stripped and stockpiled on site. Silt fence was established around surface water convergence points to filter runoff.

Subgrade preparation consisted of some minor excavation; however it was primarily a fill operation. Original construction plans did not reflect the jog in Cell #2B's southern edge; an additional 750 sq ft was added to this construction project. Approximately 6,100 cy of a lean clay, stockpiled on site, was utilized as fill material. Eight inch loose lifts were placed and compacted with a vibrating sheep's foot roller. Up to twenty feet of structural fill was placed in the western portion of the development area. Structural fill was compacted to 95% of the maximum dry density. Density test locations are illustrated in Appendix G.

A dozer, equipped with GPS, was used to cut excess fill to final grade. The existing liner for Cells #2B, #3 and #7 were exposed by hand shoveling. A licensed surveyor verified final grades.

2.2 Clay Liner Placement

A lean clay, stockpiled on site, was utilized for the compacted clay liner. The clay was deposited at the toe of the slope and immediately pushed upslope to spread it. Existing clay edges (Cell #2B, #3, & #7) were transitioned into the new cell by cutting one foot steps into the old clay. The clay was spread by dozers in approximately 8" loose or 6" compacted lifts. A sheep's foot vibrating compactor made several passes until the knobs on the sheep foot drum "walked out" of the clay. The clay surface was maintained in a rough condition, by the sheep foot tracks, to promote bonding between lifts. Successive lifts were constructed in the same manor to achieve a final thickness of three feet. Upon achieving final clay thicknesses, a self-propelled smooth drum roller

was used to seal the final clay lift. A GPS equipped dozer cut the clay to final elevations. A licensed surveyor verified final grades.

All clay was delivered and placed at 0 - 5% wet of optimum moisture and free of clods greater than 2" diameter. Conditioning of the clay was performed to maintain its optimum moisture by wetting the clay and working it with a dozer and sheep's foot compactor. Clay was compacted to at least 95% of the Standard Proctor Maximum Dry Density (ASTM D698); test locations are illustrated in Appendix G.

2.3 Primary & Secondary HDPE Liner and Geonet Installation

Industrial & Environmental Concepts (IEC) performed synthetic liner installation as a subcontractor to Frattalone Construction. Prior to installing the liner, IEC, and Xcel Energy inspected the subgrade for suitability and certified it was acceptable for HDPE liner installation (Appendix E). The underlying clay was inspected for smoothness, absence of rocks, and cracking of the compacted clay.

Seven rolls of textured 60-mil High-Density Polyethylene (HDPE) liner material, each roll being twenty-two foot wide and produced by Solmax of Canada and two rolls of similar HDPE liner material produced by Gundle SLT Environmental, Inc. (GSE) were delivered by IEC for the Primary and Secondary liner systems. All materials delivered and used passed production quality control specifications.

The Secondary Liner system, constructed with 60-mil textured HDPE, was installed over the entirety of Cell #8. Panels were seamed in a direction parallel to the slope. Split-wedge (fusion) welding was the primary method to join membrane panels. Extrusion welding was used for patches and the tie-in to existing panels from adjacent cells (northern and eastern edges). Panel splices were cut and welded along a 45-degree orientation. No butt joints were made, nor were any adjacent panels spliced at the same location on the side slope. Panel orientation and repairs are shown in Appendix G.

A geonet (a drainage net sandwiched between layers of geotextile) was placed directly over the Secondary Liner system. Fifteen rolls of geonet (GSE Fabrinet), each 14 ½ ft wide, was placed parallel to the slope. The geonet was overlapped and connected with tie-wraps every two (2 ft) to five (5 ft) feet. The geonet geotextile was also overlapped and lystered to prevent panels from shifting when installing the Primary Liner. Panel orientation of the geonet is shown in Appendix G.

The Primary Liner system, constructed with 60-mil textured HDPE, was installed over the entirety of Cell #8. Panels were seamed in a direction parallel to the slope. Split-wedge (fusion) welding was the primary method to join membrane panels. Extrusion welding was used for patches and the tie-in to existing panels from adjacent cells (northern and eastern edges). Panel splices were cut and welded along a 45-degree orientation. No butt joints were made, nor were any adjacent panels spliced at the same location on the side slope. Primary and Secondary liner edges (south & west)

were fused together using a wedge welder to prevent water from wicking into the drainage system. Panel orientation and repairs are shown in Appendix G.

All Panels were anchored at the southern edge of the cell in a four foot deep anchor trench which was later backfilled with soils to prevent the panel from slipping. Anchor trench back fill was placed at 95% of the Standard Proctor Maximum Dry Density (ASTM D-698). An earth berm to control run-off was constructed along the western edge of Cell #8. Berm soils were compacted to 95% of the Standard Proctor Maximum Dry Density (ASTM D-698). The east side of the berm was covered with a temporary 60 mil HDPE flap, which was extrusion welded along a line parallel to and approximately 10 feet from the edge of the certified liner. All HDPE liner edges (south & west) were covered with plywood sheeting and buried under a temporary run-off / run-on control berm.

The liner system tie-in to adjacent cells provides un-interrupted flow for both the Primary and Secondary Drainage Layer with the exception to the tie in to Cell #2B. Because Cell #2B was constructed with the Secondary Liner and Drainage Layer under the clay layer, the transition from the Cell #8 to Cell #2B necessitated water collected by Cell #8's secondary liner/geonet system be diverted to Cell 3 secondary/geonet system. A detail for this transition is provided in Sheet 8 of the construction drawings.

2.4 Leachate Collection Pipe Trench

The Secondary Leachate Collection pipe trench is comprised of a perforated 6" diameter HDPE leachate collection pipe bedded in crushed rock, wrapped in two layers of geotextile and overlain with a Geosynthetic Clay Liner (GCL). A small, two wheel drive, landscape style all terrain vehicle (ATV) equipped with low pressure balloon tires was used to haul and place the rock. An additional layer of geotextile was placed in areas the ATV would drive, to prevent damage to the underlying geonet. The crushed rock is separated from the HDPE liner by a minimum of two layers of geotextile. This design provides a minimum of 290 pounds puncture resistance.

The GCL, for this project was manufactured by Bentofix Technologies located in Spearfish, South Dakota. The GCL arrived in rolls dimensioned 14.5 ft x 150 ft. The material was protected from weather damage with poly tarps and they were removed when the GCL was deployed. Visual inspection of the GCL confirmed rolls delivered were consistent with certifications and was undamaged.

The Primary Leachate Collection pipe trench is comprised of a second perforated 6" diameter HDPE pipe, bedded in crushed rock, and wrapped in two layers of geotextile. The crushed rock is separated from the HDPE liner by a minimum of two layers of geotextile. This design provides a minimum of 290 pounds puncture resistance.

The Primary Leachate Collection pipe was booted through the liner flap placed on the earth berm located on the west edge of the cell. The Leachate Collection pipe was non-perforated from the boot to the end of extension and the pipe was capped. The

Secondary Collection pipe was encapsulated between the Primary and Secondary Liners by welding the two liners along the entire west edge of the cell.

Cell #3's leachate pipe will need to be extended through Cell #8 to provide a cleanout location to the south. Extending the Cell #3 leachate pipe will be completed once sufficient ash has been placed in Cell #8 to maintain positive flow to the north and to support the pipe. This work is anticipated to be completed this fall. Documentation of this work will be provided as an addendum to this report.

2.5 Granular Drainage Layer (GDL)

Clean, poorly graded sand was utilized for the Granular Drainage Layer (GDL). Sand was placed in a thick layer ("push road") in the base of the cell parallel to the collection trench, and then spread up the side slope. The GPS equipped dozer maintained a three foot thickness along the "push road" and a minimum thickness of one foot while pushing up-slope. Xcel Energy's QA/QC inspector observed all aspects of GDL placement.

The GDL for existing Cells #2B, #3 and #7 was exposed by hand shoveling to ensure GDL connectivity between the new and existing cells.

2.6 Surface water management & Turf Establishment

Surface water drainage along the Southern border is diverted to the east and west edges of the facility. A 12" culvert was installed south of Cell #7 to facilitate surface water flows to the east. Plan sheet 6 (Appendix G) illustrates the culverts location.

On-site topsoil, originally cleared for construction purposes, was placed on berms and disturbed areas. Areas were disked, seeded with a mixture of grass seed, and straw mulch applied.

Six inch diameter posts were established to mark the edge of the certified liner. Posts were placed at an approximate interval of 100 feet, or when there was a significant change in the edge direction.

3 Construction Quality Assurance and Testing

To ensure that the construction was performed as permitted, an independent testing company tested materials used in the construction. Xcel Energy personnel were on-site, full time, directing the testing and observing construction practices. The result of the CQA testing and observations are presented below for the one acre to be certified.

3.1 Subgrade Testing

A lean clay, stockpiled on site, was used for structural fill. Soil classification, grain size analysis and Proctor density tests were preformed on each type of fill material utilized. Filled areas were tested for in place density and moisture content using a nuclear density probe. Approximately 6,130 cubic yards of fill was placed. Testing frequency, and results are summarized in the table below. Appendix G illustrates test locations, Tables 3 & 4 and Appendix B present sub-grade field and laboratory test results.

Native barrow soils were classified as a lean clay with the maximum dry density sufficiently high enough (103-112 pcf) to meet the placement requirements for structural fill.

Table 3 Sub-Grade Testing Summary

Test	Require freq	Actual	Required Test Result	Actual Test Result
Dry Density	1/ac (1)	14	95%	all > 95%
USCS Classification	1/ac (1)	3	CL, GM, SM, SC	CL
Std Proctor	1 minimum	3	na	na

3.2 Clay Testing

In place clay density and moisture content was checked by nuclear density on a 100 x100 ft. grid for each 6 inch compacted lift. An AET technician was on site to perform nuclear density/moisture content tests throughout the clay placement period. All clay was placed at 0 to 5% wet of Standard Proctor Optimum Moisture Content. Three thin wall tubes (TWT) were collected at field density test locations and analyzed for permeability, grain size and Atterberg limits. Testing frequency and results are summarized in Table 5 and Appendix B. Appendix G illustrates test locations.

Two exceptions were noted regarding clay testing.

- One TWT sample reported 7% gravel, as retained on a #4 sieve. This exception is insignificant considering performance testing reported permabilities almost one order of magnitude lower than required.
- One field density check reported 94.9% of maximum density. This test was made 24 hours after clay placement after the clay had dried slightly; had the clay been at optimum moisture it would have exceeded the 95% criteria.

Wilmarth Ash Cell 8
Pondorosa Landfill
Mankato, MN

Moisture-Density Test Results

Test	Date	Test Location	Phase	Elevation (ft)	Dry Density (pcf)	Moisture %	Proctor No.	Optimum Dry Density	Optimum Moisture	% Compaction	Minimum Spec. Compaction	Special Notes
8	June 1, 2009	N. 736319, E. 2599234	Clay	831.5 4th lift	109.2	19.4	2	110.9	16.9	98.5	95	1st shelby Tube pushed here
10	June 1, 2009	N. 736272, E. 2599195	Clay	838 2nd lift	101.5	23.8	1	104.2	19.5	97.4	95	
17	June 3, 2009	N.736328, E.2599116	Clay	832.5 1st lift	102	20.8	1	104.2	19.5	97.8	95	1.5 feet fo clay placed here. 6" test depth
18	June 3, 2009	N.736176, E.2599259	Clay	869 2nd lift	101.5	22.3	1	104.2	195	95	95	8 " Test depth in 2nd lift of clay.
19	June 4, 2009	N.736251, E.2599256	Clay	844 2nd lift	102.7	19.8	1	104.2	195	95	95	8 " Test depth in 2nd lift of clay.
20	June 4, 2009	N. 736237.4, E. 2599177.2	Clay	848 2nd lift	105.4	22	1	104.2	19.5	95	95	2nd Shelby tube taken here.
21	June 12, 2009	N.736243.5, E.2599149	Clay	845.5 1st lift	104.3	20.5	5	103.7	20.5	100	95	
22	June 12, 2009	N.736248, E. 2599123	Clay	845 3rd lift	106.4	21.3	10	105.9	21.1	100.5	95	
23	June 12, 2009	N.736223, E. 2599237	Clay	853.5 3rd lift	100.9	23.6	5	103.7	20.5	97.3	95	
24	June 15, 2009	N.736209, E. 2599153	Clay	858.5 4th lift	101.6	22.6	5	103.7	20.5	98.0	95	
25	June 15, 2009	N.736185, E. 2599186	Clay	867.5 5th lift	106.4	20.4	2	110.9	16.9	95.9	95	
26	June 16, 2009	N. 736208.8, E. 2599135.4	Clay	859.5 6th lift	98.4	23.4	5	103.7	20.5	94.9	95	24 hr after clay placed, surface has dried
27	June 16, 2009	N. 736208.8, E. 2599123.4	Clay	859.5 6th lift	107.5	21.5	2	110.9	16.9	96.9	95	3rd shelby tube pushed here
28	June 19, 2009	N. 736191, E. 2599213	Clay	866 6th lift	105.1	20.6	2	110.9	16.9	95.0	95	
29	June 19, 2009	N. 736221, E. 2599115	Clay	855 6th lift	107.2	21	2	110.9	16.9	96.7	95	
30	June 19, 2009	N. 736323, E. 2599122	Clay	834 5th lift	105.5	21	2	110.9	16.9	95.1	95	
31	June 19, 2009	N. 736325, E. 25992219	Clay	833.5 5th lift	105.8	21	2	110.9	16.9	95.4	95	
32	June 20, 2009	N. 736307, E. 2599111	Clay	834 6th lift	106.9	21.7	2	110.9	16.9	96.4	95	
33	June 22, 2009	N. 736308, E. 2599183	Clay	832 6th lift	110.6	17	2	110.9	16.9	99.7	95	
34	June 22, 2009	N. 736261, E. 2599123	Clay	842 6th lift	109.3	19.1	2	110.9	16.9	98.6	95	
35	June 22, 2009	N. 736185, E. 2599166	Clay	867.5 6th lift	109.6	17.5	2	110.9	16.9	98.8	95	
	June 1, 2009	50' S & 50' W of NE corner	Clay Moisture Test			19.5	2		16.9			Moisture test for contractor, backscatter mode on smooth drummed clay surface w/ about 2' clay
	June 1, 2009	50' S & 50' W of NE corner	Clay Moisture Test			21.5	1		19.5			Moisture test for contractor, backscatter mode on smooth drummed clay surface w/ about1.5' clay

Moisture-Density Test Results

Test	Date	Test Location	Phase	Elevation (ft)	Dry Density (pcf)	Moisture %	Proctor No.	Optimum Dry Density	Optimum Moisture	% Compaction	Minimum Spec. Compaction	Special Notes
1	May 26, 2009	N. 736255 E. 2599210.0	Fill	833.5	112.1	14.1	3	112.2	16.3	99.9	95	
2	May 26, 2009	N. 736187 E. 2599220.5	Fill	843.5	110.4	15.5	3	112.2	16.3	98.4	95	Dry because not taken immediately after compaction. No moisture spec.
4	May 29, 2009	N. 736180.8, E. 2599119	Fill	859.8	100.4	19.4	6	103.6	19.9	96.9	95	
5	May 29, 2009	N. 736215.9, E. 2599106	Fill	846.5	113.4	14.9	3	112.2	109.5	98.9	95	Dry because not taken immediately after compaction. No moisture spec.
6	May 29, 2009	N. 735181.5, E. 2599089.5	Fill	855	103.6	17.1	6	103.6	19.9	95.7	95	
7	June 1, 2009	N. 736214, E. 2599234	Fill	851	98.8	22.5	6	103.6	19.9	95.4	95	
9	June 1, 2009	N. 736201.5, E. 2599203	Fill	865	104.4	21.5	4	108.3	17.1	96.4	95	
11	June 1, 2009	N. 736209, E.2599138	Fill	846	98.5	18.3	6	103.6	19.9	95.0	95	
12	June 1, 2009	N. 736209, E.2599118	Fill	846	98.5	22.5	6	103.6	19.9	95.0	95	
13	June 2, 2009	N. 736221, E.2599242	Fill	852	110.9	12.5	3	112.2	16.3	98.8	95	This test was taken a day after area was smooth rolled. This resulted in a lower moisture because the top layer had dried.
14	June 2, 2009	N.736175 E. 2599163	Fill	869	98.5	23.2	6	103.6	19.9	95	95	
15	June 2, 2009	N. 736257, E.736257	Fill	837.5	112.1	16.7	3	112.2	16.3	100	95	Trucks going over this area. Very hard.
16	June 2, 2009	N. 736337, E. 2599120	Fill	833	111.6	14	7	110.5	16.4	99	95	Dry because not taken immediately after compaction. No moisture spec.
3	May 28, 2009	N. 736311 E. 2599219 @ top of subgrade	Subgrade in Trench	832.5	114.6	15.9	7	110.5	16.4	97.9	95	in trench smooth drummed at top of subgrade
39	July 8, 2009	160' W. of cell & tie-in	Temporary Berm	834	101.7	17	6	103.6	20	98	95	
40	July 13, 2009	160' W. of cell & tie-in	Temporary Berm	840	109.6	13.8	2	110.9	16.9	99	95	
36	July 8, 2009	25' W. of cell 7 tie-in	Anchor Trench	873 1st lift	103.3	19.3	6	103.6	20	100	95	
37	July 8, 2009	50' E of Western edge of liner	Anchor Trench	874.5 2st lift	101.6	16.2	6	103.6	20	98.0	95	
38	July 8, 2009	160' W. of cell & tie-in	Anchor Trench	876 3st lift	100.9	14.9	6	103.6	20	97.5	95	

No rocks or soil clods greater than two (2) inches diameter, and no roots were observed in the clay. Cool, overcast weather minimized desiccation of the clay after placement. When the clay surface was noted as dry, it was wetted and reworked with a dozer prior to adding additional clay.

Table 5 Clay Testing Summary

Test	Require freq	Actual	Required Test Result	Actual Test Result
Dry Density / Moisture	5 /ac/lift (15)	21	95% of proctor 0-5% moisture	20 > 95% 1 @ 94.9%
Std Proctor	1/ac /ft (3)	4	na	na
Atterberg	1/ac/ft (3)	3	LL>25% PI =/>10	LL = 35.4 - 38.0 PI = 16.2-19.3
Grain size	1/ac/ft (3)	3	>50% P200 max 5% gravel Clay >25%	52% - 60.1% 4%-7% 25%-29%
USCS classification	1 /ac/ft (3)	3	SC, CL, CH	CL
Permeability ASTM D5084 (falling head)	1/ac/ft (3)	3	$1x10^{-7}$ cm/sec or less	$1.1x10^{-8}$ cm/sec to $1.9x10^{-8}$ cm/sec

3.3 Geomembrane Testing

Documentation describing the physical and performance characteristics of the liner was received from the manufacturer for each roll of GCL, geonet and HDPE liner used on the project, (Appendix E1). Each roll was numbered and the documentation for each roll was reviewed to ensure that the roll characteristics met or exceed the specified project requirements. The resin used to make the HDPE liner and welding rod were also tested, and those results were reviewed to determine that the minimum requirements were met.

Xcel Energy personnel provided review of the quality control information submitted by the manufacturer prior to installer mobilization. The manufacturer quality assurance tests were in accordance with the project specifications and quality assurance manual with the exceptions of the geonet textile component. Not all rolls met project specifications for textile fabric weight, Mullen burst strength, puncture resistance and apparent opening size (AOS). The Design Engineer was notified of these exceptions and he determined that the geonet would function properly in this setting. The MPCA was notified of the change and approved the recommendation of the Design Engineer. The Technical Specifications for cell construction will be revised for future projects.

Xcel Energy personnel were responsible for observing and reviewing the contractor's daily work report consisting of:

- Subgrade acceptance
- Panel placement

- Trial welds
- Seams
- Repair log
- Destructive Tests

All quality control information collected by the QA/QC inspector is summarized in Appendix E. The data in these appendices were reviewed and found to be in compliance with the project specifications.

A total of 4,092 linear feet of seams were welded, eight destructive tests were taken of the installed geomembrane. This equates to a rate of one destructive test sample for every 511 lineal feet of seam. Each sample was split into thirds; 1/3 was tested on site, 1/3 was tested by an independent lab (Braun Intertec) and 1/3 has been archived. All shear and peel test results performed by the installer and subsequently by our independent testing laboratory surpassed project minimum criteria.

Table 6 Geomembrane Testing Summary

Test	Require freq	Method	Pass / Fail Criteria	Actual Test Result
GCL material Properties	Every Roll	GRI GCL3	Meets or does Not Meet	All rolls met
HDPE Material Properties	Every Roll	GRI GM 13	Meets or does Not Meet	All rolls met
Geonet Drainage Net Geotextile Composite	Every Roll	Tech Spec Sec. 02924	Meets or does Not Meet	 All rolls met See note All Rolls met
Visual Inspection	All Panels placed	Sec 5.4.1 in Tech Spec	Damage or Not	No Damage noted
HPDE Non-destructive Seam Testing	All seams & Patches	Sec 5.4.1 in Tech Spec	2 PSI drop in 5 min / bubble in vacuum box	All Passed
HPDE Destructive Test	1/500 linear ft	ASTM D6392	Shear > 120lb/in Peel > 78 lb/in	All passed All Passed (On site & Braun)
HPDE Trial Welds	Start of Seaming process, 4 hr min, each tool, each technician	Section 5.4.3 in Tech Spec	Shear > 120lb/in Peel > 78 lb/in	All passed

Note: Project Design Engineer approved exceptions to Fabric weight, Mullen Burst strength, AOS, & Puncture resistance test results.

3.4 Leachate Collection Pipe Trench

The leachate pipe met project specifications and was installed in accordance with design plans. The primary pipe was set with a positive drainage slope of 2.12% while the secondary had a positive slope of 1.71%.

Technical specifications required crushed rock to be separated from HDPE using a geotextile with a minimum of 240 lbs puncture resistance. Both the primary and secondary collection systems utilized crushed rock. The crushed rock was separated from HDPE liner by a minimum of two layers of geotextile. This cumulative puncture resistance of this design provided a minimum of 290 pounds.

Table 7 Coarse Aggregate Testing Summary

Test	Require freq	Actual	Required Test Result	Actual Test Result
Grain size	-	1	100% passing 1 ½ sieve < 5% passing #4 sieve Uniformity Coef <4	100% 0.3 % 1.7
Calcium Carbonate	1	1	<10%	Passed

As specified in the plans, a berm was constructed along the west edge of Cell #8. After a consultation with the Project Engineer, the maximum height of the berm was lowered by four feet to an elevation of 842 ft. MSL. The resultant berm provides 7 feet of free board for storm water storage.

3.5 Granular Drainage Layer

The Xcel Energy QA/QC inspector observed the placement of the GDL focusing on wrinkles in the liner and the potential for liner damage due to the dozer cleats or blade. If damage was suspected, the area would be cleared of sand using a square tipped shovel and the liner inspected. No damage was noted from these inspections.

Sieve analysis and permeability tests were performed on sand used for the drainage layer. Samples were collected at various times during the placement process, thus providing an even spatial representation. GDL test results are summarized in Table 8 and compete results are presented in Appendix B. The GDL placed met project specifications.

Table 8 Granular Drainage Layer Testing Summary

Test	Require freq	Actual	Required Test Result	Actual Test Result
Grain size	1/1000 cy (2)	3	100% < 3/8" < 5% passing #200 Uniformity Coef <6	100% 100% 100% 1% 0.6%, 1% 5.7 5.7 5.8
USCS Classification	1/1000 cy (2)	3	-	SP
Permeability	1/ac (1)	2	> $1x10^{-3}$ cm/sec	$2.03x10^{-2}$ cm/sec $1.7x10^{-2}$ cm/sec

3.6 Surveying

An independent registered land surveyor, Survey Services Inc of Mankato, Minnesota, was retained by Frattalone to provide an independent registered survey to verify the finished subgrade, compacted clay thickness, and GDL thickness. Elevations were taken on a pre-defined 50' x 50' survey grid established within the certified boundary. Grading requirements and survey results are summarized in Table 9, and the complete survey results are included in Appendix G. Grading requirements were met for the sub-grade, compacted clay thickness, GDL thickness and leachate pipe.

One exception is noted regarding survey frequency; the secondary leachate pipe was surveyed at three points rather than four. However, as noted in section 3.4, the pipe has positive drainage and which exceeds the minimum specified drainage slope.

Table 9 Survey Results

Soil Layer / Surface	Measurement	Frequency	Pass Fail Criteria	Actual results
Top of subgrade	Elevation	100 ' grid	-0.2' to 0.0'	Pass
Top of Clay	Thickness	100 ' grid	1.0' to +1.2'	Pass
Top of GDL	Thickness	100 ' grid	1.0' to +1.2'	Pass
Leachate Pipe	Elevation	50' (4 pts)	+/- 0.2'	Secondary pipe surveyed at 3 pts Primary pipe surveyed at 6 pts.

4 Conclusions and Certification

4.1 Summary of Modifications to the Approved Design

The construction was completed in substantial conformance with the approved plans and specifications. The following items were modified as a result of the conditions found in the field or as a result of changes for constructability. None of the changes made during the construction materially impact the performance of the facility. The changes to the facility are summarized below:

- An additional 750 sq ft was added to the project to account for the jog in Cell 2B southern edge.
- The maximum height of the temporary berm was lowered from 11 feet of free board to 7 feet.
- Differences in liner design between Cell #2B and Cell #8 necessitated the diversion of flow in the secondary/geonet liner from Cell 8 to Cell 3.
- Repairs to Cell #7 primary liner were included in this project.
- Exceptions to material specifications were modified for the Geonet geotextile based on recommendations by the Design Engineer. The geonet material used will function as designed.
- The extension of the Cell #3 Leachate Collection pipe will be completed later this fall. Documentation of this work will be provided as an addendum to this report.

4.2 Project Certification

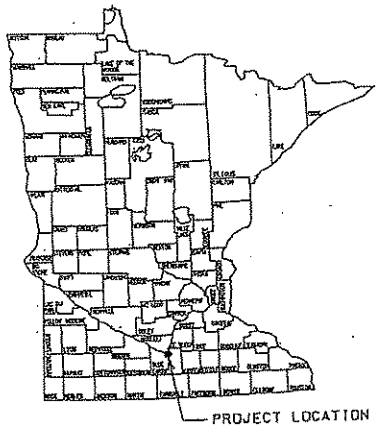
Based on the observation of personnel located at the site, personal on-site observation made thoughout the course of the construction and the review of all field and laboratory testing performed for the project, it is my opinion as a registered Professional Engineer in the State of Minnesota that the construction of Cell #8 Liner for the Wilmarth Ash Disposal Facility has been constructed in accordance with the approved plans, specifications, and QA/QC manual.

July 23, 2009
Date

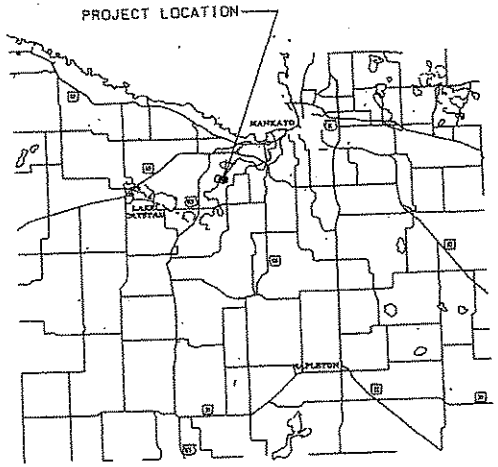
Charles Scott Thomas, P.E.
Project Engineer
Minnesota P.E. Registration No. 18185

CELL 8 CONSTRUCTION RECORD DRAWINGS
WILMARTH ASH DISPOSAL FACILITY
NORTHERN STATES POWER COMPANY - MN
AN XCEL ENERGY COMPANY

MPCA PERMIT NUMBER SW-298
SECTION 32, R27 W, T108 N, MANKATO
BLUE EARTH COUNTY, MINNESOTA



MINNESOTA
STATE MAP



BLUE EARTH
COUNTY MAP

INDEX

CHARLES S. THOMAS
7/23/09

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1800 Pioneer Creek Center
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(763) 479-4200
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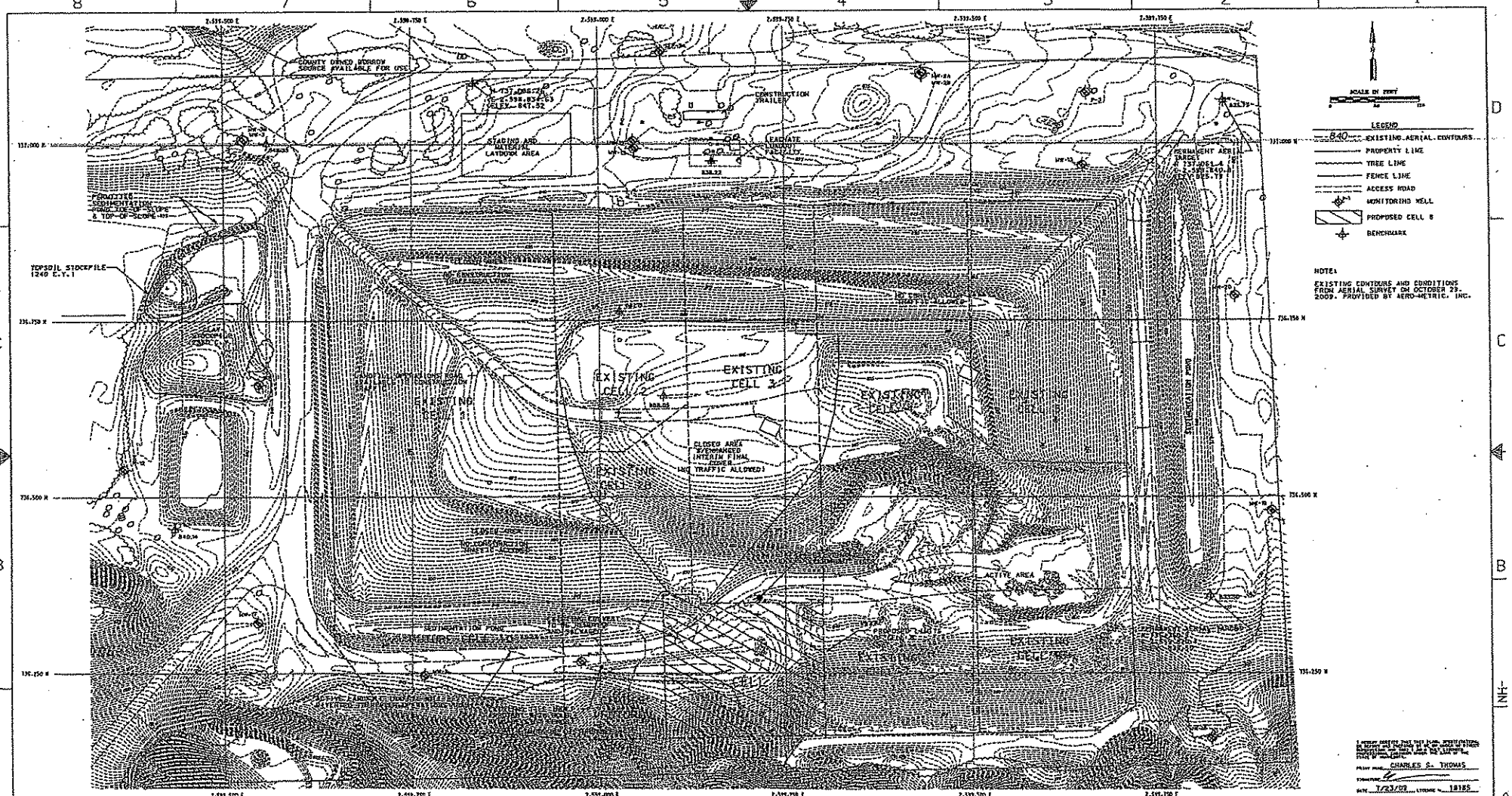
REVISIONS					
REV	DATE	DESCRIPTION	BY	CHK	APP
0	1/15/09	ISSUED FOR CLIENT REVIEW	DHP	JVT	PTE
1	2/2/09	ISSUED FOR BID	CAD	DHP	CST
2	7/23/09	RECORD DRAWINGS			

DWN JVT 07/12/09
CHKD JVT CHKD DHP
PROJECT NO.
DATE & INITIAL

PROJECT: WILMARTH ASH DISPOSAL FACILITY
TITLE: CELL 8 RECORD DRAWINGS
INDEX SHEET AND LOCATION MAP

FILE: NORTHERN STATES POWER COMPANY - MN
AN XCEL ENERGY COMPANY
TECHNICAL SERVICES - STANDARDS

DWG FILE: 09CAREC01 REV 2
DRAWING NO. NH-
SHEET 1 1



Wenck
Wenck Associates, Inc.
Environmental Engineers
1800 Pioneer Creek Center
Maple Plain, MN 55359
(763) 479-4200
Fax (763) 479-4242

REVISIONS					
NO.	DATE	DESCRIPTION	BY	APP'D	APP'D
0	1/15/09	ISSUED FOR CLIENT REVIEW	DHP	JVT	PTE
1	2/02/09	ISSUED FOR BID	DHP	JVT	PTE
2	7/23/09	RECORD DRAWINGS	CND	DHP	CST

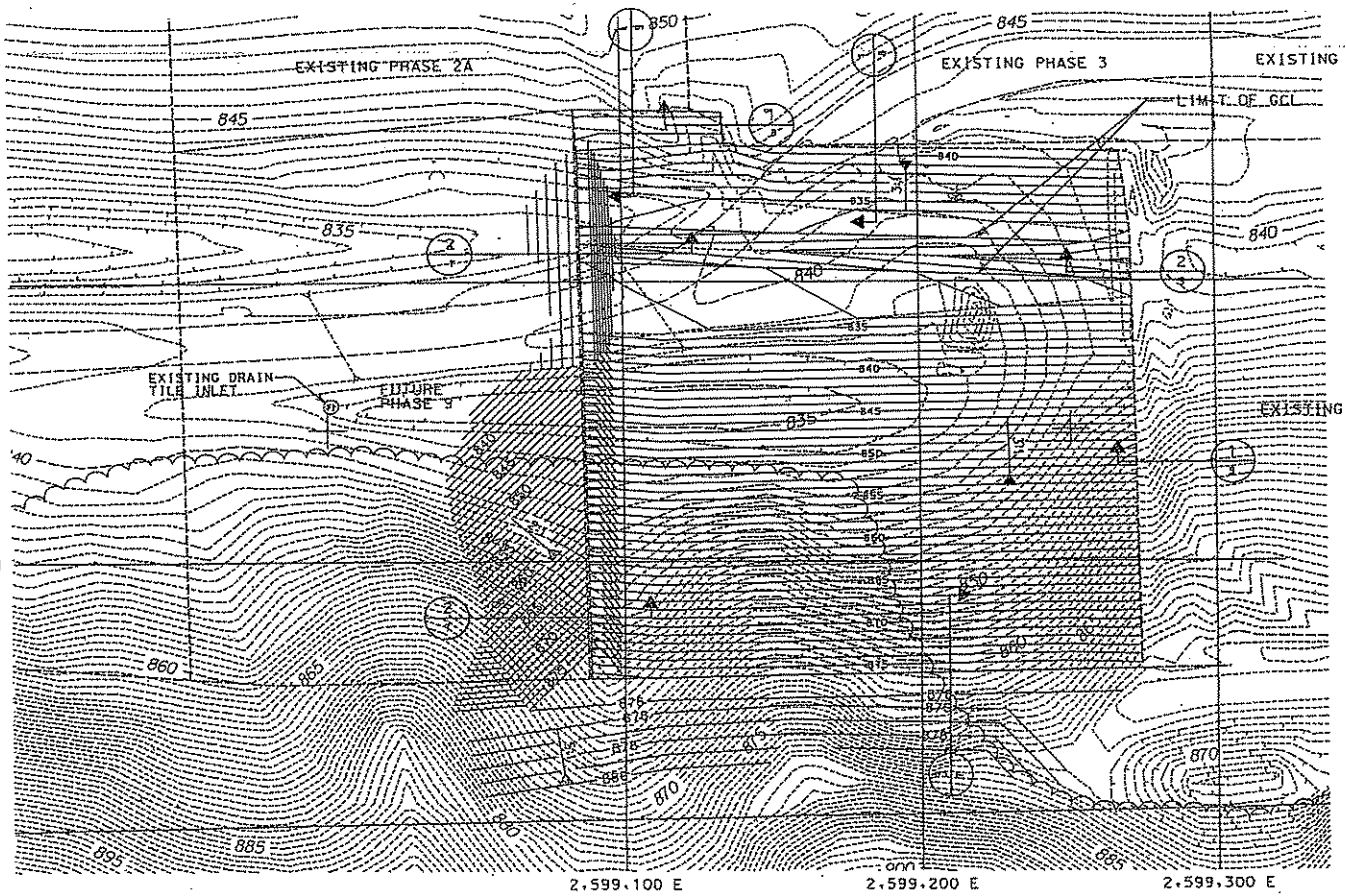
Dsn. JVT Date 1/14/09
Drawn JVT Check DHP
Project No.
Date & Scale

PROJECT: WILMARTH ASH DISPOSAL FACILITY
TITLE: CELL 8 RECORD DRAWINGS
EXISTING CONDITIONS MAP

FILING: NORTHERN STATES POWER COMPANY - MN
AN XCEL ENERGY COMPANY
TECHNICAL SERVICES - STANDARDS

CAD FILENAME: 09CBREC02
DWG NO. NH-
REV NO. 2

SHEET 2 1



SCALE IN FEET

LEGEND

- 840 EXISTING CONTOURS FROM AERIAL SURVEY
- PROPERTY LINE
- MONITORING WELL
- 840 PROPOSED TOP OF CLAY CONTOURS
- LIMIT OF COMPOSITE LINER SYSTEM
- 840 PROPOSED EXTERIOR CONTOURS

CHARLES G. THOMAS

7/23/09 LICENSE # 18185

Wenck

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1800 Pioneer Creek Center Maple Plain, MN 55359
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REVISIONS						
NO.	DATE	DESCRIPTION	BY	CHK	APP	DATE
0	4/15/09	ISSUED FOR CLIENT REVIEW	DRF	JWT	PJE	
1	7/2/09	ISSUED FOR BID	DRF	JWT	PJE	
2	7/23/09	RECORD DRAWINGS	CAD	DRF	CST	

DWN JWT DATE 1/14/09
CHKD JWT CHKD DRF
PROJECT NO.
APPR'D COPY

PROJECT: WILMARTH ASH DISPOSAL FACILITY

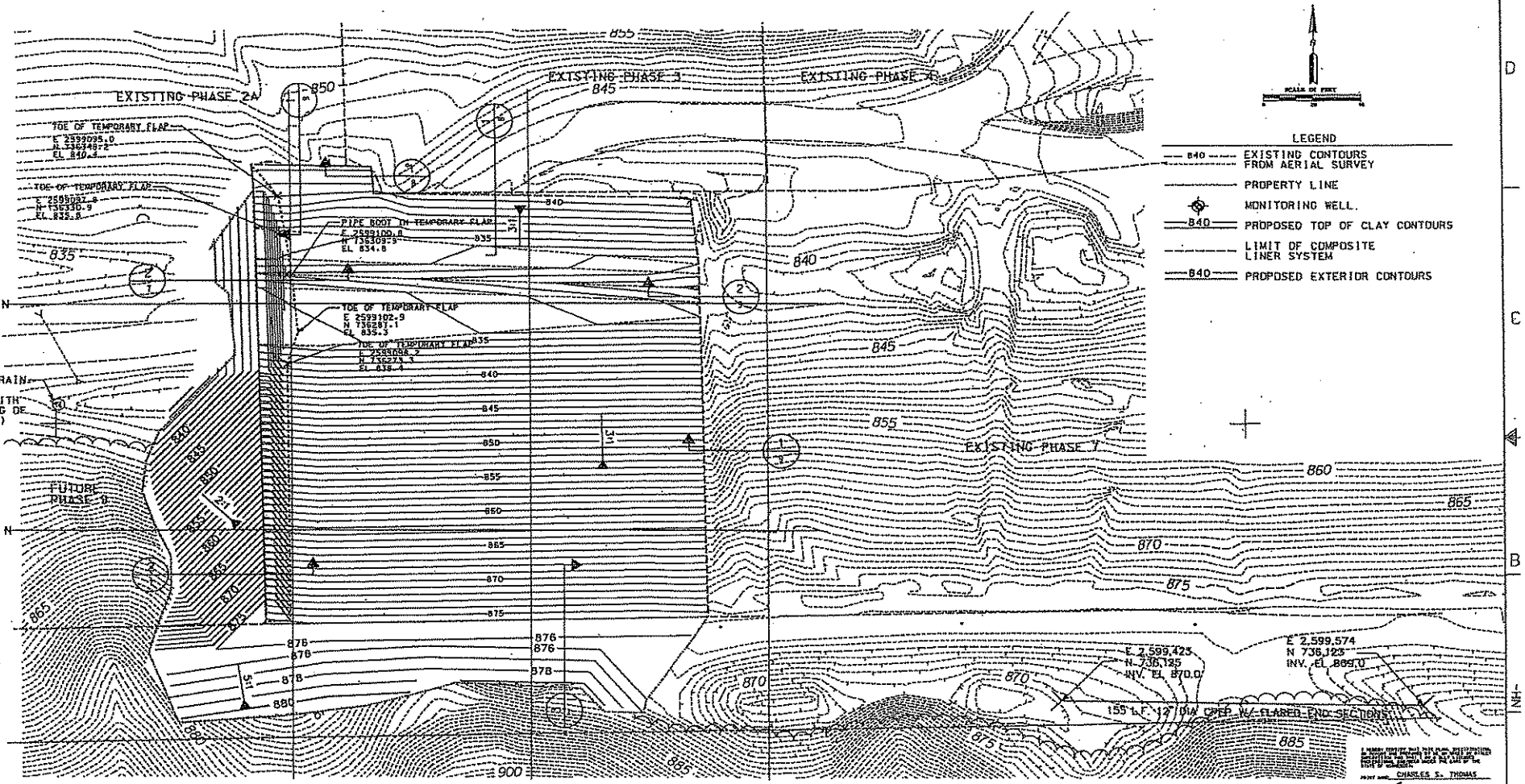
TITLE: CELL 8 RECORD DRAWINGS TOP OF CLAY LINER GRADES

FILENAME: NORTHERN STATES POWER COMPANY - MN
AN XCEL ENERGY COMPANY
TECHNICAL SERVICES - STANDARDS

DWG FILENAME: 89CBREC03 REV: 2

NH-

SHEET 3



Wenck Associates, Inc. Environmental Engineers — 1800 Pioneer Creek Center, Maple Plain, MN 55359 — (763) 479-4200 Fax (763) 479-4242

REVISIONS					
NO.	DATE	DESCRIPTION	BY	APP'D	CHK'D
0	1/16/09	ISSUED FOR CLIENT REVIEW	DMP	JVT	PTE
1	2/2/09	ISSUED FOR BID	DMP	JVT	PTE
2	5/18/09	REVISED GRADING AND ADDED CULVERT ON SOUTH SIDE	DMP	DMP	CST
3	7/23/09	RECORD DRAWINGS	CAD	DMP	CST

Drn. JVT Date 1/14/09
Dsnd. JVT Chkd. DMP
PROJECT NO.
APP'D & DSG.

FACILITY: WILMARTH ASH DISPOSAL FACILITY

TITLE: CELL 8 RECORD DRAWINGS SURFACE WATER CONTROL GRADING

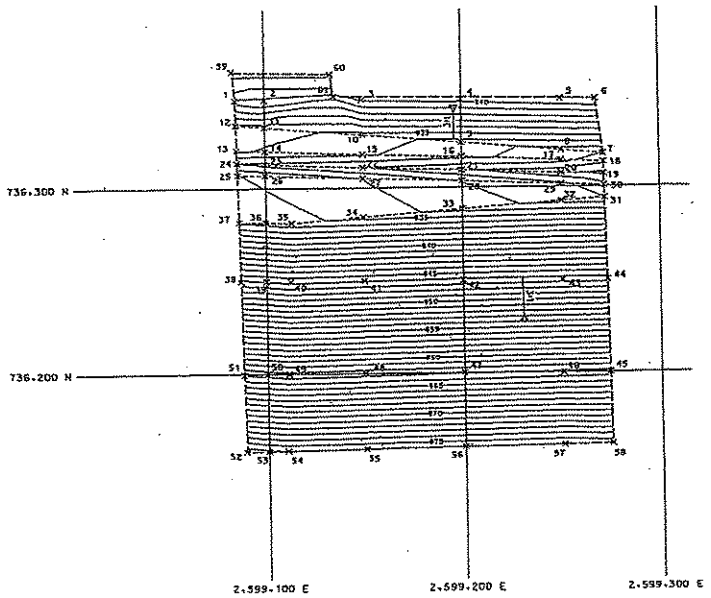
FILING: NORTHERN STATES POWER COMPANY - MN AN XCEL ENERGY COMPANY TECHNICAL SERVICES - STANDARDS

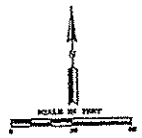
DWG FILENAME: 09CBREC04 REV: 3

REF DWG NO.: NH-

SHEET 4

POINT NUMBER	NORTHING	EASTING	DESIGN TOP OF CLAY ELEVATION	AS-BUILT SUBGRADE ELEVATION	AS-BUILT CLAY ELEVATION	MINIMUM DESIGN CLAY THICKNESS 3 TO SLOPE 1 (FT)	AS-BUILT CLAY THICKNESS 3 TO SLOPE 1 (FT)	AS-BUILT DRAINAGE LAYER ELEVATION	MINIMUM DESIGN DRAINAGE LAYER THICKNESS 3 TO SLOPE 1 (FT)	AS-BUILT DRAINAGE LAYER THICKNESS 3 TO SLOPE 1 (FT)
1	736546.9	2599085.1	840.0	Ex Liner	838.59	3.0	Ex Liner	842.06	1.0	2.47
2	736546.9	2599085.1	840.0	Ex Liner	840.11	3.0	Ex Liner	841.18	1.0	1.07
3	736546.9	2599150.0	840.7	Ex Liner	840.15	3.0	Ex Liner	841.27	1.0	1.12
4	736546.9	2599200.0	841.2	Ex Liner	840.32	3.0	Ex Liner	841.62	1.0	1.30
5	736546.9	2599250.0	841.7	Ex Liner	840.97	3.0	Ex Liner	842.09	1.0	1.12
6	736549.9	2599267.9	841.9	Ex Liner	841.22	3.0	Ex Liner	842.26	1.0	1.04
7	736317.5	2599271.4	832.0	Ex Liner	830.01	3.0	Ex Liner	833.15	1.0	1.14
8	736319.3	2599250.0	832.4	829.23	832.59	3.0	3.36	833.73	1.0	1.14
9	736323.7	2599200.0	833.4	830.24	833.54	3.0	3.30	834.68	1.0	1.14
10	736328.0	2599150.0	834.4	831.22	834.62	3.0	3.40	835.72	1.0	1.10
11	736332.2	2599100.0	835.3	832.11	835.52	3.0	3.41	836.73	1.0	1.21
12	736335.3	2599085.4	835.6	832.36	835.82	3.0	3.46	841.58	1.0	5.76
13	736320.2	2599085.6	835.1	831.70	835.23	3.0	3.53	841.31	1.0	6.08
14	736313.7	2599100.0	834.8	831.48	834.88	3.0	3.38	837.00	1.0	2.14
15	736317.7	2599150.0	834.0	830.76	834.15	3.0	3.39	835.22	1.0	1.07
16	736319.1	2599200.0	833.2	829.93	833.28	3.0	3.35	834.36	1.0	1.08
17	736314.1	2599250.0	832.3	828.92	832.42	3.0	3.50	833.56	1.0	1.14
18	736311.2	2599271.5	831.8	Ex Liner	831.31	3.0	Ex Liner	832.48	1.0	1.17
19	736309.9	2599271.6	829.7	Ex Liner	829.78	3.0	Ex Liner	832.93	1.0	3.15
20	736307.4	2599250.0	830.1	826.93	830.31	3.0	3.38	833.29	1.0	2.98
21	736309.3	2599200.0	830.3	827.67	831.10	3.0	3.43	834.04	1.0	2.94
22	736311.0	2599150.0	831.8	828.63	831.98	3.0	3.36	835.04	1.0	3.06
23	736313.0	2599100.0	832.6	829.44	832.73	3.0	3.29	837.20	1.0	4.47
24	736313.3	2599085.8	832.8	829.62	832.96	3.0	3.32	841.22	1.0	8.28
25	736307.2	2599085.8	834.9	831.74	835.03	3.0	3.29	841.26	1.0	6.23
26	736308.7	2599100.0	834.7	831.53	834.75	3.0	3.22	837.40	1.0	2.65
27	736305.0	2599150.0	833.8	830.48	833.97	3.0	3.49	835.04	1.0	1.07
28	736303.3	2599200.0	833.9	829.49	832.97	3.0	3.48	834.04	1.0	1.07
29	736301.4	2599250.0	831.1	828.50	832.16	3.0	3.26	835.22	1.0	1.06
30	736300.5	2599271.8	831.7	Ex Liner	831.38	3.0	Ex Liner	832.51	1.0	1.13
31	736294.0	2599271.9	831.9	Ex Liner	832.01	3.0	Ex Liner	833.09	1.0	1.08
32	736292.3	2599250.0	832.4	829.22	832.58	3.0	3.36	833.66	1.0	1.08
33	736288.3	2599200.0	833.4	830.23	833.56	3.0	3.33	834.62	1.0	1.06
34	736284.2	2599150.0	834.4	831.22	834.62	3.0	3.40	835.76	1.0	1.14
35	736281.2	2599113.4	835.2	832.04	835.33	3.0	3.29	836.43	1.0	1.12
36	736281.5	2599100.0	835.4	832.24	835.58	3.0	3.34	838.30	1.0	2.72
37	736281.8	2599088.4	835.7	832.46	835.90	3.0	3.44	841.75	1.0	5.85
38	736250.0	2599097.0	846.2	842.76	846.25	3.0	3.50	847.47	1.0	1.21
39	736250.0	2599100.0	845.9	842.57	845.95	3.0	3.38	847.01	1.0	1.06
40	736250.0	2599112.5	845.6	842.27	845.61	3.0	3.34	846.70	1.0	1.09
41	736250.0	2599150.0	845.8	842.61	845.93	3.0	3.32	847.00	1.0	1.07
42	736250.0	2599200.0	846.1	842.93	846.26	3.0	3.33	847.37	1.0	1.11
43	736250.0	2599290.0	846.5	843.34	846.52	3.0	3.18	847.61	1.0	1.09
44	736250.0	2599272.7	846.6	Ex Liner	846.58	3.0	Ex Liner	847.76	1.0	1.18
45	736200.0	2599273.7	863.3	Ex Liner	863.34	3.0	Ex Liner	864.45	1.0	1.11
46	736200.0	2599250.0	863.1	859.90	863.21	3.0	3.31	864.29	1.0	1.08
47	736200.0	2599200.0	862.8	859.57	862.85	3.0	3.28	864.00	1.0	1.15
48	736200.0	2599150.0	862.5	859.08	862.53	3.0	3.45	863.58	1.0	1.05
49	736200.0	2599151.1	862.2	858.88	862.24	3.0	3.36	863.32	1.0	1.08
50	736200.0	2599100.0	862.5	859.21	862.51	3.0	3.30	863.62	1.0	1.11
51	736199.5	2599086.0	863.0	859.72	863.05	3.0	3.33	864.12	1.0	1.11
52	736158.3	2599088.8	876.1	873.54	876.74	3.0	3.20	877.79	1.0	1.05
53	736158.5	2599100.0	876.3	873.08	876.29	3.0	3.21	877.36	1.0	1.07
54	736158.7	2599150.0	876.0	872.79	876.03	3.0	3.24	877.14	1.0	1.11
55	736159.1	2599150.0	876.0	872.79	876.01	3.0	3.22	877.02	1.0	1.01
56	736160.4	2599200.0	876.0	872.66	876.01	3.0	3.35	877.07	1.0	1.06
57	736161.1	2599250.0	876.0	872.82	876.07	3.0	3.25	877.18	1.0	1.11
58	736161.8	2599274.4	878.0	Ex Liner	875.66	3.0	Ex Liner	876.81	1.0	1.15
59	736392.9	2599084.0	—	Ex Liner	837.54	—		838.60	1.0	1.06
60	736161.9	2599134.0	—	Ex Liner	837.58	—		838.70	1.0	1.12
61	736349.0	2599138.0	—	Ex Liner	838.58	—		—	—	—





LEGEND

- 840 EXISTING CONTOURS FROM AERIAL SURVEY
- PROPERTY LINE
- MONITORING WELL
- 840 PROPOSED TOP OF CLAY CONTOURS
- LIMIT OF COMPOSITE LINER SYSTEM
- PROPOSED BREAK LINES

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.

PRINT NAME: CHARLES S. THOMAS

SIGNATURE:

DATE: 1/23/09 LICENSE NO. 18185

Wenck Associates, Inc. Environmental Engineers — 7500 Flying Cloud Drive, Eden Prairie, MN 55344 — (763) 479-4200, Fax (763) 479-4242

NO.	DATE	DESCRIPTION	BY	PRD	CHKD
0	1/15/89	ISSUED FOR CLIENT REVIEW	DHP	JVT	PTE
1	5/2/89	ISSUED FOR BID	DHP	JVT	PTE
2	7/23/89	RECORD DRAWINGS	CAD	DHP	CST

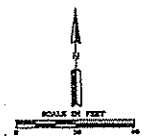
DRAWN: JVT DATE: 12/24/88
DSN'D: JVT CHK'D: DHP
PROJECT NO.
APPR'D & COMP.

PROJECT: WILMARTH ASH DISPOSAL FACILITY

TITLE: CELL 8 RECORD DRAWINGS GRADE DOCUMENTATION PLAN

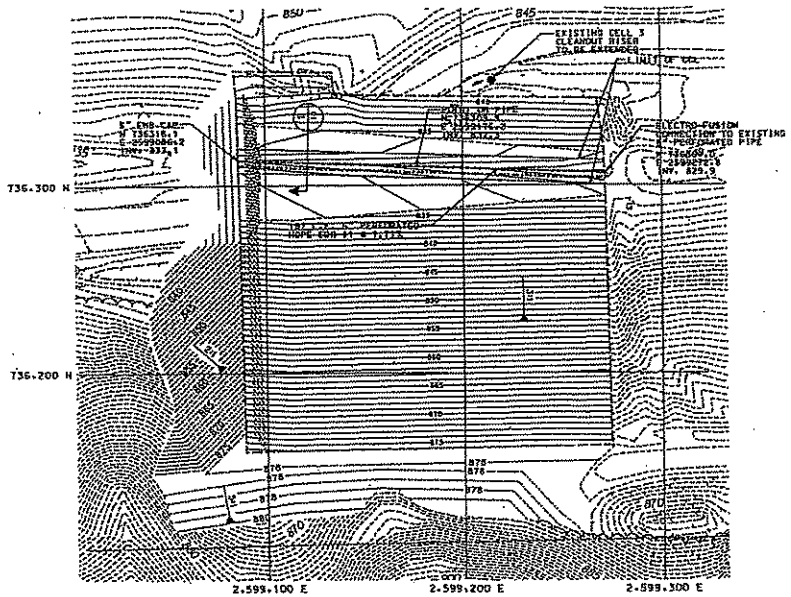
NORTHERN STATES POWER COMPANY - MN
AN XCEL ENERGY COMPANY
TECHNICAL SERVICES - STANDARDS

DWG FILENAME: 09CBREC05 REV: 2
SHEET NO.: NH-
SHEET 5 1

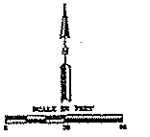


LEGEND

- 840 — EXISTING CONTOURS FROM AERIAL SURVEY
- PROPERTY LINE
- 840 — TOP OF CLAY CONTOURS
- LIMIT OF COMPOSITE LINER SYSTEM
- 840 — PROPOSED EXTERIOR CONTOURS
- PERFORATED 6" HDPE SDR 11 PRIMARY LEACHATE COLLECTION PIPE
- PERFORATED 6" HDPE SDR 11 SECONDARY LEACHATE COLLECTION PIPE

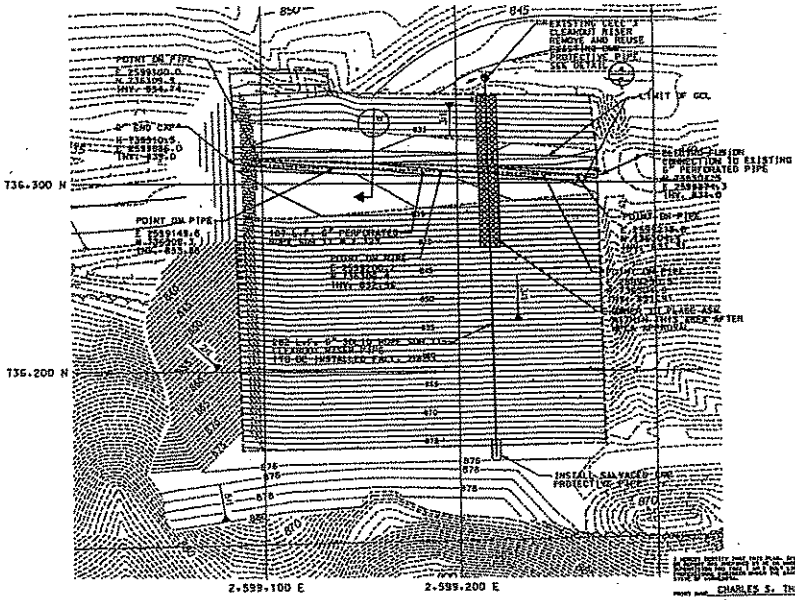


SECONDARY LEACHATE COLLECTION SYSTEM PIPING PLAN



LEGEND

- 840 — EXISTING CONTOURS FROM AERIAL SURVEY
- PROPERTY LINE
- 840 — TOP OF CLAY CONTOURS
- LIMIT OF COMPOSITE LINER SYSTEM
- 840 — PROPOSED EXTERIOR CONTOURS
- PERFORATED 6" HDPE SDR 11 PRIMARY LEACHATE COLLECTION PIPE
- PERFORATED 6" HDPE SDR 11 SECONDARY LEACHATE COLLECTION PIPE



PRIMARY LEACHATE COLLECTION SYSTEM PIPING PLAN

CHARLES S. THOMAS

7/23/99 18195

Wenck Associates, Inc. Environmental Engineers — 1800 Pioneer Creek Center, Maple Plain, MN 55359 — (763) 479-4200, Fax (763) 479-4242

REVISIONS					
REV	DATE	DESCRIPTION	BY	DES	APPD
0	1/12/99	ISSUED FOR CLIENT REVIEW	DMP	JWT	PTE
1	2/2/99	ISSUED FOR BID	DMP	JWT	PTE
2	7/23/99	RECORD DRAWINGS	CAD	DMP	CSY

DRN JWT 11/24/98 — CHKD JWT — CHKD DMP

PROJECT WILMARTH ASH DISPOSAL FACILITY

TITLE CELL B RECORD DRAWINGS PRIMARY & SECONDARY LEACHATE COLLECTION SYSTEM PIPING PLAN

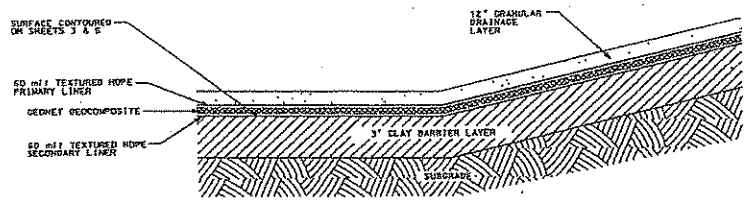
PROJECT NO. — APPD & DATE

FOR NORTHERN STATES POWER COMPANY - MN, AN XCEL ENERGY COMPANY, TECHNICAL SERVICES - STANDARDS

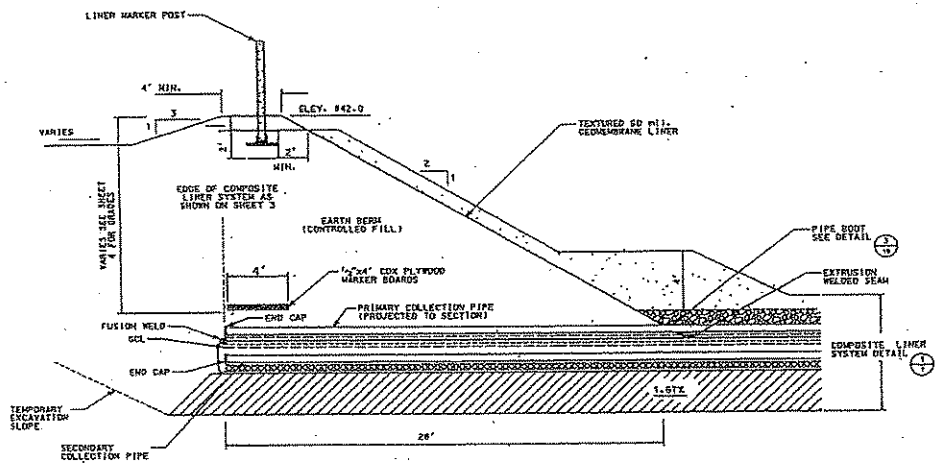
DWG FILENAME 99CBREC06 — REV 2

TOP JOB NO. NH-

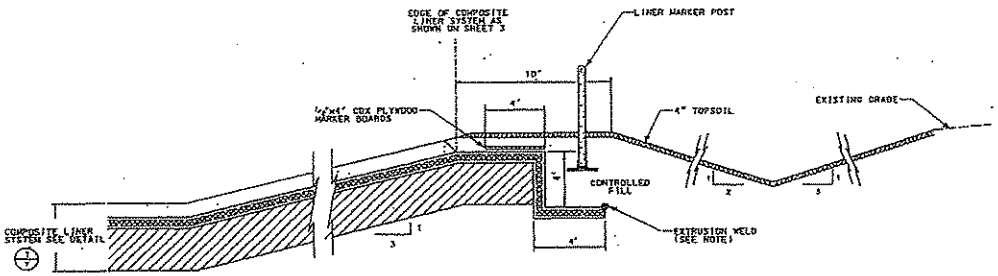
SHEET 6 1



COMPOSITE LINER SYSTEM DETAIL 1/1



TEMPORARY CONTAINMENT BERM ON CELL FLOOR DETAIL 2/1



SOUTH PERIMETER BERM DETAIL 3/1

NOTE:
FOR ALL DETAILS ON THIS SHEET THE VERTICAL THICKNESS OF THE GEOSYNTHETIC MATERIALS HAS BEEN EXAGGERATED FOR CLARITY.

Wenck
Wenck Associates, Inc.
Environmental Engineers
1800 Pioneer Creek Center
Maple Plain, MN 55359
(763) 479-4200
Fax (763) 479-4242

REVISIONS						
NO.	DATE	DESCRIPTION	BY	DES	CHKD
0	1/15/09	ISSUED FOR CLIENT REVIEW	DHP	JVT	PTE
1	2/2/09	ISSUED FOR BID	DHP	JVT	PTE
2	7/23/09	RECORD DRAWINGS	CAD	DHP	CST

DRN JVT DATE 1/14/09
DES'D JVT CHK'D DHP
PROJECT MGR
APPR'D DATE

FACILITY: WILMARTH ASH DISPOSAL FACILITY

TITLE: CELL 8 RECORD DRAWINGS
LINER SECTIONS AND DETAILS

ISSUED: NORTHERN STATES POWER COMPANY - MN
AN XCEL ENERGY COMPANY
TECHNICAL SERVICES - STANDARDS

DWG FILENAME: 09CBREC07
REF DWG NO.: NH-
REV: 2

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CHARLES S. THOMAS
SIGNATURE:
DATE: 7/23/09 LICENSE NO. 18163

SHEET 7

NOTES:

EXPOSE, FOLD BACK AND CUT EXISTING HDPE LINERS AND GEONET TO ALLOW "KEYING" OF CLAY LINERS TOGETHER AND TIE-IN OF HDPE LINERS.

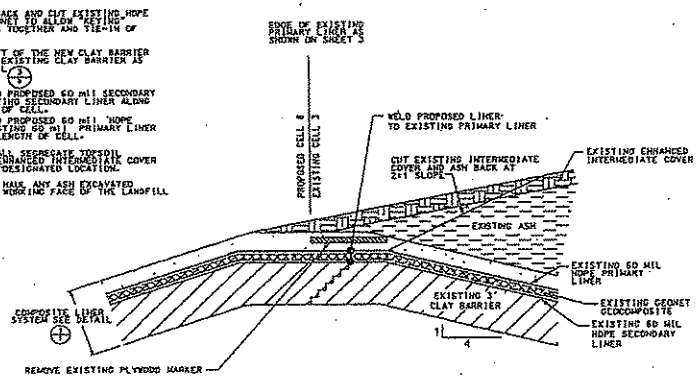
"KEY" EACH LIFT OF THE NEW CLAY BARRIER TOGETHER WITH EXISTING CLAY BARRIER AS SHOWN IN DETAIL 4/8

EXTRUSION WELD PROPOSED 60 mil SECONDARY LINER TO EXISTING SECONDARY LINER ALONG ENTIRE LENGTH OF CELL.

EXTRUSION WELD PROPOSED 60 mil HDPE LINERS TO EXISTING 60 mil PRIMARY LINER ALONG ENTIRE LENGTH OF CELL.

CONTRACTOR SHALL SEGREGATE TOPSOIL STRIPPED OFF ENHANCED INTERMEDIATE COVER TO AN OWNER'S DESIGNATED LOCATION.

CONTRACTOR TO HAUL ANY ASH EXCAVATED TO THE ACTIVE WORKING FACE OF THE LANDFILL



TIE-IN TO EXISTING CELL 3 — 1/8

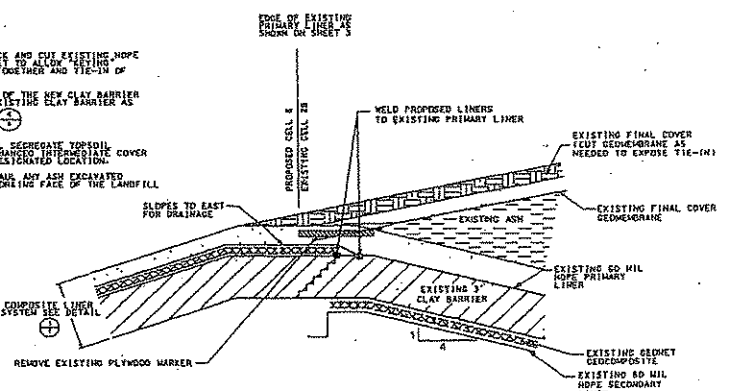
NOTES:

EXPOSE, FOLD BACK AND CUT EXISTING HDPE LINERS AND GEONET TO ALLOW "KEYING" OF CLAY LINERS TOGETHER AND TIE-IN OF HDPE LINERS.

"KEY" EACH LIFT OF THE NEW CLAY BARRIER TOGETHER WITH EXISTING CLAY BARRIER AS SHOWN IN DETAIL 4/8

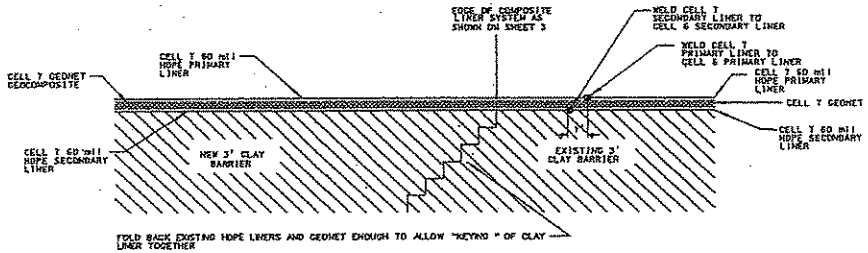
CONTRACTOR SHALL SEGREGATE TOPSOIL STRIPPED OFF ENHANCED INTERMEDIATE COVER TO AN OWNER'S DESIGNATED LOCATION.

CONTRACTOR TO HAUL ANY ASH EXCAVATED TO THE ACTIVE WORKING FACE OF THE LANDFILL



TIE-IN TO EXISTING CELL 2B — 2/8

NOTE:
FOR ALL DETAILS ON THIS SHEET THE VERTICAL THICKNESS OF THE GEOSYNTHETIC MATERIALS HAS BEEN EXAGGERATED FOR CLARITY.

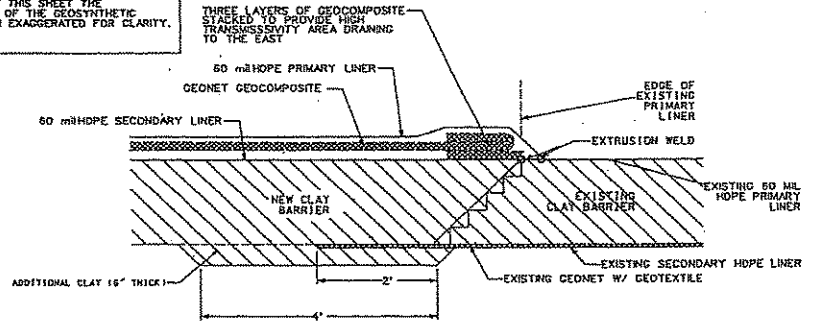


FOLD BACK EXISTING HDPE LINERS AND GEONET ENOUGH TO ALLOW "KEYING" OF CLAY LINER TOGETHER

"KEY" EACH LIFT OF THE NEW CLAY BARRIER TOGETHER WITH EXISTING CLAY BARRIER

EXTRUSION WELD NEW 60 mil HDPE SECONDARY LINER TO EXISTING 60 mil SECONDARY LINER ALONG THE ENTIRE LENGTH OF THE EAST EDGE

TIE-IN TO CELL 3 LINER — 3/8
NOT TO SCALE



NOTES:

1. TRIM BACK EXISTING CLAY LINER TO ALLOW FOR AN ADDITIONAL 6" OF CLAY BELOW THE EASTERNMOST EDGE OF THE EXISTING LINER
2. COMPACT 6" OF CLAY BELOW LINERS AS SHOWN
3. LAY LINER AND GEONET BACK OVER 6" CLAY LAYER AND PLACE REST OF 3' CLAY BARRIER LAYER
4. TRIM OR FOLD EXISTING PRIMARY LINER BACK AS NECESSARY IN ORDER TO KEY CLAY LINERS TOGETHER.
5. EXISTING CLAY TO BE CUT BACK IN STEPS AND RECOMPACTED WITH NEW CLAY "KEYING" THE LINERS TOGETHER.
6. WELD EXISTING LINER TO NEW SECONDARY LINER CONTINUOUSLY ALONG EDGE.
7. AFTER GEONET IS INSTALLED PLACE PRIMARY HDPE LINER SUCH THAT THE PRIMARY LINER CAN BE EXTRUSION WELDED TO THE EXISTING LINER, SEALING THE WEST EDGE OF THE GEONET.

TIE-IN TO CELL 2B LINER — 4/8
NOT TO SCALE

CHARLES S. THOMAS
DATE 7/25/03 LICENSE # 18185

Wenck Associates, Inc. Environmental Engineers
1800 Pioneer Creek Center, Maple Plain, MN 55359
(763) 479-4200 Fax (763) 479-4242

REVISIONS						
NO	DATE	DESCRIPTION	BY	CHK	APP	DATE
0	6/01/99	ISSUED TO CLIENT FOR REVIEW	DRF	DRF		
1	7/25/99	RECORD DRAWINGS	CAD	DRF	LST	

DRF 6/01/99 CHKD DRF
PROJECT NO.
APPR & DATE
DRAWN

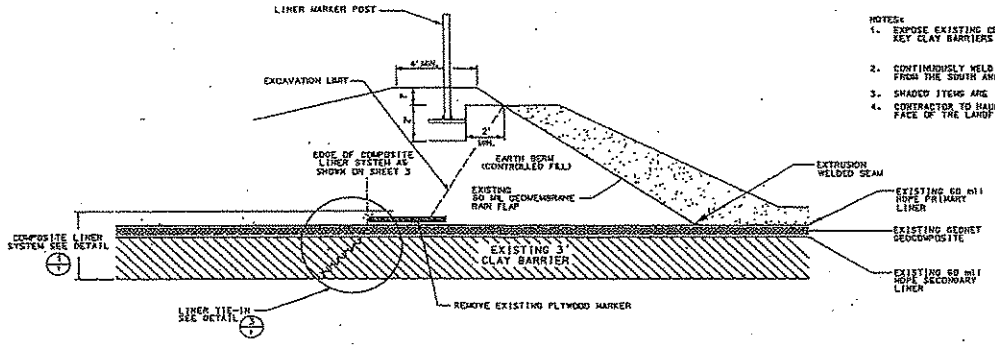
PROJECT: WILMARTH ASH DISPOSAL FACILITY

TITLE: CELL 8 RECORD DRAWINGS
TIE-IN DETAILS

NORTHERN STATES POWER COMPANY - MN
AN XCEL ENERGY COMPANY
TECHNICAL SERVICES - STANDARDS

DWG FILE: 99C8REC08
DRAWING NO. NH-
REV 1

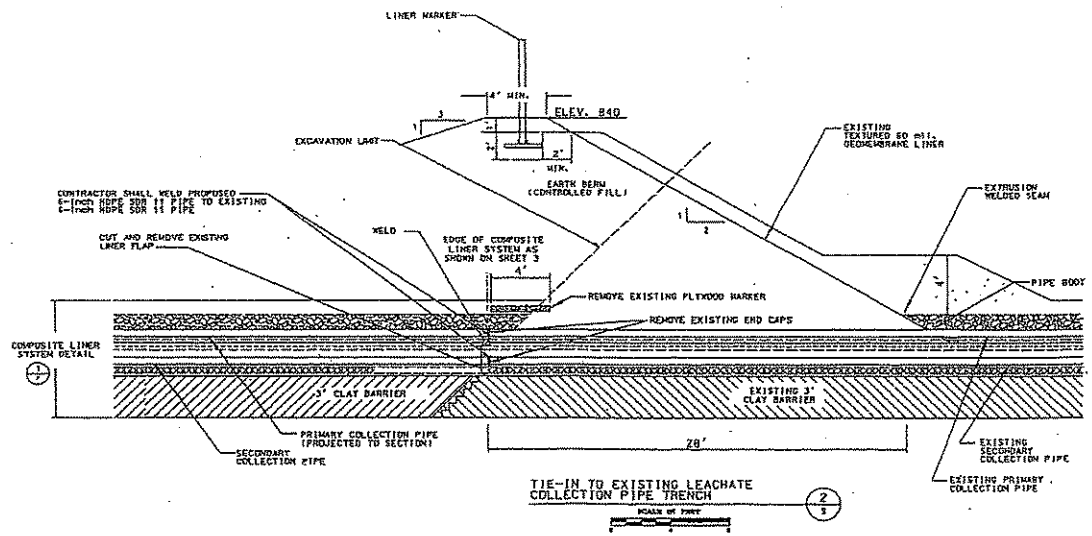
SHEET 8



TIE-IN TO CELL 7 (1/6)

NOTES:
1. EXPOSE EXISTING CLAY BARRIER. REMOVE PLYWOOD MARKERS AND KEY CLAY BARRIERS TOGETHER AS SHOWN IN DETAIL (3/7)
2. CONTINUOUSLY WELD EXISTING AND NEW HDPE GEOMEMBRANES TOGETHER FROM THE SOUTH ANCHOR TRENCH TO THE NORTH LIMITS OF CELL 4.
3. SHADED ITEMS ARE IN PLACE FROM CELL 6 CONSTRUCTION
4. CONTRACTOR TO HAUL ANY ASH EXCAVATED TO THE ACTIVE WORKING FACE OF THE LANDFILL

NOTE:
FOR ALL DETAILS ON THIS SHEET THE VERTICAL THICKNESS OF THE GEOSYNTHETIC MATERIALS HAS BEEN EXAGGERATED FOR CLARITY.



TIE-IN TO EXISTING LEACHATE COLLECTION PIPE TRENCH (2/9)

NOTES:
1. EXPOSE EXISTING CLAY BARRIER. REMOVE PLYWOOD MARKERS AND KEY CLAY BARRIERS TOGETHER AS SHOWN IN DETAIL (3/7)
2. CONTINUOUSLY WELD EXISTING AND NEW HDPE GEOMEMBRANES TOGETHER ALONG THE CELL FLOOR ON THE EAST SIDE
3. SHADED ITEMS ARE IN PLACE FROM CELL 6 CONSTRUCTION
4. CONTRACTOR TO HAUL ANY ASH EXCAVATED TO THE ACTIVE WORKING FACE OF THE LANDFILL
5. CONTRACTOR SHALL FIELD VERIFY THE EXISTING PRIMARY AND SECONDARY LEACHATE COLLECTION PIPES LOCATION AND INVERT

CHARLES S. THOMAS
7/23/09 — 19185

Wenck Associates, Inc. Environmental Engineers
1800 Pioneer Creek Center, Maple Plain, MN 55359
(763) 479-4200 Fax (763) 479-4242

REVISIONS						
NO.	DATE	DESCRIPTION	BY	APP.	CHK'D
0	7/15/09	ISSUED TO CLIENT FOR REVIEW	DHP	JWT	PTE
1	8/2/09	ISSUED FOR BID	DHP	JWT	PTE
2	7/23/09	RECORD DRAWINGS	CDB	DHP	CST

DWN JWT DATE 8/14/09
CHK'D JWT CHK'D DHP
PROJECT NO.
APP'D & DEPT.
PLOT#

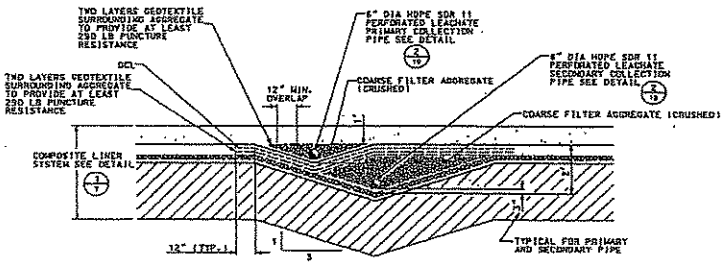
WILMARTH ASH DISPOSAL FACILITY

CELL 8 RECORD DRAWINGS
TIE-IN DETAILS

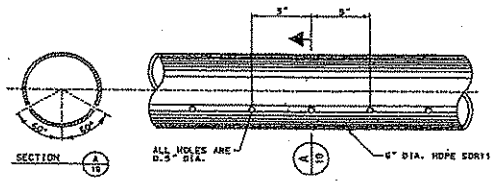
NORTHERN STATES POWER COMPANY - MN
AN XCEL ENERGY COMPANY
TECHNICAL SERVICES - STANDARDS

CAD FILENAME 09CBREC09
REF DWG NO. NH-
REV 2

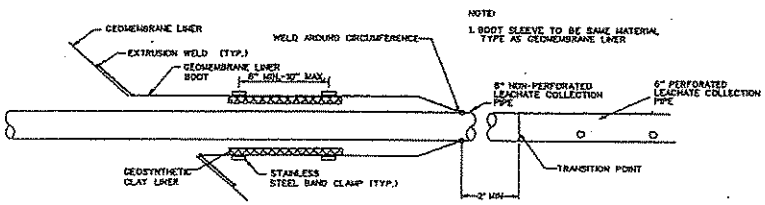
SHEET 9



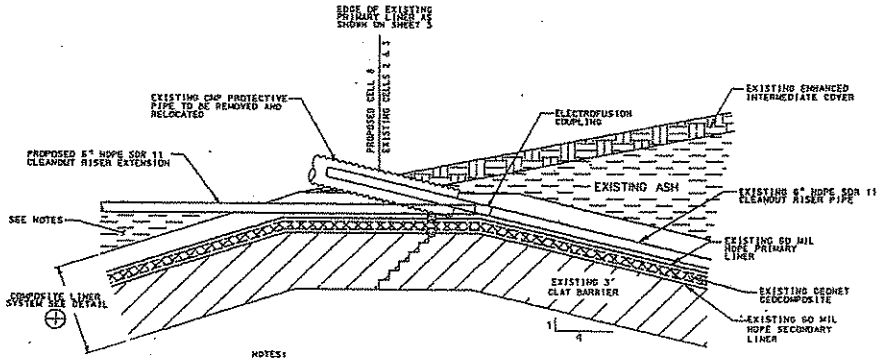
LEACHATE COLLECTION PIPE TRENCH 1/10



LEACHATE COLLECTION PIPE PERFORATION DETAIL 2/10
NOT TO SCALE



LEACHATE PIPE LINER PENETRATION DETAIL 3/10
NOT TO SCALE



NOTES:
1. OWNER TO PLACE ASH IN THIS AREA AFTER MPCA APPROVAL.
2. CONTRACTOR TO SAW CUT EXISTING CLEANOUT. INSTALL ELECTRO FUSION COUPLING AND NEW CLEANOUT RISER PIPE. 202 L.F. 6" HDPE SDR 11.

CELL 3 CLEANOUT RISER PIPE EXTENSION 4/10

CHARLES S. THOMAS
DATE 1/23/09 LICENSE # 18189

NOTE:
FOR ALL DETAILS ON THIS SHEET THE VERTICAL THICKNESS OF THE GEOSYNTHETIC MATERIALS HAS BEEN EXAGGERATED FOR CLARITY.

Wenck
Wenck Associates, Inc. Environmental Engineers
1800 Pioneer Creek Center Maple Plain, MN 55359
(763) 479-4200 Fax (763) 479-4242

REVISIONS					
NO.	DATE	DESCRIPTION	BY	DATE	CHK'D
0	1/16/09	ISSUED FOR CLIENT REVIEW	DHP	JVT	PTE
1	2/2/09	ISSUED FOR BID	DHP	JVT	PTE
2	7/23/09	RECORD DRAWINGS	CJG	DHP	CKT

DES. JVT DATE 12/17/08
DRN. JVT CHK'D DHP
PROJECT NO.
APPD. & DATE

PROJECT: WILMARTH ASH DISPOSAL FACILITY
TITLE: CELL 6 RECORD DRAWINGS COLLECTION PIPING DETAILS

NORTHERN STATES POWER COMPANY - MN
AN XCEL ENERGY COMPANY
TECHNICAL SERVICES - STANDARDS

DWG FILENAME 09C6RECIB REV 2
SHT. NO. NH-
SHEET 10

AFFIDAVIT OF SERVICE BY MAIL

RE: In the matter of C. Scott Thomas, Professional Engineer, License Number 18185
File No. 2010-0010

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

Lynette DuFresne, being first duly sworn, deposes and says:

That at the City of St. Paul, County of Ramsey and State of Minnesota, on this the 28th day of JULY, 2010, she served the attached [Proposed] Stipulation and Order by depositing in the United States mail at said city and state, a true and correct copy thereof, properly enveloped, with first class and certified postage prepaid, and addressed to:

Mr. C. Scott Thomas
Xcel Energy
414 Nicollet Mall, MP7
Minneapolis, Minnesota 55401

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7003 3110 0004 8527 6207

Lynette DuFresne

Subscribed and sworn to before me on this the 28th day of July, 2010.

(Notary Public)

SHERI L LINDEMANN
NOTARY PUBLIC
MINNESOTA
My Commission Expires Jan. 31 2015

AFFIDAVIT OF SERVICE BY MAIL

RE: In the matter of C. Scott Thomas,
PROFESSIONAL ENGINEERING
License Number 18185

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

Lynette DuFresne, being first duly sworn, deposes and says:

That at the City of St. Paul, County of Ramsey and State of Minnesota, on this the 24th day of AUGUST, 2010, she served the attached **Stipulation and Order**, by depositing in the United States mail at said city and state, a true and correct copy thereof, properly enveloped, with first class and certified postage prepaid, and addressed to:

Mr. C. Scott Thomas
Xcel Energy
414 Nicollet Mall, MP7
Minneapolis, Minnesota 55401

CERTIFIED MAIL
Return Receipt Requested
7003 3110 0004 8527 6429

Lynette DuFresne

Subscribed and sworn to before me on
this the 24th day of August, 2010.

(Notary Public)

SHERI L LINDEMANN
NOTARY PUBLIC
MINNESOTA
My Commission Expires Jan. 31 2015