

## **Phase II Environmental Site Assessment**

Northern States Power/Xcel Energy Property  
Van White Memorial Boulevard Project  
Minneapolis, Minnesota  
VP# 19870

*Prepared For*

**City of Minneapolis  
Department of Community Planning  
and Economic Development**

### **Professional Certification:**

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 Geologist under the laws of the State of Minnesota.



Jennifer A. Force, PG  
Senior Scientist  
License Number: 30305  
February 9, 2006



Project BL-04-06469D

Braun Intertec Corporation

February 9, 2006

Project BL-04-06469D

Mr. Darrell Washington  
City of Minneapolis  
Department of Community Planning and  
Economic Development  
105 5th Avenue South, Suite 200  
Minneapolis, MN 55401

Re: Phase II Environmental Site Assessment  
Northern States Power/Xcel Energy Property  
Van White Memorial Boulevard Project  
Minneapolis, Minnesota  
VP# 19870

Dear Mr. Washington:

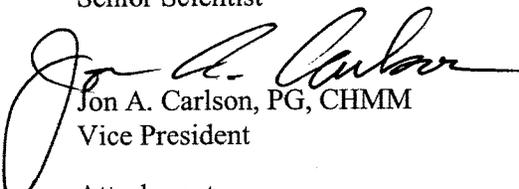
Braun Intertec Corporation (Braun Intertec) completed a Phase II environmental site assessment (ESA) of the above-referenced site on behalf of the City of Minneapolis prior to construction of the Van White Memorial Boulevard. The objective of the Phase II ESA was to evaluate soil quality at the site prior to the City's potential purchase of the site and construction of Van White Memorial Boulevard, which will cross the eastern portion of the site. The results of the Phase II ESA are presented in the attached report.

If you have any questions or comments regarding this report or the project in general, please call Jennifer at 952.995.2454 or Jon at 952.995.2440.

Sincerely,

BRAUN INTERTEC CORPORATION

  
Jennifer A. Force, PG  
Senior Scientist

  
Jon A. Carlson, PG, CHMM  
Vice President

Attachment:  
Phase II ESA Report

c: Mr. Alan Baumann, United States Environmental Protection Agency  
Mr. Jim Bellefeuille, TKDA  
Mr. Fred Campbell, Minnesota Pollution Control Agency  
Mr. Mark Koplitz, Minnesota Pollution Control Agency  
Ms. Kären Kromar, Minnesota Pollution Control Agency

PH II ESA-NSP, Xcel Energy

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## **1.0 Introduction**

Braun Intertec Corporation (Braun Intertec) was retained by the City of Minneapolis Department of Community Planning and Economic Development (CPED) to conduct a Phase II environmental site assessment (ESA) of the Northern States Power/Xcel Energy (NSP) site. The City is considering purchasing the site prior to constructing Van White Memorial Boulevard through the eastern portion of the site. Van White Memorial Boulevard when constructed will be a 3,600-foot-long boulevard that will stretch from the intersection of 4th and Fremont Avenues to the intersection of Dunwoody Boulevard and Interstate 394 when complete. Construction of portions of the roadway are expected to begin in Summer 2006.

The objective of the Phase II ESA was to evaluate soil quality at the site. The results of the Phase II ESA are presented in this report.

The Phase II ESA was conducted in general accordance with the work plan dated September 22, 2005, which was approved by the United States Environmental Protection Agency (EPA) in written correspondence on October 5, 2005. The Minnesota Pollution Control Agency (MPCA) Voluntary Investigation and Cleanup (VIC) Program approved the work plan with comments in correspondence dated October 31, 2005. Braun Intertec prepared a response to comments on December 22, 2005.

The work plan was implemented in conjunction with the Quality Assurance Project Plan that was prepared for the project by Braun Intertec and conditionally approved by the EPA, Region 5 in written correspondence dated September 23, 2005.

## **2.0 Background**

### **2.1 Site Location**

The City of Minneapolis is currently conducting environmental investigation activities of various sites located within the Van White Memorial Boulevard project area. As part of the investigation activities, a Phase II ESA was conducted on the NSP site, which the City is considering purchasing prior to the construction of Van White Memorial Boulevard through the eastern portion of the site. The NSP site consists of an undeveloped lot measuring approximately 0.35 acre, and is located at 101 Fremont Avenue North. The site is approximately rectangular in shape with a perimeter of approximately 900 feet.

The Special School District #1 property and Bassett Creek border the site on the north, with the former Bassett Creek channel and the former Scrap Metal Processors property located beyond; on the east by the Special School District #1 property; on the south by the City of Minneapolis Impound lot; and on the west by Bassett Creek and the Chemical Marketing site with industrial properties located beyond. The site is located in a mixed residential, commercial, and industrialized area of Minneapolis. The site location is shown on Figure 1.

## 2.2 Previous Investigations

A Phase I ESA was conducted in 2001 by Delta Environmental Consultants, Inc. (Delta) that included the site. The scope of the Phase I ESA included a records review and visual reconnaissance of the site. According to the Phase I ESA, the only structure on the property is a tower that supports overhead power lines. The property is vegetated with tall grass, trees, and shrubs. Unauthorized use of the property was apparent based on the presence of worn paths and litter.

Based on historical review of aerial photography, Sanborn maps, city directory, and fire department records, the site has not been developed with the exception of the electrical tower on the east side of the property. Prior to 1992, Bassett Creek passed through the subject property. Bassett Creek was rerouted, in 1992, to the northern boundary of the subject property by the United States Army Corps of Engineers to control flooding.

Additional details regarding the investigation can be found in the following report:

- *Phase I Environmental Assessment; Bassett Creek Valley Redevelopment; Minneapolis, Minnesota* prepared by Delta for the MPCA, December 7, 2001

Based on the findings of the Phase I ESA, the following recognized environmental concern (REC) was identified:

- Bassett Creek has historically traversed the site.

The former streambed of Bassett Creek on the site may be contaminated based on historical upstream industrial impacts to Bassett Creek. Flooding of Bassett Creek causing releases from neighboring industrial sites, including petroleum facilities, may have impacted the subject property. This potential contamination represents a REC.

In addition to the REC identified by the 2001 Phase I ESA, the site is in close proximity to the former Irving Avenue Dump, which is now occupied by the City Impound Lot; therefore, there is a potential that filling activities might have impacted the site.

### **3.0 Phase II ESA Methods**

#### **3.1. Scope of Work**

The objective of the Phase II ESA was to evaluate soil quality at the site, as specified below:

- Evaluate the known REC for indications of a release(s) of hazardous substances.
- Evaluate potential response actions, if deemed necessary.

The Phase II ESA was designed to investigate areas of the site where soil will be excavated during construction of Van White Memorial Boulevard and also to investigate areas of the site adjacent to the proposed roadway that will be redeveloped at a later date. Additionally, the investigation will re-evaluate proposed response actions that were included in the Response Action Plan/Construction Contingency Plan (RAP/CCP) prepared by Braun Intertec in April 2005 and modify them, if deemed necessary.

The following tasks were conducted at the site as part of the Phase II ESA:

- Advanced five soil borings to a depth of 12 feet below ground surface (bgs) or to the groundwater table to evaluate the site soils and fill material.
- Screened soil samples collected from the soil boring for visible staining, incidental odors and organic vapors using a photoionization detector (PID).
- Collected two soil samples for chemical analyses from each of the soil borings. In general, a sample was collected from the upper 4 feet, which is the anticipated depth from which soil will be excavated for geotechnical correction during construction of the roadway. A second sample was collected from about 4 feet to 8 feet bgs.
- Collected and analyzed quality assurance/quality control (QA/QC) samples as described in the work plan and the QAPP.

The fieldwork for the Phase II ESA was conducted on December 20, 2005. Descriptions of our field methods are included in Appendix A.

### 3.2. Deviations from the Work Plan

Originally, a groundwater sample was proposed to be collected during the Phase II ESA to evaluate groundwater quality. Because of concerns that access would not be gained to the site in a timely manner relative to the start of construction, a groundwater sample was collected from the adjacent Impound Lot site in Summer 2005. The results from the groundwater sample were used to obtain a temporary discharge permit from the Metropolitan Council Environmental Services.

The deeper sampling interval was changed from immediately above the water table to 4 feet to 6 feet bgs to also act as a confirmation sample. This change was made based on comments received from the MPCA.

Soil boring locations were moved in the field about 15 feet to 20 feet south of the original proposed locations because of the presence of overhead electric lines. The environmental technician informed the project manager of this change prior to drilling.

### 3.3. Soil Borings

Five standard penetration test borings, designated ST-29-05, ST-30-05, ST-31-05, ST-32-05, and ST-33-05, were completed on December 20, 2005 as shown on Figure 2. The following table describes the locations of each completed soil boring:

Soil Boring	Location
ST-29-05	On the east side of the site within the proposed roadway
ST-30-05	Within the proposed roadway
ST-31-05	West of proposed Van White Memorial Boulevard
ST-32-05	West of proposed Van White Memorial Boulevard
ST-33-05	Along western side of property

The standard penetration test borings were completed using hollow-stem auger drilling techniques to a depth of 12 feet bgs in ST-29-05, 10 feet bgs in ST-30-05, and 8 feet bgs in ST-31-05 through ST-33-05. These depths of completion also correlate with the depth of groundwater encountered in the borings. A soil boring location map is attached as Figure 2.

A Braun Intertec environmental field technician was at the site during the soil boring activities to monitor the subsurface materials encountered at each sampling location. Soil samples were collected using a split-spoon sampler at continuous two foot intervals to the respective termination depths of the borings.

Soils were classified in accordance with ASTM D 2487 "Unified Soils Classification System" and ASTM D 2488 "Recommended Practice for Visual and Manual Description of Soils." Soil discoloration and odors were documented if detected. In addition, soil samples were screened for the presence of organic vapors with a PID equipped with a 10.6-electron-volt lamp using both direct readings and a bag-headspace method of analysis recommended by the MPCA.

Shallow soil samples for chemical analyses were collected between the ground surface and 4 feet bgs, and deep samples were collected from 6 feet to 8 feet bgs. The sample aliquots collected for volatile organic compound (VOC), gasoline-range organics (GRO), and diesel-range organics (DRO) analyses in the borings that had poor recovery were collected as grab samples from the available sample volume and designated as such on the chain-of-custody and laboratory report. The lack of available sample volume was attributed to frozen ground at the time of the fieldwork and in some cases the remaining aliquots were collected from the next sampling interval. The soil samples were submitted to the Braun Intertec laboratory for chemical analysis of the parameters described in Section 3.4. Upon completion, the borings were abandoned with neat cement grout that was placed from the bottom up using a tremie pipe.

### **3.4. Chemical Analyses**

Two soil samples from each of the borings were submitted for chemical analyses at the Braun Intertec laboratory for the following parameters:

- VOCs using the EPA Method 8260
- Semi-volatile organic compounds (SVOCs) using EPA Method 8270
- Polychlorinated biphenyls (PCBs) using EPA Method 8082
- GRO using the Wisconsin Department of Natural Resources (WDNR) Method
- DRO using the WDNR Method
- Priority pollutant metals using EPA 6000 and 7000 series methods

The samples were transported under refrigerated conditions and accompanied by Braun Intertec chain-of-custody records. All analyses were performed within EPA holding times.

## **4.0 Investigation Results**

### **4.1 Hydrogeologic Conditions**

In general, fill mixed with debris was encountered to the termination depths of the borings, except in ST-29-05. Native deposits consisting of peat and clay were encountered in soil boring ST-29-05 at depths below 10 feet bgs. The fill soil at the site consisted of dark brown to black silty clay and silty sand varying to poorly sorted sand with gravel, ash, glass, wood, brick, metal, and plastic. The water table was encountered between eight feet and ten feet bgs in the borings. The soil boring logs are included in Appendix B.

### **4.2. Organic Vapor Screening Results**

The soil samples retrieved from the soil boring were examined by a Braun Intertec environmental technician for staining and other indications of contamination. In addition, the soil samples were screened for the presence of organic vapors with a PID. The PID was equipped with a 10.6- electron-volt lamp and was calibrated daily to an isobutylene standard. The PID was used to test fresh surfaces of soil retrieved in the split-barrel sampler and to perform headspace analyses. Organic vapors were not detected above background concentrations, with the exception of the sample collected from approximately 8 feet bgs in boring ST-30-05, which indicated organic vapors at 274 parts per million (ppm) and had a strong sulfur odor. The soil boring logs with PID screening results are included in Appendix B.

### **4.3. Soil Analytical Testing Results**

The analytical testing results for the soil samples are summarized on Table 1 and Figure 2. The table also includes MPCA Soil Reference Values (SRVs) and Soil Leaching Values (SLVs) for comparison purposes. Exceedances of the SRVs and/or SLVs have been highlighted on the table. Laboratory analytical reports and chain-of-custody forms are included in Appendix C. The analytical results indicate the following:

- No VOCs were detected in the soil samples collected from the soil borings at concentrations greater than the laboratory method reporting limits, with the exception of various VOCs detected in the deeper samples collected from ST-32-05 and ST-33-05. Several VOCs were detected in ST-32-05 (6-8'); however, naphthalene, which was detected at a concentration of 15 milligrams per kilogram (mg/kg), was the only VOC detected at a concentration greater than the Residential SRV or the SLV. The Residential SRV for naphthalene is 10 mg/kg, and the SLV is 7.5 mg/kg.

Only one VOC, naphthalene, was detected in ST-33-05 (4-6') at a concentration of 0.89 mg/kg, less than the Residential SRV and the SLV.

- Various SVOCs, primarily polynuclear aromatic hydrocarbons (PAHs), were detected in each of the soil boring samples, although none of the concentrations exceeded the Residential SRV or SLVs, with the exception of SVOCs detected in sample ST-31-05 (6-8'). In sample ST-32-05 (6-8') the following SVOCs were detected at concentrations exceeding the SRV and/or the SLV:
  - Acenaphthalene detected at 59 mg/kg exceeding the SLV of 50 mg/kg.
  - Fluoranthene detected at 340 mg/kg exceeding the SLV of 295 mg/kg.
  - Fluorene detected at 88 mg/kg exceeding the SLV of 47 mg/kg.
  - Naphthalene detected at 57 mg/kg exceeding the Industrial SRV of 28 mg/kg and the SLV of 7.5 mg/kg.
  - Carcinogenic PAHs. The Benzo(a)pyrene (BaP) equivalent calculated for the sample was 141.6 mg/kg, which exceeds both the Industrial SRV of 3 mg/kg and the SLV of 10.2 mg/kg.
- DRO was detected in all of the samples at concentrations ranging from 16 mg/kg to 49,000 mg/kg. DRO concentrations greater than 100 mg/kg included:
  - 180 mg/kg in ST-31-05 (0-2')
  - 1,200 mg/kg in ST-31-05 (4-6')
  - 49,000 mg/kg in ST-32-05 (6-8')
- No GRO was detected above the laboratory reporting limits in the soil samples collected, with the exception of sample ST-32-05 collected from 6 to 8 feet bgs at 180 mg/kg.
- PCBs were detected in two of the ten soil samples [ST-31-05 (0-4') and ST-32-05 (6-8')]. Total PCB results from sample ST-31-05 at 0.18 mg/kg did not exceed the Residential SRV of 1.2 mg/kg or the SLV of 2.1 mg/kg. However, total PCBs were detected at 3.1 mg/kg in sample ST-32-05 (6-8'), which does exceed the Residential SRV and the SLV, but not the Industrial SRV of 8 mg/kg. No other total PCB result exceeded the residential or industrial SRV or SLV from the soil borings samples.
- Several of the 13 Priority Pollutant metals were detected at concentrations greater than the Residential and/or Industrial SRVs and/or SLVs in several of the soil samples. In general, the highest concentrations of metals were detected in the shallow soil samples. Arsenic was detected at concentrations greater than the Industrial SRV and the SLV (i.e., 21 mg/kg and 42 mg/kg) in

the shallow soil samples collected from ST-20-05, ST-31-05, and ST-32-05. Lead also was detected at concentrations greater than the Industrial SRV and the SLV (i.e., ranging from 850 mg/kg to 6,000 mg/kg) in shallow samples collected from ST-29-05, ST-30-05, and ST-31-05. Lead was detected at concentrations greater than the Industrial SRV and SLV in deep samples collected from ST-31-05 and ST-32-05.

- Following receipt of the analytical testing results, additional testing for the 8 RCRA metals was conducted using the Toxicity Characteristic Leaching Procedure (TCLP) on 7 of the soil samples where lead concentrations exceeded the Residential SRV of 300 mg/kg. The results of the TCLP analysis of the soil sample collected from 2 feet to 4 feet bgs in soil boring ST-29-05 indicated lead at a concentration of 130 milligrams per liter (mg/L) and the soil sample collected from 4 feet to 8 feet bgs in soil boring ST-31-05 indicated lead at a concentration 14 mg/L. These lead results exceed the RCRA Regulatory Level for lead of 5 mg/L, indicating the soils are characteristically hazardous. TCLP results are summarized in Table 2.

#### **4.4. Quality Assurance/Quality Control Samples**

In accordance with the work plan and the QAPP, QA/QC samples were collected during the Phase II ESA. The QA/QC samples included the following:

- One equipment blank, designated EB-01, which was prepared in the field by pouring high-purity water over and through a clean split-spoon sampler and collecting the rinsate in the appropriate sampling containers.
- Two trip blanks, designated TB-01 and TB-02, which accompanied each cooler containing samples for VOC analyses.
- One methanol blank, designated MB-01.
- One matrix spike/matrix spike duplicate sample. The MS/MSD analyses was conducted on sample ST-31-05 (0-2') / (0-4').
- One duplicate sample designated ST-131-05 (4-6') / (4-8') was collected from the same sampling interval as investigative sample ST-31-05 (4-6') / (4-8').

No contaminants were detected in the equipment blank, trip blanks, or methanol blanks at concentrations greater than the laboratory reporting limits.

The percent difference between the investigative sample and the duplicate sample ranged from 1 percent to 410 percent (see Table 3). Many of the results were of the same order of magnitude. The variation between the two samples is likely due to the large degree of heterogeneity present in the fill soils at the site.

As indicated in the case narrative of the laboratory report, the MS/MSD for nickel was below the laboratory control limits. Spike recoveries 61.2 percent and 58.8 percent, respectively. Control limits are 75 to 125 percent. The laboratory control (LC) and laboratory control duplicate (LCD) samples were within specifications. This indicates a slight low bias due to matrix interferences in the samples.

The MSD for mercury exceeded the laboratory control limits, while the MS, LC, and LCD recoveries were within specifications. This may indicate a high bias due to matrix interference or it may indicate a lack of sample homogeneity. Most likely it is a sample homogeneity issue as mercury tends to lack homogeneity in soil.

The sample duplicate for DRO did not meet the WDNR acceptance limit for the method acceptance limit for the Relative Percent Difference (RPD). The difference was attributed to lack of sample homogeneity.

The LC, LCS, and MSD for acetone exceeded the upper control limits indicating a possible high bias for the results; however, acetone is not considered a site contaminant of concern.

Additional details regarding the QA/QC samples is provided in the case narrative in the laboratory analytical report and overall, the laboratory results are considered valid.

## **5.0 Conclusions**

The results of the Phase II ESA indicate the following:

- At least 12 feet of fill mixed with debris including metal, ash, glass, and bricks is present across the site. The groundwater table was encountered between 8 feet and 10 feet bgs.
- In addition to the debris mixed with fill, indications of contamination documented during the Phase II ESA included a strong sulfur odor and elevated PID headspace reading at eight feet bgs in soil boring ST-30-05.

- Elevated concentrations of metals relative to the Residential and Industrial SRVs and SLVs are present primarily in the shallow soil across the site. Concentrations of metals greater than the Industrial SRVs also were noted at depth in soil boring ST-31-05 and ST-32-05, which were located in the central portion of the site to the west of the proposed roadway.
- Elevated concentrations of VOCs, SVOCs, and PCBs, relative to the Residential and Industrial SRVs and SLVs, also were detected at depth in soil boring ST-32-05.
- Hazardous concentrations of lead are present in the upper sample collected from ST-29-05, which is located within the proposed roadway and at depth in soil boring ST-31-05, which is located west of the proposed roadway.

Based on the investigation results, the RAP/CCP will be modified to include response actions relative to the hazardous concentrations of lead and other contaminants detected at the site.

In addition, a release of hazardous substances has occurred at the site. According to Minnesota Statute 115.061, the property owner and/or responsible parties associated with this release have a duty to notify the MPCA via the Minnesota Department of Public Safety Division of Emergency Management Duty Officer.

## **6.0 Assessment Limitations**

The analyses and conclusions submitted in this report are based on our field observations and the results of laboratory chemical analyses of soil samples collected from the soil borings completed for this project.

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same location. No other warranty is made or intended.