REGION 5 RAC2

REMEDIAL ACTION CONTRACT FOR

Remedial, Enforcement Oversight, and
Non-Time Critical Removal Activities at Sites of Release
or Threatened Release of Hazardous Substances in Region 5

REMEDIAL INVESTIGATION REPORT
SOUTH MINNEAPOLIS
RESIDENTIAL SOIL CONTAMINATION SITE
Minneapolis, Minnesota

WA No. 016-RICO-B5BY/Contract No. EP-S5-06-01

November 2007

PREPARED FOR

U.S. Environmental Protection Agency

PREPARED BY

CH2M HILL
Ecology and Environment, Inc.
Environmental Design International, Inc.
Teska Associates, Inc.

REMEDIAL INVESTIGATION REPORT

SOUTH MINNEAPOLIS
RESIDENTIAL SOIL CONTAMINATION SITE
Minneapolis, Minnesota

WA No. 016-RICO-B5BY/Contract No. EP-S5-06-01

November 2007

Executive Summary

The South Minneapolis Residential Soil Contamination Site (SMRSCS), located in Minneapolis, Minnesota, has been investigated for residential arsenic contamination transported by aerial dispersion from the CMC Heartland Lite Yard Site (CMC Heartland Site). Between 1938 and 1963, the CMC Heartland Site blended and distributed arsenical pesticides and herbicides, during which time air dispersion is suspected to have transported arsenic into residential properties in the SMRSCS.

This Remedial Investigation (RI) report summarizes results from the testing that has occurred at the SMRSCS from 2001 through 2006 and characterizes the risk posed from arsenic concentrations. The property-specific results are not included in this RI report and are available only to the property owners; however, the distribution and range of arsenic concentrations are discussed for the site characterization and in characterization of the risk.

Residential properties with elevated arsenic were identified in the SMRSCS in all directions and at virtually all distances from the CMC Heartland Site. Statistical analyses provided some correlation with the CMC Heartland Site; however, these do not indicate the CMC Heartland Site is wholly attributable for the arsenic impacts, particularly the highly elevated arsenic results. Specific data evaluation and analyses are summarized below:

- Decreasing arsenic concentration trends are present in a few directions from the CMC Heartland Site. These trends are strongest at lower arsenic concentrations (background concentrations) and the overall variability in the data limits the predictability of these relationships. The site conceptual model of arsenic contamination due to aerial dispersion does not account for the relatively high concentrations of arsenic in all directions and distances which do not demonstrate directional or distance trends with the CMC Heartland Site (Appendix A-5).
- Evaluation of the age of the homes relative to the period of arsenical pesticide and herbicide blending and distribution at the CMC Heartland Site indicates that homes constructed prior to 1963 had a proportionally greater number of arsenic concentrations above 95 milligrams per kilogram (mg/kg) (the interim removal action limit) than homes constructed after 1963 when arsenical pesticide and herbicide blending and distribution at the CMC Heartland Site ceased (USEPA, 2007). The ages of homes are randomly distributed throughout the SMRSCS as are the arsenic concentrations.
- Mineralogy and petrography analyses identified arsenic at various levels in arsenic oxides, magnetite, iron oxides, lead oxides, and other compounds identified in the surface soil sample. Of the arsenic oxides, analysis showed the samples were similar to stoichiometric arsenic trioxide which was used at the CMC Heartland Site in the pesticide and herbicide blending (UNM, 2007). However, sufficient sample volume of source material from the CMC Heartland Site was not available for analysis and comparison of the mineralogy.

The arsenic concentrations are not consistent with the conceptual site model of only air dispersion and it does not appear that the elevated arsenic concentrations in soil are wholly

attributable to the CMC Heartland Site. The occurrence of elevated arsenic in all directions at virtually all distances from the CMC Heartland Site indicates the arsenic may partially be the result of property-specific use or application.

While there is uncertainty about the origin of the elevated arsenic, the arsenic concentrations are present at levels that pose a human health risk. A baseline human health risk assessment (HHRA) estimated the carcinogenic and non-carcinogenic risks to an adult/child resident and a construction worker in the SMRSCS. The potential exposure routes that were quantified included accidental ingestion (via hand-to-mouth activities), dermal contact (through the skin), and inhalation of arsenic in soil and outdoor air. In addition, potential intakes for residents were quantified for the ingestion of homegrown garden vegetables grown in impacted soil. The HHRA identified that arsenic is present in the SMRSCS at concentrations that result in an estimated risk above USEPA's target risk levels.

The HHRA calculated risk-based preliminary remediation goals (PRGs) for arsenic for residents with and without vegetable gardens and construction workers. The calculations indicate that arsenic concentrations of 25 mg/kg (or less) are protective of persons residing in the area for up to 50 years with vegetable gardens and arsenic concentrations of 261 mg/kg (or less) are protective of constructions workers. The final cleanup levels for the site will be identified in the feasibility study (FS) after taking into consideration the uncertainties in the risk assessment.

The HHRA estimated that most of the risk is from incidental ingestion of soil and dust (approximately 70 percent) and eating garden vegetables (approximately 25 percent). A small proportion of estimated risk (approximately 4 percent) is from dermal contact with soil, and a very small relative proportion of potential risk (<0.05 percent) is from inhalation of dusts. The estimated risks likely exaggerate the estimates of potential risk due to uncertainties and assumptions required in the HHRA process.

No population-level ecological risks are expected from arsenic in site soils. As such, no ecological PRGs will be developed as part of the FS.

Contents

Appendixes

List of Figures

List of Tables

Acronyms and Abbreviations

AgVIC	Agricultural Voluntary Investigation & Cleanup Program
ARARs	applicable or relevant and appropriate requirements
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	below ground surface
°C	degrees Celsius
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CLP	Contract Laboratory Program
CMC	CMC Heartland Partners
CMC Heartland Site	CMC Heartland Lite Yard Site
COC	chemicals of concern
COPC	constituents of potential concern
CSM	conceptual site model
CTE	central tendency exposure
CWI	County Well Index
Eco-SSLs	USEPA Ecological Soil Screening Levels
EPC	exposure point concentrations
ERA	ecological risk assessment
ESA	Environmental Site Assessment
FIELDS	Field Environmental Decision Support
FS	feasibility study
HCRRA	Hennepin County Railroad Authority
HHRA	human health risk assessment
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
mg/kg	milligrams per kilogram

MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
$NaAsO_2$	sodium arsenate
oz	ounce
ppb	parts per billion
PRG	preliminary remediation goal
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
REAC	Response Engineering and Analytical Contract
RI	Remedial Investigation
RI/FS	remedial investigation/feasibility study
RME	reasonable maximum exposure
SMRSCS	South Minneapolis Residential Soil Contamination Site
SWCA	Special Well Construction Area
SRV	Soil Reference Value
TAL	target analyte list
UAO	Unilateral Administrative Order
µg/L	micrograms per liter
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USEPA	United States Environmental Protection Agency
UTL	upper tolerance levels
XRF	x-ray fluorescence
yd^3	cubic yards

SECTION 1

Introduction

The South Minneapolis Residential Soil Contamination Site (SMRSCS) in Minneapolis, Minnesota has been investigated for residential arsenic contamination transported by aerial dispersion from the CMC Heartland Lite Yard Site (CMC Heartland Site). Between 1938 and 1963 arsenical pesticides and herbicides were blended and distributed at the CMC Heartland Site property by Reade Manufacturing. Between 1963 and 1968, U.S. Borax leased the property but claims to not have received any shipments of arsenic trioxide. Air dispersion is suspected to have transported arsenic into residential properties in the SMRSCS. The CMC Heartland Site has been previously investigated and was remediated in 2004 and 2005, but is discussed in this report as part of the conceptual site model for the arsenic contamination at the SMRSCS.

In November 2005, the U.S. Environmental Protection Agency (USEPA) assigned CH2M HILL to conduct a remedial investigation/feasibility study (RI/FS) for arsenic contamination at the SMRSCS. As part of the RI/FS, CH2M HILL was tasked with developing and performing the investigation of residential properties and schools and parks within the study area. The investigation activities performed as a part of the RI/FS also supported the removal actions. The USEPA commenced removal actions in October 2004 at a limited number of properties and the removal actions have continued as new properties were identified within the SMRSCS during the RI/FS.

This Remedial Investigation (RI) report summarizes results from the testing that has occurred at the SMRSCS from 2001 through 2006 and characterizes the risk posed from arsenic concentrations. The samples were collected primarily from residential properties with separate composite samples for each yard within the property (i.e., front yard and backyard). Because of federal privacy restrictions, the property-specific results are not included in this RI report and are available only to the property owners; however, the distribution and range of arsenic concentrations are discussed for the site characterization and in characterization of the human health and ecological risk.

1.1 Report Organization

The remainder of the RI report is organized as follows:

- Section 2 presents the physical site settings.
- Section 3 presents the summary of the environmental investigations.
- Section 4 presents the nature and extent of contamination.
- Section 5 presents the contaminant fate and transport.
- Section 6 presents the baseline human health risk assessment.
- Section 7 presents the screening level ecological risk assessment.
- Section 8 presents the summary and conclusions drawn from the RI.

1.2 Site Background

This section describes the general location and description of the SMRSCS, as well as defines the history of the site. It provides a brief description of previous investigations that have occurred at the SMRSCS and the surrounding vicinity.

1.2.1 Location

The SMRSCS is located in Minneapolis, Hennepin County, Minnesota. The area encompassed by the SMRSCS includes residential, commercial, industrial, and municipal properties. The SMRSCS is largely residential, with much of the housing built from the early 1900s through 1930s. Figure 1-1 provides the location of the site and Figure 1-2 illustrates the property usage within the SMRSCS.

Previous investigations focused primarily on the residential areas to the northwest and southwest of the former CMC Heartland Site, located at 2800 Hiawatha Avenue due to prevailing winds in the Minneapolis area.

The aerial dispersion model performed by USEPA served as the preliminary boundary for investigating arsenic contamination within the SMRSCS. Because of uncertainties in the former site operations at the CMC Heartland Site, numerous assumptions were necessary for the creation of the aerial dispersion model. The SMRSCS consists of the residential properties, schools, and parks within the approximate ¾-mile radius air dispersion model centered on the former CMC Heartland Site.

1.2.2 History

The CMC Heartland Site was owned by the Chicago, Milwaukee, St. Paul, and Pacific Railroad Company (Milwaukee Railroad) beginning in 1880. The Milwaukee Railroad declared bankruptcy in 1985, and as a result of the bankruptcy, the CMC Heartland Site was transferred to CMC Heartland Partners (CMC) on November 8, 1993. The former CMC Heartland Site was acquired by 2800 Hiawatha, LLC on August 15, 2005.

From 1938 to 1969, Reade Manufacturing Company (Reade) leased the CMC Heartland Site from the Milwaukee Railroad. From 1938 to 1963, Reade blended, stored, and distributed arsenical herbicides and pesticides at the CMC Heartland Site. During the 1940s, Reade also produced an arsenic-based grasshopper insecticide (Geomega, 2004). During Reade's operations, arsenic trioxide was unloaded from railroad hopper cars to an open conveyor belt, resulting in powdered arsenic trioxide being released into the air and onto the CMC Heartland Site.

From 1963 to 1968, U.S. Borax subleased the CMC Heartland Site from Reade. U.S. Borax manufactured, shipped, and stored borate-based herbicides. In January 1968, a storage tank containing liquid sodium arsenite ($NaAsO_2$) ruptured, releasing approximate 3,000 gallons of liquid sodium arsenite from a 25,000-gallon storage tank onto an area approximately 1,000 square meters (m^2) which was subsequently covered with approximately 6 inches of sand (Geomega, 2004). In the period after 1968, the site was occupied by Rollins Oil Company and subsequently Bituminous Roadways, an asphalt road construction company.

Arsenic contamination was discovered by the Minnesota Department of Transportation (MnDOT) in 1994 during a reconstruction of the Hiawatha Avenue corridor adjacent to the CMC Heartland Site. After the arsenic contamination was identified in 1994, an additional investigation was performed at the CMC Heartland Site. By 1996, Bituminous Roadways had placed one to two feet of crushed asphalt over the CMC Heartland Site to keep further dust from blowing offsite and to minimize human exposure to surface soil (Geomega, 2004). Remedial actions were performed at the CMC Heartland Site in 2004 and 2005 and the site has subsequently been redeveloped. At present, the former CMC Heartland Site is owned by 2800 Hiawatha, LLC and occupied by the Hiawatha Business Center, an approximate 60,000 square foot light industrial building (Peer, 2005).

As the result of the investigation at the CMC Heartland Site, the Minnesota Department of Health (MDH) recommended in 1999 that soil sampling be performed in residential areas near the CMC Heartland Site due to the elevated arsenic concentrations. Prevailing summer winds were determined to be from the southeast toward the northwest; therefore, the residential area located directly downwind of the CMC Heartland property became the focus of the sampling effort (USEPA, 2005a). Investigations in the residential neighborhood performed by the MDH and Minnesota Department of Agriculture (MDA) identified arsenic impacts in the shallow soils. The MDA requested assistance from USEPA in 2004 after sampling efforts in the residential neighborhood identified properties with elevated arsenic concentrations.

1.3 Previous Investigations and Remediation

As noted, numerous investigations and response activities have been conducted at the CMC Heartland Site and within the SMRSCS. The major investigations and response actions are summarized below.

1.3.1 1994 – MnDOT

In 1994, the MnDOT performed an investigation of the entire Hiawatha Avenue corridor for reconstruction. Hiawatha Avenue runs along the eastern side of the CMC Heartland Site and the investigation included the easternmost part of the CMC Heartland Site. Organochlorine pesticides and elevated levels of arsenic were detected in some borings along Hiawatha Avenue near the CMC Heartland Site (MDA, 2000). This investigation was used in the development of the conceptual site model of aerial dispersion of arsenic from the CMC Heartland Site.

1.3.2 1995 – MnDOT and MDA

In July 1995, MnDOT joined MDA's voluntary cleanup program, now called the Agricultural Voluntary Investigation and Cleanup (AgVIC) program, to further investigate the arsenic contamination in the highway corridor. Further investigation indicated that the arsenic came from the CMC Heartland Site (MDA, 2000). This investigation was used in the development of the conceptual site model of aerial dispersion of arsenic from the CMC Heartland Site.

1.3.3 1995 – CMC Heartland Partners

In December 1995, CMC completed an investigation that indicated the former Reade Manufacturing Company was likely the source for the arsenic in the Hiawatha Avenue corridor near the site. A subsequent investigation focused on the soil near the location of the former manufacturing building (MDA, 2000). This investigation was used in the development of the conceptual site model of aerial dispersion of arsenic from the CMC Heartland Site.

1.3.4 2000 – MDH Health Consultation

In December 2000, the MDH finalized the *Health Consultation Report* for the CMC Heartland Site. The Health Consultation evaluated environmental conditions based on previous investigations, evaluated health effects, and developed recommendations for reducing or eliminating exposure to the contaminants. In the MDH Health Consultation, information was provided on a well receptor survey for the area within one mile of the CMC Heartland Site. The well receptor survey identified 39 wells including the following:

- Twelve (12) public supply wells varying in depth from 150 to 472 feet below ground surface (bgs)
- Seven (7) commercial wells varying in depth from 150 to 481 feet bgs
- Three (3) industrial use wells varying in depth from 427 to 995 feet bgs
- Fifteen (15) monitoring wells varying in depth from 19 to 69 feet bgs
- Two (2) test wells at depths of 199 to 200 feet bgs

MDH recommendations in the Health Consultation included additional characterization of soil and groundwater, site access and soil management improvements, and institutional controls (MDH, 2000).

1.3.5 2001 – MDA and MDH

The MDH recommended soil sampling in residential areas due to elevated concentrations of arsenic at the CMC Heartland site. In June 2001, MDA in conjunction with MDH conducted a limited sampling event at residential properties to the west (crosswind) and northwest (downwind) of the CMC Heartland Site. Results of the 2001 MDA sampling event indicated arsenic concentrations (24 to 210 mg/kg) in soil at 6 of the 11 downwind properties sampled. Elevated arsenic concentrations were not found in the seven crosswind properties sampled (MDA, 2004b).

MDA and MDH established 4 to 5 mg/kg as the background arsenic concentration in the sampling area. Based on the June 2001 sampling event and neighborhood concerns, MDA and MDH determined that more extensive sampling in the Phillips neighborhood was warranted (USEPA, 2005a). As a result, MDA conducted a second study in the neighborhood (MDA, 2004b). The results from this investigation were used in the evaluation of nature and extent and fate and transport.

1.3.6 2002 – The Green Institute

In 2002, The Green Institute performed an investigation at three properties—Garden 7, Garden 8 and Garden 9—as part of a property transfer investigation. During the investigation, elevated arsenic was detected in the four surface soil samples collected from Garden 8. Concentrations ranged from 24 mg/kg to 38 mg/kg (Landmark, 2002a).

During a supplemental investigation in September 2002, an additional 13 samples (7 samples to a depth of 3 inches and 6 samples to a depth of 3 feet) were collected from Garden 8 and results ranged from 1.8 mg/kg to 34 mg/kg (Landmark, 2002b). A remedial action plan to excavate the arsenic-impacted soil from Garden 8 and dispose of the material offsite was approved by the Minnesota Pollution Control Agency (MPCA) on April 23, 2003 (MPCA, 2003a). The results of this investigation were used to support the risk assessment assumptions made for the consumption of vegetables and use of public gardens where remedial actions have been taken as necessary.

1.3.7 2003 – Powderhorn Residents Group

In April 2003, a Phase II Environmental Site Assessment (ESA) was performed for the Powderhorn Residents Group for redevelopment of the Village in Phillips. Samples were collected during the Phase II from three depth intervals (0 to 3 inches, 1.5 to 2.0 feet, and 3.5 to 4.0 feet) at 11 locations using a probe. Arsenic was detected at concentrations from non-detect to 328 mg/kg (STS, 2003). A response action plan was subsequently prepared to excavate arsenic-impacted soil and dispose of offsite. The response action plan was approved by the MPCA on October 30, 2003 (MPCA, 2003b).

1.3.8 2003 – Hennepin County Railroad Authority

The railroad corridor near the southwest corner CMC Heartland Site was sampled in 2000 by the Hennepin County Railroad Authority (HCRRA). Soil samples were collected at five locations along the railroad corridor and analyzed for arsenic. In 3 of the 5 samples, arsenic was detected at or above the Recreational Soil Reference Value (SRV) of 12 mg/kg. The 3 locations at or above the Recreational SRV were located nearest the CMC Heartland Site and defined the western boundary of the railroad corridor for investigation in 2003 (Geomatrix, 2003a).

In May 2003, Geomatrix performed an investigation for HCRRA in the section of the former railroad corridor with arsenic concentrations above the Recreational SRV as delineated in 2000. The former railroad corridor was being redeveloped into a recreational pedestrian/bike pathway. A direct-push rig was used to collect discrete samples from depth intervals of 0.5-feet, 1-foot and 2-feet bgs at 40 locations. A total of 33 samples collected from 25 locations had exceedances of the Recreational SRV, with a maximum detection of 85 mg/kg (Geomatrix, 2003a).

To address arsenic concentrations greater than the Recreational SRV, a Response Action Plan was prepared to excavate approximately 500 cubic yards (yd^3) of impacted soil for offsite disposal and placement of 12 inches of clean soil cover (Geomatrix, 2003b). The results from this investigation were used in evaluation of nature and extent and potential arsenic sources in the SMRSCS.

1.3.9 2003 – MDA

In September 2003, a more extensive sampling event was performed in the Phillips neighborhood to attempt to attribute the elevated arsenic concentrations in the Phillips neighborhood to wind deposition of impacted soil from the CMC Heartland site. The sampling design was developed to obtain statistically valid data with a grid overlain on the Phillips Neighborhood with the majority of the samples falling on residential properties.

Delta Environmental Consultants, Inc. (Delta) collected soil samples from a total of 242 locations and 167 properties. An additional 12 replicate samples were collected for quality control and 23 co-located samples for an indication of spatial variability. Each sample was a composite using a "five on dice" pattern. Arsenic concentrations greater than or equal to the MPCA unrestricted land use standard (10 mg/kg) were detected in 35 samples from 27 properties. Arsenic was detected in 11 samples at concentrations greater than 100 mg/kg and four of those samples contained arsenic concentrations exceeding 200 mg/kg (MDA, 2004b). The results from this investigation were used in the evaluation of nature and extent and fate and transport.

1.3.10 2004 – USEPA

Following the September 2003 sampling event, the MDA requested USEPA assistance to determine if a time critical removal action was warranted. The USEPA agreed to perform an additional investigation, enforcement action, and time critical removal action (MDA, 2004b). In May and June 2004, Tetra Tech EM Inc. (Tetra Tech) conducted sampling under contract to USEPA to evaluate soil quality on residential properties. The goal of the sampling was to identify arsenic-impacted properties and provide additional delineation of previously identified arsenic impacts. Samples were collected from 192 properties, primarily in the vicinity of properties previously identified as hotspots, from a depth of 0 to 3 inches bgs. Several samples were also collected to define a clean boundary around the perimeter of the Phillips Neighborhood where arsenic impacts had been detected (Tetra Tech, 2005).

USEPA and Agency for Toxic Substances and Disease Registry (ATSDR) determined that an arsenic concentration equal to or greater than 95 mg/kg in surface soils posed an acute risk to human health and warranted emergency removal actions. Based on the results from multiple sampling events conducted in the Phillips neighborhood, 30 properties were identified that exceeded the 95 mg/kg criteria. To mitigate this threat, removal actions performed included excavating the top 12 inches of soil from the yard, and the top 18 inches of soil from play areas and gardens (Tetra Tech, 2005).

On average, 106 yd^3 of arsenic-impacted soil was removed from each property. Post-excavation soil samples to document the residual arsenic concentrations in each yard were collected by USEPA's Response Engineering and Analytical Contract (REAC) contractor. The properties were backfilled to pre-existing grade with clean topsoil and seeded with grass seed following removal to depth (Tetra Tech, 2005).

The results from this investigation were used in the evaluation of nature and extent and fate and transport.

1.3.11 2005 – USEPA

In August 2005, Tetra Tech, under contract to USEPA, sampled 540 additional properties in the Phillips neighborhood to ensure that 100 percent of the residential properties most likely to be impacted by wind deposition from the former CMC Heartland Site were evaluated for potential impacts. Another 60 properties were also sampled to identify other areas that would be impacted in over a one-mile radius surrounding the CMC Heartland Site. That sampling identified another 31 properties with arsenic concentrations above 95 mg/kg. Removal activities performed were consistent with 2004 and commenced on September 20, 2005.

In December 2005, the USEPA Field Environmental Decision Support (FIELDS) Group performed an investigation for fingerprint analysis for the source of the arsenic and to evaluate spatial relationships with other metals. Twenty-two (22) samples collected in multiple directions from the CMC Heartland Site were analyzed for target analyte list (TAL) metals. From the 22 samples, 10 samples with higher arsenic concentrations were clustered together as determined through statistical analysis and this area was considered a "hot spot." The 22 metals were evaluated within and outside the "hot spot" to determine if there was a correlation between arsenic and other metals. No correlation between arsenic and the 22 metals analyzed were identified. The analysis performed is attached in Appendix A-1.

The results from this investigation were used in the evaluation of the nature and extent and fate and transport.

1.3.12 Former CMC Heartland Lite Yard Remediation

From 1996 through 2004, the former CMC Heartland Site was covered with 1 to 2 feet of crushed asphalt and clean fill to prevent dust from blowing offsite until a permanent cleanup was conducted. Remedial actions were performed at the former CMC Heartland Site in 2004 and involved excavation, stabilization, and off-site disposal of arsenic-impacted soil. Site cleanup standards of 20 mg/kg total arsenic and 525 mg/kg total lead were established for the soils within 4 feet of planned finished development grades to prevent direct-contact exposure to contaminated soil and to allow for commercial development of the property (Peer, 2006).

More than 23,000 yd^3 of contaminated soil was removed from the "hot spot" on the site and layback (Peer, 2005). The "hot spot" was an area with elevated arsenic concentrations from ground surface to the water table located approximately 24 feet bgs that may have resulted from a previous spill or the area of highest use and/or storage (MDA, 2004a). An additional 17,800 yd^3 of shallow soil was excavated within the upper 4 feet of planned development grade outside the "hot spot." Outside the CMC Heartland Site, 4,100 yd^3 of shallow soil was removed from the northwest HCRRA Corridor and 3,000 yd^3 was removed from the south HCRRA stockpiles. Depending on concentrations, the excavated soils were stabilized and disposed of offsite as industrial waste or disposed of offsite as industrial waste without stabilization. A limited quantity of soil was reused onsite with the approval of the MDA (Peer, 2005).

Clean fill was imported and placed to restore the excavated areas to planned development grades with a permanent 4 foot cover on the contaminated soils left in place; soils greater than 4 feet deep on a property used for commercial purposes are generally considered

inaccessible. Although some soils remain onsite which do not meet the soil cleanup goal of 20 mg/kg for arsenic, these soils are covered by 4 feet of clean fill and crushed bituminous asphalt, restricting access and protecting human health (Peer, 2005).

The removal of "hot spot" soils was estimated to result in a 95 percent reduction in loading to the groundwater. Institutional controls restrict access to residual contaminated soils and groundwater left on the CMC Heartland Site (MDA, 2004a). This data was used in the development of the conceptual site model and evaluation of fate and transport from the CMC Heartland Site.

1.3.13 Groundwater Investigation

In October 2005, the MDA approved the 2005 Ground Water Monitoring Plan prepared by Peer on behalf of CMC under the AgVIC program. The 2005 Ground Water Monitoring Plan includes 5 years of groundwater quality monitoring, including semi-annual sampling and testing for dissolved arsenic (Peer, 2006). After the 5 years of monitoring, the entire data set will be evaluated and a decision made for future groundwater monitoring, corrective actions, or other alternatives. A groundwater arsenic plume extending approximately 1,800 feet west-southwest of the former CMC Heartland Site has been monitored since 1996.

The site geology at the CMC Heartland Site consists of fill and coarse-grained terrace deposits to depths of 18 to 30 feet. The terrace deposits are underlain by 25 to 30 feet of glacial till. Groundwater flow in the unconsolidated deposits is to the west-southwest, estimated at 34 to 81 feet per year. The plume is confined to the terrace and glacial till deposits. The glacial till is underlain by the Platteville limestone and the St. Peter sandstone. Groundwater flow in the St. Peter sandstone is to the northeast, estimated to be 150 feet per year (MDH, 2005).

The highest observed arsenic concentration in groundwater (320,000 micrograms per liter (µg/L) measured in monitoring well MW-9 in 1996) was detected in the overburden near the former "hot spot." Remedial actions were performed in 2004 and the former "hot spot" soils were excavated which was anticipated to result in a reduction of the arsenic loading to the groundwater. As of May 2006, the monitoring well network consists of 14 wells screened in the overburden, one well in the Platteville limestone, and three wells in the St. Peter sandstone. In May 2006, the highest dissolved arsenic concentration was observed in an overburden well downgradient of the former "hot spot" at 16,000 parts per billion (ppb) (Peer, 2006).

A Special Well Construction Area (SWCA) has been established by the MDH related to the arsenic plume from the former CMC Heartland Site. The SWCA, which took effect on April 1, 2005, applies to the construction, repair, and sealing of all wells and will remain in effect until further notice. This area includes the area bounded by East 26th Street on the north, 26th Avenue on the east, Lake Street on the south, and Bloomington Avenue South on the west, within the city of Minneapolis (MDH, 2005). The groundwater investigations were used in the conceptual site model and evaluation of groundwater at the SMRSCS.

1.4 Concurrent 2006 Investigation Activities

In 2006, concurrent with the investigation activities described in Section 3, the TRIAD group performed supplemental investigation activities. These activities included high-density, property specific sampling for arsenic using x-ray fluorescence (XRF) and microscopy and petrography analyses for evaluation of the forms of arsenic present. The analysis performed is attached in Appendix A-2.

The goal of the XRF was to evaluate the application of XRF for use in field measurements of arsenic and to evaluate small-scale, property specific variability. The properties sampled using XRF were previously sampled in other investigations and used in the evaluation of nature and extent. The microscopy and petrography results were used in evaluation of the fate and transport.

SECTION 2

Physical Site Setting

This section discusses the physical characteristics of the SMRSCS necessary for evaluating potential pathways of contaminant migration. Background information on the area is presented for land use and demographics, topography, meteorology, surface water hydrology, geology, and hydrogeology.

2.1 Surrounding Land Use and Demographics

The SMRSCS encompasses residential, industrial, commercial, and municipal properties, approximately 2 miles southeast of downtown Minneapolis. As described in Section 1, the SMRSCS is a largely residential area with most commercial and industrial areas to the east of the former CMC Heartland Site. Most of the residences were built from the early 1900s through 1930s. A typical residential block has approximately 30 properties with an average lot size of approximately 5,500 square feet (0.1 acre).

2.2 Topography

Topography within the SMRSCS is relatively low relief with elevations ranging from approximately 830 to 860 feet above mean sea level (msl). Topographic elevations generally decrease to the east (Figure 2-1). Greater relief is present surrounding the pedestrian and bike pathway which is located in the former railroad corridor at the southwest corner of the CMC Heartland Site. Outside the boundaries of the SMRSCS, greater relief is also present near rivers and lakes.

The residential areas of the SMRSCS consist primarily of residences on grassed lots. Commercial and industrial areas typically have little open ground and are mainly asphalt or concrete and buildings. Schools, parks, and a cemetery comprise the majority of the open areas greater than 1 acre within the SMRSCS.

2.3 Meteorology

Climate in the city of Minneapolis is typically characterized with warm humid summers and cold winters. The annual mean temperature is 45.4°F with the highest monthly mean temperature in July (73.2°F) and lowest in January (13.1°F). Average annual rainfall is 29.4 inches with an annual average of 115 days with precipitation of 0.01 inches or more. The prevailing wind is from the northwest with an average wind speed of 10.5 miles per hour.

2.4 Surface Water Hydrology

There are no surface water bodies located within the SMRSCS. Although outside the boundaries of the SMRSCS, the Mississippi River is the main water body near the site and Powderhorn Lake is a small lake in Powderhorn Park located outside the southwest boundary of the SMRSCS. This RI report does not address contamination or risks associated with the Mississippi River or Powderhorn Lake since these surface water bodies are not within the boundaries of the SMRSCS.

2.5 Geology

2.5.1 Regional Geology

A number of continental glaciers are believed to have covered Hennepin County and deposited glacial till and outwash, collectively referred to as "glacial drift". The thickness of the drift ranges from a few feet in the southeast corner of the county to approximately 450 feet in preglacial valleys. In most places, the drift is 100 to 200 feet deep (U.S. Department of Agriculture [USDA], 2004). Underlying the glacial drift is a thin layer of discontinuous shale and the Platteville Limestone over the St. Peter Sandstone. Figure 2-2 presents a stratigraphic cross-section of the regional geology in the Minneapolis area.

2.5.2 Site Geology

A review of boring logs throughout the SMRSCS from the County Well Index (CWI) indicates that the glacial till varies from 50 to 75 feet in thickness and is typically underlain by the Platteville limestone to a depth ranging from 80 to 100 feet bgs. The Glenwood shale is discontinuous and is present in some borings as a thin layer between the Platteville limestone and St. Peter sandstone. In a portion of the SMRSCS, the St. Peter sandstone is the uppermost bedrock unit in a north-south trending bedrock valley. The St. Peter sandstone extends to approximately 250 feet bgs and is underlain by the Prairie Du Chien Group Dolomite to a depth of approximately 370 feet bgs.

2.6 Hydrogeology

2.6.1 Regional Hydrogeology

The glacial drift is a heterogeneous mixture of till, outwash, and terrace deposits from several glacial stages. In general, the shale at the base of the Platteville Limestone is the upper confining layer for the St. Peter Sandstone. The confining layer is impermeable glacial drift when this shale is not present. The St. Peter Sandstone is under the water table and artesian conditions in upland areas while it is mainly under water table conditions near river valleys. Recharge of the aquifers occurs mostly from overlying glacial drift. Discharge from the aquifers takes place along the Minnesota and Mississippi Rivers as springs and seeps. Of the aquifers, the glacial drift, the St. Peter Sandstone, the Shakopee and Oneota Dolomites, the Jordan Sandstone, the Franconia and Galesville Sandstones, and the Mount Simon and Hinckley Sandstones yield large amounts of water (U.S. Geological Survey [USGS], 1965).

2.6.2 Site Hydrogeology

Monitoring wells at the CMC Heartland Site are screened in the glacial drift, Platteville Limestone, and St. Peter Sandstone. Groundwater monitoring has indicated that arsenic impacts in groundwater appear to be limited to the glacial drift. Groundwater flow in the glacial drift is to the west-southwest, estimated at 34 to 81 feet per year (MDH, 2005). Groundwater flow in the St. Peter Sandstone is to the northeast, estimated to be 150 feet per year, and appears to be controlled by the Mississippi River (MDH, 2005).

SECTION 3

Summary of Environmental Investigations

This section describes the field activities conducted within the SMRSCS during the 2006 investigation and defines how results from those activities were used to characterize the properties. The results of this field effort were combined with results of other investigations performed since 2001 as described in Section 1.3.

3.1 Surface Soil Sampling

Surface soil samples were collected from residential properties and schools and parks within the SMRSCS and analyzed for total arsenic. Locations of the surface soil samples are shown in Figure 3-1. Surface soil samples were collected using a five-on-dice composite pattern. Individual composite samples were collected from separate areas of the property with front and back yard samples collected wherever possible. Side yards and gardens were sampled depending on the size. For larger properties, such as parks or schools, the property was divided into sub areas and composite samples were collected from each sub area.

At each discrete composite point, the grass (if present) was lifted and 2 ounces of soil were collected from the 0- to 3-inch depth interval. The five discrete sample locations were homogenized for the composite sample and transferred to a 4-ounce wide mouth soil jar and labeled. Samples were cooled to 4 degrees Celsius (°C) and submitted to the Contract Laboratory Program (CLP) for analysis. The evaluation of the results is provided in Section 4 in discussion of the nature and extent of arsenic in the surface soils. Complete details regarding the 2006 surface soil investigation are available in Appendix A-3.

3.2 Subsurface Soil Sampling

Subsurface soil sampling was performed to characterize the vertical distribution of total arsenic at properties of various arsenic concentrations. Subsurface soil borings were drilled using direct push soil sampling techniques (e.g., Geoprobe®). Locations of the subsurface soil samples are shown in Figure 3-2. Samples were collected at 1 foot intervals to a depth of 5 feet and one additional sample was collected at 10 feet bgs, resulting in six samples collected from each boring location prior to the collection of any quality control samples.

The soil boring was continuously logged to a depth of 10 feet bgs using the ASTM D-2487, Unified Soil Classification System. Each discrete sample interval was homogenized and transferred to a 4-ounce wide mouth soil jar and labeled. Samples were cooled to 4°C and submitted to the CLP for analysis. Complete details regarding the 2006 subsurface soil investigation are available in Appendix A-4.

3.3 Laboratory Analysis

The composite samples were analyzed for total arsenic by four laboratories in USEPA's CLP. The analyses were performed using CLP Method ILM05.3 (ICP-AES) in accordance with the Quality Assurance Project Plan (QAPP). Data validation of the results was performed by USEPA Region 5.

3.4 Data Quality Evaluation

The objective of the 2006 investigation was to sample 100 percent of the residential properties within the SMRSCS. Properties that were sampled in 2001 to 2005 were included in the 2006 investigation if there had been only a single sample previously collected from the property. As a result, there were a number of properties that were sampled in both 2001 to 2005 and in 2006. By comparing the surface soil sample results collected from these different investigations and evaluating the relative percent difference (RPD), it was possible to determine that these data sets were comparable. As a result, the data were combined into a single data set for evaluation of all residential properties, schools, and parks sampled within the SMRSCS. The statistical analysis which evaluated the data set is attached as Appendix A-5.

SECTION 4

Nature and Extent of Contamination

This section summarizes the nature and extent of contamination identified in soils at the SMRSCS. The nature and extent is based on results of surface soil sampling performed at the SMRSCS from 2001 through 2006 and subsurface soil sampling results from August 2006. Arsenic results were evaluated to determine the extent of the arsenic within the SMRSCS and identify properties and areas where arsenic concentrations create an immediate health risk (greater than 95 mg/kg). Groundwater was characterized in previous studies as summarized in Section 1 and a current groundwater monitoring program is in place. Groundwater is not discussed in depth in this section.

4.1 Contamination Source

As described in Section 1, the conceptual site model for the source of the arsenic contamination within the SMRSCS is the CMC Heartland Site. Arsenic-based pesticides and herbicides were blended, stored, and distributed at the CMC Heartland Site from 1938 through 1963. These products contained arsenic trioxide, which was delivered to the site by rail, and unloaded from rail cars on uncovered conveyor belts. Arsenic trioxide is a fine powder which would be susceptible to airborne dispersal, the transport mechanism evaluated from the CMC Heartland Site.

Arsenic impacts in the area were identified in 1994 by the MnDOT during reconstruction of Hiawatha Avenue near the CMC Heartland Site. Subsequent investigations at the CMC Heartland Site detected arsenic in surface soil at concentrations up to 5,000 mg/kg (MDA, 2004a). Other locations evaluated in the RI as potential sources of arsenic in the SMRSCS included the railroad and the City of Minneapolis incinerator. The railroad corridor and incinerator are located in the SMRSCS near the CMC Heartland Site.

Arsenic trioxide was delivered by rail to the CMC Heartland Site during the blending of arsenic-based pesticides and herbicides. In 2000, HCRRA sampled the railroad corridor near the southwest corner of the CMC Heartland Site. Arsenic was detected and concentrations decreased with distance from the CMC Heartland Site from the east to west. During investigations in 2003, arsenic was detected in the railroad corridor at concentrations above the Recreational SRV at 25 of the 40 sample locations. The maximum arsenic concentration detected was 85 mg/kg. These results were orders of magnitude less than concentrations detected at the CMC Heartland Site and limited to the area nearest the CMC Heartland Site. The railroad corridor was therefore not further evaluated as the source of arsenic in the conceptual site model.

In July 2004, the USEPA collected two ash samples from the City of Minneapolis incinerator facility. Sample results for the two samples were 66 mg/kg and 110 mg/kg. These concentrations were orders of magnitude less than concentrations detected at the CMC Heartland Site and the incinerator was therefore not further evaluated as the source of arsenic in the conceptual site model.

A model performed by USEPA predicted air dispersion from the CMC Heartland Site would result in arsenic deposition on properties within the boundary identified in Figure 4-1. A summary of the air dispersion model is provided in Appendix A-6. To evaluate the conceptual site model of air dispersion from the CMC Heartland Site, the RI was developed to sample 100 percent of the residential properties within the modeled air dispersion boundary. The modeled boundary was modified slightly to include sampling of entire blocks as shown in Figure 4-1. This boundary defines the extent of the SMRSCS for this RI.

4.2 Surface Soil

Soil sampling was conducted from 2001 to 2006 in the SMRSCS to evaluate potential arsenic contamination in the residential neighborhoods surrounding the CMC Heartland Site. The sampling activities described in Section 3 were performed in 2006 to determine arsenic concentrations at 100 percent of the residential properties within the SMRSCS for evaluation of arsenic distribution and identification of properties and areas where arsenic concentrations create an immediate health risk (greater than 95 mg/kg). The 2006 investigation results were evaluated against the 2001 through 2005 results and determined the data were compatible, allowing the data to be used as a single data set. Therefore, the results from investigations performed from 2001 through 2006 were used in this RI in the evaluation of arsenic contamination in the SMRSCS.

The surface soil samples collected in 2001 through 2005 had been concentrated primarily in the area to the northwest of the CMC Heartland Site, as the prevailing winds in this area were from the southeast to the northwest. The 2006 surface soil investigation focused on sampling in an approximate ¾-mile radius in all directions from the CMC Heartland Site at residential properties, schools, and parks not previously sampled, in order to characterize the horizontal distribution of arsenic in soils within the limits of the USEPA air dispersion model for the SMRSCS. Figure 4-2 provides the locations of the surface soil arsenic sample locations and results used in this data set.

Arsenic surface soil sample results in the SMRSCS ranged from 0.11 mg/kg to 2,880 mg/kg. Out of 3,578 properties sampled during the 2001 to 2006 investigations, a total of 197 properties were identified with arsenic results greater than 95 mg/kg. An additional 135 properties within the SMRSCS were not sampled between 2001 and 2006 due to property owner access refusal. Table 4-1 provides a summary of the maximum arsenic concentration detected per property from the combined 2001 to 2006 data set.

TABLE 4-1
Arsenic Distribution By Property In Surface Soils
South Minneapolis Residential Soil Contamination Site — Minneapolis, Minnesota

	<10 mg/kg	≥10 and <20 mg/kg	≥20 and <30 mg/kg	≥30 and <60 mg/kg	≥60 and <95 mg/kg	≥95 mg/kg
Number of Properties	2,600	302	127	232	120	197

4.2.1 Background Evaluation

To identify elevated arsenic concentrations, it was first necessary to determine the background arsenic concentration in soil. To evaluate background concentrations, a statistical analysis was performed using 7,519 surface soil sample results collected between 2001 and 2006. The 7,519 surface soil samples consisted of "five on dice" composite samples. Quality control samples (field duplicates and replicates) were not included in the data set for the background evaluation.

Probability plots graph the measured concentrations against those expected if the data (or the transformed data) are normally distributed. As a result, the data points tend to form straight lines when the data resemble a normal distribution (or when the log-transformed results resemble a lognormal distribution). The probability plots indicate that the SMRSCS arsenic data are neither normally nor log normally distributed, but suggest the existence of two distinct and different distributions (bimodal). The distributions consist of "background" levels and a population that is distinctly different, limited to concentrations in excess of approximately 16 to 17 mg/kg.

Statistical analyses also included point-interval estimates using nonparametric estimation methods of the 50th, 95th and 99th percentiles of the distribution. Sample size, median, and upper 95th and upper 99th upper tolerance levels (UTLs) with confidence intervals were plotted for subsets of the data using maximum concentrations ranging from 3 to 20 mg/kg. The point-interval estimates indicate comparative stability in median values for subsets with maxima ranging from 10 to 20 mg/kg and the 95th UTL flattens at approximately 17 mg/kg.

As a result of the statistical analyses, the background range identified for the SMRSCS includes the following: less than 10 mg/kg represents background; greater than 10 mg/kg and less than 17 mg/kg represents mixed results background and contaminated soils; and greater than 17 mg/kg soils affected by arsenic contamination. For the purpose of this RI, background concentrations will be considered 16 mg/kg and less. Complete details regarding the statistical analyses performed are available in Appendix A-5.

4.3 Subsurface Soil

Subsurface soil sampling was conducted in August 2006 at select residential properties. The subsurface soil sampling was performed to characterize the vertical distribution of arsenic in soils within the limits of the SMRSCS. The vertical distribution was used to identify whether arsenic impacts were limited to surface soils as expected with air dispersion and to evaluate vertical migration of arsenic and potential leaching from the soils. Property selection for the subsurface soil sampling was based on previously identified surface soil arsenic results, property location, and property owner consent.

Each soil boring was performed using a Geoprobe® macrocore sampler barrel to collect soil to a depth of 10 feet. A total of 120 subsurface soil samples (excluding quality control samples) were collected from 20 soil borings. The samples were collected from 1-foot intervals from ground surface to a depth of 5 feet, and one sample was collected at a depth of 10 feet.

The associated surface soil (0- to 3-inch) sample results ranged from a background concentration of 2.3 mg/kg up to 293 mg/kg. Arsenic concentrations found in the subsurface ranged from 0.48 mg/kg to 224 mg/kg. Arsenic at concentrations above background was limited to the upper 2 to 3 feet bgs. Of the 20 total soil borings, 4 borings had arsenic concentrations above the background concentration to a maximum depth of 2 feet bgs. One boring location had arsenic concentrations above background down to a maximum depth of 3 feet bgs.

The results from this subsurface soil investigation indicate that the arsenic in the soil above background is located in most cases within the upper 2 feet of the soils. This indicates that the mobility of the arsenic in the soils is limited. A complete summary of subsurface soil sampling results and methods is presented in Appendix A-4.

4.4 Summary of Extent of Contamination

The results from the surface and subsurface soil investigations within the SMRSCS indicate that arsenic in the soil is present at varying concentrations at properties across the area. Background concentrations were identified as ranging up to 16 mg/kg and arsenic soil concentrations within the SMRSCS area range from background concentrations up to 2,880 mg/kg. Of the 3,578 properties sampled, 197 residential properties were found to have concentrations above the interim action level of 95 mg/kg, and are randomly scattered throughout the SMRSCS. Evaluation of the horizontal extent of the arsenic is evaluated further in Section 5 with respect to the concentration trends and the conceptual site model of aerial dispersion from the CMC Heartland Site. The vertical extent of arsenic concentrations above background appears to be no greater than 3 feet bgs.

SECTION 5

Contaminant Fate and Transport

This section presents an evaluation of the fate and transport for the contaminant of concern (arsenic) at the SMRSCS. The distribution of arsenic is evaluated in this section with respect to the original conceptual site model of aerial dispersion from the CMC Heartland Site as well as for the current potential for exposure in the SMRSCS. The key components of that evaluation are as follows:

- Contaminant of Concern for soil (arsenic)
- Contaminant characteristics (physical and chemical properties, chemical and biological transformations, and persistence in the environment)
- Potential sources of contamination and release pathways in affected areas
- Potential receptors
- Potential routes of migration

5.1 Contaminant of Concern

According to the *Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A)*, EPA/540/1-89/002, contaminants of concern are those chemicals in a particular medium, that based on concentration and toxicity, are most likely to contribute significantly to risks calculated for exposure scenarios involving that medium.

Investigations have been performed from 2001 through 2006 to evaluate elevated arsenic concentrations in the residential neighborhoods surrounding the CMC Heartland Site. Due to its known toxic nature, the arsenic is considered to be the primary contaminant of concern. While arsenic is naturally found in soils at low concentrations, the soil sampling activities performed from 2001 to 2006 have confirmed that arsenic concentrations in surface soil are present above statistically established background concentrations at locations throughout the SMRSCS.

5.2 Contaminant Characteristics

The chemical and physical properties of arsenic provide information about its fate in the environment. Physical characteristics such as solubility and adsorptive capabilities will determine the matrix (air, water, or solid) in which a chemical compound or element will reside. This in turn affects the compound or element's mobility and persistence in the environment. Chemical and structural properties of compounds and elements provide information on their resistance to chemical and biological transformations and determine persistence within the environment. The toxicity and concentration of a compound or element may have a significant effect on its ability to be biodegraded and the rate of biodegradation.

5.2.1 Physiochemical Properties

Arsenic is rarely found in its elemental state, but commonly forms compounds with other elements such as oxygen, chlorine, and sulfur, due to the fact that it can readily change valence states. This allows arsenic to take on a number of forms in the environment, with varying degrees of toxicity and mobility (USEPA, 2007).

Mineralogy and petrography analyses were performed on a sample from a residential property in the SMRSCS with known elevated arsenic concentrations (arsenic concentrations at this property from 211 mg/kg to 739 mg/kg). During the preparation for analysis, the sample was divided into portions, with heavy larger particles separated from the clay particles. Arsenic was identified in both the heavy particles and the clay fraction. Arsenic was identified at a various levels in arsenic oxides, magnetite, iron oxides, lead oxides, and other compounds identified in the sample. Of the arsenic oxides, analysis showed the samples were similar to stoichiometric arsenic trioxide which was used at the CMC Heartland Site in the pesticide and herbicide blending and distribution (University of New Mexico [UNM], 2007). However, sufficient sample volume of the source arsenic trioxide material from the CMC Heartland Site was not available for comparison of the mineralogy. The mineralogy and petrography analysis is provided in Appendix A-7.

5.2.2 Constituent Transformation

Arsenic transformation in the ground is highly dependant upon the oxidation-reduction (redox) potential of the soil. Since the redox potential of soil is a function of all the reducing and oxidizing components present, predicting the transformation of arsenic is complex. Inorganic arsenic compounds that have accumulated in soils (such as arsenic trioxide) can also be converted to organoarsenic compounds by soil microorganisms (Nriagu, 1994). Microorganism activities can also both immobilize water-soluble arsenic, and mobilize mineral-bound arsenic, depending on subsurface conditions (Ribbe, 1997).

The forms of arsenic present in soil are dependant upon the type and amounts of sorbing components of the soil, the pH, and the redox potential present. Arsenic occurs frequently in both its pentavalent (V) and trivalent (III) oxidation states in soils. Arsenic (III) (as found in arsenic trioxide) is more toxic, soluble, and mobile than arsenic (V) (Nriagu, 1994). During the site investigation activities, the arsenic was analyzed as total arsenic due to the lack of mineralogical data on the arsenic at the CMC Heartland Site and potential transformations that have taken place in the form of arsenic over time. For the purposes of this RI, the arsenic present in the SMRSCS is assumed to be inorganic arsenic.

5.2.3 Constituent Persistence

Arsenic in the soil can, under the right conditions, become quite immobile by strongly sorbing to clays and iron-oxide based minerals (Nriagu, 1994). This fact indicates that the surface soils of affected areas may not show significant decreases in arsenic over time from advective movement to the saturated zone and water table.

5.3 Affected Areas

This RI focused on the residential properties, parks, and schools within the SMRSCS area. Arsenic above background concentrations is found throughout the SMRSCS area, and affected areas include yards, lawns, gardens, and other unpaved surfaces of residential properties. Elevated arsenic above background concentrations was not detected at any schools or parks. The properties with elevated arsenic were located in all directions and at virtually all distances from the CMC Heartland Site. To evaluate the affected areas with the conceptual site model of aerial dispersion from the CMC Heartland Site, statistical analyses were performed on the data set for trends in direction and distance of affected areas from the CMC Heartland Site and age of the properties relative to operations at the CMC Heartland Site.

5.3.1 Directionality

Arsenic concentrations were evaluated in different directions and distances from the CMC Heartland Site in order to determine if the contaminant distribution was consistent with the prevailing winds relative to the facility. Statistical analyses showed that evaluating arsenic concentrations as both a function of distance and direction from the site were inconclusive overall, with arsenic concentrations exceeding 95 mg/kg located in all directions and at virtually all distances (CH2M HILL, 2007). Arsenic results in surface soil are shown in Figure 4-1.

Directional plots of arsenic at different concentration levels were also explored, and showed a significant, but weak correlation between distance in a specific direction and concentration for five directions. Arsenic soil concentrations appeared to be increasing with distance to the northeast and south, while decreasing to the northwest, west, and southeast. The decreasing trends, while consistent with aerial dispersion from the CMC Heartland Site, are present only in a few directions from the CMC Heartland Site and the overall variability in the data limits the predictability of these relationships. In addition, these trends are strongest at lower arsenic concentrations (background concentrations) and do not apply to the higher concentrations. The site conceptual model, based on contamination due to aerial dispersion only, does not account for the relatively high concentrations of arsenic in all directions and distances (CH2M HILL, 2007).

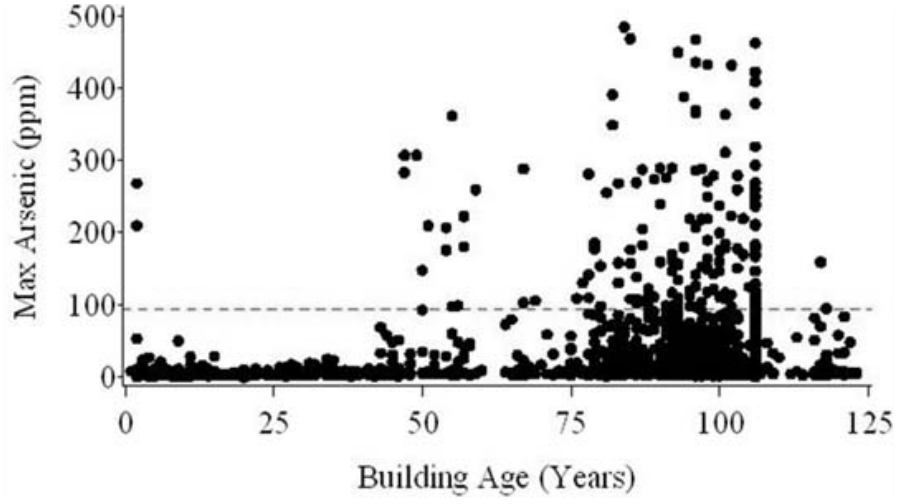
5.3.2 Relationships with Housing Age

Pesticide formulation activities by Reade Manufacturing occurred at the CMC Heartland Site from 1938 through 1963 and is considered the period that would be primarily responsible for airborne dispersion from the plant site. Property specific activities since that time may have affected the arsenic concentrations in the surface soils at residential properties, specifically new home construction. Therefore, residential property age was evaluated with surface soil arsenic concentrations to determine if properties with homes constructed prior to or during pesticide formulation activities at the CMC Heartland Site have greater surface soil arsenic concentrations than residential properties constructed after 1963 (USEPA, 2007).

Home construction dates and spatial data were obtained from Hennepin County, with data current through August 2005. For this evaluation, residential properties evaluated

considered all apartments, condominiums, duplexes, townhouses, and single family residences. Because multiple samples had been collected from each property (i.e., front yard, back yard) only the maximum arsenic concentration per residential property was used (USEPA, 2007).

A scatter-plot of maximum arsenic concentration versus home age indicates a gradual increase in concentrations with an increase in the age of the property as shown in the figure below.



Further investigation of this relationship indicated that homes constructed prior to 1963 had a proportionally greater number of arsenic concentrations above 95 mg/kg than homes constructed after 1963 (USEPA, 2007). The ages of homes are randomly distributed throughout the study area as are the arsenic concentrations. The statistical evaluation is provided in Appendix A-8.

5.4 Potential Routes of Migration

From the standpoint of human health or environmental risk, the migration pathway for any constituent is composed of four elements: (1) an affected area or "source," (2) a transport medium such as air, surface water, groundwater, or soil, (3) an exposure point where exposure may occur, and (4) an exposure route into the body. All four elements must be present before a migration pathway is considered complete. The migration pathway will be considered incomplete if one or more of the four elements is not present. The baseline human health risk assessment (summarized in Section 6 of this RI report) addresses the potential receptors and exposure points and pathways within the SMRSCS area. The affected areas (Section 5.3) and the transport medium are discussed in this section.

Surface and subsurface soils located on properties within the SMRSCS are the only media in which arsenic is being considered in this investigation. There currently is no complete pathway via groundwater. Arsenic in groundwater from the CMC Heartland Site is being monitored by the owners of the property under the AgVIC program. The primary exposure pathways from the soil to the potential receptors include the following:

- Direct ingestion of soils containing arsenic
- Inhalation of airborne dust/soil containing arsenic

- Dermal contact and absorption with soils containing arsenic
- Consumption of plants (fruits/vegetables) grown in soils containing arsenic

5.4.1 Airborne Dust/Soil

Aerial dispersion of arsenic trioxide is the transport mechanism evaluated in this RI. From 1938 to 1963, site operations had the potential for air dispersion from the CMC Heartland Site during unloading from railcars, or potentially on-site storage. Prior to 1996, there were exposed soils at the CMC Heartland Site containing elevated arsenic that had the potential to be transported off site by wind. Remedial actions performed at the CMC Heartland Site in 2004 have eliminated the present potential for wind-blown transport of arsenic-impacted soils from the CMC Heartland Site.

Currently, there is potential for airborne transport on residential properties in the SMRSCS with elevated arsenic concentrations, particularly where there is little vegetative cover or exposed soils. The potential also increases on properties where active excavation, construction, or landscaping may be occurring.

5.4.2 Direct Ingestion

The potential exists for direct ingestion of soils on residential properties in the SMRSCS containing arsenic. Adults and children may inadvertently ingest soils impacted with arsenic by hand-to-mouth behaviors. Direct ingestion may also occur by consumption of unwashed vegetables grown in gardens with soils impacted with arsenic.

5.4.3 Dermal Contact

Similar to direct ingestion, adults and children may come into direct dermal contact with soils impacted with arsenic through yard work, construction, or play in affected areas.

5.4.4 Consumption of Plants

Fruits and vegetables grown in gardens where arsenic-impacted soils are present may also uptake arsenic within the fruit or vegetable itself. Based on estimated vegetable intake rates in the Midwest and the uptake of arsenic into plant matter, the potential exists for residents to be potential receptors by consumption of fruits and vegetables grown in impacted soils.

5.5 Contaminant Transport

The arsenic concentrations in the SMRSCS do not appear to be wholly attributable to air dispersion from the CMC Heartland Site, particularly the highly elevated arsenic concentrations. Direction versus concentration relationships indicated that the directional trends from the CMC Heartland Site are present only in a few directions from the CMC Heartland Site in the background concentration range and do not account for the relatively high concentrations of arsenic in all directions and distances. Evaluation against housing age indicates that homes constructed prior to 1963 have a higher proportion of arsenic at concentrations greater than 95 mg/kg. However, given the number of variables that may be present for the homes constructed in this period, it is difficult to identify a relationship to the CMC Heartland Site.

Although there is uncertainty on the transport mechanism for arsenic in the SMRSCS, there are properties with elevated arsenic concentrations in surface soils. Within the SMRSCS, the potential for transport of arsenic-impacted soils exists from the residential properties with elevated arsenic concentrations. Tracking arsenic-impacted soils and wind blown transport is possible, particularly in properties with little established vegetation or ground cover. Transport of arsenic-impacted soil from one residential property to another is more likely to occur through air transport during soil excavation work.

Statistical analyses were performed to determine the variability in arsenic concentrations among neighboring properties. Overall, there was not a consistent relationship in arsenic concentrations for neighboring properties. Figure 4-2 shows that elevated arsenic concentrations are distributed throughout the site and are neighbored by properties with arsenic from background concentrations up to elevated arsenic levels.

Some clustering of elevated arsenic concentrations does occur within neighboring properties and within multi-sample properties. When comparing multiple sample results from the same property (i.e., front yard, backyard), 72 percent of the properties had arsenic concentrations in the same range indicating property-specific similarities (Appendix A-5). The similarity between arsenic concentrations in the same property, but not necessarily with the neighboring property, suggests that arsenic may partially be the result of a property-specific use.

Due to the complex nature of arsenic speciation and the variety of compounds formed as a result, coupled with the fact that arsenic strongly sorbs to clays and iron-oxide minerals, it is difficult to determine exactly how arsenic in soils will be transported above the vadose zone. Advective transport of arsenic to the water table is not likely to be significant.

SECTION 6

Baseline Human Health Risk Assessment

This section presents the approach, assumptions, results, and uncertainties for the baseline HHRA conducted for the SMRSCS. The approach used was developed to be consistent with USEPA's *Risk Assessment Guidance for Superfund* (USEPA, 1989) and in consultation with USEPA Region 5. The HHRA addresses both current and future land uses for residential scenarios and is intended to be used as a tool to determine the need for remediation or engineering controls to manage potential exposures at the site. This baseline HHRA includes an exposure assessment that identifies potential receptors and exposure pathways and estimates of the magnitude, frequency, and duration of potential exposures. The baseline HHRA is located in Appendix B.

6.1 Data Used in the HHRA

The following discussion summarizes the data used in the HHRA.

6.1.1 Surface Soils

As noted, investigative soil samples were collected from the 0- to 3-inch interval at residential properties, schools, parks, and "other" properties during the RI field event. In addition, surface soil samples collected from the 0- to 3-inch interval during previous investigations by USEPA, MDA, or MDH or other parties were also used in the risk assessment.

6.1.2 Media Not Included in the HHRA

As described above, surface soil samples were included in the HHRA. However, subsurface soil samples collected from below 3 inches are not used in the risk assessments because of USEPA protocol, but they are used to discuss nature and extent.

Although indoor dust samples were planned as identified in the Interim Deliverable, no samples were collected after the evaluation of the surface soil sample results. Indoor dust concentrations are represented in the HHRA by outdoor soil concentrations since residents may ingest indoor dust potentially impacted through fugitive dust emissions from impacted soil or from tracking indoors.

Water was not evaluated in the HHRA because this is an incomplete pathway preventing exposure within the SMRSCS. There are no surface water bodies within the boundaries of the SMRSCS. A well survey was performed and there were no residential wells within the site and the community is served by a municipal water supply preventing ingestion of groundwater.

6.2 Potential Receptors and Exposure Pathways

Various realistic receptors identified at the site were addressed in the HHRA:

- **Current/Future Residential Adult and Child—** An adult or child resident who lives within the site boundary. This category can be used to conservatively represent other potential receptor types in the area, including resident, daycare child, and recreational child.
- **Current/Future Construction Worker—** Workers engaged in short-term remodeling or construction activities at residential properties to soil depths of 5 feet.

An HHRA conceptual site model (CSM) was prepared for the site, presenting the potential chemical exposure media, exposure points, receptors (current and future), and exposure routes. The CSM is provided in Table 6-1 and is discussed further in Section 6.4.

6.3 Chemical of Potential Concern Selection Process

Chemicals of potential concern (COPCs) are contaminants that potentially present the greatest human health concerns (i.e., those present in the highest concentrations, with the widest distribution over the site, or that exhibit the highest mobility or the highest toxicity). The purpose of identifying COPCs is to focus the risk assessment on the most important contaminants found at a site; while there are no criteria defining the "most important chemicals" or COPCs, USEPA guidance mentions that COPCs generally are those representing 99 percent of the total site risk (USEPA, 1989). The COPC at the SMRSCS is arsenic.

6.4 Exposures Quantified in the HHRA

Various potential exposure pathways were quantitatively evaluated in the HHRA. Exposure point concentrations (EPCs) were calculated for the COPCs in each data grouping and used in estimating potential intakes and risks for the following receptors:

- **Current/Future Residential Adult and Child (Residential Setting)—** Ingestion, dermal contact, and inhalation of surface soil. Ingestion of vegetables grown in gardens
- **Current/Future Construction Worker—** Ingestion, dermal contact, and inhalation of soil to depths of 5 feet.

6.4.1 Exposure Point Concentrations

To assess potential exposures to arsenic at the site, potential intakes were quantified. A soil EPC based on background (16 mg/kg) was first evaluated. Potential risks associated with three additional soil EPCs were quantified:

- 95 mg/kg (the interim removal action level)
- 500 mg/kg (a value close to the mean concentration of residential yards currently above the removal action level)
- 1,500 mg/kg (the approximate maximum detected concentration at homes that have not yet been remediated)

TABLE 6-1
Selection of Exposure Pathways Under Current/Future Scenario
South Minneapolis Residential Soil Contamination Site

Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway	
Soil	Surface soil	Surface Soil (0–3 in.)[a]	Resident	Adult/child	Ingestion	Quantitative	Included	Residents may contact chemicals in impacted soil.
					Dermal contact	Quantitative	Included	
		Emissions from surface soil (0–3 in.)[a]			Inhalation	Quantitative	Included	Residents may inhale ambient air potentially affected through fugitive dust emissions from impacted soil.
		Indoor Dust	Resident	Adult/child	Ingestion	Quantitative	Included	Residents may contact chemicals in impacted soil that has been transported indoors.
					Dermal contact	Quantitative	Included	
					Inhalation	Quantitative	Included	Residents may inhale ambient air potentially affected through fugitive dust emissions from impacted soil that has been transported indoors.
	Garden Vegetables	Garden vegetables grown in contaminated soil	Resident	Adult/child	Ingestion	Qualitative	Included	Residents may consume vegetables grown in gardens with impacted soil.
	Subsurface soil	Subsurface soil (0–5 ft)	Construction Worker	Adult	Ingestion	Quantitative	Included	Construction workers may contact chemicals in impacted soil.
					Dermal contact	Quantitative	Included	
		Emissions from subsurface soil (0–5 ft)			Inhalation	Quantitative	Included	Construction workers may inhale ambient air potentially affected by fugitive dust emissions from impacted soil.
Groundwater	Groundwater	Tap water (private drinking water well)	Resident	Adult/child	Ingestion	Qualitative	Excluded	Residents are on municipal water supply and no residential wells are present within the SMRSCS.
					Dermal contact	Qualitative	Excluded	
Surface water	Surface water	Surface water	Resident	Adult/child	Dermal contact	Qualitative	Excluded	There are no surface water bodies located within the SMRSCS.
					Ingestion	Qualitative	Excluded	

[a]Each soil sample (0–3 inches) is a 5-point composite from a yard.

Multiple soil EPCs are not presented in the risk calculation tables since risk estimates are directly proportional to EPCs, and when risk estimates are calculated for one soil EPC, the estimated risks associated with other EPCs can be calculated by applying the ratio of the original EPC to the associated risk estimate.

6.4.2 Exposure Factors

Reasonable maximum exposure (RME) and central tendency exposure (CTE) scenarios were estimated for residents and construction workers. The term "RME" refers to a type of high end exposure estimated by using default values, and is typically used as the basis for action at a Superfund site. The term "CTE" refers to an average exposure that is more likely to occur at a site. The exposure factors used in the RME intake calculations are presented in Tables 4.1 RME through 4.5 RME of HHRA Appendix A, while the exposure factors used in the CTE intake calculations are presented in Tables 4.1 CTE through 4.5 CTE of HHRA Appendix A.

Detailed calculations for the derivation of body weight, skin surface area, and dermal absorption factors used in the intake calculations are provided in Table 4.1 Supplemental through Table 4.3 Supplemental of HHRA Appendix A. The primary references for exposure factors are identified below:

- *Risk Assessment Guidance for Superfund (RAGS). Vol. 1: Human Health Evaluation Manual, Part A* (USEPA, 1989)
- *RAGS. Vol. 1: Human Health Evaluation Manual – Supplemental Guidance, Standard Default Exposure Factors. Interim Final* (USEPA, 1991)
- *Exposure Factors Handbook* (USEPA, 1997a)
- *RAGS. Vol. 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final.* (USEPA, 2004b)
- Public comments from the September 26, 2006 public meeting

Exposure parameters used in this risk analysis are identified in Table 4s of HHRA Appendix A. A few of the key parameters used in the HHRA are listed below:

- Adult and child residents and construction workers were evaluated as potential receptors in the area.
- Residents were assumed to be exposed to arsenic in soil or dust through incidental ingestion for 350 days/year; construction workers were assumed to be exposed to soil for 90 days/year.
- Residents were assumed to be exposed to arsenic adhered to soil particulates in ambient air and to dermally contact soil for 185 days/year (the number of days where the soil is not snow-covered and it is not raining in Minneapolis).
- Residents were assumed to grow vegetables in their home gardens. The homegrown garden vegetables were categorized into two groups: above-ground vegetables (e.g., eggplants, tomatoes, and leafy vegetables) and below-ground vegetables (e.g., carrots and potatoes).

Over an assumed 4-month growing period during the year, residents are assumed to consume above-ground vegetables for 90 days and below-ground vegetables for 60 days.

- Residents were assumed to be exposed to arsenic in soil/dust for 50 years (to evaluate a high-end exposure) and 15 years (to evaluate an average exposure); construction workers were assumed to be exposed for 10 years (to evaluate a high-end exposure) and 1 year (to evaluate an average exposure).

6.5 Toxicity Assessment

The following hierarchy of sources was used to obtain toxicity data for arsenic in soil at the site:

- Integrated Risk Information System
- Provisional Peer-Reviewed Toxicity Values (USEPA Region 9, 2004)
- Health Effects Assessment Summary Tables (USEPA, 1997a)

HHRA Appendix A presents noncancer toxicity values used in the HHRA in Tables 5.1 and 5.2 and cancer toxicity values in Tables 6.1 and 6.2.

6.6 Risk Characterization

Potential excess lifetime cancer risks (ELCRs) and hazard indexes (HIs) were calculated using RME and CTE assumptions for identified receptors and exposure pathways. The calculated ELCRs and HIs are presented in Tables 7.1 through 7.3 and summarized in Tables 9.1 through 9.3 and Tables 10.1 through 10.3 of HHRA Appendix A.

USEPA's target range for ELCR associated with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites and specified in the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations [CFR} 300.430) is 1 in 10,000 (1×10^{-4}) to 1 in 1,000,000 (1×10^{-6}). That is, the risk associated with site-related exposures should not exceed the target range. For carcinogens, USEPA guidance defines chemicals that significantly contribute to a cumulative site ELCR as those with ELCRs that exceed 10^{-6} for a given pathway. The USEPA's target HI level is 1 (unity) for noncarcinogenic chemicals. The potential risks calculated for each receptor/exposure pathway combination are presented in the Table 6-2 and discussed in the following subsections.

TABLE 6-2
RME and CTE Scenario Risk Estimates For Various Arsenic Concentrations
South Minneapolis Residential Soil Contamination Site — Minneapolis, Minnesota

Lifetime Cancer Risk Estimates	RME Arsenic Concentration (mg/kg)				CTE Arsenic Concentration (mg/kg)			
	16	95	500	1500	16	95	500	1500
Aggregate Child/Adult Resident (with garden vegetable consumption)	$6x10^{-5}$	$4x10^{-4}$	$2x10^{-3}$	$6x10^{-3}$	--	--	--	--
Aggregate Child/Adult Resident (without garden vegetable consumption)	$5x10^{-5}$	$3x10^{-4}$	$1x10^{-3}$	$4x10^{-3}$	$1x10^{-5}$	$8x10^{-5}$	$4x10^{-4}$	$1x10^{-3}$
Construction Worker	$4x10^{-6}$	$2x10^{-5}$	$1x10^{-4}$	$4x10^{-4}$	$2x10^{-7}$	$1x10^{-6}$	$7x10^{-6}$	$2x10^{-5}$

TABLE 6-2
RME and CTE Scenario Risk Estimates For Various Arsenic Concentrations
South Minneapolis Residential Soil Contamination Site — Minneapolis, Minnesota

Hazard Index Estimates	RME Arsenic Concentration (mg/kg)				CTE Arsenic Concentration (mg/kg)			
	16	95	500	1500	16	95	500	1500
Infant/Child Resident (with garden vegetable consumption)	0.6	4	20	60	--	--	--	--
Infant/Child Resident (without garden vegetable consumption)	0.6	3	17	52	0.3	2	8	25
Construction Worker	0.06	0.4	2	6	0.1	0.8	4	13

Notes:

Lifetime cancer risks were calculated for aggregate adult/child residents since lifetime cancer risks are averaged over a lifetime.

HIs were calculated for aggregate infant/child residents only since HIs calculated for this receptor are more conservative than the HI for an adult resident.

Highlighted values exceed the target range.

6.6.1 Current / Future Residential Adult and Child (With Garden Vegetable Consumption)

Potential ingestion, dermal contact, and inhalation exposures to arsenic in surface soil were quantified for adult and child residents in a residential setting. Under the RME scenario, the consumption of vegetables from the garden was included in the calculations. ELCRs and HIs were not calculated for the CTE scenario which assumed that vegetables will be grown in community gardens with background arsenic concentrations or the vegetables would be purchased. Therefore, this pathway is incomplete. Under the RME scenarios using EPCs ranging from 16 mg/kg (background) up to 1500 mg/kg (approximate maximum detection), scenarios have estimated risks above the target range. The ELCR exceeds 1×10^{-4} for EPCs of 95 mg/kg, 500 mg/kg and 1500 mg/kg for the RME scenario. The estimated HI exceeds 1 with EPCs of 95 mg/kg, 500 mg/kg and 1500 mg/kg under the RME scenario. Therefore, arsenic was identified as a chemical of concern (COC) for adult and child residents at residential properties with a garden, and PRGs for arsenic will be identified in the FS.

6.6.2 Current / Future Residential Adult and Child (Without Garden Vegetable Consumption)

Potential ingestion, dermal contact, and inhalation exposures to arsenic in surface soil were quantified for adult and child residents in a residential setting. Under the RME and CTE scenarios using EPCs ranging from 16 mg/kg (background) up to 1,500 mg/kg (approximate maximum detection), scenarios have estimated risks above the target range. The ELCR exceeds 1×10^{-4} for EPCs of 95 mg/kg, 500 mg/kg and 1,500 mg/kg for the RME scenario and 500 mg/kg and 1,500 mg/kg for the CTE scenario. The estimated HI exceeds 1 with EPCs of 95 mg/kg, 500 mg/kg and 1500 mg/kg under both the RME and CTE

scenarios. Therefore, arsenic was identified as a COC for adult and child residents at residential properties, and PRGs for arsenic will be identified in the FS.

6.6.3 Current / Future Construction Worker

Potential ingestion, dermal contact, and inhalation exposures to arsenic in soil to depths of 5 feet were quantified for a construction worker in the SMRSCS. Under the RME and CTE scenarios using EPCs ranging from 16 mg/kg (background) up to 1,500 mg/kg (approximate maximum detection), scenarios have estimated risks above the target range. The ELCR exceeds 1×10^{-4} for EPCs of 1,500 mg/kg for the RME scenario. The estimated HI exceeds 1 with EPCs of 500 mg/kg and 1,500 mg/kg under both the RME and CTE scenarios. Therefore, arsenic was identified as a COC for construction workers at residential properties, and PRGs for arsenic will be identified in the FS.

6.7 Uncertainties

The calculated ELCRs and HIs for RME scenarios are estimates of potential upper-bound risks that are useful in regulatory decision-making. It is improper to consider the risk estimates to be representative of actual risk to potentially exposed individuals because risks were estimated by making numerous conservative assumptions (that is, assumptions that overestimate potential exposure and potential risk).

Various uncertainties are associated with the risk estimates. Some exposure and toxicity assumptions have a firm scientific basis, but others do not. Uncertainty is introduced into the risk assessment process every time an assumption is made. In regulatory risk assessment, the methodology dictates that assumptions err on the side of overestimating potential exposure and risk. The effect of using numerous assumptions, each of which overestimates potential risk, is to exaggerate estimates of potential risk. Such estimates do not provide a realistic estimate of the potential health impacts associated with a site.

Unsieved soil samples were analyzed for total arsenic although arsenic concentrations may vary by particle size. If higher arsenic concentrations are associated with smaller grain size (e.g., the particle size [less than 250 microns] that adheres to people's hands and is ingested), then actual EPCs for receptors will be higher than the concentrations measured for unsieved soil samples. Consequently, the use of unsieved soil samples may result in an underestimate of exposure.

In this HHRA, the specific form of arsenic was not known. In surface soil, inorganic arsenic almost always predominates; therefore, for this HHRA, the arsenic was assumed to be in the form of inorganic arsenic. Inorganic arsenic is more toxic than organic arsenic; the use of toxicity values for inorganic arsenic is thereby expected to result in an overestimate of exposure.

Some of the USEPA default exposure factor values (e.g., exposure duration) were increased based on input received during the September 26, 2006 public meeting. In addition, the relative bioavailability of arsenic in soil was assumed to be 90 percent due to the lack of site-specific bioavailability information; the risk estimates presented in Tables 7 and 9 in HHRA Appendix A are based on 90 percent bioavailability. These assumptions would both also result in an overestimate of exposure.

6.8 HHRA Summary and Conclusions

The baseline HHRA evaluated potential risk associated with current and future exposures by residents (adult and child), and construction workers. Potential risks associated with arsenic in soil were quantified using exposure factors and toxicity values obtained from standard USEPA sources. Arsenic was evaluated at four concentrations in soil as summarized below:

- 16 mg/kg (Background)—For the resident and construction worker, the estimated ELCRs and HIs associated with the RME and CTE scenarios are within USEPA's target risk range and HI.
- 95 mg/kg (Interim Action Level)—For the resident, the estimated ELCR associated with a RME scenario exceeds USEPA's target risk range while the estimated ELCR is within USEPA's target range for the CTE scenario. For both the RME and CTE scenarios, the estimated HI for an aggregate infant/child exceeds USEPA's target level. For the construction worker, the estimated ELCRs and HIs associated with the RME and CTE scenarios are within EPA's target risk range and HI.
- 500 mg/kg (Approximate Average Concentration at Residences Above the Remedial Action Level)—Estimated ELCRs and HIs associated with RME and CTE scenarios exceed USEPA's target risk range and HI for the resident. For the construction worker, the estimated ELCRs are within EPA's target risk range and the estimated HIs exceed USEPA's target HI for both the RME and CTE scenarios.
- 1,500 mg/kg (Approximate Maximum Concentration At Residences)—Estimated ELCRs and HIs associated with RME and CTE scenarios exceed USEPA's target risk range and HI for the resident and construction worker with the exception of the ELCR for the construction worker in the CTE scenario.

Most of the estimated risk is from incidental ingestion of soil and dust (approximately 70 percent) and eating garden vegetables (approximately 25 percent). A small proportion of estimated risk (approximately 4 percent) is from dermal contact with soil, and a very small relative proportion of potential risk (less than 0.05 percent) is from inhalation of dusts.

PRGs for arsenic were calculated in the HHRA. Risk-based PRGs were calculated for residents with and without vegetable gardens and construction workers. The calculations indicate that arsenic concentrations of 25 mg/kg (or less) are protective of persons residing in the area for up to 50 years with vegetable gardens and arsenic concentrations of 261 mg/kg (or less) are protective of constructions workers. These risk-based PRGs are based on an HI of 1 with an RME scenario. The final cleanup levels for the site will be identified in the FS after taking into consideration the uncertainties in the risk assessment.

SECTION 7

Screening Level Ecological Risk Assessment and Refinement of Exposure Assumptions

The following ecological risk assessment (ERA) was prepared for the SMRSCS in accordance with the guidelines provided in the document entitled *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final* (USEPA, 1997b).

7.1 Preliminary Problem Formulation

The SMRSCS includes approximately 1,480 acres of residential, industrial, commercial, and municipal properties. It is estimated that approximately 300 of the 1,480 acres would be considered habitat for evaluation in this ERA. A habitat is the place or environment where a plant or animal normally lives and grows. The majority of the habitat in the SMRSCS is in the form of maintained areas that are of marginal quality for support of ecological receptors. A cemetery and several parks cover approximately 50 of the 300 acres, with the remainder being lawns, gardens, and other landscaping maintained by residents.

Ecological receptors that may be exposed to arsenic in soil include plants, invertebrates, birds and mammals that are common to residential areas (e.g., maple trees, earthworms, American robin, fox, squirrel, and raccoon). There are no water bodies or wetlands within the SMRSCS.

7.2 Ecological Effect Evaluation

USEPA Ecological Soil Screening Levels (Eco-SSLs) were used to evaluate the potential for arsenic in soils to pose a risk to ecological receptors inhabiting the site. Eco-SSLs are soil concentrations protective of ecological receptors that are in contact with soil or consume biota that live in or on soil. Eco-SSLs for arsenic are as follows: 18 mg/kg for plants, 43 mg/kg for avian wildlife, and 46 mg/kg for mammalian wildlife (USEPA, 2005b). No Eco-SSL has been developed for the exposure of invertebrates to arsenic.

7.3 Screening Level Exposure Estimate and Risk Calculation

The maximum concentration of arsenic detected in soil was 2,880 mg/kg. This concentration exceeds the Eco-SSLs for plants, birds, and mammals, indicating the potential for risk. Because the maximum detected concentration exceeded the soil screening levels for arsenic, the ERA process was continued to the exposure assumption refinement step.

7.4 Refinement of Exposure Assumptions

A total of 7,521 surface soil samples were collected and analyzed for arsenic from 3,578 residential properties, schools, and parks comprising an area of over 618 acres. This sample density results in an average of 12 samples per acre, assuming equal sample distribution. Due to the high sample density, central tendency measures (e.g., mean and median) can provide a realistic estimate of the potential exposure to ecological receptors within the estimated 300 acres of habitat in the SMRSCS.

The mean and median arsenic concentrations were 18.1 and 5.6 mg/kg, respectively. The mean arsenic concentration of 18.1 mg/kg is just above the Eco-SSL of 18 mg/kg indicating that plants could potentially be a risk. However, review of the data set indicates that there was a subset of samples with elevated detections that substantially biased the average concentration. If the arsenic sample results with the highest 10 concentrations are removed from the data set (highest 0.13 percent of all samples), the mean concentration drops to 16.5 mg/kg, while the median remains 5.6 mg/kg. If the highest 20 concentrations are excluded from the data set (0.27 percent of all samples), the average concentration drops further to 15.7 mg/kg.

Exclusion of samples with the highest 10 arsenic concentrations resulted in mean and median concentrations that are less than the Eco-SSLs, indicating that concentrations are protective of ecological receptors, based on average exposures. Assuming samples were distributed evenly on a spatial basis, the 10 excluded samples would represent only 0.4 acres out of 300 acres.

No population level risks are expected. The samples with the highest 10 concentrations were not all detected in the same area and were all located within the residential areas. All sample results from the parks and cemetery, which would be considered the higher quality habitat, were within background levels (less than 10 mg/kg).

7.5 Uncertainties

One source of uncertainty in the ERA is the lack of an Eco-SSL for invertebrates, particularly earthworms. Efroymson et al. (1997) present a screening benchmark concentration for the toxicity of arsenic to earthworms of 60 mg/kg. This is higher than the average and median concentrations of arsenic samples collected at the site.

7.6 Conclusion

No population-level ecological risks are expected from arsenic in site soils. As such, no ecological PRGs will be developed as part of the FS.

SECTION 8

Conclusions

Residential properties with elevated arsenic were identified in the SMRSCS in all directions and at virtually all distances from the CMC Heartland Site. The following statistical analyses provide some potential correlation with the CMC Heartland Site; however, these do not indicate the CMC Heartland Site is wholly attributable for the arsenic impacts, particularly the highly elevated arsenic results.

- Decreasing arsenic concentration trends are present in a few directions from the CMC Heartland Site. These trends are strongest at lower arsenic concentrations (background concentrations) and the overall variability in the data limits the predictability of these relationships. The site conceptual model of arsenic contamination due to aerial dispersion does not account for the relatively high concentrations of arsenic in all directions and distances which do not demonstrate directional or distance trends with the CMC Heartland Site (CH2M HILL, 2007a).
- Evaluation of the age of the homes relative to the period of arsenical pesticide and herbicide production at the CMC Heartland Site property by Reade Manufacturing indicated that homes constructed prior to 1963 had a proportionally greater number of arsenic concentrations above 95 mg/kg than homes constructed after 1963 when arsenical pesticide and herbicide blending and distribution at the CMC Heartland Site ceased (USEPA, 2007). The ages of homes are randomly distributed throughout the study area as are the arsenic concentrations.
- Mineralogy and petrography analyses identified arsenic at various levels in arsenic oxides, magnetite, iron oxides, lead oxides, and other compounds identified in the surface soil sample. Of the arsenic oxides, analysis showed the samples were similar to stoichiometric arsenic trioxide which was used at the CMC Heartland Site in the pesticide and herbicide blending (UNM, 2007). However, there is not sufficient sample volume available for source material from the CMC Heartland Site for comparison of the mineralogy. Arsenic trioxide was not exclusively used at the CMC Heartland Site and may have been in other pesticides, herbicides, and rodenticides locally available. Therefore, even if mineralogical analysis were to be completed, it is unlikely that source differentiation would be possible in most cases because arsenic trioxide would be common to both the source material from the CMC Heartland Site and other products that may have been used in the SMRSCS.

The arsenic concentrations are not consistent with the conceptual site model of only air dispersion and it does not appear that the elevated arsenic concentrations in soil are wholly attributable to the CMC Heartland Site. The occurrence of elevated arsenic in all directions at virtually all distances from the CMC Heartland Site indicates the arsenic may partially be the result of a property specific use or application.

While there is uncertainty about the origin of the elevated arsenic, the arsenic concentrations are present at levels that pose a human health risk. A baseline HHRA estimated the

carcinogenic and non-carcinogenic risks to an adult/child resident and a construction worker in the SMRSCS. The potential exposure routes that were quantified included: accidental ingestion (via hand-to-mouth activities), dermal contact (through the skin), and inhalation of arsenic in soil and outdoor air. In addition, potential intakes for residents were quantified for the ingestion of homegrown garden vegetables grown in impacted soil. The HHRA identified arsenic is present at concentrations that result in an estimated risk above USEPA's target risk levels for a resident and construction worker.

Risk-based PRGs were calculated in the HHRA for residents with and without vegetable gardens and construction workers. The calculations indicate that arsenic concentrations of 25 mg/kg (or less) are protective of persons residing in the area for up to 50 years with vegetable gardens and arsenic concentrations of 261 mg/kg (or less) are protective of constructions workers. These risk-based PRGs are based on an HI of 1 with an RME scenario. The final cleanup levels for the site will be identified in the FS after taking into consideration the uncertainties in the risk assessment.

The HHRA estimated that most of the risk is from incidental ingestion of soil and dust (approximately 70 percent) and eating garden vegetables (approximately 25 percent). A small proportion of estimated risk (approximately 4 percent) is from dermal contact with soil, and a very small relative proportion of potential risk (<0.05 percent) is from inhalation of dusts. The estimated risks likely exaggerate the estimates of potential risk due to uncertainties and assumptions required in the HHRA process.

No population-level ecological risks are expected from arsenic in site soils. As such, no ecological PRGs will be developed as part of the FS.

SECTION 9

References

Efroymson, R.A., M.E. Will, and G.W. Suter II. *Toxicological Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision.* Prepared for the US Department of Energy by Lockheed Martin Energy Systems Inc. ES/ER/TM-126/R2. November 1997.

Geomatrix, 2003a. *Remedial Investigation Report, Midtown Greenway Phase II, South of 28th Street between Longfellow and Hiawatha Avenues*. May 29, 2003.

Geomatrix, 2003b. *Response Action Plan for Construction of Bike and Pedestrian Paths in the Vicinity of East 28th Street and 21st Avenue South.* June 3, 2003.

Geomega, Inc. 2004. *Sourcing Arsenic from the Lite Yard Site*. December 9, 2004.

Landmark. 2002a. *Environmental Soil Investigation Report, Sustainable Resources Center and Green Institute, Urban Garden Project.* Landmark Environmental LLC. July 31, 2002.

Landmark. 2002b. *Supplemental Soil Investigation Report, Urban Garden Project: 2426-2430 1/2 17th Avenue South.* Landmark Environmental LLC. October 29, 2002.

MDA. 2000. *Site Information, CMC Heartland Lite Yard Site Fact Sheet.* October 2000.

MDA. 2003. *Determining Off-Site Impacts in the Phillips Neighborhood, CMC Heartland Lite Yard Fact Sheet.* May 2003.

MDA. 2004a. *Proposed Plan for Cleanup at the CMC Heartland Lite Yard Site Fact Sheet.* March 2004.

MDA. 2004b. *Results of Study on Off-Site Impacts in the Phillips Neighborhood, CMC Heartland Lite Yard Fact Sheet.* April 2004.

MDH, 2000. *Health Consultation, CMC Heartland Partners: Lite Yard Site, Minneapolis, Hennepin County, Minnesota.* December 1, 2000.

MDH. 2005. *Notice of Designation of a Special Well Construction Area in the Vicinity of the CMC Heartland Lite Yard Site in Minneapolis, Minnesota.* March 21, 2005.

MPCA. 2003a. *Urban Garden – 17th Avenue Site, MPCA Project #32VP1750, 2426 – 2430 ½ 17th Avenue South, Minneapolis, Response Action Plan Approval*. April 21, 2003.

MPCA. 2003b. *Franklin Statino Townhomes – 2406-2409 16th Avenue South, 2410 17th Avenue South, 1529-1629 East 24th Street, MPCA Project #32VP17840, Response Action Plan Approval Letter*. October 30, 2003.

Nriagu, 1994. *Arsenic in the Environment. Part I: Cycling and Characterization*. Volume 26 in the Wiley Series in Advances in Environmental Science and Technology. John Wiley & Sons, Inc. New York.

Peer Engineering, Inc. 2005. *Response Action Plan, Hiawatha Business Center, Former Lite Yard Property, Minneapolis, Minnesota.* March 31, 2005.

Peer Engineering, Inc. 2006. *2005 Ground Water Monitoring Plan Implementation Report, Hiawatha Business Center, 2020 East 28th Street, Minneapolis, Minnesota.* August 31, 2006.

Ribbe, 1997. *Geomicrobiology: Interactions between Microbes and Minerals.* Reviews in Mineralogy Volume 35. The Mineralogical Society of America. Washington D.C.

Tetra Tech, 2005. *Field Sampling Plan, South Minneapolis Soil Contamination Site.* July 25, 2005.

UNM. 2007. *Results of Heavy Mineral Separation, Sequential Extraction, and Petrography on Arsenic-Contaminated Soil: Interim Report.* University of New Mexico, Institute of Meteorics/Department of Earth and Planetary Sciences. January 31, 2007.

USDA. 2004. *Soil Survey of Hennepin County, Minnesota.* 2004.

USEPA. 1989. *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A).* Office of Emergency and Remedial Response. EPA/540/1-89/002.

USEPA. 1991. *Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors.* Interim Final. OSWER Directive 9285.6-03.

USEPA. 1997a. *Exposure Factors Handbook. Volume II. Food Ingestion Factors.* Office of Research and Development. EPA/600/P-95/002Fb. August.

USEPA. 1997b. *Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments,* Interim Final. EPA 540-R-97-006.

USEPA. 2004. *Unilateral Administrative Order, CMC Heartland Residential Site, Minneapolis Hennepin County, Minnesota. Docket No. V-W-'04-C-797.* September 3, 2004.

USEPA. 2004b. *Risk Assessment Guidance for Superfund, Volume I: HHEM (Part E, Supplemental Guidance for Dermal Risk Assessment).* Final. EPA/540/R-99/005**.**

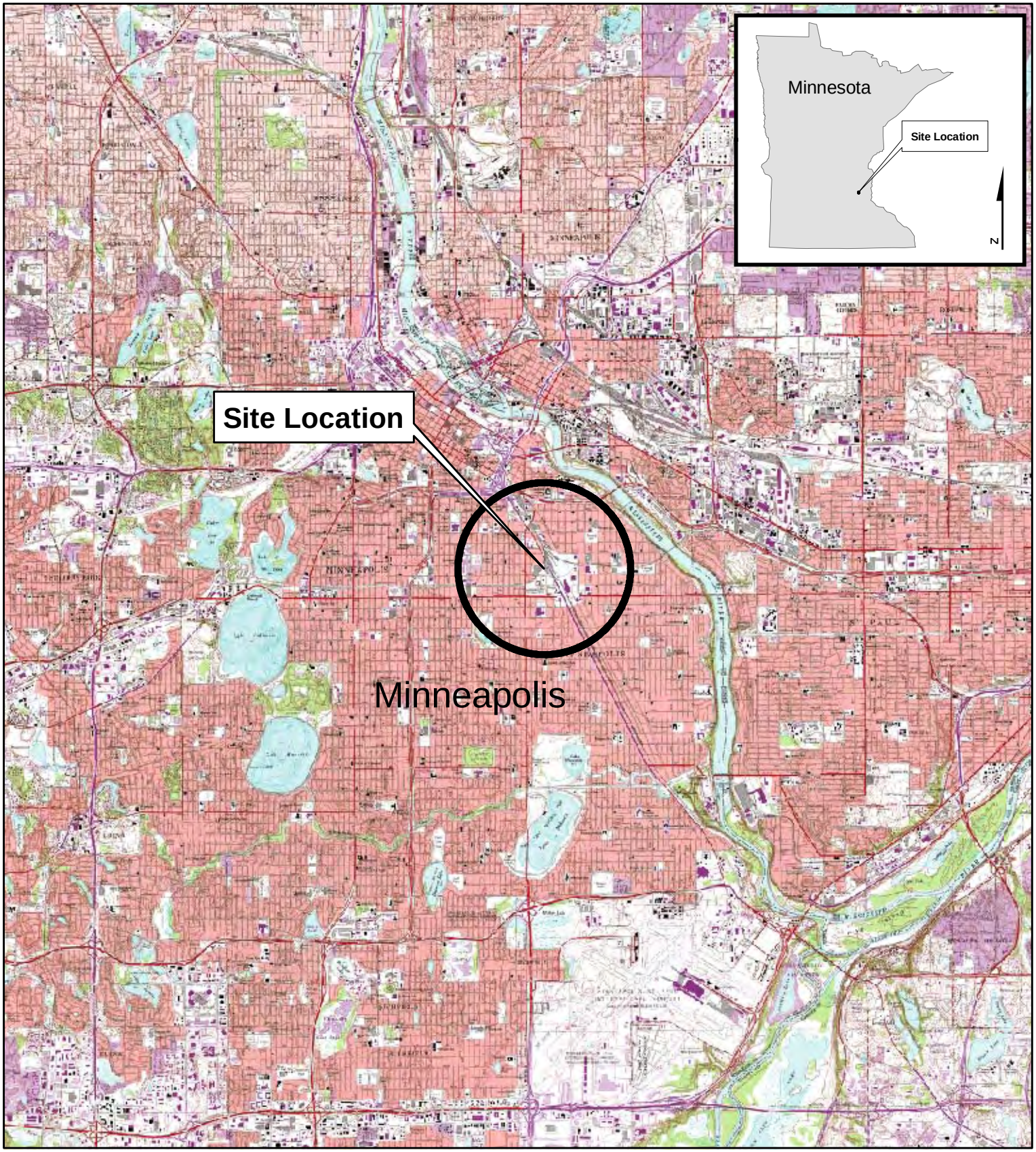
USEPA. 2005a. *Statement of Work for Remedial Investigation/Feasibility Study, South Minneapolis Neighborhood Residential Soil Contamination Site, Minneapolis, MN. WA#250-RICO-B58Y.* November 14, 2005.

USEPA. 2005b. *Ecological Soil Screening Levels for Arsenic*, Interim Final. OSWER Directive 9285.7-62. March 2005.

USEPA. 2007. *FIELDS Statistical Evaluation Report: South Minneapolis Soil Contamination Superfund Site.* July 9, 2007.

USGS. 1965. *Bulletin 23, Chemical Quality of Ground Water in the Minneapolis – St. Paul Area, Minnesota. U.S. Geological Survey.* April 1965.

Figures

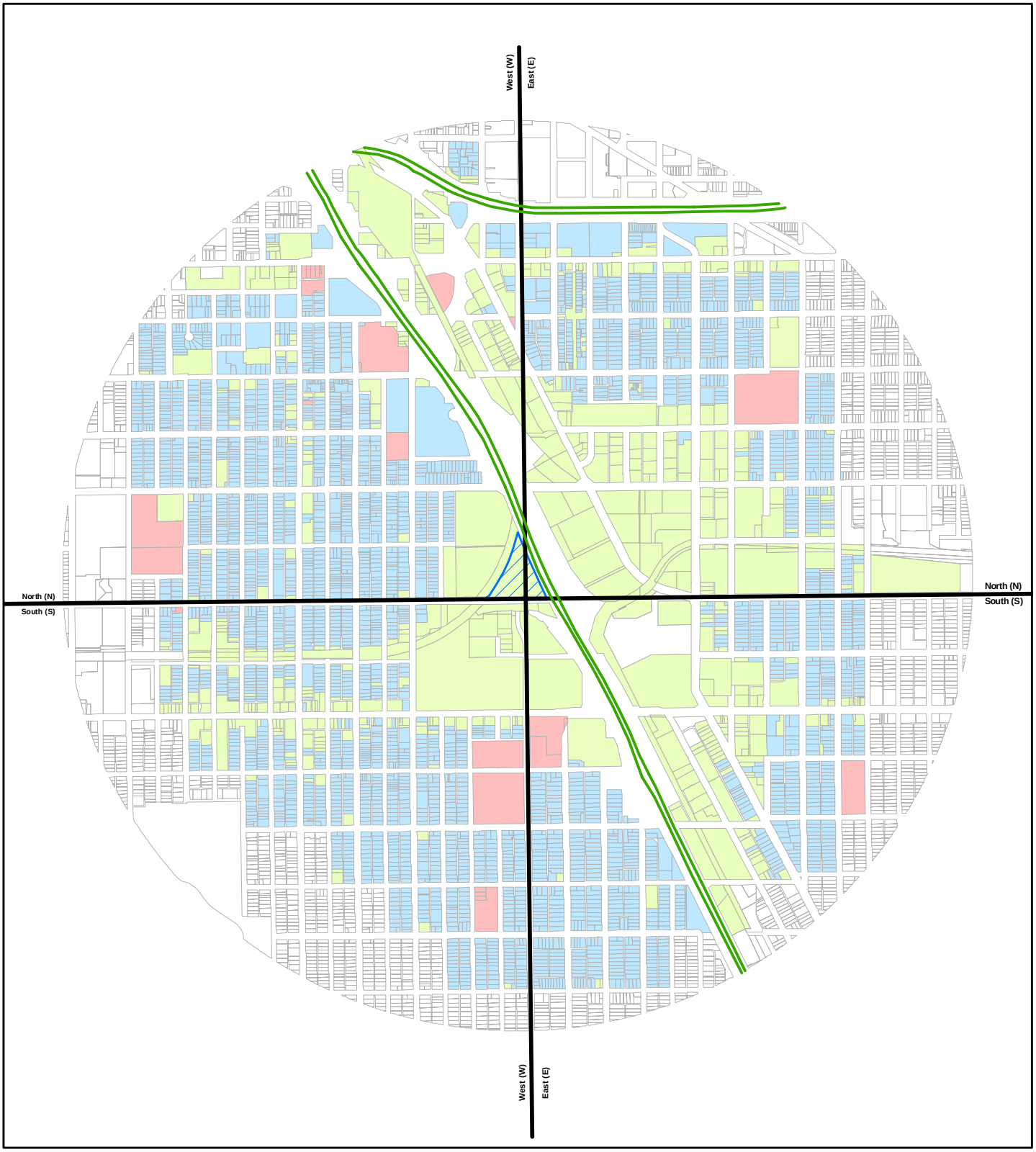


N

Figure 1-1
Site Location Map
South Minneapolis Site
Minneapolis, MN

CH2MHILL

MKE \\WAVE\PROJ\EPA\336752-SOUTH_MINNEAPOLIS\MXDS\FINAL_REPORT\FIG01-1_SITE_LOCATION_MAP.MXD 8/30/2007 09:48:46



Legend

Property Use

- Residential Properties
- Commercial / Industrial Properties
- Schools and Parks

N

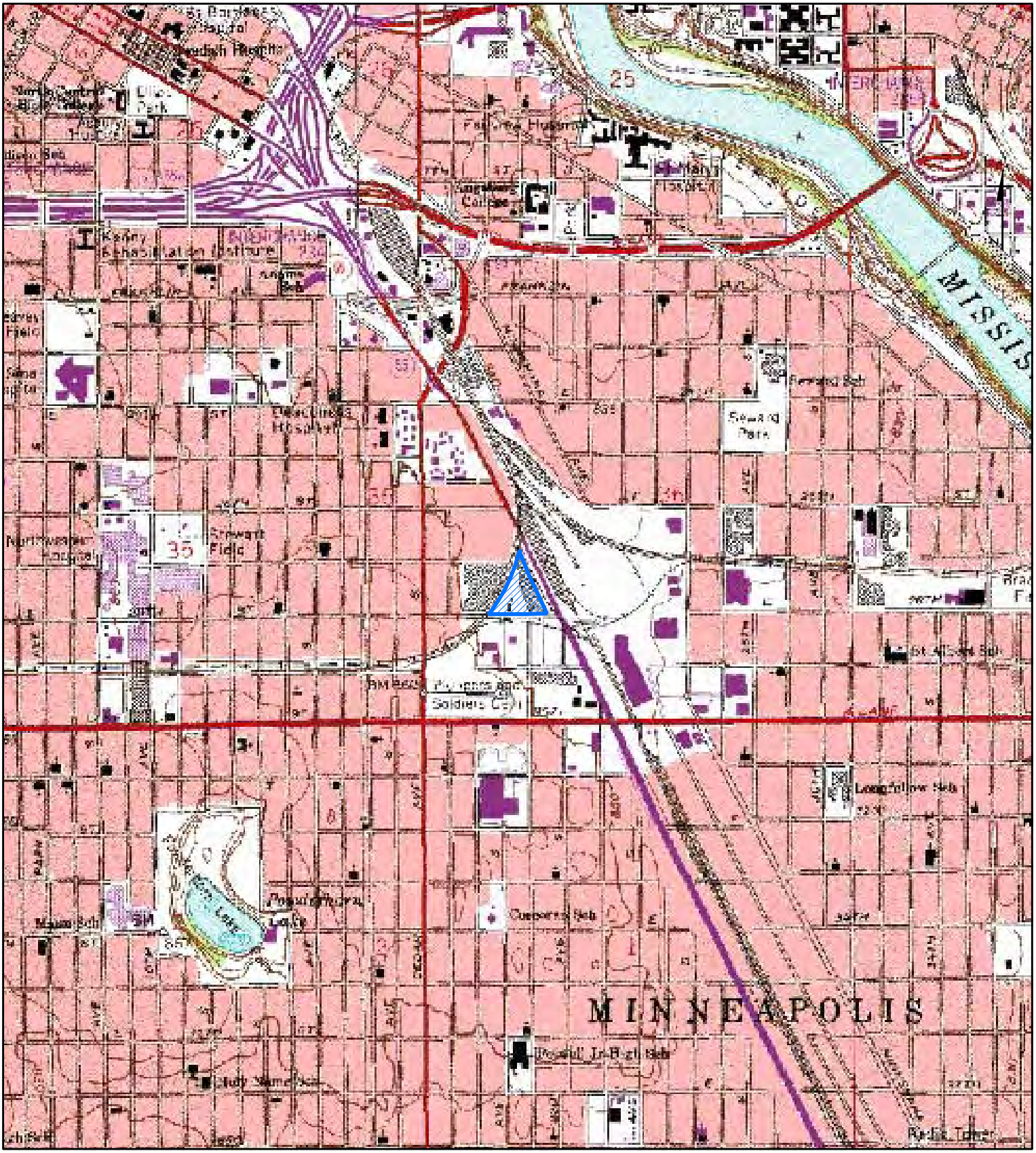
0 400 800 1,600

Feet

Figure 1-2
Property Use
South Minneapolis Site
Minneapolis, MN

CH2MHILL

MKE \\WAVE\PROJ\EPA\336752-SOUTH_MINNEAPOLIS\MXDS\FINAL_REPORT\FIG01-2_PROPERTY_USE.MXD 8/31/2007 08:57:20



Legend

CMC Heartland Lite Yard

N

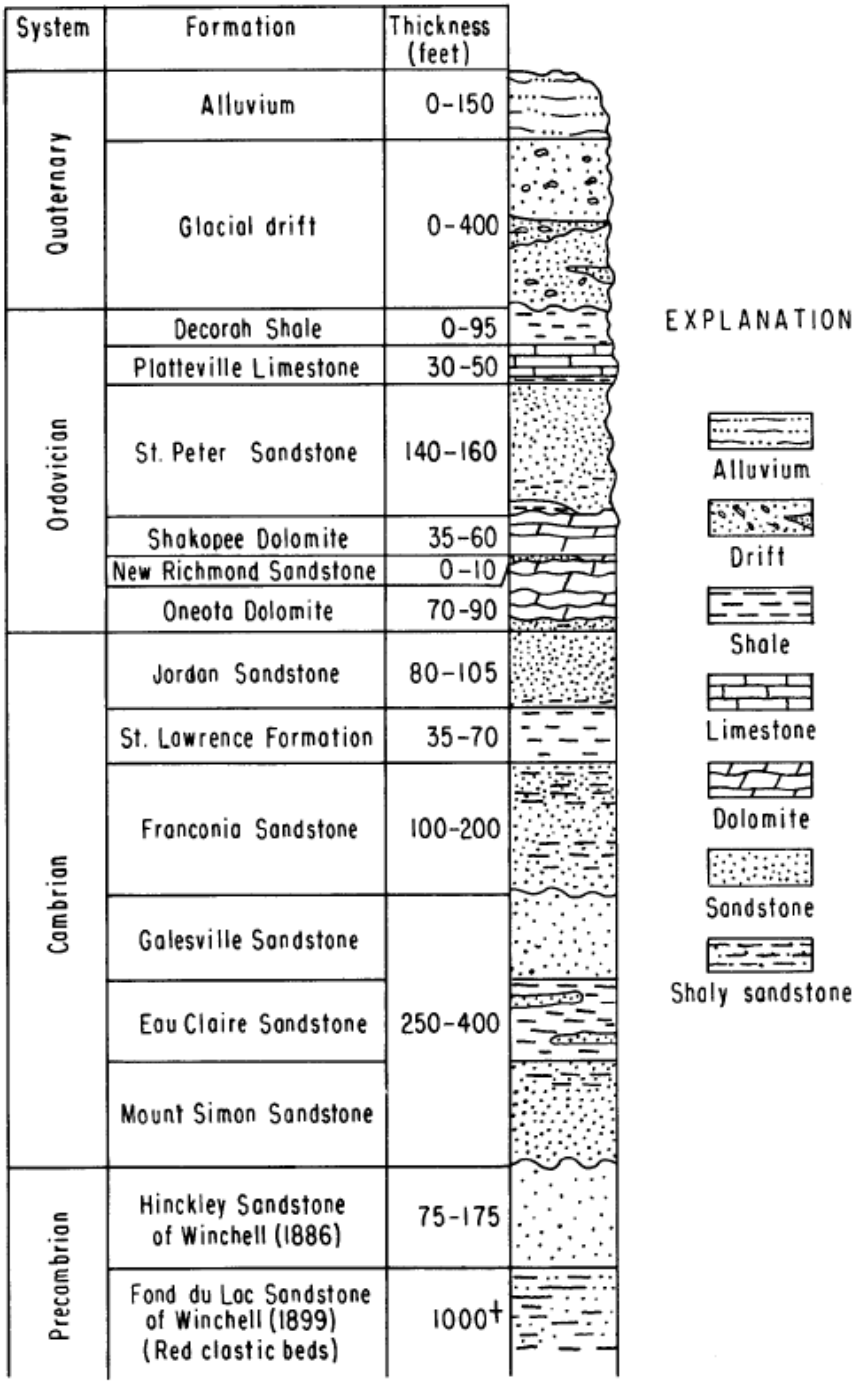
0 400 800 1,600

Feet

Figure 2-1
Topographic Map
South Minneapolis Site
Minneapolis, MN

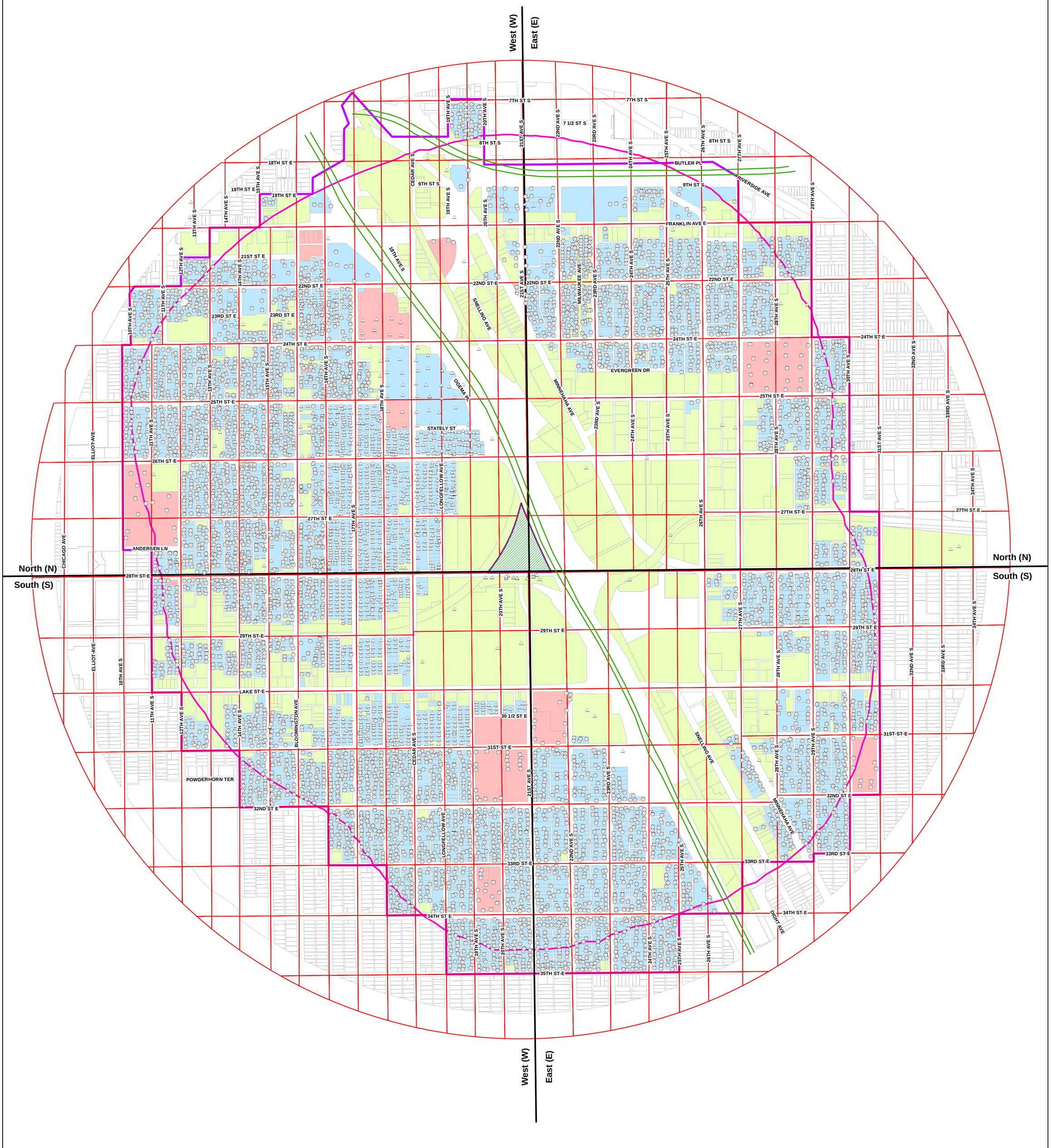
CH2MHILL

MKE \\WAVE\PROJ\EPA\336752-SOUTH_MINNEAPOLIS\MXDS\FINAL_REPORT\FIG02-1_TOPOGRAPHIC_MAP.MXD 8/31/2007 09:00:07



Source: USGS, 1965

FIGURE 2-2
General Stratigraphic Section for the Minneapolis Region
South Minneapolis



Legend

Sample Type

- 2006 Sampling Events
- 2001 - 2005 Sampling Events

Property Use

- Residential Properties
- Commercial / Industrial Properties
- Schools and Parks

N

0 300 600 1,200 1,800

Feet

Figure 3-1
Surface Soil Sample Locations
South Minneapolis Site
Minneapolis, MN

CH2MHILL

MKE \\WAVE\PROJ\EPA\336752-SOUTH_MINNEAPOLIS\MXDS\FINAL_REPORT\FIG03-1_SURFACE_SOIL_SAMPLE_LOCATIONS.MXD 8/31/2007 09:08:15

West (W)
East (E)
7TH ST S
7 1/2 ST S
8TH ST S
9TH ST S
BUTLER PL
FRANKLIN AVE E
18TH ST E
19TH ST E
21ST ST E
22ND ST E
23RD ST E
24TH ST E
25TH ST E
27TH ST E
29TH ST E
LAKE ST E
30 1/2 ST E
31ST ST E
EVERGREEN DR
STATELY ST
OGEMA PL
19TH AVE S
20TH AVE S
21ST AVE S
22ND AVE S
23RD AVE S
24TH AVE S
25TH AVE S
26TH AVE S
15TH AVE S
14TH AVE S
13TH AVE S
CEDAR AVE S
18TH AVE S
16TH AVE S
17TH AVE S
SNELLING AVE
MILWAUKEE AVE
MINNEHAHA AVE
LONGFELLOW AVE
BLOOMINGTON AVE

Legend

Sample Type

- Subsurface Soil Sampling Location

Property Use

- Residential Properties
- Commercial / Industrial Properties
- Schools and Parks

N

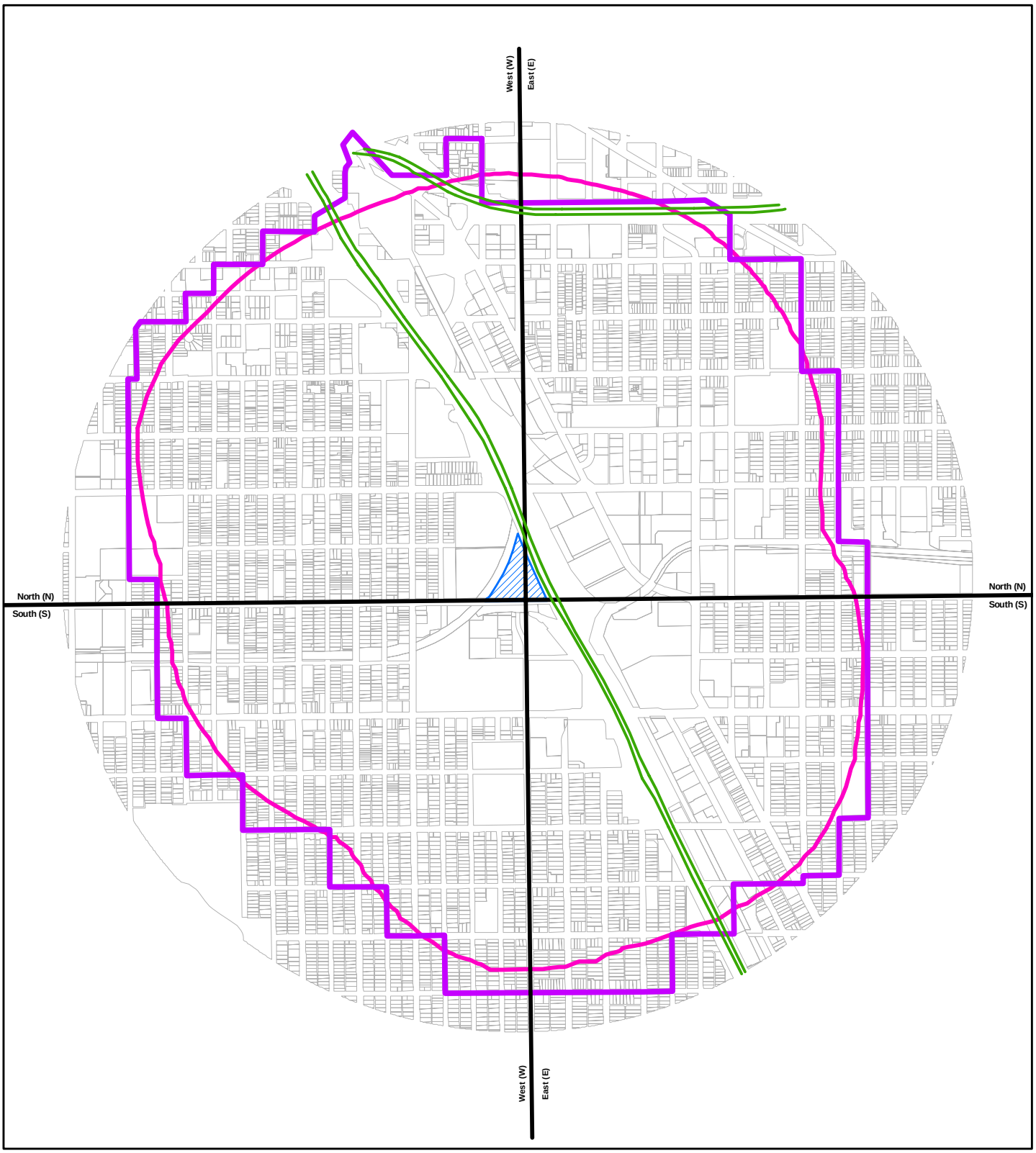
0 150 300 600 900

Feet

Figure 3-2
Subsurface Soil Sample Locations
South Minneapolis Site
Minneapolis, MN

CH2MHILL

MKE \\WAVE\PROJ\EPA\336752-SOUTH_MINNEAPOLIS\MXDS\FINAL_REPORT\FIG03-2_SUBSURFACE_SOIL_SAMPLE_LOCATIONS.MXD 8/31/2007 09:12:56



Legend

Arsenic Dispersion Boundary

- USEPA Arsenic Dispersion Boundary
- Modified Boundary to Include Full Blocks
- Property Boundaries
- CMC Heartland Lite Yard

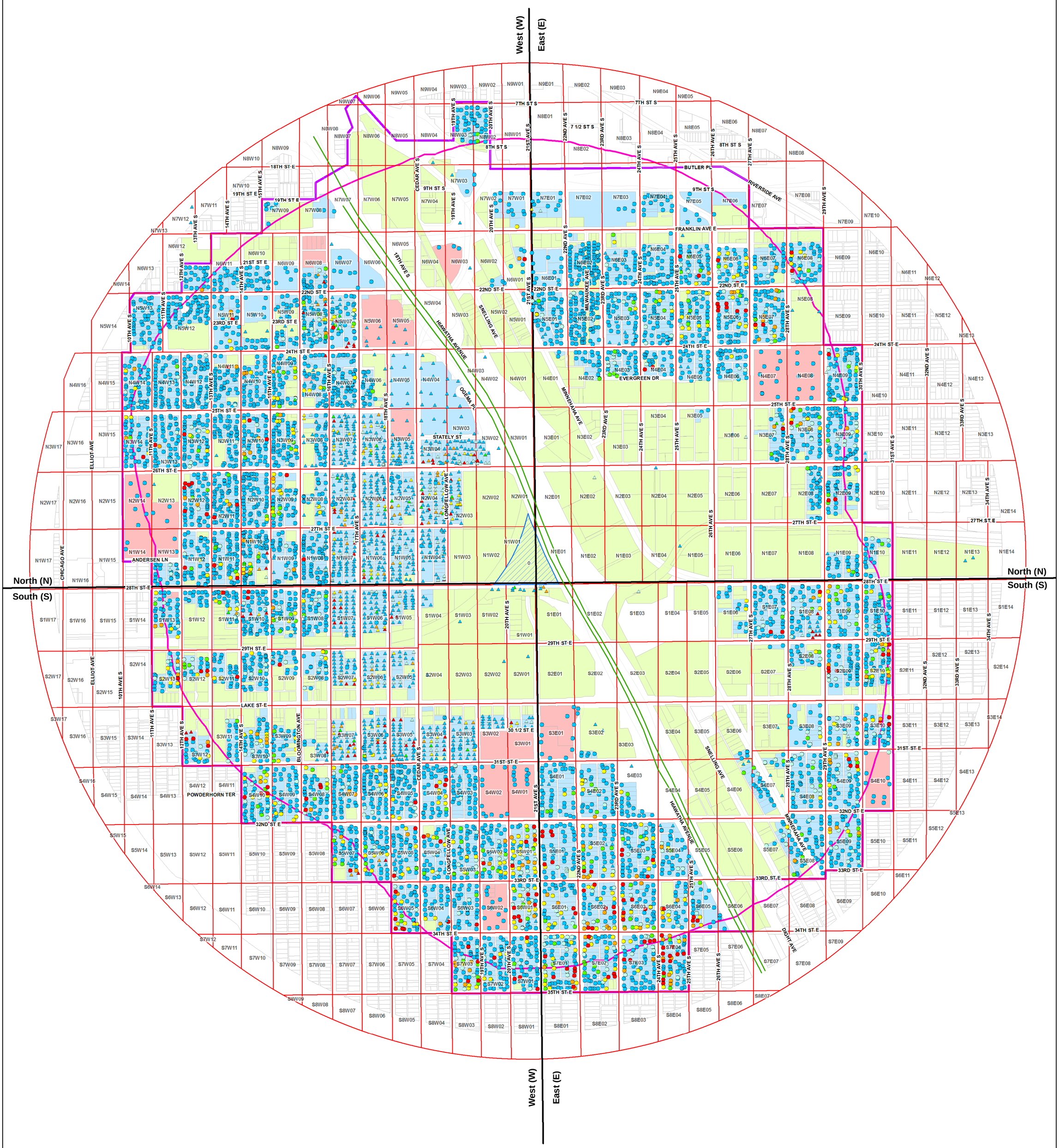
N

0 400 800 1,600 Feet

Figure 4-1
Air Dispersion Model Boundary
South Minneapolis Site
Minneapolis, MN

CH2MHILL

MKE \\WAVE\PROJ\EPA\336752-SOUTH_MINNEAPOLIS\MXDS\FINAL_REPORT\FIG04-1_AIR_DISPERSION_MODEL_BOUNDARY.MXD 8/31/2007 09:03:18



Legend

Sample Type

- 2006 Sampling Events
- 2001 - 2005 Sampling Events

Samples with Results (mg/kg)

- 0 - 10.0 (ppm)
- 10.0 - 20.0 (ppm)
- 20.0 - 30.0 (ppm)
- 30.0 - 60.0 (ppm)
- 60.0 - 95.0 (ppm)
- > 95.0 (ppm)

Arsenic Dispersion Boundary above 10 ppm

- Revised 2006 Residential Soil Sample Boundary
- Arsenic Dispersion Boundary

N

0 300 600 1,200 1,800

Feet

Figure 4-2
Surface Soil Arsenic Results
South Minneapolis Site
Minneapolis, MN

CH2MHILL

MKE \\WAVE\PROJ\EPA\336752-SOUTH_MINNEAPOLIS\MXDS\FINAL_REPORT\FIG04-2_SURFACE_SOIL_ARSENIC_RESULTS.MXD 8/31/2007 09:49:59

Appendix A

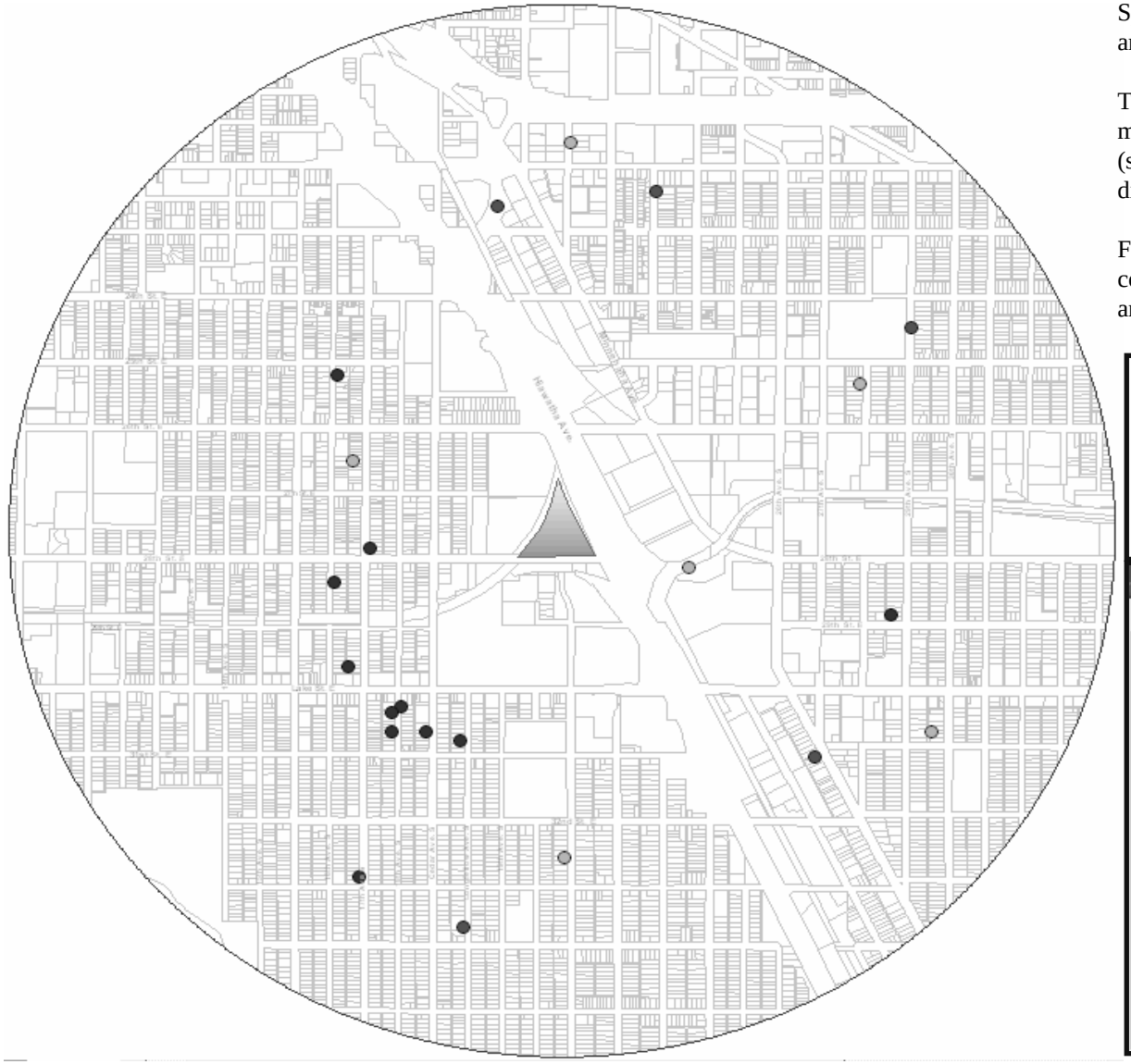
Investigation Summary Technical Memoranda

Appendix A-1

CMC TAL Metals Analyses Fingerprinting As Contamination Surrounding the Phillips Neighborhood, Minneapolis, MN

CMC TAL Metals Analyses

Fingerprinting As Contamination Surrounding the Phillips Neighborhood, Minneapolis, MN



Spatial Analyst tools within ArcGIS were used to determine if arsenic (As) concentrations were spatially correlated / clustered.

This was accomplished by calculating the Moran's I statistic – measures spatial autocorrelation based on feature locations (spatial) and attribute values. This statistic is based upon the Z-distribution.

For this analysis, arsenic (As) concentrations are clustered (high concentrations are spatially correlated). See the analysis (below) and the spatial distribution of As concentration (left).

TAL_METALS_SHAPE
ARSENIC (ppm)
< 10.0
10 - 95
> 95.0

Spatial Autocorrelation (Global Moran's I)

Moran's I Index = 0.27
Z Score = 3.3 standard deviations

Dispersed — Clustered

Significance Level:	0.01	0.05	0.10	RANDOM	0.10	0.05	0.01
Critical Values:	(-2.58)	(-1.96)	(-1.65)		(1.65)	(1.96)	(2.58)

There is less than 1% likelihood that this clustered pattern could be the result of random chance.

CMC TAL Metals Analyses

Analysis # 1: Hotspot Analysis – The Getis-Ord Gi*

This tool identifies spatial clusters of statistically significant high or low attribute values; calculates the Gi*z statistic, which is an indication of whether high or low values tend to cluster in the study area (ESRI 2005).

Gi*z scores below zero (< 0) indicate clustering of low values, whereas Gi*z scores above zero (> 0) indicate clustering of high values (Sabel 2005).

Using a distance weight of 500 m for each sample (n = 22), this hotspot analysis indicates that high arsenic (As) concentrations are clustered among 10 samples southwest of the CMC facility (shown in red). The other samples (n=12), shown in blue, are samples not located within the high As concentration hotspot.

Note: The locations in red are those samples within the Getis-Ord Hotspot for high As concentrations. Thus, we expect that As concentrations for these samples are greater than the As concentrations of those samples outside the hotspot. What about the concentrations of the other TAL metals?

Environmental Systems Research Institute (ESRI). 2005. ArcGIS v. 9.1. Redlands, CA.
Sabel. C. 2005. Clustering of disease: issues and pitfalls. Located on the web: http://nceph.anu.edu.au/Envir_Collab/Short_Courses/SC5_CBR_Spatial/B&W%20pdfs%20of%20final%20ppt%20pres/Sabel_ThursA1_%20Canberra_Clust-bw.pdf#search='ArcGIS%20%20GetisOrd%20Gi'. Verified 12 December 2005.

A new field was created for each TAL sample, "Type", which described the spatial clustering of samples determined by the Getis-Ord Gi Hotspot Analysis.

Under this field, soil samples were labeled as 'High' for those samples clustered with high arsenic (As) concentrations (Gi*z > 0), or 'Low' for those samples not clustered with high arsenic (As) concentrations (Gi*z < 0). Thus, there were 10 samples labeled as clustered with high arsenic concentrations ('High') and 12 samples not clustered with high arsenic concentrations ('low'). Those samples clustered with arsenic concentration are located within the arsenic hotspot (shown in red, previous slide), whereas those samples not clustered with arsenic are located outside the hotspot (shown in blue).

The resulting dataset consists of 22 samples, each containing concentrations (ppm) for 22 analyte variables as well as the cluster attribute field.

To determine which other TAL metals are highly concentrated (or inversely concentrated) with As contamination, a one-way analysis of variance (ANOVA) was performed. This analysis tested for the effect of sample location (within the hotspot vs. outside the hotspot) on concentration of each metal. A *by* statement was generated in SAS 9.1 to perform the analysis by each of the 22 analytes. Results of this analysis revealed that the concentrations of 4 of the 22 original metals (excluding Arsenic) were spatially correlated with arsenic – i.e., their concentrations within the As hotspot were different than their concentrations outside of the As hotspot. Table 1 (below) lists those metals found to be spatially correlated with arsenic.

Table 1. Results of the ANOVA that tested for the spatial differentiation in concentration of TAL metals present within and outside of the arsenic Getis-Ord Hotspot. Note: due to space limitations, only those metals which differed significantly are presented. For each metal, mean concentration within and outside of the hotspot are given (± 1 SE).

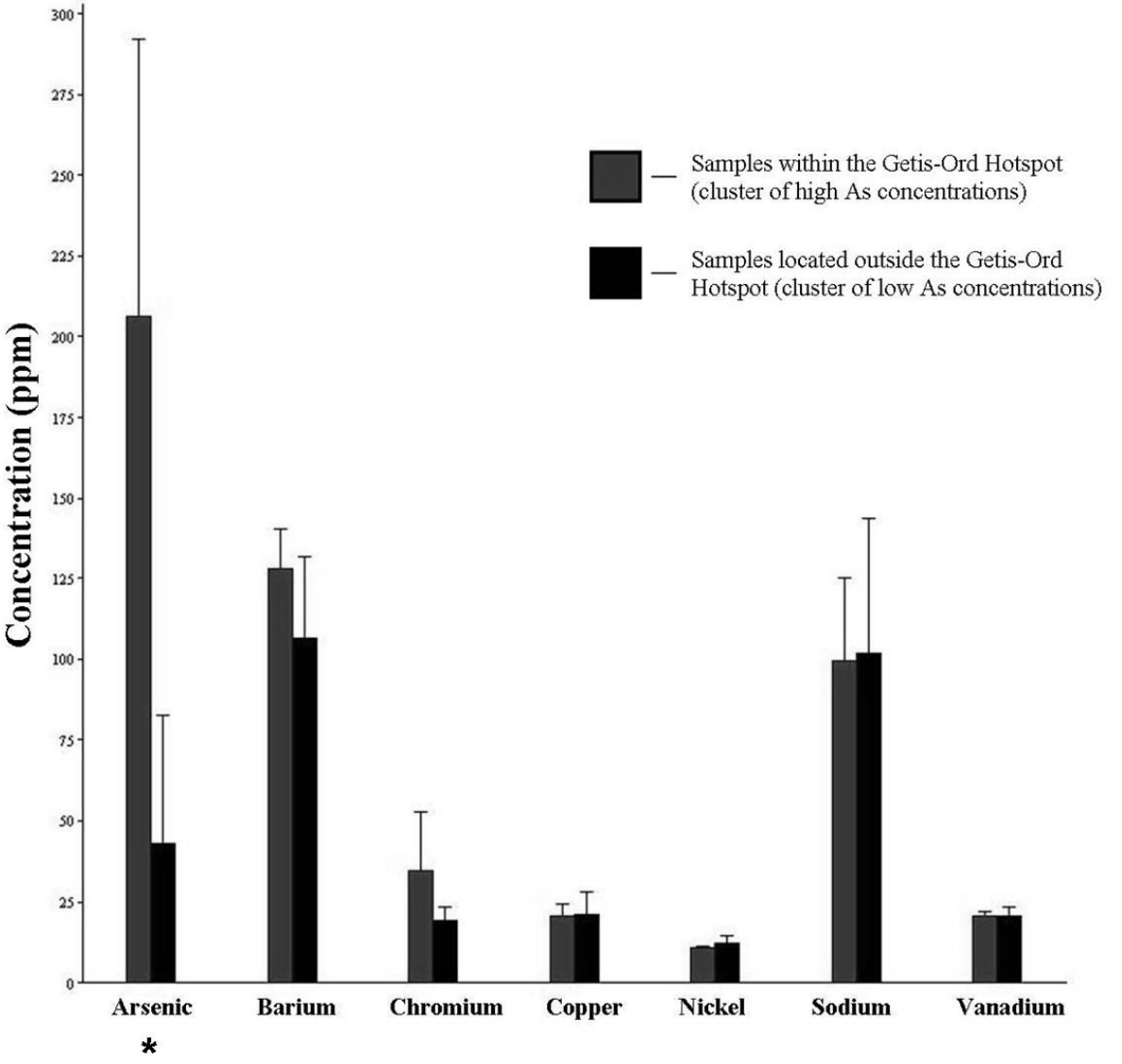
Analyte	Mean Conc in Hotspot	Standard Error (hotspot)	Mean Conc outside hotspot	Standard Error (outside)	F Statistic	*P* - Value
Antimony	3.75	0.53	2.01	0.59	4.58	0.045
Arsenic	206.4	37.88	43.07	18.04	16.91	< 0.001
Cadmium	1.14	0.12	0.76	0.1	6.16	0.022
Manganese	540	20.38	446.67	27.75	6.83	0.017
Selenium	0.52	0.08	0.33	0.04	5.5	0.029

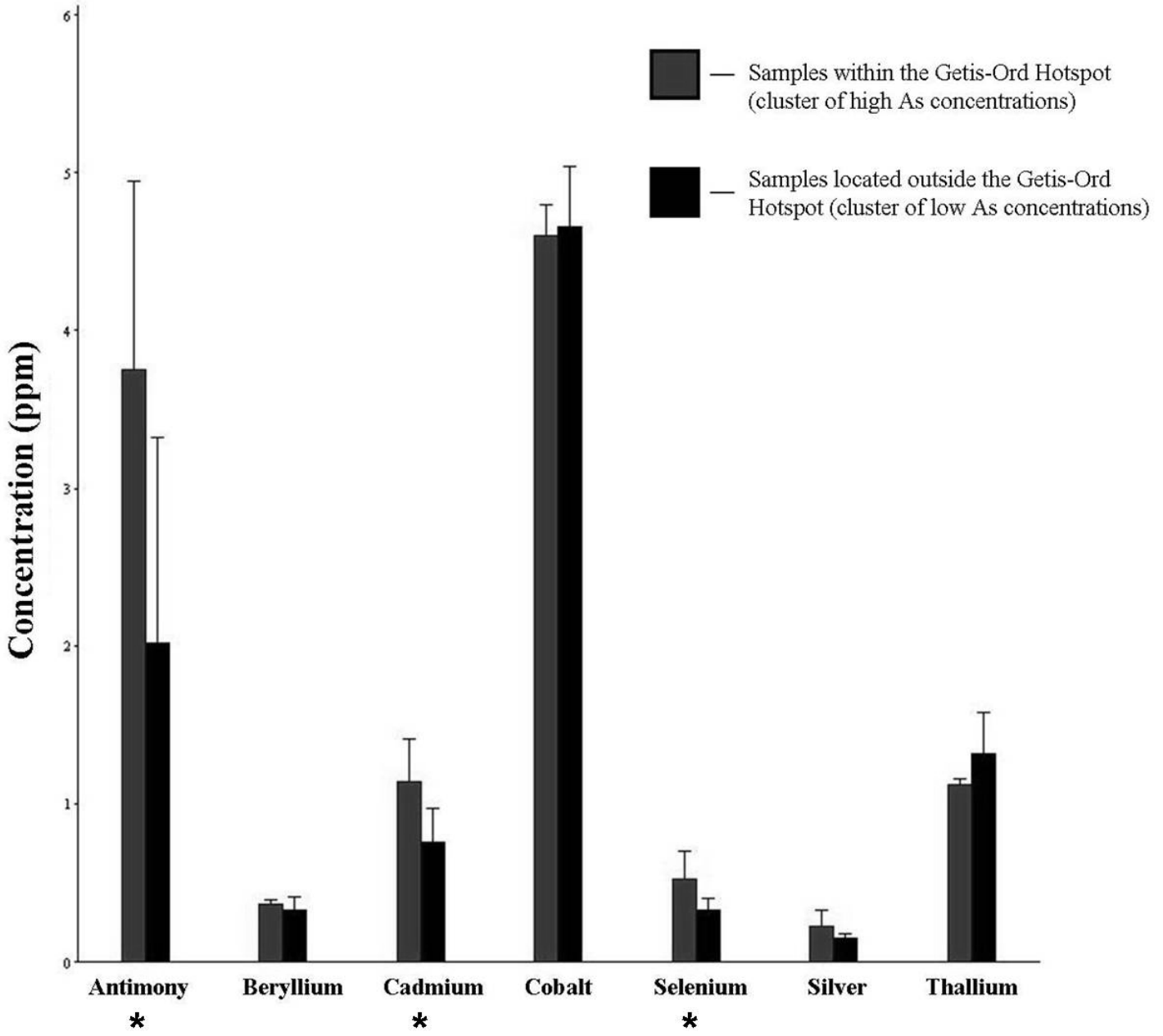
Bar charts of TAL Metal Concentration by Location

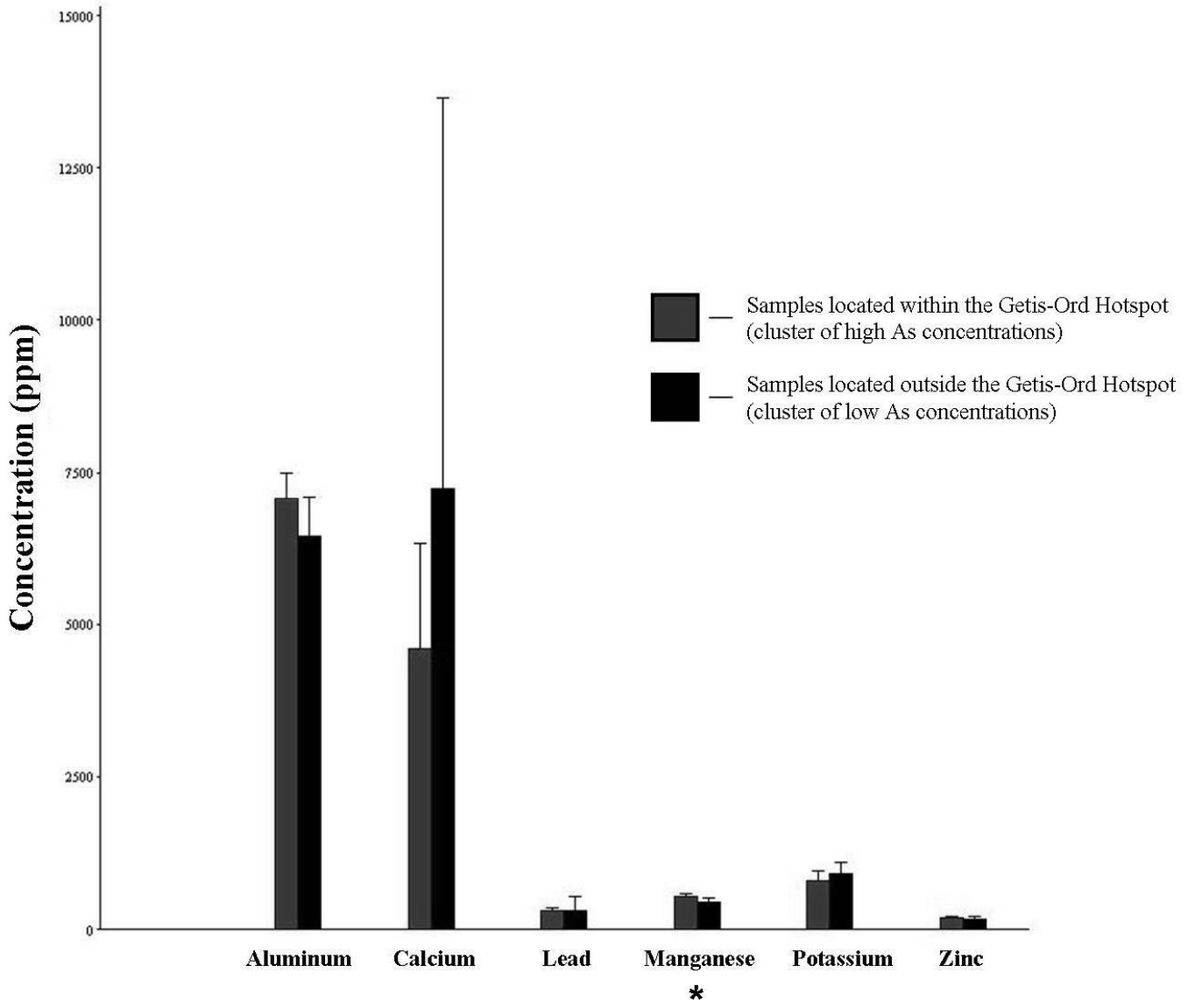
The remaining slides show the bar charts for the concentration of each TAL metal (total = 22) by sample location. For each metal, those samples located within the Getis-Ord Hotspot for high As concentrations are shown in red, and those samples found outside the hotspot are shown in black.

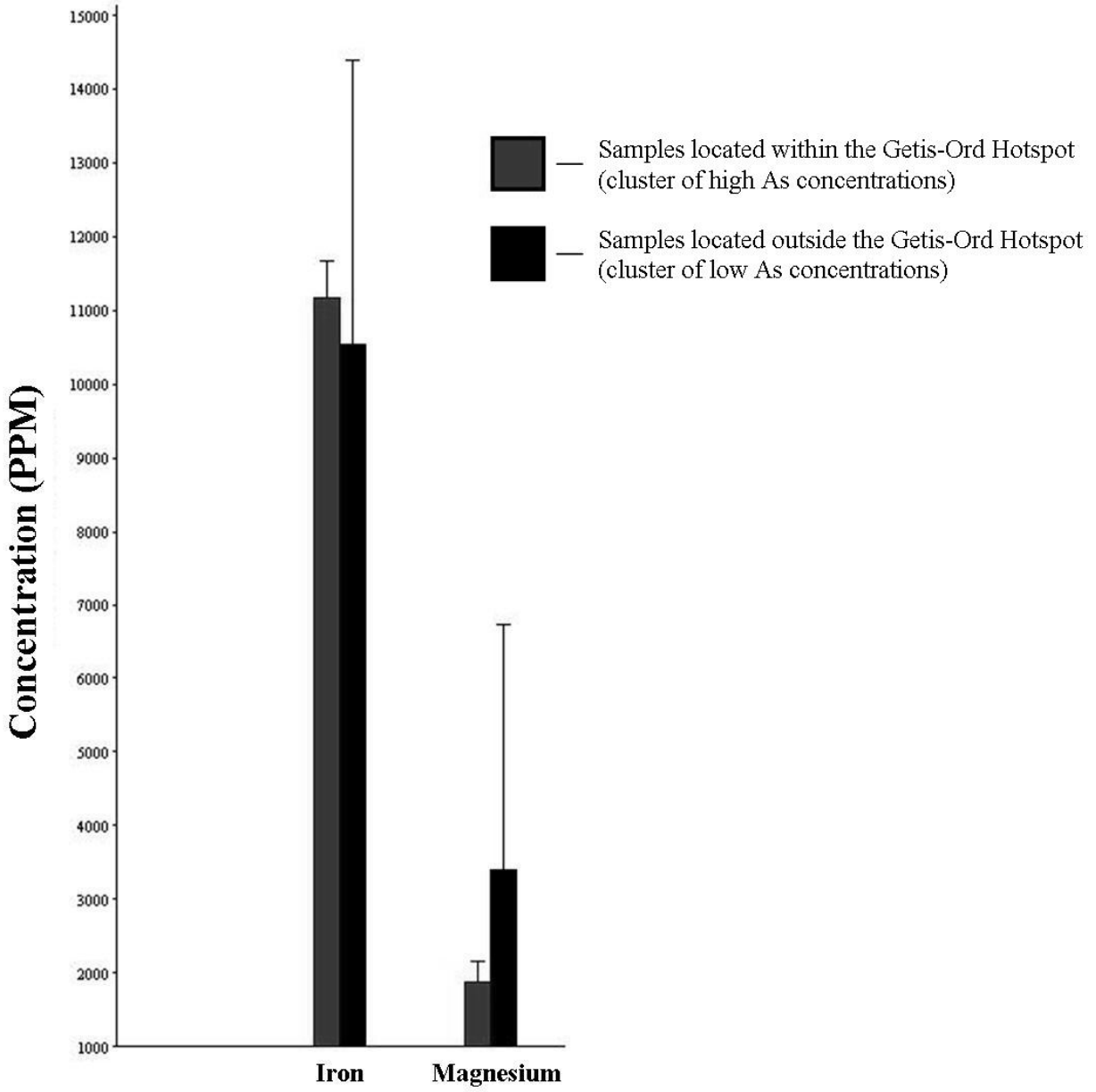
All metals are represented as means ± 1 SE.

* Denotes metal concentrations that significantly differ spatially (α = 0.05).




Concentration (ppm)
0
1
2
3
4
5
6
Samples within the Getis-Ord Hotspot (cluster of high As concentrations)
Samples located outside the Getis-Ord Hotspot (cluster of low As concentrations)
Antimony
Beryllium
Cadmium
Cobalt
Selenium
Silver
Thallium
*
*
*


Concentration (ppm)
15000
12500
10000
7500
5000
2500
0
Samples located within the Getis-Ord Hotspot (cluster of high As concentrations)
Samples located outside the Getis-Ord Hotspot (cluster of low As concentrations)
Aluminum
Calcium
Lead
Manganese
Potassium
Zinc
*


Concentration (PPM)
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
Iron
Magnesium
Samples located within the Getis-Ord Hotspot
(cluster of high As concentrations)
Samples located outside the Getis-Ord Hotspot
(cluster of low As concentrations)

A correlation matrix was then generated to determine the relationship between As concentrations and the concentrations for those metals:

1. Within the high As hotspot (n = 10)
2. Outside the As hotspot (n = 12)
3. Overall (total number of soil samples; n = 22)

Correlations were determined using the Spearman Correlation Coefficient

1. Within the high As hotspot (n = 10).

Of the 22 TAL metals, only 2 were correlated with arsenic within the hotspot: Antimony and Selenium (see Table Below).

TAL Metal	Spearman Coefficient	P-Value
Antimony	0.697	0.0250
Selenium	0.746	0.0132

2. Outside of the high As hotspot (n = 12).

Of the 22 TAL metals, only 3 were correlated with arsenic outside the hotspot: Antimony, Cadmium, and Lead (see Table Below).

TAL Metal	Spearman Coefficient	P-Value
Antimony	0.663	0.0187
Cadmium	0.690	0.0130
Lead	0.580	0.0479

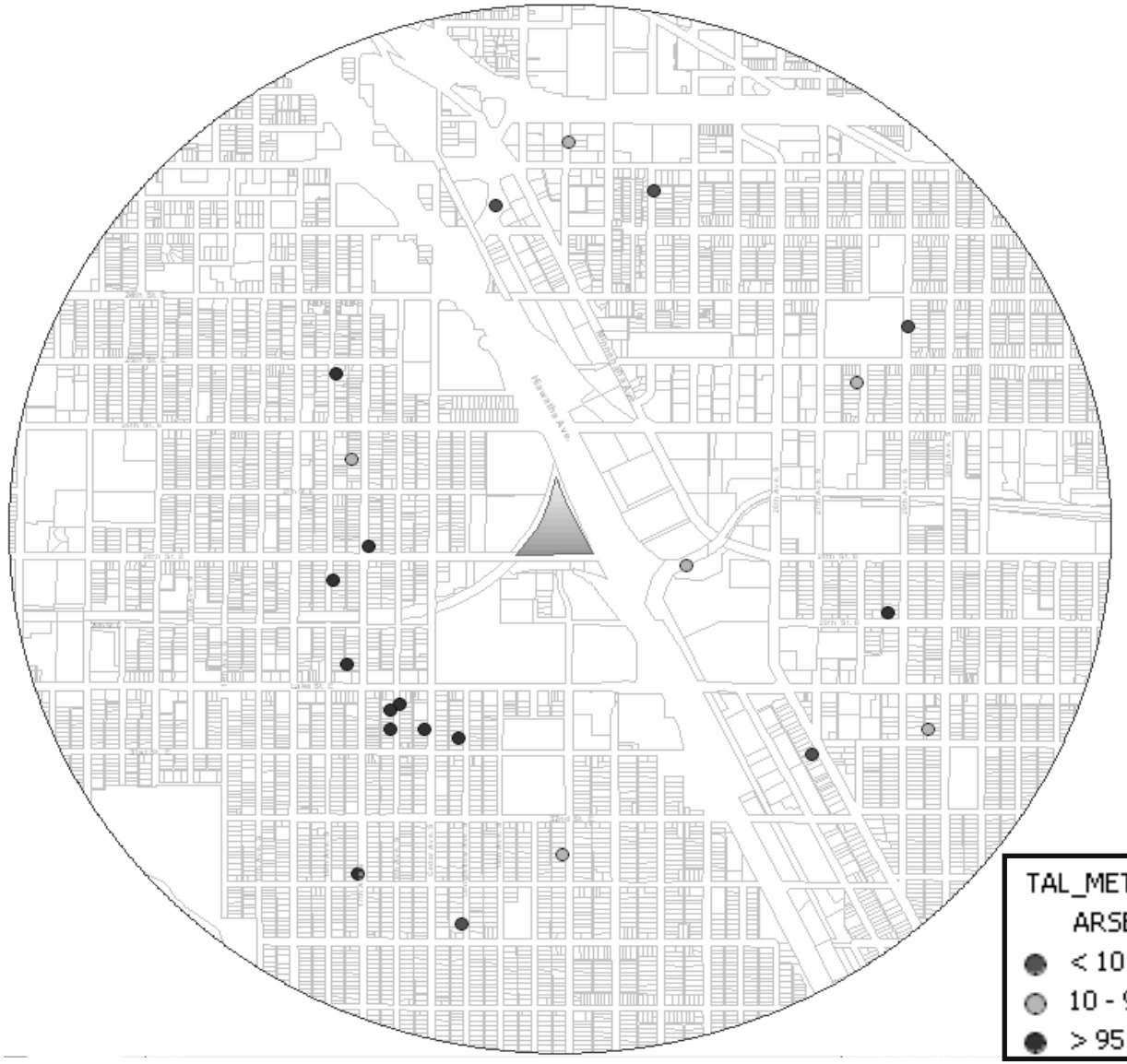
3. Overall (total samples; n = 22).

Of the 22 TAL metals, only 3 were correlated with arsenic for the total soil samples: Antimony, Cadmium, and Lead (see Table Below).

TAL Metal	Spearman Coefficient	P – Value
Antimony	0.785	<0.0001
Cadmium	0.568	0.0058
Lead	0.521	0.0129

Fingerprinting Arsenic (As) Contamination

Analysis # 2 - Principle Components Analysis (PCA)



PCA is a statistical technique used to reduce the dimensionality of multivariate data. This analysis is important to simplify a complex dataset into its most important features – its principle components. The PCA works by reducing dimensionality by extracting components that are uncorrelated with each other. An explanatory axis is assigned for the total number of samples in the dataset (i.e., since there are 22 soil samples in this TAL dataset, PCA will create 22 explanatory axes, “PCA Axes”). The first PCA axis is aligned in the direction of the highest percentage of the total variance within the dataset, and all axes are consecutively orthogonal. Since the first PCA axis explains as much of the variation within the entire dataset as possible, it is the first principle component.

The most common way of determining the principle components of a dataset is to calculate the eigenvectors of the data correlation matrix, which give direction to where the data ‘cloud’ is stretched.

Because PCA axes 1 & 2 explain the most variation within the dataset, 2-dimentional graphics of eigenvalues along these two axes are the best representation of the data

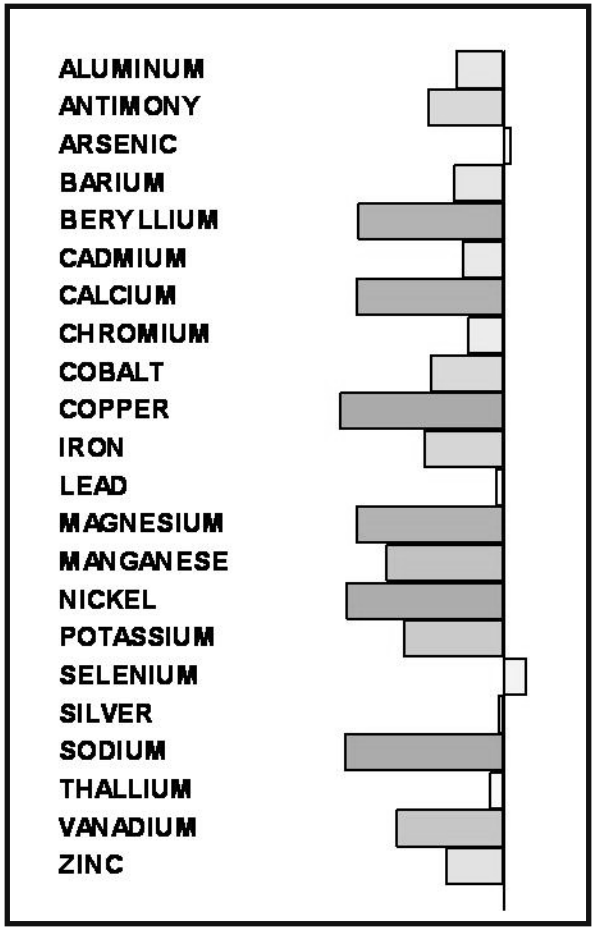
PCA Results

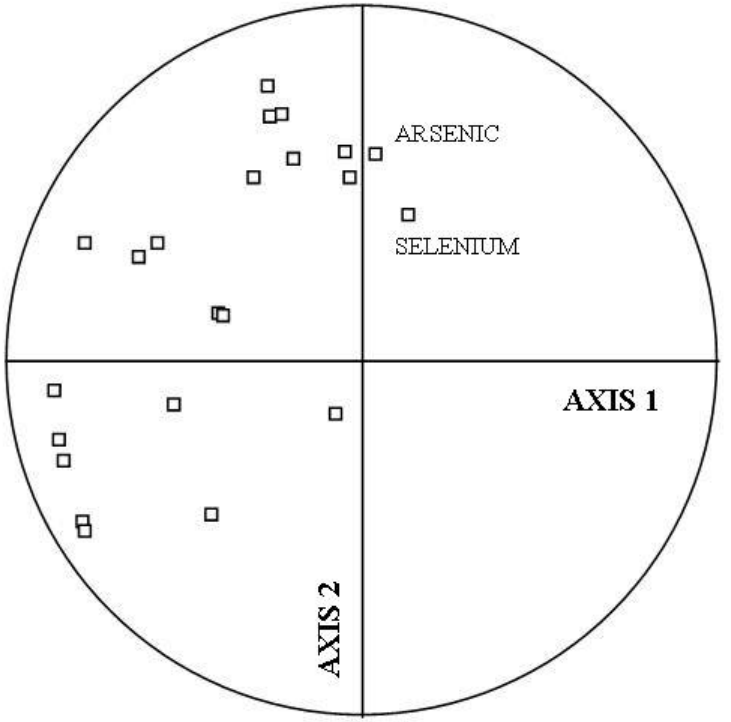
	PCA1	PCA2	PCA3	PCA4	PCA5
Eigen values:	5.79	4.36	3.54	2.32	1.45
	PCA1	**PCA2**	**PCA3**	**PCA4**	**PCA5**
Percentage of total variance explained	26.31	19.84	16.09	10.53	6.57
Cumulated percentage of total variance explained	26.31	46.14	62.24	72.76	79.34
Eigenvectors :					
	PCA1	**PCA2**	**PCA3**	**PCA4**	**PCA5**
VARIABLE					
ALUMINUM	-0.11	0.33	0.27	-0.14	0.1
ANTIMONY	-0.17	0.06	-0.37	-0.02	0.31
ARSENIC	0.02	0.28	-0.32	-0.13	0.27
BARIUM	-0.11	0.37	0.15	0.19	0.11
BERYLLIUM	-0.32	0.16	0.14	-0.16	0.05
CADMIUM	-0.09	0.33	-0.2	0.06	-0.18
CALCIUM	-0.33	-0.22	-0.16	0.1	-0.03
CHROMIUM	-0.08	0.27	-0.1	-0.15	-0.53
COBALT	-0.16	0.06	0.25	-0.28	0.1
COPPER	-0.36	-0.04	-0.12	0.12	-0.13
IRON	-0.17	-0.21	-0.19	-0.3	-0.06
LEAD	-0.02	0.28	0.07	0.41	-0.1
MAGNESIUM	-0.32	-0.23	-0.16	0.07	-0.06
MANGANESE	-0.26	0.14	-0.1	-0.32	0.14
NICKEL	-0.35	-0.14	0.04	0.14	-0.01
POTASSIUM	-0.22	-0.06	0.37	0.04	0.16
SELENIUM	0.05	0.19	-0.27	-0.18	0.42
SILVER	-0.01	0.25	-0.19	-0.23	-0.46
SODIUM	-0.35	-0.11	-0.08	0.12	-0.04
THALLIUM	-0.03	-0.07	0.19	-0.31	-0.06
VANADIUM	-0.24	0.16	0.35	-0.09	0.01
ZINC	-0.13	0.25	-0.08	0.43	0.11

PCA axis 1 explained 26.3 % of the total variation within the dataset, the cumulative proportion of the data explained by the first two axes (1 & 2) is 46.14 %. Thus, only these two axes were included in further investigation (the remaining axes explained too little of the remaining variation).

*Note: Eigenvectors for only the first 5 PCA axes are shown to the left. A total of 22 PCA axes were generated. Only the first two axes were included in further investigation.

PCA axis 1 explains the most variation; All metals are negatively 'loading' on this axis, with the exception of 2 metals: Arsenic and Selenium. Although these positive values are small, this observation warrants further investigation.

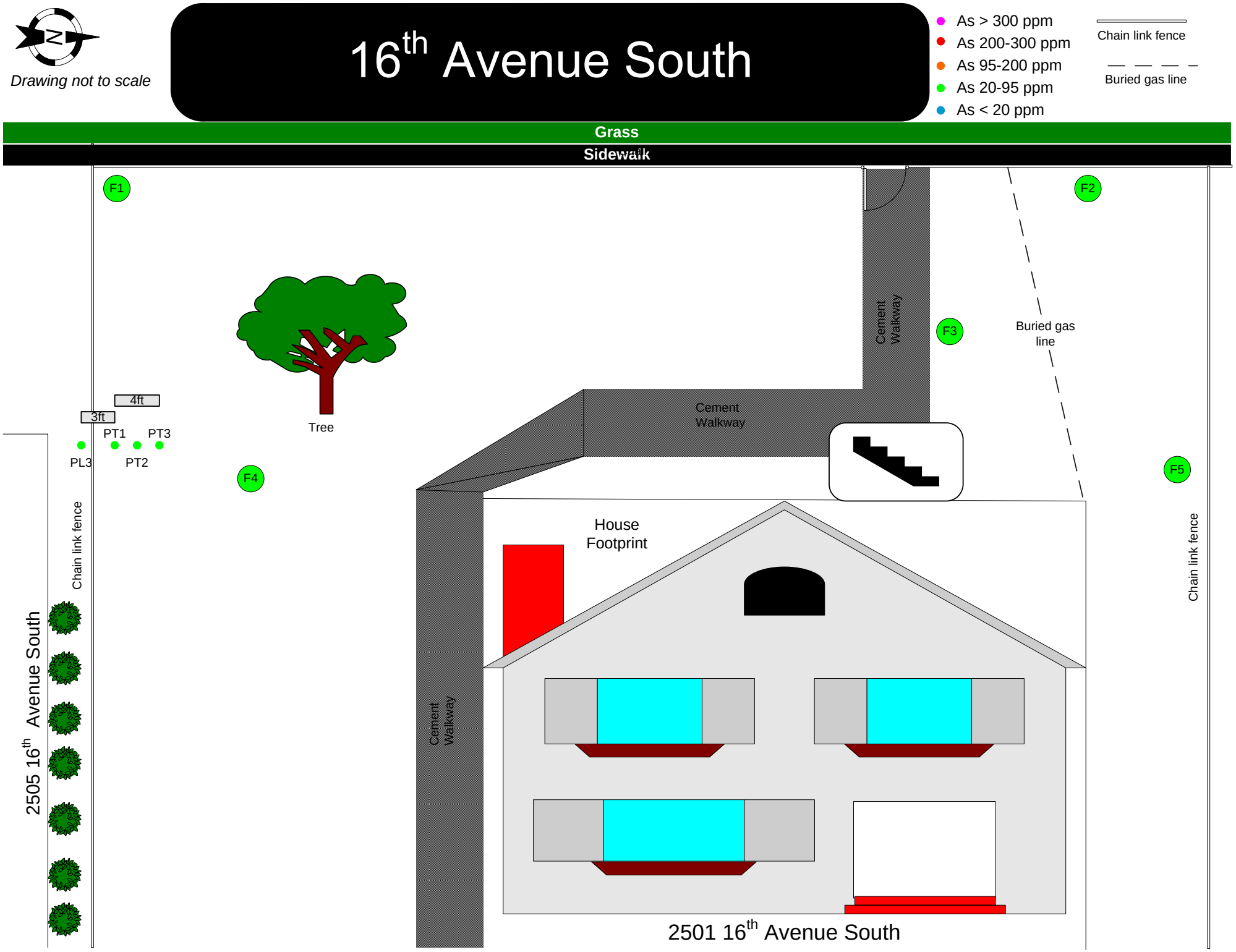


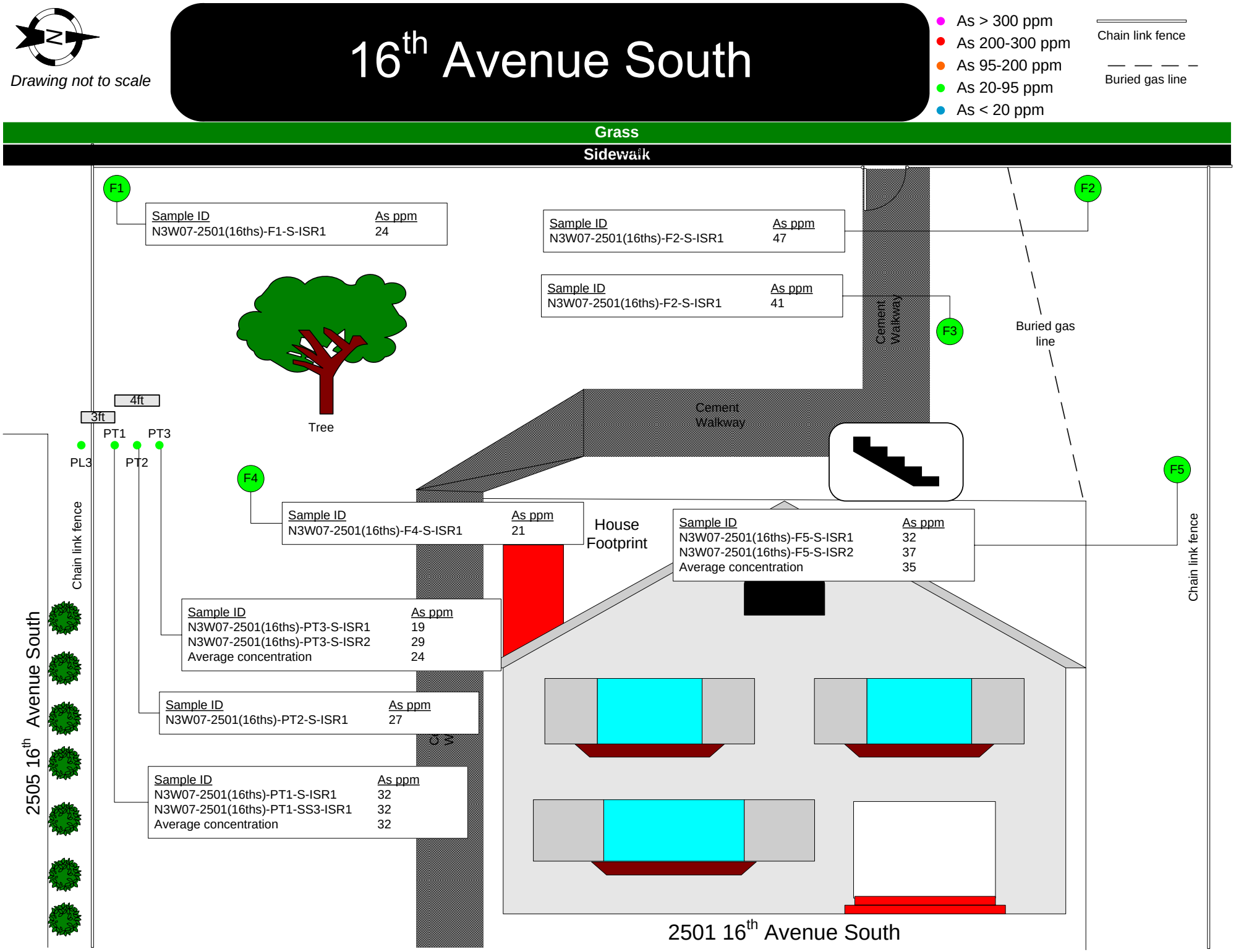


These two graphs show that Arsenic and Selenium are the only two metals positively associated along axis # 1

Appendix A-2

TRIAD Investigation Results


Drawing not to scale
16th Avenue South
As > 300 ppm
As 200-300 ppm
As 95-200 ppm
As 20-95 ppm
As < 20 ppm
Chain link fence
Buried gas line
Grass
Sidewalk
F1
F2
F3
F4
F5
Tree
Cement Walkway
Buried gas line
4ft
3ft
PT1
PT3
PL3
PT2
Chain link fence
House Footprint
Chain link fence
2505 16th Avenue South
2501 16th Avenue South


Drawing not to scale
16th Avenue South
As > 300 ppm
As 200-300 ppm
As 95-200 ppm
As 20-95 ppm
As < 20 ppm
Chain link fence
Buried gas line
Grass
Sidewalk
F1
Sample ID
As ppm
N3W07-2501(16ths)-F1-S-ISR1
24
F2
Sample ID
As ppm
N3W07-2501(16ths)-F2-S-ISR1
47
Sample ID
As ppm
N3W07-2501(16ths)-F2-S-ISR1
41
F3
Cement Walkway
Buried gas line
Tree
4ft
3ft
PT1
PT3
PL3
PT2
Cement Walkway
F4
Sample ID
As ppm
N3W07-2501(16ths)-F4-S-ISR1
21
House Footprint
F5
Sample ID
As ppm
N3W07-2501(16ths)-F5-S-ISR1
32
N3W07-2501(16ths)-F5-S-ISR2
37
Average concentration
35
Chain link fence
Chain link fence
Sample ID
As ppm
N3W07-2501(16ths)-PT3-S-ISR1
19
N3W07-2501(16ths)-PT3-S-ISR2
29
Average concentration
24
Sample ID
As ppm
N3W07-2501(16ths)-PT2-S-ISR1
27
Sample ID
As ppm
N3W07-2501(16ths)-PT1-S-ISR1
32
N3W07-2501(16ths)-PT1-SS3-ISR1
32
Average concentration
32
2505 16th Avenue South
2501 16th Avenue South

Sample ID	As	As +/-	Pb	Pb +/-
n3w07-2501(16ths)-pt1-s-isr1	31.87	4.11	170.13	4.78
n3w07-2501(16ths)-pt2-s-isr1	26.57	4.3	184.24	5.1
n3w07-2501(16ths)-pt1-ss3-isr1	32.42	4.22	187.22	4.94
n3w07-2501(16ths)-pt3-s-isr1	18.73	3.83	148.54	4.55
n3w07-2501(16ths)-pt3-s-isr2	28.89	4.13	158.74	4.81
n3w07-2501(16ths)-f1-s-isr1	24	3.62	123.65	4.2
n3w07-2501(16ths)-f2-s-isr1	47	4.27	170.54	4.8
n3w07-2501(16ths)-f3-s-isr1	40.99	5.01	269.82	5.97
n3w07-2501(16ths)-f4-s-isr1	21.31	4.77	247.31	5.83
n3w07-2501(16ths)-f5-s-isr1	32.13	5.17	304.51	6.32
n3w07-2501(16ths)-f5-s-isr2	37.42	5.42	315.14	6.6

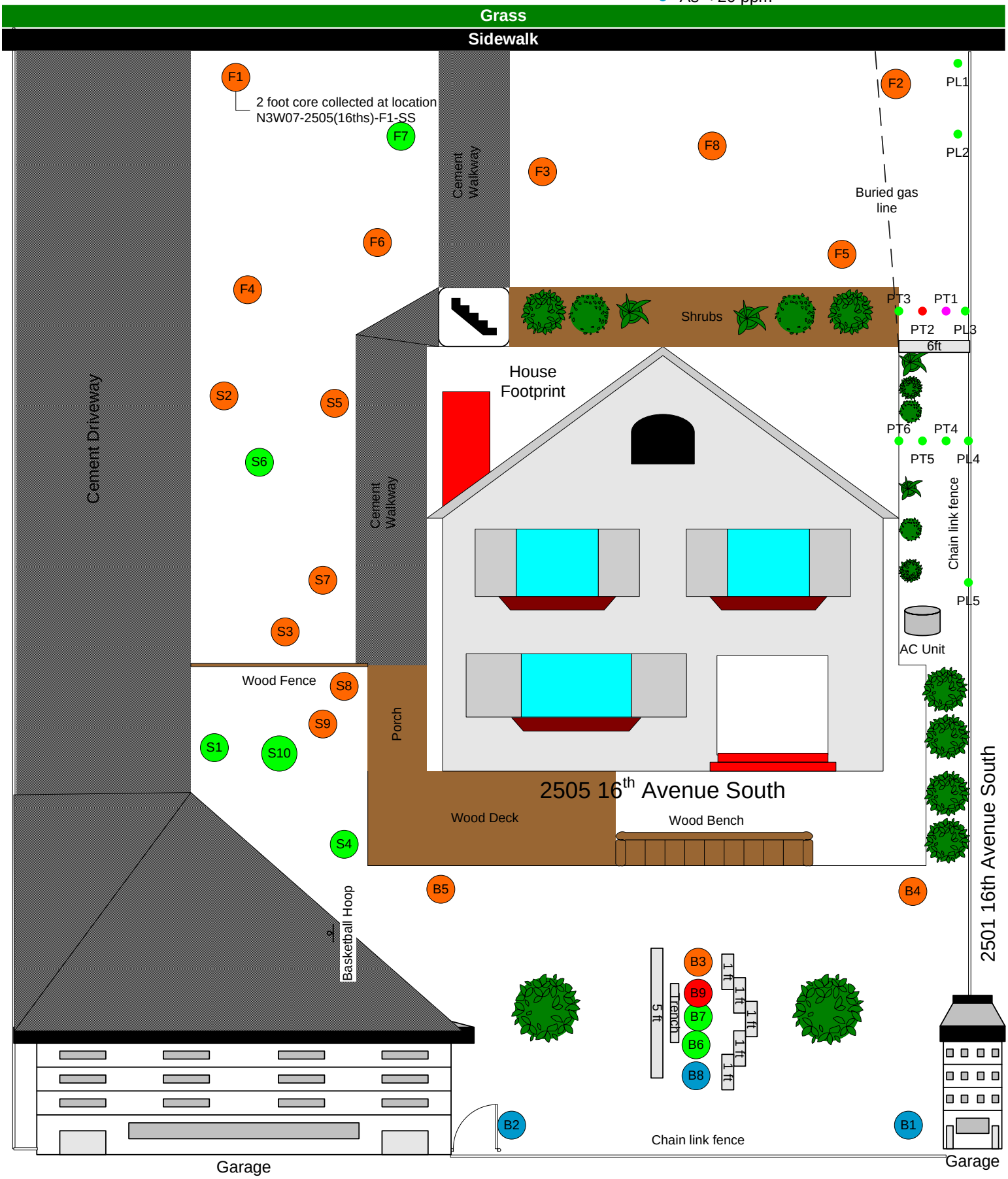
16th Avenue South

Drawing not to scale

- As > 300 ppm
- As 200-300 ppm
- As 95-200 ppm
- As 20-95 ppm
- As < 20 ppm

Chain link fence

Buried gas line

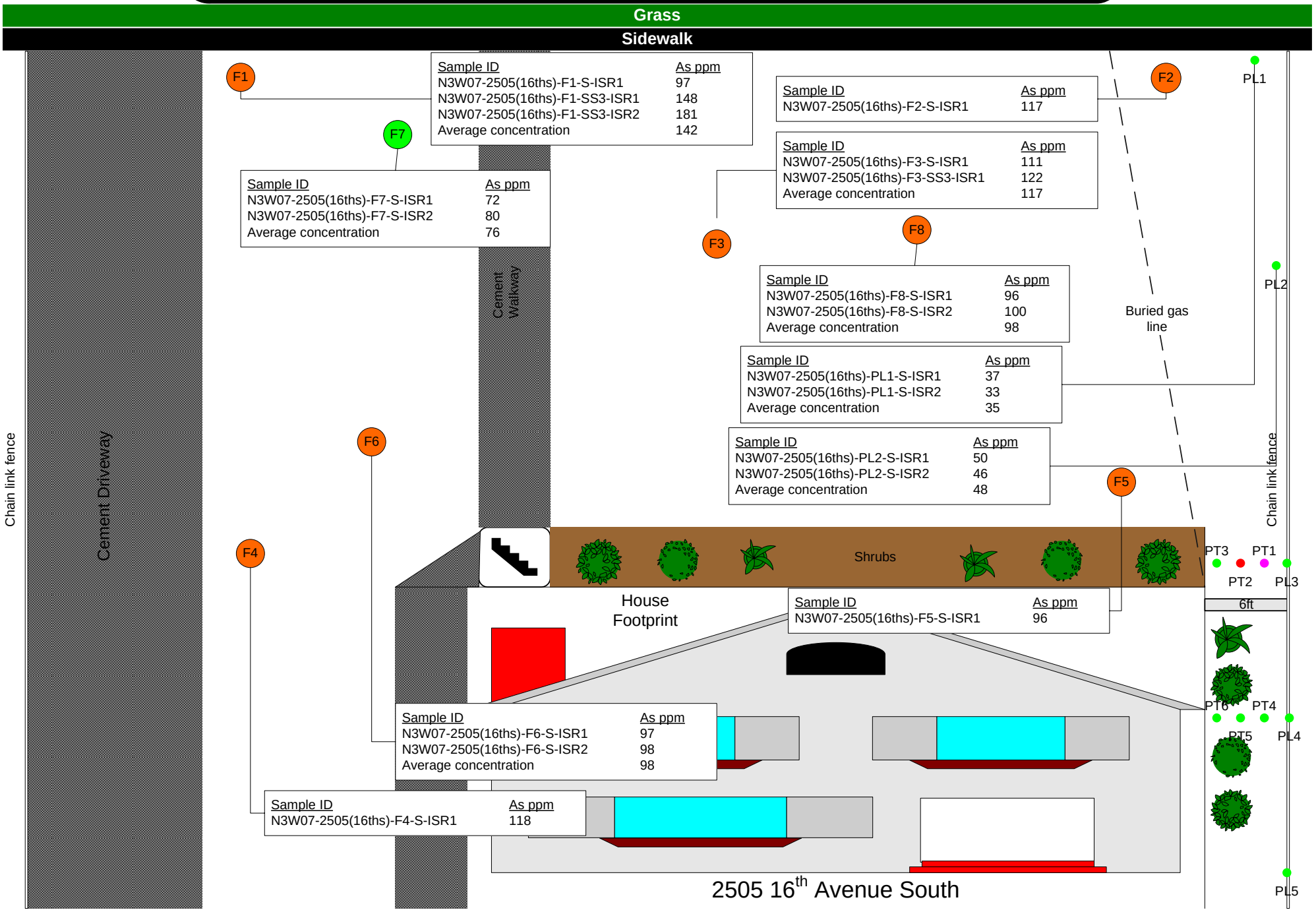


16th Avenue South

Drawing not to scale

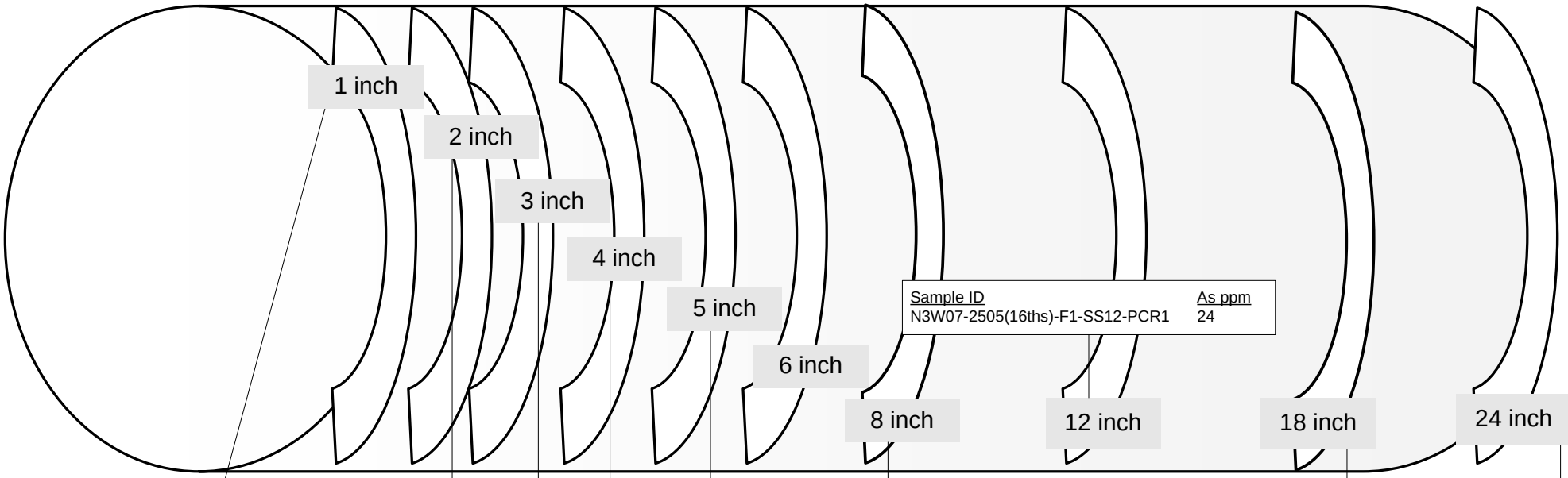
Chain link fence

Buried gas line



2 Foot Core Collected from Location F1
At 2505 16th Avenue South

7/19/2006



Sample ID	As ppm
N3W07-2505(16ths)-F1-SS12-PCR1	24

Sample ID	As ppm
N3W07-2505(16ths)-F1-SS1-PCR1	139

Sample ID	As ppm
N3W07-2505(16ths)-F1-SS2-PCR1	119

Sample ID	As ppm
N3W07-2505(16ths)-F1-SS8-PCR1	50
N3W07-2505(16ths)-F1-SS8-PCR2	52
Average Concentration	51

Sample ID	As ppm
N3W07-2505(16ths)-F1-SS3-PCR1	96
N3W07-2505(16ths)-F1-SS3-PCR2	131
Average Concentration	114

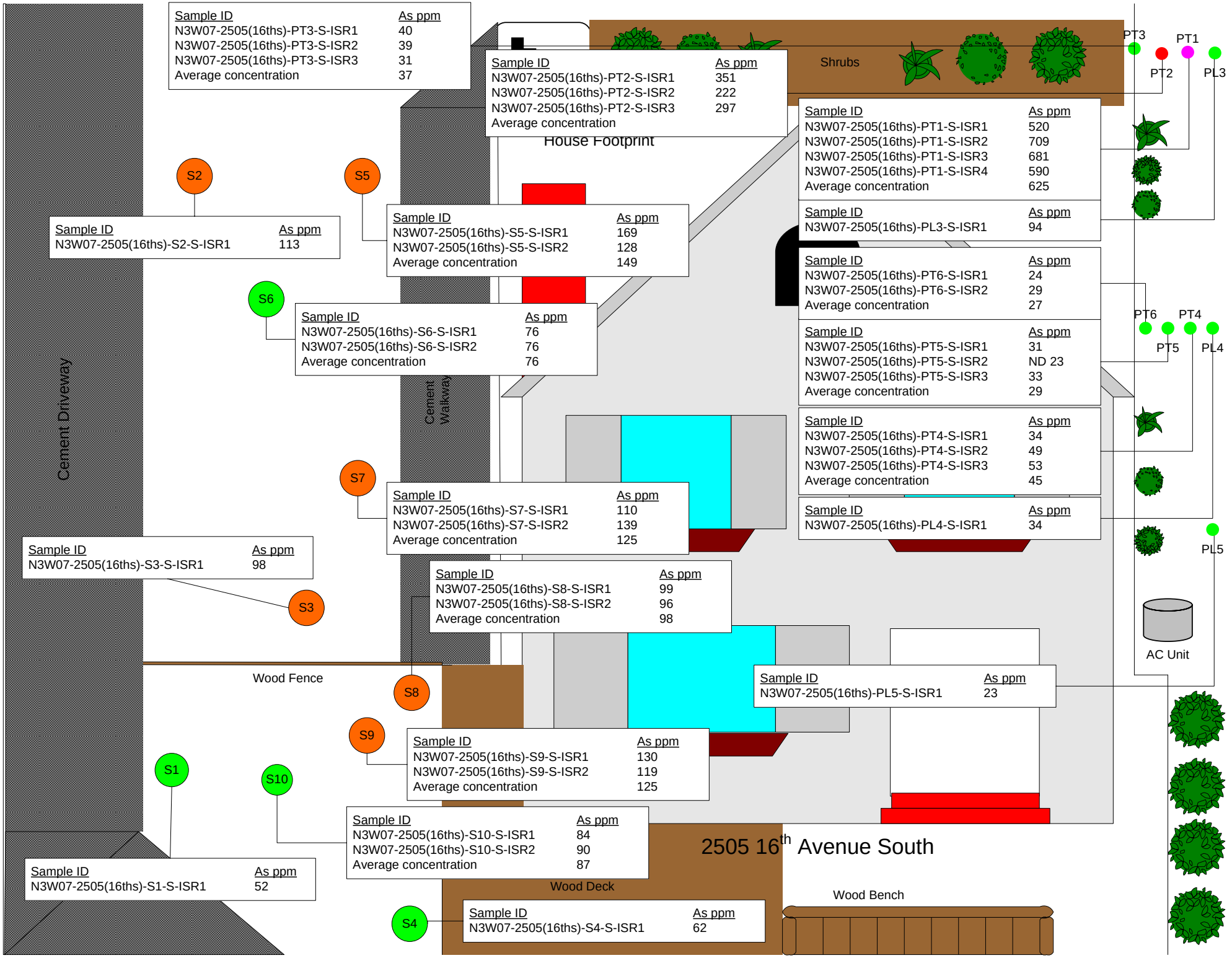
Sample ID	As ppm
N3W07-2505(16ths)-F1-SS5-PCR1	65

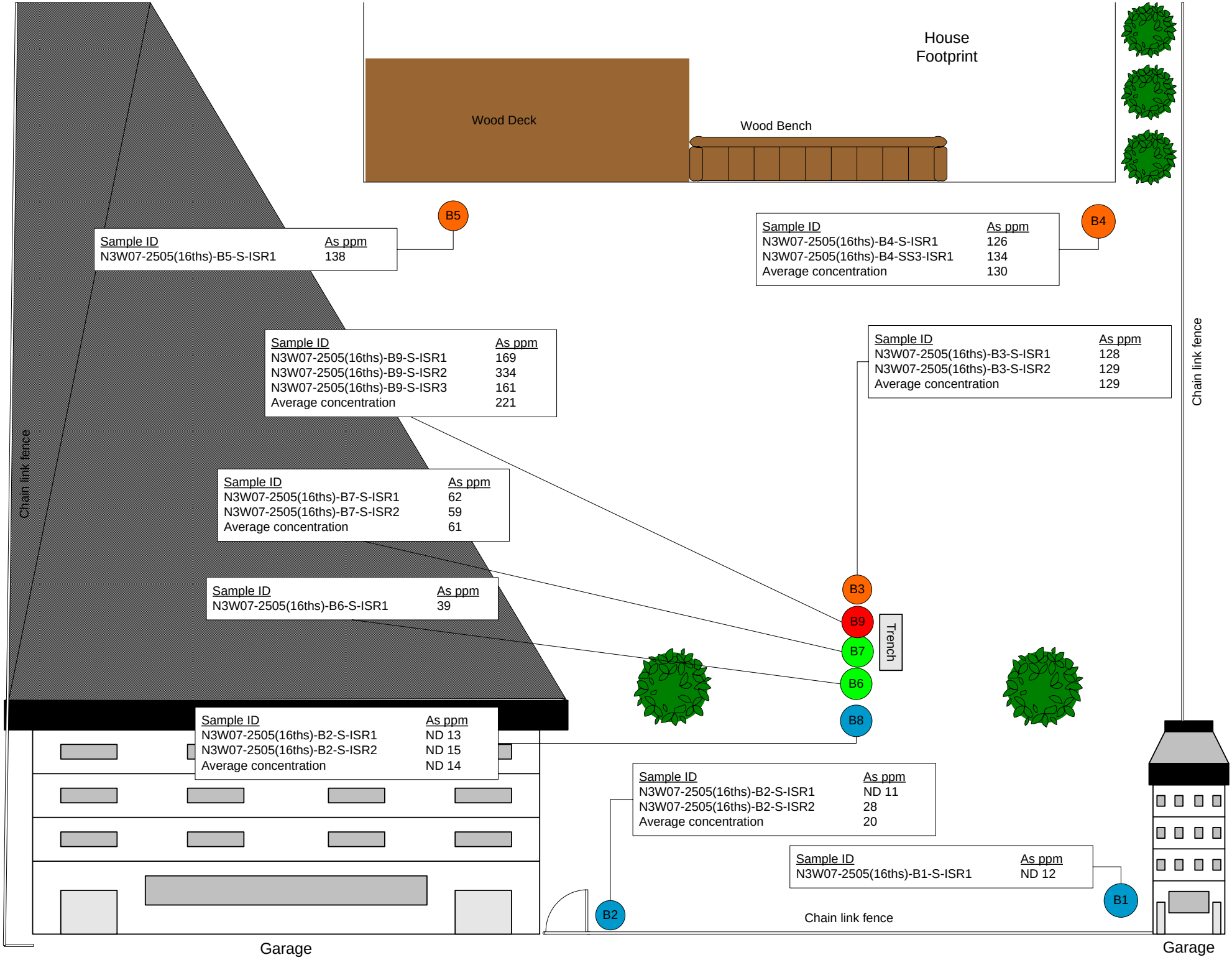
Sample ID	As ppm
N3W07-2505(16ths)-F1-SS18-PCR1	ND 6
N3W07-2505(16ths)-F1-SS18-PCR2	9
Average Concentration	8

Sample ID	As ppm
N3W07-2505(16ths)-F1-SS4-PCR1	47
N3W07-2505(16ths)-F1-SS4-PCR2	86
Average Concentration	67

Sample ID	As ppm
N3W07-2505(16ths)-F1-SS24-PCR1	ND 4

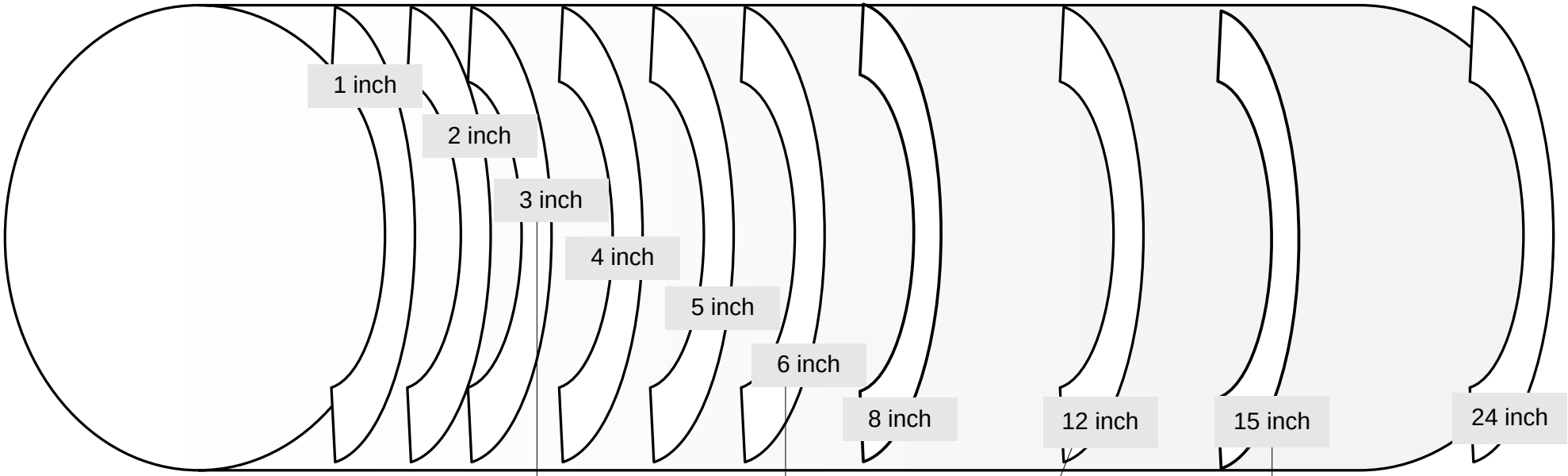
Notes:
1) PCR IDs indicate samples from prepared core replicates using a different orientation of the XRF window at the same depth interval.


Sample ID | As ppm
N3W07-2505(16ths)-PT3-S-ISR1 | 40
N3W07-2505(16ths)-PT3-S-ISR2 | 39
N3W07-2505(16ths)-PT3-S-ISR3 | 31
Average concentration | 37
Sample ID | As ppm
N3W07-2505(16ths)-PT2-S-ISR1 | 351
N3W07-2505(16ths)-PT2-S-ISR2 | 222
N3W07-2505(16ths)-PT2-S-ISR3 | 297
Average concentration
Shrubs
House Footprint
PT3
PT1
PT2
PL3
Sample ID | As ppm
N3W07-2505(16ths)-PT1-S-ISR1 | 520
N3W07-2505(16ths)-PT1-S-ISR2 | 709
N3W07-2505(16ths)-PT1-S-ISR3 | 681
N3W07-2505(16ths)-PT1-S-ISR4 | 590
Average concentration | 625
Sample ID | As ppm
N3W07-2505(16ths)-PL3-S-ISR1 | 94
S2
S5
Sample ID | As ppm
N3W07-2505(16ths)-S2-S-ISR1 | 113
Sample ID | As ppm
N3W07-2505(16ths)-S5-S-ISR1 | 169
N3W07-2505(16ths)-S5-S-ISR2 | 128
Average concentration | 149
Sample ID | As ppm
N3W07-2505(16ths)-PT6-S-ISR1 | 24
N3W07-2505(16ths)-PT6-S-ISR2 | 29
Average concentration | 27
PT6
PT4
PT5
PL4
S6
Sample ID | As ppm
N3W07-2505(16ths)-S6-S-ISR1 | 76
N3W07-2505(16ths)-S6-S-ISR2 | 76
Average concentration | 76
Sample ID | As ppm
N3W07-2505(16ths)-PT5-S-ISR1 | 31
N3W07-2505(16ths)-PT5-S-ISR2 | ND 23
N3W07-2505(16ths)-PT5-S-ISR3 | 33
Average concentration | 29
Cement Driveway
Cement Walkway
Sample ID | As ppm
N3W07-2505(16ths)-PT4-S-ISR1 | 34
N3W07-2505(16ths)-PT4-S-ISR2 | 49
N3W07-2505(16ths)-PT4-S-ISR3 | 53
Average concentration | 45
Sample ID | As ppm
N3W07-2505(16ths)-PL4-S-ISR1 | 34
S7
Sample ID | As ppm
N3W07-2505(16ths)-S7-S-ISR1 | 110
N3W07-2505(16ths)-S7-S-ISR2 | 139
Average concentration | 125
PL5
Sample ID | As ppm
N3W07-2505(16ths)-S3-S-ISR1 | 98
Sample ID | As ppm
N3W07-2505(16ths)-S8-S-ISR1 | 99
N3W07-2505(16ths)-S8-S-ISR2 | 96
Average concentration | 98
S3
AC Unit
Wood Fence
S8
Sample ID | As ppm
N3W07-2505(16ths)-PL5-S-ISR1 | 23
S9
Sample ID | As ppm
N3W07-2505(16ths)-S9-S-ISR1 | 130
N3W07-2505(16ths)-S9-S-ISR2 | 119
Average concentration | 125
S1
S10
Sample ID | As ppm
N3W07-2505(16ths)-S10-S-ISR1 | 84
N3W07-2505(16ths)-S10-S-ISR2 | 90
Average concentration | 87
2505 16th Avenue South
Sample ID | As ppm
N3W07-2505(16ths)-S1-S-ISR1 | 52
Wood Deck
Wood Bench
S4
Sample ID | As ppm
N3W07-2505(16ths)-S4-S-ISR1 | 62


House Footprint
Wood Deck
Wood Bench
Chain link fence
Chain link fence
Trench
Garage
Garage
Chain link fence
B1
B2
B3
B4
B5
B6
B7
B8
B9
Sample ID As ppm
N3W07-2505(16ths)-B5-S-ISR1 138
Sample ID As ppm
N3W07-2505(16ths)-B4-S-ISR1 126
N3W07-2505(16ths)-B4-SS3-ISR1 134
Average concentration 130
Sample ID As ppm
N3W07-2505(16ths)-B9-S-ISR1 169
N3W07-2505(16ths)-B9-S-ISR2 334
N3W07-2505(16ths)-B9-S-ISR3 161
Average concentration 221
Sample ID As ppm
N3W07-2505(16ths)-B3-S-ISR1 128
N3W07-2505(16ths)-B3-S-ISR2 129
Average concentration 129
Sample ID As ppm
N3W07-2505(16ths)-B7-S-ISR1 62
N3W07-2505(16ths)-B7-S-ISR2 59
Average concentration 61
Sample ID As ppm
N3W07-2505(16ths)-B6-S-ISR1 39
Sample ID As ppm
N3W07-2505(16ths)-B2-S-ISR1 ND 13
N3W07-2505(16ths)-B2-S-ISR2 ND 15
Average concentration ND 14
Sample ID As ppm
N3W07-2505(16ths)-B2-S-ISR1 ND 11
N3W07-2505(16ths)-B2-S-ISR2 28
Average concentration 20
Sample ID As ppm
N3W07-2505(16ths)-B1-S-ISR1 ND 12

Samples Collected from Trench, North Sidewall Extending Between Locations B7 and B9 at 2505 16th Avenue South

7/19/2006



Sample ID	As ppm
N3W07-2505(16ths)-TR-SS3-PCR1	177
N3W07-2505(16ths)-TR-SS3-PCR2	278
N3W07-2505(16ths)-TR-SS3-PCR3	491
Average Concentration	315

Sample ID	As ppm
N3W07-2505(16ths)-TR-SS12-PCR1	65
N3W07-2505(16ths)-TR-SS12-PCR2	100
N3W07-2505(16ths)-TR-SS12-PCR3	140
Average Concentration	102

Sample ID	As ppm
N3W07-2505(16ths)-TR-SS6-PCR1	290
N3W07-2505(16ths)-TR-SS6-PCR2	212
Average Concentration	251

Sample ID	As ppm
N3W07-2505(16ths)-TR-SS15-PCR1	ND 5
N3W07-2505(16ths)-TR-SS15-PCR2	ND 6
Average Concentration	ND 6

Notes:

1) PCR IDs in trench samples indicate in situ replicates of unprepared samples shot in plastic cups using a different orientation of the XRF window for samples collected from the same depth interval.

2) Red values indicate elevated concentrations that may be the result of potential particle size effects or placement of the XRF window directly over a high concentration particle within the subsample.

Sample ID	As	As +/-	Pb	Pb +/-
n3w07-2505(16ths)-pl1-ss-isr1	37.06	5.33	135.68	6.05
n3w07-2505(16ths)-pl1-ss-isr2	32.81	5.37	95.16	6.02
n3w07-2505(16ths)-pl2-s-isr1	50.45	4.12	147.15	4.53
n3w07-2505(16ths)-pl2-s-isr2	45.82	4.33	143.24	4.8
n3w07-2505(16ths)-pl3-s-isr1	94.42	5.92	325.82	6.74
n3w07-2505(16ths)-pl4-s-isr1	33.71	4.95	262.12	5.96
n3w07-2505(16ths)-pl5-s-isr1	23.18	7.47	434.97	9.6
n3w07-2505(16ths)-pl2-ss3-isr1	44.03	4.02	146.06	4.48
n3w07-2505(16ths)-f1-s-isr1	97.19	4.61	151.29	4.61
n3w07-2505(16ths)-f1-ss3-isr1	147.99	5.28	196.88	5.08
n3w07-2505(16ths)-f1-ss3-isr2	181.49	5.62	199.91	5.16
n3w07-2505(16ths)-f2-s-isr1	117.1	5.33	152.8	5.14
n3w07-2505(16ths)-f3-s-isr1	111.26	5.17	218.34	5.38
n3w07-2505(16ths)-f4-s-isr1	117.62	5.02	184.16	5
n3w07-2505(16ths)-f3-ss3-isr1	122.11	5.46	239.45	5.68
n3w07-2505(16ths)-f5-s-isr1	96.05	5.29	236.92	5.71
n3w07-2505(16ths)-s1-s-isr1	52.01	5.01	225.55	5.77
n3w07-2505(16ths)-s2-s-isr1	113.41	5.26	187.7	5.31
n3w07-2505(16ths)-s3-s-isr1	98.1	5.48	282.42	6.06
n3w07-2505(16ths)-s4-s-isr1	62.04	9	963.78	12.55
n3w07-2505(16ths)-s5-s-isr1	169.14	7.91	599.2	9.4
n3w07-2505(16ths)-s5-s-isr2	127.67	7.85	430.09	9.06
n3w07-2505(16ths)-f1-ss1-pcr1	139.18	4.98	155.32	4.63
n3w07-2505(16ths)-f1-ss2-pcr1	118.65	4.31	98.87	3.8
n3w07-2505(16ths)-f1-ss3-pcr1	95.83	4.71	169.17	4.81
n3w07-2505(16ths)-f1-ss3-pcr2	130.9	5.19	167.89	4.97
n3w07-2505(16ths)-f1-ss4-pcr1	47.22	8.12	772.44	10.99
n3w07-2505(16ths)-f1-ss4-pcr2	86.35	5.44	276.7	6.1
n3w07-2505(16ths)-f1-ss5-pcr1	64.99	3.53	77.57	3.44
n3w07-2505(16ths)-f1-ss8-pcr1	49.83	3.23	60.95	3.21
n3w07-2505(16ths)-f1-ss8-pcr2	51.64	3.2	51.34	3.11
n3w07-2505(16ths)-f1-ss12-pcr2	23.69	2.77	53.04	3.05
n3w07-2505(16ths)-f1-ss18-pcr1	5.69	2.27	39.14	2.75
n3w07-2505(16ths)-f1-ss18-pcr2	9.21	2.41	41	2.85
n3w07-2505(16ths)-f1-ss24-pcr1	3.51	1.78	14.23	2.21
n3w07-2505(16ths)-b1-s-isr1	12.36	6.22	462.3	8.1
n3w07-2505(16ths)-b2-s-isr1	-36.25	10.76	1391.71	16.75
n3w07-2505(16ths)-b2-s-isr2	28.05	9.04	918.54	12.73
n3w07-2505(16ths)-b3-s-isr1	127.76	6.92	464.39	8.09
n3w07-2505(16ths)-b3-s-isr2	128.53	6.74	427.61	7.75
n3w07-2505(16ths)-b4-s-isr1	126.33	6.47	369.82	7.26
n3w07-2505(16ths)-b4-ss3-isr1	133.72	6.89	444.55	7.94
n3w07-2505(16ths)-b5-s-isr1	138.29	6.69	404.17	7.53
n3w07-2505(16ths)-b6-s-isr1	38.81	5.04	271.18	6.04
n3w07-2505(16ths)-b7-s-isr1	62.38	5.76	294.93	6.74
n3w07-2505(16ths)-b7-s-isr2	58.83	5.79	347.97	6.95
n3w07-2505(16ths)-b8-s-isr1	13.21	5.25	282.31	6.56
n3w07-2505(16ths)-b8-s-isr2	15.41	5.3	324.62	6.67

n3w07-2505(16ths)-b9-s-isr1	169.17	6.56	346.65	6.94
n3w07-2505(16ths)-b9-s-isr2	333.78	7.56	301.56	6.5
n3w07-2505(16ths)-b9-s-isr3	160.75	6.46	334.22	6.84
n3w07-2505(16ths)-pt1-s-isr1	519.52	10.01	589.35	9.29
n3w07-2505(16ths)-pt1-s-isr2	709.03	10.98	409.58	7.84
n3w07-2505(16ths)-pt1-s-isr3	681.34	10.84	410.4	7.88
n3w07-2505(16ths)-pt1-s-isr4	590.06	9.89	373.18	7.39
n3w07-2505(16ths)-pt2-s-isr1	350.59	8.86	570.56	9.12
n3w07-2505(16ths)-pt2-s-isr2	222.45	7.86	444.67	8.36
n3w07-2505(16ths)-pt2-s-isr3	297.08	8.1	460.93	8.16
n3w07-2505(16ths)-pt3-s-isr1	40.12	5.66	335.12	6.92
n3w07-2505(16ths)-pt3-s-isr2	38.57	5.3	307.72	6.44
n3w07-2505(16ths)-pt3-s-isr3	30.54	7.36	508.66	9.55
n3w07-2505(16ths)-pt4-s-isr1	33.78	6.16	344.08	7.62
n3w07-2505(16ths)-pt4-s-isr2	48.89	7.53	368.92	9.25
n3w07-2505(16ths)-pt4-s-isr3	-14.72	8.72	648.89	12.08
n3w07-2505(16ths)-pt4-s-isr3	52.79	6.18	430.73	7.66
n3w07-2505(16ths)-pt5-s-isr1	31.2	6.89	576.29	9.05
n3w07-2505(16ths)-pt5-s-isr2	-29.3	23.34	5758.5	54.07
n3w07-2505(16ths)-pt5-s-isr3	33.16	7.11	594.45	9.35
n3w07-2505(16ths)-pt6-s-isr1	24.44	6.92	572.17	9.13
n3w07-2505(16ths)-pt6-s-isr2	29.21	7.12	588.31	9.39
n3w07-2505(16ths)-tr-ss3-pcr1	176.85	6.22	288.89	6.26
n3w07-2505(16ths)-tr-ss3-pcr2	277.92	7.34	343.22	6.93
n3w07-2505(16ths)-tr-ss3-pcr3	490.79	8.99	367.05	7.2
n3w07-2505(16ths)-tr-ss6-pcr1	290.49	7.33	313.85	6.66
n3w07-2505(16ths)-tr-ss6-pcr2	212.47	7.42	438.61	7.94
n3w07-2505(16ths)-tr-ss12-pcr1	65.45	5.26	269.92	6.06
n3w07-2505(16ths)-tr-ss12-pcr2	ND		ND	
n3w07-2505(16ths)-tr-ss12-pcr2	99.64	6.41	405.06	7.51
n3w07-2505(16ths)-tr-ss12-pcr3	139.74	5.62	160	5.3
n3w07-2505(16ths)-tr-ss15-pcr1	4.6	5.24	320.25	6.68
n3w07-2505(16ths)-tr-ss15-pcr2	-2.58	5.25	322.71	6.78
n3w07-2505(16ths)-f6-s-isr1	97.36	5.03	213.57	5.32
n3w07-2505(16ths)-f6-s-isr2	98.01	4.99	207.34	5.25
n3w07-2505(16ths)-f7-s-isr1	72.04	4.78	181.27	5.16
n3w07-2505(16ths)-f7-s-isr2	79.71	4.85	193.03	5.21
n3w07-2505(16ths)-f8-s-isr1	95.68	4.77	180.53	4.93
n3w07-2505(16ths)-f8-s-isr2	100.26	4.9	180.17	5.02
n3w07-2505(16ths)-s6-s-isr1	76.28	5.45	244.31	6.1
n3w07-2505(16ths)-s6-s-isr2	75.68	5.21	228.05	5.77
n3w07-2505(16ths)-s7-s-isr1	109.72	7.12	499.86	8.57
n3w07-2505(16ths)-s7-s-isr2	139.23	8.41	696.67	10.55
n3w07-2505(16ths)-s8-s-isr1	98.79	7.17	549.67	8.85
n3w07-2505(16ths)-s8-s-isr2	96.13	7.03	527.39	8.63
n3w07-2505(16ths)-s9-s-isr1	130.08	6.92	393.48	7.83
n3w07-2505(16ths)-s9-s-isr2	118.86	6.63	384.63	7.56
n3w07-2505(16ths)-s10-s-isr1	84.16	6.13	287.12	6.94
n3w07-2505(16ths)-s10-s-isr2	90.12	5.95	292.34	6.7

Property Transect/Front Yard Samples

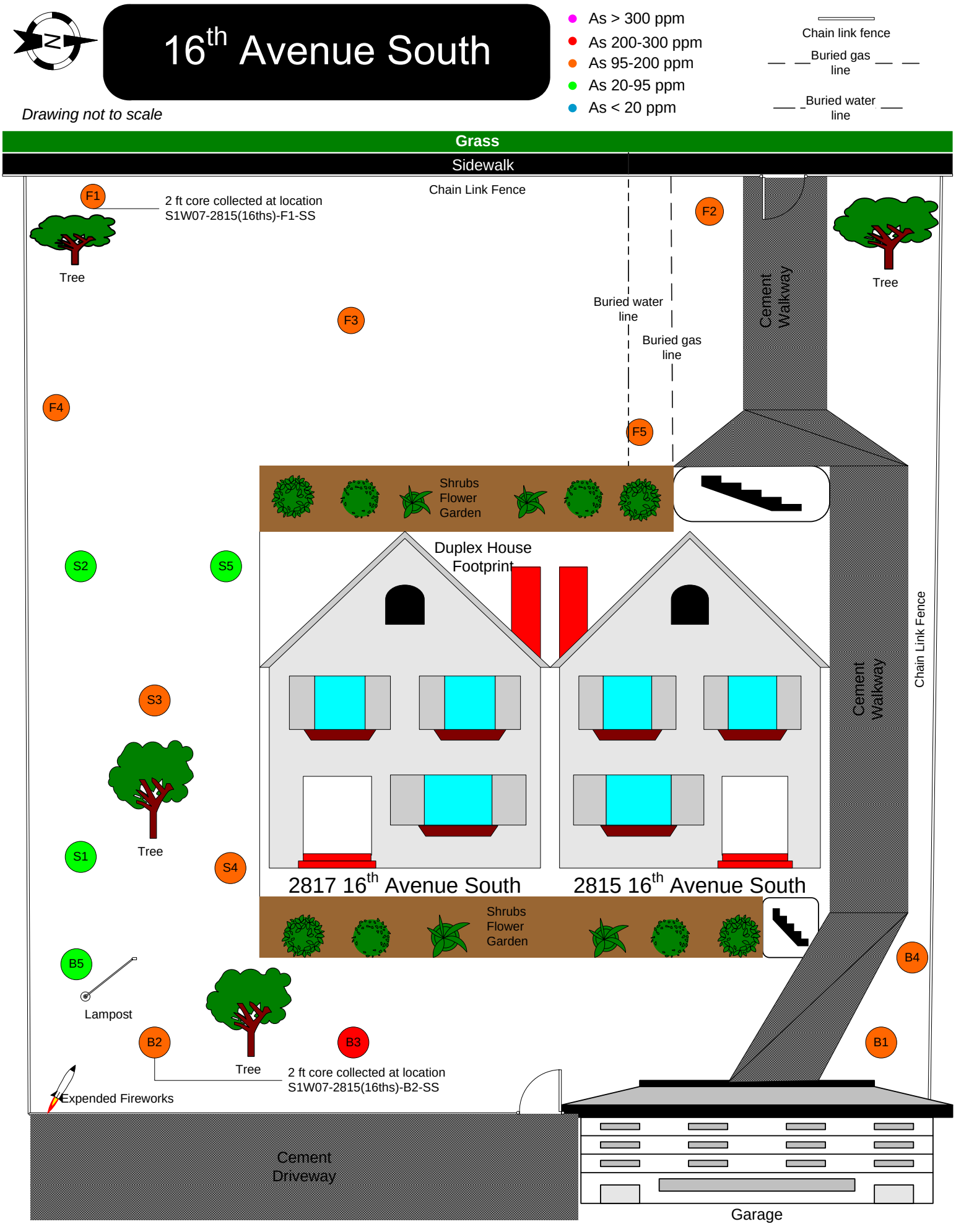
Sample Location	N3W07-2505(16ths)-PT5-S	N3W07-2505(16ths)-PT5-S	N3W07-2505(16ths)-PT5-S	N3W07-2505(16ths)-PT5-S	N3W07-2505(16ths)-PT1-S(Bulk)	N3W07-2505(16ths)-PT1-S(Bulk)	N3W07-2505(16ths)-PT1-S(<60)	N3W07-2505(16ths)-FC5-S-1	N3W07-2505(16ths)-FC5-S-1	N3W07-2505(16ths)-FC5-S-1
Sample Location Information	Sample taken from discrete surface soil at property transect location PT5 (side yard bordering 2501 16th South Ave) at 2505 16th Ave South. An archived 1 gallon ziploc bag of material was collected (approximately 300 grams) and homogenized. 2 subsamples (approximately 20 grams each) were scooped from the archive 1 gallon bag and placed in smaller sandwhich size ziploc bags. A subsample (approximately 1 gram) of material was removed from the first of 2 sandwhich size ziploc bags (subsamples), digested, and analyzed for metals via ICP at the laboratory. Replicate 1.	Sample taken from discrete surface soil at property transect location PT5 (side yard bordering 2501 16th South Ave) at 2505 16th Ave South. An archived 1 gallon ziploc bag of material was collected (approximately 300 grams) and homogenized. 2 subsamples (approximately 20 grams each) were scooped from the archive 1 gallon bag and placed in smaller sandwhich size ziploc bags. A subsample (approximately 1 gram) of material was removed from the second of 2 sandwhich size ziploc bags (subsamples), digested, and analyzed for metals via ICP at the laboratory. Replicate 2.	Sample taken from discrete surface soil at property transect location PT5 (side yard bordering 2501 16th South Ave) at 2505 16th Ave South. An archived 1 gallon ziploc bag of material was collected (approximately 300 grams) and homogenized. 12 increments (10 ml each) were crushed in a mortar and pestil and poured into an XRF cup. A subsample (approximately 1 gram) was removed from the XRF cup digested, and analyzed for metals via ICP at the laboratory.	Sample taken from discrete surface soil at property transect location PT5 (side yard bordering 2501 16th South Ave) at 2505 16th Ave South. An archived 8 oz jar was collected (approximately 100 grams). Entire contents of archived jar was crushed in a stainless steel pan and sieved through 10 mesh. 1 XRF cup was collected from material passing through the 10 mesh sieve. A subsample (approximately 1 gram) was removed from the XRF cup digested, and analyzed for metals via ICP at the laboratory.	Sample taken from discrete surface soil at property transect location PT1 and archived in a ziploc bag. The entire bulk sample was crushed with a mortar and pestil and 2 XRF cups were collected. The sample was not sieved. ICP sample was submitted from the first of 2 XRF cups. Replicate 1.	Sample taken from discrete surface soil at property transect location PT1 and archived in a ziploc bag. The entire bulk sample was crushed with a mortar and pestil and 2 XRF cups were collected. The sample was not sieved. ICP sample was submitted from the second of 2 XRF cups. Replicate 2.	Sample taken from discrete surface soil at property transect location PT1 and archived in a ziploc bag. The entire bulk sample was crushed with a mortar and pestil and passed through a 10 and 60 mesh sieve. The fraction passing through the 10 mesh sieve but not passing through the 60 mesh sieve from the first crush was crushed again with a mortar and pestil. The material from the second crush was passed through a 10 and 60 mesh sieve. XRF cup was collected from the material passing through the 60 mesh sieve after the second crush. ICP sample was submitted from the XRF cup.	A 5-point composite surface soil sample was collected from the front yard at 2505 16th Ave South. Equal portions (approximately 50 grams each) were collected at 5 discrete locations (see locations of XRF in-situ results) and homogenized. The material was archived in a gallon ziploc bag. The gallon ziploc bag archive was divided into 3 smaller replicate (sandwhich bag ziploc bags), A subsample (approximately 1 gram) of material was removed from the first of 3 sandwhich size ziploc bags, digested, and analyzed for metals via ICP at the laboratory. Replicate 1.	A 5-point composite surface soil sample was collected from the front yard at 2505 16th Ave South. Equal portions (approximately 50 grams each) were collected at 5 discrete locations (see locations of XRF in-situ results) and homogenized. The material was archived in a gallon ziploc bag. The gallon ziploc bag archive was divided into 3 smaller replicate (sandwhich bag ziploc bags), A subsample (approximately 1 gram) of material was removed from the second of 3 sandwhich size ziploc bags, digested, and analyzed for metals via ICP at the laboratory. Replicate 2.	A 5-point composite surface soil sample was collected from the front yard at 2505 16th Ave South. Equal portions (approximately 50 grams each) were collected at 5 discrete locations (see locations of XRF in situ results) and homogenized. The material was archived in a gallon ziploc bag. The gallon ziploc bag archive was divided into 3 smaller replicate (sandwhich bag ziploc bags), A subsample (approximately 1 gram) of material was removed from the third of 3 sandwhich size ziploc bags, digested, and analyzed for metals via ICP at the laboratory. Replicate 3.
Sample No.	CMC-ICP1	CMC-ICP2	CMC-ICP3	CMC-ICP4	CMC-ICP30	CMC-ICP31	CMC-ICP32	CMC-ICP36	CMC-ICP42	CMC-ICP49
Location	CMC	CMC	CMC	CMC	CMC	CMC	CMC	CMC	CMC	CMC

Analyte	Analytical Method	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg
Aluminum	ICAP	5690	19.0	5930	18.9	6070	19.0	6060	19.0	6490	19.0	6180	19.0	9260	19.0	5790	19.2	6000	18.9	5640	18.9
Antimony	ICAP	U	1.33	U	1.32	U	1.33	U	1.33	U	1.33	U	1.33	1.79	1.33	U	1.35	U	1.32	U	1.32
Arsenic	ICAP	13.9	1.43	14.2	1.42	14.8	1.43	13.3	1.43	396	1.43	386	1.43	550	1.43	80.6	1.44	79.8	1.42	83.5	1.42
Barium	ICAP	104	0.381	112	0.377	117	0.381	122	0.381	79.7	0.381	84.5	0.381	126	0.381	77.2	0.385	79.7	0.377	82.0	0.377
Beryllium	ICAP	U	0.286	U	0.283	U	0.286	U	0.286	0.318	0.286	0.316	0.286	0.468	0.286	U	0.288	0.291	0.283	0.285	0.283
Cadmium	ICAP	0.895	0.381	0.894	0.377	0.972	0.381	1.01	0.381	0.600	0.381	0.603	0.381	0.968	0.381	0.467	0.385	0.492	0.377	0.499	0.377
Calcium	ICAP	2360	9.43	2740	9.34	2710	9.43	3160	9.43	2090	9.43	2110	9.43	3940	9.43	2860	9.52	9130	9.34	2950	9.34
Chromium	ICAP	16.9	0.476	18.1	0.472	18.4	0.476	18.8	0.476	13.7	0.476	13.6	0.476	20.1	0.476	15.0	0.481	14.6	0.472	15.5	0.472
Cobalt	ICAP	5.07	0.381	5.07	0.377	5.25	0.381	5.24	0.381	5.18	0.381	5.10	0.381	7.17	0.381	4.65	0.385	4.85	0.377	4.61	0.377
Copper	ICAP	11.9	0.381	11.8	0.377	13.0	0.381	13.5	0.381	11.6	0.381	11.7	0.381	17.8	0.381	10.4	0.385	11.0	0.377	10.1	0.377
Iron	ICAP	8680	14.3	9260	14.2	9190	14.3	8700	14.3	10200	14.3	11300	14.3	12700	14.3	8350	14.4	8930	14.2	8350	14.2
Magnesium	ICAP	1760	19.0	1920	18.9	1880	19.0	2090	19.0	1550	19.0	1290	19.0	1770	19.0	1260	19.2	2070	18.9	1270	18.9
Manganese	ICAP	387	0.381	377	0.377	406	0.381	395	0.381	393	0.381	439	0.381	593	0.381	408	0.385	440	0.377	422	0.377
Nickel	ICAP	9.99	0.571	10.0	0.566	10.0	0.571	10.1	0.571	9.04	0.571	8.70	0.571	12.9	0.571	8.27	0.577	8.56	0.566	8.72	0.566
Potassium	ICAP	541	23.8	546	23.6	566	23.8	577	23.8	621	23.8	580	23.8	854	23.8	603	24.0	631	23.6	585	23.6
Selenium	ICAP	U	1.24	U	1.23	U	1.24	U	1.24	U	1.24	U	1.24	U	1.24	U	1.25	U	1.23	U	1.23
Silver	ICAP	U	0.476	U	0.472	U	0.476	U	0.476	U	0.476	U	0.476	U	0.476	U	0.481	U	0.472	U	0.472
Sodium	ICAP	U	95.2	U	94.3	U	95.2	U	95.2	U	95.2	U	95.2	U	95.2	U	96.2	U	94.3	U	94.3
Thallium	ICAP	U	1.62	U	1.60	U	1.62	U	1.62	U	1.62	U	1.62	U	1.62	U	1.63	U	1.60	U	1.60
Vanadium	ICAP	15.8	0.381	19.2	0.377	16.6	0.381	17.1	0.381	17.5	0.381	16.7	0.381	23.4	0.381	14.9	0.385	16.5	0.377	14.8	0.377
Zinc	ICAP	384	2.19	386	2.17	426	2.19	433	2.19	161 J	2.19	160	2.19	242	2.19	105	2.21	105	2.17	102	2.17

RL denotes Reporting Limit
U denotes Not Detected
J denotes Estimated Result

Client ID	CMC-OCPEST 1			CMC-OCPEST 5			CMC-OCPEST 6		
Location	CMC			CMC			CMC		
Sample Location	N3W07-2505(16ths)-PT5-S			N3W07-2505(16ths)-PT1-S			N3W07-2505(16ths)-FC8-S-1		
Sample Location Information	A discrete surface soil sample was collected at property transect location PT5 (side yard bordering 2501 16th Ave South) at 2505 16th Ave South. An 8 oz jar of bulk material was archived and submitted for analysis of organochlorine pesticides. A subsample (approximately 30 grams) of material was extracted and analyzed at the laboratory.			A discrete surface soil sample was collected at property transect location PT1 (front yard) at 2505 16th Ave South. An 8 oz jar of bulk material was archived and submitted for analysis of organochlorine pesticides. A subsample (approximately 30 grams) of material was extracted and analyzed at the laboratory.			An 8-point composite surface soil sample was collected from the front yard at 2505 16th Ave South. Equal portions (approximately 50 grams each) were collected at 8 discrete locations and homogenized. The material was archived in a gallon ziploc bag. A subsample (approximately 30 grams) of material was removed from the archived bag, extracted, and analyzed for organochlorine pesticides at the laboratory.		
Percent Solid	96			95			96		
Analyte	Conc. µg/kg		RL µg/kg	Conc. µg/kg		RL µg/kg	Conc. µg/kg		RL µg/kg
a-BHC	R		6.94	R		7.02	R		6.94
g-BHC	R		6.94	R		7.02	R		6.94
b-BHC	R		6.94	R		7.02	R		6.94
d-BHC	R		6.94	R		7.02	R		6.94
HEPTACHLOR	R		174	R		7.02	R		6.94
ALDRIN	R		6.94	R		7.02	R		6.94
HEPTACHLOR EPOXIDE	R		6.94	2.75	J	7.02	R		6.94
g-CHLORDANE	R		6.94	R		7.02	R		6.94
a-CHLORDANE	R		6.94	R		7.02	R		6.94
ENDOSULFAN (I)	R		6.94	R		7.02	R		6.94
p,p'-D D E	155	J	6.94	712	J	351	321	J	347
DIELDRIN	R		6.94	R		7.02	R		6.94
ENDRIN	R		174	R		7.02	R		6.94
p,p'-D D D	25.5	J	6.94	111	J	7.02	13.7	J	6.94
ENDOSULFAN (II)	R		6.94	4.24	J	7.02	R		6.94
ENDRIN ALDEHYDE	R		6.94	R		7.02	R		6.94
p,p'-D D T	288	J	174	696		351	308	J	347
ENDOSULFAN SULFATE	R		6.94	R		7.02	R		6.94
METHOXYCHLOR	R		174	R		7.02	R		6.94
ENDRIN KETONE	R		174	R		7.02	R		6.94

Results based on dry weight
RL denotes Reporting Limit
U denotes Not Detected
J denotes Estimated Result
R denotes Unuseable Result


16th Avenue South
Drawing not to scale
As > 300 ppm
As 200-300 ppm
As 95-200 ppm
As 20-95 ppm
As < 20 ppm
Chain link fence
Buried gas line
Buried water line
Grass
Sidewalk
Chain Link Fence
F1
2 ft core collected at location S1W07-2815(16ths)-F1-SS
Tree
F2
Tree
Cement Walkway
Buried water line
Buried gas line
F3
F4
F5
Shrubs Flower Garden
Duplex House Footprint
S2
S5
S3
Tree
S1
S4
2817 16th Avenue South
2815 16th Avenue South
Shrubs Flower Garden
Cement Walkway
Chain Link Fence
B5
Lampost
B4
B2
Tree
B3
B1
2 ft core collected at location S1W07-2815(16ths)-B2-SS
Expended Fireworks
Cement Driveway
Garage

16th Avenue South

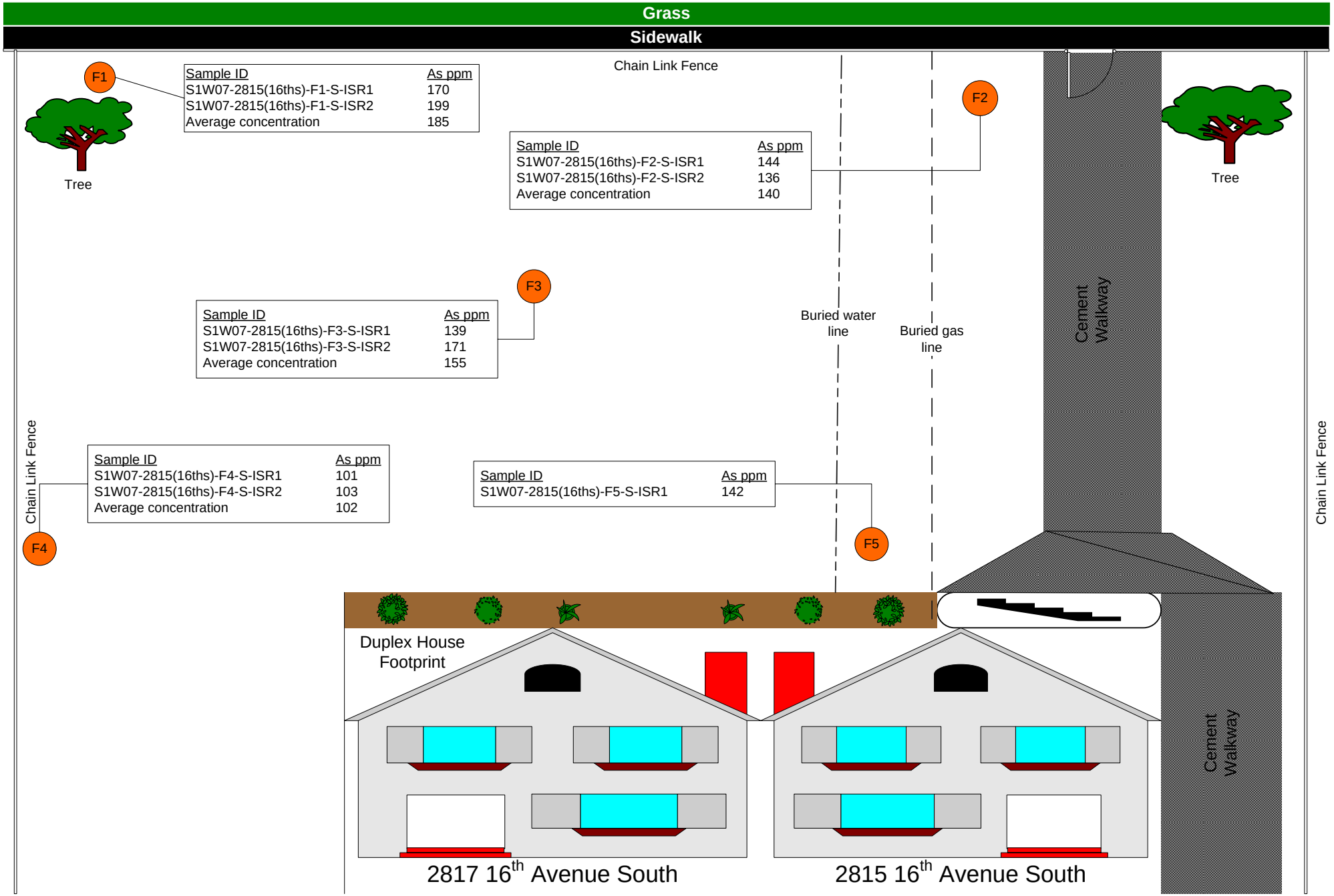
Drawing not to scale

- As > 300 ppm
- As 200-300 ppm
- As 95-200 ppm
- As 20-95 ppm
- As < 20 ppm

Chain link fence

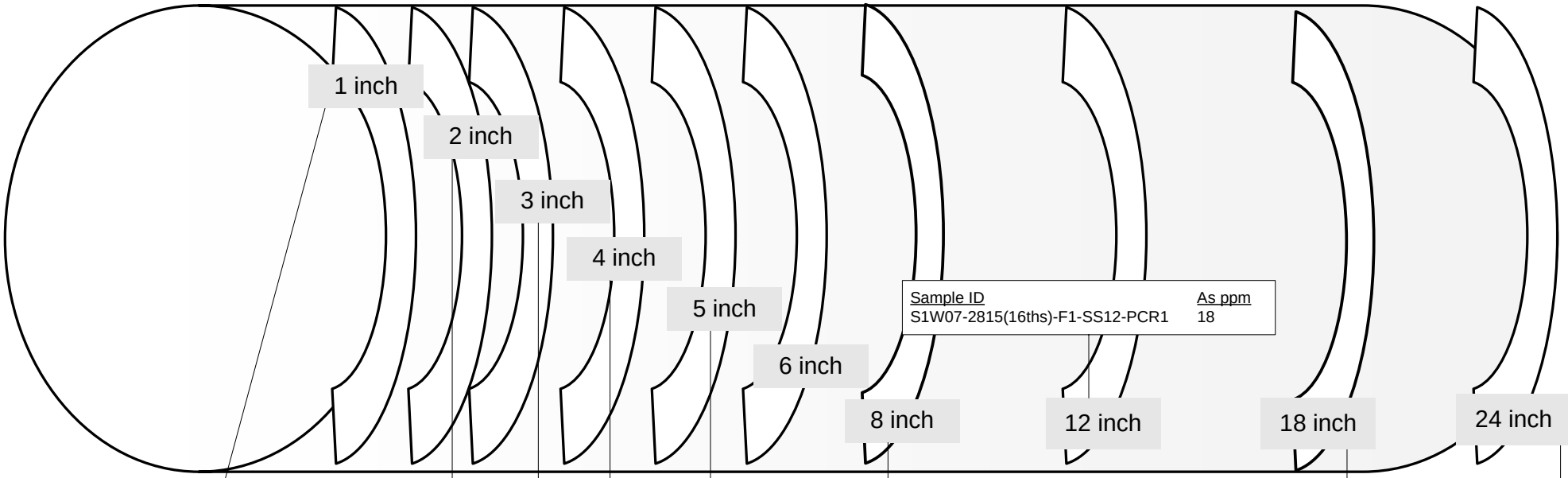
Buried gas line

Buried water line



2 Foot Core Collected from Location F1 at 2815 16th Avenue South

7/19/2006



Sample ID	As ppm
S1W07-2815(16ths)-F1-SS1-PCR1	246

Sample ID	As ppm
S1W07-2815(16ths)-F1-SS2-PCR1	264

Sample ID	As ppm
S1W07-2815(16ths)-F1-SS3-PCR1	735
S1W07-2815(16ths)-F1-SS3-PCR2	452
S1W07-2815(16ths)-F1-SS3-PCR3	351
Average Concentration	513

Sample ID	As ppm
S1W07-2815(16ths)-F1-SS4-PCR1	235

Sample ID	As ppm
S1W07-2815(16ths)-F1-SS5-PCR1	238

Sample ID	As ppm
S1W07-2815(16ths)-F1-SS8-PCR1	61

Sample ID	As ppm
S1W07-2815(16ths)-F1-SS12-PCR1	18

Sample ID	As ppm
S1W07-2815(16ths)-F1-SS18-PCR1	ND 6

Sample ID	As ppm
S1W07-2815(16ths)-F1-SS24-PCR1	ND 4

Notes:
1) PCR IDs indicate samples from prepared core replicates using a different orientation of the XRF window at the same depth interval.

2) Red values indicate elevated concentrations that may be the result of potential particle size effects or placement of the XRF window directly over a high concentration particle within the subsample.

Chain Linke Fence

S2

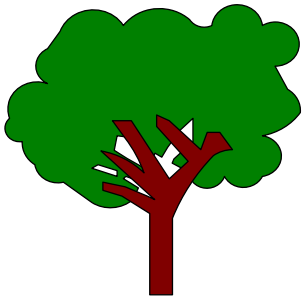
S5

Sample ID	As ppm
S1W07-2815(16ths)-S2-S-ISR1	ND 29

Sample ID	As ppm
S1W07-2815(16ths)-S2-S-ISR1	29

Sample ID	As ppm
S1W07-2815(16ths)-S3-S-ISR1	113
S1W07-2815(16ths)-S3-S-ISR2	117
Average concentration	115

S3



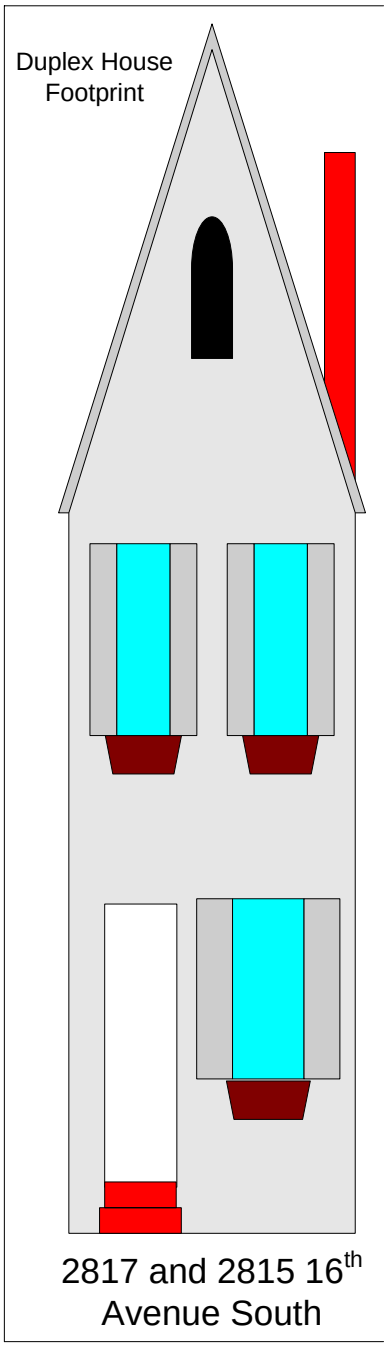
Tree

S1

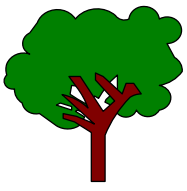
S4

Sample ID	As ppm
S1W07-2815(16ths)-S4-S-ISR1	101

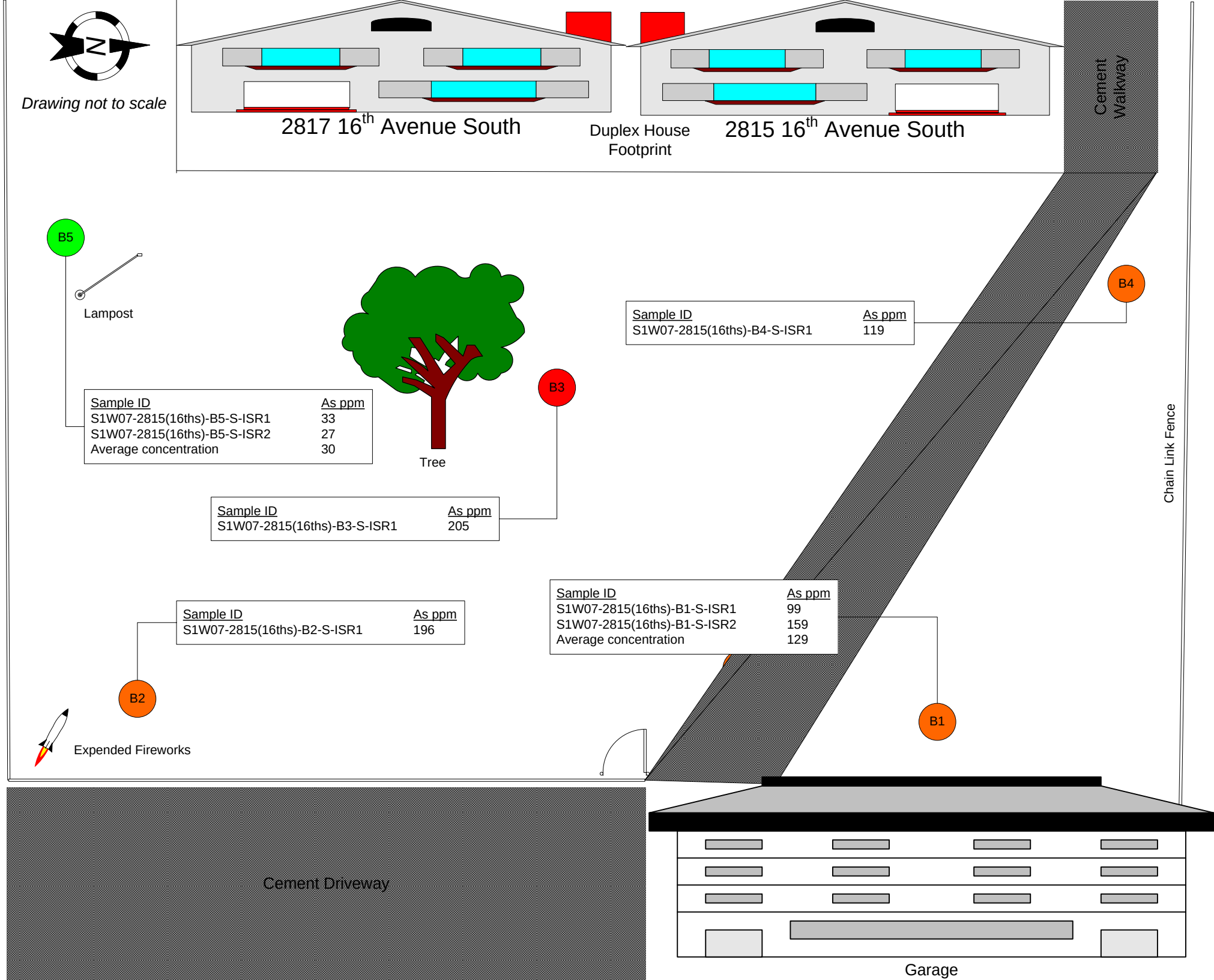
Sample ID	As ppm
S1W07-2815(16ths)-S1-S-ISR1	56
S1W07-2815(16ths)-S1-S-ISR2	46
Average concentration	51



2817 and 2815 16th Avenue South

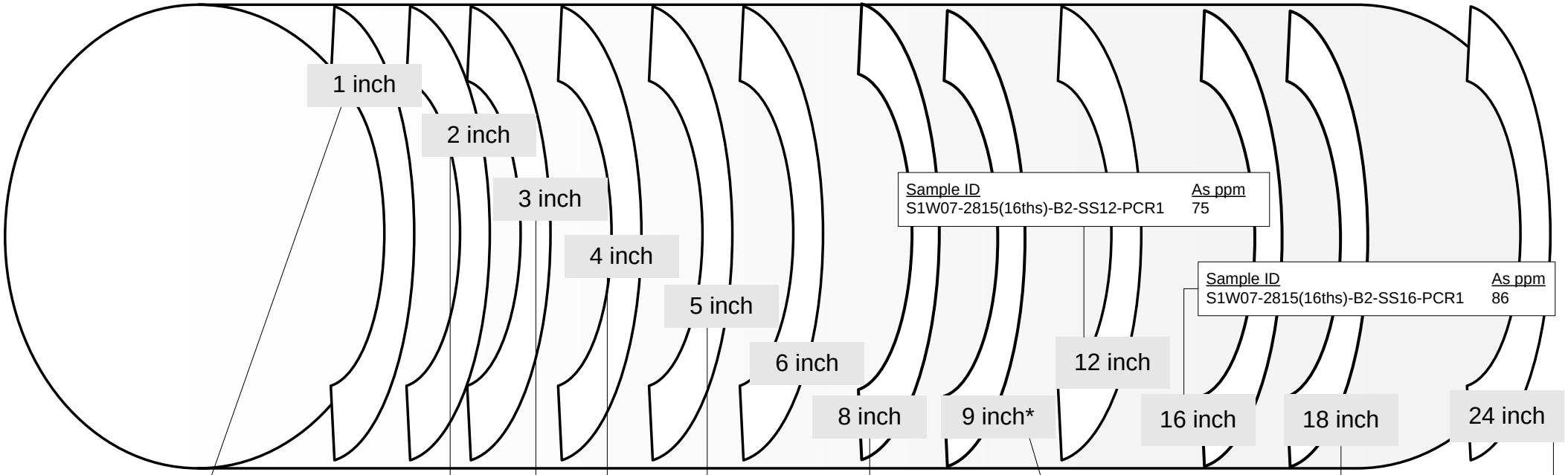


Tree


N
Drawing not to scale
2817 16th Avenue South
Duplex House Footprint
2815 16th Avenue South
Cement Walkway
B5
Lampost
Sample ID | As ppm
S1W07-2815(16ths)-B5-S-ISR1 | 33
S1W07-2815(16ths)-B5-S-ISR2 | 27
Average concentration | 30
Tree
B3
Sample ID | As ppm
S1W07-2815(16ths)-B3-S-ISR1 | 205
B4
Sample ID | As ppm
S1W07-2815(16ths)-B4-S-ISR1 | 119
Chain Link Fence
Sample ID | As ppm
S1W07-2815(16ths)-B1-S-ISR1 | 99
S1W07-2815(16ths)-B1-S-ISR2 | 159
Average concentration | 129
Sample ID | As ppm
S1W07-2815(16ths)-B2-S-ISR1 | 196
B2
B1
Expended Fireworks
Cement Driveway
Garage

2 Foot Core Collected from Location B2 at 2815 16th Avenue South

7/19/2006



Sample ID	As ppm
S1W07-2815(16ths)-B2-SS1-PCR1	311

Sample ID	As ppm
S1W07-2815(16ths)-B2-SS2-PCR1	238

Sample ID	As ppm
S1W07-2815(16ths)-B2-SS3-PCR1	2106
S1W07-2815(16ths)-B2-SS3-PCR2	688
S1W07-2815(16ths)-B2-SS3-PCR3	740
Average Concentration	1178

Sample ID	As ppm
S1W07-2815(16ths)-B2-SS12-PCR1	75

Sample ID	As ppm
S1W07-2815(16ths)-B2-SS16-PCR1	86

Sample ID	As ppm
S1W07-2815(16ths)-B2-SS9-PCR1	122

Sample ID	As ppm
S1W07-2815(16ths)-B2-SS8-PCR1	221

Sample ID	As ppm
S1W07-2815(16ths)-B2-SS18-PCR1	10

Sample ID	As ppm
S1W07-2815(16ths)-B2-SS5-PCR1	332

Sample ID	As ppm
S1W07-2815(16ths)-B2-SS4-PCR1	424

Sample ID	As ppm
S1W07-2815(16ths)-B2-SS124-PCR1	ND 5

Notes:

1) 2 foot core was collected at location B2 (196 ppm As) instead of location B3 (205 ppm As) because tree roots in the vicinity of B3 did not allow collection of an intact 2' core.

2) PCR IDs indicate samples from prepared core replicates using a different orientation of the XRF window at the same depth interval.

3) Red values indicate elevated concentrations that may be the result of potential particle size effects or placement of the XRF window directly over a high concentration particle within the subsample.

* Additional XRF readings were collected at these depths due to distinct soil horizons. At 9" and 16" a distinct layer of sand, ash, and rock was observed.

Sample ID	As	As +/-	Pb	Pb +/-
s1w07-2815(16ths)-f1-s-isr1	169.76	5.32	148.56	4.65
s1w07-2815(16ths)-f1-s-isr2	199.03	6.09	157.58	5.16
s1w07-2815(16ths)-f2-s-isr1	143.53	6.35	363	6.97
s1w07-2815(16ths)-f2-s-isr2	136.39	6.39	355.46	7.04
s1w07-2815(16ths)-f3-s-isr1	139.14	5.52	160.51	5.17
s1w07-2815(16ths)-f3-s-isr2	170.63	5.64	159.45	5
s1w07-2815(16ths)-f4-s-isr1	101.49	4.09	91.52	3.7
s1w07-2815(16ths)-f4-s-isr2	103.48	4.11	102.32	3.78
s1w07-2815(16ths)-f5-s-isr1	141.56	7.12	479.86	8.27
s1w07-2815(16ths)-s1-s-isr1	56.47	4.45	165.85	4.9
s1w07-2815(16ths)-s1-s-isr2	45.57	4.52	193.84	5.17
s1w07-2815(16ths)-s2-s-isr1	29.45	2.85	72.54	3.11
s1w07-2815(16ths)-s3-s-isr1	113.06	5.63	262.76	6.03
s1w07-2815(16ths)-s3-s-isr2	115.8	5.62	238.01	5.89
s1w07-2815(16ths)-s4-s-isr1	101.88	5.46	246.64	5.88
s1w07-2815(16ths)-s5-s-isr1	28.82	22.6	1999.03	38.79
s1w07-2815(16ths)-f1-ss1-pcr1	246.1	5.97	150.04	4.65
s1w07-2815(16ths)-f1-ss2-pcr1	263.8	6.25	197.48	5.14
s1w07-2815(16ths)-f1-ss3-pcr1	734.93	10.09	206.69	5.37
s1w07-2815(16ths)-f1-ss3-pcr2	451.99	7.99	184.84	5.2
s1w07-2815(16ths)-f1-ss3-pcr3	350.61	6.95	176.06	4.98
s1w07-2815(16ths)-f1-ss4-pcr1	235.41	5.91	160.72	4.76
s1w07-2815(16ths)-f1-ss5-pcr1	237.67	5.88	138.16	4.55
s1w07-2815(16ths)-f1-ss8-pcr1	60.74	3.34	59.44	3.2
s1w07-2815(16ths)-f1-ss12-pcr1	17.99	2.23	19.61	2.44
s1w07-2815(16ths)-f1-ss18-pcr1	5.64	1.98	19.41	2.4
s1w07-2815(16ths)-f1-ss24-pcr1	4.38	1.92	17.08	2.36
s1w07-2815(16ths)-b1-s-isr1	98.89	10.93	339.68	12.66
s1w07-2815(16ths)-b1-s-isr2	159.35	7.5	490.62	8.62
s1w07-2815(16ths)-b2-s-isr1	196.43	7.24	413.32	7.76
s1w07-2815(16ths)-b3-s-isr1	205.02	6.93	361.24	7.13
s1w07-2815(16ths)-b4-s-isr1	118.54	8.32	654.28	10.46
s1w07-2815(16ths)-b5-s-isr1	32.77	3.63	106.84	4.06
s1w07-2815(16ths)-b5-s-isr2	27.48	3.44	96.73	3.88
s1w07-2815(16ths)-b3-s-isr2(90)	233.16	7.27	381.77	7.37
s1w07-2815(16ths)-b3-s-isr2(60)	233.6	8.14	380.82	8.25
s1w07-2815(16ths)-b3-s-isr2(60)	231.41	9.37	383.76	9.54
s1w07-2815(16ths)-s5-s-isr2(60)	123.53	19.21	2159.34	31.68
s1w07-2815(16ths)-s5-s-isr2(90)	82.7	19.21	1856.65	30.75
s1w07-2815(16ths)-s5-s-isr2(60)	54.3	19.22	1890.7	31.15
s1w07-2815(16ths)-s5-s-isr2(120)	52.31	13.68	1939.67	22.36
s1w07-2815(16ths)-b2-ss1-pcr1	310.5	8.56	536	8.91
s1w07-2815(16ths)-b2-ss2-pcr1	238.31	8.1	560.07	9
s1w07-2815(16ths)-b2-ss3-pcr1	2106.34	21.84	723.02	10.87
s1w07-2815(16ths)-b2-ss3-pcr2	687.86	10.66	443.22	7.97
s1w07-2815(16ths)-b2-ss3-pcr3	740.31	11	439.91	7.92
s1w07-2815(16ths)-b2-ss4-pcr1	424.35	8.3	351.08	6.92
s1w07-2815(16ths)-b2-ss5-pcr1	332.21	7.5	305.02	6.49

s1w07-2815(16ths)-b2-ss8-pcr1	220.73	6.68	269.61	6.31
s1w07-2815(16ths)-b2-ss9-pcr1	122.04	4.7	122.44	4.31
s1w07-2815(16ths)-b2-ss12-pcr1	75.26	4.73	170.35	5.04
s1w07-2815(16ths)-b2-ss16-pcr1	86.49	4.79	199.09	5.13
s1w07-2815(16ths)-b2-ss18-pcr1	10.38	2.15	24.28	2.5
s1w07-2815(16ths)-b2-ss24-pcr1	5.17	1.86	13.49	2.26
s1w07-2815(16ths)-b2-pcoal particle layer @ ~17 in	75.76	24.98	122.35	25.27
s1w07-2815(16ths)-b2-pcoal particle layer @ ~17 in	72.75	3.59	116.42	3.62

Front Yard Samples

Sample Location	S1W07-2815(16ths)-F1-SS(1-3)(<10)	S1W07-2815(16ths)-F1-SS(1-3)	S1W07-2815(16ths)-F1-SS(1-3)
Sample Location Information	Sample taken from discrete front yard subsurface location F1 at a depth of 1-3" and archived in an 8 oz jar. Entire contents of jar archive were crushed in a stainless steel pan and then passed through a 10 mesh sieve. An XRF cup was collected from the material that passed through the 10 mesh sieve. ICP sample was submitted from the XRF cup. A subsample (approximately 1 gram) was removed from the XRF cup, digested, and analyzed via ICP at the laboratory.	Sample taken from discrete front yard subsurface location F1 at a depth of 1-3" and archived in a second 8 oz jar. Entire contents of jar archive were submitted for ICP analysis. A subsample (approximately 1 gram) was removed from the archived jar, digested, and analyzed via ICP at the laboratory. Duplicate 1.	Sample taken from discrete front yard subsurface location F1 at a depth of 1-3" and archived in a third 8 oz jar. Entire contents of jar archive were submitted for ICP analysis. A subsample (approximately 1 gram) was removed from the archived jar, digested, and analyzed via ICP at the laboratory. Duplicate 2.
Sample No.	CMC-ICP10	CMC-ICP11	CMC-ICP12
Location	CMC	CMC	CMC

Analyte	Analytical Method		Result mg/kg	RL mg/kg		Result mg/kg	RL mg/kg		Result mg/kg	RL mg/kg
Aluminum	ICAP		7070	19.0		6610	19.0		6560	19.0
Antimony	ICAP	U		1.33		U	1.33		U	1.33
Arsenic	ICAP		222	1.43		231	1.43		215	1.43
Barium	ICAP		82.2	0.381		86.6	0.381		84.0	0.381
Beryllium	ICAP		0.366	0.286		0.349	0.286		0.354	0.286
Cadmium	ICAP		0.710	0.381		0.835	0.381		0.701	0.381
Calcium	ICAP		2520	9.43		2370	9.43		2280	9.43
Chromium	ICAP		15.4	0.476		14.9	0.476		14.1	0.476
Cobalt	ICAP		5.16	0.381		5.74	0.381		5.21	0.381
Copper	ICAP		16.4	0.381		15.5	0.381		15.7	0.381
Iron	ICAP		11100	14.3		11100	14.3		10900	14.3
Lead	ICAP		156	0.952		129	0.952		125	0.952
Magnesium	ICAP		1870	19.0		1870	19.0		1750	19.0
Manganese	ICAP		639	0.381		767	0.381		676	0.381
Nickel	ICAP		12.5	0.571		13.3	0.571		12.0	0.571
Potassium	ICAP		484	23.8		444	23.8		460	23.8
Selenium	ICAP	U		1.24		U	1.24		U	1.24
Silver	ICAP	U		0.476		U	0.476		U	0.476
Sodium	ICAP	U		95.2		U	95.2		U	95.2
Thallium	ICAP	U		1.62		U	1.62		U	1.62
Vanadium	ICAP		21.2	0.381		19.8	0.381		19.3	0.381
Zinc	ICAP		114	2.19		118	2.19		112	2.19

Back Yard Samples

Sample Location	S1W07-2815(16ths)-B2-SS(2-3)(10-60)	S1W07-2815(16ths)-B2-SS(2-3)(<60)	S1W07-2815(16ths)-B2-SS24(<10)	S1W07-2815(16ths)-B2-SS24(10-6	S1W07-2815(16ths)-B2-SS24(<60)
Sample Location Information	Sample taken from discrete back yard subsurface location B2 at a depth of 2-3" and archived in an 8 oz jar. Entire contents of jar archive were crushed in a stainless steel pan and then passed through a 10 and 60 mesh sieve. An XRF cup was collected from the material that passed through the 10 mesh sieve but was retained on the 60 mesh sieve. ICP sample was submitted from the XRF cup. A subsample (approximately 1 gram) was removed from the XRF cup, digested, and analyzed via ICP at the laboratory.	Sample taken from discrete back yard subsurface location B2 at a depth of 2-3" and archived in an 8 oz jar. Entire contents of jar archive were crushed in a stainless steel pan and then passed through a 10 and 60 mesh sieve. An XRF cup was collected from the material that passed through the 10 and 60 mesh sieves. ICP sample was submitted from the XRF cup. A subsample (approximately 1 gram) was removed from the XRF cup, digested, and analyzed via ICP at the laboratory.	Sample taken from discrete back yard subsurface location B2 at a depth of 24" and archived in an 8 oz jar. Entire contents of jar archive were crushed in a stainless steel pan and then passed through a 10 mesh sieve. An XRF cup was collected from the material that passed through the 10 mesh sieve. ICP sample was submitted from the XRF cup. A subsample (approximately 1 gram) was removed from the XRF cup, digested, and analyzed via ICP at the laboratory.	Sample taken from discrete back yard subsurface location B2 at a depth of 24" and archived in an 8 oz jar. Entire contents of jar archive were crushed in a stainless steel pan and then passed through 10 and 60 mesh sieves. An XRF cup was collected from the material that passed through the 10 mesh sieve but was retained on the 60 mesh sieve. ICP sample was submitted from the XRF cup. A subsample (approximately 1 gram) was removed from the XRF cup, digested, and analyzed via ICP at the laboratory.	Sample taken from discrete back yard subsurface location B2 at a depth of 24" and archived in an 8 oz jar. Entire contents of jar archive were crushed in a stainless steel pan and then passed through 10 and 60 mesh sieves. An XRF cup was collected from the material that passed through the 10 and 60 mesh sieves. ICP sample was submitted from the XRF cup. A subsample (approximately 1 gram) was removed from the XRF cup, digested, and analyzed via ICP at the laboratory.
Sample No.	CMC-ICP5	CMC-ICP6	CMC-ICP7	CMC-ICP8	CMC-ICP9
Location	CMC	CMC	CMC	CMC	CMC

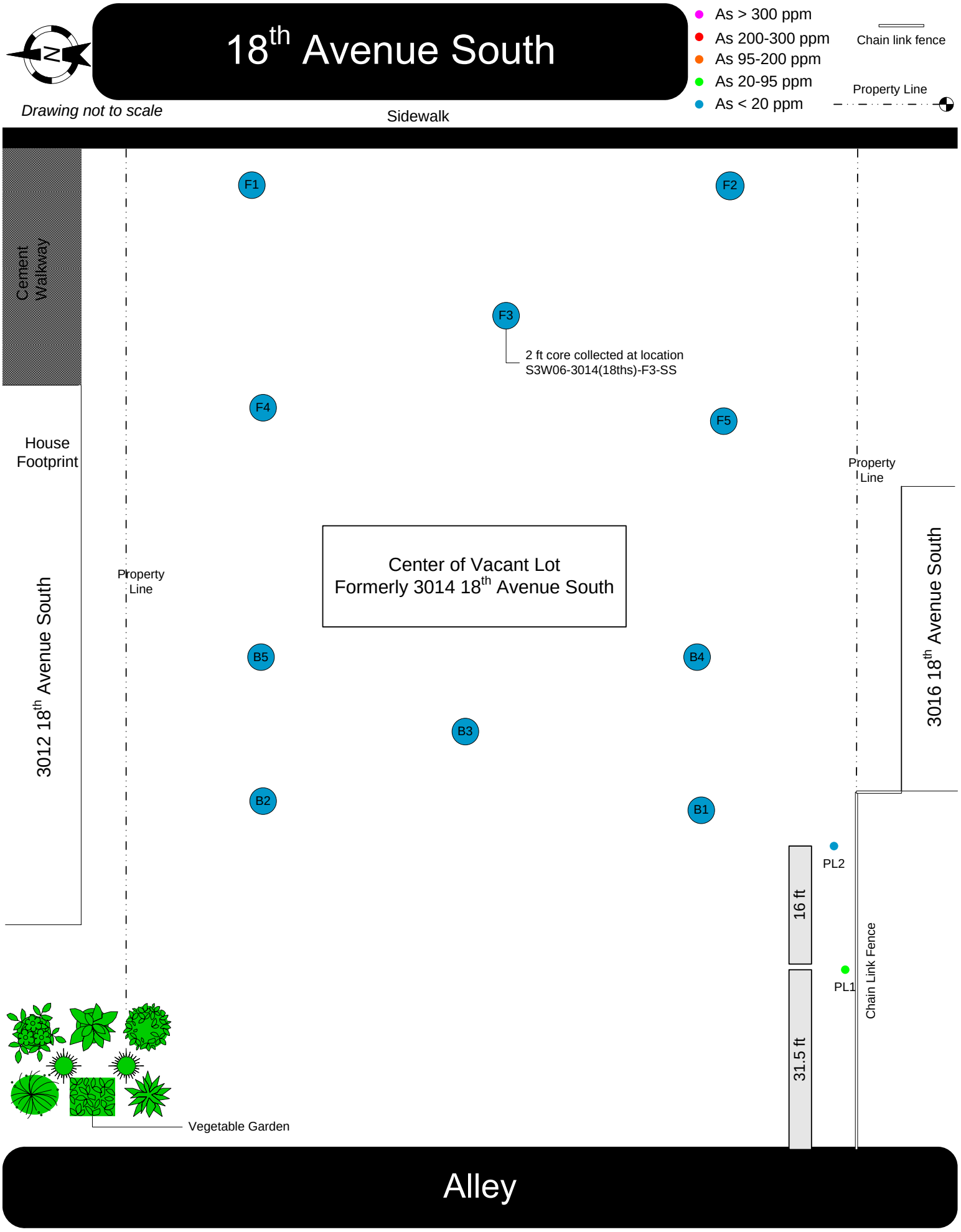
Analyte	Analytical Method		Result mg/kg	RL mg/kg		Result mg/kg	RL mg/kg		Result mg/kg	RL mg/kg		Result mg/kg	RL mg/kg		Result mg/kg	RL mg/kg
Aluminum	ICAP		8670	19.0		11500	19.0		10700	18.9		8760	19.0		15800	18.9
Antimony	ICAP		2.08	1.33		3.31	1.33	U		1.32	U		1.33	U		1.32
Arsenic	ICAP		312	1.43		530	1.43		4.46	1.42		3.71	1.43		7.61	1.42
Barium	ICAP		200	0.381		232	0.381		89.4	0.377		74.3	0.381		131	0.377
Beryllium	ICAP		0.528	0.286		0.661	0.286		0.432	0.283		0.358	0.286		0.633	0.283
Cadmium	ICAP		0.952	0.381		1.45	0.381	U		0.377	U		0.381	U		0.377
Calcium	ICAP		3640	9.43		5240	9.43		2010	9.34		1670	9.43		2940	9.34
Chromium	ICAP		27.8	0.476		39.5	0.476		13.4	0.472		11.5	0.476		19.1	0.472
Cobalt	ICAP		4.98	0.381		5.98	0.381		5.99	0.377		4.96	0.381		8.05	0.377
Copper	ICAP		40.3	0.381		55.5	0.381		5.31	0.377		4.47	0.381		8.03	0.377
Iron	ICAP		14400	14.3		16500	14.3		12400	14.2		10800	14.3		16200	14.2
Lead	ICAP		278	0.952		392	0.952		5.94	0.943		5.25	0.952		10.4	0.943
Magnesium	ICAP		1970	19.0		2330	19.0		1600	18.9		1380	19.0		2120	18.9
Manganese	ICAP		230	0.381		263	0.381		475	0.377		386	0.381		648	0.377
Nickel	ICAP		14.4	0.571		18.6	0.571		10.5	0.566		9.00	0.571		14.9	0.566
Potassium	ICAP		687	23.8		924	23.8		472	23.6		375	23.8		639	23.6
Selenium	ICAP		1.29	1.24		1.83	1.24	U		1.23	U		1.24	U		1.23
Silver	ICAP		U	0.476		0.612	0.476	U		0.472	U		0.476	U		0.472
Sodium	ICAP		U	95.2		113	95.2	U		94.3	U		95.2		124	94.3
Thallium	ICAP		U	1.62	U		1.62	U		1.60	U		1.62	U		1.60
Vanadium	ICAP		27.2	0.381		31.7	0.381		26.5	0.377		21.6	0.381		34.0	0.377
Zinc	ICAP		197	2.19		262	2.19		31.8	2.17		26.6	2.19		47.3	2.17

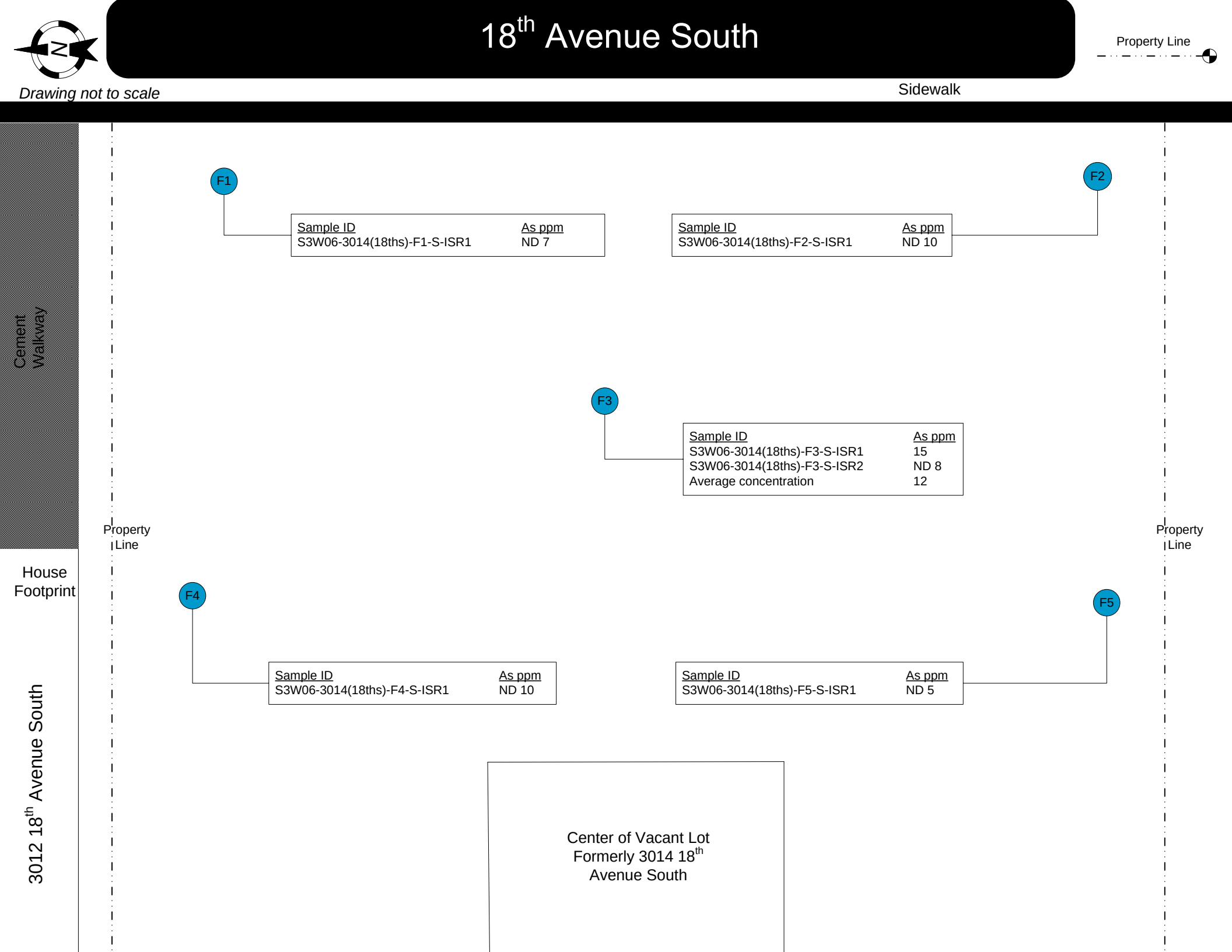
RL denotes Reporting Limit
U denotes Not Detected
J denotes Estimated Result

Client ID	CMC-OCPEST 2
Location	CMC
Sample Location	S1W07-2815(16ths)-F1-SS(1-3)
Sample Location Information	Sample taken from discrete front yard subsurface location F1 at a depth of 1-3" and archived in a 8 oz jar. Entire contents of jar archive was submitted along with ICP analysis. A subsample (approximately 30 grams) was removed from the archived jar, extracted, and analyzed for organochlorine pesticides at the laboratory.
Percent Solid	94

Analyte	Conc. µg/kg		RL µg/kg
a-BHC	R		7.09
g-BHC	R		7.09
b-BHC	R		7.09
d-BHC	R		7.09
HEPTACHLOR	R		7.09
ALDRIN	R		7.09
HEPTACHLOR EPOXIDE	9.59	J	7.09
g-CHLORDANE	8.19	J	7.09
a-CHLORDANE	R		7.09
ENDOSULFAN (I)	R		7.09
p,p'-D D E	975	J	355
DIELDRIN	R		7.09
ENDRIN	R		7.09
p,p'-D D D	135	J	7.09
ENDOSULFAN (II)	R		7.09
ENDRIN ALDEHYDE	R		7.09
p,p'-D D T	1550	J	355
ENDOSULFAN SULFATE	R		7.09
METHOXYCHLOR	R		7.09
ENDRIN KETONE	R		7.09

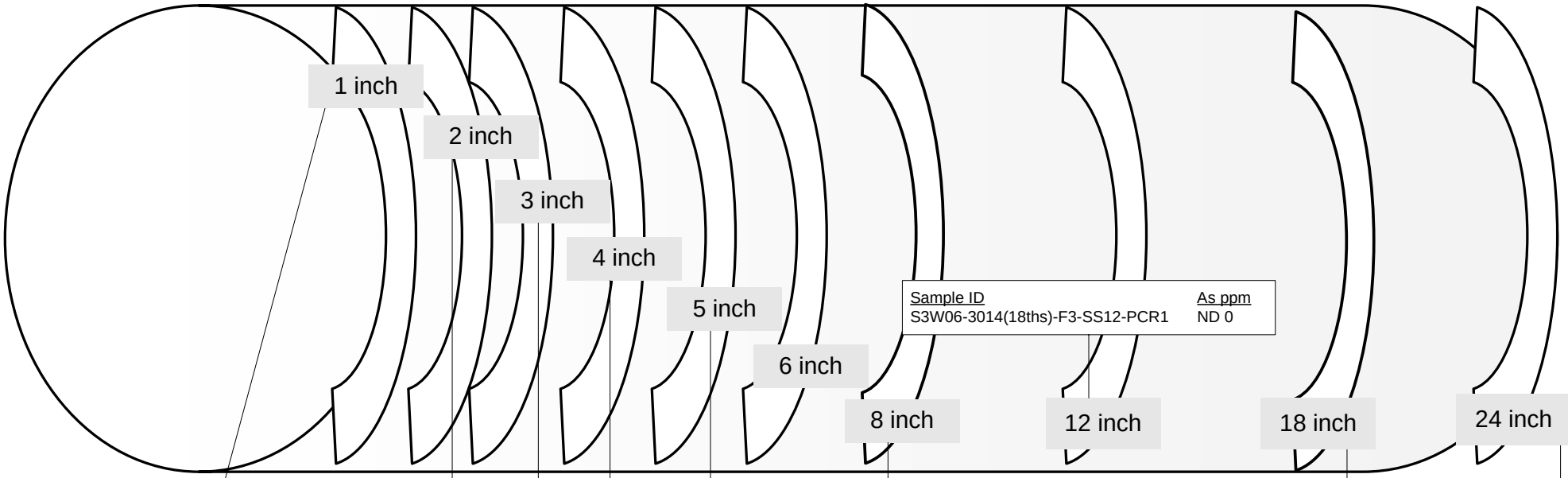
Results based on dry weight
RL denotes Reporting Limit
U denotes Not Detected
J denotes Estimated Result
R denotes Unuseable Result


18th Avenue South
As > 300 ppm
As 200-300 ppm
As 95-200 ppm
As 20-95 ppm
As < 20 ppm
Chain link fence
Property Line
Drawing not to scale
Sidewalk
Cement Walkway
F1
F2
F3
2 ft core collected at location S3W06-3014(18ths)-F3-SS
F4
F5
House Footprint
Property Line
Center of Vacant Lot
Formerly 3014 18th Avenue South
3012 18th Avenue South
3016 18th Avenue South
Property Line
B5
B4
B3
B2
B1
PL2
PL1
16 ft
31.5 ft
Chain Link Fence
Vegetable Garden
Alley


18th Avenue South
Property Line
Drawing not to scale
Sidewalk
Cement Walkway
F1
Sample ID
S3W06-3014(18ths)-F1-S-ISR1
As ppm
ND 7
F2
Sample ID
S3W06-3014(18ths)-F2-S-ISR1
As ppm
ND 10
F3
Sample ID
As ppm
S3W06-3014(18ths)-F3-S-ISR1
15
S3W06-3014(18ths)-F3-S-ISR2
ND 8
Average concentration
12
Property Line
Property Line
House Footprint
F4
Sample ID
S3W06-3014(18ths)-F4-S-ISR1
As ppm
ND 10
F5
Sample ID
S3W06-3014(18ths)-F5-S-ISR1
As ppm
ND 5
Center of Vacant Lot
Formerly 3014 18th
Avenue South
3012 18th Avenue South

2 Foot Core Collected from location F3 at 3014 18th Avenue South

7/14/2006



Sample ID	As ppm
S3W06-3014(18ths)-F3-SS1-PCR1	ND 7
S3W06-3014(18ths)-F3-SS1-PCR2	19
Average Concentration	13

Sample ID	As ppm
S3W06-3014(18ths)-F3-SS2-PCR1	ND 3

Sample ID	As ppm
S3W06-3014(18ths)-F3-SS3-PCR1	ND 12

Sample ID	As ppm
S3W06-3014(18ths)-F3-SS4-PCR1	ND 13

Sample ID	As ppm
S3W06-3014(18ths)-F3-SS5-PCR1	10
S3W06-3014(18ths)-F3-SS5-PCR2	12
Average Concentration	11

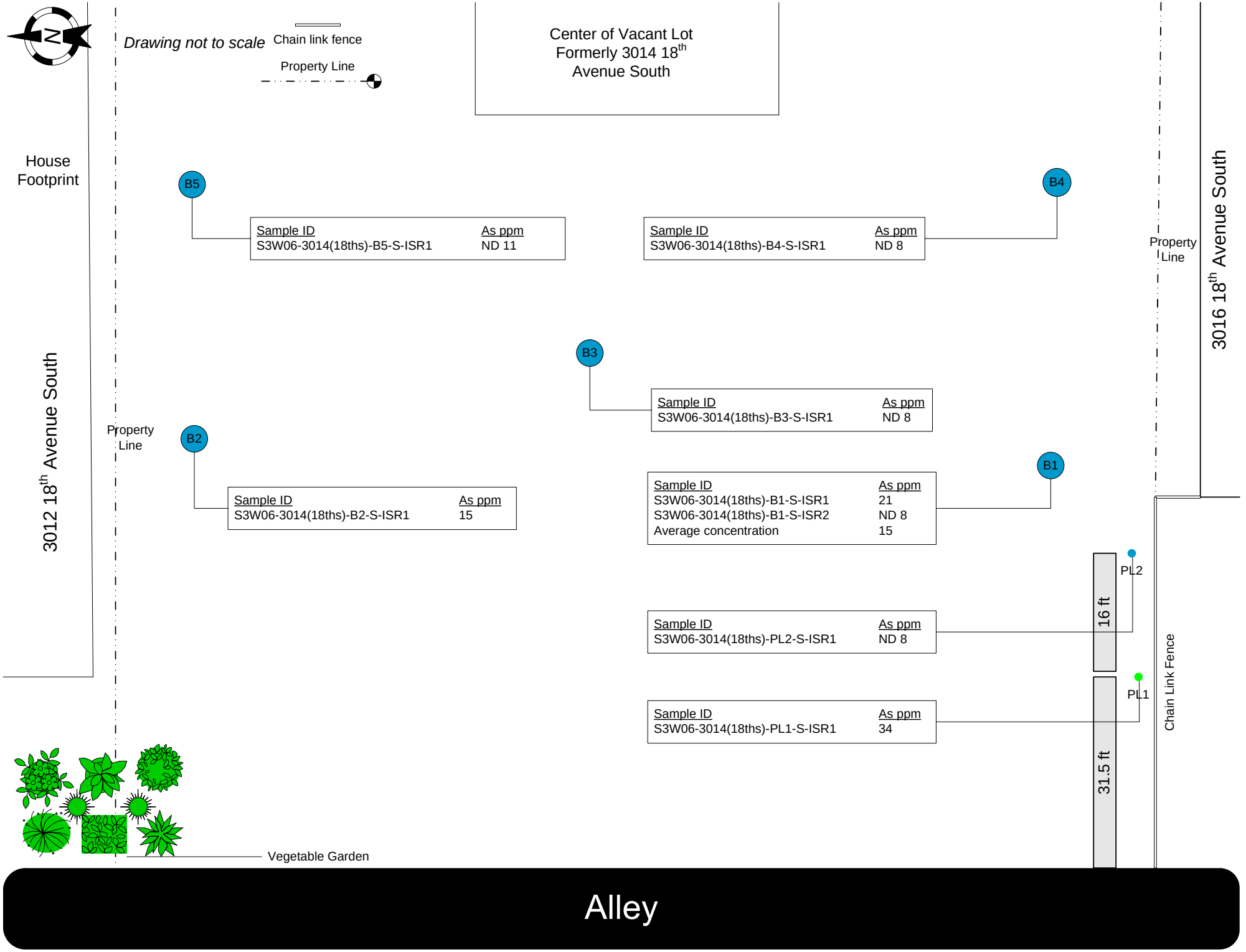
Sample ID	As ppm
S3W06-3014(18ths)-F3-SS8-PCR1	ND 2

Sample ID	As ppm
S3W06-3014(18ths)-F3-SS12-PCR1	ND 0

Sample ID	As ppm
S3W06-3014(18ths)-F3-SS18-PCR1	9

Sample ID	As ppm
S3W06-3014(18ths)-F3-SS24-PCR1	ND 8
S3W06-3014(18ths)-F3-SS24-PCR2	13
Average Concentration	11

Notes:
1) PCR IDs indicate samples from prepared core replicates using a different orientation of the XRF window at the same depth interval.

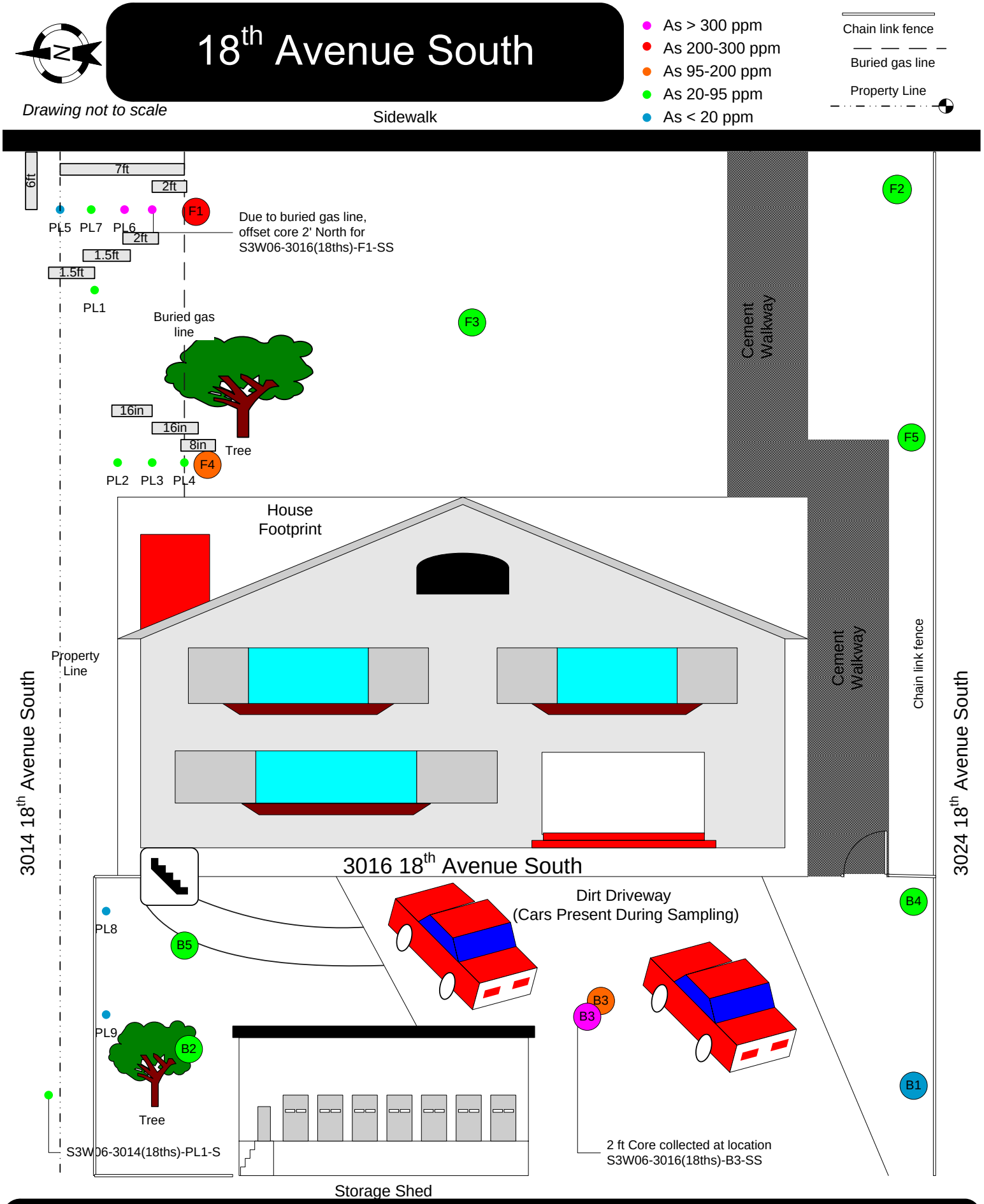

N
Drawing not to scale
Chain link fence
Property Line
Center of Vacant Lot
Formerly 3014 18th
Avenue South
House
Footprint
3012 18th Avenue South
3016 18th Avenue South
Property
Line
B5
Sample ID
S3W06-3014(18ths)-B5-S-ISR1
As ppm
ND 11
B4
Sample ID
S3W06-3014(18ths)-B4-S-ISR1
As ppm
ND 8
B3
Sample ID
S3W06-3014(18ths)-B3-S-ISR1
As ppm
ND 8
B2
Sample ID
S3W06-3014(18ths)-B2-S-ISR1
As ppm
15
B1
Sample ID
As ppm
S3W06-3014(18ths)-B1-S-ISR1
21
S3W06-3014(18ths)-B1-S-ISR2
ND 8
Average concentration
15
PL2
16 ft
Sample ID
S3W06-3014(18ths)-PL2-S-ISR1
As ppm
ND 8
PL1
31.5 ft
Sample ID
S3W06-3014(18ths)-PL1-S-ISR1
As ppm
34
Chain Link Fence
Vegetable Garden
Alley

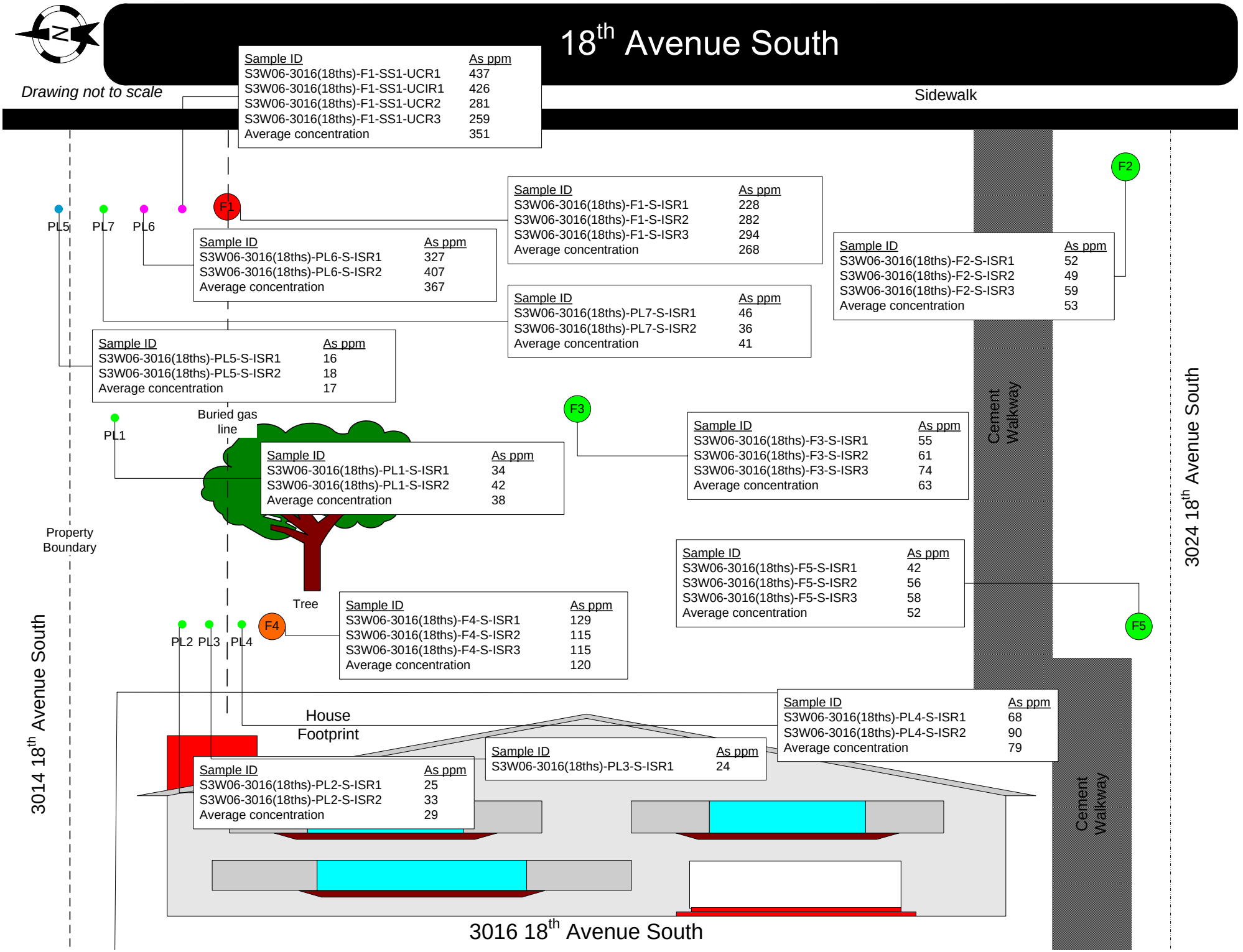
Sample ID	As	As +/-	Pb	Pb +/-
s3w06-3014(18ths)-pl1-s-isr1	33.83	7.5	642.2	9.96
s3w06-3014(18ths)-pl2-s-isr1	7.54	5.4	330.1	6.87
s3w06-3014(18ths)-b1-s-isr1	21.44	4.84	244.34	5.91
s3w06-3014(18ths)-b2-s-isr1	15.03	4.54	216.78	5.57
s3w06-3014(18ths)-b1-s-isr2	8.28	4.53	199.84	5.6
s3w06-3014(18ths)-b3-s-isr1	7.72	4.35	214.16	5.41
s3w06-3014(18ths)-b4-s-isr1	8.19	4.56	233.57	5.69
s3w06-3014(18ths)-b5-s-isr1	11.42	4.26	198.37	5.23
s3w06-3014(18ths)-f5-s-isr1	5.1	2.56	53.61	3.12
s3w06-3014(18ths)-f4-s-isr1	10.08	3.46	117.2	4.17
s3w06-3014(18ths)-f2-s-isr1	9.98	3.91	157.13	4.76
s3w06-3014(18ths)-f1-s-isr1	7.01	4.3	202.4	5.35
s3w06-3014(18ths)-f3-s-isr1	15.03	4.32	205.07	5.27
s3w06-3014(18ths)-f3-s-isr2	8.13	4.27	191.86	5.27
s3w06-3014(18ths)-f3-ss1-pcr1	6.71	5	166.09	6.18
s3w06-3014(18ths)-f3-ss1-pcr2	19.1	4.33	191.96	5.23
s3w06-3014(18ths)-f3-ss2-pcr1	2.94	3.89	134.95	4.82
s3w06-3014(18ths)-f3-ss3-pcr1	11.82	5.53	298.48	6.97
s3w06-3014(18ths)-f3-ss4-pcr1	13.09	6.35	194.87	7.82
s3w06-3014(18ths)-f3-ss5-pcr1	10	3.15	88.96	3.77
s3w06-3014(18ths)-f3-ss5-pcr2	11.73	2.77	57.81	3.25
s3w06-3014(18ths)-f3-ss8-pcr1	1.56	2.39	51.66	2.95
s3w06-3014(18ths)-f3-ss12-pcr1	0.49	2.18	35.53	2.74
s3w06-3014(18ths)-f3-ss18-pcr1	8.57	2.25	28.52	2.67
s3w06-3014(18ths)-f3-ss24-pcr1	7.56	3.23	96.51	3.91
s3w06-3014(18ths)-f3-ss24-pcr2	12.67	3.27	96.55	3.89

Sample Location	S3W06-3014(18ths)-B3 (2-4)	S3W06-3014(18ths)-B3 (2-4)	S3W06-3014(18ths)-B3 (2-4)
Sample Location Information	Sample taken from borehole sidewall at location B3 from 2-4". Entire archived jar was crushed in a stainless steel pan and sieved through 10 mesh. ICP sample was analyzed on the first of three XRF cups from material that passed through the 10 mesh sieve. Replicate 1.	Sample taken from borehole sidewall at location B3 from 2-4". Entire archived jar was crushed in a stainless steel pan and sieved through 10 mesh. ICP sample was analyzed on the second of three XRF cups from material that passed through the 10 mesh sieve. Replicate 2.	Sample taken from borehole sidewall at location B3 from 2-4". Entire archived jar was crushed in a stainless steel pan and sieved through 10 mesh. ICP sample was analyzed on the third of three XRF cups from material that passed through the 10 mesh sieve. Replicate 3.
Sample No.	CMC-ICP26	CMC-ICP27	CMC-ICP28
Location	CMC	CMC	CMC

Analyte	Analytical Method		Result mg/kg	RL mg/kg		Result mg/kg	RL mg/kg		Result mg/kg	RL mg/kg
Aluminum	ICAP		6140	19.0		6350	19.0		6150	18.7
Antimony	ICAP	U		1.33	U		1.33	U		1.31
Arsenic	ICAP		6.36	1.43		6.61	1.43		6.68	1.40
Barium	ICAP		100	0.381		104	0.381		101	0.374
Beryllium	ICAP		0.309	0.286		0.326	0.286		0.320	0.28
Cadmium	ICAP		0.483	0.381		0.487	0.381		0.465	0.374
Calcium	ICAP		5460	9.43		5660	9.43		7060	9.25
Chromium	ICAP		13.6	0.476		13.9	0.476		13.4	0.467
Cobalt	ICAP		4.83	0.381		4.9	0.381		4.75	0.374
Copper	ICAP		21.2	0.381		23.3	0.381		23.1	0.374
Iron	ICAP		9980	14.3		10100	14.3		10600	14.0
Lead	ICAP		195	0.952		194	0.952		156	0.935
Magnesium	ICAP		2340	19.0		2250	19.0		2590	18.7
Manganese	ICAP		466	0.381		482	0.381		492	0.374
Nickel	ICAP		11.8	0.571		11.6	0.571		12.0	0.561
Potassium	ICAP		626	23.8		669	23.8		646	23.4
Selenium	ICAP	U		1.24	U		1.24	U		1.21
Silver	ICAP	U		0.476	U		0.476	U		0.467
Sodium	ICAP	U		95.2	U		95.2	U		93.5
Thallium	ICAP	U		1.62	U		1.62	U		1.59
Vanadium	ICAP		18	0.381		18	0.381		18.2	0.374
Zinc	ICAP		130 J	2.19		136 J	2.19		126 J	2.15

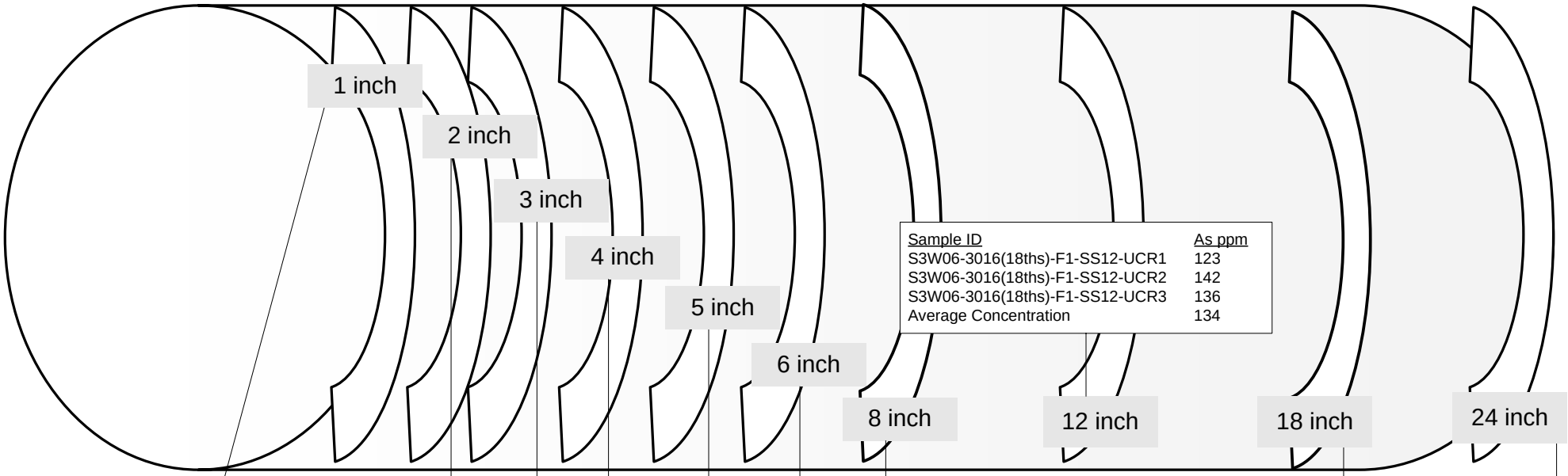
RL denotes Reporting Limit
U denotes Not Detected
J denotes Estimated Result


18th Avenue South
Drawing not to scale
As > 300 ppm
As 200-300 ppm
As 95-200 ppm
As 20-95 ppm
As < 20 ppm
Chain link fence
Buried gas line
Property Line
Sidewalk
6ft
7ft
2ft
F1
PL5 PL7 PL6
2ft
1.5ft
1.5ft
PL1
Due to buried gas line, offset core 2' North for S3W06-3016(18ths)-F1-SS
Buried gas line
F3
F2
Cement Walkway
16in
16in
8in
Tree
F4
PL2 PL3 PL4
F5
House Footprint
Property Line
3014 18th Avenue South
Cement Walkway
Chain link fence
3024 18th Avenue South
3016 18th Avenue South
Dirt Driveway
(Cars Present During Sampling)
B4
PL8
B5
B3
B3
PL9
B2
Tree
B1
S3W06-3014(18ths)-PL1-S
2 ft Core collected at location S3W06-3016(18ths)-B3-SS
Storage Shed
Alley


18th Avenue South
Drawing not to scale
Sidewalk
Sample ID | As ppm
S3W06-3016(18ths)-F1-SS1-UCR1 | 437
S3W06-3016(18ths)-F1-SS1-UCIR1 | 426
S3W06-3016(18ths)-F1-SS1-UCR2 | 281
S3W06-3016(18ths)-F1-SS1-UCR3 | 259
Average concentration | 351
F1
PL5
PL7
PL6
Sample ID | As ppm
S3W06-3016(18ths)-F1-S-ISR1 | 228
S3W06-3016(18ths)-F1-S-ISR2 | 282
S3W06-3016(18ths)-F1-S-ISR3 | 294
Average concentration | 268
Sample ID | As ppm
S3W06-3016(18ths)-PL6-S-ISR1 | 327
S3W06-3016(18ths)-PL6-S-ISR2 | 407
Average concentration | 367
Sample ID | As ppm
S3W06-3016(18ths)-PL7-S-ISR1 | 46
S3W06-3016(18ths)-PL7-S-ISR2 | 36
Average concentration | 41
F2
Sample ID | As ppm
S3W06-3016(18ths)-F2-S-ISR1 | 52
S3W06-3016(18ths)-F2-S-ISR2 | 49
S3W06-3016(18ths)-F2-S-ISR3 | 59
Average concentration | 53
Cement Walkway
Sample ID | As ppm
S3W06-3016(18ths)-PL5-S-ISR1 | 16
S3W06-3016(18ths)-PL5-S-ISR2 | 18
Average concentration | 17
F3
PL1
Buried gas line
Sample ID | As ppm
S3W06-3016(18ths)-PL1-S-ISR1 | 34
S3W06-3016(18ths)-PL1-S-ISR2 | 42
Average concentration | 38
Sample ID | As ppm
S3W06-3016(18ths)-F3-S-ISR1 | 55
S3W06-3016(18ths)-F3-S-ISR2 | 61
S3W06-3016(18ths)-F3-S-ISR3 | 74
Average concentration | 63
Property Boundary
Tree
Sample ID | As ppm
S3W06-3016(18ths)-F5-S-ISR1 | 42
S3W06-3016(18ths)-F5-S-ISR2 | 56
S3W06-3016(18ths)-F5-S-ISR3 | 58
Average concentration | 52
F5
F4
PL2 PL3 PL4
Sample ID | As ppm
S3W06-3016(18ths)-F4-S-ISR1 | 129
S3W06-3016(18ths)-F4-S-ISR2 | 115
S3W06-3016(18ths)-F4-S-ISR3 | 115
Average concentration | 120
3024 18th Avenue South
3014 18th Avenue South
House Footprint
Sample ID | As ppm
S3W06-3016(18ths)-PL4-S-ISR1 | 68
S3W06-3016(18ths)-PL4-S-ISR2 | 90
Average concentration | 79
Sample ID | As ppm
S3W06-3016(18ths)-PL3-S-ISR1 | 24
Sample ID | As ppm
S3W06-3016(18ths)-PL2-S-ISR1 | 25
S3W06-3016(18ths)-PL2-S-ISR2 | 33
Average concentration | 29
Cement Walkway
3016 18th Avenue South

2 Foot Core Collected from Location F1 at 3016 18th Avenue South

7/11/2006



Sample ID	As ppm
S3W06-3016(18ths)-F1-SS12-UCR1	123
S3W06-3016(18ths)-F1-SS12-UCR2	142
S3W06-3016(18ths)-F1-SS12-UCR3	136
Average Concentration	134

Sample ID	As ppm
S3W06-3016(18ths)-F1-SS1-UCR1	437
S3W06-3016(18ths)-F1-SS1-UCIR1	426
S3W06-3016(18ths)-F1-SS1-UCR2	281
S3W06-3016(18ths)-F1-SS1-UCR3	259
Average Concentration	351

Sample ID	As ppm
S3W06-3016(18ths)-F1-SS8-UCR1	169
S3W06-3016(18ths)-F1-SS8-UCR2	172
S3W06-3016(18ths)-F1-SS8-UCR3	182
Average Concentration	174

Sample ID	As ppm
S3W06-3016(18ths)-F1-SS2-UCR1	349
S3W06-3016(18ths)-F1-SS2-UCR2	896
S3W06-3016(18ths)-F1-SS2-UCR3	361
Average Concentration	535

Sample ID	As ppm
S3W06-3016(18ths)-F1-SS6-UCR1	225
S3W06-3016(18ths)-F1-SS6-UCR2	222
S3W06-3016(18ths)-F1-SS6-UCR3	204
Average Concentration	217

Sample ID	As ppm
S3W06-3016(18ths)-F1-SS3-UCR1	365
S3W06-3016(18ths)-F1-SS3-UCR2	326
S3W06-3016(18ths)-F1-SS3-UCR3	268
Average Concentration	320

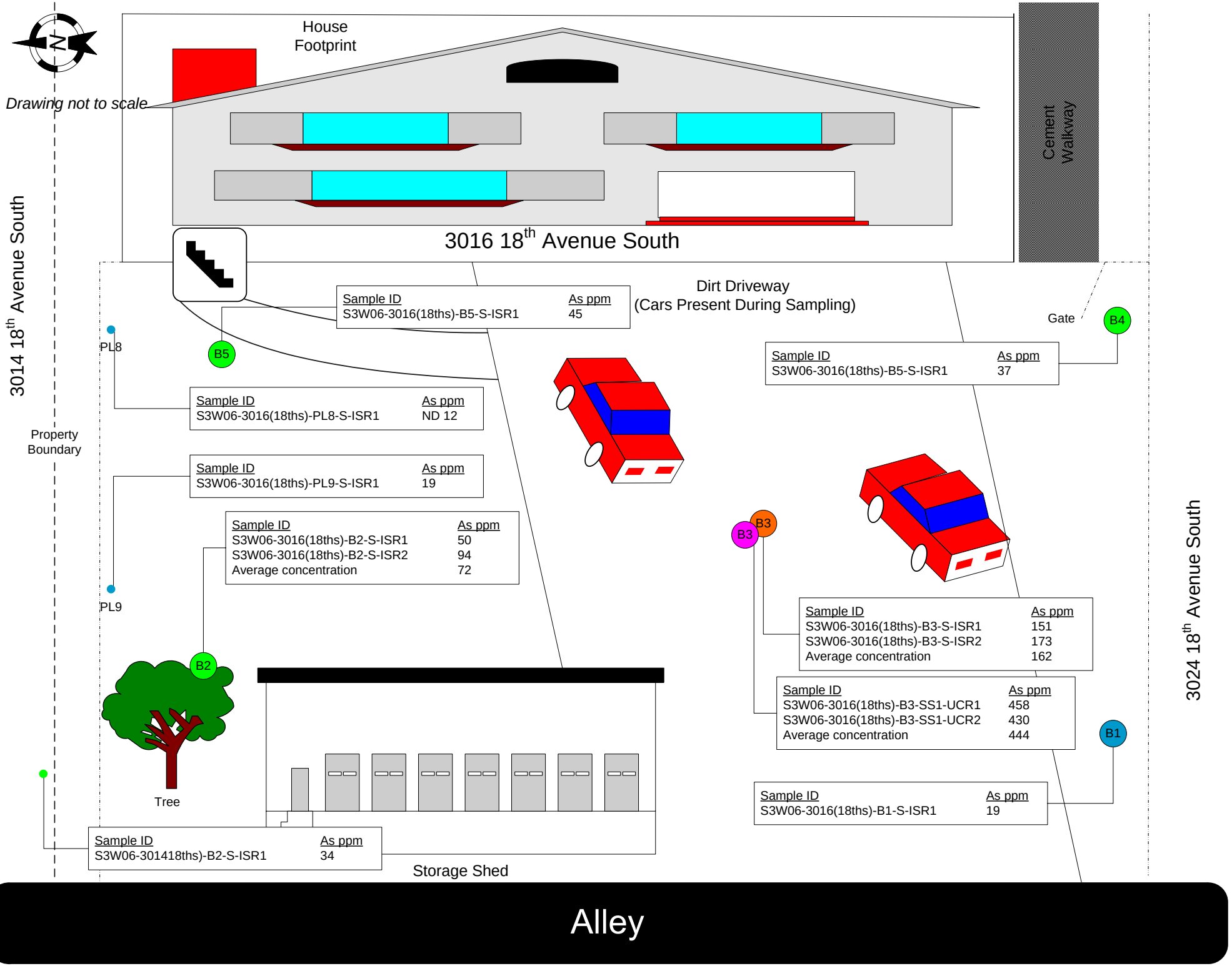
Sample ID	As ppm
S3W06-3016(18ths)-F1-SS5-UCR1	254
S3W06-3016(18ths)-F1-SS5-UCR2	195
S3W06-3016(18ths)-F1-SS5-UCR3	196
Average Concentration	215

Sample ID	As ppm
S3W06-3016(18ths)-F1-SS18-UCR1	32
S3W06-3016(18ths)-F1-SS18-UCR2	52
S3W06-3016(18ths)-F1-SS18-UCR3	102
Average Concentration	62

Sample ID	As ppm
S3W06-3016(18ths)-F1-SS4-UCR1	249
S3W06-3016(18ths)-F1-SS4-UCR2	254
S3W06-3016(18ths)-F1-SS4-UCR3	214
Average Concentration	239

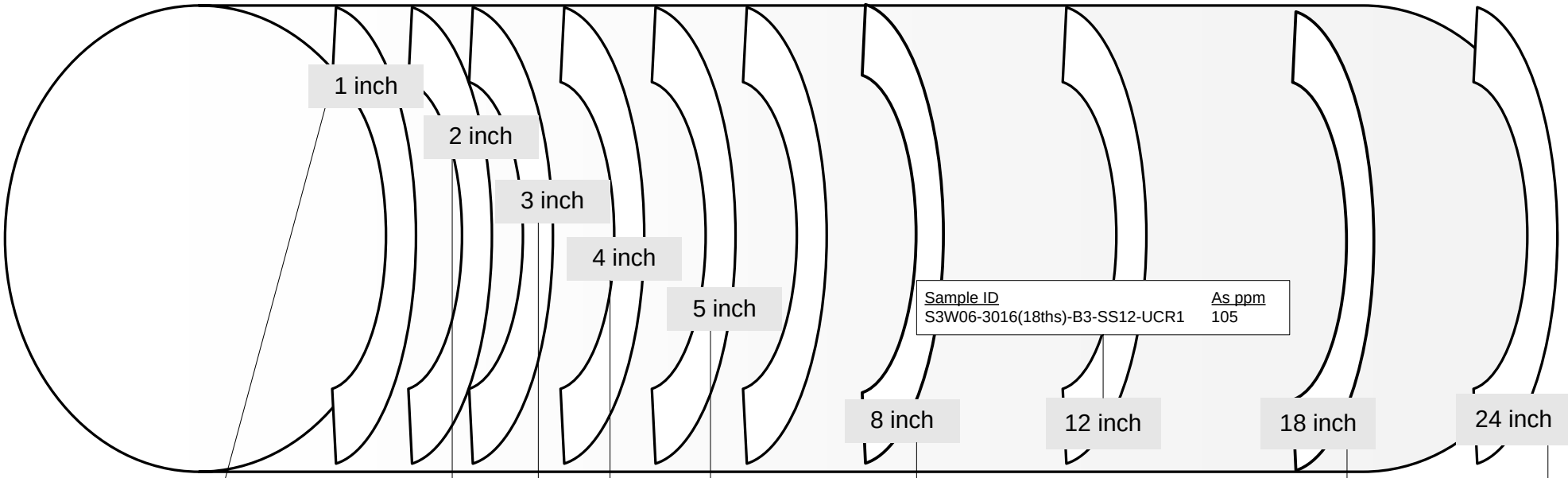
Sample ID	As ppm
S3W06-3016(18ths)-F1-SS24-UCR1	2
S3W06-3016(18ths)-F1-SS24-UCR2	4
S3W06-3016(18ths)-F1-SS24-UCR3	5
Average Concentration	4

Notes:
1) UCR IDs indicate samples from unprepared core replicates using a different orientation of the XRF window at the same depth interval.
2) ICIR IDs indicate use of the same orientation at the same depth to evaluate instrument precision.
3) Red values indicate potential particle size effects from unprepared core samples.


N
Drawing not to scale
House Footprint
Cement Walkway
3016 18th Avenue South
3014 18th Avenue South
3024 18th Avenue South
Dirt Driveway
(Cars Present During Sampling)
Gate
Property Boundary
PL8
PL9
B5
B4
B3
B3
B2
B1
Tree
Storage Shed
Alley
Sample ID | As ppm
S3W06-3016(18ths)-B5-S-ISR1 | 45
Sample ID | As ppm
S3W06-3016(18ths)-B5-S-ISR1 | 37
Sample ID | As ppm
S3W06-3016(18ths)-PL8-S-ISR1 | ND 12
Sample ID | As ppm
S3W06-3016(18ths)-PL9-S-ISR1 | 19
Sample ID | As ppm
S3W06-3016(18ths)-B2-S-ISR1 | 50
S3W06-3016(18ths)-B2-S-ISR2 | 94
Average concentration | 72
Sample ID | As ppm
S3W06-3016(18ths)-B3-S-ISR1 | 151
S3W06-3016(18ths)-B3-S-ISR2 | 173
Average concentration | 162
Sample ID | As ppm
S3W06-3016(18ths)-B3-SS1-UCR1 | 458
S3W06-3016(18ths)-B3-SS1-UCR2 | 430
Average concentration | 444
Sample ID | As ppm
S3W06-3016(18ths)-B1-S-ISR1 | 19
Sample ID | As ppm
S3W06-301418ths)-B2-S-ISR1 | 34

2 Foot Core Collected from location B3 at 3016 18th Avenue South

7/11/2006



Sample ID	As ppm
S3W06-3016(18ths)-B3-SS12-UCR1	105

Sample ID	As ppm
S3W06-3016(18ths)-B3-SS1-UCR1	458
S3W06-3016(18ths)-B3-SS1-UCR2	430
Average Concentration	444

Sample ID	As ppm
S3W06-3016(18ths)-B3-SS2-UCR1	295

Sample ID	As ppm
S3W06-3016(18ths)-B3-SS3-UCR1	340

Sample ID	As ppm
S3W06-3016(18ths)-B3-SS8-UCR1	148
S3W06-3016(18ths)-B3-SS8-UCR2	148
Average Concentration	148

Sample ID	As ppm
S3W06-3016(18ths)-B3-SS5-UCR1	278

Sample ID	As ppm
S3W06-3016(18ths)-B3-SS4-UCR1	316

Sample ID	As ppm
S3W06-3016(18ths)-B3-SS18-UCR1	39

Sample ID	As ppm
S3W06-3016(18ths)-B3-SS24-UCR1	16
S3W06-3016(18ths)-B3-SS24-UCR2	12
Average Concentration	14

Notes:
1) UCR IDs indicate samples from unprepared core replicates using a different orientation of the XRF window at the same depth interval.

Sample ID	As	As +/-	Pb	Pb +/-
s3w06-3016(18ths)-f1-s-isr3	293.59	7.46	334.04	6.88
s3w06-3016(18ths)-f2-s-isr1	52.08	4.19	153.73	4.61
s3w06-3016(18ths)-f2-s-isr2	49.20	4.38	176.82	4.93
s3w06-3016(18ths)-f2-s-isr3	58.61	4.43	167.21	4.87
s3w06-3016(18ths)-f3-s-isr1	55.09	4.27	159.06	4.69
s3w06-3016(18ths)-f3-s-isr2	60.95	4.43	166.89	4.84
s3w06-3016(18ths)-f3-s-isr3	73.85	4.73	180.46	5.09
s3w06-3016(18ths)-f4-s-isr1	128.66	6.45	347.59	7.13
s3w06-3016(18ths)-f4-s-isr2	115.41	6.85	343.14	7.69
s3w06-3016(18ths)-f4-s-isr3	115.24	6.58	375.04	7.49
s3w06-3016(18ths)-f5-s-isr1	42.25	8.08	762.26	10.95
s3w06-3016(18ths)-f5-s-isr2	56.03	8.68	880.04	11.95
s3w06-3016(18ths)-f5-s-isr3	57.55	9	918.42	12.47
s3w06-3016(18ths)-f1-ss1-ucr1	436.80	9.58	557.15	9.22
s3w06-3016(18ths)-f1-ss1-ucir1	426.16	9.69	581.44	9.53
s3w06-3016(18ths)-f1-ss1-ucr2	280.95	7.2	364.27	6.88
s3w06-3016(18ths)-f1-ss1-ucr3	259.05	7.26	446.48	7.48
s3w06-3016(18ths)-f1-ss2-ucr1	348.81	7.83	280.74	6.51
s3w06-3016(18ths)-f1-ss2-ucr2	896.13	12.27	402.41	7.74
s3w06-3016(18ths)-f1-ss2-ucr3	361.11	7.48	267.12	6.04
s3w06-3016(18ths)-f1-ss3-ucr1	364.62	7.72	298.71	6.44
s3w06-3016(18ths)-f1-ss3-ucr2	326.33	7.36	270.27	6.18
s3w06-3016(18ths)-f1-ss3-ucr3	268.08	6.23	167.92	4.86
s3w06-3016(18ths)-f1-ss4-ucr1	249.39	6.07	160.61	4.8
s3w06-3016(18ths)-f1-ss4-ucr2	253.72	7.19	252.13	6.41
s3w06-3016(18ths)-f1-ss4-ucr3	213.93	5.71	134.69	4.54
s3w06-3016(18ths)-f1-ss5-ucr1	254.04	6.21	173.73	4.99
s3w06-3016(18ths)-f1-ss5-ucr2	194.69	5.86	183.57	5.19
s3w06-3016(18ths)-f1-ss5-ucr3	196.08	6.17	163.35	5.31
s3w06-3016(18ths)-f1-ss6-ucr1	224.63	6.02	150.68	4.86
s3w06-3016(18ths)-f1-ss6-ucr2	221.71	6.06	139.74	4.81
s3w06-3016(18ths)-f1-ss6-ucr3	204.04	5.58	144.73	4.6
s3w06-3016(18ths)-f1-ss8-ucr1	169.03	5.02	111.28	4.11
s3w06-3016(18ths)-f1-ss8-ucr2	172.27	5.37	121.47	4.47
s3w06-3016(18ths)-f1-ss8-ucr3	182.04	5.21	113.64	4.18
s3w06-3016(18ths)-f1-ss12-ucr1	123.31	4.36	57.6	3.43
s3w06-3016(18ths)-f1-ss12-ucr2	141.56	4.45	69.59	3.48
s3w06-3016(18ths)-f1-ss12-ucr3	135.67	4.69	90.08	3.94
s3w06-3016(18ths)-f1-ss18-ucr1	31.88	3.04	28.27	3.1
s3w06-3016(18ths)-f1-ss18-ucr2	51.55	2.81	24.77	2.53
s3w06-3016(18ths)-f1-ss18-ucr3	101.68	3.64	36.93	2.83
s3w06-3016(18ths)-f1-ss24-ucr1	2.40	2.48	46.83	3.07
s3w06-3016(18ths)-f1-ss24-ucr2	3.63	2.97	77.52	3.64
s3w06-3016(18ths)-f1-ss24-ucr3	5.11	2.84	73.87	3.45
s3w06-3016(18ths)-f1-ss1-pcr1	438.22	8.99	476.12	8.2
s3w06-3016(18ths)-f1-ss1-pcr2	487.81	9.4	520.76	8.53
s3w06-3016(18ths)-f1-ss1-pcr3	409.31	8.67	481.11	8.11
s3w06-3016(18ths)-f1-ss2-pcr1	276.98	6.56	194.44	5.28
s3w06-3016(18ths)-f1-ss2-pcr2	248.65	6.29	200.87	5.29
s3w06-3016(18ths)-f1-ss2-pcr3	274.07	6.5	206.21	5.34

s3w06-301(18ths)-bt1-s-isr1	34.21	6.8	523.07	8.81
s3w06-3016(18ths)-bt1-s-isr2	41.67	6.82	510.36	8.74
s3w06-3016(18ths)-bt2-s-isr1	25.16	6.9	513.07	8.98
s3w06-3016(18ths)-bt2-s-isr2	33.10	6.52	472.55	8.35
s3w06-3016(18ths)-bt3-s-isr1	24.41	5.66	348.7	7.09
s3w06-3016(18ths)-bt4-s-isr1	68.50	6.08	303.87	7.08
s3w06-3016(18ths)-bt4-s-isr2	89.83	6.78	339.83	7.82
s3w06-3016(18ths)-pl5-s-isr1	16.26	4.85	260.49	6
s3w06-3016(18ths)-pl5-s-isr2	18.45	4.67	240.16	5.72
s3w06-3016(18ths)-pl6-s-isr1	326.57	7.87	343.62	7.1
s3w06-3016(18ths)-pl6-s-isr2	406.53	8.47	385.89	7.39
s3w06-3016(18ths)-pl7-s-isr1	46.34	4.94	243.88	5.79
s3w06-3016(18ths)-pl7-s-isr2	35.79	4.86	216.02	5.73
s3w06-3016(18ths)-pl8-s-isr1	12.35	5.07	276.73	6.34
s3w06-3016(18ths)-pl9-s-isr1	18.72	5.11	282.67	6.33
s3w06-3016(18ths)-b1-s-isr1	19.22	4.97	159.03	5.95
s3w06-3016(18ths)-b4-s-isr1	36.57	7.4	302.92	9.05
s3w06-3016(18ths)-b3-s-isr1	150.54	6.24	283.6	6.47
s3w06-3016(18ths)-b2-s-isr1	49.88	6.08	267.12	7.18
s3w06-3016(18ths)-b5-s-isr1	44.6	5.89	335.9	7.16
s3w06-3016(18ths)-b2-s-isr2	93.84	7.65	523.97	9.42
s3w06-3016(18ths)-b3-s-isr2	172.5	6.83	429.32	7.53
s3w06-3016(18ths)-b3-ss1-ucr1	457.52	8.52	323.32	6.71
s3w06-3016(18ths)-b3-ss1-ucr2	429.74	8.49	341.01	6.97
s3w06-3016(18ths)-b3-ss2-ucr1	295.42	7.26	322.38	6.62
s3w06-3016(18ths)-b3-ss3-ucr1	339.69	7.75	350.19	6.95
s3w06-3016(18ths)-b3-ss4-ucr1	316.42	7.49	334.66	6.76
s3w06-3016(18ths)-b3-ss5-ucr1	277.65	7.21	301.42	6.57
s3w06-3016(18ths)-b3-ss8-ucr1	147.57	5.22	176.15	4.92
s3w06-3016(18ths)-b3-ss8-ucr2	148.09	6.07	303.6	6.4
s3w06-3016(18ths)-b3-ss12-ucr1	105.18	5.35	220.28	5.63
s3w06-3016(18ths)-b3-ss18-ucr1	39.07	3.85	126.15	4.28
s3w06-3016(18ths)-b3-ss24-ucr1	15.51	2.28	15.82	2.53
s3w06-3016(18ths)-b3-ss24-ucr2	12.45	2.34	28.66	2.68

Front Yard Samples

Sample Location	S3W06-3016(18ths)-FC5-S-1(<60)	S3W06-3016(18ths)-FC5-S-1(<60)	S3W06-3016(18ths)-FC5-S-1(Bulk)	S3W06-3016(18ths)-FC5-S-1(Bulk	S3W06-3016(18ths)-FC5-S-1(<6	S3W06-3016(18ths)-FC5-S-1(10-6	S3W06-3016(18ths)-FC5-S-1(10-6	S3W06-3016(18ths)-FC5-S-1	S3W06-3016(18ths)-F1-S (<60)
Sample Location Information	Sample taken from 5 point composite collected at front yard locations F1 through F5. 24 increments of 20ml were collected from the 5 point composite bag, ground using a mortar and pestil, and sieved through 60 mesh. ICP sample was submitted from the first of 2 XRF cups collected from material passing through the 60 mesh. Replicate 1.	Sample taken from 5 point composite collected at front yard locations F1 through F5. 24 increments of 20ml were collected from the 5 point composite bag, ground using a mortar and pestil, and sieved through 60 mesh. ICP sample was submitted from the second of 2 XRF cups collected from material passing through the 60 mesh. Replicate 2.	Sample taken from 5 point composite collected at front yard locations F1 through F5. 24 increments of 20ml were collected from the 5 point composite bag and ground using a mortar and pestil. The sample was not sieved. ICP sample was submitted from the first of 2 XRF cups collected from the crushed and homogenized bulk material. Replicate 1.	Sample taken from 5 point composite collected at front yard locations F1 through F5. 24 increments of 20ml were collected from the 5 point composite bag and ground using a mortar and pestil. The sample was not sieved. ICP sample was submitted from the second of 2 XRF cups collected from the crushed and homogenized bulk material. Replicate 2.	Sample taken from 5 point composite collected at front yard locations F1 through F5. 24 increments of 20ml were collected from the 5 point composite bag and ground using a mortar and pestil. The material from sample CMC-ICP13 that passed through the 10 mesh but did not pass through the 60 mesh was ground with a mortar and pestil then seived through the 60 mesh. ICP sample was submitted from the XRF cup collected from the material that passed through the 60 mesh after a second crush/homogenization event.	Sample taken from 5 point composite collected at front yard locations F1 through F5. 24 increments of 20ml were collected from the 5 point composite bag and ground using a mortar and pestil. The material from the initial crush/seive of sample CMC-ICP13 that passed through the 10 mesh but did not pass through the 60 mesh was collected in an XRF cup and submitted for ICP analysis.	Sample taken from 5 point composite collected at front yard locations F1 through F5. 24 increments of 20ml were collected from the 5 point composite bag and ground using a mortar and pestil. The material from the second crush/seive of sample CMC-ICP13 that resulted in sample CMC-ICP 17 was passed through the 10 and 60 mesh sieves. Material that passed through the 10 mesh but did not pass through the 60 mesh was collected in an XRF cup and submitted for ICP analysis.	The entire remaining 5 point composite archived bag (approximately 100 grams) collected at front yard locations F1 through F5 was submitted to the laboratory. The laboratory was instructed to collect a subsample from the bag and conduct ICP analysis. The sample was not crushed or sieved and is the result of a subsample from the bulk material.	Sample taken from discrete front yard surface soil location F1. 12 increments of 20ml were collected from the archived sample bag and ground using a mortar and pestil and passed through 10 and 60 mesh seives. ICP sample was submitted from the XRF cup collected from the material that passed through both the 10 and 60 mesh seives.
Sample No.	CMC-ICP13	CMC-ICP14	CMC-ICP15	CMC-ICP16	CMC-ICP17	CMC-ICP18	CMC-ICP19	CMC-ICP20	CMC-ICP29
Location	CMC	CMC	CMC	CMC	CMC	CMC	CMC	CMC	CMC

Analyte	Analytical Method	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg
Aluminum	ICAP	11500	19.2	11700	18.9	9190	18.9	9220	18.9	13600	19.2	4650	19.2	4920	18.9	8110	19.2	11500	19.0
Antimony	ICAP	U	1.35	U	1.32	U	1.32	U	1.32	U	1.35	U	1.35	U	1.32	U	1.35	1.83	1.33
Arsenic	ICAP	186	1.44	170	1.42	102	1.42	119	1.42	121	1.44	42.9	1.44	40.6	1.42	97.9	1.44	384	1.43
Barium	ICAP	201	0.385	204	0.377	159	0.377	159	0.377	235	0.385	101	0.385	117	0.377	136	0.385	172	0.381
Beryllium	ICAP	0.556	0.288	0.553	0.283	0.434	0.283	0.43	0.283	0.626	0.288	U	0.288	U	0.283	0.384	0.288	0.55	0.286
Cadmium	ICAP	1.04	0.385	1.02	0.377	0.803	0.377	0.78	0.377	1.15	0.385	0.474	0.385	0.552	0.377	0.646	0.385	1.19	0.381
Calcium	ICAP	6280	9.52	6360	9.34	4880	9.34	4720	9.34	8820	9.52	2340	9.52	2680	9.34	7070	9.52	7070	9.43
Chromium	ICAP	24.6	0.481	29.4	0.472	17.9	0.472	18.8	0.472	27.7	0.481	9.10	0.481	11.9	0.472	16.9	0.481	31.8	0.476
Cobalt	ICAP	6.67	0.385	6.71	0.377	5.76	0.377	5.59	0.377	7.50	0.385	3.52	0.385	4.09	0.377	5.14	0.385	6.51	0.381
Copper	ICAP	26.7	0.385	26.3	0.377	19.2	0.377	19	0.377	29.0	0.385	8.76	0.385	8.83	0.377	18.2	0.385	28.9	0.381
Iron	ICAP	14600	14.4	14800	14.2	12700	14.2	12400	14.2	16600	14.4	7950	14.4	8940	14.2	11500	14.4	14700	14.3
Lead	ICAP	443	0.962	444	0.943	341	0.943	351	0.943	539	0.962	186	0.962	163	0.943	286	0.962	345	0.952
Magnesium	ICAP	2360	19.2	2390	18.9	1990	18.9	1990	18.9	2740	19.2	1070	19.2	1430	18.9	2010	19.2	2480	19.0
Manganese	ICAP	731	0.385	730	0.377	632	0.377	629	0.377	853	0.385	569	0.385	800	0.377	552	0.385	721	0.381
Nickel	ICAP	15.3	0.577	17.3	0.566	11.9	0.566	11.4	0.566	16.6	0.577	6.67	0.577	9.28	0.566	10.3	0.577	16.5	0.571
Potassium	ICAP	1330	24.0	1360	23.6	1060	23.6	1060	23.6	1510	24	563	24.0	525	23.6	946	24.0	1280	23.8
Selenium	ICAP	U	1.25	U	1.23	U	1.23	U	1.23	1.30	1.25	U	1.25	U	1.23	U	1.25	1.37	1.24
Silver	ICAP	U	0.481	U	0.472	U	0.472	U	0.472	U	0.481	U	0.481	U	0.472	U	0.481	U	0.476
Sodium	ICAP	U	96.2	U	94.3	U	94.3	U	94.3	U	96.2	U	96.2	U	94.3	U	96.2	U	95.2
Thallium	ICAP	U	1.63	U	1.6	U	1.60	U	1.60	U	1.63	U	1.63	U	1.60	U	1.63	U	1.62
Vanadium	ICAP	27.1	0.385	27.5	0.377	23.2	0.377	23.4	0.377	31.6	0.385	14.6	0.385	14.7	0.377	21	0.385	27.2	0.381
Zinc	ICAP	296	J 2.21	296	J 2.17	239	J 2.17	236 J	2.17	355 J	2.21	142 J	2.21	140 J	2.17	200 J	2.21	188 J	2.19

Property Line and Back Yard Samples

Sample Location	S3W06-3016(18ths)-PL5-S	S3W06-3016(18ths)-PL5-S	S3W06-3016(18ths)-PL5-S	S3W06-3016(18ths)-B3-SS(1-5)
Sample Location Information	Sample taken from discrete surface soil location PL5 (front yard property boundary with 3014 18th Ave) and archived in a jar. Entire jar contents were crushed and passed through a 10 mesh sieve. ICP sample was submitted from the first of 3 XRF cups. Replicate 1.	Sample taken from discrete surface soil location PL5 (front yard property boundary with 3014 18th Ave) and archived in a jar. Entire jar contents were crushed and passed through a 10 mesh sieve. ICP sample was submitted from the second of 3 XRF cups. Replicate 2.	Sample taken from discrete surface soil location PL5 (front yard property boundary with 3014 18th Ave) and archived in a jar. Entire jar contents were crushed and passed through a 10 mesh sieve. ICP sample was submitted from the third of 3 XRF cups. Replicate 3	Sample taken from subsurface soil 1-5' deep at location B3 (back yard center location) and archived in a jar. Entire jar contents were crushed in a stainless steel pan and passed through a 10 mesh sieve. XRF cups were prepared using material that passed through the 10 mesh sieve. ICP sample was submitted from the XRF cup.
Sample No.	CMC-ICP22	CMC-ICP23	CMC-ICP24	CMC-ICP25
Location	CMC	CMC	CMC	CMC

Analyte	Analytical Method	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg	Result mg/kg	RL mg/kg
Aluminum	ICAP	8140	18.9	7720	18.5	8040	19.2	7470	18.5
Antimony	ICAP	U	1.32	U	1.30	U	1.35	1.54	1.30
Arsenic	ICAP	9.57	1.42	8.28	1.39	8.64	1.44	384	1.39
Barium	ICAP	139	0.377	123	0.370	131	0.385	148	0.370
Beryllium	ICAP	0.400	0.283	0.386	0.278	0.436	0.288	0.424	0.278
Cadmium	ICAP	0.791	0.377	0.74	0.370	0.751	0.385	1.05	0.370
Calcium	ICAP	5990	9.34	8080	9.17	5300	9.52	4580	9.17
Chromium	ICAP	23.9	0.472	22.8	0.463	24.0	0.481	17.4	0.463
Cobalt	ICAP	6.06	0.377	5.07	0.370	5.20	0.385	5.07	0.370
Copper	ICAP	23.9	0.377	21.7	0.370	22.1	0.385	36.1	0.370
Iron	ICAP	11600	14.2	11700	13.9	12000	14.4	12100	13.9
Lead	ICAP	206	0.943	198	0.926	198	0.962	295	0.926
Magnesium	ICAP	2230	18.9	3900	18.5	2010	19.2	2070	18.5
Manganese	ICAP	563	0.377	525	0.370	521	0.385	537	0.370
Nickel	ICAP	13.1	0.566	11.2	0.556	11.5	0.577	12.3	0.556
Potassium	ICAP	913	23.6	903	23.1	1030	24.0	904	23.1
Selenium	ICAP	U	1.23	U	1.20	U	1.25	U	1.20
Silver	ICAP	U	0.472	U	0.463	U	0.481	U	0.463
Sodium	ICAP	140	94.3	121	92.6	123	96.2	162	92.6
Thallium	ICAP	U	1.60	U	1.57	U	1.63	U	1.57
Vanadium	ICAP	20.2	0.377	21.1	0.370	21.1	0.385	20.9	0.370
Zinc	ICAP	191 J	2.17	182 J	2.13	187 J	2.21	200 J	2.13

RL denotes Reporting Limit
U denotes Not Detected
J denotes Estimated Result

Client ID	CMC-OCPEST 3	CMC-OCPEST 4
Location	CMC	CMC
Sample Location	S3W06-3016(18ths)-FC5-S-1	S3W06-3016(18ths)-B3-SS1-5
Sample Location Information	The entire remaining 5 point composite archived bag (approximately 100 grams) collected at front yard locations F1 through F5 was submitted to the laboratory. The laboratory was instructed to collect a subsample (apprximately 30 grams) from the bag and conduct analysis for organochlorine pesticides. The sample was not crushed or sieved and is the result of a subsample from the bulk material.	Sample was collected from back yard location B3 at a depth of 1-5" in a 4 oz jar and submitted for analysis for organochlorine pesticides.
Percent Solid	94	89

Analyte	Conc. µg/kg		RL µg/kg	Conc. µg/kg		RL µg/kg
a-BHC	U	R	7.09	U	R	7.49
g-BHC	U	R	7.09	U	R	7.49
b-BHC	U	R	7.09	U	R	7.49
d-BHC	U	R	7.09	U	R	7.49
HEPTACHLOR	U	R	7.09	U	R	187
ALDRIN	U	R	7.09	U	R	7.49
HEPTACHLOR EPOXIDE	U	R	7.09	47.8	J	7.49
g-CHLORDANE	U	R	7.09	1190		187
a-CHLORDANE	U	R	7.09	1280		187
ENDOSULFAN (I)	U	R	7.09	U	R	7.49
p,p'-D D E	45.7	J	7.09	157	J	7.49
DIELDRIN	U	R	7.09	U	R	7.49
ENDRIN	U	R	7.09	U	R	187
p,p'-D D D	5.28	J	7.09	134	J	7.49
ENDOSULFAN (II)	U	R	7.09	32.5	J	7.49
ENDRIN ALDEHYDE	U	R	7.09	4.8	J	7.49
p,p'-D D T	35		7.09	452	J	187
ENDOSULFAN SULFATE	U	R	7.09	U	R	7.49
METHOXYCHLOR	U	R	7.09	U	R	187
ENDRIN KETONE	U	R	7.09	U	R	187

Results based on dry weight
RL denotes Reporting Limit
U denotes Not Detected
J denotes Estimated Result
R denotes Unuseable Result

Appendix A-3

Surface Soil Sampling Technical Memorandum

Surface Soil Sampling

South Minneapolis Soil Contamination Site, Minneapolis, MN
WA No. 016-RICO-B5BY, Contract No. EP-S5-06-01

PREPARED FOR: USEPA

PREPARED BY: CH2M HILL

DATE: October 23, 2006

Introduction

This memorandum documents the activities associated with the surface soil sampling conducted as part of the remedial investigation (RI) at the South Minneapolis Neighborhood Residential Soil Contamination Site (SMNRSCS) in Minneapolis, Minnesota. Surface soil sampling activities were performed at residential properties and schools and parks within approximately a ¾-mile radius from the former CMC Heartland Site located at 28th Street E and Hiawatha Avenue.

The surface soil sampling activities included the collection of composite surface soil (0 to 3-inch) samples from yards and gardens at residential properties. Surface soil samples were also collected from grassy areas at schools and parks within the SMNRSCS. The surface soil sampling was targeted to sample 100% of the residential properties and schools and parks within the SMNRSCS that were not sampled during previous investigations.

This memorandum provides a:

- Description of field activities performed, including locations, methods, and deviations from the site-specific project plans
- Photographic documentation of sampling activities (Attachment 1)
- A summary of sample locations and results (Attachment 2)

Objectives

The objectives of the surface soil investigation were to:

- Collect surface soil samples from the front and back yards (or other areas potentially used by the resident) for total arsenic analysis
- Identify properties where arsenic concentrations create an immediate health risk (>95 ppm)
- Define the horizontal extents of arsenic in surface soil
- Determine the locations for geoprobe borings

Sampling Activities

The surface soil sampling was conducted by CH2M HILL and subcontractor Ecology & Environment (E&E) from May 15, 2006 to June 17, 2006 in accordance with the *Field Sampling Plan* (CH2M HILL 2006). Three properties were resampled on August 16, 2006 due to missing samples. The surface soil sampling locations and procedures are discussed in the following sections.

Locations

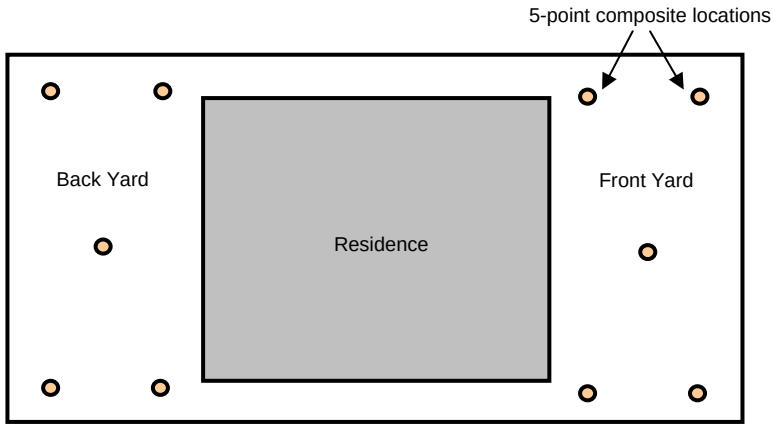
Surface soil samples had been collected from some properties within the SMNRSCS during previous investigations. These properties were resampled during this investigation if only one sample was previously collected from that property. All previously unsampled residential properties, schools, daycares and parks within the SMNRSCS were sampled if access and site conditions allowed. The boundary of the surface soil sampling investigation was created using the aerial dispersion model generated by the USEPA FIELDs group.

Surface soil samples were collected from a total of 2,902 properties in the SMNRSCS during this 2006 sampling event. Sample locations are shown in Figure 1. Access to sample the properties was obtained by the Minnesota Department of Agriculture (MDA) during the sampling activities. The MDA spoke with residents (if present) prior to CH2M HILL and E&E sampling at the property or the MDA left a notice in the door. Notification of the sampling event was also mailed to the property owners or residents prior to the sampling. Properties were excluded from the sampling if the resident or owner notified the USEPA prior to the sampling event or the MDA the day of the sampling that they did not want to be included in this investigation. Access was denied for 132 properties.

Sampling Procedures

Surface soil samples were collected using a 5-on-dice composite pattern with the general layout shown in Figure 2. Actual sample locations were dependant upon the layout of the property taking into consideration the location of the house within the property, physical barriers, presence of (potentially) treated lumber, and other variables. Individual composite samples were collected from separate areas of the property with front and back yard samples collected wherever possible. In addition, side yard and gardens were sampled depending on the size. For larger properties, such as parks or schools, the property was broken into subareas and composite samples were collected from each subarea.

FIGURE 2
General Soil Sampling Layout in Residential Properties



At each discrete composite point, the grass (if present) was lifted and a surface soil was collected from the 0 to 3-inch depth interval using a 2-oz sterile disposable plastic scoop. The soil was placed in a plastic bag where is was composited with the other discrete locations and homogenized by rotating the bag fifteen turns. After homogenization, the composited sample was transferred to a 4-oz soil jar and labeled. Excess soil was placed back at one of the composite points. All sampling equipment used for the collection and homogenization of the soil samples was disposable and did not

require decontamination. Solid waste, including used disposable PPE (e.g., gloves), disposable sampling equipment (e.g., scoops, plastic bags), paper, broken or unused sample containers, and other solids were disposed of in solid waste receptacles.

The coordinates (northing and easting) of the center of the 5-point composite were measured using a Garmin GPSMAP® 76CS handheld GPS unit. The coordinates were stored in the GPS unit and recorded on the field data sheet. Observations during sampling activities, including the property layout, location of treated lumber, and recent landscaping were also noted on the field data sheets.

A total of 6,460 samples were collected, including 278 field duplicate and 277 field replicate samples. A total of 343 matrix spike/matrix spike duplicate (MS/MSD) samples were collected for quality assurance and quality control (QA/QC). Samples were submitted to a total of four laboratories in USEPA's Contract Laboratory Program (CLP) and analyzed for total arsenic.

A summary of the samples collected and the laboratory analytical results is provided in Attachment 2.

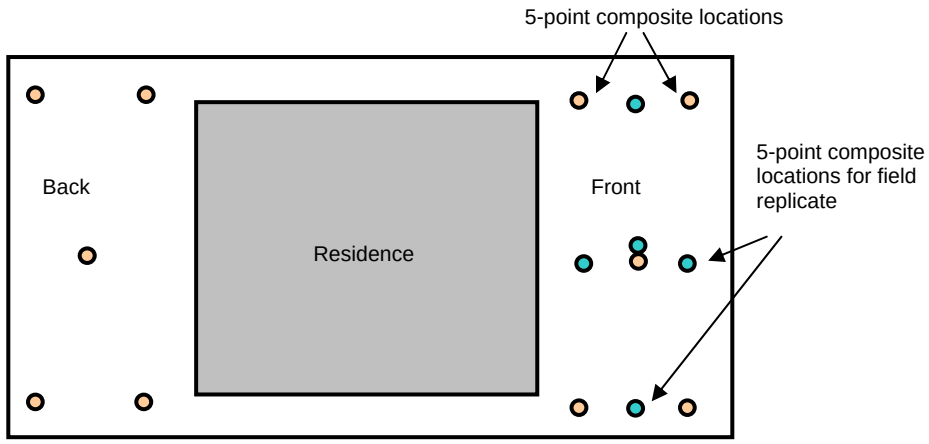
Field Quality Assurance/Quality Control Samples

Field QC samples were collected throughout the sampling effort to determine the accuracy and precision of the analytical results. Field duplicates and field replicates were collected at a frequency of 5% each, for a combined total of 10%. Matrix spike and matrix spike duplicates were collected at a frequency of 5%.

Field duplicates were collected to measure the heterogeneity of the sample matrix and the precision of the field sampling and analytical process. To collect field duplicate sample, an additional 4-oz soil jar was collected from the same composite sample as the parent sample after the homogenization was complete. The sample jar was labeled with the same sample ID with the addition of a "D" at the end of the sample ID to designate the sample was a duplicate.

Field replicates provide a measure of variability within properties. Replicate samples were collected using the same 5-on-dice configuration, but the configuration was rotated 45° to allow different composite locations to be used (Figure 3). The same sample collection and homogenization procedures were followed for the replicate samples. The sample jar was labeled with the same sample ID as the parent sample with the addition of an "R" at the end of the sample ID to designate the sample was a replicate.

FIGURE 3
General Soil Sampling Layout with Replicate Sample in Residential Properties



MS/MSD samples are used by the laboratories to assess the precision and accuracy of sample analysis. Sample volumes for MS/MSDs were taken from the same sample container as the parent sample.

Equipment blanks were collected to show that no contamination of samples occurred from the sampling equipment. Equipment blanks were collected at a rate of one sample per case of 100 soil sampling scoops. To prepare the equipment blanks, analyte-free distilled and deionized water was poured directly over a clean, unused 2-oz plastic scoop into a plastic bag. The bag was rotated 15 times to simulate the methods used during soil sample homogenization, and the water was then poured into a 1-L poly bottle with nitric acid (HNO_3) preservative.

Field blanks were collected to evaluate ambient environmental conditions and were collected at a rate of 1 field blank per week while surface soil sampling was being performed. To prepare the field blanks, analyte-free distilled and deionized water was poured directly into a 1-L poly bottle with nitric acid (HNO3) preservative.

Deviations from Field Sampling Plan

The surface soil sampling was performed in accordance with the Field Sampling Plan with the following modifications made in the field.

Deviations to the FSP relative to sample collection are as follows:

- During an EPA site audit performed on May 31, 2006, it was identified that sample homogenization was not performed using the same technique by different sampling teams. As a result, all sampling teams were instructed to homogenize by rotating the plastic bag with the composite sample a total of 15 turns.

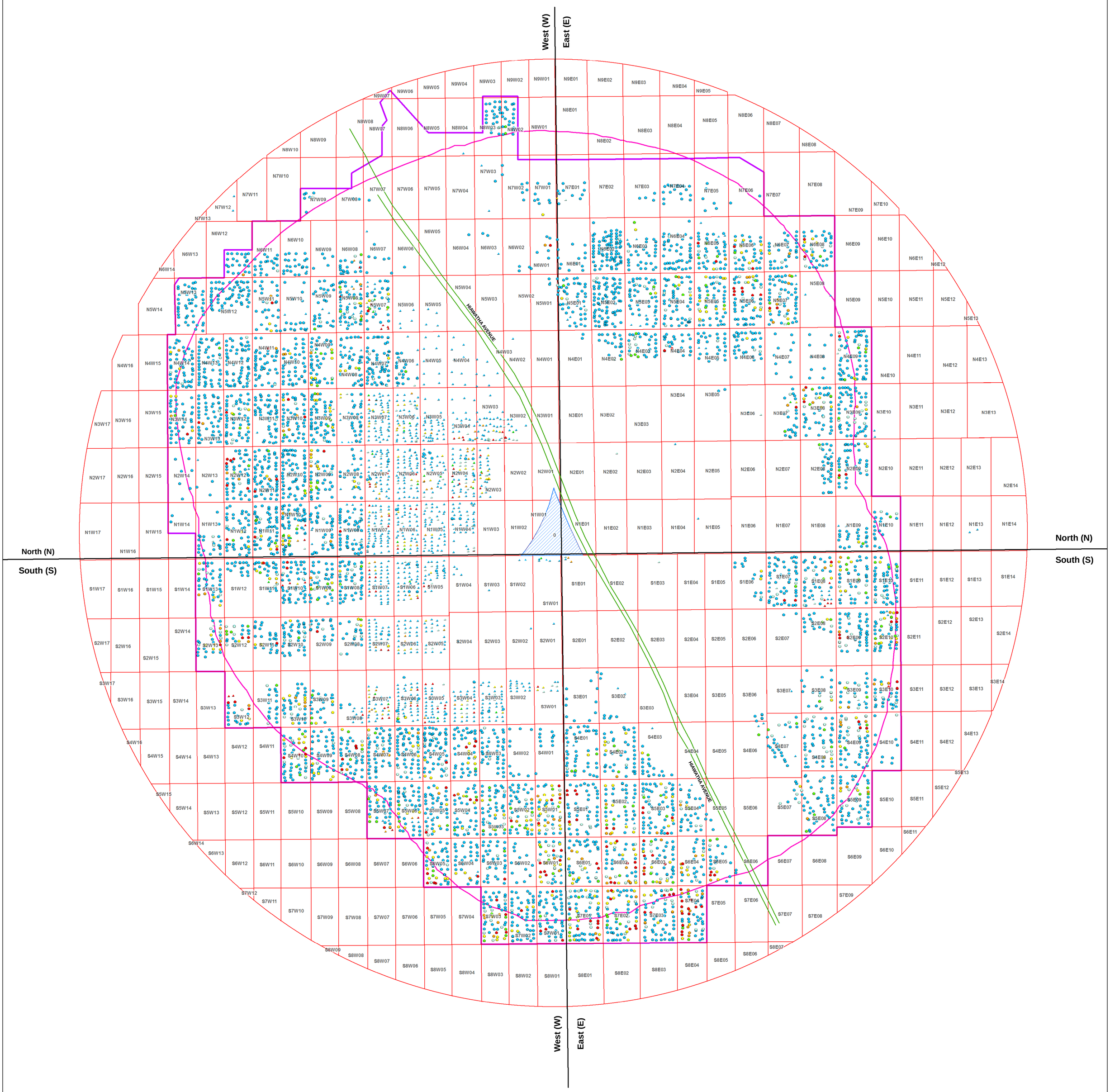
Deviations to the FSP relative to sample naming conventions are as follows:

- The properties to be sampled had various sizes and layouts of properties. As a result, the naming convention provided in the FSP of using designations of F, B, or G (for front, back and garden respectively) was not always able to identify all of the samples from the properties. A designation of S for side was added where large side yards were sampled and directional designations (i.e., N for North, SW for Southwest, etc) were also added to accommodate the various sample configurations. These sample designations were recorded on the field data sheets and the locations were shown in the property sketch for reference.

Reference

CH2M HILL. 2006. Field Sampling Plan, South Minneapolis Neighborhood Residential Soil Contamination Site, Minneapolis, Minnesota. April 2006.

Figures



Legend

Sample Type

- Current Sampling Events
- Historic Sampling Events

Samples with Results (mg/kg)

- 0 - 10.0 (ppm)
- 10.0 - 20.0 (ppm)
- 20.0 - 30.0 (ppm)
- 30.0 - 60.0 (ppm)
- 60.0 - 95.0 (ppm)
- > 95.0 (ppm)

Arsenic Dispersion Boundary above 10 ppm

- Revised 2006 Residential Soil Sample Boundary
- Arsenic Dispersion Boundary

N

0 400 800

Feet

Figure 1
Sample Result Analysis
South Minneapolis Site
Minneapolis, MN

CH2MHILL

File Path: E:\EPA\336752-South_Minneapolis\MXDs\CMC_Historic_and_Current_Results_for_Public.mxd, Date: October 16, 2006 4:35:46 PM, User: JHANSEN1

Attachment 1

Photographic Documentation Log

Figure 1: Typical surface soil sampling equipment

Figure 2: Collection of discrete soil sample location (first discrete location).

Figure 3: Collection of additional discrete soil sample location prior to homogenization.

Figures 4 and 5: Typical composite sample homogenization. Soil was placed in the bag from 5 discrete sample locations and homogenized by rotating the bag 15 turns.

PROPERTY ID *STREET ADDRESS*

(Sketch property)

Front Yard

Sample ID_____ Sample Date/Time _____

5-Point Composite Center Coordinates N _____ E_____

Back Yard

Sample ID_____ Sample Date/Time _____

5-Point Composite Center Coordinates N _____ E_____

Observations

Treated lumber observed? ☐ No ☐ Yes *(show on sketch)*

Garden present? ☐ No ☐ Yes *(show on sketch)*

Signs of newer construction or landscaping activities? ☐ No ☐ Yes *(show on sketch)*

Sample Team _____ _____

Figure 6: Sample data sheet.

Attachment 2

Sampling Location and Results Summary

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N1E09-05B-SS	481943.0264	4977721.477	6/2/2006	3.5	J	MG/KG
N1E09-05F-SS	481973.2747	4977725.094	6/2/2006	3.6	J	MG/KG
N1E09-06B-SS	481939.051	4977710.38	6/2/2006	2.5	J	MG/KG
N1E09-06F-SS	481970.9454	4977711.601	6/2/2006	5.8	J	MG/KG
N1E09-07B-SS	481942.9636	4977699.26	6/2/2006	5.4	J-	MG/KG
N1E09-07F-SS	481973.1964	4977697.323	6/2/2006	3.4	J	MG/KG
N1E09-08B-SS	481941.6181	4977688.155	6/2/2006	9.4		MG/KG
N1E09-08F-SS	481971.8658	4977691.772	6/2/2006	5.5	J	MG/KG
N1E09-09B-SS	481944.2159	4977677.039	6/2/2006	49.8		MG/KG
N1E09-09F-SS	481970.0421	4977676.663	6/2/2006	6.7		MG/KG
N1E09-09S-SS	481958.6614	4977671.444	6/2/2006	22.8		MG/KG
N1E09-10B-SS	481953.3771	4977662.202	6/2/2006	9	J-	MG/KG
N1E09-10F-SS	481973.0036	4977662.264	6/2/2006	5	J	MG/KG
N1E09-10F-SSD	481973.0073	4977662.569	6/2/2006	5.5	J	MG/KG
N1E09-11B-SS	481909.9874	4977660.473	6/2/2006	7.9	J-	MG/KG
N1E09-11F-SS	481878.435	4977660.562	6/2/2006	6.4		MG/KG
N1E09-11S-SS	481892.8858	4977656.818	6/2/2006	6		MG/KG
N1E09-13B-SS	481903.492	4977688.263	6/2/2006	7		MG/KG
N1E09-13F-SS	481873.2442	4977684.646	6/2/2006	4.5	J	MG/KG
N1E09-13F-SSR	481873.248	4977684.951	6/2/2006	6.4	J-	MG/KG
N1E09-14B-SS	481906.1741	4977696.79	6/2/2006	3.5	J	MG/KG
N1E09-14F-SS	481876.6124	4977697.54	6/2/2006	4.2	J	MG/KG
N1E09-15B-SS	481908.5566	4977706.129	6/2/2006	4	J	MG/KG
N1E09-15F-SS	481875.931	4977705.004	6/2/2006	5.2	J	MG/KG
N1E09-16B-SS	481902.2564	4977716.038	6/2/2006	9.8	J	MG/KG
N1E09-16F-SS	481877.2827	4977717.961	6/2/2006	5.5	J	MG/KG
N1E10-03B-SS	482079.908	4977776.636	6/2/2006	10.6		MG/KG
N1E10-03F-SS	482045.3564	4977775.821	6/2/2006	4.7	J	MG/KG
N1E10-04B-SS	482057.5272	4977765.59	6/2/2006	21.9		MG/KG
N1E10-04F-SS	482079.8613	4977759.973	6/2/2006	9.1		MG/KG
N1E10-07B-SS	482017.7803	4977656.466	6/2/2006	6.8		MG/KG
N1E10-07B-SSR	482017.784	4977656.771	6/2/2006	6	J	MG/KG
N1E10-07F-SS	482001.4071	4977662.01	6/2/2006	6.6		MG/KG
N1E10-09B-SS	482002.1031	4977691.687	6/2/2006	3.6	J	MG/KG
N1E10-09F-SS	482002.473	4977686.935	6/2/2006	2.6	J-	MG/KG
N1E10-10B-SS	482029.7425	4977702.718	6/2/2006	3.6	J	MG/KG
N1E10-10F-SS	481999.5105	4977704.655	6/2/2006	2.8	J	MG/KG
N1E10-11B-SS	482019.2618	4977715.708	6/2/2006	4.6	J	MG/KG
N1E10-11F-SS	482002.3138	4977717.593	6/2/2006	4.2	J	MG/KG
N1E10-11F-SSD	482002.3175	4977717.897	6/2/2006	4	J	MG/KG
N1E10-12B-SS	482035.2204	4977735.112	6/2/2006	5.5		MG/KG
N1E10-12F-SS	482000.7012	4977732.292	6/2/2006	5.4		MG/KG
N1E10-13B-SS	482021.9845	4977749.027	6/2/2006	5.2	J	MG/KG
N1E10-13F-SS	482002.2646	4977749.082	6/2/2006	3.9	J	MG/KG
N1E10-14B-SS	482024.6456	4977760.128	6/2/2006	6.2		MG/KG
N1E10-14F-SS	482004.9361	4977763.886	6/2/2006	6.7		MG/KG
N1E10-15B-SS	482024.7132	4977784.197	6/2/2006	11		MG/KG
N1E10-15F-SS	482002.3583	4977782.408	6/2/2006	3.3	J	MG/KG
N1W04-20B-SS	480527.7246	4977777.47	5/16/2006	1.6	J-	MG/KG
N1W04-20F-SS	480499.2404	4977777.557	5/16/2006	3.8	J	MG/KG
N1W04-20F-SSD	480499.2311	4977777.789	5/16/2006	3.7	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N1W06-27F-SS	480301.2052	4977812.398	5/16/2006	5.2	J-	MG/KG
N1W07-17B-SS	480218.4839	4977682.76	5/16/2006	3	J-	MG/KG
N1W07-17F-SS	480198.7637	4977682.821	5/16/2006	2.8	J-	MG/KG
N1W08-03B-SS	480153.162	4977815.65	5/15/2006	3.1	J	MG/KG
N1W08-03F-SS	480177.2539	4977812.489	5/15/2006	3.4	J	MG/KG
N1W08-06B-SS	480155.2192	4977772.443	5/15/2006	5.8	J	MG/KG
N1W08-06F-SS	480177.1362	4977777.526	5/15/2006	4.3	J	MG/KG
N1W08-06SB-SS	480161.7731	4977766.252	5/15/2006	3.6	J	MG/KG
N1W08-06SF-SS	480170.5565	4977772.395	5/15/2006	5.1	J	MG/KG
N1W08-07F-SS	480166.0982	4977747.723	5/15/2006	2.6	J	MG/KG
N1W08-07SB-SS	480152.9896	4977760.107	5/15/2006	2.4	J	MG/KG
N1W08-07SF-SS	480166.1174	4977753.894	5/15/2006	3.9	J	MG/KG
N1W08-08B-SS	480152.9322	4977741.592	5/15/2006	4.8	J	MG/KG
N1W08-08F-SS	480176.6685	4977740.504	5/15/2006	4.4	J	MG/KG
N1W08-08S-SS	480161.6965	4977741.565	5/15/2006	6.1	J	MG/KG
N1W08-12B-SS	480144.0146	4977692.248	5/15/2006	3.6	J	MG/KG
N1W08-12F-SS	480174.6809	4977689.067	5/15/2006	4	J	MG/KG
N1W08-12S-SS	480157.1608	4977692.207	5/15/2006	4.3	J	MG/KG
N1W08-13B-SS	480146.1484	4977673.727	5/15/2006	5.7	J	MG/KG
N1W08-13B-SSD	480146.1638	4977673.983	5/15/2006	4.5	J	MG/KG
N1W08-13F-SS	480176.8427	4977679.803	5/15/2006	5	J	MG/KG
N1W08-13S-SS	480168.0591	4977673.659	5/15/2006	8		MG/KG
N1W08-14B-SS	480152.6737	4977658.277	5/15/2006	3.8	J	MG/KG
N1W08-14B-SSD	480152.6643	4977658.51	5/15/2006	4	J	MG/KG
N1W08-14F-SS	480174.5948	4977661.295	5/15/2006	4.3	J	MG/KG
N1W08-14S-SS	480163.6295	4977658.243	5/15/2006	3.8	J	MG/KG
N1W08-16B-SS	480126.4474	4977679.96	5/15/2006	3	J	MG/KG
N1W08-16B-SSR	480126.4571	4977680.284	5/15/2006	3.4	J	MG/KG
N1W08-16F-SS	480099.8413	4977674.173	5/15/2006	5.9	J	MG/KG
N1W08-17B-SS	480124.2753	4977686.137	5/15/2006	5.7	J	MG/KG
N1W08-17F-SS	480100.1821	4977689.298	5/15/2006	5.6	J	MG/KG
N1W08-18B-SS	480124.3136	4977698.48	5/15/2006	5.1	J	MG/KG
N1W08-18F-SS	480100.0745	4977699.558	5/15/2006	4.7	J	MG/KG
N1W08-19B-SS	480126.1086	4977712.052	5/15/2006	9.5		MG/KG
N1W08-19F-SS	480100.6512	4977712.103	5/15/2006	3.9	J	MG/KG
N1W08-20B-SS	480126.572	4977720.074	5/15/2006	2.9	J	MG/KG
N1W08-20F-SS	480100.0116	4977724.907	5/15/2006	4.1	J	MG/KG
N1W08-21B-SS	480133.8839	4977737.819	5/15/2006	7.5		MG/KG
N1W08-21F-SS	480100.5189	4977737.967	5/15/2006	131		MG/KG
N1W08-23B-SS	480131.088	4977763.261	5/15/2006	5.5	J	MG/KG
N1W08-23F-SS	480100.6024	4977767.803	5/15/2006	4.5	J	MG/KG
N1W08-23S-SS	480116.9372	4977772.402	5/15/2006	3.9	J	MG/KG
N1W08-24B-SS	480122.3621	4977775.631	5/15/2006	6.1	J	MG/KG
N1W08-24F-SS	480100.4605	4977778.785	5/15/2006	6.8	J	MG/KG
N1W08-25B-SS	480135.1729	4977785.699	5/15/2006	4.8	J	MG/KG
N1W08-25F-SS	480100.456	4977786.344	5/15/2006	6.3	J	MG/KG
N1W08-26F-SS	480100.5085	4977794.214	5/15/2006	6.3		MG/KG
N1W08-26F-SSR	480100.5179	4977794.516	5/15/2006	2.9	J	MG/KG
N1W08-27B-SS	480129.0369	4977808.319	5/15/2006	4.1	J	MG/KG
N1W08-27F-SS	480101.3946	4977806.495	5/15/2006	4.4	J	MG/KG
N1W08-28F-SS	480102.7669	4977815.807	5/15/2006	2.4	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N1W09-01F-SS	480029.4909	4977828.912	5/15/2006	3.6	J	MG/KG
N1W09-01S-SS	480016.3249	4977822.782	5/15/2006	6.4		MG/KG
N1W09-03B-SS	480021.1834	4977791.992	5/15/2006	2.9	J	MG/KG
N1W09-03F-SS	480065.8817	4977791.853	5/15/2006	3.4	J	MG/KG
N1W09-04B-SS	480042.0485	4977783.953	5/15/2006	10.9		MG/KG
N1W09-04F-SS	480074.1772	4977781.952	5/15/2006	6.5		MG/KG
N1W09-05B-SS	480053.9806	4977769.672	5/15/2006	5.3	J	MG/KG
N1W09-05F-SS	480073.712	4977773.314	5/15/2006	4.4	J	MG/KG
N1W09-05S-SS	480069.7507	4977767.772	5/15/2006	4.6	J	MG/KG
N1W09-06B-SS	480069.6793	4977744.937	5/15/2006	3	J	MG/KG
N1W09-06F-SS	480072.5728	4977757.325	5/15/2006	2.8	J	MG/KG
N1W09-07B-SS	480047.7111	4977726.491	5/15/2006	3.3	J	MG/KG
N1W09-07F-SS	480071.8129	4977726.415	5/15/2006	3.3	J	MG/KG
N1W09-08B-SS	480041.1083	4977717.254	5/15/2006	3.2	J	MG/KG
N1W09-08F-SS	480071.7841	4977717.159	5/15/2006	4.1	J	MG/KG
N1W09-09B-SS	480048.5025	4977699.334	5/15/2006	12.1		MG/KG
N1W09-09F-SS	480066.9195	4977702.979	5/15/2006	82.7		MG/KG
N1W09-10B-SS	480039.3783	4977689.304	5/15/2006	2.9	J	MG/KG
N1W09-10C-SS	480067.3253	4977692.487	5/15/2006	4.7	J	MG/KG
N1W09-10F-SS	480069.5062	4977689.394	5/15/2006	4.2	J	MG/KG
N1W09-11B-SS	480038.7919	4977677.147	5/15/2006	3.5	J	MG/KG
N1W09-11F-SS	480073.86	4977680.123	5/15/2006	4.3	J	MG/KG
N1W09-11S-SS	480056.3119	4977674.006	5/15/2006	4.4	J	MG/KG
N1W09-13B-SS	480015.5199	4977662.408	5/15/2006	2.7	J-	MG/KG
N1W09-13F-SS	480001.0191	4977658.69	5/15/2006	2.6	J-	MG/KG
N1W09-13S-SS	480008.9523	4977664.28	5/15/2006	2.4	J-	MG/KG
N1W09-15B-SS	480018.4848	4977769.783	5/15/2006	2.7	J-	MG/KG
N1W09-15F-SS	480000.0853	4977771.692	5/15/2006	1.7	J-	MG/KG
N1W09-16B-SS	480017.1896	4977775.959	5/15/2006	3.1	J-	MG/KG
N1W09-16F-SS	479995.2978	4977782.198	5/15/2006	4	J-	MG/KG
N1W09-17B-SS	480021.6099	4977788.288	5/15/2006	2.9	J-	MG/KG
N1W09-17F-SS	479995.3364	4977794.542	5/15/2006	3.5	J-	MG/KG
N1W09-18B-SS	480021.6581	4977803.717	5/15/2006	6.8	U	MG/KG
N1W09-18F-SS	479997.5469	4977800.706	5/15/2006	6.6	U	MG/KG
N1W10-01B-SS	479920.9551	4977831.804	5/16/2006	4.5	J	MG/KG
N1W10-01F-SS	479897.5525	4977828.745	5/16/2006	5.2	J	MG/KG
N1W10-01F-SSD	479897.527	4977828.941	5/16/2006	6	J	MG/KG
N1W10-01S-SS	479903.4266	4977831.859	5/16/2006	5.1	J	MG/KG
N1W10-02B-SS	479940.6264	4977816.313	5/16/2006	7.2	U	MG/KG
N1W10-02F-SS	479973.4929	4977816.21	5/16/2006	1.5	J-	MG/KG
N1W10-02SN-SS	479961.0431	4977832.393	5/16/2006	1.7	J-	MG/KG
N1W10-02SS-SS	479951.5916	4977819.365	5/16/2006	1.7	J-	MG/KG
N1W10-03B-SS	479949.3721	4977810.114	5/16/2006	4.7	J	MG/KG
N1W10-03F-SS	479973.4736	4977810.038	5/16/2006	4.9	J	MG/KG
N1W10-03F-SSD	479973.4639	4977810.246	5/16/2006	4.9	J	MG/KG
N1W10-04B-SS	479949.3527	4977803.943	5/16/2006	2.4	J-	MG/KG
N1W10-04F-SS	479976.7769	4977801.932	5/16/2006	4.3	J-	MG/KG
N1W10-05B-SS	479951.4837	4977794.491	5/16/2006	1.9	J-	MG/KG
N1W10-05F-SS	479964.6305	4977794.45	5/16/2006	2.6	J-	MG/KG
N1W10-06B-SS	479940.6099	4977783.748	5/16/2006	2.9	J-	MG/KG
N1W10-06F-SS	479975.5779	4977782.26	5/16/2006	1.4	J-	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N1W10-06S-SS	479969.0049	4977782.28	5/16/2006	6	U	MG/KG
N1W10-07B-SS	479953.6571	4977779.243	5/16/2006	2.7	J-	MG/KG
N1W10-07F-SS	479975.5586	4977776.089	5/16/2006	5.6	J	MG/KG
N1W10-07F-SSR	479975.5789	4977776.356	5/16/2006	5.3	J	MG/KG
N1W10-07S-SS	479962.3731	4977777.573	5/16/2006	5.6	J	MG/KG
N1W10-09B-SS	479946.9873	4977748.406	5/16/2006	26.5		MG/KG
N1W10-09F-SS	479964.5257	4977751.437	5/16/2006	6.1	U	MG/KG
N1W10-10B-SS	479946.939	4977732.978	5/16/2006	4.9	J	MG/KG
N1W10-10B-SSD	479946.9296	4977733.21	5/16/2006	4.9	J	MG/KG
N1W10-10F-SS	479976.1727	4977731.632	5/16/2006	2.3	J-	MG/KG
N1W10-14B-SS	479926.9866	4977658.982	5/16/2006	2.2	J	MG/KG
N1W10-14F-SS	479898.531	4977668.329	5/16/2006	5.1	J	MG/KG
N1W10-14SB-SS	479920.4252	4977657.736	5/16/2006	3.8	J	MG/KG
N1W10-14SF-SS	479900.6924	4977659.064	5/16/2006	2.9	J	MG/KG
N1W10-15B-SS	479920.5095	4977689.86	5/16/2006	5.2	J	MG/KG
N1W10-15F-SS	479898.56	4977677.586	5/16/2006	3.6	J	MG/KG
N1W10-15SN-SS	479906.1441	4977684.793	5/16/2006	3.9	J	MG/KG
N1W10-15SS-SS	479902.9322	4977674.486	5/16/2006	3.3	J	MG/KG
N1W10-16B-SS	479918.3287	4977692.953	5/16/2006	12.9		MG/KG
N1W10-16B-SSR	479918.3497	4977693.277	5/16/2006	20.1		MG/KG
N1W10-16F-SS	479896.4078	4977693.002	5/16/2006	62.8		MG/KG
N1W10-16S-SS	479907.3536	4977686.815	5/16/2006	3.6	J	MG/KG
N1W10-17B-SS	479920.5579	4977705.289	5/16/2006	49.5		MG/KG
N1W10-17F-SS	479896.456	4977705.364	5/16/2006	37.8		MG/KG
N1W10-18B-SS	479918.3668	4977716.724	5/16/2006	4.6	J	MG/KG
N1W10-18F-SS	479897.2127	4977717.678	5/16/2006	14.6		MG/KG
N1W10-18S-SS	479905.2301	4977708.423	5/16/2006	3.8	J	MG/KG
N1W10-19B-SS	479918.4256	4977723.81	5/16/2006	35.4	J	MG/KG
N1W10-19B-SSR	479918.4462	4977724.1	5/16/2006	44.4	J	MG/KG
N1W10-19F-SS	479898.7055	4977723.872	5/16/2006	20.3		MG/KG
N1W10-21B-SS	479920.7323	4977760.832	5/16/2006	4.9	J	MG/KG
N1W10-21B-SSD	479920.7229	4977761.064	5/16/2006	5.3	J	MG/KG
N1W10-21F-SS	479897.3306	4977759.424	5/16/2006	7.1		MG/KG
N1W10-21SB-SS	479918.5127	4977751.582	5/16/2006	3.8	J	MG/KG
N1W10-21SF-SS	479903.1745	4977751.63	5/16/2006	4.6	J	MG/KG
N1W10-22B-SS	479918.5805	4977773.181	5/16/2006	4.9	J	MG/KG
N1W10-22B-SSD	479918.5709	4977773.389	5/16/2006	4.9	J	MG/KG
N1W10-22F-SS	479896.6403	4977763.993	5/16/2006	5.8	J	MG/KG
N1W10-23B-SS	479916.4377	4977788.617	5/16/2006	4.2	J	MG/KG
N1W10-23F-SS	479896.7082	4977785.593	5/16/2006	5.3	J	MG/KG
N1W10-24B-SS	479918.6484	4977794.782	5/16/2006	6	J	MG/KG
N1W10-24F-SS	479897.3771	4977792.884	5/16/2006	5.7	J	MG/KG
N1W10-25B-SS	479923.0591	4977804.025	5/16/2006	60.5		MG/KG
N1W10-25F-SS	479898.2071	4977803.706	5/16/2006	85.6		MG/KG
N1W10-25SB-SS	479916.8112	4977805.485	5/16/2006	4.2	J	MG/KG
N1W10-25SF-SS	479901.8019	4977804.978	5/16/2006	4.8	J	MG/KG
N1W10-25SF-SSD	479901.7771	4977805.23	5/16/2006	5.2	J	MG/KG
N1W10-26B-SS	479918.7162	4977816.382	5/16/2006	9.2		MG/KG
N1W10-26F-SS	479897.5283	4977819.144	5/16/2006	4.6	J	MG/KG
N1W10-26F-SSD	479897.5223	4977819.414	5/16/2006	5.7	J	MG/KG
N1W11-01B-SS	479824.5172	4977831.907	5/16/2006	6.3	U	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N1W11-01F-SS	479800.4366	4977829.097	5/16/2006	6	UJ	MG/KG
N1W11-02B-SS	479848.6305	4977825.859	5/16/2006	2.1	J	MG/KG
N1W11-02F-SS	479874.9233	4977825.776	5/16/2006	3.3	J	MG/KG
N1W11-03B-SS	479848.6111	4977819.688	5/16/2006	1.9	J-	MG/KG
N1W11-03B-SSR	479848.6311	4977819.922	5/16/2006	2.5	J-	MG/KG
N1W11-03F-SS	479874.1917	4977819.181	5/16/2006	6.4	U	MG/KG
N1W11-03F-SSD	479874.1678	4977819.507	5/16/2006	6.4	UJ	MG/KG
N1W11-04B-SS	479844.1897	4977807.359	5/16/2006	1.9	J	MG/KG
N1W11-04F-SS	479874.877	4977808.117	5/16/2006	1.7	J	MG/KG
N1W11-05B-SS	479850.744	4977801.167	5/16/2006	2.6	J	MG/KG
N1W11-05F-SS	479874.877	4977808.117	5/16/2006	3.3	J	MG/KG
N1W11-06B-SS	479852.8956	4977788.817	5/16/2006	6.7	UJ	MG/KG
N1W11-06F-SS	479875.4906	4977790.527	5/16/2006	6.2	U	MG/KG
N1W11-07B-SS	479845.9279	4977782.523	5/16/2006	3.5	J-	MG/KG
N1W11-07F-SS	479875.5223	4977781.644	5/16/2006	1.7	J-	MG/KG
N1W11-08B-SS	479850.6566	4977773.395	5/16/2006	4.2	J	MG/KG
N1W11-08F-SS	479876.2316	4977773.341	5/16/2006	5.2	J	MG/KG
N1W11-08F-SSD	479876.2353	4977773.646	5/16/2006	2.8	J	MG/KG
N1W11-09B-SS	479848.4167	4977757.973	5/16/2006	5.4	J	MG/KG
N1W11-09F-SS	479868.1366	4977757.911	5/16/2006	2.7	J	MG/KG
N1W11-09S-SS	479858.3668	4977756.499	5/16/2006	4	J	MG/KG
N1W11-10B-SS	479840.9457	4977752.438	5/16/2006	3.4	J	MG/KG
N1W11-10F-SS	479875.5657	4977751.575	5/16/2006	9.7	J	MG/KG
N1W11-11B-SS	479852.7402	4977739.446	5/16/2006	4.9	J	MG/KG
N1W11-11F-SS	479876.833	4977736.284	5/16/2006	6.1	J	MG/KG
N1W11-12B-SS	479850.4816	4977717.852	5/16/2006	3.2	J	MG/KG
N1W11-12F-SS	479875.0444	4977723.413	5/16/2006	4.2	J	MG/KG
N1W11-13B-SS	479846.0796	4977711.695	5/16/2006	5.5	J-	MG/KG
N1W11-13F-SS	479874.5543	4977708.519	5/16/2006	4.2	J	MG/KG
N1W11-13S-SS	479857.0284	4977704.221	5/16/2006	3.2	J	MG/KG
N1W11-14B-SS	479848.2223	4977696.259	5/16/2006	5.9	J-	MG/KG
N1W11-14F-SS	479870.1434	4977699.275	5/16/2006	25.8		MG/KG
N1W11-15B-SS	479846.0115	4977690.094	5/16/2006	5.5	J	MG/KG
N1W11-15F-SS	479875.2595	4977687.716	5/16/2006	47.4		MG/KG
N1W11-16B-SS	479852.5458	4977677.731	5/16/2006	57.3		MG/KG
N1W11-16F-SS	479874.8958	4977676.999	5/16/2006	115		MG/KG
N1W11-17B-SS	479855.4063	4977662.266	5/16/2006	4.1	J	MG/KG
N1W11-17F-SS	479876.6097	4977665.312	5/16/2006	3.3	J	MG/KG
N1W11-17S-SS	479863.4432	4977659.181	5/16/2006	2.5	J	MG/KG
N1W11-20B-SS	479815.3064	4977680.934	5/16/2006	2.9	J-	MG/KG
N1W11-20F-SS	479797.7678	4977677.903	5/16/2006	2.9	J-	MG/KG
N1W11-21F-SS	479795.6253	4977693.339	5/16/2006	4.9	J	MG/KG
N1W11-21F-SSR	479800.0079	4977693.325	5/16/2006	4.8	J	MG/KG
N1W11-21S-SS	479804.3897	4977693.311	5/16/2006	3.3	J	MG/KG
N1W11-22B-SS	479817.5951	4977711.785	5/16/2006	6.6	U	MG/KG
N1W11-22F-SS	479795.6642	4977705.682	5/16/2006	2.8	J-	MG/KG
N1W11-23B-SS	479819.8253	4977724.12	5/16/2006	54		MG/KG
N1W11-23F-SS	479797.9043	4977721.104	5/16/2006	237		MG/KG
N1W11-23S-SS	479804.4676	4977717.997	5/16/2006	8.9		MG/KG
N1W11-23S-SSD	479804.4839	4977718.248	5/16/2006	10.1		MG/KG
N1W11-24B-SS	479817.673	4977736.47	5/16/2006	3.5	J-	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N1W11-24F-SS	479797.6878	4977739.582	5/16/2006	8.5		MG/KG
N1W11-25F-SS	479799.9181	4977751.918	5/16/2006	3.9	J	MG/KG
N1W11-25S-SS	479816.9314	4977747.58	5/16/2006	3.8	J	MG/KG
N1W11-26B-SS	479813.4073	4977773.512	5/16/2006	4.1	J+	MG/KG
N1W11-26F-SS	479801.3354	4977769.553	5/16/2006	3.8	J	MG/KG
N1W11-26F-SSR	479801.3334	4977769.839	5/16/2006	4.8	J	MG/KG
N1W11-27B-SS	479817.8288	4977785.841	5/16/2006	17.4		MG/KG
N1W11-27F-SS	479801.1814	4977779.375	5/16/2006	28.2		MG/KG
N1W11-27F-SSR	479803.3824	4977782.454	5/16/2006	27		MG/KG
N1W11-27S-SS	479806.8927	4977792.048	5/16/2006	4.7	J	MG/KG
N1W11-27S-SSD	479803.8389	4977793.307	5/16/2006	4.6	J	MG/KG
N1W11-28F-SS	479797.8894	4977803.315	5/16/2006	3.3	J	MG/KG
N1W11-29F-SS	479798.1869	4977810.589	5/16/2006	3.3	J	MG/KG
N1W12-01F-SS	479699.637	4977826.33	5/16/2006	2	J-	MG/KG
N1W12-01S-SS	479710.612	4977832.467	5/16/2006	2	J-	MG/KG
N1W12-03B-SS	479754.3746	4977813.814	5/16/2006	6.2	U	MG/KG
N1W12-03B-SSR	479754.3952	4977814.104	5/16/2006	6	U	MG/KG
N1W12-03F-SS	479767.5116	4977810.686	5/16/2006	6	U	MG/KG
N1W12-04B-SS	479752.1548	4977804.564	5/16/2006	2.9	J-	MG/KG
N1W12-04B-SSD	479752.1307	4977804.871	5/16/2006	6.1	J	MG/KG
N1W12-04F-SS	479776.2466	4977801.402	5/16/2006	2.9	J-	MG/KG
N1W12-05S-SS	479765.252	4977789.094	5/16/2006	6.3	J-	MG/KG
N1W12-06BB-SS	479741.1211	4977779.913	5/16/2006	1.6	J	MG/KG
N1W12-06BF-SS	479745.4735	4977770.641	5/16/2006	6.6	U	MG/KG
N1W12-06F-SS	479774.8101	4977779.859	5/16/2006	6.5	U	MG/KG
N1W12-07F-SS	479775.6447	4977764.88	5/16/2006	8.6	J-	MG/KG
N1W12-08B-SS	479751.9888	4977752.107	5/16/2006	3.9	J-	MG/KG
N1W12-08S-SS	479760.9555	4977755.421	5/16/2006	2.7	J-	MG/KG
N1W12-09B-SS	479749.7584	4977739.771	5/16/2006	38.4		MG/KG
N1W12-09F-SS	479760.714	4977739.736	5/16/2006	4.2	J-	MG/KG
N1W12-09F-SSR	479760.7119	4977740.027	5/16/2006	6.1	J	MG/KG
N1W12-10B-SS	479749.69	4977718.17	5/16/2006	1.8	J-	MG/KG
N1W12-10F-SS	479773.8016	4977721.18	5/16/2006	2.7	J-	MG/KG
N1W12-10F-SSR	479773.7999	4977721.504	5/16/2006	6.8	UJ	MG/KG
N1W12-11F-SS	479774.666	4977706.343	5/16/2006	2	J-	MG/KG
N1W12-12F-SS	479773.6943	4977687.236	5/16/2006	40.4		MG/KG
N1W12-12S-SS	479760.5676	4977693.45	5/16/2006	6	UJ	MG/KG
N1W12-13F-SS	479775.8563	4977677.973	5/16/2006	4.3	J	MG/KG
N1W12-13SB-SS	479749.5728	4977681.142	5/16/2006	6	UJ	MG/KG
N1W12-13SB-SSD	479749.5672	4977681.449	5/16/2006	1.6	J-	MG/KG
N1W12-13SF-SS	479764.9201	4977684.179	5/16/2006	3.6	J-	MG/KG
N1W12-14F-SS	479775.4675	4977666.018	5/16/2006	6.1	UJ	MG/KG
N1W12-14S-SS	479767.0236	4977656.401	5/16/2006	6.5	UJ	MG/KG
N1W12-14S-SSR	479767.033	4977656.702	5/16/2006	6.6	UJ	MG/KG
N1W12-15F-SS	479742.9305	4977659.562	5/16/2006	6.3	UJ	MG/KG
N1W12-17B-SS	479723.2689	4977678.139	5/16/2006	6	UJ	MG/KG
N1W12-17F-SS	479697.7288	4977674.338	5/16/2006	5.4	U	MG/KG
N1W12-18B-SS	479718.9164	4977687.41	5/16/2006	3.2	J-	MG/KG
N1W12-18F-SS	479696.1331	4977686.405	5/16/2006	3	J-	MG/KG
N1W12-19B-SS	479721.1371	4977696.661	5/16/2006	2.7	J-	MG/KG
N1W12-19F-SS	479698.0555	4977696.172	5/16/2006	6.7	J-	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N1W12-19S-SS	479707.9901	4977696.702	5/16/2006	3.1	J-	MG/KG
N1W12-20B-SS	479720.3387	4977710.557	5/16/2006	25.6		MG/KG
N1W12-20F-SS	479698.0685	4977713.658	5/16/2006	110		MG/KG
N1W12-23B-SS	479721.3132	4977752.204	5/16/2006	6.4	UJ	MG/KG
N1W12-23F-SS	479697.9286	4977754.04	5/16/2006	2.4	J-	MG/KG
N1W12-23S-SS	479705.9652	4977749.167	5/16/2006	3.8	J-	MG/KG
N1W12-24F-SS	479698.3253	4977761.464	5/16/2006	14.4		MG/KG
N1W12-26F-SS	479699.2046	4977783.715	5/16/2006	6.2	UJ	MG/KG
N1W12-27B-SS	479721.4306	4977789.232	5/16/2006	6	U	MG/KG
N1W12-27F-SS	479697.338	4977792.395	5/16/2006	3	J-	MG/KG
N1W12-28B-SS	479721.4697	4977801.575	5/16/2006	7.6		MG/KG
N1W12-28F-SS	479699.5684	4977804.731	5/16/2006	5.6	J	MG/KG
N1W13-02B-SS	479648.9181	4977724.662	5/16/2006	4.7	J-	MG/KG
N1W13-02B-SSD	479648.8932	4977724.913	5/16/2006	4.8	J-	MG/KG
N1W13-02B-SSR	479648.932	4977724.405	5/16/2006	10.1		MG/KG
N1W13-02F-SS	479668.6381	4977724.599	5/16/2006	4.2	J-	MG/KG
N1W13-02F-SSD	479668.6474	4977724.85	5/16/2006	4.1	J-	MG/KG
N1W13-02F-SSR	479668.652	4977724.343	5/16/2006	2.1	J-	MG/KG
N1W13-04B-SS	479651.0308	4977699.968	5/16/2006	6.2	U	MG/KG
N1W13-04B-SSR	479651.0112	4977693.797	5/16/2006	15.2		MG/KG
N1W13-04F-SS	479668.54	4977693.742	5/16/2006	6.8	U	MG/KG
N1W13-04F-SSD	479672.9128	4977690.642	5/16/2006	6.6	UJ	MG/KG
N1W13-05B-SS	479650.9621	4977678.369	5/16/2006	6.8	UJ	MG/KG
N1W13-05B-SSD	479650.938	4977678.676	5/16/2006	6.9	UJ	MG/KG
N1W13-05B-SSR	479650.9649	4977678.146	5/16/2006	3.5	J	MG/KG
N1W13-05F-SS	479672.8482	4977683.088	5/16/2006	2.6	J	MG/KG
N1W13-05F-SSD	479672.8296	4977683.367	5/16/2006	2.3	J	MG/KG
N1W13-05F-SSR	479672.8508	4977682.843	5/16/2006	2.2	J	MG/KG
N1W13-06B-SS	479637.8444	4977662.752	5/16/2006	3.5	J	MG/KG
N1W13-06F-SS	479673.8286	4977662.609	5/16/2006	3.5	J	MG/KG
N1W13-07B-SS	479604.9102	4977659.468	5/16/2006	6.5	U	MG/KG
N1W13-07F-SS	479596.1539	4977669.286	5/16/2006	1.9	J	MG/KG
N1W13-07S-SS	479614.4418	4977675.553	5/16/2006	4.6	J	MG/KG
N1W13-08FN-SS	479598.0329	4977693.212	5/16/2006	3.8	J	MG/KG
N1W13-08FS-SS	479597.9166	4977681.548	5/16/2006	2.7	J-	MG/KG
N1W13-09B-SS	479613.8212	4977712.431	5/16/2006	7.7	J-	MG/KG
N1W13-09F-SS	479597.6399	4977713.6	5/16/2006	3.2	J-	MG/KG
N1W13-10B-SS	479616.0511	4977724.767	5/16/2006	3.5	J	MG/KG
N1W13-10F-SS	479598.5962	4977728.4	5/16/2006	5.2	J	MG/KG
N1W13-10S-SS	479602.9049	4977724.808	5/16/2006	5.7	J	MG/KG
N1W13-11NE-SS	479664.9707	4977811.629	6/3/2006	2.8	J-	MG/KG
N1W13-11SE-SS	479670.0942	4977769.03	6/3/2006	2.8	J-	MG/KG
N1W14-01NW-SS	479504.4342	4977800.938	6/3/2006	3	J-	MG/KG
N1W14-01SW-SS	479499.2178	4977778.832	6/3/2006	1.7	J-	MG/KG
N2E08-02F-SS	481808.4305	4978024.336	6/2/2006	23.6		MG/KG
N2E08-02S-SS	481812.3865	4978012.526	6/2/2006	10.9		MG/KG
N2E08-03B-SS	481820.2584	4978006.949	6/2/2006	2.6	J	MG/KG
N2E08-03F-SS	481820.2752	4978025.383	6/2/2006	6.9		MG/KG
N2E08-04F-SS	481850.1366	4978021.219	6/2/2006	2.7	J-	MG/KG
N2E08-04NS-SS	481834.3771	4978026.818	6/2/2006	5	J-	MG/KG
N2E08-04SS-SS	481845.2302	4978005.027	6/2/2006	4.1	J-	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N2E08-04SS-SSD	481845.2339	4978005.331	6/2/2006	5.5	J-	MG/KG
N2E08-06B-SS	481828.0724	4977981.006	6/2/2006	4	J-	MG/KG
N2E08-06F-SS	481849.0475	4977981.509	6/2/2006	2.5	J-	MG/KG
N2E08-06S-SS	481841.197	4977973.564	6/2/2006	3.4	J-	MG/KG
N2E08-06S-SSR	481838.5733	4977975.422	6/2/2006	4.3	J-	MG/KG
N2E08-07B-SS	481820.1374	4977964.366	6/2/2006	4.5	J-	MG/KG
N2E08-07F-SS	481850.3576	4977958.725	6/2/2006	3.3	J-	MG/KG
N2E08-07S-SS	481838.0284	4977958.799	6/2/2006	4.5	J-	MG/KG
N2E08-07S-SSR	481838.0322	4977959.104	6/2/2006	4.3	J-	MG/KG
N2E08-08B-SS	481822.7242	4977949.547	6/2/2006	5.2	J-	MG/KG
N2E08-08F-SS	481850.3313	4977949.469	6/2/2006	3.7	J-	MG/KG
N2E08-08F-SSD	481850.335	4977949.773	6/2/2006	4	J-	MG/KG
N2E08-09B-SS	481818.7435	4977936.598	6/2/2006	6	J-	MG/KG
N2E08-09F-SS	481849.2252	4977936.534	6/2/2006	3.9	J-	MG/KG
N2E08-09F-SSD	481849.2289	4977936.838	6/2/2006	4.5	J-	MG/KG
N2E08-09S-SS	481838.4419	4977929.137	6/2/2006	6.3		MG/KG
N2E08-10B-SS	481818.6804	4977914.38	6/2/2006	7.7		MG/KG
N2E08-10F-SS	481847.8288	4977920.969	6/2/2006	6.1		MG/KG
N2E08-11B-SS	481825.2217	4977903.253	6/2/2006	7.2		MG/KG
N2E08-11F-SS	481847.592	4977910.596	6/2/2006	6.5		MG/KG
N2E08-11S-SS	481839.6779	4977901.361	6/2/2006	5.9	J-	MG/KG
N2E08-12B-SS	481823.8655	4977888.446	6/2/2006	9.4		MG/KG
N2E08-12F-SS	481846.2298	4977893.937	6/2/2006	4.5	J-	MG/KG
N2E08-14B-SS	481819.8216	4977853.279	6/2/2006	9.1		MG/KG
N2E08-14F-SS	481848.4881	4977854.802	6/2/2006	7.9	J-	MG/KG
N2E08-14S-SS	481839.5465	4977855.075	6/2/2006	7.8	J-	MG/KG
N2E08-14S-SSR	481839.5439	4977855.316	6/2/2006	7.7	J-	MG/KG
N2E09-02B-SS	481899.0777	4978002.349	6/2/2006	5.2	J-	MG/KG
N2E09-02F-SS	481900.4962	4978023.385	6/2/2006	4.9	J-	MG/KG
N2E09-02F-SSR	481903.376	4978025.25	6/2/2006	3.8	J-	MG/KG
N2E09-03B-SS	481908.3263	4978002.996	6/2/2006	4.8	J-	MG/KG
N2E09-03F-SS	481911.0136	4978023.355	6/2/2006	7.1	J-	MG/KG
N2E09-03F-SSD	481911.0296	4978023.58	6/2/2006	6.4	J-	MG/KG
N2E09-04B-SS	481917.5288	4978002.97	6/2/2006	5.9	J-	MG/KG
N2E09-04F-SS	481922.8503	4978025.173	6/2/2006	4.5	J-	MG/KG
N2E09-05F-SS	481934.6661	4978019.585	6/2/2006	7.2	J-	MG/KG
N2E09-06B-SS	481949.0795	4978002.881	6/2/2006	4.2	J-	MG/KG
N2E09-06F-SS	481947.4717	4978025.634	6/2/2006	2.5	J	MG/KG
N2E09-06F-SSD	481947.4754	4978025.938	6/2/2006	1.5	J	MG/KG
N2E09-08F-SS	481971.4189	4978026.346	6/2/2006	39.4		MG/KG
N2E09-08S-SS	481978.0377	4978015.76	6/2/2006	46.2		MG/KG
N2E09-11B-SS	481952.8955	4977968.217	6/2/2006	1.2	J	MG/KG
N2E09-11F-SS	481976.032	4977965.806	6/2/2006	5.6	U	MG/KG
N2E09-12B-SS	481950.2547	4977958.705	6/2/2006	5.7	U	MG/KG
N2E09-12B-SSR	481950.2584	4977959.01	6/2/2006	5.6	U	MG/KG
N2E09-12F-SS	481975.4859	4977953.634	6/2/2006	5.6	U	MG/KG
N2E09-13B-SS	481936.3558	4977945.385	6/2/2006	1.9	J	MG/KG
N2E09-13F-SS	481974.6605	4977945.444	6/2/2006	2.5	J	MG/KG
N2E09-14B-SS	481947.566	4977932.53	6/2/2006	9.1		MG/KG
N2E09-14F-SS	481974.3434	4977930.648	6/2/2006	12.7		MG/KG
N2E09-15B-SS	481952.7935	4977921.407	6/2/2006	1.3	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N2E09-15F-SS	481976.4411	4977915.786	6/2/2006	2.3	J	MG/KG
N2E09-20F-SS	481877.5918	4977873.785	6/2/2006	3.7	J	MG/KG
N2E09-20S-SS	481901.1707	4977869.852	6/2/2006	4.6	J-	MG/KG
N2E09-21B-SS	481901.4339	4977890.078	6/2/2006	8		MG/KG
N2E09-21F-SS	481876.4451	4977886.445	6/2/2006	5.5	J	MG/KG
N2E09-22B-SS	481904.1048	4977904.881	6/2/2006	9.5		MG/KG
N2E09-22F-SS	481876.5028	4977906.811	6/2/2006	24.6		MG/KG
N2E09-23B-SS	481901.5125	4977917.849	6/2/2006	106		MG/KG
N2E09-23F-SS	481877.8387	4977914.213	6/2/2006	176		MG/KG
N2E09-24B-SS	481901.5544	4977932.66	6/2/2006	3.9	J	MG/KG
N2E09-24F-SS	481877.8912	4977932.727	6/2/2006	28.3		MG/KG
N2E09-25B-SS	481906.8551	4977947.457	6/2/2006	4.2	J-	MG/KG
N2E09-25B-SSD	481906.8588	4977947.761	6/2/2006	3.5	J	MG/KG
N2E09-25F-SS	481877.6209	4977944.862	6/2/2006	3.5	J	MG/KG
N2E09-26B-SS	481905.5559	4977953.015	6/2/2006	3.9	J	MG/KG
N2E09-26F-SS	481877.2274	4977955.188	6/2/2006	2.6	J-	MG/KG
N2E09-26F-SSD	481877.2311	4977955.493	6/2/2006	2.8	J	MG/KG
N2E09-27B-SS	481902.9583	4977964.131	6/2/2006	4.2	J	MG/KG
N2E09-27B-SSR	481902.9621	4977964.435	6/2/2006	4	J	MG/KG
N2E09-27F-SS	481875.3566	4977966.061	6/2/2006	3	J	MG/KG
N2E09-28B-SS	481909.5678	4977977.073	6/2/2006	3.6	J	MG/KG
N2E09-28F-SS	481879.3481	4977974.961	6/2/2006	6.7		MG/KG
N2W04-03B-SS	480550.2829	4977990.319	5/17/2006	4.4	J	MG/KG
N2W04-03F-SS	480576.5752	4977990.239	5/17/2006	6.8		MG/KG
N2W05-21B-SS	480429.786	4977993.772	5/17/2006	1.5	J	MG/KG
N2W05-21F-SS	480399.1307	4978000.037	5/17/2006	1.8	J	MG/KG
N2W05-22B-SS	480423.2696	4978012.307	5/17/2006	1.8	J	MG/KG
N2W05-22F-SS	480401.4252	4978009.414	5/17/2006	2.9	J	MG/KG
N2W07-06F-SS	480274.2436	4977983.968	5/17/2006	1.4	J	MG/KG
N2W07-22B-SS	480210.429	4977922.913	5/17/2006	4.1	J	MG/KG
N2W07-22F-SS	480199.4994	4977920.422	5/17/2006	3.2	J	MG/KG
N2W08-02B-SS	480151.5645	4978006.972	5/17/2006	9.3		MG/KG
N2W08-02F-SS	480147.2495	4978028.586	5/17/2006	6	U	MG/KG
N2W08-04B-SS	480153.7172	4977994.623	5/17/2006	6.2	U	MG/KG
N2W08-04B-SSD	480153.7074	4977994.901	5/17/2006	6.2	U	MG/KG
N2W08-04F-SS	480177.8184	4977994.548	5/17/2006	6.3	U	MG/KG
N2W08-06B-SS	480155.7838	4977954.501	5/17/2006	6	U	MG/KG
N2W08-06F-SS	480166.7485	4977957.553	5/17/2006	8.6		MG/KG
N2W08-07B-SS	480153.5161	4977929.822	5/17/2006	5.9	U	MG/KG
N2W08-07F-SS	480177.1876	4977929.813	5/17/2006	5.8	U	MG/KG
N2W08-08B-SS	480153.4682	4977914.394	5/17/2006	31.1		MG/KG
N2W08-08S-SS	480168.7865	4977908.175	5/17/2006	15.1		MG/KG
N2W08-09B-SS	480157.7929	4977895.866	5/17/2006	30.6		MG/KG
N2W08-09SB-SS	480152.8582	4977893.8	5/17/2006	6.6	U	MG/KG
N2W08-09SF-SS	480168.7387	4977892.746	5/17/2006	4.4	J	MG/KG
N2W08-12B-SS	480153.2959	4977858.85	5/17/2006	5.1	J	MG/KG
N2W08-12F-SS	480177.3881	4977855.69	5/17/2006	5.9	J	MG/KG
N2W08-14F-SS	480103.1317	4977933.065	5/17/2006	4.7	J	MG/KG
N2W08-14F-SSD	480103.1221	4977933.281	5/17/2006	4.6	J	MG/KG
N2W08-14S-SS	480118.4594	4977929.931	5/17/2006	4.9	J	MG/KG
N2W08-15B-SS	480131.6728	4977951.49	5/17/2006	5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N2W08-15F-SS	480103.4663	4977948.45	5/17/2006	5.6	J	MG/KG
N2W08-15F-SSR	480103.4528	4977948.74	5/17/2006	6.4	J	MG/KG
N2W09-01B-SS	480024.5432	4978025.882	5/17/2006	7.2		MG/KG
N2W09-01F-SS	480002.6331	4978025.951	5/17/2006	35.9		MG/KG
N2W09-02S-SS	480046.4394	4978023.324	5/17/2006	148		MG/KG
N2W09-04B-SS	480044.089	4977970.278	5/17/2006	4.9	J	MG/KG
N2W09-04F-SS	480076.9545	4977970.175	5/17/2006	4.8	J	MG/KG
N2W09-04S-SS	480057.2352	4977970.237	5/17/2006	5.1	J	MG/KG
N2W09-05F-SS	480074.68	4977960.523	5/17/2006	5.6	J	MG/KG
N2W09-05F-SSD	480074.6559	4977960.831	5/17/2006	5.4	J	MG/KG
N2W09-06B-SS	480048.4133	4977951.75	5/17/2006	4.1	J	MG/KG
N2W09-06F-SS	480070.3141	4977948.596	5/17/2006	10.2		MG/KG
N2W09-07F-SS	480072.4763	4977939.332	5/17/2006	3.9	J	MG/KG
N2W09-07S-SS	480063.7121	4977939.359	5/17/2006	4.6	J	MG/KG
N2W09-08B-SS	480048.3171	4977920.892	5/17/2006	5.3	J	MG/KG
N2W09-09B-SS	480042.0776	4977909.168	5/17/2006	4.7	J	MG/KG
N2W09-09F-SS	480068.0077	4977911.574	5/17/2006	5.2	J	MG/KG
N2W09-10F-SS	480074.3221	4977898.32	5/17/2006	5.6	J	MG/KG
N2W09-10F-SSR	480074.3482	4977898.617	5/17/2006	5.5	J	MG/KG
N2W09-11B-SS	480050.4023	4977886.942	5/17/2006	6.1	J	MG/KG
N2W09-11F-SS	480065.7397	4977886.895	5/17/2006	6.9		MG/KG
N2W09-11F-SSD	480065.7029	4977887.185	5/17/2006	7.1		MG/KG
N2W09-12F-SS	480073.4111	4977859.752	5/17/2006	5.4	J	MG/KG
N2W09-13B-SS	480021.8221	4977856.174	5/17/2006	7.9		MG/KG
N2W09-13F-SS	479999.9307	4977862.414	5/17/2006	5.8	J	MG/KG
N2W09-13F-SSR	479999.9397	4977862.722	5/17/2006	5.1	J	MG/KG
N2W09-13S-SS	480000.0228	4977853.01	5/17/2006	6.3		MG/KG
N2W09-14B-SS	480024.071	4977874.681	5/17/2006	8.3		MG/KG
N2W09-14F-SS	479997.7879	4977877.849	5/17/2006	5.4	J	MG/KG
N2W09-15B-SS	480026.3006	4977887.018	5/17/2006	8		MG/KG
N2W09-15F-SS	480000.8548	4977887.049	5/17/2006	22.2		MG/KG
N2W09-16B-SS	480019.7467	4977893.21	5/17/2006	26.8		MG/KG
N2W09-16F-SS	479997.8555	4977899.449	5/17/2006	35.5		MG/KG
N2W09-17B-SS	480021.9956	4977911.717	5/17/2006	23		MG/KG
N2W09-17F-SS	479999.0329	4977911.482	5/17/2006	24		MG/KG
N2W09-18B-SS	480022.0149	4977917.889	5/17/2006	5.6	J	MG/KG
N2W09-18F-SS	479998.7205	4977923.359	5/17/2006	6.6		MG/KG
N2W09-18F-SSD	479998.6965	4977923.685	5/17/2006	6.8		MG/KG
N2W09-19B-SS	480022.0727	4977936.403	5/17/2006	6.5	J	MG/KG
N2W09-19F-SS	479999.6548	4977934.534	5/17/2006	5.8	J	MG/KG
N2W09-20B-SS	480024.2927	4977945.653	5/17/2006	5.6	J	MG/KG
N2W09-20F-SS	480000.2009	4977948.814	5/17/2006	9.8		MG/KG
N2W09-21B-SS	480026.5319	4977961.075	5/17/2006	34.2		MG/KG
N2W09-22B-SS	480022.1787	4977970.346	5/17/2006	43.6		MG/KG
N2W09-22B-SSR	480022.1652	4977970.637	5/17/2006	47.2		MG/KG
N2W09-22F-SS	480000.1966	4977971.455	5/17/2006	75.3		MG/KG
N2W09-23B-SS	480024.418	4977985.768	5/17/2006	5.5	J	MG/KG
N2W09-23F-SS	480000.6328	4977986.993	5/17/2006	12.5		MG/KG
N2W09-23F-SSD	480000.6086	4977987.3	5/17/2006	20		MG/KG
N2W09-24F-SS	480000.3649	4978001.272	5/17/2006	22.5		MG/KG
N2W09-24F-SSR	480000.386	4978001.596	5/17/2006	30.4		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N2W09-25F-SS	480000.7956	4978011.64	5/17/2006	86.4		MG/KG
N2W10-01B-SS	479899.6264	4978017.016	5/17/2006	3.9	J	MG/KG
N2W10-01F-SS	479902.8204	4978027.404	5/17/2006	2	J	MG/KG
N2W10-02B-SS	479901.7981	4978010.838	5/17/2006	3.2	J	MG/KG
N2W10-02F-SS	479910.5504	4978028.218	5/17/2006	2.5	J	MG/KG
N2W10-03B-SS	479917.1449	4978013.876	5/17/2006	2.9	J	MG/KG
N2W10-03F-SS	479917.1836	4978026.219	5/17/2006	3.6	J	MG/KG
N2W10-04B-SS	479921.5269	4978013.862	5/17/2006	8.4	J	MG/KG
N2W10-04F-SS	479927.0596	4978027.94	5/17/2006	3.4	J	MG/KG
N2W10-05B-SS	479934.6633	4978010.735	5/17/2006	3.1	J	MG/KG
N2W10-05F-SS	479934.5074	4978027.869	5/17/2006	2.7	J	MG/KG
N2W10-06B-SS	479944.5678	4978026.268	5/17/2006	3.3	J	MG/KG
N2W10-06F-SS	479978.0315	4978025.923	5/17/2006	3.9	J	MG/KG
N2W10-07F-SS	479976.9696	4978008.399	5/17/2006	5.8	J	MG/KG
N2W10-07S-SS	479943.2275	4978009.228	5/17/2006	4.1	J	MG/KG
N2W10-08F-SS	479976.254	4977998.262	5/17/2006	4.6	J	MG/KG
N2W10-09F-SS	479979.0855	4977982.219	5/17/2006	3.5	J	MG/KG
N2W10-10B-SS	479947.703	4977976.751	5/17/2006	6.1	J	MG/KG
N2W10-10F-SS	479978.3774	4977976.655	5/17/2006	5.3	J	MG/KG
N2W10-11B-SS	479952.0464	4977964.394	5/17/2006	6.4	J	MG/KG
N2W10-11B-SSR	479952.067	4977964.684	5/17/2006	5.4	J	MG/KG
N2W10-11F-SS	479978.3388	4977964.312	5/17/2006	6.6	J	MG/KG
N2W10-12B-SS	479943.2281	4977947.055	5/17/2006	5.3	J	MG/KG
N2W10-12F-SS	479976.8523	4977947.452	5/17/2006	5.3	J	MG/KG
N2W10-13B-SS	479954.1504	4977936.616	5/17/2006	5.5	J	MG/KG
N2W10-13F-SS	479977.7677	4977934.629	5/17/2006	3.9	J	MG/KG
N2W10-14B-SS	479947.5386	4977924.293	5/17/2006	4.4	J	MG/KG
N2W10-14B-SSD	479947.5292	4977924.526	5/17/2006	6.3	U	MG/KG
N2W10-14F-SS	479977.6266	4977923.761	5/17/2006	8	U	MG/KG
N2W10-15F-SS	479977.0391	4977916.737	5/17/2006	6	U	MG/KG
N2W10-15S-SS	479942.3079	4977917.492	5/17/2006	5.6	U	MG/KG
N2W10-16B-SS	479949.6425	4977896.515	5/17/2006	6.1	U	MG/KG
N2W10-16F-SS	479971.5724	4977902.618	5/17/2006	5.6	U	MG/KG
N2W10-17B-SS	479951.8143	4977890.336	5/17/2006	8.8	U	MG/KG
N2W10-17F-SS	479977.0376	4977884.115	5/17/2006	24.5		MG/KG
N2W10-18F-SS	479978.0587	4977874.825	5/17/2006	46.1		MG/KG
N2W10-19B-SS	479941.0575	4977866.227	5/17/2006	5.9	U	MG/KG
N2W10-19F-SS	479976.3371	4977866.353	5/17/2006	6.5	U	MG/KG
N2W10-20B-SS	479945.125	4977853.328	5/17/2006	4.2	J	MG/KG
N2W10-20F-SS	479967.0454	4977856.345	5/17/2006	3.5	J	MG/KG
N2W10-21B-SS	479918.8612	4977862.668	5/17/2006	2.5	J	MG/KG
N2W10-21F-SS	479899.1319	4977859.644	5/17/2006	2.6	J	MG/KG
N2W10-22B-SS	479925.4635	4977871.904	5/17/2006	1.3	J	MG/KG
N2W10-22F-SS	479901.3714	4977875.066	5/17/2006	2.7	J	MG/KG
N2W10-23B-SS	479921.1394	4977890.433	5/17/2006	2.4	J	MG/KG
N2W10-23F-SS	479899.28	4977889.248	5/17/2006	2.6	J	MG/KG
N2W10-24B-SS	479923.3402	4977893.511	5/17/2006	2.9	J	MG/KG
N2W10-24F-SS	479901.4587	4977902.837	5/17/2006	3.7	J	MG/KG
N2W10-24F-SSD	479901.449	4977903.045	5/17/2006	2.9	J	MG/KG
N2W10-25B-SS	479934.5794	4977914.97	5/17/2006	3	J	MG/KG
N2W10-25F-SS	479899.5473	4977914.855	5/17/2006	3.2	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N2W10-25F-SSR	479899.5416	4977915.164	5/17/2006	3.2	J	MG/KG
N2W10-26F-SS	479899.2804	4977926.827	5/17/2006	3.4	J	MG/KG
N2W10-27B-SS	479916.9027	4977936.732	5/17/2006	12.8		MG/KG
N2W10-27B-SSD	479916.893	4977936.94	5/17/2006	11.2		MG/KG
N2W10-27F-SS	479898.6316	4977936.757	5/17/2006	6	J	MG/KG
N2W10-28B-SS	479923.5048	4977945.969	5/17/2006	6.2	J	MG/KG
N2W10-28B-SSD	479923.4955	4977946.201	5/17/2006	4.7	J	MG/KG
N2W10-28F-SS	479899.0738	4977947.561	5/17/2006	4.3	J	MG/KG
N2W10-29B-SS	479933.4826	4977958.914	5/17/2006	2.6	J-	MG/KG
N2W10-29F-SS	479902.5465	4977961.276	5/17/2006	3.6	J	MG/KG
N2W10-30B-SS	479925.7831	4977973.734	5/17/2006	5.1	J	MG/KG
N2W10-30F-SS	479899.4907	4977973.816	5/17/2006	2.8	J-	MG/KG
N2W10-31B-SS	479934.5665	4977979.878	5/17/2006	5.3	J	MG/KG
N2W10-31F-SS	479899.9999	4977986.113	5/17/2006	3.9	J	MG/KG
N2W10-31S-SS	479912.6659	4977983.032	5/17/2006	3.4	J	MG/KG
N2W10-32B-SS	479921.4591	4977992.262	5/17/2006	2.1	J-	MG/KG
N2W10-32F-SS	479899.5876	4978004.674	5/17/2006	1.7	J-	MG/KG
N2W11-01B-SS	479816.4068	4978029.622	5/17/2006	3.8	J	MG/KG
N2W11-01F-SS	479801.2831	4978023.951	5/17/2006	3.9	J	MG/KG
N2W11-02F-SS	479844.5899	4978028.852	5/17/2006	4.8	J	MG/KG
N2W11-03B-SS	479849.2623	4978026.432	5/17/2006	26.9		MG/KG
N2W11-03F-SS	479871.153	4978020.192	5/17/2006	10		MG/KG
N2W11-04B-SS	479851.3894	4978014.338	5/17/2006	2.3	J	MG/KG
N2W11-04F-SS	479871.1335	4978014.02	5/17/2006	1.6	J	MG/KG
N2W11-05B-SS	479851.3755	4978001.739	5/17/2006	4.2	J	MG/KG
N2W11-05F-SS	479877.6677	4978001.657	5/17/2006	4.8	J	MG/KG
N2W11-06B-SS	479849.1456	4977989.403	5/17/2006	4.4	J	MG/KG
N2W11-06F-SS	479875.4185	4977983.149	5/17/2006	4	J	MG/KG
N2W11-07B-SS	479851.2783	4977970.882	5/17/2006	3	J	MG/KG
N2W11-07B-SSD	479851.2535	4977971.134	5/17/2006	1.1	J	MG/KG
N2W11-07F-SS	479875.3894	4977973.892	5/17/2006	4.4	J	MG/KG
N2W11-08B-SS	479846.8768	4977964.724	5/17/2006	3.5	J	MG/KG
N2W11-08F-SS	479875.3505	4977961.549	5/17/2006	4	J	MG/KG
N2W11-10B-SS	479842.4072	4977936.967	5/17/2006	57		MG/KG
N2W11-10F-SS	479876.6626	4977935.811	5/17/2006	3.7	J	MG/KG
N2W11-10F-SSR	479876.6641	4977936.142	5/17/2006	2.6	J	MG/KG
N2W11-11B-SS	479851.3962	4977925.741	5/17/2006	94.7	J	MG/KG
N2W11-11F-SS	479877.4251	4977924.513	5/17/2006	168	J	MG/KG
N2W11-12B-SS	479855.5049	4977921.497	5/17/2006	3.4	J	MG/KG
N2W11-12F-SS	479878.5045	4977918.938	5/17/2006	3.3	J	MG/KG
N2W11-13B-SS	479846.7018	4977909.181	5/17/2006	3.5	J	MG/KG
N2W11-13F-SS	479878.1303	4977909.181	5/17/2006	3.5	J	MG/KG
N2W11-14B-SS	479853.2458	4977899.903	5/17/2006	6.3	J	MG/KG
N2W11-14F-SS	479877.3474	4977899.827	5/17/2006	7.1		MG/KG
N2W11-14S-SS	479861.9906	4977893.704	5/17/2006	4	J	MG/KG
N2W11-15B-SS	479843.371	4977889.294	5/17/2006	2.2	J	MG/KG
N2W11-15F-SS	479877.9229	4977889.989	5/17/2006	2.7	J	MG/KG
N2W11-16B-SS	479842.1061	4977883.443	5/17/2006	3.7	J	MG/KG
N2W11-16F-SS	479875.1078	4977884.406	5/17/2006	3.3	J	MG/KG
N2W11-17B-SS	479857.5404	4977872.118	5/17/2006	3.4	J	MG/KG
N2W11-17F-SS	479877.942	4977870.255	5/17/2006	8.8		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N2W11-18B-SS	479855.3008	4977856.696	5/17/2006	2.5	J	MG/KG
N2W11-18F-SS	479875.0107	4977853.548	5/17/2006	3.7	J	MG/KG
N2W11-19B-SS	479834.6608	4977856.879	5/17/2006	3.7	J	MG/KG
N2W11-19B-SSR	479834.6592	4977857.186	5/17/2006	3.6	J	MG/KG
N2W11-20B-SS	479822.4834	4977872.228	5/17/2006	8		MG/KG
N2W11-20B-SSR	479822.4921	4977872.473	5/17/2006	8.7		MG/KG
N2W11-20F-SS	479799.2289	4977865.796	5/17/2006	7.2		MG/KG
N2W11-20S-SS	479804.9354	4977866.112	5/17/2006	6.5		MG/KG
N2W11-21B-SS	479824.7134	4977884.564	5/17/2006	11.6		MG/KG
N2W11-21F-SS	479799.7217	4977883.182	5/17/2006	122		MG/KG
N2W11-22B-SS	479825.9439	4977898.778	5/17/2006	6.2		MG/KG
N2W11-22F-SS	479801.4537	4977890.762	5/17/2006	5	J	MG/KG
N2W11-23B-SS	479818.2	4977912.381	5/17/2006	2.9	J-	MG/KG
N2W11-23F-SS	479807.2628	4977909.306	5/17/2006	3.8	J-	MG/KG
N2W11-24B-SS	479822.6294	4977918.514	5/17/2006	4.8	J-	MG/KG
N2W11-24F-SS	479799.7093	4977918.925	5/17/2006	4	J	MG/KG
N2W11-25B-SS	479834.5263	4977928.616	5/17/2006	4.7	J-	MG/KG
N2W11-25F-SS	479798.5571	4977927.848	5/17/2006	3.2	J-	MG/KG
N2W11-26B-SS	479820.5065	4977940.121	5/17/2006	8.2	J	MG/KG
N2W11-26F-SS	479801.6806	4977935.594	5/17/2006	7.3	J	MG/KG
N2W11-27B-SS	479827.1186	4977952.444	5/17/2006	3.9	J	MG/KG
N2W11-27F-SS	479801.0303	4977949.705	5/17/2006	2.6	J-	MG/KG
N2W11-28B-SS	479827.1575	4977964.787	5/17/2006	2.8	J-	MG/KG
N2W11-28F-SS	479802.9062	4977962.025	5/17/2006	2.6	J-	MG/KG
N2W11-29B-SS	479824.9859	4977970.965	5/17/2006	3.4	J-	MG/KG
N2W11-29F-SS	479800.7459	4977969.122	5/17/2006	4.9	J-	MG/KG
N2W11-29S-SS	479809.6682	4977977.185	5/17/2006	3.6	J-	MG/KG
N2W11-30B-SS	479818.4712	4977989.5	5/17/2006	3.8	J-	MG/KG
N2W11-31B-SS	479835.8069	4977996.282	5/17/2006	4.8	J-	MG/KG
N2W11-31F-SS	479801.4544	4977997.072	5/17/2006	4.6	J-	MG/KG
N2W11-32B-SS	479835.5211	4978006.61	5/17/2006	3.8	J-	MG/KG
N2W11-32B-SSR	479835.5417	4978006.901	5/17/2006	2.2	J	MG/KG
N2W11-32F-SS	479803.1925	4978008.063	5/17/2006	4.6	J	MG/KG
N2W12-02F-SS	479733.0957	4978027.877	5/17/2006	3.6	J	MG/KG
N2W12-03B-SS	479746.2554	4978017.5	5/17/2006	2.8	J	MG/KG
N2W12-03F-SS	479746.5897	4978028.51	5/17/2006	2.8	J	MG/KG
N2W12-04SB-SS	479765.9647	4978014.352	5/17/2006	3.2	J	MG/KG
N2W12-04SF-SS	479772.5378	4978014.331	5/17/2006	1.9	J	MG/KG
N2W12-04SN-SS	479768.2046	4978029.774	5/17/2006	4.8	J	MG/KG
N2W12-05B-SS	479750.5886	4978002.058	5/17/2006	3.3	J	MG/KG
N2W12-05F-SS	479781.2434	4977995.789	5/17/2006	2.8	J	MG/KG
N2W12-05F-SSR	479781.264	4977996.079	5/17/2006	3.7	J	MG/KG
N2W12-05S-SS	479761.5046	4977989.68	5/17/2006	4.3	J	MG/KG
N2W12-06B-SS	479745.5031	4977974.929	5/17/2006	5	J	MG/KG
N2W12-06F-SS	479778.3686	4977974.825	5/17/2006	22.8		MG/KG
N2W12-07B-SS	479748.2412	4977952.693	5/17/2006	3.8	J	MG/KG
N2W12-07F-SS	479765.7988	4977961.895	5/17/2006	3.1	J	MG/KG
N2W12-08B-SS	479752.594	4977943.422	5/17/2006	5.1	J	MG/KG
N2W12-08F-SS	479772.3231	4977946.445	5/17/2006	5.7	J	MG/KG
N2W12-09B-SS	479743.8103	4977937.278	5/17/2006	6.2		MG/KG
N2W12-09F-SS	479776.6857	4977940.26	5/17/2006	7		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N2W12-10B-SS	479743.4429	4977927.521	5/17/2006	62.5		MG/KG
N2W12-10F-SS	479776.6369	4977924.831	5/17/2006	6.7		MG/KG
N2W12-11F-SS	479776.6174	4977918.66	5/17/2006	6.1	J	MG/KG
N2W12-11F-SSR	479776.6019	4977919.01	5/17/2006	6.2	J	MG/KG
N2W12-12B-SS	479745.9232	4977912.585	5/17/2006	10.7		MG/KG
N2W12-12F-SS	479776.5979	4977912.488	5/17/2006	5.2	J	MG/KG
N2W12-14F-SS	479774.3483	4977893.981	5/17/2006	104		MG/KG
N2W12-15B-SS	479750.2076	4977881.714	5/17/2006	3.5	J	MG/KG
N2W12-15F-SS	479778.7011	4977884.71	5/17/2006	5	J	MG/KG
N2W12-16B-SS	479745.7961	4977872.471	5/17/2006	3.2	J	MG/KG
N2W12-16F-SS	479765.506	4977869.323	5/17/2006	3.1	J	MG/KG
N2W12-17B-SS	479750.1294	4977857.028	5/17/2006	4.1	J	MG/KG
N2W12-17B-SSD	479750.1204	4977857.285	5/17/2006	3	J	MG/KG
N2W12-17F-SS	479778.4493	4977854.185	5/17/2006	4.6	J	MG/KG
N2W12-18B-SS	479723.8464	4977860.197	5/17/2006	6.1		MG/KG
N2W12-18F-SS	479700.4551	4977857.819	5/17/2006	5.7	J	MG/KG
N2W12-18F-SSD	479700.4457	4977858.051	5/17/2006	5	J	MG/KG
N2W12-19F-SS	479701.3284	4977872.578	5/17/2006	5	J	MG/KG
N2W12-20B-SS	479721.7336	4977884.89	5/17/2006	3.8	J	MG/KG
N2W12-20F-SS	479700.0076	4977882.531	5/17/2006	4.9	J	MG/KG
N2W12-21B-SS	479723.9638	4977897.226	5/17/2006	4.3	J	MG/KG
N2W12-21F-SS	479699.797	4977894.275	5/17/2006	4.3	J	MG/KG
N2W12-22B-SS	479724.0783	4977908.26	5/17/2006	4.2	J-	MG/KG
N2W12-22F-SS	479700.481	4977905.331	5/17/2006	192		MG/KG
N2W12-22F-SSD	479700.4716	4977905.564	5/17/2006	212		MG/KG
N2W12-23B-SS	479721.8216	4977912.662	5/17/2006	2.8	J	MG/KG
N2W12-23F-SS	479702.1021	4977912.724	5/17/2006	3.7	J	MG/KG
N2W12-24B-SS	479721.8803	4977931.176	5/17/2006	3.3	J	MG/KG
N2W12-24F-SS	479700.4665	4977928.842	5/17/2006	3.5	J	MG/KG
N2W12-26B-SS	479726.3211	4977949.677	5/17/2006	13.3		MG/KG
N2W12-26B-SSR	479726.3417	4977949.967	5/17/2006	27.2		MG/KG
N2W12-26F-SS	479700.7406	4977949.711	5/17/2006	70.5		MG/KG
N2W12-27B-SS	479726.3602	4977962.02	5/17/2006	1.5	J	MG/KG
N2W12-27F-SS	479700.5106	4977962.164	5/17/2006	4.2	J	MG/KG
N2W12-28B-SS	479726.3895	4977971.277	5/17/2006	6.2	U	MG/KG
N2W12-28F-SS	479700.3084	4977973.376	5/17/2006	1.9	J	MG/KG
N2W12-28F-SSR	479700.3121	4977973.68	5/17/2006	1.6	J	MG/KG
N2W12-29B-SS	479719.8752	4977989.812	5/17/2006	5	J	MG/KG
N2W12-29F-SS	479700.0298	4977984.16	5/17/2006	107		MG/KG
N2W12-30B-SS	479725.2021	4977999.671	5/17/2006	739		MG/KG
N2W12-30F-SS	479702.3763	4977999.125	5/17/2006	211		MG/KG
N2W12-30S-SS	479715.2793	4977994.438	5/17/2006	399		MG/KG
N2W13-02CE-SS	479592.9481	4977900.728	6/3/2006	3.1	J-	MG/KG
N2W13-02EN-SS	479648.2275	4977920.918	6/3/2006	3.2	J	MG/KG
N2W13-02ES-SS	479640.1865	4977872.806	6/3/2006	1.2	J-	MG/KG
N2W14-01CW-SS	479569.2729	4977897.102	6/3/2006	3.3	J-	MG/KG
N2W14-01NE-SS	479565.6662	4978002.646	6/3/2006	3.3	J-	MG/KG
N2W14-01NW-SS	479518.3342	4978000.946	6/3/2006	3.5	J-	MG/KG
N2W14-01SN-SS	479532.517	4977913.882	6/3/2006	2.6	J-	MG/KG
N2W14-01SS-SS	479541.5472	4977860.16	6/3/2006	2.8	J-	MG/KG
N2W14-01WE-SS	479576.0476	4977960.029	6/3/2006	3.1	J-	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N2W14-01WW-SS	479539.232	4977958.296	6/3/2006	1.6	J-	MG/KG
N3E05-02B-SS	481474.5227	4978225.552	6/1/2006	2	J	MG/KG
N3E05-02F-SS	481452.1593	4978220.062	6/1/2006	5.4		MG/KG
N3E07-04B-SS	481706.4539	4978205.379	6/1/2006	14.5	J	MG/KG
N3E07-05B-SS	481716.9755	4978207.201	6/1/2006	5.3	J	MG/KG
N3E07-05F-SS	481715.7083	4978223.868	6/1/2006	5.1	J	MG/KG
N3E07-06B-SS	481722.2129	4978199.78	6/1/2006	5.7	J	MG/KG
N3E07-07B-SS	481687.1152	4978192.095	6/1/2006	4.8	J	MG/KG
N3E07-07F-SS	481724.7787	4978189.717	6/1/2006	4.6	J	MG/KG
N3E07-09B-SS	481697.1404	4978166.525	6/1/2006	85.8	J	MG/KG
N3E07-09F-SS	481726.9012	4978159.1	6/1/2006	119	J	MG/KG
N3E07-09F-SSR	481726.905	4978159.405	6/1/2006	288	J	MG/KG
N3E07-10B-SS	481697.0821	4978146.16	6/1/2006	14.1	J	MG/KG
N3E07-10F-SS	481727.6299	4978149.033	6/1/2006	4.3	J	MG/KG
N3E07-11B-SS	481684.2744	4978133.653	6/1/2006	6.5	J	MG/KG
N3E07-11F-SS	481727.789	4978137.183	6/1/2006	7.9	J	MG/KG
N3E07-11F-SSD	481727.7928	4978137.488	6/1/2006	6.8	J	MG/KG
N3E07-12B-SS	481698.3334	4978123.939	6/1/2006	4.4	J	MG/KG
N3E07-12F-SS	481726.6888	4978119.395	6/1/2006	6.1	J	MG/KG
N3E07-14F-SS	481728.4681	4978088.675	6/1/2006	3.3	J	MG/KG
N3E07-14SN-SS	481719.2816	4978094.255	6/1/2006	5.3	J	MG/KG
N3E07-14SS-SS	481708.7228	4978079.474	6/1/2006	7		MG/KG
N3E07-15B-SS	481723.1513	4978068.324	6/1/2006	6.6	J	MG/KG
N3E07-15F-SS	481723.1249	4978059.066	6/1/2006	9		MG/KG
N3E07-16B-SS	481713.9602	4978072.053	6/1/2006	7.6		MG/KG
N3E07-16F-SS	481706.0197	4978053.561	6/1/2006	3.2	J	MG/KG
N3E07-17B-SS	481699.0827	4978078.869	6/1/2006	6.4		MG/KG
N3E07-17F-SS	481703.3953	4978055.42	6/1/2006	4.1	J	MG/KG
N3E07-17F-SSR	481703.399	4978055.725	6/1/2006	4.9	J	MG/KG
N3E07-18B-SS	481686.359	4978073.984	6/1/2006	25.5		MG/KG
N3E07-18F-SS	481687.6307	4978059.168	6/1/2006	3.8	J	MG/KG
N3E08-01B-SS	481785.7169	4978222.139	6/2/2006	23.9		MG/KG
N3E08-01F-SS	481754.7503	4978220.18	6/2/2006	89.3		MG/KG
N3E08-01S-SS	481762.9362	4978228.748	6/2/2006	131		MG/KG
N3E08-02B-SS	481814.2534	4978206.924	6/2/2006	6.4		MG/KG
N3E08-02F-SS	481810.3676	4978227.301	6/2/2006	4.5	J	MG/KG
N3E08-03B-SS	481827.4155	4978225.275	6/2/2006	6.8		MG/KG
N3E08-03F-SS	481827.8901	4978201.552	6/2/2006	5.1	J	MG/KG
N3E08-04B-SS	481838.2107	4978201.691	6/2/2006	6.2		MG/KG
N3E08-04F-SS	481836.6594	4978227.226	6/2/2006	4.3	J	MG/KG
N3E08-05B-SS	481843.1741	4978206.842	6/2/2006	3.6	J	MG/KG
N3E08-05F-SS	481848.1255	4978225.961	6/2/2006	3.5	J	MG/KG
N3E08-06B-SS	481811.2471	4978191.942	6/2/2006	56.5		MG/KG
N3E08-06B-SSR	481811.2479	4978192.157	6/2/2006	57.2		MG/KG
N3E08-06F-SS	481850.7283	4978196.109	6/2/2006	25.9		MG/KG
N3E08-06F-SSD	481850.7185	4978196.388	6/2/2006	21.2		MG/KG
N3E08-07B-SS	481825.995	4978175.415	6/2/2006	17.5		MG/KG
N3E08-07F-SS	481850.7476	4978175.361	6/2/2006	6.4		MG/KG
N3E08-07F-SSD	481850.7514	4978175.665	6/2/2006	6.5		MG/KG
N3E08-08B-SS	481816.7462	4978158.778	6/2/2006	47.9		MG/KG
N3E08-08B-SSR	481816.7499	4978159.083	6/2/2006	51.9		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N3E08-08F-SS	481852.3647	4978159.479	6/2/2006	38.1		MG/KG
N3E08-09B-SS	481851.3367	4978148.715	6/2/2006	6.4		MG/KG
N3E08-09B-SSR	481851.3449	4978148.93	6/2/2006	7.6		MG/KG
N3E08-09F-SS	481809.4102	4978147.476	6/2/2006	7		MG/KG
N3E08-09F-SSD	481809.4179	4978147.745	6/2/2006	7.2		MG/KG
N3E08-10B-SS	481821.9145	4978127.289	6/2/2006	5.2	J-	MG/KG
N3E08-10F-SS	481850.6017	4978133.757	6/2/2006	4.8	J-	MG/KG
N3E08-10F-SSR	481850.6054	4978134.061	6/2/2006	5.3	J-	MG/KG
N3E08-11B-SS	481823.2188	4978123.583	6/2/2006	12.2		MG/KG
N3E08-11F-SS	481850.5411	4978117.821	6/2/2006	4.2	J	MG/KG
N3E08-11F-SSD	481850.5448	4978118.126	6/2/2006	4.2	J	MG/KG
N3E08-12B-SS	481851.2118	4978107.217	6/2/2006	6.4		MG/KG
N3E08-12F-SS	481807.9715	4978102.542	6/2/2006	5.1	J	MG/KG
N3E08-13B-SS	481824.4495	4978093.956	6/2/2006	4.3	J	MG/KG
N3E08-13F-SS	481850.5229	4978087.8	6/2/2006	5.2	J	MG/KG
N3E08-14B-SS	481819.1488	4978079.159	6/2/2006	3.6	J	MG/KG
N3E08-14F-SS	481852.1794	4978074.981	6/2/2006	2.3	J	MG/KG
N3E08-15B-SS	481848.0281	4978064.265	6/2/2006	5.7		MG/KG
N3E08-15F-SS	481807.1883	4978059.18	6/2/2006	3.4	J	MG/KG
N3E08-17F-SS	481761.2488	4978058.957	6/2/2006	5	J	MG/KG
N3E08-18B-SS	481774.4628	4978082.989	6/2/2006	3.8	J	MG/KG
N3E08-18B-SSR	481774.4666	4978083.294	6/2/2006	5	J	MG/KG
N3E08-18F-SS	481754.7597	4978088.6	6/2/2006	4.8	J	MG/KG
N3E08-19B-SS	481758.751	4978105.251	6/2/2006	3.5	J	MG/KG
N3E08-19F-SS	481796.8923	4978103.533	6/2/2006	4.4	J	MG/KG
N3E08-20B-SS	481760.6347	4978119.966	6/2/2006	4.5	J	MG/KG
N3E08-20F-SS	481761.9337	4978114.408	6/2/2006	3	J	MG/KG
N3E08-20F-SSD	481761.9374	4978114.712	6/2/2006	3	J	MG/KG
N3E08-21B-SS	481791.7057	4978136.632	6/2/2006	3.5	J	MG/KG
N3E08-21F-SS	481754.7998	4978132.974	6/2/2006	6.5		MG/KG
N3E08-21F-SSD	481754.8035	4978133.278	6/2/2006	6		MG/KG
N3E08-23B-SS	481776.0203	4978168.152	6/2/2006	23.2		MG/KG
N3E08-23B-SSR	481776.0241	4978168.457	6/2/2006	13.6		MG/KG
N3E08-23F-SS	481756.4144	4978161.929	6/2/2006	18.1		MG/KG
N3E08-24B-SS	481786.5578	4978175.527	6/2/2006	72.9		MG/KG
N3E08-24F-SS	481755.7658	4978178.156	6/2/2006	985	J	MG/KG
N3E08-25B-SS	481799.5821	4978190.896	6/2/2006	11.6		MG/KG
N3E08-25F-SS	481755.3597	4978188.682	6/2/2006	47.4		MG/KG
N3E08-26B-SS	481761.4294	4978200.739	6/2/2006	8.5		MG/KG
N3E08-26F-SS	481799.9676	4978206.443	6/2/2006	6.2		MG/KG
N3E09-01B-SS	481882.3454	4978225.309	6/2/2006	4.5	J	MG/KG
N3E09-01F-SS	481886.9252	4978208.084	6/2/2006	3	J	MG/KG
N3E09-02B-SS	481893.5112	4978201.283	6/2/2006	7.4	J	MG/KG
N3E09-02F-SS	481893.465	4978226.129	6/2/2006	3.7	J	MG/KG
N3E09-03B-SS	481906.2839	4978210.365	6/2/2006	6.9	J	MG/KG
N3E09-03F-SS	481902.7253	4978226.313	6/2/2006	2.7	J	MG/KG
N3E09-04B-SS	481912.5403	4978226.184	6/2/2006	4.6	J	MG/KG
N3E09-04F-SS	481912.3296	4978201.071	6/2/2006	4.5	J	MG/KG
N3E09-05B-SS	481920.7701	4978219.581	6/2/2006	4.4	J	MG/KG
N3E09-05F-SS	481922.4602	4978200.899	6/2/2006	5	J	MG/KG
N3E09-06B-SS	481940.4729	4978213.971	6/2/2006	5.1	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N3E09-06F-SS	481939.0808	4978224.707	6/2/2006	3.3	J	MG/KG
N3E09-08B-SS	481952.0292	4978206.558	6/2/2006	5.6	J	MG/KG
N3E09-08F-SS	481976.0874	4978205.069	6/2/2006	5.4	J	MG/KG
N3E09-09B-SS	481960.1287	4978191.698	6/2/2006	4.1	J	MG/KG
N3E09-09S-SS	481974.9088	4978192.406	6/2/2006	4.5	J	MG/KG
N3E09-09S-SSR	481974.9126	4978192.711	6/2/2006	2.9	J	MG/KG
N3E09-10B-SS	481956.138	4978175.046	6/2/2006	3	J	MG/KG
N3E09-10F-SS	481975.9721	4978175.027	6/2/2006	17	J	MG/KG
N3E09-11B-SS	481975.1752	4978163.927	6/2/2006	13.1	J	MG/KG
N3E09-11F-SS	481943.3554	4978158.035	6/2/2006	69.5	J	MG/KG
N3E09-12B-SS	481961.3078	4978143.557	6/2/2006	15	J	MG/KG
N3E09-12F-SS	481976.7045	4978147.798	6/2/2006	33.6	J	MG/KG
N3E09-13B-SS	481954.6986	4978130.616	6/2/2006	6.9	J	MG/KG
N3E09-13F-SS	481976.7333	4978132.47	6/2/2006	5.7	J	MG/KG
N3E09-13F-SSD	481976.7157	4978132.695	6/2/2006	5.6	J	MG/KG
N3E09-14B-SS	481935.6883	4978116.353	6/2/2006	13.3		MG/KG
N3E09-14F-SS	481973.9323	4978117.227	6/2/2006	5.2	J	MG/KG
N3E09-15B-SS	481934.5813	4978102.221	6/2/2006	13.1	J	MG/KG
N3E09-15F-SS	481969.07	4978099.101	6/2/2006	14.3	J	MG/KG
N3E09-16B-SS	481951.9383	4978084.338	6/2/2006	5.7	J	MG/KG
N3E09-16F-SS	481975.7269	4978088.009	6/2/2006	6.8	J	MG/KG
N3E09-17B-SS	481972.8886	4978054.655	6/2/2006	3.9	J	MG/KG
N3E09-17F-SS	481971.0802	4978078.86	6/2/2006	3.8	J	MG/KG
N3E09-18B-SS	481963.7331	4978071.344	6/2/2006	2.7	J	MG/KG
N3E09-18S-SS	481954.5262	4978069.518	6/2/2006	3.5	J	MG/KG
N3E09-18S-SSR	481954.53	4978069.823	6/2/2006	2.8	J	MG/KG
N3E09-19F-SS	481937.4673	4978055.005	6/2/2006	3.4	J	MG/KG
N3E09-19F-SSD	481937.471	4978055.31	6/2/2006	2.8	J	MG/KG
N3E09-19S-SS	481945.3081	4978063.99	6/2/2006	3.9	J	MG/KG
N3E09-20B-SS	481921.2449	4978055.401	6/2/2006	4.3	J	MG/KG
N3E09-20F-SS	481915.0814	4978092.634	6/2/2006	4.8	J	MG/KG
N3E09-21SN-SS	481909.6438	4978078.238	6/2/2006	6.5	J-	MG/KG
N3E09-21SS-SS	481907.1588	4978054.841	6/2/2006	5.3	J	MG/KG
N3E09-22B-SS	481882.2546	4978080.831	6/2/2006	2.8	J	MG/KG
N3E09-22S-SS	481886.1617	4978067.861	6/2/2006	5.8		MG/KG
N3E09-22S-SSR	481886.1654	4978068.165	6/2/2006	4.4	J-	MG/KG
N3E09-23B-SS	481883.6062	4978093.788	6/2/2006	5.9		MG/KG
N3E09-23F-SS	481880.7649	4978087.981	6/2/2006	4.2	J	MG/KG
N3E09-24B-SS	481907.2898	4978101.127	6/2/2006	5.1	J-	MG/KG
N3E09-24F-SS	481878.3947	4978110.466	6/2/2006	14		MG/KG
N3E09-25B-SS	481911.2911	4978121.481	6/2/2006	16.8		MG/KG
N3E09-25F-SS	481878.4157	4978117.872	6/2/2006	20.9		MG/KG
N3E09-26B-SS	481923.4334	4978133.676	6/2/2006	5.3	J	MG/KG
N3E09-26F-SS	481880.3664	4978136.199	6/2/2006	4.4	J	MG/KG
N3E09-27B-SS	481902.806	4978150.299	6/2/2006	4.1	J-	MG/KG
N3E09-27F-SS	481879.825	4978151.194	6/2/2006	3.5	J-	MG/KG
N3E09-28B-SS	481921.158	4978162.532	6/2/2006	6.2		MG/KG
N3E09-28F-SS	481878.5521	4978166.009	6/2/2006	3.6	J	MG/KG
N3E09-29B-SS	481924.5112	4978177.62	6/2/2006	9.3		MG/KG
N3E09-29F-SS	481886.705	4978176.347	6/2/2006	5.9		MG/KG
N3E09-30B-SS	481923.3692	4978190.387	6/2/2006	4.4	J-	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N3E09-30S-SS	481881.9951	4978190.721	6/2/2006	3	J	MG/KG
N3E09-30S-SSD	481881.9989	4978191.026	6/2/2006	2.7	J	MG/KG
N3W04-02F-SS	480565.8263	4978058.158	5/17/2006	6.8		MG/KG
N3W05-17B-SS	480423.6569	4978138.822	5/17/2006	6.1	U	MG/KG
N3W08-02B-SS	480148.7536	4978224.207	5/19/2006	3.5	J	MG/KG
N3W08-02F-SS	480180.7736	4978224.123	5/19/2006	3.7	J	MG/KG
N3W08-04B-SS	480157.8163	4978185.927	5/19/2006	5.4	J	MG/KG
N3W08-04F-SS	480180.2595	4978189.149	5/19/2006	3.7	J	MG/KG
N3W08-05B-SS	480153.8496	4978178.534	5/19/2006	4.9	J	MG/KG
N3W08-05B-SSD	480153.866	4978178.785	5/19/2006	5.4	J	MG/KG
N3W08-05F-SS	480178.8323	4978180.308	5/19/2006	4	J	MG/KG
N3W08-06B-SS	480147.9534	4978155.077	5/19/2006	6.5		MG/KG
N3W08-06S-SS	480168.2296	4978152.569	5/19/2006	4.4	J	MG/KG
N3W08-07B-SS	480155.0493	4978141.501	5/19/2006	4.4	J	MG/KG
N3W08-07F-SS	480181.2793	4978141.917	5/19/2006	4.2	J	MG/KG
N3W08-08B-SS	480148.419	4978123.007	5/19/2006	3.1	J	MG/KG
N3W08-08F-SS	480176.031	4978124.773	5/19/2006	2.4	J	MG/KG
N3W08-09B-SS	480147.5808	4978113.62	5/19/2006	3.7	J	MG/KG
N3W08-09F-SS	480179.448	4978113.706	5/19/2006	4	J	MG/KG
N3W08-10B-SS	480149.6761	4978104.488	5/19/2006	4.6	J	MG/KG
N3W08-10F-SS	480177.294	4978108.106	5/19/2006	4.5	J	MG/KG
N3W08-11B-SS	480156.2146	4978093.359	5/19/2006	3.4	J	MG/KG
N3W08-11F-SS	480178.5626	4978093.29	5/19/2006	3.9	J	MG/KG
N3W08-12B-SS	480175.1725	4978080.856	5/19/2006	4.6	J	MG/KG
N3W08-12F-SS	480175.2286	4978055.719	5/19/2006	5.4	J	MG/KG
N3W08-13B-SS	480160.1124	4978078.536	5/19/2006	4.5	J	MG/KG
N3W08-13F-SS	480162.6784	4978058.162	5/19/2006	4.4	J	MG/KG
N3W08-13F-SSR	480162.6867	4978058.388	5/19/2006	4.4	J	MG/KG
N3W09-01F-SS	480007.6324	4978223.424	5/18/2006	4.8	J	MG/KG
N3W09-02B-SS	480016.3384	4978204.882	5/18/2006	34.8	J	MG/KG
N3W09-02F-SS	480017.7052	4978227.813	5/18/2006	29.3	J	MG/KG
N3W09-03B-SS	480022.9112	4978204.862	5/18/2006	40	J	MG/KG
N3W09-03F-SS	480026.9027	4978227.507	5/18/2006	78.8	J	MG/KG
N3W09-04B-SS	480033.8756	4978207.913	5/18/2006	5.6	J	MG/KG
N3W09-04F-SS	480036.2707	4978227.319	5/18/2006	6.4	J	MG/KG
N3W09-08B-SS	480051.3743	4978198.602	5/18/2006	2.7	J	MG/KG
N3W09-08F-SS	480075.0385	4978199.145	5/18/2006	3.9	J	MG/KG
N3W09-09B-SS	480053.5268	4978186.252	5/18/2006	3.1	J-	MG/KG
N3W09-09F-SS	480071.0544	4978186.197	5/18/2006	7.3	J	MG/KG
N3W09-10B-SS	480053.4979	4978176.995	5/18/2006	2.2	J+	MG/KG
N3W09-10F-SS	480068.8346	4978176.947	5/18/2006	31.8	J	MG/KG
N3W09-11B-SS	480053.4594	4978164.652	5/18/2006	4.1	J+	MG/KG
N3W09-11F-SS	480070.9675	4978165.298	5/18/2006	33.9		MG/KG
N3W09-12B-SS	480051.658	4978150.627	5/18/2006	5.3	J+	MG/KG
N3W09-12F-SS	480070.9487	4978152.254	5/18/2006	6.1		MG/KG
N3W09-13SE-SS	480070.891	4978133.74	5/18/2006	18.2		MG/KG
N3W09-13SE-SSD	480070.8814	4978133.956	5/18/2006	25.9		MG/KG
N3W09-13SW-SS	480055.5638	4978136.873	5/18/2006	31.1		MG/KG
N3W09-14B-SS	480055.506	4978118.359	5/18/2006	7.2		MG/KG
N3W09-14F-SS	480079.5384	4978117.302	5/18/2006	6.1	J+	MG/KG
N3W09-15B-SS	480062.0597	4978112.167	5/18/2006	20.8		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N3W09-15B-SSR	480062.0804	4978112.457	5/18/2006	16.5		MG/KG
N3W09-15F-SS	480077.7954	4978108.046	5/18/2006	42.6		MG/KG
N3W09-16B-SS	480051.0567	4978096.772	5/18/2006	4.4	J+	MG/KG
N3W09-16F-SS	480080.5987	4978096.369	5/18/2006	4.8	J+	MG/KG
N3W09-16S-SS	480061.24	4978088.901	5/18/2006	4.2	J+	MG/KG
N3W09-17B-SS	480053.2092	4978084.423	5/18/2006	4.2	J+	MG/KG
N3W09-17F-SS	480081.6825	4978081.248	5/18/2006	5.9		MG/KG
N3W09-19B-SS	480058.66	4978058.392	5/18/2006	6.1		MG/KG
N3W09-19S-SS	480066.2686	4978056.61	5/18/2006	4.9	J+	MG/KG
N3W09-20B-SS	480048.4173	4978071.796	5/18/2006	7.4		MG/KG
N3W09-20F-SS	480048.7599	4978062.836	5/18/2006	13.6		MG/KG
N3W09-21S-SS	480018.2934	4978054.858	5/18/2006	2.7	J-	MG/KG
N3W09-22F-SS	480004.9714	4978056.353	5/18/2006	5.5	J	MG/KG
N3W09-22F-SSR	480004.9922	4978056.654	5/18/2006	6.7		MG/KG
N3W09-22S-SS	480010.2698	4978066.375	5/18/2006	3.8	J	MG/KG
N3W09-23B-SS	480036.5807	4978080.716	5/18/2006	6	J	MG/KG
N3W09-23F-SS	480002.247	4978081.288	5/18/2006	4.6	J	MG/KG
N3W09-24B-SS	480022.5546	4978090.69	5/18/2006	5.8		MG/KG
N3W09-24F-SS	480002.2712	4978102.868	5/18/2006	3	J	MG/KG
N3W09-24S-SS	480016.3358	4978103.088	5/18/2006	2.7	J-	MG/KG
N3W09-24S-SSD	480016.311	4978103.34	5/18/2006	2.7	J-	MG/KG
N3W09-25B-SS	480024.7938	4978106.112	5/18/2006	3.5	J	MG/KG
N3W09-25F-SS	480002.3173	4978110.151	5/18/2006	3.2	J	MG/KG
N3W09-26B-SS	480037.594	4978116.288	5/18/2006	3.4	J	MG/KG
N3W09-26F-SS	480002.8312	4978115.674	5/18/2006	3.2	J	MG/KG
N3W09-27B-SS	480038.0419	4978124.68	5/18/2006	5	J	MG/KG
N3W09-27F-SS	480003.2794	4978124.221	5/18/2006	3	J-	MG/KG
N3W09-27S-SS	480018.2787	4978124.646	5/18/2006	3.3	J	MG/KG
N3W09-28BN-SS	480022.7763	4978161.662	5/18/2006	6.2		MG/KG
N3W09-28BS-SS	480027.1004	4978143.134	5/18/2006	3.6	J	MG/KG
N3W09-28FN-SS	480003.0286	4978152.466	5/18/2006	3.6	J	MG/KG
N3W09-28FN-SSD	480003.0191	4978152.682	5/18/2006	4.6	J	MG/KG
N3W09-28FS-SS	480002.9804	4978137.037	5/18/2006	3.6	J+	MG/KG
N3W09-29B-SS	480022.7763	4978161.662	5/18/2006	4.3	J	MG/KG
N3W09-29F-SS	480003.7486	4978162.064	5/18/2006	4.2	J	MG/KG
N3W09-30B-SS	480022.8052	4978170.919	5/18/2006	6.7		MG/KG
N3W09-30F-SS	480003.3274	4978173.027	5/18/2006	3.2	J	MG/KG
N3W09-31B-SS	480020.6817	4978192.526	5/18/2006	3.6	J	MG/KG
N3W09-31S-SS	480011.889	4978183.296	5/18/2006	3.4	J	MG/KG
N3W09-32B-SS	480006.0984	4978217.211	5/18/2006	4.6	J	MG/KG
N3W09-32F-SS	480005.3933	4978208.002	5/18/2006	4.4	J	MG/KG
N3W10-01F-SS	479904.8033	4978227.124	5/18/2006	3.2	J	MG/KG
N3W10-01S-SS	479918.7678	4978228.239	5/18/2006	3.6	J	MG/KG
N3W10-02B-SS	479947.0974	4978213.559	5/18/2006	4.7	J	MG/KG
N3W10-03F-SS	479969.9598	4978227.245	5/18/2006	3.9	J-	MG/KG
N3W10-03S-SS	479977.8298	4978221.666	5/18/2006	2.6	J	MG/KG
N3W10-04B-SS	479947.2709	4978208.011	5/18/2006	6.5		MG/KG
N3W10-04F-SS	479980.4184	4978208.698	5/18/2006	5	J	MG/KG
N3W10-05F-SS	479976.4167	4978190.196	5/18/2006	4.6	J	MG/KG
N3W10-05S-SS	479947.8571	4978194.513	5/18/2006	14.4		MG/KG
N3W10-06B-SS	479952.7079	4978175.458	5/18/2006	3	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N3W10-06F-SS	479978.9821	4978169.822	5/18/2006	2.8	J	MG/KG
N3W10-07B-SS	479944.8774	4978155.806	5/18/2006	3.6	J	MG/KG
N3W10-07F-SS	479977.627	4978156.866	5/18/2006	3.9	J	MG/KG
N3W10-08B-SS	479952.6267	4978149.538	5/18/2006	67.2		MG/KG
N3W10-08F-SS	479980.2217	4978145.372	5/18/2006	196		MG/KG
N3W10-08F-SSD	479980.1969	4978145.624	5/18/2006	251		MG/KG
N3W10-09B-SS	479948.6539	4978140.293	5/18/2006	5.2	J-	MG/KG
N3W10-09F-SS	479978.872	4978134.644	5/18/2006	7.5		MG/KG
N3W10-10B-SS	479951.2309	4978123.622	5/18/2006	4.3	J	MG/KG
N3W10-10F-SS	479974.8935	4978123.548	5/18/2006	5.2	J	MG/KG
N3W10-11B-SS	479956.4544	4978112.497	5/18/2006	4.4	J	MG/KG
N3W10-11F-SS	479977.4878	4978112.431	5/18/2006	3.4	J	MG/KG
N3W10-12B-SS	479953.7962	4978103.248	5/18/2006	7.4		MG/KG
N3W10-12F-SS	479974.7717	4978084.668	5/18/2006	3.1	J	MG/KG
N3W10-12S-SS	479959.0082	4978088.42	5/18/2006	3.3	J	MG/KG
N3W10-13B-SS	479956.3268	4978071.765	5/18/2006	3.6	J	MG/KG
N3W10-13B-SSD	479956.3019	4978072.017	5/18/2006	4.1	J	MG/KG
N3W10-13F-SS	479973.4107	4978069.86	5/18/2006	3.6	J	MG/KG
N3W10-14B-SS	479945.7011	4978060.416	5/18/2006	7.6		MG/KG
N3W10-14F-SS	479981.2578	4978056.875	5/18/2006	3.8	J	MG/KG
N3W10-15B-SS	479924.7474	4978062.607	5/18/2006	3.3	J	MG/KG
N3W10-15F-SS	479901.0787	4978060.83	5/18/2006	2.6	J	MG/KG
N3W10-16B-SS	479915.5859	4978075.596	5/18/2006	3.5	J	MG/KG
N3W10-16F-SS	479903.7487	4978073.782	5/18/2006	3.4	J	MG/KG
N3W10-17B-SS	479936.377	4978083.971	5/18/2006	5.9	J	MG/KG
N3W10-17B-SSR	479936.3742	4978084.323	5/18/2006	7.5		MG/KG
N3W10-17F-SS	479906.4069	4978083.031	5/18/2006	28.7		MG/KG
N3W10-18B-SS	479923.5548	4978101.491	5/18/2006	68.6		MG/KG
N3W10-18F-SS	479903.3915	4978097.271	5/18/2006	94.1		MG/KG
N3W10-19B-SS	479918.3429	4978116.319	5/18/2006	9.7		MG/KG
N3W10-19F-SS	479903.1814	4978113.44	5/18/2006	13		MG/KG
N3W10-20B-SS	479919.6587	4978126.054	5/18/2006	3.3	J	MG/KG
N3W10-20B-SSR	479919.6798	4978126.378	5/18/2006	4	J	MG/KG
N3W10-20F-SS	479902.9368	4978121.883	5/18/2006	6.1	J	MG/KG
N3W10-21B-SS	479922.3448	4978134.821	5/18/2006	7.4		MG/KG
N3W10-21S-SS	479902.6319	4978136.735	5/18/2006	4.8	J	MG/KG
N3W10-22B-SS	479936.5243	4978146.731	5/18/2006	4.2	J-	MG/KG
N3W10-22F-SS	479902.5023	4978147.73	5/18/2006	3.6	J	MG/KG
N3W10-23B-SS	479930.3137	4978160.717	5/18/2006	2.8	J	MG/KG
N3W10-23F-SS	479906.6512	4978160.791	5/18/2006	2.4	J	MG/KG
N3W10-24B-SS	479919.8319	4978171.858	5/18/2006	1.8	J	MG/KG
N3W10-24F-SS	479904.4143	4978173.719	5/18/2006	2	J	MG/KG
N3W10-25F-SS	479904.3785	4978189.602	5/18/2006	7.1		MG/KG
N3W10-26B-SS	479922.5773	4978208.879	5/18/2006	114		MG/KG
N3W10-26F-SS	479904.1675	4978207.085	5/18/2006	30.9		MG/KG
N3W10-27B-SS	479937.9306	4978215.709	5/18/2006	3.9	J	MG/KG
N3W10-27F-SS	479904.0039	4978217.087	5/18/2006	4.5	J	MG/KG
N3W11-01B-SS	479823.6028	4978227.088	5/18/2006	5	J	MG/KG
N3W11-02B-SS	479852.0754	4978223.912	5/18/2006	2.5	J	MG/KG
N3W11-02F-SS	479882.679	4978225.019	5/18/2006	2.3	J	MG/KG
N3W11-03F-SS	479848.0994	4978208.392	5/18/2006	4.1	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N3W11-04B-SS	479857.225	4978206.657	5/18/2006	3.4	J	MG/KG
N3W11-04F-SS	479880.4994	4978205.308	5/18/2006	3.6	J	MG/KG
N3W11-05B-SS	479854.1594	4978189.962	5/18/2006	4.3	J	MG/KG
N3W11-05F-SS	479876.0593	4978186.808	5/18/2006	3.6	J	MG/KG
N3W11-06B-SS	479849.758	4978183.805	8/16/2006	4.8	J	MG/KG
N3W11-06F-SS	479876.0398	4978180.636	8/16/2006	5.7		MG/KG
N3W11-07B-SS	479860.6642	4978168.342	5/18/2006	4.4	J	MG/KG
N3W11-07F-SS	479880.3926	4978171.365	5/18/2006	4.9	J	MG/KG
N3W11-08B-SS	479850.7549	4978161.62	5/21/2006	2.9	J	MG/KG
N3W11-08F-SS	479880.3635	4978162.108	5/21/2006	4.2	J	MG/KG
N3W11-09B-SS	479858.0001	4978157.241	5/21/2006	3.7	J	MG/KG
N3W11-09F-SS	479877.7246	4978159.031	5/21/2006	4	J	MG/KG
N3W11-10B-SS	479851.8227	4978143.683	5/18/2006	3.6	J	MG/KG
N3W11-10F-SS	479881.0408	4978146.54	5/18/2006	6.5		MG/KG
N3W11-11B-SS	479853.9845	4978134.419	5/18/2006	3.8	J	MG/KG
N3W11-11F-SS	479878.0949	4978137.429	5/18/2006	12.5		MG/KG
N3W11-12B-SS	479851.796	4978113.175	5/18/2006	4	J	MG/KG
N3W11-12F-SS	479873.6644	4978122.014	5/18/2006	4.1	J	MG/KG
N3W11-13B-SS	479851.6963	4978103.569	5/18/2006	4.5	J	MG/KG
N3W11-13F-SS	479875.7971	4978103.493	5/18/2006	3.4	J	MG/KG
N3W11-14B-SS	479856.0297	4978088.126	5/18/2006	1.8	J	MG/KG
N3W11-14F-SS	479877.9687	4978097.314	5/18/2006	2.7	J	MG/KG
N3W11-15B-SS	479860.3825	4978078.855	5/18/2006	2.9	J	MG/KG
N3W11-15F-SS	479875.7097	4978075.721	5/18/2006	2.5	J	MG/KG
N3W11-16B-SS	479853.7415	4978057.276	5/18/2006	3	J	MG/KG
N3W11-16F-SS	479875.6515	4978057.207	5/18/2006	3.8	J	MG/KG
N3W11-16S-SS	479866.8778	4978054.149	5/18/2006	3.2	J	MG/KG
N3W11-17B-SS	479835.8004	4978064.861	5/18/2006	3.5	J	MG/KG
N3W11-17F-SS	479831.3989	4978058.704	5/18/2006	3.6	J	MG/KG
N3W11-19B-SS	479823.3692	4978153.03	5/18/2006	3.6	J	MG/KG
N3W11-19F-SS	479804.6078	4978155.185	5/18/2006	4.1	J	MG/KG
N3W11-20B-SS	479821.2172	4978165.38	5/18/2006	4.2	J	MG/KG
N3W11-20F-SS	479804.4991	4978165.366	5/18/2006	3.7	J-	MG/KG
N3W11-21B-SS	479821.2464	4978174.637	5/18/2006	6.5	J-	MG/KG
N3W11-21F-SS	479803.709	4978171.607	5/18/2006	4.8	J	MG/KG
N3W11-22B-SS	479839.2226	4978190.037	5/18/2006	7.3		MG/KG
N3W11-22F-SS	479804.2229	4978191.569	5/18/2006	9.5	J-	MG/KG
N3W11-22S-SS	479814.693	4978180.83	5/18/2006	4.8	J	MG/KG
N3W11-23B-SS	479825.7354	4978208.567	5/18/2006	5.3	J	MG/KG
N3W11-23F-SS	479806.1471	4978207.896	5/18/2006	2.9	J	MG/KG
N3W11-24B-SS	479825.7743	4978220.91	5/18/2006	3.3	J	MG/KG
N3W11-24B-SSR	479825.7722	4978221.2	5/18/2006	3.7	J	MG/KG
N3W11-24F-SS	479805.6672	4978217.39	5/18/2006	2.3	J	MG/KG
N3W12-01B-SS	479720.1805	4978224.329	5/21/2006	3.6	J	MG/KG
N3W12-01F-SS	479705.7144	4978222.524	5/21/2006	2.5	J	MG/KG
N3W12-02B-SS	479753.0505	4978226.077	5/18/2006	2.3	J	MG/KG
N3W12-02F-SS	479779.3536	4978229.696	5/18/2006	2.5	J	MG/KG
N3W12-03B-SS	479749.0599	4978211.278	5/18/2006	1.5	J	MG/KG
N3W12-03F-SS	479781.8201	4978210.028	5/18/2006	3.4	J	MG/KG
N3W12-04B-SS	479752.9743	4978202.008	5/18/2006	3	J	MG/KG
N3W12-04F-SS	479777.9278	4978194.523	5/18/2006	6.4		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N3W12-04F-SSD	479777.9184	4978194.756	5/18/2006	5.2	J	MG/KG
N3W12-04S-SS	479764.7879	4978196.416	5/18/2006	4.8	J	MG/KG
N3W12-05B-SS	479746.3253	4978177.96	5/18/2006	3.6	J	MG/KG
N3W12-05F-SS	479768.6731	4978177.889	5/18/2006	12.3		MG/KG
N3W12-05F-SSD	479768.6634	4978178.097	5/18/2006	19.4		MG/KG
N3W12-06B-SS	479751.5777	4978176.092	5/18/2006	11.8		MG/KG
N3W12-06F-SS	479780.4549	4978173.825	5/18/2006	34.2		MG/KG
N3W12-07B-SS	479747.5812	4978159.441	5/18/2006	2.8	J	MG/KG
N3W12-07F-SS	479767.2765	4978151.973	5/18/2006	4.5	J	MG/KG
N3W12-08B-SS	479747.2003	4978145.112	5/21/2006	2	J	MG/KG
N3W12-08F-SS	479777.7697	4978144.534	5/21/2006	2.6	J	MG/KG
N3W12-09B-SS	479756.713	4978137.195	5/21/2006	2	J	MG/KG
N3W12-09F-SS	479776.42	4978133.43	5/21/2006	2.3	J	MG/KG
N3W12-10B-SS	479751.4019	4978120.549	5/18/2006	3.1	J	MG/KG
N3W12-10F-SS	479780.3723	4978122.283	5/18/2006	4.6	J	MG/KG
N3W12-11B-SS	479748.7376	4978109.448	5/18/2006	28.1		MG/KG
N3W12-11F-SS	479777.6585	4978109.357	5/18/2006	26.6		MG/KG
N3W12-11F-SSR	479777.6792	4978109.647	5/18/2006	35.1		MG/KG
N3W12-12B-SS	479746.0556	4978092.794	5/18/2006	3.9	J	MG/KG
N3W12-12F-SS	479779.4307	4978095.452	5/18/2006	3.2	J	MG/KG
N3W12-13B-SS	479745.8208	4978083.621	5/18/2006	4.4	J	MG/KG
N3W12-13F-SS	479771.0095	4978085.309	5/18/2006	2.4	J	MG/KG
N3W12-14B-SS	479756.5137	4978074.246	5/18/2006	2.2	J	MG/KG
N3W12-14F-SS	479777.5473	4978074.179	5/18/2006	2.9	J-	MG/KG
N3W12-15F-SS	479774.883	4978063.079	5/18/2006	5.5	J	MG/KG
N3W12-17B-SS	479736.039	4978065.084	5/18/2006	5.5	UJ	MG/KG
N3W12-18F-SS	479718.9851	4978056.193	5/18/2006	11.8		MG/KG
N3W12-18S-SS	479722.8699	4978068.68	5/18/2006	10.2		MG/KG
N3W12-19F-SS	479701.9618	4978054.868	5/18/2006	1.7	J	MG/KG
N3W12-19S-SS	479699.9449	4978061.465	5/18/2006	3.9	J	MG/KG
N3W12-20B-SS	479717.1169	4978087.331	5/18/2006	5.5	J	MG/KG
N3W12-20F-SS	479700.0096	4978081.831	5/18/2006	4.1	J	MG/KG
N3W12-21F-SS	479701.3578	4978087.367	5/18/2006	1.8	J	MG/KG
N3W12-22F-SS	479702.1471	4978094.729	5/18/2006	2.7	J	MG/KG
N3W12-23B-SS	479726.3895	4978109.519	5/18/2006	0.85	J	MG/KG
N3W12-23F-SS	479700.918	4978112.725	5/18/2006	5.3	J	MG/KG
N3W12-24B-SS	479726.4482	4978128.033	5/18/2006	3.9	J	MG/KG
N3W12-24B-SSD	479726.4379	4978128.193	5/18/2006	4.3	J	MG/KG
N3W12-24F-SS	479701.6578	4978121.963	5/18/2006	4.6	J	MG/KG
N3W12-25B-SS	479726.4834	4978139.142	5/18/2006	3.3	J	MG/KG
N3W12-25F-SS	479703.591	4978135.457	5/18/2006	3.4	J	MG/KG
N3W12-26B-SS	479725.1805	4978142.849	5/18/2006	5.6	J	MG/KG
N3W12-26F-SS	479703.5257	4978144.75	5/18/2006	4.5	J	MG/KG
N3W12-27B-SS	479726.5421	4978157.657	5/18/2006	27		MG/KG
N3W12-27F-SS	479701.541	4978154.877	5/18/2006	6	J	MG/KG
N3W12-28B-SS	479721.2955	4978161.376	5/18/2006	59.6		MG/KG
N3W12-28F-SS	479701.6334	4978165.626	5/18/2006	95.7		MG/KG
N3W12-29F-SS	479702.4364	4978174.155	5/18/2006	5.4	J	MG/KG
N3W12-30B-SS	479726.6419	4978189.131	5/18/2006	11.5		MG/KG
N3W12-30F-SS	479703.0267	4978188.51	5/18/2006	4.5	J	MG/KG
N3W12-30F-SSR	479703.0469	4978188.766	5/18/2006	5.4	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N3W12-31B-SS	479736.6759	4978195.928	5/18/2006	5	J	MG/KG
N3W12-31F-SS	479703.523	4978196.153	5/18/2006	4.5	J	MG/KG
N3W12-32B-SS	479738.0116	4978204.509	5/21/2006	4.4	J	MG/KG
N3W12-32F-SS	479703.0383	4978207.72	5/21/2006	4.7	J	MG/KG
N3W13-01B-SS	479624.227	4978227.72	5/18/2006	7.1		MG/KG
N3W13-01F-SS	479604.2755	4978226.344	5/18/2006	6.3		MG/KG
N3W13-02S-SS	479654.9002	4978227.622	5/18/2006	5	J	MG/KG
N3W13-03B-SS	479657.0715	4978221.444	5/18/2006	3.9	J	MG/KG
N3W13-03F-SS	479672.3983	4978218.309	5/18/2006	3.5	J	MG/KG
N3W13-03F-SSR	479672.419	4978218.6	5/18/2006	4.8	J	MG/KG
N3W13-04B-SS	479654.802	4978196.765	5/18/2006	6.3		MG/KG
N3W13-04B-SSD	479654.7772	4978197.017	5/18/2006	6.4		MG/KG
N3W13-04F-SS	479674.5304	4978199.788	5/18/2006	5.1	J	MG/KG
N3W13-04F-SSR	479674.5507	4978200.044	5/18/2006	6.4		MG/KG
N3W13-05B-SS	479650.3907	4978187.522	5/18/2006	4.6	J	MG/KG
N3W13-05F-SS	479678.8535	4978181.26	5/18/2006	4.5	J	MG/KG
N3W13-06B-SS	479656.9047	4978168.986	5/18/2006	5.3	J	MG/KG
N3W13-06F-SS	479676.6331	4978172.009	5/18/2006	11.5		MG/KG
N3W13-07F-SS	479681.9331	4978157.361	5/18/2006	3.5	J	MG/KG
N3W13-08F-SS	479680.4468	4978143.971	5/18/2006	5.8	J	MG/KG
N3W13-08S-SS	479660.9354	4978149.497	5/18/2006	4.9	J	MG/KG
N3W13-09B-SS	479648.0131	4978128.9	5/18/2006	5.6	J	MG/KG
N3W13-09F-SS	479674.3245	4978134.988	5/18/2006	6.2		MG/KG
N3W13-10B-SS	479654.5468	4978116.536	5/18/2006	6.9		MG/KG
N3W13-10F-SS	479669.8837	4978116.487	5/18/2006	6.5		MG/KG
N3W13-11B-SS	479654.4879	4978098.021	5/18/2006	6.2		MG/KG
N3W13-11F-SS	479674.2068	4978097.959	5/18/2006	5.1	J	MG/KG
N3W13-12B-SS	479650.0667	4978085.692	5/18/2006	9.5		MG/KG
N3W13-12F-SS	479679.5841	4978086.3	5/18/2006	5.8	J	MG/KG
N3W13-12S-SS	479654.4389	4978082.593	5/18/2006	3.7	J	MG/KG
N3W13-13B-SS	479656.6004	4978073.329	5/18/2006	4	J	MG/KG
N3W13-13F-SS	479671.9472	4978076.366	5/18/2006	6		MG/KG
N3W13-14B-SS	479645.5963	4978057.935	5/18/2006	7.6		MG/KG
N3W13-14F-SS	479678.4712	4978060.916	5/18/2006	7		MG/KG
N3W13-14S-SS	479669.7072	4978060.944	5/18/2006	6.2		MG/KG
N3W13-14S-SSD	479669.7104	4978061.211	5/18/2006	6.8		MG/KG
N3W13-15F-SS	479601.2517	4978058.692	5/18/2006	7.4		MG/KG
N3W13-15S-SS	479606.1583	4978058.06	5/18/2006	6.4		MG/KG
N3W13-16B-SS	479612.7706	4978070.382	5/18/2006	6.9		MG/KG
N3W13-16F-SS	479601.495	4978075.481	5/18/2006	6.3		MG/KG
N3W13-17F-SS	479602.1692	4978091.704	5/18/2006	6.2		MG/KG
N3W13-17S-SS	479606.2468	4978085.832	5/18/2006	6.4		MG/KG
N3W13-18B-SS	479630.4185	4978107.973	5/18/2006	5.3	J	MG/KG
N3W13-18F-SS	479603.5209	4978102.473	5/18/2006	5.7	J	MG/KG
N3W13-19F-SS	479601.9534	4978113.618	5/18/2006	5.4	J	MG/KG
N3W13-20B-SS	479616.9157	4978126.527	5/18/2006	61.1		MG/KG
N3W13-20F-SS	479602.9921	4978130.564	5/18/2006	110		MG/KG
N3W13-21B-SS	479635.7948	4978144.985	5/18/2006	6	J	MG/KG
N3W13-21F-SS	479603.1022	4978146.867	5/18/2006	7.3		MG/KG
N3W13-22B-SS	479628.3926	4978159.82	5/18/2006	8.4		MG/KG
N3W13-22F-SS	479603.2098	4978157.586	5/18/2006	6.5		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N3W13-23B-SS	479630.6328	4978175.242	5/18/2006	4.6	J	MG/KG
N3W13-23B-SSR	479630.6538	4978175.566	5/18/2006	4.7	J	MG/KG
N3W13-23F-SS	479603.9982	4978170.251	5/18/2006	5.2	J	MG/KG
N3W13-24B-SS	479629.3516	4978185.737	5/18/2006	4.5	J	MG/KG
N3W13-24F-SS	479603.1373	4978183.933	5/18/2006	4.2	J	MG/KG
N3W13-25B-SS	479628.5204	4978199.934	5/18/2006	3.2	J	MG/KG
N3W13-25F-SS	479604.0407	4978198.825	5/18/2006	4.7	J	MG/KG
N3W13-26B-SS	479626.3885	4978218.456	5/18/2006	4.6	J	MG/KG
N3W13-26F-SS	479603.5342	4978214.601	5/18/2006	4.9	J	MG/KG
N3W14-01B-SS	479522.9955	4978224.958	5/19/2006	59.2		MG/KG
N3W14-01F-SS	479504.8278	4978225.151	5/19/2006	38.8		MG/KG
N3W14-03F-SS	479578.1896	4978219.227	5/19/2006	4	J	MG/KG
N3W14-03F-SSD	479578.2062	4978219.505	5/19/2006	6	J	MG/KG
N3W14-05B-SS	479546.5689	4978197.11	5/19/2006	6.1	J	MG/KG
N3W14-05F-SS	479580.7123	4978185.892	5/19/2006	5.8	J	MG/KG
N3W14-06B-SS	479551.7384	4978169.322	5/19/2006	3.6	J	MG/KG
N3W14-06F-SS	479579.2155	4978166.92	5/19/2006	5.1	J	MG/KG
N3W14-07B-SS	479548.3673	4978156.319	5/19/2006	4.2	J	MG/KG
N3W14-07B-SSR	479548.3658	4978156.645	5/19/2006	4.8	J	MG/KG
N3W14-07F-SS	479578.0063	4978161.832	5/19/2006	6.3		MG/KG
N3W14-08B-SS	479546.4031	4978145.27	5/19/2006	5.1	J	MG/KG
N3W14-08F-SS	479575.3121	4978141.475	5/19/2006	4.1	J	MG/KG
N3W14-09F-SS	479576.6031	4978134.065	5/19/2006	4.9	J	MG/KG
N3W14-09S-SS	479552.9346	4978132.289	5/19/2006	6.6		MG/KG
N3W14-10B-SS	479546.519	4978115.467	5/19/2006	5.4	J	MG/KG
N3W14-10B-SSD	479546.5102	4978115.748	5/19/2006	6.2		MG/KG
N3W14-10F-SS	479579.3301	4978114.693	5/19/2006	1.7	J-	MG/KG
N3W14-11F-SS	479579.4317	4978102.542	5/19/2006	31		MG/KG
N3W14-11S-SS	479562.1651	4978090.181	5/19/2006	115		MG/KG
N3W14-12B-SS	479546.8255	4978073.899	5/19/2006	3.8	J	MG/KG
N3W14-12F-SS	479575.1052	4978076.674	5/19/2006	4.3	J	MG/KG
N3W14-13F-SS	479567.1585	4978058.185	5/19/2006	3.3	J	MG/KG
N3W14-13S-SS	479567.6252	4978067.504	5/19/2006	3.5	J	MG/KG
N3W14-15B-SS	479521.1534	4978060.183	5/19/2006	2.6	J	MG/KG
N3W14-15F-SS	479502.7749	4978060.159	5/19/2006	3.4	J	MG/KG
N3W14-16B-SS	479535.186	4978074.544	5/19/2006	6.4		MG/KG
N3W14-16B-SSR	479535.2067	4978074.834	5/19/2006	5.8	J	MG/KG
N3W14-16F-SS	479502.7092	4978075.298	5/19/2006	3.3	J	MG/KG
N3W14-17B-SS	479522.5628	4978089.802	5/19/2006	5.6	J	MG/KG
N3W14-17F-SS	479505.4672	4978088.006	5/19/2006	2.5	J	MG/KG
N3W14-18B-SS	479530.4859	4978100.886	5/19/2006	5.4	J	MG/KG
N3W14-18F-SS	479506.3113	4978101.781	5/19/2006	4	J	MG/KG
N3W14-19B-SS	479520.0048	4978112.028	5/19/2006	5	J	MG/KG
N3W14-19F-SS	479500.2918	4978113.943	5/19/2006	4.5	J	MG/KG
N3W14-20B-SS	479524.0019	4978128.678	5/19/2006	3.8	J	MG/KG
N3W14-20F-SS	479503.2253	4978130.558	5/19/2006	4.5	J	MG/KG
N3W14-21F-SS	479502.9351	4978143.931	5/19/2006	6.6	J	MG/KG
N3W14-22B-SS	479518.8324	4978156.467	5/19/2006	26.2	J	MG/KG
N3W14-22F-SS	479504.617	4978154.623	5/19/2006	59.4	J	MG/KG
N3W14-22F-SSD	479504.6079	4978154.88	5/19/2006	63.6	J	MG/KG
N3W14-23B-SS	479518.8799	4978171.278	5/19/2006	2.8	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N3W14-23F-SS	479503.6752	4978171.795	5/19/2006	3.2	J	MG/KG
N3W14-24B-SS	479522.8533	4978180.523	5/19/2006	4	J	MG/KG
N3W14-24F-SS	479503.4152	4978189.805	5/19/2006	3.3	J	MG/KG
N3W14-25B-SS	479525.5357	4978197.177	5/19/2006	4.4	J	MG/KG
N3W14-25F-SS	479501.8853	4978200.956	5/19/2006	6.1	J	MG/KG
N3W14-26B-SS	479522.954	4978211.997	5/19/2006	5.9	J	MG/KG
N3W14-26B-SSD	479522.9452	4978212.279	5/19/2006	5.7	J	MG/KG
N3W14-26F-SS	479504.795	4978210.166	5/19/2006	6.3	J	MG/KG
N4E01-02F-SS	480969.6245	4978412.857	6/1/2006	2.1	J	MG/KG
N4E01-02S-SS	480972.6366	4978427.21	6/1/2006	2.8	J	MG/KG
N4E02-02B-SS	481030.0378	4978405.456	6/1/2006	4.5	J	MG/KG
N4E02-02F-SS	481030.0982	4978425.822	6/1/2006	4.4	J	MG/KG
N4E02-03B-SS	481052.3799	4978403.539	6/1/2006	3.3	J	MG/KG
N4E02-03F-SS	481040.6149	4978425.791	6/1/2006	5.7		MG/KG
N4E02-04B-SS	481061.5591	4978396.105	6/1/2006	4.7	J	MG/KG
N4E02-04B-SSD	481061.5628	4978396.41	6/1/2006	4.4	J	MG/KG
N4E02-04F-SS	481060.4517	4978425.278	6/1/2006	4	J	MG/KG
N4E02-05B-SS	481083.9418	4978427.18	6/1/2006	3.3	J	MG/KG
N4E02-05B-SSR	481083.9456	4978427.485	6/1/2006	3.1	J	MG/KG
N4E02-05S-SS	481103.6834	4978422.595	6/1/2006	3.2	J	MG/KG
N4E02-06B-SS	481085.6867	4978415.654	6/1/2006	2.6	J	MG/KG
N4E02-06F-SS	481108.4885	4978408.768	6/1/2006	3.5	J	MG/KG
N4E02-07B-SS	481076.0025	4978393.948	6/1/2006	2.5	J	MG/KG
N4E02-07F-SS	481106.7367	4978392.667	6/1/2006	3	J	MG/KG
N4E02-07F-SSD	481106.7404	4978392.972	6/1/2006	3	J	MG/KG
N4E02-08B-SS	481088.5879	4978381.874	6/1/2006	5.2		MG/KG
N4E02-08F-SS	481108.8439	4978383.005	6/1/2006	3.1	J	MG/KG
N4E02-08S-SS	481103.5808	4978381.17	6/1/2006	3.1	J	MG/KG
N4E02-09F-SS	481108.9173	4978364.899	6/1/2006	3.5	J	MG/KG
N4E02-10B-SS	481063.7371	4978352.496	6/1/2006	5.8		MG/KG
N4E02-10F-SS	481103.5029	4978350.199	6/1/2006	2.7	J	MG/KG
N4E02-10F-SSR	481103.5237	4978350.501	6/1/2006	2.3	J	MG/KG
N4E02-11B-SS	481082.4166	4978336.797	6/1/2006	15.7	J	MG/KG
N4E02-11F-SS	481107.9132	4978336.643	6/1/2006	28.2	J	MG/KG
N4E02-11F-SSD	481107.9299	4978336.921	6/1/2006	14.4	J	MG/KG
N4E03-01B-SS	481135.7322	4978403.067	6/1/2006	3.9	J	MG/KG
N4E03-01F-SS	481139.1431	4978424.724	6/1/2006	5.2	J	MG/KG
N4E03-02B-SS	481158.9003	4978418.035	6/1/2006	11.6	J	MG/KG
N4E03-02B-SSR	481158.9205	4978418.291	6/1/2006	19.5	J	MG/KG
N4E03-02F-SS	481149.6646	4978423.745	6/1/2006	7.9	J	MG/KG
N4E03-03B-SS	481156.2435	4978408.786	6/1/2006	14.8	J	MG/KG
N4E03-03F-SS	481161.5564	4978427.284	6/1/2006	24.3	J	MG/KG
N4E03-04F-SS	481170.7583	4978427.257	6/1/2006	6	J	MG/KG
N4E03-04S-SS	481175.9832	4978416.133	6/1/2006	3.3	J	MG/KG
N4E03-05F-SS	481191.8803	4978426.412	6/1/2006	4.1	J	MG/KG
N4E03-05S-SS	481197.0377	4978423.477	6/1/2006	4.4	J	MG/KG
N4E03-06B-SS	481215.419	4978416.017	6/1/2006	3.3	J	MG/KG
N4E03-06F-SS	481229.901	4978423.381	6/1/2006	3.7	J	MG/KG
N4E03-07B-SS	481208.814	4978404.928	6/1/2006	2.9	J	MG/KG
N4E03-07F-SS	481231.3872	4978404.964	6/1/2006	3.9	J	MG/KG
N4E03-08B-SS	481206.1362	4978388.273	6/1/2006	7	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4E03-08F-SS	481231.1227	4978391.903	6/1/2006	5.1	J	MG/KG
N4E03-08F-SSD	481231.1264	4978392.207	6/1/2006	6.5	J	MG/KG
N4E03-09B-SS	481210.0309	4978371.598	6/1/2006	3.6	J	MG/KG
N4E03-09F-SS	481230.0244	4978375.78	6/1/2006	2.8	J	MG/KG
N4E03-10B-SS	481206.06	4978362.353	6/1/2006	5.6	J	MG/KG
N4E03-10F-SS	481231.8284	4978364.042	6/1/2006	4.3	J	MG/KG
N4E03-11B-SS	481190.2693	4978351.059	6/1/2006	3.4	J	MG/KG
N4E03-11F-SS	481233.6491	4978350.931	6/1/2006	3.9	J	MG/KG
N4E03-12B-SS	481196.9792	4978344.095	6/1/2006	6.4	J	MG/KG
N4E03-12F-SS	481227.2142	4978344.006	6/1/2006	4.9	J	MG/KG
N4E03-14B-SS	481167.9127	4978344.935	6/1/2006	28.4	J	MG/KG
N4E03-14F-SS	481142.924	4978349.578	6/1/2006	20.8	J	MG/KG
N4E03-15B-SS	481157.3946	4978353.239	6/1/2006	20.3	J	MG/KG
N4E03-15F-SS	481136.0406	4978355.119	6/1/2006	17.9	J	MG/KG
N4E03-15F-SSR	481136.0444	4978355.424	6/1/2006	17	J	MG/KG
N4E03-16B-SS	481162.6858	4978364.332	6/1/2006	3	J	MG/KG
N4E03-16F-SS	481136.7045	4978367.094	6/1/2006	5	J	MG/KG
N4E03-17B-SS	481166.6621	4978375.429	6/1/2006	3.6	J	MG/KG
N4E03-17F-SS	481139.0678	4978379.213	6/1/2006	3.9	J	MG/KG
N4E03-17F-SSD	481139.0576	4978379.465	6/1/2006	18		MG/KG
N4E03-18B-SS	481160.1271	4978388.408	6/1/2006	10.1	J	MG/KG
N4E03-18F-SS	481136.8502	4978390.705	6/1/2006	12.1		MG/KG
N4E04-01B-SS	481265.3661	4978414.02	6/1/2006	3.4	J-	MG/KG
N4E04-01F-SS	481269.3368	4978423.265	6/1/2006	3.1	J	MG/KG
N4E04-01SE-SS	481295.1746	4978415.8	6/1/2006	1.8	J	MG/KG
N4E04-01SW-SS	481261.4279	4978415.882	6/1/2006	4	J	MG/KG
N4E04-02E-SS	481353.4173	4978406.356	6/1/2006	4.2	J	MG/KG
N4E04-02NE-SS	481348.2029	4978421.183	6/1/2006	2.1	J	MG/KG
N4E04-02NW-SS	481324.5414	4978421.252	6/1/2006	3	J	MG/KG
N4E04-02W-SS	481327.1053	4978399.027	6/1/2006	2.1	J	MG/KG
N4E04-03B-SS	481321.7766	4978374.974	6/1/2006	2.5	J-	MG/KG
N4E04-03F-SS	481353.1469	4978376.827	6/1/2006	4.5	J-	MG/KG
N4E04-04B-SS	481311.6802	4978361.489	6/1/2006	2.5	J	MG/KG
N4E04-04F-SS	481354.6639	4978362.693	6/1/2006	1.8	J	MG/KG
N4E04-04F-SSD	481354.6676	4978362.998	6/1/2006	2.3	J	MG/KG
N4E04-05B-SS	481328.2688	4978347.183	6/1/2006	2.5	J	MG/KG
N4E04-05F-SS	481352.3128	4978348.869	6/1/2006	1.4	J	MG/KG
N4E04-08B-SS	481288.7828	4978373.238	6/1/2006	104		MG/KG
N4E04-08F-SS	481262.2357	4978365.565	6/1/2006	278		MG/KG
N4E04-08F-SSR	481262.2394	4978365.869	6/1/2006	350		MG/KG
N4E04-10F-SS	481268.8351	4978383.577	6/1/2006	11.5		MG/KG
N4E04-11F-SS	481280.8748	4978380.699	6/1/2006	5.2	J-	MG/KG
N4E04-12B-SS	481289.8164	4978388.901	6/1/2006	2.6	J	MG/KG
N4E04-13B-SS	481287.3403	4978395.688	6/1/2006	8.7		MG/KG
N4E04-14F-SS	481276.4561	4978395.49	6/1/2006	3.3	J-	MG/KG
N4E04-15B-SS	481299.0699	4978406.5	6/1/2006	5.6		MG/KG
N4E04-15F-SS	481262.6254	4978406.044	6/1/2006	2.4	J	MG/KG
N4E05-01B-SS	481393.3073	4978415.463	6/1/2006	3.7	J	MG/KG
N4E05-01F-SS	481402.1815	4978426.598	6/1/2006	3.5	J	MG/KG
N4E05-01SE-SS	481424.063	4978416.596	6/1/2006	3.4	J	MG/KG
N4E05-01SW-SS	481382.391	4978424.787	6/1/2006	2.4	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4E05-02B-SS	481449.4264	4978422.74	6/1/2006	5.6	J-	MG/KG
N4E05-02F-SS	481477.0314	4978422.66	6/1/2006	4.9	J-	MG/KG
N4E05-03B-SS	481452.0122	4978407.921	6/1/2006	4.6	J-	MG/KG
N4E05-03B-SSR	481452.016	4978408.226	6/1/2006	4.8	J-	MG/KG
N4E05-03F-SS	481476.9832	4978405.997	6/1/2006	4.9	J-	MG/KG
N4E05-04B-SS	481450.6714	4978398.667	6/1/2006	12	J-	MG/KG
N4E05-04F-SS	481475.0477	4978391.234	6/1/2006	3.2	J-	MG/KG
N4E05-05B-SS	481450.6069	4978376.45	6/1/2006	2.3	J-	MG/KG
N4E05-05F-SS	481478.2175	4978378.222	6/1/2006	3.2	J-	MG/KG
N4E05-06B-SS	481457.1472	4978365.322	6/1/2006	2.8	J-	MG/KG
N4E05-06F-SS	481478.1693	4978361.559	6/1/2006	3	J-	MG/KG
N4E05-07B-SS	481450.5371	4978352.382	6/1/2006	4.9	J-	MG/KG
N4E05-07F-SS	481474.919	4978346.799	6/1/2006	4.2	J-	MG/KG
N4E05-08B-SS	481449.1633	4978332.019	6/1/2006	3.8	J-	MG/KG
N4E05-08F-SS	481476.7633	4978330.089	6/1/2006	3.4	J-	MG/KG
N4E05-11BN-SS	481412.415	4978352.493	6/1/2006	2.9	J-	MG/KG
N4E05-11BS-SS	481418.9129	4978326.553	6/1/2006	5.3		MG/KG
N4E05-11FN-SS	481388.7533	4978352.562	6/1/2006	4.1	J	MG/KG
N4E05-11FS-SS	481383.4471	4978335.914	6/1/2006	5.4		MG/KG
N4E05-13B-SS	481413.8535	4978395.072	6/1/2006	4.7	J	MG/KG
N4E05-13F-SS	481382.7932	4978393.293	6/1/2006	4.2	J	MG/KG
N4E05-14B-SS	481408.6436	4978411.75	6/1/2006	3.7	J	MG/KG
N4E05-14F-SS	481383.6358	4978400.714	6/1/2006	3.1	J	MG/KG
N4E05-14F-SSD	481383.6524	4978400.992	6/1/2006	3.2	J	MG/KG
N4E06-01B-SS	481525.6691	4978422.52	6/1/2006	4.9	J	MG/KG
N4E06-01F-SS	481509.8787	4978417.011	6/1/2006	4.2	J	MG/KG
N4E06-01S-SS	481519.1296	4978426.447	6/1/2006	4.3	J	MG/KG
N4E06-02B-SS	481540.0698	4978402.112	6/1/2006	3.5	J	MG/KG
N4E06-02F-SS	481537.2809	4978425.464	6/1/2006	5.1	J	MG/KG
N4E06-03B-SS	481555.8549	4978405.769	6/1/2006	35		MG/KG
N4E06-03F-SS	481550.5658	4978424.513	6/1/2006	9.2		MG/KG
N4E06-05B-SS	481575.5568	4978400.158	6/1/2006	4	J	MG/KG
N4E06-05F-SS	481576.7455	4978423.858	6/1/2006	4.5	J	MG/KG
N4E06-06B-SS	481584.7641	4978401.983	6/1/2006	3.5	J	MG/KG
N4E06-06F-SS	481586.0251	4978424.308	6/1/2006	3.3	J	MG/KG
N4E06-07F-SS	481600.6104	4978424.248	6/1/2006	4.3	J	MG/KG
N4E06-07S-SS	481604.4927	4978405.629	6/1/2006	3.9	J	MG/KG
N4E06-08B-SS	481575.4821	4978374.238	6/1/2006	2.5	J	MG/KG
N4E06-08F-SS	481602.4309	4978376.079	6/1/2006	2.6	J	MG/KG
N4E06-09B-SS	481582.0279	4978364.961	6/1/2006	12.9		MG/KG
N4E06-09B-SSR	481582.0316	4978365.266	6/1/2006	8.6		MG/KG
N4E06-09F-SS	481601.7299	4978359.35	6/1/2006	13.6		MG/KG
N4E06-10B-SS	481575.3861	4978340.912	6/1/2006	7.2		MG/KG
N4E06-10F-SS	481601.5308	4978348.293	6/1/2006	6.4		MG/KG
N4E06-11B-SS	481579.3203	4978328.802	6/1/2006	3.2	J	MG/KG
N4E06-11F-SS	481605.599	4978333.419	6/1/2006	2.6	J	MG/KG
N4E06-15BA-SS	481542.533	4978344.71	6/1/2006	1.4	J	MG/KG
N4E06-15BB-SS	481542.565	4978355.818	6/1/2006	2.3	J	MG/KG
N4E06-15BC-SS	481551.7724	4978357.644	6/1/2006	2	J	MG/KG
N4E06-15FA-SS	481524.2313	4978379.941	6/1/2006	1.9	J	MG/KG
N4E06-15FB-SS	481526.8173	4978365.121	6/1/2006	1.6	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4E06-15FC-SS	481513.7046	4978376.267	6/1/2006	2.4	J	MG/KG
N4E06-15FD-SS	481509.7235	4978363.319	6/1/2006	2.4	J	MG/KG
N4E06-15FE-SS	481511.0054	4978352.207	6/1/2006	2.6	J-	MG/KG
N4E06-15FF-SS	481516.221	4978337.379	6/1/2006	1.2	J	MG/KG
N4E06-16B-SS	481524.3276	4978413.267	6/1/2006	2.8	J	MG/KG
N4E06-16F-SS	481512.0305	4978411.57	6/1/2006	5.4	U	MG/KG
N4E06-16S-SS	481519.0317	4978400.321	6/1/2006	3.5	J	MG/KG
N4E07-01FE-SS	481710.5721	4978266.466	6/17/2006	1.5	J-	MG/KG
N4E07-01FW-SS	481655.8015	4978420.294	6/17/2006	4.4	J	MG/KG
N4E07-01GE-SS	481706.782	4978320.169	6/17/2006	4.4	J	MG/KG
N4E07-01GW-SS	481666.1744	4978370.274	6/17/2006	3.9	J	MG/KG
N4E07-01HE-SS	481710.8474	4978362.741	6/17/2006	3.2	J	MG/KG
N4E07-01HW-SS	481651.6401	4978344.396	6/17/2006	2.8	J	MG/KG
N4E07-01IE-SS	481720.1233	4978388.635	6/17/2006	2.6	J	MG/KG
N4E07-01IW-SS	481656.8133	4978314.758	6/17/2006	4.3	J	MG/KG
N4E07-01JE-SS	481714.9445	4978416.421	6/17/2006	3.7	J	MG/KG
N4E07-01JW-SS	481658.027	4978279.576	6/17/2006	5.2	J	MG/KG
N4E07-01JW-SSD	481658.0308	4978279.881	6/17/2006	5	J	MG/KG
N4E08-01AE-SS	481855.5936	4978414.169	6/17/2006	4	J	MG/KG
N4E08-01AW-SS	481778.0418	4978416.241	6/17/2006	2.1	J	MG/KG
N4E08-01BE-SS	481831.8321	4978379.059	6/17/2006	3.6	J	MG/KG
N4E08-01BW-SS	481777.9363	4978379.212	6/17/2006	2.9	J	MG/KG
N4E08-01CE-SS	481826.4583	4978338.342	6/17/2006	2.7	J	MG/KG
N4E08-01CW-SS	481781.7586	4978336.618	6/17/2006	3.8	J	MG/KG
N4E08-01DE-SS	481828.9664	4978295.752	6/17/2006	3.7	J	MG/KG
N4E08-01DW-SS	481782.9466	4978292.18	6/17/2006	3.6	J	MG/KG
N4E08-01EE-SS	481823.6135	4978262.441	6/17/2006	3.3	J	MG/KG
N4E08-01EW-SS	481776.2894	4978262.575	6/17/2006	2.8	J	MG/KG
N4E09-01SE-SS	481913.0924	4978424.263	6/1/2006	6.2		MG/KG
N4E09-01SW-SS	481884.1682	4978422.493	6/1/2006	18.1		MG/KG
N4E09-02B-SS	481943.6514	4978408.365	6/1/2006	5.9	J	MG/KG
N4E09-02F-SS	481941.0011	4978425.208	6/1/2006	3.4	J	MG/KG
N4E09-03B-SS	481952.8682	4978413.894	6/1/2006	5.3	J	MG/KG
N4E09-03B-SSD	481952.872	4978414.198	6/1/2006	4.9	J	MG/KG
N4E09-03F-SS	481952.8318	4978425.174	6/1/2006	4.2	J	MG/KG
N4E09-04B-SS	481962.065	4978412.017	6/1/2006	5.5		MG/KG
N4E09-04F-SS	481963.1495	4978425.863	6/1/2006	3.6	J	MG/KG
N4E09-05B-SS	481980.4577	4978408.261	6/1/2006	6.1		MG/KG
N4E09-05F-SS	481972.5549	4978426.97	6/1/2006	4.3	J	MG/KG
N4E09-06B-SS	481939.207	4978394.727	6/1/2006	5.8		MG/KG
N4E09-06F-SS	481979.8654	4978394.545	6/1/2006	4.6	J	MG/KG
N4E09-07B-SS	481938.5679	4978388.588	6/1/2006	3.6	J	MG/KG
N4E09-07F-SS	481981.7151	4978387.892	6/1/2006	3.2	J	MG/KG
N4E09-08B-SS	481954.0838	4978378.713	6/1/2006	11.2		MG/KG
N4E09-08F-SS	481979.758	4978374.119	6/1/2006	6.8		MG/KG
N4E09-09B-SS	481951.4236	4978367.612	6/1/2006	22.1		MG/KG
N4E09-09F-SS	481978.4127	4978363.014	6/1/2006	54.1		MG/KG
N4E09-09F-SSR	481978.4213	4978363.266	6/1/2006	59.7		MG/KG
N4E09-10B-SS	481955.3202	4978350.938	6/1/2006	6.3		MG/KG
N4E09-10F-SS	481977.0665	4978351.909	6/1/2006	25.2		MG/KG
N4E09-11B-SS	481955.2836	4978337.977	6/1/2006	7.6		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4E09-11F-SS	481975.2443	4978337.981	6/1/2006	3.3	J	MG/KG
N4E09-12B-SS	481953.927	4978323.17	6/1/2006	5.4	J	MG/KG
N4E09-12F-SS	481979.141	4978321.307	6/1/2006	4.6	J	MG/KG
N4E09-13B-SS	481956.4984	4978302.796	6/1/2006	4.1	J	MG/KG
N4E09-13F-SS	481977.0751	4978303.291	6/1/2006	3.6	J	MG/KG
N4E09-13F-SSD	481977.0788	4978303.596	6/1/2006	3.7	J	MG/KG
N4E09-14B-SS	481945.9509	4978291.717	6/1/2006	4.4	J	MG/KG
N4E09-14F-SS	481978.5586	4978289.851	6/1/2006	4.2	J	MG/KG
N4E09-15B-SS	481978.7732	4978276.813	6/1/2006	4.9	J	MG/KG
N4E09-15F-SS	481974.7722	4978256.459	6/1/2006	6.7		MG/KG
N4E09-16B-SS	481968.2197	4978263.882	6/1/2006	4	J	MG/KG
N4E09-16F-SS	481965.7726	4978256.158	6/1/2006	7.2		MG/KG
N4E09-18B-SS	481944.5838	4978273.207	6/1/2006	5.4	J	MG/KG
N4E09-18F-SS	481944.5368	4978256.544	6/1/2006	6.2		MG/KG
N4E09-19B-SS	481934.115	4978260.25	6/1/2006	52.3		MG/KG
N4E09-19B-SSR	481934.1357	4978260.541	6/1/2006	29		MG/KG
N4E09-19F-SS	481939.5931	4978256.295	6/1/2006	38.5		MG/KG
N4E09-20B-SS	481915.6537	4978269.585	6/1/2006	3.6	J	MG/KG
N4E09-20F-SS	481925.1607	4978262.187	6/1/2006	5.2	J	MG/KG
N4E09-21F-SS	481901.5786	4978254.779	6/1/2006	21.3		MG/KG
N4E09-21F-SSD	481901.5691	4978255.084	6/1/2006	17.3		MG/KG
N4E09-22F-SS	481891.2292	4978256.237	6/1/2006	4.8	J	MG/KG
N4E09-22SE-SS	481885.3817	4978256.711	6/1/2006	4.6	J	MG/KG
N4E09-22SW-SS	481887.3382	4978270.673	6/1/2006	3.8	J	MG/KG
N4E09-23B-SS	481897.6827	4978277.357	6/1/2006	6.8	J	MG/KG
N4E09-23F-SS	481881.4957	4978277.088	6/1/2006	3.6	J	MG/KG
N4E09-24B-SS	481910.4685	4978295.521	6/1/2006	4.2	J	MG/KG
N4E09-24F-SS	481885.4813	4978291.888	6/1/2006	3.6	J	MG/KG
N4E09-24S-SS	481893.3476	4978284.461	6/1/2006	5	J	MG/KG
N4E09-25F-SS	481884.2092	4978306.704	6/1/2006	3	J	MG/KG
N4E09-26B-SS	481911.8566	4978321.437	6/1/2006	2.6	J	MG/KG
N4E09-26F-SS	481886.8853	4978323.359	6/1/2006	3.1	J	MG/KG
N4E09-27B-SS	481922.4094	4978334.368	6/1/2006	3.9	J	MG/KG
N4E09-27F-SS	481889.5351	4978330.757	6/1/2006	3.6	J	MG/KG
N4E09-29B-SS	481904.1003	4978367.746	6/1/2006	5.2	J	MG/KG
N4E09-29F-SS	481884.1898	4978362.02	6/1/2006	14		MG/KG
N4E09-30B-SS	481910.6937	4978375.132	6/1/2006	4.6	J	MG/KG
N4E09-30F-SS	481890.9757	4978375.188	6/1/2006	4.9	J	MG/KG
N4E09-31B-SS	481908.1173	4978393.654	6/1/2006	5	J	MG/KG
N4E09-31F-SS	481885.7802	4978397.42	6/1/2006	5.3		MG/KG
N4E09-32B-SS	481914.6027	4978404.864	6/1/2006	40.3		MG/KG
N4E09-32F-SS	481884.8094	4978409.42	6/1/2006	129		MG/KG
N4W06-03B-SS	480349.093	4978276.875	5/20/2006	3.3	J	MG/KG
N4W06-03F-SS	480381.3566	4978278.507	5/20/2006	3.3	J	MG/KG
N4W06-05B-SS	480314.4843	4978261.353	5/20/2006	4.5	J	MG/KG
N4W06-05F-SS	480330.2533	4978259.453	5/20/2006	3.3	J	MG/KG
N4W06-05SE-SS	480314.4843	4978261.353	5/20/2006	8.5		MG/KG
N4W06-05SW-SS	480310.5463	4978263.217	5/20/2006	4.5	J	MG/KG
N4W06-06B-SS	480330.3217	4978281.67	5/20/2006	7.8		MG/KG
N4W06-06F-SS	480307.9685	4978279.888	5/20/2006	5.5	J	MG/KG
N4W06-06F-SSD	480307.9588	4978280.088	5/20/2006	5.1	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4W06-07B-SS	480326.501	4978304.784	5/20/2006	6.9	J	MG/KG
N4W06-07F-SS	480340.9097	4978303.25	5/20/2006	20.8	J	MG/KG
N4W06-07SB-SS	480331.6704	4978292.775	5/20/2006	2.7	J	MG/KG
N4W06-07SF-SS	480318.5306	4978294.667	5/20/2006	12.2	J	MG/KG
N4W06-07SF-SSD	480318.5343	4978294.972	5/20/2006	13.9	J	MG/KG
N4W06-08B-SS	480335.688	4978316.832	5/20/2006	6		MG/KG
N4W06-08F-SS	480308.0825	4978316.917	5/20/2006	5.3	J	MG/KG
N4W06-09B-SS	480340.9804	4978327.924	5/20/2006	7.1		MG/KG
N4W06-09F-SS	480308.4928	4978323.392	5/20/2006	6.1		MG/KG
N4W06-09F-SSR	480308.5018	4978323.674	5/20/2006	5.6	J	MG/KG
N4W06-10B-SS	480340.4921	4978334.504	5/20/2006	3.9	J	MG/KG
N4W06-10F-SS	480309.7633	4978334.246	5/20/2006	3.8	J	MG/KG
N4W06-11B-SS	480334.4532	4978342.756	5/20/2006	4.2	J	MG/KG
N4W06-11F-SS	480316.0781	4978352.07	5/20/2006	4.8	J	MG/KG
N4W06-12B-SS	480326.6457	4978368.7	5/20/2006	2.8	J	MG/KG
N4W06-12F-SS	480309.7601	4978368.052	5/20/2006	2.3	J	MG/KG
N4W06-12F-SSR	480309.7583	4978368.357	5/20/2006	1.9	J	MG/KG
N4W06-12S-SS	480314.5289	4978367.113	5/20/2006	2.4	J	MG/KG
N4W07-01F-SS	480207.7863	4978424.122	5/20/2006	2.3	J	MG/KG
N4W07-03F-SS	480229.7175	4978427.063	5/20/2006	2.3	J	MG/KG
N4W07-05F-SS	480241.5514	4978426.421	5/20/2006	2.8	J	MG/KG
N4W07-06F-SS	480247.0171	4978426.257	5/20/2006	2.2	J	MG/KG
N4W07-08F-SS	480257.8197	4978426.468	5/20/2006	3.4	J	MG/KG
N4W07-10F-SS	480279.4936	4978424.389	5/20/2006	1.6	J	MG/KG
N4W07-12SN-SS	480277.3349	4978407.099	5/20/2006	3.6	J	MG/KG
N4W07-12SS-SS	480269.8797	4978403.185	5/20/2006	3.3	J	MG/KG
N4W07-12SS-SSR	480269.8892	4978403.511	5/20/2006	1.7	J	MG/KG
N4W07-13F-SS	480281.9685	4978374.392	5/20/2006	3.5	J	MG/KG
N4W07-13F-SSD	480281.9849	4978374.644	5/20/2006	4.3	J	MG/KG
N4W07-13S-SS	480265.6864	4978368.552	5/20/2006	1.8	J	MG/KG
N4W07-14B-SS	480277.985	4978361.444	5/20/2006	1.5	J	MG/KG
N4W07-14F-SS	480276.6705	4978361.448	5/20/2006	2.8	J	MG/KG
N4W07-15F-SS	480280.5798	4978350.328	5/20/2006	33.1	J	MG/KG
N4W07-16B-SS	480251.6199	4978337.457	5/20/2006	5.1	J	MG/KG
N4W07-16B-SSD	480251.6369	4978337.761	5/20/2006	5.4	J	MG/KG
N4W07-16F-SS	480277.9108	4978337.376	5/20/2006	4.4	J	MG/KG
N4W07-18B-SS	480256.8324	4978322.629	5/20/2006	2.4	J	MG/KG
N4W07-18F-SS	480272.6126	4978324.432	5/20/2006	1.6	J	MG/KG
N4W07-19B-SS	480256.5631	4978315.255	5/20/2006	1	J	MG/KG
N4W07-19F-SS	480268.3826	4978311.515	5/20/2006	0.85	J	MG/KG
N4W07-20B-SS	480258.1126	4978311.516	5/20/2006	0.58	J	MG/KG
N4W07-20F-SS	480280.062	4978306.345	5/20/2006	2.9	J	MG/KG
N4W07-21B-SS	480251.517	4978304.131	5/20/2006	6.7	J	MG/KG
N4W07-21F-SS	480265.977	4978304.086	5/20/2006	2	J	MG/KG
N4W07-22B-SS	480246.1959	4978283.781	5/20/2006	1.2	J	MG/KG
N4W07-22F-SS	480277.7623	4978289.238	5/20/2006	1.2	J	MG/KG
N4W07-23B-SS	480252.7115	4978265.246	5/20/2006	2.3	J	MG/KG
N4W07-23F-SS	480279.0198	4978270.72	5/20/2006	2.4	J	MG/KG
N4W07-23F-SSD	480279.0364	4978270.998	5/20/2006	2.4	J	MG/KG
N4W07-24F-SS	480271.0868	4978255.932	5/20/2006	7.2		MG/KG
N4W07-24S-SS	480256.638	4978259.68	5/20/2006	7		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4W07-24S-SSR	480256.6242	4978259.948	5/20/2006	6.6		MG/KG
N4W07-25B-SS	480237.732	4978256.066	5/20/2006	5.1	J	MG/KG
N4W07-25S-SS	480220.2476	4978259.645	5/20/2006	4.2	J	MG/KG
N4W07-26B-SS	480230.364	4978265.315	5/20/2006	6.9		MG/KG
N4W07-26F-SS	480202.7468	4978261.698	5/20/2006	5.5	J	MG/KG
N4W07-27B-SS	480225.1459	4978278.292	5/20/2006	3.4	J	MG/KG
N4W07-27B-SSR	480225.1657	4978278.514	5/20/2006	10.6		MG/KG
N4W07-27F-SS	480204.5768	4978273.24	5/20/2006	2.8	J	MG/KG
N4W07-28B-SS	480222.5397	4978285.706	5/20/2006	3.3	J	MG/KG
N4W07-28F-SS	480204.695	4978283.945	5/20/2006	2.9	J	MG/KG
N4W07-29B-SS	480223.9	4978300.513	5/20/2006	3.2	J	MG/KG
N4W07-29F-SS	480210.743	4978296.851	5/20/2006	3.1	J	MG/KG
N4W07-30B-SS	480222.6141	4978309.774	5/20/2006	3.4	J	MG/KG
N4W07-30F-SS	480204.636	4978305.371	5/20/2006	2.6	J	MG/KG
N4W07-31B-SS	480214.744	4978315.353	5/20/2006	4.6	J	MG/KG
N4W07-31F-SS	480209.4858	4978315.369	5/20/2006	4	J	MG/KG
N4W07-32B-SS	480225.3062	4978330.132	5/20/2006	2.8	J	MG/KG
N4W07-32F-SS	480205.2686	4978337.027	5/20/2006	2	J	MG/KG
N4W07-32F-SSD	480205.2586	4978337.297	5/20/2006	1.5	J	MG/KG
N4W07-33B-SS	480238.4978	4978344.289	5/20/2006	8.5	J	MG/KG
N4W07-33F-SS	480210.8977	4978346.84	5/20/2006	2.3	J	MG/KG
N4W07-34B-SS	480238.4864	4978353.252	5/20/2006	7.1	J	MG/KG
N4W07-34F-SS	480205.2183	4978354.705	5/20/2006	5.8	J	MG/KG
N4W07-35B-SS	480239.8128	4978364.067	5/20/2006	3.6	J	MG/KG
N4W07-35F-SS	480212.2753	4978367.202	5/20/2006	10.9	J	MG/KG
N4W07-36B-SS	480226.7695	4978378.266	5/20/2006	1.8	J	MG/KG
N4W07-36F-SS	480204.4167	4978376.483	5/20/2006	1.2	J	MG/KG
N4W07-36F-SSR	480204.4145	4978376.754	5/20/2006	1.1	J	MG/KG
N4W07-37S-SS	480206.6398	4978388.58	5/20/2006	1	J	MG/KG
N4W08-01B-SS	480111.1538	4978398.99	5/20/2006	2.7	J	MG/KG
N4W08-01F-SS	480112.5316	4978419.352	5/20/2006	4.6	J	MG/KG
N4W08-01F-SSR	480112.5411	4978419.678	5/20/2006	1.5	J	MG/KG
N4W08-03F-SS	480133.4781	4978424.794	5/20/2006	2.5	J	MG/KG
N4W08-05F-SS	480147.969	4978388.494	5/20/2006	6	U	MG/KG
N4W08-05F-SSD	480147.9856	4978388.772	5/20/2006	6	U	MG/KG
N4W08-06F-SS	480148.0469	4978426.647	5/20/2006	2.6	J	MG/KG
N4W08-08F-SS	480162.5605	4978427.385	5/20/2006	2.8	J	MG/KG
N4W08-10F-SS	480174.2914	4978426.965	5/20/2006	3.4	J	MG/KG
N4W08-17B-SS	480157.059	4978365.521	5/20/2006	9.4		MG/KG
N4W08-17F-SS	480185.1814	4978355.992	5/20/2006	5.5		MG/KG
N4W08-17S-SS	480180.6235	4978356.504	5/20/2006	7.2		MG/KG
N4W08-18B-SS	480151.7434	4978347.023	5/20/2006	6.5		MG/KG
N4W08-18F-SS	480178.0284	4978345.09	5/20/2006	3.9	J	MG/KG
N4W08-18F-SSR	480178.0269	4978345.416	5/20/2006	3.2	J	MG/KG
N4W08-19F-SS	480175.3706	4978335.841	5/20/2006	2.6	J	MG/KG
N4W08-20F-SS	480175.3075	4978315.475	5/20/2006	24.6		MG/KG
N4W08-20S-SS	480164.7969	4978317.359	5/20/2006	38.8		MG/KG
N4W08-22B-SS	480154.2058	4978293.323	5/20/2006	5.7	J	MG/KG
N4W08-22F-SS	480177.862	4978291.398	5/20/2006	6.7		MG/KG
N4W08-23B-SS	480172.5407	4978271.049	5/20/2006	5.8		MG/KG
N4W08-23F-SS	480183.0744	4978276.571	5/20/2006	5.6	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4W08-24B-SS	480160.6867	4978263.68	5/20/2006	8.8		MG/KG
N4W08-24F-SS	480184.3315	4978258.052	5/20/2006	3.5	J	MG/KG
N4W08-24SB-SS	480154.0909	4978256.294	5/20/2006	7.9		MG/KG
N4W08-24SF-SS	480181.5478	4978254.939	5/20/2006	4.1	J	MG/KG
N4W08-27F-SS	480108.8796	4978297.137	5/20/2006	5.5	J	MG/KG
N4W08-28B-SS	480126.6463	4978308.221	5/20/2006	49.1		MG/KG
N4W08-28F-SS	480108.2426	4978308.278	5/20/2006	58.7		MG/KG
N4W08-29B-SS	480141.1534	4978316.889	5/20/2006	5.1	J	MG/KG
N4W08-29B-SSD	480141.1432	4978317.14	5/20/2006	5.1	J	MG/KG
N4W08-30B-SS	480142.2418	4978323.442	5/20/2006	3.5	J	MG/KG
N4W08-30F-SS	480109.8666	4978324.074	5/20/2006	3.5	J	MG/KG
N4W08-32B-SS	480139.9297	4978352.614	5/20/2006	4	J	MG/KG
N4W08-33B-SS	480142.33	4978359.623	5/20/2006	6.4		MG/KG
N4W08-33F-SS	480117.5941	4978356.387	5/20/2006	4.8	J	MG/KG
N4W08-34B-SS	480127.0206	4978362.937	5/20/2006	3.2	J	MG/KG
N4W08-34F-SS	480111.2519	4978364.838	5/20/2006	3.5	J	MG/KG
N4W08-36F-SS	480124.2761	4978391.544	5/20/2006	4.8	J	MG/KG
N4W09-01B-SS	480033.6831	4978427.345	5/20/2006	2.9	J	MG/KG
N4W09-01F-SS	480010.0101	4978423.716	5/20/2006	2.9	J	MG/KG
N4W09-03B-SS	480061.2594	4978417.66	5/20/2006	3.5	J	MG/KG
N4W09-03B-SSR	480061.2575	4978417.953	5/20/2006	3	J	MG/KG
N4W09-03F-SS	480075.7076	4978413.912	5/20/2006	2.6	J-	MG/KG
N4W09-03F-SSD	480075.6898	4978414.12	5/20/2006	2	J-	MG/KG
N4W09-04B-SS	480053.3433	4978408.428	5/20/2006	3.7	J	MG/KG
N4W09-04F-SS	480076.9875	4978402.799	5/20/2006	2.7	J	MG/KG
N4W09-05F-SS	480078.2444	4978384.281	5/20/2006	38.5		MG/KG
N4W09-05S-SS	480064.7513	4978394.54	5/20/2006	7.5		MG/KG
N4W09-06B-SS	480055.8511	4978369.539	5/20/2006	6.8		MG/KG
N4W09-06F-SS	480079.5243	4978373.168	5/20/2006	27.7		MG/KG
N4W09-07B-SS	480049.2437	4978352.86	5/20/2006	8.2		MG/KG
N4W09-07F-SS	480079.4609	4978352.802	5/20/2006	44.8		MG/KG
N4W09-07F-SSR	480079.4692	4978353.029	5/20/2006	24.2		MG/KG
N4W09-10B-SS	480052.9449	4978280.678	5/20/2006	8.3		MG/KG
N4W09-10F-SS	480079.2417	4978282.448	5/20/2006	15.6		MG/KG
N4W09-10F-SSR	480079.2395	4978282.718	5/20/2006	15.6		MG/KG
N4W09-11B-SS	480062.0162	4978265.853	5/20/2006	3.8	J	MG/KG
N4W09-11F-SS	480077.7908	4978265.804	5/20/2006	4.6	J	MG/KG
N4W09-13B-SS	480034.518	4978273.33	5/20/2006	5.4	J	MG/KG
N4W09-13F-SS	480033.1861	4978267.779	5/20/2006	5.8		MG/KG
N4W09-14SE-SS	480025.2641	4978256.695	5/20/2006	27.7		MG/KG
N4W09-14SW-SS	480004.9119	4978259.76	5/20/2006	31.1		MG/KG
N4W09-15B-SS	480023.9725	4978268.174	5/20/2006	6.1		MG/KG
N4W09-15F-SS	480004.9536	4978267.294	5/20/2006	5.8		MG/KG
N4W09-16B-SS	480020.0752	4978278.929	5/20/2006	6.6		MG/KG
N4W09-16F-SS	480010.8733	4978278.958	5/20/2006	8.7		MG/KG
N4W09-16F-SSD	480010.8771	4978279.263	5/20/2006	7.8		MG/KG
N4W09-17B-SS	480018.7722	4978282.636	5/20/2006	32.4	J	MG/KG
N4W09-17B-SSR	480018.776	4978282.941	5/20/2006	40.2	J	MG/KG
N4W09-17F-SS	480005.6208	4978284.895	5/20/2006	45.3	J	MG/KG
N4W09-18B-SS	480024.0767	4978297.431	5/20/2006	5.5	J	MG/KG
N4W09-18F-SS	480004.37	4978301.196	5/20/2006	5.9		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4W09-19B-SS	480033.9884	4978321.181	5/20/2006	5.1	J	MG/KG
N4W09-19F-SS	480005.7769	4978321.497	5/20/2006	4.8	J	MG/KG
N4W09-19S-SS	480012.2921	4978312.28	5/20/2006	4.6	J	MG/KG
N4W09-19S-SSD	480012.2824	4978312.488	5/20/2006	4.1	J	MG/KG
N4W09-20B-SS	480026.8041	4978328.898	5/20/2006	5.1	J	MG/KG
N4W09-20F-SS	480005.7158	4978328.918	5/20/2006	2.9	J	MG/KG
N4W09-21B-SS	480038.6669	4978334.39	5/20/2006	4.7	J	MG/KG
N4W09-21F-SS	480005.8315	4978334.764	5/20/2006	5	J	MG/KG
N4W09-22B-SS	480028.1707	4978345.556	5/20/2006	4.6	J	MG/KG
N4W09-22F-SS	480007.0929	4978348.773	5/20/2006	2.5	J	MG/KG
N4W09-23B-SS	480025.5879	4978360.376	5/20/2006	3.8	J	MG/KG
N4W09-23F-SS	480005.198	4978360.812	5/20/2006	4.2	J	MG/KG
N4W09-24B-SS	480040.0694	4978370.119	5/20/2006	26.3		MG/KG
N4W09-24F-SS	480004.5958	4978373.402	5/20/2006	69.2		MG/KG
N4W09-25B-SS	480024.3543	4978386.301	5/20/2006	6.2		MG/KG
N4W09-25F-SS	480007.3078	4978383.556	5/20/2006	13.1		MG/KG
N4W09-26B-SS	480028.3442	4978401.1	5/20/2006	7.5		MG/KG
N4W09-26F-SS	480006.6976	4978395.145	5/20/2006	6.1		MG/KG
N4W09-27B-SS	480027.0759	4978415.915	5/20/2006	2.5	J	MG/KG
N4W09-27F-SS	480007.3509	4978410.233	5/20/2006	2.9	J	MG/KG
N4W10-02B-SS	479950.8715	4978424.715	5/20/2006	1.5	J	MG/KG
N4W10-02F-SS	479977.1412	4978421.626	5/20/2006	1.3	J	MG/KG
N4W10-03B-SS	479953.4276	4978405.037	5/20/2006	2.1	J	MG/KG
N4W10-03F-SS	479977.0949	4978406.814	5/20/2006	2.1	J	MG/KG
N4W10-04B-SS	479949.4375	4978390.238	5/20/2006	3.1	J	MG/KG
N4W10-04F-SS	479977.0485	4978392.003	5/20/2006	2.3	J	MG/KG
N4W10-05B-SS	479949.3794	4978367.996	5/20/2006	4.8	J	MG/KG
N4W10-05F-SS	479978.3167	4978377.187	5/20/2006	9		MG/KG
N4W10-05S-SS	479963.8278	4978367.975	5/20/2006	9.2		MG/KG
N4W10-06B-SS	479949.3098	4978349.506	5/20/2006	5.1	J	MG/KG
N4W10-06F-SS	479980.8762	4978354.962	5/20/2006	5.7	J	MG/KG
N4W10-07B-SS	479948.5491	4978338.55	5/20/2006	4.5	J	MG/KG
N4W10-07F-SS	479976.8746	4978336.46	5/20/2006	2.9	J	MG/KG
N4W10-08B-SS	479948.4979	4978322.394	5/20/2006	3.1	J	MG/KG
N4W10-08F-SS	479982.054	4978324.923	5/20/2006	2.7	J	MG/KG
N4W10-09B-SS	479948.6026	4978307.93	5/20/2006	4	J-	MG/KG
N4W10-09F-SS	479981.9915	4978308.791	5/20/2006	3.2	J	MG/KG
N4W10-10B-SS	479948.6082	4978292.326	5/20/2006	3.1	J	MG/KG
N4W10-10F-SS	479971.4715	4978290.19	5/20/2006	2.6	J	MG/KG
N4W10-10F-SSD	479971.462	4978290.414	5/20/2006	3	J	MG/KG
N4W10-11B-SS	479960.926	4978280.966	5/21/2006	4.1	J	MG/KG
N4W10-11F-SS	479980.627	4978275.35	5/21/2006	3.4	J	MG/KG
N4W10-12B-SS	479951.6719	4978264.332	5/20/2006	5.1	J	MG/KG
N4W10-12F-SS	479981.9242	4978269.791	5/20/2006	3.7	J	MG/KG
N4W10-13B-SS	479937.7829	4978264.892	5/20/2006	4	J	MG/KG
N4W10-13F-SS	479939.1462	4978258.859	5/20/2006	4.5	J	MG/KG
N4W10-14B-SS	479925.9209	4978262.465	5/20/2006	3.4	J	MG/KG
N4W10-14F-SS	479904.2324	4978264.225	5/20/2006	3.2	J	MG/KG
N4W10-15B-SS	479929.3709	4978279.213	5/20/2006	4.5	J	MG/KG
N4W10-15F-SS	479905.0369	4978274.071	5/20/2006	3.4	J	MG/KG
N4W10-16B-SS	479924.1592	4978294.041	5/20/2006	2.3	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4W10-16B-SSR	479924.1798	4978294.331	5/20/2006	2.1	J-	MG/KG
N4W10-16F-SS	479905.6457	4978290.105	5/20/2006	2.8	J	MG/KG
N4W10-17B-SS	479926.829	4978306.993	5/20/2006	3.2	J	MG/KG
N4W10-17B-SSD	479926.8196	4978307.225	5/20/2006	3.4	J	MG/KG
N4W10-17F-SS	479905.1452	4978306.371	5/20/2006	3.2	J	MG/KG
N4W10-18F-SS	479905.2252	4978320.261	5/21/2006	2.8	J	MG/KG
N4W10-19F-SS	479905.866	4978329.276	5/21/2006	2	J	MG/KG
N4W10-20B-SS	479927.6594	4978336.44	5/21/2006	2.5	J	MG/KG
N4W10-20F-SS	479911.879	4978334.638	5/21/2006	2	J	MG/KG
N4W10-21B-SS	479934.8443	4978357.359	5/20/2006	3.6	J	MG/KG
N4W10-21F-SS	479906.6191	4978355.164	5/20/2006	3.9	J	MG/KG
N4W10-22B-SS	479929.6614	4978371.785	5/20/2006	33.4	J	MG/KG
N4W10-22F-SS	479906.6344	4978369.706	5/20/2006	68.9		MG/KG
N4W10-22S-SS	479913.8812	4978369.983	5/20/2006	62.1		MG/KG
N4W10-23B-SS	479923.1236	4978382.915	5/21/2006	3.3	J	MG/KG
N4W10-23F-SS	479908.7134	4978387.77	5/21/2006	4.7	J	MG/KG
N4W11-01B-SS	479828.6173	4978427.647	5/19/2006	1.8	J	MG/KG
N4W11-01F-SS	479808.843	4978428.679	5/19/2006	2.5	J	MG/KG
N4W11-03B-SS	479852.7266	4978390.575	5/19/2006	109	J	MG/KG
N4W11-03F-SS	479881.4426	4978391.434	5/19/2006	63.4	J	MG/KG
N4W11-04B-SS	479852.1388	4978383.138	5/19/2006	4.1	J	MG/KG
N4W11-04F-SS	479884.3212	4978382.583	5/19/2006	5.1	J	MG/KG
N4W11-05B-SS	479850.6694	4978371.956	5/19/2006	5.4	J	MG/KG
N4W11-05F-SS	479882.3498	4978375.637	5/19/2006	4.6	J	MG/KG
N4W11-06B-SS	479866.5345	4978362.726	5/19/2006	5.4	J	MG/KG
N4W11-06F-SS	479880.9945	4978362.681	5/19/2006	2.2	J	MG/KG
N4W11-07B-SS	479849.3756	4978340.563	5/19/2006	4.2	J	MG/KG
N4W11-07F-SS	479873.0606	4978347.894	5/19/2006	3	J	MG/KG
N4W11-09B-SS	479857.1812	4978314.618	5/19/2006	8.8	J	MG/KG
N4W11-09F-SS	479878.2198	4978316.403	5/19/2006	6.2	J	MG/KG
N4W11-10B-SS	479850.7103	4978301.708	5/19/2006	2.9	J	MG/KG
N4W11-10F-SS	479883.5387	4978303.033	5/19/2006	3.6	J	MG/KG
N4W11-13F-SS	479875.4217	4978262.72	5/19/2006	12.2	J	MG/KG
N4W11-13SB-SS	479853.0917	4978268.344	5/19/2006	2.8	J	MG/KG
N4W11-13SF-SS	479864.9085	4978256.136	5/19/2006	4.4	J	MG/KG
N4W11-13SF-SSR	479875.4334	4978266.422	5/19/2006	5.7	J	MG/KG
N4W11-14B-SS	479805.8028	4978258.927	5/19/2006	2.1	J	MG/KG
N4W11-14F-SS	479829.4063	4978261.013	5/19/2006	2.3	J	MG/KG
N4W11-15F-SS	479808.4377	4978281.445	5/19/2006	1.5	J	MG/KG
N4W11-15S-SS	479818.9716	4978286.966	5/19/2006	1.7	J	MG/KG
N4W11-15S-SSD	479818.9626	4978287.223	5/19/2006	1.5	J	MG/KG
N4W11-16B-SS	479821.6241	4978294.364	5/19/2006	1.7	J	MG/KG
N4W11-16F-SS	479805.9301	4978297.63	5/19/2006	1.5	J	MG/KG
N4W11-17B-SS	479828.267	4978316.56	5/19/2006	4.8	J	MG/KG
N4W11-17F-SS	479807.7353	4978313.747	5/19/2006	3.6	J	MG/KG
N4W11-18B-SS	479837.4804	4978320.234	5/19/2006	3.6	J	MG/KG
N4W11-18B-SSR	479837.5016	4978320.57	5/19/2006	4.3	J	MG/KG
N4W11-18F-SS	479805.9107	4978323.26	5/19/2006	3.3	J	MG/KG
N4W11-19B-SS	479829.6107	4978325.814	5/19/2006	2.6	J	MG/KG
N4W11-19F-SS	479808.5955	4978331.434	5/19/2006	1.9	J	MG/KG
N4W11-20B-SS	479840.2507	4978337.039	5/19/2006	2.9	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4W11-20F-SS	479807.4227	4978337.235	5/19/2006	3.4	J	MG/KG
N4W11-21F-SS	479806.7378	4978348.142	5/19/2006	3.3	J	MG/KG
N4W11-22B-SS	479824.4401	4978353.602	5/19/2006	3.6	J	MG/KG
N4W11-22B-SSD	479824.4307	4978353.834	5/19/2006	3.6	J	MG/KG
N4W11-22F-SS	479808.024	4978356.336	5/19/2006	3.2	J	MG/KG
N4W11-23B-SS	479840.3785	4978364.384	5/19/2006	3.7	J	MG/KG
N4W11-23F-SS	479808.0993	4978364.813	5/19/2006	3	J	MG/KG
N4W11-24B-SS	479823.1957	4978375.823	5/19/2006	5.4	J	MG/KG
N4W11-24F-SS	479807.4616	4978377.652	5/19/2006	4.6	J	MG/KG
N4W11-24S-SS	479811.3756	4978384.989	5/19/2006	6.5		MG/KG
N4W12-01B-SS	479726.0609	4978420.565	5/19/2006	4	J	MG/KG
N4W12-01F-SS	479705.0226	4978418.781	5/19/2006	3	J	MG/KG
N4W12-01S-SS	479718.1972	4978427.996	5/19/2006	3.5	J	MG/KG
N4W12-02B-SS	479757.633	4978427.871	5/19/2006	5.5	J	MG/KG
N4W12-02B-SSD	479757.6494	4978428.131	5/19/2006	4.9	J	MG/KG
N4W12-02F-SS	479777.3626	4978431.512	5/19/2006	9		MG/KG
N4W12-02F-SSR	479777.371	4978431.749	5/19/2006	12.1		MG/KG
N4W12-03B-SS	479756.2599	4978409.361	5/19/2006	4.5	J	MG/KG
N4W12-03F-SS	479779.9389	4978414.84	5/19/2006	3.9	J	MG/KG
N4W12-04B-SS	479760.1859	4978403.794	5/19/2006	4.8	J	MG/KG
N4W12-04F-SS	479783.8415	4978401.868	5/19/2006	6.1	U	MG/KG
N4W12-04S-SS	479773.3195	4978400.05	5/19/2006	5.7	U	MG/KG
N4W12-05B-SS	479761.4535	4978388.978	5/19/2006	3.6	J	MG/KG
N4W12-05F-SS	479783.2268	4978389.915	5/19/2006	5.6	U	MG/KG
N4W12-06B-SS	479761.4418	4978385.276	5/19/2006	5.8	U	MG/KG
N4W12-06F-SS	479771.9581	4978385.242	5/19/2006	6.3	U	MG/KG
N4W12-08B-SS	479758.7248	4978357.512	5/19/2006	5.8	U	MG/KG
N4W12-08F-SS	479781.0662	4978355.59	5/19/2006	6.4		MG/KG
N4W12-09B-SS	479756.1147	4978346.292	5/19/2006	5.8	U	MG/KG
N4W12-09F-SS	479778.4678	4978348.073	5/19/2006	6.4	U	MG/KG
N4W12-10B-SS	479758.6194	4978324.186	5/19/2006	5.7	U	MG/KG
N4W12-10F-SS	479780.9725	4978325.967	5/19/2006	4.6	J	MG/KG
N4W12-11B-SS	479757.2755	4978314.933	5/19/2006	3.5	J	MG/KG
N4W12-11F-SS	479782.9146	4978319.587	5/19/2006	5.4	J	MG/KG
N4W12-12B-SS	479754.6113	4978303.833	5/19/2006	3.9	J	MG/KG
N4W12-12F-SS	479782.8803	4978303.395	5/19/2006	4.2	J	MG/KG
N4W12-13B-SS	479753.2615	4978292.729	5/19/2006	4.1	J	MG/KG
N4W12-13F-SS	479778.2439	4978294.501	5/19/2006	7.8		MG/KG
N4W12-14B-SS	479747.9007	4978286.357	5/19/2006	8		MG/KG
N4W12-14F-SS	479776.9001	4978285.248	5/19/2006	7		MG/KG
N4W12-15B-SS	479747.9702	4978276.376	5/19/2006	6.5		MG/KG
N4W12-15F-SS	479782.1349	4978277.825	5/19/2006	12.5		MG/KG
N4W12-16B-SS	479751.8767	4978270.515	5/19/2006	3.7	J	MG/KG
N4W12-16B-SSD	479751.8933	4978270.793	5/19/2006	3.7	J	MG/KG
N4W12-16F-SS	479776.8474	4978268.585	5/19/2006	5.3	J	MG/KG
N4W12-17B-SS	479763.6608	4978255.666	5/19/2006	6.1	J	MG/KG
N4W12-17F-SS	479775.4977	4978257.48	5/19/2006	5.4	J	MG/KG
N4W12-18B-SS	479732.1407	4978265.023	5/19/2006	5.9		MG/KG
N4W12-18F-SS	479731.4778	4978258.769	5/19/2006	3.6	J	MG/KG
N4W12-19F-SS	479711.0901	4978259.536	5/19/2006	3.8	J	MG/KG
N4W12-19SE-SS	479718.9775	4978259.511	5/19/2006	5.4	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4W12-19SW-SS	479703.9322	4978264.657	5/19/2006	3.9	J	MG/KG
N4W12-20B-SS	479726.9294	4978279.852	5/19/2006	2.9	J	MG/KG
N4W12-20F-SS	479703.2616	4978278.075	5/19/2006	2.6	J	MG/KG
N4W12-21B-SS	479728.3144	4978302.065	5/19/2006	3	J	MG/KG
N4W12-21B-SSD	479728.3137	4978302.369	5/19/2006	2.6	J	MG/KG
N4W12-21F-SS	479705.967	4978302.136	5/19/2006	2.6	J	MG/KG
N4W12-22F-SS	479704.676	4978309.546	5/19/2006	3.5	J	MG/KG
N4W12-23B-SS	479728.42	4978335.391	5/19/2006	2.8	J	MG/KG
N4W12-23B-SSR	479728.4412	4978335.727	5/19/2006	3.6	J	MG/KG
N4W12-23F-SS	479706.0958	4978335.414	5/19/2006	2.6	J	MG/KG
N4W12-23F-SSD	479706.0864	4978335.646	5/19/2006	2.6	J	MG/KG
N4W12-24F-SS	479704.7465	4978349.053	5/19/2006	4.1	J	MG/KG
N4W12-25F-SS	479708.7989	4978358.46	5/19/2006	4.4	J	MG/KG
N4W12-26F-SS	479706.2104	4978363.974	5/19/2006	3.7	J	MG/KG
N4W12-27B-SS	479739.7047	4978373.759	5/19/2006	4.2	J	MG/KG
N4W12-27F-SS	479705.5291	4978374.197	5/19/2006	4.3	J	MG/KG
N4W12-28B-SS	479704.9227	4978387.306	5/19/2006	4.4	J	MG/KG
N4W12-28B-SSR	479719.3767	4978385.409	5/19/2006	5.3	J	MG/KG
N4W12-28F-SS	479742.2595	4978387.714	5/19/2006	4.6	J	MG/KG
N4W12-29B-SS	479725.9905	4978398.348	5/19/2006	3.5	J	MG/KG
N4W12-29F-SS	479704.9756	4978403.969	5/19/2006	3.1	J	MG/KG
N4W13-01B-SS	479616.9316	4978413.506	5/19/2006	2.9	J	MG/KG
N4W13-01F-SS	479609.0345	4978416.268	5/19/2006	3.2	J	MG/KG
N4W13-01S-SS	479614.328	4978427.36	5/19/2006	2.5	J	MG/KG
N4W13-02F-SS	479634.0618	4978426.412	5/19/2006	4	J	MG/KG
N4W13-03F-SS	479656.3893	4978427.91	5/19/2006	4	J	MG/KG
N4W13-03S-SS	479652.4533	4978422.651	5/19/2006	6.4		MG/KG
N4W13-04B-SS	479669.4768	4978407.998	5/19/2006	8		MG/KG
N4W13-04F-SS	479677.3999	4978413.314	5/19/2006	5.4	J	MG/KG
N4W13-05F-SS	479679.9702	4978394.791	5/19/2006	23.5		MG/KG
N4W13-07B-SS	479656.2202	4978367.095	5/19/2006	3.7	J	MG/KG
N4W13-07F-SS	479679.8936	4978370.723	5/19/2006	4.4	J	MG/KG
N4W13-07F-SSR	479679.9147	4978371.047	5/19/2006	4.3	J	MG/KG
N4W13-08F-SS	479682.4702	4978359.642	5/19/2006	13.3		MG/KG
N4W13-09B-SS	479657.4818	4978350.428	5/19/2006	5.7		MG/KG
N4W13-09F-SS	479673.2445	4978346.675	5/19/2006	6.6	J	MG/KG
N4W13-10B-SS	479653.4969	4978337.48	5/19/2006	4.9	J	MG/KG
N4W13-10F-SS	479677.1528	4978335.553	5/19/2006	3.1	J	MG/KG
N4W13-11B-SS	479654.7467	4978317.11	5/19/2006	4.9	J	MG/KG
N4W13-11F-SS	479681.0317	4978315.175	5/19/2006	5.9	J	MG/KG
N4W13-12F-SS	479682.3051	4978302.211	5/19/2006	4.1	J	MG/KG
N4W13-13B-SS	479648.6095	4978280.157	5/19/2006	5.2	J	MG/KG
N4W13-13F-SS	479678.2968	4978281.857	5/19/2006	4	J	MG/KG
N4W13-14B-SS	479649.2709	4978267.435	5/19/2006	4.5	J	MG/KG
N4W13-14F-SS	479675.6265	4978268.906	5/19/2006	3.9	J	MG/KG
N4W13-15B-SS	479651.9291	4978257.872	5/19/2006	7.1	J	MG/KG
N4W13-15F-SS	479680.808	4978258.384	5/19/2006	5.1	J	MG/KG
N4W13-16B-SS	479625.6438	4978259.808	5/19/2006	5.7	J	MG/KG
N4W13-17B-SS	479629.6111	4978267.201	5/19/2006	5	J	MG/KG
N4W13-17F-SS	479604.6078	4978264.628	5/19/2006	3.7	J	MG/KG
N4W13-18B-SS	479628.3201	4978274.611	5/19/2006	4.7	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4W13-18F-SS	479605.3295	4978272.791	5/19/2006	4.8	J	MG/KG
N4W13-19B-SS	479629.6818	4978289.418	5/19/2006	6.6		MG/KG
N4W13-19F-SS	479605.4384	4978284.757	5/19/2006	6.6		MG/KG
N4W13-20B-SS	479623.1209	4978293.142	5/19/2006	4.4	J	MG/KG
N4W13-20F-SS	479606.7114	4978294.167	5/19/2006	3.9	J	MG/KG
N4W13-21B-SS	479624.4885	4978309.801	5/19/2006	5.8	J	MG/KG
N4W13-21B-SSD	479624.5051	4978310.078	5/19/2006	6.1	J	MG/KG
N4W13-21F-SS	479606.2817	4978304.686	5/19/2006	4.5	J	MG/KG
N4W13-22B-SS	479625.8384	4978320.905	5/19/2006	5.6	J	MG/KG
N4W13-22F-SS	479606.1671	4978319.173	5/19/2006	4.5	J	MG/KG
N4W13-23F-SS	479606.1221	4978329.271	5/19/2006	7.8		MG/KG
N4W13-24B-SS	479631.1615	4978341.254	5/19/2006	7		MG/KG
N4W13-24F-SS	479606.8658	4978338.742	5/19/2006	5.8	J	MG/KG
N4W13-25B-SS	479625.9151	4978344.974	5/19/2006	4.9	J	MG/KG
N4W13-25F-SS	479605.5579	4978349.915	5/19/2006	2.8	J	MG/KG
N4W13-26B-SS	479639.7141	4978362.061	5/19/2006	4.1	J	MG/KG
N4W13-26F-SS	479606.334	4978362.027	5/19/2006	4	J	MG/KG
N4W13-27B-SS	479629.9708	4978380.139	5/19/2006	3.6	J	MG/KG
N4W13-27F-SS	479606.2914	4978374.66	5/19/2006	3.1	J	MG/KG
N4W13-28B-SS	479632.6293	4978389.387	5/19/2006	4	J	MG/KG
N4W13-28F-SS	479607.7151	4978386.965	5/19/2006	4	J	MG/KG
N4W13-29B-SS	479641.3419	4978398.83	5/19/2006	5.9	J	MG/KG
N4W13-29F-SS	479607.0434	4978399.876	5/19/2006	4.3	J	MG/KG
N4W14-02B-SS	479524.9147	4978413.8	5/19/2006	3.9	J	MG/KG
N4W14-02F-SS	479528.8938	4978424.896	5/19/2006	3.2	J	MG/KG
N4W14-02S-SS	479536.7691	4978421.168	5/19/2006	3.1	J	MG/KG
N4W14-05B-SS	479551.1579	4978398.905	5/19/2006	4.5	J	MG/KG
N4W14-05S-SS	479569.5436	4978393.292	5/19/2006	3.4	J	MG/KG
N4W14-06B-SS	479553.7396	4978384.085	5/19/2006	3.6	J	MG/KG
N4W14-06F-SS	479583.3631	4978384.395	5/19/2006	5.9	J	MG/KG
N4W14-07B-SS	479557.6595	4978376.666	5/19/2006	3.7	J	MG/KG
N4W14-07F-SS	479579.9889	4978371.041	5/19/2006	3.4	J	MG/KG
N4W14-08B-SS	479553.6508	4978356.313	5/19/2006	3.6	J	MG/KG
N4W14-08F-SS	479582.6295	4978359.651	5/19/2006	3.4	J	MG/KG
N4W14-08F-SSR	479582.6502	4978359.941	5/19/2006	2.9	J	MG/KG
N4W14-09B-SS	479558.8912	4978350.742	5/19/2006	2.8	J	MG/KG
N4W14-09F-SS	479572.0425	4978352.551	5/19/2006	2.6	J	MG/KG
N4W14-10B-SS	479548.3275	4978335.964	5/19/2006	3.1	J	MG/KG
N4W14-10F-SS	479582.491	4978338.769	5/19/2006	2.8	J	MG/KG
N4W14-11B-SS	479549.6125	4978326.703	5/19/2006	4.9	J	MG/KG
N4W14-11F-SS	479582.4814	4978322.517	5/19/2006	3.9	J	MG/KG
N4W14-12B-SS	479552.1823	4978308.18	5/19/2006	3.9	J	MG/KG
N4W14-12F-SS	479583.7552	4978315.485	5/19/2006	4.7	J	MG/KG
N4W14-13B-SS	479553.4673	4978298.918	5/19/2006	6.5	J	MG/KG
N4W14-13F-SS	479582.3993	4978302.529	5/19/2006	2.1	J	MG/KG
N4W14-15B-SS	479577.0216	4978276.368	5/19/2006	2.9	J	MG/KG
N4W14-15F-SS	479576.9992	4978258.111	5/19/2006	4	J	MG/KG
N4W14-16B-SS	479567.8564	4978276.655	5/19/2006	3.3	J	MG/KG
N4W14-16F-SS	479569.1237	4978261.839	5/19/2006	4.6	J	MG/KG
N4W14-17B-SS	479556.0254	4978276.693	5/19/2006	3.1	J	MG/KG
N4W14-17F-SS	479559.8937	4978256.503	5/19/2006	3.2	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N4W14-18B-SS	479545.4853	4978269.321	5/19/2006	13.8	J	MG/KG
N4W14-18F-SS	479548.0848	4978260.055	5/19/2006	4.4	J	MG/KG
N4W14-19B-SS	479531.037	4978273.07	5/19/2006	3.6	J	MG/KG
N4W14-19F-SS	479529.7161	4978256.138	5/19/2006	4.2	J	MG/KG
N4W14-20B-SS	479520.5264	4978274.955	5/19/2006	2.3	J	MG/KG
N4W14-20B-SSR	479520.5468	4978275.222	5/19/2006	2	J	MG/KG
N4W14-20F-SS	479503.3779	4978256.495	5/19/2006	3	J	MG/KG
N4W14-20S-SS	479512.5976	4978262.02	5/19/2006	2.1	J	MG/KG
N4W14-21B-SS	479521.8766	4978286.059	5/19/2006	5.8	J	MG/KG
N4W14-21F-SS	479504.8082	4978287.257	5/19/2006	2.5	J	MG/KG
N4W14-22B-SS	479525.8558	4978297.155	5/19/2006	1.7	J	MG/KG
N4W14-22F-SS	479503.5262	4978302.781	5/19/2006	0.96	J	MG/KG
N4W14-23B-SS	479524.5946	4978313.823	5/19/2006	1.5	J	MG/KG
N4W14-23F-SS	479504.8474	4978310.561	5/19/2006	19.4	J	MG/KG
N4W14-24B-SS	479537.0235	4978322.389	5/19/2006	50.9	J	MG/KG
N4W14-24F-SS	479506.2325	4978326.842	5/19/2006	6.1	J	MG/KG
N4W14-25B-SS	479540.376	4978335.09	5/19/2006	3.7	J	MG/KG
N4W14-25F-SS	479506.279	4978332.336	5/19/2006	3.9	J	MG/KG
N4W14-27B-SS	479527.36	4978356.397	5/19/2006	1.8	J	MG/KG
N4W14-27F-SS	479505.0069	4978354.617	5/19/2006	4	J	MG/KG
N4W14-28B-SS	479527.4134	4978373.06	5/19/2006	2	J	MG/KG
N4W14-28F-SS	479505.0722	4978374.983	5/19/2006	3.8	J	MG/KG
N4W14-28F-SSR	479505.0815	4978375.298	5/19/2006	4.5	J	MG/KG
N4W14-29B-SS	479535.3366	4978388.213	5/19/2006	70		MG/KG
N4W14-29F-SS	479506.4104	4978382.385	5/19/2006	37.8		MG/KG
N4W14-30F-SS	479503.8348	4978399.056	5/19/2006	8.5		MG/KG
N4W14-30S-SS	479518.2887	4978397.158	5/19/2006	6.6		MG/KG
N5E01-01B-SS	480905.9958	4978621.256	6/1/2006	5.7	U	MG/KG
N5E01-01F-SS	480883.4697	4978626.216	6/1/2006	5.8	U	MG/KG
N5E01-02B-SS	480916.2374	4978594.643	6/1/2006	8.1		MG/KG
N5E01-02F-SS	480917.5963	4978626.256	6/1/2006	5.9	U	MG/KG
N5E01-03B-SS	480922.8435	4978605.732	6/1/2006	5.5	U	MG/KG
N5E01-04B-SS	480943.8858	4978609.373	6/1/2006	9.1	J+	MG/KG
N5E01-04F-SS	480943.7801	4978626.658	6/1/2006	6.3	U	MG/KG
N5E01-05B-SS	480958.3457	4978609.33	6/1/2006	7.7		MG/KG
N5E01-05F-SS	480954.9	4978627.561	6/1/2006	5.5	U	MG/KG
N5E01-06SE-SS	480983.2055	4978606.086	6/1/2006	5.8	U	MG/KG
N5E01-06SW-SS	480963.9059	4978607.365	6/1/2006	2.2	J	MG/KG
N5E01-07F-SS	480981.9679	4978596.299	6/1/2006	5.7	J	MG/KG
N5E01-07S-SS	480971.4074	4978581.519	6/1/2006	6	J	MG/KG
N5E01-08B-SS	480956.9207	4978572.304	6/1/2006	6.7		MG/KG
N5E01-08F-SS	480982.2824	4978572.274	6/1/2006	3.9	J	MG/KG
N5E01-09B-SS	480954.2588	4978561.203	6/1/2006	2.6	J	MG/KG
N5E01-09F-SS	480983.1772	4978561.117	6/1/2006	3.2	J	MG/KG
N5E01-10B-SS	480956.8435	4978546.384	6/1/2006	3.3	J	MG/KG
N5E01-10S-SS	480976.5555	4978544.474	6/1/2006	3.9	J	MG/KG
N5E01-12B-SS	480965.9626	4978518.585	6/1/2006	4.5	J	MG/KG
N5E01-12B-SSD	480965.9663	4978518.89	6/1/2006	4.8	J	MG/KG
N5E01-12F-SS	480983.1253	4978514.123	6/1/2006	14.4		MG/KG
N5E01-13B-SS	480965.902	4978498.22	6/1/2006	5.7		MG/KG
N5E01-13S-SS	480980.3668	4978500.027	6/1/2006	6.4		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5E01-14B-SS	480965.8524	4978481.557	6/1/2006	5.3	J	MG/KG
N5E01-14F-SS	480980.9357	4978483.418	6/1/2006	5.7	J+	MG/KG
N5E01-15B-SS	480965.7973	4978463.042	6/1/2006	4.1	J	MG/KG
N5E01-15S-SS	480980.2402	4978457.445	6/1/2006	4.9	J	MG/KG
N5E01-16B-SS	480943.9867	4978468.343	6/1/2006	6.4		MG/KG
N5E01-16F-SS	480948.6862	4978455.687	6/1/2006	4.4	J	MG/KG
N5E01-16S-SS	480926.3452	4978457.605	6/1/2006	3.7	J	MG/KG
N5E01-18B-SS	480937.0101	4978507.563	6/1/2006	3.7	J+	MG/KG
N5E01-18F-SS	480914.6527	4978503.927	6/1/2006	3.1	J	MG/KG
N5E01-19B-SS	480922.595	4978522.417	6/1/2006	6.1		MG/KG
N5E01-19F-SS	480901.5515	4978518.777	6/1/2006	5.9		MG/KG
N5E01-20B-SS	480917.3753	4978535.393	6/1/2006	4.2	J	MG/KG
N5E01-20F-SS	480893.7088	4978533.612	6/1/2006	5.2	J	MG/KG
N5E01-20F-SSD	480893.7125	4978533.917	6/1/2006	5.7	J+	MG/KG
N5E01-20S-SS	480902.9161	4978535.436	6/1/2006	4.5	J	MG/KG
N5E01-22F-SS	480899.0334	4978555.814	6/1/2006	36.7		MG/KG
N5E01-22F-SSR	480899.0371	4978556.118	6/1/2006	45.5		MG/KG
N5E01-22S-SS	480917.4306	4978553.908	6/1/2006	11.8		MG/KG
N5E01-23B-SS	480917.4858	4978572.422	6/1/2006	4	J	MG/KG
N5E01-23F-SS	480884.6177	4978570.669	6/1/2006	5.6		MG/KG
N5E01-24B-SS	480909.621	4978579.851	6/1/2006	3.6	J	MG/KG
N5E01-24F-SS	480887.2859	4978583.621	6/1/2006	3.4	J	MG/KG
N5E01-25F-SS	480907.0033	4978583.562	6/1/2006	1.1	J	MG/KG
N5E01-26B-SS	480897.8127	4978595.695	6/1/2006	4.2	J	MG/KG
N5E01-26F-SS	480889.9534	4978596.573	6/1/2006	5.1	J	MG/KG
N5E01-27B-SS	480905.7438	4978602.08	6/1/2006	26.8		MG/KG
N5E01-27F-SS	480884.3323	4978602.641	6/1/2006	13.1		MG/KG
N5E02-01F-SS	481013.6984	4978618.469	5/31/2006	10.1	J-	MG/KG
N5E02-01S-SS	481024.7026	4978626.824	5/31/2006	11.8	J-	MG/KG
N5E02-02F-SS	481059.8059	4978624.809	5/31/2006	4.5	J-	MG/KG
N5E02-02S-SS	481048.9624	4978627.732	5/31/2006	3.9	J-	MG/KG
N5E02-03B-SS	481081.0868	4978599.594	5/31/2006	2.6	J-	MG/KG
N5E02-03F-SS	481081.9562	4978625.626	5/31/2006	3.8	J-	MG/KG
N5E02-04B-SS	481087.2034	4978621.907	5/31/2006	4.2	J-	MG/KG
N5E02-04F-SS	481106.3042	4978620.919	5/31/2006	4.1	J-	MG/KG
N5E02-05B-SS	481156.8054	4978599.484	5/31/2006	5.8	J-	MG/KG
N5E02-05F-SS	481105.8256	4978607.099	5/31/2006	2.2	J-	MG/KG
N5E02-06B-SS	481097.9417	4978594.235	5/31/2006	5.8	J-	MG/KG
N5E02-06F-SS	481107.1379	4978592.356	5/31/2006	2.6	J-	MG/KG
N5E02-08F-SS	481107.845	4978543.621	5/31/2006	3.1	J-	MG/KG
N5E02-08S-SS	481102.7475	4978544.1	5/31/2006	2.1	J-	MG/KG
N5E02-09B-SS	481096.8839	4978510.125	5/31/2006	3.8	J-	MG/KG
N5E02-09F-SS	481106.7943	4978510.065	5/31/2006	1.8	J-	MG/KG
N5E02-10N-SS	481088.1459	4978496.005	5/31/2006	1.5	J-	MG/KG
N5E02-10SE-SS	481107.7815	4978468.175	5/31/2006	2.5	J-	MG/KG
N5E02-10SW-SS	481086.7052	4978453.426	5/31/2006	2.4	J-	MG/KG
N5E02-10SW-SSD	481086.7089	4978453.731	5/31/2006	3	J-	MG/KG
N5E02-10W-SS	481078.8509	4978464.558	5/31/2006	3.2	J	MG/KG
N5E02-11B-SS	481087.477	4978505.696	5/31/2006	4.3	J	MG/KG
N5E02-11S-SS	481080.2807	4978503.435	5/31/2006	3	J	MG/KG
N5E02-11S-SSD	481080.2845	4978503.739	5/31/2006	2.2	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5E02-13S-SS	481088.2608	4978534.886	5/31/2006	3	J	MG/KG
N5E02-14F-SS	481088.9273	4978557.193	5/31/2006	3.2	J	MG/KG
N5E02-14S-SS	481083.6422	4978552.09	5/31/2006	4	J	MG/KG
N5E02-15B-SS	481101.5203	4978573.727	5/31/2006	4.2	J	MG/KG
N5E02-15F-SS	481083.1066	4978570.079	5/31/2006	3.3	J	MG/KG
N5E02-16B-SS	481089.1042	4978577.606	5/31/2006	5.8	J	MG/KG
N5E02-16F-SS	481077.5323	4978577.467	5/31/2006	3.7	J	MG/KG
N5E02-17B-SS	481089.5618	4978588.054	5/31/2006	7		MG/KG
N5E02-17S-SS	481088.4744	4978607.092	5/31/2006	3.9	J	MG/KG
N5E02-18B-SS	481051.6575	4978603.498	5/31/2006	3.5	J	MG/KG
N5E02-18F-SS	481057.8838	4978609.561	5/31/2006	2.3	J	MG/KG
N5E02-19F-SS	481060.4923	4978595.362	5/31/2006	2.7	J	MG/KG
N5E02-19S-SS	481057.1712	4978586.949	5/31/2006	3.7	J	MG/KG
N5E02-20S-SS	481054.171	4978564.61	5/31/2006	6.8		MG/KG
N5E02-21B-SS	481054.1765	4978566.461	5/31/2006	3.9	J	MG/KG
N5E02-21F-SS	481058.7409	4978559.206	5/31/2006	3.9	J	MG/KG
N5E02-22B-SS	481044.9372	4978553.529	5/31/2006	3.1	J	MG/KG
N5E02-22F-SS	481059.1969	4978545.278	5/31/2006	3.3	J	MG/KG
N5E02-23B-SS	481059.3525	4978538.674	5/31/2006	1.9	J	MG/KG
N5E02-23S-SS	481043.6005	4978546.127	5/31/2006	1.5	J	MG/KG
N5E02-24B-SS	481042.1814	4978510.953	5/31/2006	1.7	J	MG/KG
N5E02-24F-SS	481058.6031	4978522.506	5/31/2006	1.5	J	MG/KG
N5E02-25F-SS	481058.8841	4978510.127	5/31/2006	3	J	MG/KG
N5E02-26S-SS	481056.8111	4978502.587	5/31/2006	3.9	J	MG/KG
N5E02-26S-SSR	481056.8149	4978502.892	5/31/2006	2.4	J	MG/KG
N5E02-27B-SS	481041.5277	4978483.056	5/31/2006	2.7	J	MG/KG
N5E02-27F-SS	481061.8277	4978486.826	5/31/2006	3.2	J	MG/KG
N5E02-28B-SS	481052.4968	4978471.553	5/31/2006	2.6	J	MG/KG
N5E02-28S-SS	481057.677	4978472.107	5/31/2006	1.4	J	MG/KG
N5E02-29B-SS	481050.7486	4978465.764	5/31/2006	3.8	J	MG/KG
N5E02-30B-SS	481057.6665	4978459.568	5/31/2006	3.5	J	MG/KG
N5E02-30F-SS	481050.8294	4978459.479	5/31/2006	2.6	J	MG/KG
N5E02-32B-SS	481028.9215	4978472.111	5/31/2006	4.2	J	MG/KG
N5E02-32F-SS	481030.5906	4978455.283	5/31/2006	5.1	J	MG/KG
N5E02-32F-SSR	481030.5944	4978455.588	5/31/2006	4.6	J	MG/KG
N5E02-33B-SS	481017.1156	4978475.07	5/31/2006	8.1	J	MG/KG
N5E02-33F-SS	481018.3609	4978457.331	5/31/2006	8.8	J	MG/KG
N5E02-34F-SS	481013.5243	4978486.771	5/31/2006	3.2	J	MG/KG
N5E02-35B-SS	481032.9255	4978492.466	5/31/2006	2.6	J	MG/KG
N5E02-35F-SS	481014.4897	4978494.238	5/31/2006	2.3	J	MG/KG
N5E02-36F-SS	481014.717	4978504.868	5/31/2006	3.7	J	MG/KG
N5E02-37B-SS	481031.1448	4978515.521	5/31/2006	4.9	J	MG/KG
N5E02-37F-SS	481017.7368	4978512.701	5/31/2006	2.9	J	MG/KG
N5E02-38B-SS	481027.799	4978536.916	5/31/2006	3	J	MG/KG
N5E02-38B-SSD	481027.8027	4978537.221	5/31/2006	3.1	J	MG/KG
N5E02-38F-SS	481013.0039	4978532.055	5/31/2006	2.5	J	MG/KG
N5E02-39F-SS	481013.6831	4978547.247	5/31/2006	2.5	J	MG/KG
N5E02-39S-SS	481033.0463	4978533.197	5/31/2006	2.9	J	MG/KG
N5E02-40B-SS	481029.1632	4978553.576	5/31/2006	6.1		MG/KG
N5E02-40F-SS	481014.7542	4978557.893	5/31/2006	2.4	J	MG/KG
N5E02-41F-SS	481014.4678	4978571.222	5/31/2006	5.7		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5E02-41S-SS	481032.5725	4978570.475	5/31/2006	5	J	MG/KG
N5E02-43B-SS	481030.587	4978590.6	5/31/2006	4.1	J	MG/KG
N5E02-43F-SS	481014.6535	4978588.615	5/31/2006	6.1		MG/KG
N5E02-44B-SS	481032.2728	4978598.936	5/31/2006	5.2	J	MG/KG
N5E02-44F-SS	481014.1011	4978597.964	5/31/2006	4.3	J	MG/KG
N5E02-45F-SS	481031.4672	4978610.311	5/31/2006	5.4	J	MG/KG
N5E02-45S-SS	481022.007	4978613.019	5/31/2006	7.6		MG/KG
N5E03-01B-SS	481152.9055	4978614.308	5/31/2006	4.8		MG/KG
N5E03-01F-SS	481152.8275	4978622.005	5/31/2006	4.2	J	MG/KG
N5E03-01SW-SS	481139.7503	4978610.643	5/31/2006	3.5	J	MG/KG
N5E03-02B-SS	481164.7032	4978603.164	5/31/2006	15.6		MG/KG
N5E03-02F-SS	481167.3927	4978623.522	5/31/2006	7.4		MG/KG
N5E03-03B-SS	481177.0878	4978598.882	5/31/2006	4.2	J	MG/KG
N5E03-03F-SS	481177.8084	4978623.783	5/31/2006	4.3		MG/KG
N5E03-04B-SS	481198.9403	4978623.429	5/31/2006	6.3		MG/KG
N5E03-05B-SS	481218.6412	4978617.817	5/31/2006	4.1	J	MG/KG
N5E03-05F-SS	481229.1568	4978617.786	5/31/2006	4.1	J	MG/KG
N5E03-06B-SS	481209.4124	4978608.587	5/31/2006	6.3		MG/KG
N5E03-06F-SS	481231.753	4978606.67	5/31/2006	9.3		MG/KG
N5E03-07B-SS	481193.4632	4978596.125	5/31/2006	14.1		MG/KG
N5E03-07F-SS	481226.4575	4978593.725	5/31/2006	24		MG/KG
N5E03-08B-SS	481202.8289	4978586.474	5/31/2006	7.4		MG/KG
N5E03-08F-SS	481225.175	4978586.409	5/31/2006	18		MG/KG
N5E03-09B-SS	481214.5564	4978569.691	5/31/2006	22.9		MG/KG
N5E03-09F-SS	481232.2679	4978571.535	5/31/2006	31.2		MG/KG
N5E03-10B-SS	481219.9751	4978554.899	5/31/2006	6.3		MG/KG
N5E03-10F-SS	481231.811	4978556.715	5/31/2006	4.3	J	MG/KG
N5E03-11B-SS	481207.9018	4978541.939	5/31/2006	4.6	J	MG/KG
N5E03-11F-SS	481235.5063	4978541.858	5/31/2006	3.2	J	MG/KG
N5E03-12B-SS	481209.1621	4978523.42	5/31/2006	3.2	J	MG/KG
N5E03-12F-SS	481233.1613	4978523.384	5/31/2006	3.8	J	MG/KG
N5E03-13B-SS	481230.1347	4978502.993	5/31/2006	7.7		MG/KG
N5E03-13F-SS	481232.2385	4978510.386	5/31/2006	3.8	J	MG/KG
N5E03-15B-SS	481201.1445	4978479.009	5/31/2006	4	J	MG/KG
N5E03-15F-SS	481233.9465	4978478.157	5/31/2006	8.7		MG/KG
N5E03-16B-SS	481199.7753	4978460.498	5/31/2006	3.7	J	MG/KG
N5E03-16F-SS	481223.4148	4978453.024	5/31/2006	2.8	J	MG/KG
N5E03-16S-SS	481231.1673	4978464.16	5/31/2006	3.3	J	MG/KG
N5E03-16S-SSR	481231.1655	4978464.464	5/31/2006	2.4	J	MG/KG
N5E03-18B-SS	481173.5833	4978493.901	5/31/2006	4.9	J	MG/KG
N5E03-18S-SS	481149.7412	4978498.04	5/31/2006	5.1	J	MG/KG
N5E03-19B-SS	481172.323	4978512.42	5/31/2006	3	J	MG/KG
N5E03-19F-SS	481143.4154	4978516.208	5/31/2006	3.2	J	MG/KG
N5E03-20B-SS	481168.4286	4978529.095	5/31/2006	6.4		MG/KG
N5E03-20F-SS	481139.5046	4978527.328	5/31/2006	4.3	J	MG/KG
N5E03-21B-SS	481175.0452	4978543.886	5/31/2006	4.3	J	MG/KG
N5E03-21F-SS	481146.1314	4978545.823	5/31/2006	3.7	J	MG/KG
N5E03-22B-SS	481158.011	4978562.452	5/31/2006	8.1		MG/KG
N5E03-22F-SS	481140.9114	4978558.799	5/31/2006	5.6		MG/KG
N5E03-23B-SS	481169.8851	4978577.228	5/31/2006	6.4		MG/KG
N5E03-23F-SS	481140.9714	4978579.165	5/31/2006	5.3		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5E03-23S-SS	481139.8453	4978568.046	5/31/2006	5.8		MG/KG
N5E03-24B-SS	481159.3858	4978582.813	5/31/2006	4.7	J	MG/KG
N5E03-24S-SS	481142.3026	4978584.715	5/31/2006	4.2	J	MG/KG
N5E04-01F-SS	481265.9735	4978621.381	5/31/2006	3.7	J	MG/KG
N5E04-01SE-SS	481279.107	4978617.64	5/31/2006	9.6		MG/KG
N5E04-01SW-SS	481272.5294	4978615.807	5/31/2006	3.4	J	MG/KG
N5E04-02B-SS	481302.5862	4978595.307	5/31/2006	28		MG/KG
N5E04-02F-SS	481305.4297	4978628.671	5/31/2006	23.9		MG/KG
N5E04-03B-SS	481315.8588	4978599.017	5/31/2006	59.5		MG/KG
N5E04-03F-SS	481315.9399	4978626.789	5/31/2006	85.2		MG/KG
N5E04-04B-SS	481326.4014	4978608.244	5/31/2006	5.8		MG/KG
N5E04-04F-SS	481326.4501	4978624.907	5/31/2006	4.2	J	MG/KG
N5E04-06B-SS	481357.9545	4978610.003	5/31/2006	4	J	MG/KG
N5E04-06F-SS	481352.9248	4978626.984	5/31/2006	4.8	J	MG/KG
N5E04-07B-SS	481311.848	4978586.398	5/31/2006	5.6	J	MG/KG
N5E04-07F-SS	481355.2518	4978586.005	5/31/2006	4.5	J	MG/KG
N5E04-08B-SS	481354.575	4978574.277	5/31/2006	7.9		MG/KG
N5E04-08B-SSR	481354.5721	4978574.493	5/31/2006	11.8		MG/KG
N5E04-08F-SS	481354.575	4978574.277	5/31/2006	5.9		MG/KG
N5E04-09B-SS	481330.2152	4978563.798	5/31/2006	20.9		MG/KG
N5E04-09F-SS	481356.5002	4978561.87	5/31/2006	36.7		MG/KG
N5E04-10B-SS	481308.107	4978548.174	5/31/2006	2.6	J	MG/KG
N5E04-10F-SS	481355.9741	4978549.315	5/31/2006	3.2	J	MG/KG
N5E04-11B-SS	481307.8131	4978536.895	5/31/2006	3.8	J	MG/KG
N5E04-11F-SS	481355.8859	4978536.889	5/31/2006	6.1		MG/KG
N5E04-12B-SS	481306.1685	4978523.528	5/31/2006	4.5	J	MG/KG
N5E04-12F-SS	481345.8703	4978523.02	5/31/2006	3.2	J	MG/KG
N5E04-13B-SS	481307.1782	4978510.568	5/31/2006	3.6	J	MG/KG
N5E04-13F-SS	481353.9273	4978511.192	5/31/2006	7.2		MG/KG
N5E04-15S-SS	481353.6278	4978478.563	5/31/2006	17.4		MG/KG
N5E04-16B-SS	481352.2814	4978467.458	5/31/2006	6.9		MG/KG
N5E04-16F-SS	481349.6519	4978467.465	5/31/2006	4.7	J	MG/KG
N5E04-16F-SSD	481349.6682	4978467.717	5/31/2006	4.6	J-	MG/KG
N5E04-16S-SS	481347.0231	4978467.473	5/31/2006	4.4	J	MG/KG
N5E04-17B-SS	481337.8428	4978474.906	5/31/2006	4.6	J	MG/KG
N5E04-17B-SSR	481337.851	4978475.122	5/31/2006	4.3	J	MG/KG
N5E04-17F-SS	481340.4129	4978454.532	5/31/2006	4.3	J	MG/KG
N5E04-17F-SSD	481340.4293	4978454.783	5/31/2006	4.4	J-	MG/KG
N5E04-18B-SS	481326.0284	4978480.495	5/31/2006	4.5	J-	MG/KG
N5E04-18F-SS	481324.6658	4978463.836	5/31/2006	4	J	MG/KG
N5E04-19B-SS	481310.2434	4978476.837	5/31/2006	2.3	J	MG/KG
N5E04-19F-SS	481314.1221	4978454.609	5/31/2006	3	J	MG/KG
N5E04-20B-SS	481287.8319	4978454.685	5/31/2006	5.6	J	MG/KG
N5E04-20F-SS	481261.5635	4978462.169	5/31/2006	4.9	J	MG/KG
N5E04-20S-SS	481266.7994	4978454.747	5/31/2006	12		MG/KG
N5E04-21B-SS	481286.593	4978480.61	5/31/2006	9.4		MG/KG
N5E04-21B-SSD	481286.6093	4978480.862	5/31/2006	4.6	J	MG/KG
N5E04-21F-SS	481262.9318	4978480.679	5/31/2006	3.8	J	MG/KG
N5E04-22F-SS	481265.3884	4978490.513	5/31/2006	3.3	J	MG/KG
N5E04-23B-SS	481293.2365	4978504.659	5/31/2006	3.4	J	MG/KG
N5E04-23B-SSR	481293.2342	4978504.919	5/31/2006	3.7	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5E04-23S-SS	481266.9621	4978510.29	5/31/2006	14.9		MG/KG
N5E04-24B-SS	481281.4656	4978525.06	5/31/2006	5.1	J	MG/KG
N5E04-24B-SSR	481281.4739	4978525.29	5/31/2006	5.6	J-	MG/KG
N5E04-24F-SS	481263.0837	4978532.519	5/31/2006	8.7		MG/KG
N5E04-25B-SS	481282.8391	4978545.422	5/31/2006	6.7		MG/KG
N5E04-25F-SS	481263.1885	4978542.483	5/31/2006	4.2	J	MG/KG
N5E04-26B-SS	481295.4829	4978553.792	5/31/2006	6.5		MG/KG
N5E04-27B-SS	481296.2665	4978561.752	5/31/2006	5.2		MG/KG
N5E04-27F-SS	481261.8619	4978563.998	5/31/2006	5.1	J	MG/KG
N5E04-28B-SS	481295.1771	4978570.084	5/31/2006	5.9	J-	MG/KG
N5E04-28F-SS	481263.5125	4978570.517	5/31/2006	14.3		MG/KG
N5E04-29B-SS	481295.7247	4978577.993	5/31/2006	4.6	J	MG/KG
N5E04-29F-SS	481263.1884	4978579.049	5/31/2006	2.5	J	MG/KG
N5E04-31B-SS	481296.8411	4978600.148	5/31/2006	4.5	J	MG/KG
N5E04-31F-SS	481269.8465	4978597.301	5/31/2006	5	J	MG/KG
N5E05-02B-SS	481411.8113	4978596.887	5/31/2006	21.8		MG/KG
N5E05-02F-SS	481411.8974	4978626.509	5/31/2006	35.1		MG/KG
N5E05-03B-SS	481431.5394	4978600.532	5/31/2006	4.4	J	MG/KG
N5E05-03F-SS	481427.6124	4978624.026	5/31/2006	3.7	J	MG/KG
N5E05-04B-SS	481438.1223	4978604.216	5/31/2006	3.7	J	MG/KG
N5E05-04F-SS	481439.8419	4978624.78	5/31/2006	3.5	J	MG/KG
N5E05-05B-SS	481451.2782	4978607.881	5/31/2006	16.6		MG/KG
N5E05-05F-SS	481451.3319	4978626.395	5/31/2006	15.4		MG/KG
N5E05-06B-SS	481460.463	4978602.3	5/31/2006	2.4	J	MG/KG
N5E05-06F-SS	481463.1478	4978624.727	5/31/2006	2.5	J	MG/KG
N5E05-07F-SS	481473.6618	4978620.776	5/31/2006	58.1		MG/KG
N5E05-07S-SS	481480.0839	4978620.808	5/31/2006	32.3	J	MG/KG
N5E05-08B-SS	481441.6864	4978586.059	5/31/2006	2.4	J	MG/KG
N5E05-08F-SS	481477.2972	4978589.536	5/31/2006	4.8	J	MG/KG
N5E05-09B-SS	481456.4444	4978576.391	5/31/2006	3.4	J	MG/KG
N5E05-09F-SS	481478.5682	4978574.72	5/31/2006	3.6	J	MG/KG
N5E05-10B-SS	481440.0789	4978560.501	5/31/2006	4.3	J	MG/KG
N5E05-10F-SS	481476.2457	4978560.851	5/31/2006	3.9	J	MG/KG
N5E05-11B-SS	481439.2407	4978549.949	5/31/2006	4.6	J	MG/KG
N5E05-11F-SS	481475.5973	4978548.813	5/31/2006	2.8	J	MG/KG
N5E05-12B-SS	481447.1253	4978535.686	5/31/2006	3.2	J	MG/KG
N5E05-12F-SS	481475.8992	4978537.504	5/31/2006	3.1	J	MG/KG
N5E05-13B-SS	481447.0823	4978520.874	5/31/2006	5.6	J	MG/KG
N5E05-13B-SSR	481447.08	4978521.134	5/31/2006	8.4	J	MG/KG
N5E05-13F-SS	481476.1301	4978523.653	5/31/2006	22.9	J	MG/KG
N5E05-14B-SS	481447.0554	4978511.617	5/31/2006	32.2	J	MG/KG
N5E05-14F-SS	481475.774	4978511.73	5/31/2006	38.5	J	MG/KG
N5E05-15B-SS	481449.6412	4978496.798	5/31/2006	3.8	J	MG/KG
N5E05-15B-SSD	481449.6575	4978497.05	5/31/2006	4.4	J	MG/KG
N5E05-15F-SS	481479.88	4978498.561	5/31/2006	3.8	J	MG/KG
N5E05-16F-SS	481472.0127	4978484.029	5/31/2006	9.1	J	MG/KG
N5E05-17F-SS	481464.7786	4978456.869	5/31/2006	2.9	J	MG/KG
N5E05-17SE-SS	481474.6616	4978456.344	5/31/2006	3.5	J	MG/KG
N5E05-17SW-SS	481462.7061	4978468.989	5/31/2006	4.1	J	MG/KG
N5E05-18B-SS	481448.2727	4978478.287	5/31/2006	3.1	J	MG/KG
N5E05-18F-SS	481453.4612	4978454.203	5/31/2006	3.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5E05-19B-SS	481424.6115	4978478.356	5/31/2006	3.8	J	MG/KG
N5E05-19F-SS	481424.9717	4978454.246	5/31/2006	2.7	J	MG/KG
N5E05-20B-SS	481400.9341	4978472.87	5/31/2006	4.4	J	MG/KG
N5E05-20F-SS	481400.8857	4978456.207	5/31/2006	3.4	J	MG/KG
N5E05-21F-SS	481387.3499	4978455.24	5/31/2006	4.6	J	MG/KG
N5E05-21S-SS	481388.6394	4978470.743	5/31/2006	11.8		MG/KG
N5E05-22F-SS	481387.8003	4978476.611	5/31/2006	37.9		MG/KG
N5E05-23B-SS	481412.8508	4978502.459	5/31/2006	37.1		MG/KG
N5E05-23F-SS	481390.5098	4978504.375	5/31/2006	53		MG/KG
N5E05-24B-SS	481410.2651	4978517.278	5/31/2006	23.9		MG/KG
N5E05-24F-SS	481386.5879	4978511.793	5/31/2006	15		MG/KG
N5E05-25B-SS	481411.596	4978522.829	5/31/2006	10		MG/KG
N5E05-25F-SS	481382.6929	4978528.467	5/31/2006	8.1		MG/KG
N5E05-26B-SS	481409.0257	4978543.202	5/31/2006	37.3		MG/KG
N5E05-26F-SS	481389.3028	4978541.409	5/31/2006	52.1		MG/KG
N5E05-27B-SS	481414.3001	4978548.741	5/31/2006	4	J	MG/KG
N5E05-27B-SSD	481414.3174	4978549.072	5/31/2006	3.2	J	MG/KG
N5E05-27F-SS	481389.3352	4978552.517	5/31/2006	4.8	J	MG/KG
N5E05-28B-SS	481418.2813	4978561.69	5/31/2006	21.8		MG/KG
N5E05-28F-SS	481389.3621	4978561.774	5/31/2006	5.4	J	MG/KG
N5E05-29B-SS	481417.0095	4978576.505	5/31/2006	3.3	J	MG/KG
N5E05-29F-SS	481389.4106	4978578.437	5/31/2006	4.7	J	MG/KG
N5E05-30B-SS	481414.4239	4978591.325	5/31/2006	5.2	J	MG/KG
N5E05-30F-SS	481387.2943	4978586.952	5/31/2006	4.2	J	MG/KG
N5E06-01B-SS	481514.3629	4978603.995	5/31/2006	6.4		MG/KG
N5E06-01F-SS	481520.6643	4978624.478	5/31/2006	3.6	J	MG/KG
N5E06-01S-SS	481513.0856	4978616.959	5/31/2006	5.3	J	MG/KG
N5E06-01S-SSD	481513.1022	4978617.237	5/31/2006	4.9	J	MG/KG
N5E06-02B-SS	481528.8273	4978605.805	5/31/2006	3.9	J	MG/KG
N5E06-02F-SS	481531.9198	4978626.389	5/31/2006	17.1		MG/KG
N5E06-04B-SS	481552.4881	4978605.736	5/31/2006	11.7		MG/KG
N5E06-04F-SS	481558.3596	4978623.459	5/31/2006	76.1		MG/KG
N5E06-05B-SS	481563.0037	4978605.706	5/31/2006	45		MG/KG
N5E06-05F-SS	481566.8889	4978623.6	5/31/2006	80.7		MG/KG
N5E06-06B-SS	481582.7477	4978614.906	5/31/2006	16.5		MG/KG
N5E06-06F-SS	481580.0393	4978625.413	5/31/2006	46.2		MG/KG
N5E06-07F-SS	481591.9866	4978627.84	5/30/2006	3.5	J	MG/KG
N5E06-07S-SS	481593.2534	4978611.173	5/30/2006	3.5	J	MG/KG
N5E06-08B-SS	481578.33	4978596.227	5/30/2006	3.2	J	MG/KG
N5E06-08F-SS	481607.7769	4978597.38	5/30/2006	4.1	J	MG/KG
N5E06-09B-SS	481582.6624	4978585.284	5/30/2006	5.9		MG/KG
N5E06-09F-SS	481607.5119	4978588.185	5/30/2006	18.5		MG/KG
N5E06-10B-SS	481587.9952	4978611.189	5/30/2006	23.6		MG/KG
N5E06-10S-SS	481649.3508	4978462.896	5/30/2006	78.6		MG/KG
N5E06-11B-SS	481577.3302	4978559.378	5/30/2006	177		MG/KG
N5E06-11F-SS	481606.5064	4978560.304	5/30/2006	103		MG/KG
N5E06-12B-SS	481577.2929	4978546.419	5/30/2006	8		MG/KG
N5E06-12F-SS	481605.7264	4978544.672	5/30/2006	4.2	J	MG/KG
N5E06-12F-SSD	481605.7338	4978544.923	5/30/2006	3.7	J	MG/KG
N5E06-13B-SS	481564.0996	4978529.794	5/30/2006	5.4	J	MG/KG
N5E06-13F-SS	481604.6792	4978529.044	5/30/2006	3.1	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5E06-13S-SS	481581.2044	4978535.299	5/30/2006	3.8	J	MG/KG
N5E06-14B-SS	481585.0893	4978514.921	5/30/2006	33.9		MG/KG
N5E06-14F-SS	481606.9624	4978515.601	5/30/2006	11.2		MG/KG
N5E06-15B-SS	481579.8043	4978505.679	5/30/2006	6.3		MG/KG
N5E06-15F-SS	481604.7856	4978507.459	5/30/2006	48.9		MG/KG
N5E06-17B-SS	481592.8911	4978485.276	5/30/2006	4	J	MG/KG
N5E06-17F-SS	481603.4016	4978483.394	5/30/2006	3.7	J	MG/KG
N5E06-18B-SS	481579.7243	4978477.907	5/31/2006	2.6	J	MG/KG
N5E06-18F-SS	481579.6604	4978455.69	5/31/2006	2.6	J	MG/KG
N5E06-19B-SS	481571.8426	4978479.782	5/31/2006	2.7	J	MG/KG
N5E06-19F-SS	481567.8632	4978455.627	5/31/2006	3.2	J	MG/KG
N5E06-19F-SSR	481567.8721	4978455.902	5/31/2006	3.4	J	MG/KG
N5E06-20B-SS	481553.4237	4978474.281	5/31/2006	3	J	MG/KG
N5E06-20F-SS	481552.1054	4978458.425	5/31/2006	2.6	J	MG/KG
N5E06-20F-SSR	481553.4095	4978454.718	5/31/2006	2.4	J	MG/KG
N5E06-21B-SS	481542.9124	4978476.162	5/31/2006	4.7	J	MG/KG
N5E06-21F-SS	481545.4778	4978453.937	5/31/2006	4.7	J	MG/KG
N5E06-22B-SS	481524.5041	4978474.364	5/31/2006	4.2	J	MG/KG
N5E06-22F-SS	481523.1693	4978455.756	5/31/2006	4.3		MG/KG
N5E06-22S-SS	481515.3022	4978474.391	5/31/2006	4	J	MG/KG
N5E06-23B-SS	481540.3638	4978503.941	5/31/2006	4.9	J	MG/KG
N5E06-23F-SS	481514.0685	4978502.166	5/31/2006	3.2	J	MG/KG
N5E06-24B-SS	481541.7159	4978516.898	5/30/2006	5.7		MG/KG
N5E06-24F-SS	481513.7572	4978511.39	5/31/2006	4.5	J	MG/KG
N5E06-25B-SS	481554.3529	4978523.416	5/30/2006	8.4		MG/KG
N5E06-25F-SS	481514.5581	4978524.11	5/31/2006	4.4	J	MG/KG
N5E06-26B-SS	481540.4599	4978537.267	5/31/2006	6.3		MG/KG
N5E06-26F-SS	481512.8447	4978533.644	5/31/2006	2.4	J	MG/KG
N5E06-27B-SS	481543.1208	4978548.368	5/31/2006	10.6		MG/KG
N5E06-27F-SS	481516.0408	4978546.65	5/31/2006	5	J	MG/KG
N5E06-28B-SS	481540.5348	4978563.188	5/31/2006	6.3		MG/KG
N5E06-28F-SS	481511.9623	4978561.439	5/31/2006	98.2		MG/KG
N5E06-29B-SS	481542.0558	4978572.735	5/31/2006	243		MG/KG
N5E06-29F-SS	481512.9625	4978574.376	5/31/2006	367		MG/KG
N5E06-30B-SS	481540.5989	4978585.405	5/31/2006	433		MG/KG
N5E06-30F-SS	481511.1608	4978584.62	5/31/2006	293		MG/KG
N5E07-01BN-SS	481639.2708	4978614.744	5/30/2006	3.2	J	MG/KG
N5E07-01BS-SS	481651.6284	4978613.644	5/30/2006	2.9	J	MG/KG
N5E07-01FN-SS	481640.6174	4978625.848	5/30/2006	2.8	J	MG/KG
N5E07-01FS-SS	481660.2699	4978624.417	5/30/2006	2.5	J	MG/KG
N5E07-02B-SS	481673.4365	4978610.943	5/30/2006	4.4	J	MG/KG
N5E07-02F-SS	481670.3194	4978626.096	5/30/2006	4.7	J	MG/KG
N5E07-03B-SS	481683.9371	4978605.359	5/30/2006	2.1	J	MG/KG
N5E07-03F-SS	481682.137	4978624.042	5/30/2006	3.5	J	MG/KG
N5E07-04B-SS	481694.4474	4978603.477	5/30/2006	2.7	J	MG/KG
N5E07-04F-SS	481694.5163	4978627.546	5/30/2006	2.9	J	MG/KG
N5E07-05B-SS	481706.2672	4978599.74	5/30/2006	68		MG/KG
N5E07-05F-SS	481710.2901	4978627.501	5/30/2006	71.7		MG/KG
N5E07-06B-SS	481716.8745	4978597.11	5/30/2006	5.2	J	MG/KG
N5E07-06F-SS	481717.7722	4978624.838	5/30/2006	23.2		MG/KG
N5E07-06F-SSD	481717.7889	4978625.116	5/30/2006	26.4		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5E07-08B-SS	481693.535	4978577.325	5/30/2006	3.3	J+	MG/KG
N5E07-08F-SS	481730.7276	4978579.998	5/30/2006	3.3	J+	MG/KG
N5E07-09B-SS	481704.8624	4978568.27	5/30/2006	4.4	J+	MG/KG
N5E07-09F-SS	481729.6434	4978567.446	5/30/2006	4	J+	MG/KG
N5E07-10B-SS	481716.6664	4978558.978	5/30/2006	5.3	J+	MG/KG
N5E07-10F-SS	481733.7287	4978549.672	5/30/2006	5.8		MG/KG
N5E07-10F-SSR	481733.7265	4978549.943	5/30/2006	4.4	J	MG/KG
N5E07-11B-SS	481702.1701	4978546.06	5/30/2006	8.1		MG/KG
N5E07-11F-SS	481731.0115	4978542.469	5/30/2006	6.6		MG/KG
N5E07-12B-SS	481689.6742	4978530.48	5/30/2006	9.1		MG/KG
N5E07-12F-SS	481731.4005	4978529.531	5/30/2006	3.8	J	MG/KG
N5E07-13B-SS	481689.9202	4978519.472	5/30/2006	9.3		MG/KG
N5E07-13F-SS	481729.7005	4978520.06	5/30/2006	5.2	J	MG/KG
N5E07-14B-SS	481703.363	4978503.472	5/30/2006	66		MG/KG
N5E07-14B-SSD	481703.353	4978503.733	5/30/2006	54.5		MG/KG
N5E07-14F-SS	481732.2119	4978508.068	5/30/2006	6.5		MG/KG
N5E07-15B-SS	481699.3877	4978492.375	5/30/2006	5.9	J	MG/KG
N5E07-15F-SS	481729.4992	4978493.193	5/30/2006	4.7	J	MG/KG
N5E07-16B-SS	481726.9448	4978475.633	5/30/2006	3.2	J	MG/KG
N5E07-16F-SS	481719.0154	4978460.845	5/30/2006	4.5	J	MG/KG
N5E07-16S-SS	481732.1706	4978464.51	5/30/2006	3.6	J	MG/KG
N5E07-17B-SS	481701.9635	4978473.854	5/30/2006	41.6		MG/KG
N5E07-17F-SS	481703.5606	4978457.05	5/30/2006	23.3		MG/KG
N5E07-18B-SS	481691.2674	4978484.289	5/30/2006	11.3		MG/KG
N5E07-18F-SS	481691.8069	4978454.582	5/30/2006	11		MG/KG
N5E07-19B-SS	481678.6176	4978459.826	5/30/2006	3.6	J	MG/KG
N5E07-19F-SS	481635.5414	4978454.759	5/30/2006	5.7		MG/KG
N5E07-20F-SS	481642.7997	4978470.32	5/30/2006	3.4	J	MG/KG
N5E07-21B-SS	481670.4576	4978488.755	5/30/2006	3.4	J	MG/KG
N5E07-21F-SS	481640.2294	4978490.694	5/30/2006	4.1	J	MG/KG
N5E07-22B-SS	481671.8042	4978499.86	5/30/2006	4.8	J-	MG/KG
N5E07-22F-SS	481637.6371	4978503.661	5/30/2006	46.7		MG/KG
N5E07-23B-SS	481664.5616	4978512.407	5/30/2006	219		MG/KG
N5E07-23F-SS	481637.9006	4978512.257	5/30/2006	117		MG/KG
N5E07-23F-SSR	481637.9053	4978512.495	5/30/2006	80.6		MG/KG
N5E07-24B-SS	481674.5072	4978525.773	5/30/2006	13		MG/KG
N5E07-24F-SS	481637.7115	4978529.582	5/30/2006	29.4		MG/KG
N5E07-24F-SSR	481637.7155	4978529.757	5/30/2006	22.9		MG/KG
N5E07-25B-SS	481666.668	4978542.458	5/30/2006	91.6		MG/KG
N5E07-25F-SS	481636.4294	4978540.694	5/30/2006	7		MG/KG
N5E07-26B-SS	481673.2668	4978551.697	5/30/2006	8		MG/KG
N5E07-26F-SS	481637.6226	4978551.117	5/30/2006	5.5	J	MG/KG
N5E07-27B-SS	481674.6187	4978564.653	5/30/2006	10.8		MG/KG
N5E07-27F-SS	481638.1102	4978566.338	5/30/2006	6.7		MG/KG
N5E07-28B-SS	481679.0143	4978578.728	5/30/2006	2.8	J	MG/KG
N5E07-28F-SS	481637.7323	4978578.06	5/30/2006	4	J	MG/KG
N5E07-29B-SS	481656.4472	4978594.342	5/30/2006	3.2	J	MG/KG
N5E07-29F-SS	481639.4007	4978598.883	5/30/2006	4.5	J	MG/KG
N5W01-01B-SS	480854.5508	4978626.303	6/3/2006	4.1	J	MG/KG
N5W01-01F-SS	480855.8288	4978606.506	6/3/2006	2.6	J-	MG/KG
N5W07-02B-SS	480253.8262	4978626.278	5/21/2006	4.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5W07-02F-SS	480281.4247	4978624.341	5/21/2006	3.7	J	MG/KG
N5W07-02S-SS	480272.229	4978626.221	5/21/2006	3.6	J	MG/KG
N5W07-02S-SSD	480272.2457	4978626.499	5/21/2006	2.5	J	MG/KG
N5W07-03F-SS	480281.3495	4978599.989	5/21/2006	3	J	MG/KG
N5W07-03SB-SS	480261.6332	4978600.333	5/21/2006	3.8	J	MG/KG
N5W07-03SF-SS	480278.8816	4978595.066	5/21/2006	2.4	J	MG/KG
N5W07-04B-SS	480252.386	4978585.55	5/21/2006	8.8		MG/KG
N5W07-04F-SS	480281.8916	4978579.149	5/21/2006	48.1		MG/KG
N5W07-05B-SS	480260.2101	4978565.16	5/21/2006	4.8	J	MG/KG
N5W07-05F-SS	480277.2985	4978565.107	5/21/2006	17.4		MG/KG
N5W07-05F-SSR	480281.995	4978560.989	5/21/2006	9.7		MG/KG
N5W07-07B-SS	480249.5797	4978528.163	5/21/2006	8.1		MG/KG
N5W07-07F-SS	480279.8248	4978531.773	5/21/2006	26.6		MG/KG
N5W07-08B-SS	480253.3746	4978480.014	5/21/2006	5	J	MG/KG
N5W07-08FN-SS	480280.224	4978505.895	5/21/2006	9		MG/KG
N5W07-08FN-SSR	480280.2213	4978506.126	5/21/2006	5.4	J	MG/KG
N5W07-08FS-SS	480282.3053	4978483.627	5/21/2006	9.5		MG/KG
N5W07-10B-SS	480227.1416	4978498.609	5/21/2006	3.1	J	MG/KG
N5W07-10FN-SS	480204.7548	4978485.718	5/21/2006	2.5	J	MG/KG
N5W07-10FS-SS	480206.8416	4978455.239	5/21/2006	3.5	J	MG/KG
N5W07-11B-SS	480236.3718	4978507.838	5/21/2006	2.6	J	MG/KG
N5W07-11FE-SS	480232.0674	4978519.15	5/21/2006	10.9		MG/KG
N5W07-11F-SS	480205.3251	4978510.098	5/21/2006	4.2	J	MG/KG
N5W07-11FW-SS	480210.179	4978519.906	5/21/2006	95.6		MG/KG
N5W07-12B-SS	480233.8229	4978533.766	5/21/2006	8.4		MG/KG
N5W07-12F-SS	480215.4027	4978528.269	5/21/2006	25		MG/KG
N5W07-15B-SS	480226.0252	4978556.311	5/21/2006	19.5		MG/KG
N5W07-15S-SS	480214.1741	4978556.045	5/21/2006	53.6		MG/KG
N5W07-16B-SS	480233.943	4978572.647	5/21/2006	3.8	J	MG/KG
N5W07-16F-SS	480207.4672	4978572.156	5/21/2006	3.7	J	MG/KG
N5W07-17B-SS	480223.4672	4978585.639	5/21/2006	3.3	J	MG/KG
N5W07-17F-SS	480207.6818	4978581.985	5/21/2006	2	J	MG/KG
N5W07-17F-SSD	480207.6988	4978582.29	5/21/2006	3.1	J	MG/KG
N5W08-01F-SS	480112.9316	4978624.099	5/21/2006	5.7		MG/KG
N5W08-01SB-SS	480130.2533	4978622.958	5/21/2006	9.5		MG/KG
N5W08-01SF-SS	480119.6869	4978625.783	5/21/2006	5.9		MG/KG
N5W08-01SW-SS	480110.2911	4978620.404	5/21/2006	4	J	MG/KG
N5W08-02F-SS	480184.1479	4978614.555	5/21/2006	66.3		MG/KG
N5W08-02S-SS	480170.2542	4978625.936	5/21/2006	6.3	J	MG/KG
N5W08-05B-SS	480160.4865	4978579.509	5/21/2006	4	J	MG/KG
N5W08-05F-SS	480184.1416	4978577.585	5/21/2006	5.9	U	MG/KG
N5W08-06B-SS	480157.6966	4978571.031	5/21/2006	4.3	J	MG/KG
N5W08-06B-SSR	480157.717	4978571.299	5/21/2006	3.9	J	MG/KG
N5W08-06F-SS	480185.278	4978563.54	5/21/2006	3.2	J	MG/KG
N5W08-06SB-SS	480160.3084	4978565.469	5/21/2006	29.3		MG/KG
N5W08-06SF-SS	480177.3911	4978563.564	5/21/2006	12.1		MG/KG
N5W08-07B-SS	480162.8799	4978546.946	5/21/2006	11.8		MG/KG
N5W08-07F-SS	480183.049	4978546.924	5/21/2006	42.5		MG/KG
N5W08-08B-SS	480164.1485	4978532.131	5/21/2006	2.8	J	MG/KG
N5W08-08F-SS	480183.0395	4978537.628	5/21/2006	3.4	J	MG/KG
N5W08-11B-SS	480152.9902	4978500.533	5/21/2006	11.5		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5W08-11B-SSR	480152.9996	4978500.852	5/21/2006	8.7		MG/KG
N5W08-11F-SS	480185.2034	4978501.39	5/21/2006	84.1		MG/KG
N5W08-12B-SS	480162.7134	4978493.255	5/21/2006	11.7		MG/KG
N5W08-12F-SS	480183.7341	4978489.486	5/21/2006	21.8		MG/KG
N5W08-13B-SS	480165.3022	4978480.286	5/21/2006	4.2	J	MG/KG
N5W08-13F-SS	480183.7226	4978485.784	5/21/2006	4	J	MG/KG
N5W08-14B-SS	480152.5507	4978473.539	5/21/2006	3.6	J	MG/KG
N5W08-14F-SS	480182.0197	4978474.305	5/21/2006	4.1	J	MG/KG
N5W08-16F-SS	480139.8863	4978469.032	5/21/2006	4.1	J	MG/KG
N5W08-16S-SS	480134.9994	4978458.163	5/21/2006	3.1	J	MG/KG
N5W08-19B-SS	480129.8161	4978482.248	5/21/2006	5.6	U	MG/KG
N5W08-19F-SS	480110.6932	4978483.79	5/21/2006	4.3	J	MG/KG
N5W08-20B-SS	480143.4587	4978497.058	5/21/2006	5.9	U	MG/KG
N5W08-20B-SSD	480143.4755	4978497.344	5/21/2006	2.6	J-	MG/KG
N5W08-20F-SS	480110.1387	4978495.269	5/21/2006	5.1	J	MG/KG
N5W08-20S-SS	480125.9243	4978498.923	5/21/2006	3.8	J	MG/KG
N5W08-21B-SS	480136.4979	4978517.405	5/21/2006	12.3		MG/KG
N5W08-21F-SS	480111.5281	4978519.334	5/21/2006	27.9		MG/KG
N5W08-21SB-SS	480124.6443	4978510.036	5/21/2006	10		MG/KG
N5W08-21SF-SS	480118.066	4978508.205	5/21/2006	18.5		MG/KG
N5W08-22B-SS	480135.2122	4978526.666	5/21/2006	5.7	U	MG/KG
N5W08-22F-SS	480111.0767	4978526.721	5/21/2006	4	J	MG/KG
N5W08-22F-SSR	480111.0815	4978526.959	5/21/2006	4.6	J	MG/KG
N5W08-23B-SS	480136.5497	4978534.068	5/21/2006	3.4	J	MG/KG
N5W08-23F-SS	480112.3033	4978538.506	5/21/2006	4.1	J	MG/KG
N5W08-23F-SSR	480112.3123	4978538.788	5/21/2006	5.1	J-	MG/KG
N5W08-25F-SS	480112.975	4978561.913	5/21/2006	5.4	J	MG/KG
N5W08-26B-SS	480140.602	4978569.9	5/21/2006	3.5	J-	MG/KG
N5W08-26F-SS	480111.7661	4978570.536	5/21/2006	2.5	J-	MG/KG
N5W08-27B-SS	480143.8001	4978579.429	5/21/2006	0.77	J-	MG/KG
N5W08-27F-SS	480115.65	4978576.716	5/21/2006	5.7	U	MG/KG
N5W08-28B-SS	480135.4019	4978587.764	5/21/2006	5.9	U	MG/KG
N5W08-28F-SS	480112.2892	4978588.35	5/21/2006	4.8	J	MG/KG
N5W08-30B-SS	480130.213	4978609.997	5/21/2006	8.9	J	MG/KG
N5W08-30F-SS	480110.7281	4978606.329	5/21/2006	26.2		MG/KG
N5W08-30F-SSR	480110.726	4978606.611	5/21/2006	22.4		MG/KG
N5W09-02B-SS	480042.1193	4978602.866	5/21/2006	3	J	MG/KG
N5W09-02F-SS	480038.2094	4978627.705	5/21/2006	3.3	J	MG/KG
N5W09-03B-SS	480053.9381	4978599.126	5/21/2006	2.8	J	MG/KG
N5W09-03F-SS	480056.1692	4978629.493	5/21/2006	2.1	J	MG/KG
N5W09-04F-SS	480086.7324	4978615.355	5/21/2006	2.5	J	MG/KG
N5W09-04S-SS	480080.2683	4978612.004	5/21/2006	3.4	J	MG/KG
N5W09-05B-SS	480068.3321	4978596.511	5/21/2006	6.5		MG/KG
N5W09-05F-SS	480088.1091	4978597.168	5/21/2006	3.4	J	MG/KG
N5W09-08B-SS	480060.8434	4978585.686	5/21/2006	4.2	J	MG/KG
N5W09-08F-SS	480061.6	4978556.471	5/21/2006	3.1	J	MG/KG
N5W09-09B-SS	480051.2571	4978582.471	5/21/2006	4.1	J	MG/KG
N5W09-09F-SS	480053.8168	4978560.246	5/21/2006	3	J	MG/KG
N5W09-11B-SS	480064.0846	4978480.601	5/21/2006	3	J	MG/KG
N5W09-11F-SS	480085.1341	4978486.09	5/21/2006	2.4	J	MG/KG
N5W09-12SB-SS	480076.5546	4978469.973	5/21/2006	2.3	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5W09-12SF-SS	480084.4301	4978466.246	5/21/2006	2.3	J	MG/KG
N5W09-13SE-SS	480040.383	4978467.715	5/21/2006	4.1	J	MG/KG
N5W09-13SW-SS	480032.4959	4978467.739	5/21/2006	6.4		MG/KG
N5W09-14B-SS	480018.0593	4978475.19	5/21/2006	5.5		MG/KG
N5W09-14S-SS	480019.1786	4978457.701	5/21/2006	20.2		MG/KG
N5W09-15B-SS	480040.435	4978484.378	5/21/2006	16.8		MG/KG
N5W09-15F-SS	480016.7853	4978488.154	5/21/2006	7.5		MG/KG
N5W09-16B-SS	480036.5319	4978497.35	5/21/2006	6.9		MG/KG
N5W09-16F-SS	480020.752	4978495.548	5/21/2006	4.8	J	MG/KG
N5W09-17B-SS	480036.5666	4978508.459	5/21/2006	5.4	J	MG/KG
N5W09-17F-SS	480019.4664	4978504.809	5/21/2006	2.6	J	MG/KG
N5W09-19F-SS	480032.8928	4978551.791	5/21/2006	2.4	J	MG/KG
N5W09-20F-SS	480016.2637	4978583.647	5/21/2006	5.2	J	MG/KG
N5W09-21B-SS	480023.6817	4978591.815	5/21/2006	4.5	J	MG/KG
N5W10-01E-SS	479976.3545	4978590.112	5/22/2006	7		MG/KG
N5W10-01NE-SS	479983.031	4978623.417	5/22/2006	4.5	J	MG/KG
N5W10-01NW-SS	479914.807	4978625.523	5/22/2006	4	J	MG/KG
N5W10-01SE-SS	479976.256	4978558.636	5/22/2006	5.4	J	MG/KG
N5W10-01S-SS	479942.0959	4978564.298	5/22/2006	4	J	MG/KG
N5W10-03F-SS	479987.4191	4978454.394	5/21/2006	3.7	J	MG/KG
N5W10-03SN-SS	479979.9558	4978480.864	5/21/2006	4.2	J	MG/KG
N5W10-03SS-SS	479983.824	4978456.783	5/21/2006	3.5	J	MG/KG
N5W10-04B-SS	479968.1251	4978480.901	5/21/2006	3.7	J	MG/KG
N5W10-04F-SS	479970.6846	4978458.675	5/21/2006	3.8	J	MG/KG
N5W10-05B-SS	479952.3394	4978477.247	5/21/2006	3.5	J	MG/KG
N5W10-05F-SS	479947.0116	4978455.047	5/21/2006	4	J	MG/KG
N5W10-05F-SSR	479947.0109	4978455.439	5/21/2006	3.5	J	MG/KG
N5W10-06B-SS	479935.2565	4978479.152	5/21/2006	3	J	MG/KG
N5W10-06F-SS	479933.8781	4978458.791	5/21/2006	3.2	J	MG/KG
N5W10-07B-SS	479918.6321	4978481.779	5/21/2006	2.6	J	MG/KG
N5W10-07F-SS	479912.8424	4978456.542	5/21/2006	2.4	J	MG/KG
N5W10-07F-SSD	479912.8594	4978456.846	5/21/2006	3	J	MG/KG
N5W11-01B-SS	479827.8924	4978614.646	5/21/2006	1.2	J-	MG/KG
N5W11-01C-SS	479834.4303	4978603.517	5/21/2006	2.5	J	MG/KG
N5W11-01FN-SS	479833.3257	4978629.398	5/21/2006	2.2	J	MG/KG
N5W11-01FW-SS	479809.0038	4978596.16	5/22/2006	2.8	J	MG/KG
N5W11-01NW-SS	479808.5765	4978629.092	5/22/2006	2	J	MG/KG
N5W11-02B-SS	479888.3066	4978597.793	5/21/2006	1.5	J-	MG/KG
N5W11-02F-SS	479869.5215	4978627.155	5/21/2006	1.8	J-	MG/KG
N5W11-02S-SS	479886.5691	4978614.141	5/21/2006	1.8	J-	MG/KG
N5W11-03F-SS	479882.0959	4978554.163	5/21/2006	1.7	J-	MG/KG
N5W11-03SN-SS	479888.2484	4978579.279	5/21/2006	1.6	J-	MG/KG
N5W11-03SS-SS	479884.235	4978557.074	5/21/2006	2.2	J	MG/KG
N5W11-04B-SS	479864.5817	4978577.502	5/21/2006	62.4		MG/KG
N5W11-04B-SSD	479864.5722	4978577.807	5/21/2006	50.8		MG/KG
N5W11-04F-SS	479869.2444	4978552.976	5/21/2006	107		MG/KG
N5W11-04S-SS	479861.4433	4978564.544	5/21/2006	84.4		MG/KG
N5W11-05C-SS	479870.9327	4978507.126	5/21/2006	3	J	MG/KG
N5W11-05E-SS	479889.3183	4978501.514	5/21/2006	1.8	J	MG/KG
N5W11-05NE-SS	479890.6513	4978526.528	5/21/2006	3.1	J	MG/KG
N5W11-05N-SS	479856.5112	4978528.164	5/21/2006	4.7	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5W11-05NW-SS	479843.3662	4978528.206	5/21/2006	3.5	J	MG/KG
N5W11-05SE-SS	479897.0541	4978453.352	5/21/2006	1.3	J	MG/KG
N5W11-05S-SS	479883.9325	4978453.23	5/21/2006	3.5	J	MG/KG
N5W11-05SW-SS	479880.0236	4978471.92	5/21/2006	3.6	J	MG/KG
N5W11-05W-SS	479848.5686	4978501.643	5/21/2006	3.3	J	MG/KG
N5W11-06B-SS	479859.0147	4978479.392	5/21/2006	54.7		MG/KG
N5W11-06F-SS	479864.1911	4978453.455	5/21/2006	48.5		MG/KG
N5W11-07C-SS	479829.7678	4978475.865	5/21/2006	2.2	J	MG/KG
N5W11-07NE-SS	479835.1096	4978521.23	5/21/2006	3.3	J	MG/KG
N5W11-07NW-SS	479811.4885	4978523.826	5/21/2006	2.7	J	MG/KG
N5W11-07SE-SS	479848.8151	4978459.507	5/21/2006	2.2	J	MG/KG
N5W11-07SW-SS	479811.9083	4978458.151	5/21/2006	2.5	J	MG/KG
N5W11-08F-SS	479850.0464	4978553.479	5/21/2006	16.6		MG/KG
N5W11-09B-SS	479832.2624	4978588.865	5/21/2006	3.1	J	MG/KG
N5W11-09F-SS	479836.9131	4978557.223	5/21/2006	5	J	MG/KG
N5W11-09F-SSR	479836.9118	4978557.571	5/21/2006	5.6	J	MG/KG
N5W12-01B-SS	479654.3566	4978607.791	8/16/2006	2.8	J	MG/KG
N5W12-01F-SS	479654.4214	4978628.157	8/16/2006	3.1	J	MG/KG
N5W12-02B-SS	479668.8165	4978607.745	5/21/2006	2.4	J	MG/KG
N5W12-02F-SS	479670.3695	4978628.775	5/21/2006	1.5	J	MG/KG
N5W12-03B-SS	479681.2867	4978604.005	5/21/2006	1.8	J	MG/KG
N5W12-03F-SS	479682.0822	4978629.582	5/21/2006	2.1	J	MG/KG
N5W12-04B-SS	479691.9584	4978605.364	5/21/2006	1.7	J	MG/KG
N5W12-04F-SS	479695.1589	4978624.325	5/21/2006	1.3	J	MG/KG
N5W12-05B-SS	479756.8518	4978596.357	5/21/2006	1.7	J-	MG/KG
N5W12-05F-SS	479729.2592	4978600.147	5/21/2006	1.4	J-	MG/KG
N5W12-06B-SS	479751.5528	4978583.413	5/21/2006	4.2	J	MG/KG
N5W12-06F-SS	479729.2123	4978585.335	5/21/2006	0.87	J-	MG/KG
N5W12-07B-SS	479751.5176	4978572.305	5/21/2006	1.9	J-	MG/KG
N5W12-07F-SS	479725.6181	4978578.323	5/21/2006	1.9	J	MG/KG
N5W12-08B-SS	479742.2751	4978559.374	5/21/2006	1.5	J-	MG/KG
N5W12-08F-SS	479718.6552	4978572.409	5/21/2006	1	J-	MG/KG
N5W12-09B-SS	479724.1547	4978545.224	5/21/2006	1.5	J-	MG/KG
N5W12-09F-SS	479716.0145	4978568.714	5/21/2006	0.86	J-	MG/KG
N5W12-10B-SS	479700.1938	4978553.952	5/21/2006	2	J	MG/KG
N5W12-10F-SS	479706.813	4978568.744	5/21/2006	1.8	J	MG/KG
N5W12-11B-SS	479718.7609	4978605.735	5/21/2006	1.4	J-	MG/KG
N5W12-11F-SS	479718.8314	4978627.952	5/21/2006	2.2	J	MG/KG
N5W12-12B-SS	479735.8669	4978611.235	5/21/2006	6.5	UJ	MG/KG
N5W12-12F-SS	479741.9594	4978627.483	5/21/2006	0.87	J	MG/KG
N5W12-13B-SS	479747.7207	4978618.603	5/21/2006	0.82	J	MG/KG
N5W12-13F-SS	479745.9087	4978629.322	5/21/2006	0.55	J	MG/KG
N5W12-14B-SS	479754.2638	4978609.325	5/21/2006	1.9	J	MG/KG
N5W12-14F-SS	479759.4867	4978629.796	5/21/2006	1.9	J	MG/KG
N5W12-15B-SS	479768.6998	4978601.874	6/17/2006	7.4		MG/KG
N5W12-15F-SS	479768.6763	4978626.064	6/17/2006	5.7	J	MG/KG
N5W12-16B-SS	479781.8681	4978609.238	5/21/2006	3.6	J	MG/KG
N5W12-16F-SS	479781.9266	4978627.752	5/21/2006	1.6	J	MG/KG
N5W12-17B-SS	479759.8095	4978597.958	5/21/2006	1.9	J	MG/KG
N5W12-17F-SS	479786.5741	4978597.67	5/21/2006	1.4	J	MG/KG
N5W12-18F-SS	479786.091	4978585.179	5/21/2006	1.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5W12-19B-SS	479763.3715	4978579.673	5/21/2006	1.2	J	MG/KG
N5W12-19F-SS	479783.0831	4978577.759	5/21/2006	0.67	J	MG/KG
N5W12-20F-SS	479779.0986	4978564.811	5/21/2006	0.48	J	MG/KG
N5W12-21B-SS	479758.8374	4978554.666	5/21/2006	2.5	J	MG/KG
N5W12-21F-SS	479786.8513	4978555.211	5/21/2006	3.3	J	MG/KG
N5W12-22B-SS	479760.6429	4978548.207	5/21/2006	1.7	J	MG/KG
N5W12-22F-SS	479781.6515	4978540.734	5/21/2006	1.9	J	MG/KG
N5W12-24B-SS	479681.7079	4978528.091	5/21/2006	1.7	J	MG/KG
N5W12-24F-SS	479656.7388	4978530.022	5/21/2006	3	J	MG/KG
N5W12-25B-SS	479691.3963	4978535.435	5/21/2006	1.6	J	MG/KG
N5W12-25F-SS	479652.8248	4978535.553	5/21/2006	1.6	J	MG/KG
N5W12-26B-SS	479691.0019	4978544.605	5/21/2006	5.7	U	MG/KG
N5W12-26F-SS	479653.265	4978545.894	5/21/2006	5.5	U	MG/KG
N5W12-27B-SS	479676.5387	4978555.879	5/21/2006	2.6	J	MG/KG
N5W12-27F-SS	479652.4765	4978556.709	5/21/2006	2	J	MG/KG
N5W12-28B-SS	479676.574	4978566.988	5/21/2006	2.1	J	MG/KG
N5W12-28F-SS	479652.3849	4978565.697	5/21/2006	1.6	J	MG/KG
N5W12-29B-SS	479677.9292	4978579.944	5/21/2006	2.3	J	MG/KG
N5W12-29F-SS	479652.0347	4978577.466	5/21/2006	1.8	J	MG/KG
N5W12-30B-SS	479676.6269	4978583.651	5/21/2006	2.1	J	MG/KG
N5W12-30F-SS	479652.5556	4978585.466	5/21/2006	1.4	J	MG/KG
N5W12-31B-SS	479695.0832	4978596.654	5/21/2006	2.7	J	MG/KG
N5W12-31F-SS	479653.6307	4978596.772	5/21/2006	1.6	J	MG/KG
N5W13-03B-SS	479586.0038	4978608.009	5/22/2006	1.9	J	MG/KG
N5W13-03F-SS	479588.6916	4978626.514	5/22/2006	2.2	J	MG/KG
N5W13-04B-SS	479595.1988	4978606.128	5/22/2006	2	J	MG/KG
N5W13-04F-SS	479596.9877	4978629.541	5/22/2006	2.2	J	MG/KG
N5W13-06B-SS	479584.2748	4978596.125	5/22/2006	4.4	J	MG/KG
N5W13-06F-SS	479623.6654	4978597.051	5/22/2006	1.7	J	MG/KG
N5W13-07B-SS	479595.1338	4978585.762	5/22/2006	2.8	J	MG/KG
N5W13-07F-SS	479620.5895	4978584.551	5/22/2006	4	J	MG/KG
N5W13-08B-SS	479597.7338	4978576.496	5/22/2006	4.2	J	MG/KG
N5W13-09B-SS	479585.3592	4978567.556	5/22/2006	2.1	J	MG/KG
N5W13-09F-SS	479623.9065	4978567.241	5/22/2006	3.3	J	MG/KG
N5W13-10B-SS	479582.834	4978555.253	5/22/2006	3.5	J	MG/KG
N5W13-10F-SS	479623.9791	4978554.935	5/22/2006	2.9	J	MG/KG
N5W13-11B-SS	479597.6333	4978545.022	5/22/2006	2.7	J	MG/KG
N5W13-11F-SS	479619.956	4978537.544	5/22/2006	3.2	J	MG/KG
N5W13-12B-SS	479583.9102	4978527.937	5/22/2006	2.3	J	MG/KG
N5W13-12F-SS	479622.8318	4978527.089	5/22/2006	2.5	J	MG/KG
N5W13-13B-SS	479588.3193	4978509.873	5/22/2006	3.3	J	MG/KG
N5W13-13F-SS	479623.8147	4978513.488	5/22/2006	3.2	J	MG/KG
N5W13-15B-SS	479587.8834	4978488.527	5/22/2006	5.9	J-	MG/KG
N5W13-15F-SS	479623.7585	4978484.613	5/22/2006	2.3	J	MG/KG
N5W13-16B-SS	479601.3584	4978476.505	5/22/2006	4.1	J	MG/KG
N5W13-16F-SS	479621.0761	4978476.443	5/22/2006	2.8	J	MG/KG
N5W13-17B-SS	479596.0528	4978461.711	5/22/2006	3.3	J	MG/KG
N5W13-17F-SS	479621.0112	4978456.077	5/22/2006	3.1	J	MG/KG
N5W13-21B-SS	479569.4923	4978477.414	5/22/2006	2.9	J	MG/KG
N5W13-21F-SS	479535.478	4978477.103	5/22/2006	1.4	J-	MG/KG
N5W13-22B-SS	479560.6436	4978487.744	5/22/2006	2	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N5W13-23B-SS	479562.0116	4978504.403	5/22/2006	4.8	J	MG/KG
N5W13-23F-SS	479535.7269	4978506.339	5/22/2006	2.1	J	MG/KG
N5W13-24B-SS	479567.4035	4978510.538	5/22/2006	2.4	J	MG/KG
N5W13-24F-SS	479534.7181	4978515.561	5/22/2006	2.5	J	MG/KG
N5W13-25F-SS	479534.3053	4978526.335	5/22/2006	3.6	J	MG/KG
N5W13-26B-SS	479564.7469	4978537.721	5/22/2006	2.9	J	MG/KG
N5W13-26F-SS	479534.1787	4978535.126	5/22/2006	2.5	J	MG/KG
N5W13-27B-SS	479560.833	4978546.991	5/22/2006	3.2	J	MG/KG
N5W13-27F-SS	479534.801	4978541.482	5/22/2006	2.4	J	MG/KG
N5W13-28B-SS	479575.4848	4978554.7	5/22/2006	2	J	MG/KG
N5W13-28F-SS	479537.1957	4978554.472	5/22/2006	3.5	J	MG/KG
N5W13-29B-SS	479573.1433	4978567.032	5/22/2006	3.7	J	MG/KG
N5W13-29F-SS	479535.2372	4978568.897	5/22/2006	4.6	J	MG/KG
N5W13-30B-SS	479566.155	4978585.772	5/22/2006	2.2	J	MG/KG
N5W13-30F-SS	479539.8655	4978585.856	5/22/2006	2.8	J	MG/KG
N5W13-31F-SS	479559.7549	4978621.052	5/22/2006	3.4	J	MG/KG
N5W13-31S-SS	479558.3937	4978595.302	5/22/2006	2.5	J	MG/KG
N5W13-32F-SS	479535.4575	4978608.116	5/22/2006	5.4	J	MG/KG
N5W13-33B-SS	479573.9556	4978615.03	5/22/2006	3	J	MG/KG
N5W13-33F-SS	479535.0494	4978615.094	5/22/2006	2.9	J	MG/KG
N6E01-05B-SS	480939.7132	4978748.501	5/23/2006	5.2	J	MG/KG
N6E01-05F-SS	480983.916	4978744.445	5/23/2006	3.9	J	MG/KG
N6E01-06F-SS	480983.9625	4978716.696	5/23/2006	4.5	J	MG/KG
N6E01-07B-SS	480961.239	4978698.191	5/23/2006	4.2	J	MG/KG
N6E01-07F-SS	480983.01	4978699.615	5/23/2006	3.4	J	MG/KG
N6E01-08C-SS	480951.9825	4978679.704	5/23/2006	3.5	J	MG/KG
N6E01-08NE-SS	480972.9866	4978670.384	5/23/2006	3.5	J	MG/KG
N6E01-08NW-SS	480898.0836	4978678.013	5/23/2006	4.6	J	MG/KG
N6E01-08SE-SS	480974.6983	4978654.777	5/23/2006	3.9	J	MG/KG
N6E01-08S-SS	480925.6213	4978655.713	5/23/2006	3.7	J	MG/KG
N6E01-08SW-SS	480892.7815	4978663.217	5/23/2006	3.9	J	MG/KG
N6E01-09F-SS	480887.7313	4978729.787	5/23/2006	4.4	J	MG/KG
N6E01-09SN-SS	480885.199	4978765.07	5/23/2006	4.8	J	MG/KG
N6E01-09SS-SS	480887.6343	4978700.262	5/23/2006	4	J	MG/KG
N6E02-00CN-SS	481069.1734	4978747.86	5/23/2006	3.4	J	MG/KG
N6E02-00CS-SS	481070.4604	4978738.599	5/23/2006	3.1	J	MG/KG
N6E02-00N-SS	481069.2611	4978777.483	5/23/2006	2.3	J	MG/KG
N6E02-00S-SS	481072.9469	4978690.453	5/23/2006	3	J	MG/KG
N6E02-01F-SS	481014.4262	4978823.69	5/23/2006	4	J	MG/KG
N6E02-07F-SS	481110.1214	4978790.156	5/23/2006	3.9	J	MG/KG
N6E02-07S-SS	481109.4469	4978778.158	5/23/2006	4.9	J	MG/KG
N6E02-08SS-SS	481106.0274	4978764.414	5/23/2006	13		MG/KG
N6E02-09F-SS	481110.8086	4978756.028	5/23/2006	4.8	J	MG/KG
N6E02-09S-SS	481107.2981	4978749.599	5/23/2006	5	J	MG/KG
N6E02-10B-SS	481110.395	4978738.513	5/23/2006	5.4	J	MG/KG
N6E02-10F-SS	481107.3682	4978735.049	5/23/2006	4.8	J	MG/KG
N6E02-11B-SS	481102.9363	4978713.043	5/23/2006	4.3	J	MG/KG
N6E02-11F-SS	481107.1559	4978701.461	5/23/2006	4.3	J	MG/KG
N6E02-12SN-SS	481109.7794	4978699.602	5/23/2006	4.6	J	MG/KG
N6E02-12SS-SS	481111.0555	4978686.638	5/23/2006	4.1	J	MG/KG
N6E02-12SS-SSD	481111.0462	4978686.87	5/23/2006	4.1	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N6E02-13B-SS	481100.8096	4978676.969	5/23/2006	5.2	J	MG/KG
N6E02-13F-SS	481110.3652	4978679.776	5/23/2006	4.5	J	MG/KG
N6E02-14B-SS	481094.7575	4978658.846	5/23/2006	3.8	J	MG/KG
N6E02-14F-SS	481077.6693	4978658.897	5/23/2006	2.7	J	MG/KG
N6E02-15B-SS	481093.9236	4978671.877	5/23/2006	3	J	MG/KG
N6E02-15F-SS	481076.819	4978666.373	5/23/2006	2.9	J	MG/KG
N6E02-16B-SS	481088.7096	4978686.704	5/23/2006	3.9	J	MG/KG
N6E02-16SN-SS	481087.417	4978694.114	5/23/2006	3.3	J	MG/KG
N6E02-16SS-SS	481082.1591	4978694.129	5/23/2006	3.3	J	MG/KG
N6E02-17B-SS	481093.1392	4978701.892	5/23/2006	4.1	J	MG/KG
N6E02-17F-SS	481077.1054	4978699.66	5/23/2006	3.1	J	MG/KG
N6E02-18B-SS	481094.4539	4978711.936	5/23/2006	6	J	MG/KG
N6E02-18F-SS	481076.956	4978712.659	5/23/2006	2.8	J	MG/KG
N6E02-19B-SS	481094.7401	4978722.337	5/23/2006	3.9	J	MG/KG
N6E02-19F-SS	481077.648	4978722.551	5/23/2006	3.1	J	MG/KG
N6E02-20B-SS	481094.1567	4978734.85	5/23/2006	3.4	J	MG/KG
N6E02-20F-SS	481079.6507	4978734.869	5/23/2006	2.7	J	MG/KG
N6E02-21B-SS	481095.4625	4978747.782	5/23/2006	4.4	J	MG/KG
N6E02-21F-SS	481077.5446	4978742.82	5/23/2006	4.1	J	MG/KG
N6E02-22B-SS	481096.0695	4978753.951	5/23/2006	3.4	J	MG/KG
N6E02-22B-SSR	481096.0732	4978754.256	5/23/2006	3.8	J	MG/KG
N6E02-22F-SS	481077.2395	4978753.638	5/23/2006	2.6	J	MG/KG
N6E02-23B-SS	481095.5173	4978766.296	5/23/2006	4	J	MG/KG
N6E02-23F-SS	481077.2491	4978763.665	5/23/2006	2.8	J	MG/KG
N6E02-24B-SS	481096.256	4978775.104	5/23/2006	4.6	J	MG/KG
N6E02-24F-SS	481077.5208	4978774.688	5/23/2006	3.2	J	MG/KG
N6E02-25B-SS	481095.693	4978784.948	5/23/2006	5.1	J	MG/KG
N6E02-25F-SS	481077.7454	4978784.579	5/23/2006	3.2	J	MG/KG
N6E02-26B-SS	481096.4854	4978796.537	5/23/2006	3.5	J	MG/KG
N6E02-26F-SS	481077.7063	4978795.028	5/23/2006	2.4	J	MG/KG
N6E02-27S-SS	481057.3244	4978790.29	5/23/2006	3	J	MG/KG
N6E02-27S-SSR	481057.3222	4978790.58	5/23/2006	4.3	J	MG/KG
N6E02-28B-SS	481050.8368	4978770.132	5/23/2006	4.6	J	MG/KG
N6E02-28F-SS	481061.5199	4978773.838	5/23/2006	2.8	J	MG/KG
N6E02-29B-SS	481048.1804	4978760.882	5/23/2006	5.4	J	MG/KG
N6E02-29S-SS	481056.0617	4978759.007	5/23/2006	4.3	J	MG/KG
N6E02-30F-SS	481061.8384	4978744.296	5/23/2006	3.2	J	MG/KG
N6E02-31F-SS	481060.766	4978733.413	5/23/2006	3.3	J	MG/KG
N6E02-32B-SS	481045.4418	4978723.861	5/23/2006	3.8	J	MG/KG
N6E02-33B-SS	481061.432	4978712.11	5/23/2006	3	J	MG/KG
N6E02-33F-SS	481044.6101	4978712.113	5/23/2006	2.9	J	MG/KG
N6E02-34B-SS	481046.7068	4978707.194	5/23/2006	2.9	J	MG/KG
N6E02-34F-SS	481061.5252	4978701.654	5/23/2006	2.6	J	MG/KG
N6E02-35B-SS	481044.0176	4978686.836	5/23/2006	5.3	J	MG/KG
N6E02-35F-SS	481060.8123	4978691.242	5/23/2006	2.7	J	MG/KG
N6E02-37B-SS	481041.8909	4978669.844	5/23/2006	3.6	J	MG/KG
N6E02-37F-SS	481061.887	4978671.279	5/23/2006	4	J	MG/KG
N6E02-38S-SS	481036.0484	4978659.088	5/23/2006	3.3	J	MG/KG
N6E02-39B-SS	481018.7191	4978670.943	5/23/2006	3.1	J	MG/KG
N6E02-39B-SSD	481018.7094	4978671.151	5/23/2006	3.1	J	MG/KG
N6E02-39F-SS	481018.1478	4978656.387	5/23/2006	6.3		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N6E02-40F-SS	481013.1218	4978685.009	5/23/2006	2.8	J	MG/KG
N6E02-41F-SS	481013.4186	4978702.783	5/23/2006	2.7	J	MG/KG
N6E02-41F-SSD	481013.4093	4978703.016	5/23/2006	3	J	MG/KG
N6E02-42B-SS	481033.3959	4978714.409	5/23/2006	2.7	J	MG/KG
N6E02-42F-SS	481012.9787	4978714.354	5/23/2006	2.8	J	MG/KG
N6E02-43B-SS	481033.5165	4978722.849	5/23/2006	3.9	J	MG/KG
N6E02-43F-SS	481013.7493	4978723.125	5/23/2006	4.1	J	MG/KG
N6E02-44B-SS	481034.8756	4978732.314	5/23/2006	5.4	J	MG/KG
N6E02-44F-SS	481013.301	4978733.215	5/23/2006	5	J	MG/KG
N6E02-45B-SS	481034.4687	4978743.037	5/23/2006	2.6	J	MG/KG
N6E02-45B-SSD	481034.4854	4978743.315	5/23/2006	2.9	J	MG/KG
N6E02-45F-SS	481013.5388	4978742.836	5/23/2006	3	J	MG/KG
N6E02-46B-SS	481035.3409	4978756.125	5/23/2006	4.1	J	MG/KG
N6E02-46F-SS	481012.6792	4978757.285	5/23/2006	2.8	J	MG/KG
N6E02-47F-SS	481013.6568	4978766.007	5/23/2006	5.2	J	MG/KG
N6E02-48F-SS	481012.898	4978778.856	5/23/2006	6		MG/KG
N6E02-48S-SS	481018.01	4978783.86	5/23/2006	4.8	J	MG/KG
N6E03-02B-SS	481163.9616	4978797.569	5/23/2006	31.5		MG/KG
N6E03-02F-SS	481160.5411	4978823.069	5/23/2006	26.8		MG/KG
N6E03-02F-SSD	481160.5313	4978823.348	5/23/2006	17.2		MG/KG
N6E03-06B-SS	481203.2971	4978764.127	5/23/2006	3.8	J	MG/KG
N6E03-06F-SS	481228.2663	4978762.202	5/23/2006	2.4	J	MG/KG
N6E03-07B-SS	481201.95	4978753.022	5/23/2006	4.6	J	MG/KG
N6E03-07F-SS	481235.2428	4978753.259	5/23/2006	3	J	MG/KG
N6E03-07F-SSR	481235.2379	4978753.588	5/23/2006	2.3	J	MG/KG
N6E03-08B-SS	481199.2666	4978734.516	5/23/2006	4.6	J	MG/KG
N6E03-08B-SSD	481199.2571	4978734.82	5/23/2006	4.8	J	MG/KG
N6E03-08F-SS	481234.7734	4978739.966	5/23/2006	3.1	J	MG/KG
N6E03-09B-SS	481191.5408	4978726.799	5/23/2006	4.3	J	MG/KG
N6E03-09F-SS	481234.0679	4978727.128	5/23/2006	4.5	J	MG/KG
N6E03-10B-SS	481203.1502	4978714.138	5/23/2006	4.4	J	MG/KG
N6E03-10B-SSR	481203.1708	4978714.429	5/23/2006	3.6	J	MG/KG
N6E03-10F-SS	481233.0284	4978715.942	5/23/2006	3.7	J	MG/KG
N6E03-11B-SS	481211.0097	4978704.858	5/23/2006	4.6	J	MG/KG
N6E03-11S-SS	481232.0358	4978702.945	5/23/2006	3.2	J	MG/KG
N6E03-13B-SS	481217.5005	4978677.067	5/23/2006	3.6	J	MG/KG
N6E03-13F-SS	481234.5452	4978662.205	5/23/2006	4.4	J	MG/KG
N6E03-13S-SS	481225.3221	4978654.827	5/23/2006	4.9	J	MG/KG
N6E03-14B-SS	481200.4123	4978677.117	5/23/2006	3.3	J	MG/KG
N6E03-14F-SS	481197.729	4978658.61	5/23/2006	3.8	J	MG/KG
N6E03-15F-SS	481180.8811	4978659.036	5/23/2006	4.3	J	MG/KG
N6E03-15S-SS	481138.1728	4978655.257	5/23/2006	3.7	J	MG/KG
N6E03-16B-SS	481171.4776	4978671.648	5/23/2006	4.7	J	MG/KG
N6E03-16F-SS	481138.1801	4978670.905	5/23/2006	3.9	J	MG/KG
N6E03-17B-SS	481181.6421	4978681.8	5/23/2006	5.6	J	MG/KG
N6E03-17B-SSD	481181.6323	4978682.078	5/23/2006	5.6	J	MG/KG
N6E03-17F-SS	481138.1788	4978681.141	5/23/2006	6.4	J	MG/KG
N6E03-18F-SS	481137.2933	4978691.376	5/23/2006	9.3		MG/KG
N6E03-20B-SS	481171.8471	4978707.565	5/23/2006	4.2	J	MG/KG
N6E03-20F-SS	481146.8723	4978707.639	5/23/2006	4.1	J	MG/KG
N6E03-21B-SS	481165.047	4978719.805	5/23/2006	6.8		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N6E03-21F-SS	481137.4487	4978721.738	5/23/2006	13.7		MG/KG
N6E03-22B-SS	481172.9828	4978736.445	5/23/2006	6.7		MG/KG
N6E03-22F-SS	481144.0702	4978738.381	5/23/2006	6.1		MG/KG
N6E03-23F-SS	481137.8718	4978746.63	5/23/2006	5.5	J	MG/KG
N6E04-03F-SS	481355.2595	4978824.762	5/23/2006	3.1	J	MG/KG
N6E04-04B-SS	481313.9086	4978778.409	5/23/2006	6.4		MG/KG
N6E04-04F-SS	481341.358	4978778.535	5/23/2006	2.4	J	MG/KG
N6E04-05B-SS	481330.7938	4978761.902	5/23/2006	3.2	J	MG/KG
N6E04-05F-SS	481361.0371	4978765.517	5/23/2006	1.9	J	MG/KG
N6E04-07B-SS	481310.5955	4978742.487	5/23/2006	2.9	J	MG/KG
N6E04-07F-SS	481357.0942	4978741.497	5/23/2006	2	J	MG/KG
N6E04-08B-SS	481325.4494	4978732.295	5/23/2006	5.6	J	MG/KG
N6E04-08F-SS	481357.7478	4978729.441	5/23/2006	4.3	J	MG/KG
N6E04-09B-SS	481309.0118	4978719.851	5/23/2006	3.5	J	MG/KG
N6E04-09F-SS	481356.9587	4978719.242	5/23/2006	3.6	J	MG/KG
N6E04-10B-SS	481324.0647	4978708.23	5/23/2006	4.8	J-	MG/KG
N6E04-10F-SS	481357.1337	4978706.487	5/23/2006	4.2	J	MG/KG
N6E04-11B-SS	481359.5175	4978695.166	5/23/2006	4.9	J	MG/KG
N6E04-11F-SS	481357.4044	4978698.035	5/23/2006	4.1	J	MG/KG
N6E04-12B-SS	481355.5	4978684.384	5/23/2006	9		MG/KG
N6E04-12F-SS	481356.7806	4978658.145	5/23/2006	5.1	J	MG/KG
N6E04-13B-SS	481345.0098	4978678.545	5/23/2006	4.5	J	MG/KG
N6E04-13B-SSD	481345.0265	4978678.832	5/23/2006	4.9	J	MG/KG
N6E04-13F-SS	481342.003	4978656.036	5/23/2006	5.3	J	MG/KG
N6E04-14B-SS	481327.8139	4978685.553	5/24/2006	5.1	J	MG/KG
N6E04-14F-SS	481329.1658	4978654.522	5/24/2006	3.8	J	MG/KG
N6E04-15B-SS	481317.2411	4978685.448	5/24/2006	4.6	J	MG/KG
N6E04-15F-SS	481316.0427	4978661.967	5/24/2006	3.5	J-	MG/KG
N6E04-16B-SS	481309.5298	4978682.352	5/23/2006	4.4	J	MG/KG
N6E04-16F-SS	481304.2352	4978655.399	5/23/2006	4.1	J	MG/KG
N6E04-17B-SS	481296.3688	4978676.836	5/23/2006	4	J	MG/KG
N6E04-17F-SS	481295.6834	4978656.258	5/23/2006	4.5	J	MG/KG
N6E04-17F-SSD	481295.7001	4978656.545	5/23/2006	3.3	J	MG/KG
N6E04-18B-SS	481284.5386	4978676.87	5/23/2006	4.7	J	MG/KG
N6E04-18F-SS	481287.1188	4978660.2	5/23/2006	5.1	J	MG/KG
N6E04-19B-SS	481276.6518	4978676.894	5/23/2006	5.6	J	MG/KG
N6E04-19F-SS	481279.2211	4978656.52	5/23/2006	4.7	J	MG/KG
N6E04-20B-SS	481267.445	4978675.069	5/23/2006	3	J	MG/KG
N6E04-20F-SS	481267.4352	4978657.359	5/23/2006	3.7	J	MG/KG
N6E04-22F-SS	481262.2685	4978702.856	5/23/2006	2.6	J	MG/KG
N6E04-23B-SS	481284.6741	4978723.157	5/23/2006	4.7	J	MG/KG
N6E04-23S-SS	481266.3994	4978726.96	5/23/2006	3.7	J	MG/KG
N6E04-24B-SS	481289.9753	4978737.953	5/23/2006	4.3	J	MG/KG
N6E04-24F-SS	481264.8365	4978742.205	5/23/2006	3.7	J	MG/KG
N6E04-24F-SSR	481264.8462	4978742.542	5/23/2006	5	J	MG/KG
N6E04-25B-SS	481280.8337	4978758.345	5/24/2006	2.8	J	MG/KG
N6E04-25B-SSR	481279.5083	4978754.646	5/24/2006	2.9	J	MG/KG
N6E04-25F-SS	481266.2644	4978752.786	5/24/2006	1.8	J	MG/KG
N6E04-26B-SS	481283.8913	4978772.304	5/23/2006	14.4		MG/KG
N6E04-26F-SS	481262.4693	4978771.359	5/23/2006	4.4	J	MG/KG
N6E04-27B-SS	481283.5222	4978778.704	5/23/2006	3.2	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N6E04-27F-SS	481265.4618	4978781.977	5/23/2006	3	J	MG/KG
N6E05-03B-SS	481441.0058	4978778.2	5/24/2006	2.3	J-	MG/KG
N6E05-03F-SS	481476.7519	4978779.992	5/24/2006	2.8	J	MG/KG
N6E05-05B-SS	481450.3931	4978756	5/24/2006	3.9	J	MG/KG
N6E05-05F-SS	481477.9806	4978750.366	5/24/2006	3.3	J	MG/KG
N6E05-06B-SS	481455.6241	4978746.727	5/24/2006	3.5	J	MG/KG
N6E05-06F-SS	481481.8971	4978741.097	5/24/2006	3.8	J	MG/KG
N6E05-07B-SS	481450.3179	4978730.08	5/24/2006	3.9	J	MG/KG
N6E05-07B-SSD	481450.3347	4978730.366	5/24/2006	3.3	J	MG/KG
N6E05-07F-SS	481479.9924	4978731.887	5/24/2006	3.9	J	MG/KG
N6E05-08B-SS	481456.8526	4978717.101	5/24/2006	3.1	J	MG/KG
N6E05-08F-SS	481479.1985	4978717.036	5/24/2006	2.5	J	MG/KG
N6E05-09B-SS	481460.7692	4978707.832	5/24/2006	4	J	MG/KG
N6E05-09F-SS	481481.7899	4978704.068	5/24/2006	3.7	J	MG/KG
N6E05-10B-SS	481454.17	4978698.594	5/24/2006	26.9	J	MG/KG
N6E05-10F-SS	481481.747	4978689.257	5/24/2006	86.4	J	MG/KG
N6E05-11F-SS	481477.7295	4978654.943	5/24/2006	4	J	MG/KG
N6E05-11S-SS	481483.0025	4978668.887	5/24/2006	3.8	J	MG/KG
N6E05-12B-SS	481464.6267	4978678.197	5/24/2006	8		MG/KG
N6E05-12F-SS	481464.5847	4978654.981	5/24/2006	4	J	MG/KG
N6E05-13B-SS	481448.8387	4978680.932	5/24/2006	123	J	MG/KG
N6E05-13F-SS	481450.5087	4978654.645	5/24/2006	18	J	MG/KG
N6E05-14B-SS	481442.2753	4978676.411	5/24/2006	8.7	J	MG/KG
N6E05-14F-SS	481439.5819	4978654.201	5/24/2006	31.4	J	MG/KG
N6E05-16B-SS	481418.631	4978682.034	5/24/2006	5.5	J	MG/KG
N6E05-16F-SS	481414.6456	4978656.028	5/24/2006	3.3	J	MG/KG
N6E05-17B-SS	481406.7469	4978663.554	5/24/2006	3.4	J-	MG/KG
N6E05-17F-SS	481388.4783	4978658.002	5/24/2006	3	J-	MG/KG
N6E05-18B-SS	481402.8412	4978676.525	5/24/2006	6.3	J	MG/KG
N6E05-18F-SS	481387.6255	4978674.676	5/24/2006	5.3	J	MG/KG
N6E05-19B-SS	481413.4161	4978696.861	5/24/2006	11.4	J	MG/KG
N6E05-19F-SS	481388.0534	4978694.245	5/24/2006	24.2	J	MG/KG
N6E05-20B-SS	481410.8033	4978702.423	5/24/2006	5	J	MG/KG
N6E05-20F-SS	481385.8392	4978706.198	5/24/2006	5	J	MG/KG
N6E05-21B-SS	481416.1043	4978717.219	5/24/2006	6	J-	MG/KG
N6E05-21F-SS	481388.1986	4978718.288	5/24/2006	15	J	MG/KG
N6E05-22B-SS	481412.1878	4978726.488	5/24/2006	5.1	J	MG/KG
N6E05-22F-SS	481387.2399	4978735.817	5/24/2006	4.6	J	MG/KG
N6E05-22F-SSR	481387.2385	4978736.155	5/24/2006	3.8	J	MG/KG
N6E05-23B-SS	481416.1849	4978744.99	5/24/2006	20.3	J	MG/KG
N6E05-23F-SS	481385.9578	4978746.93	5/24/2006	960		MG/KG
N6E05-24B-SS	481418.8408	4978754.24	5/24/2006	4.3	J	MG/KG
N6E05-24B-SSD	481418.8574	4978754.518	5/24/2006	3.4	J	MG/KG
N6E05-24F-SS	481388.6244	4978759.882	5/24/2006	5.8		MG/KG
N6E05-25B-SS	481416.2387	4978763.505	5/24/2006	4.9	J	MG/KG
N6E05-25F-SS	481387.3423	4978770.995	5/24/2006	4.5	J	MG/KG
N6E05-26B-SS	481418.9107	4978778.309	5/24/2006	4.6	J	MG/KG
N6E05-26F-SS	481387.3746	4978782.103	5/24/2006	3	J	MG/KG
N6E06-05B-SS	481569.0399	4978766.179	5/24/2006	2.8	J	MG/KG
N6E06-05F-SS	481608.1545	4978764.802	5/24/2006	2.7	J	MG/KG
N6E06-06B-SS	481572.6269	4978751.944	5/24/2006	4.7	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N6E06-06F-SS	481607.4229	4978750.206	5/24/2006	3.8	J	MG/KG
N6E06-07B-SS	481584.425	4978740.801	5/24/2006	9		MG/KG
N6E06-07F-SS	481610.7089	4978738.874	5/24/2006	41		MG/KG
N6E06-08B-SS	481585.6861	4978722.283	5/24/2006	4.4	J	MG/KG
N6E06-08F-SS	481608.6862	4978717.68	5/24/2006	38.3		MG/KG
N6E06-08F-SSR	481608.6954	4978717.984	5/24/2006	13.4		MG/KG
N6E06-09B-SS	481586.9579	4978707.467	5/24/2006	5.8	J-	MG/KG
N6E06-09F-SS	481610.6183	4978707.399	5/24/2006	4.2	J	MG/KG
N6E06-10B-SS	481584.297	4978696.366	5/24/2006	4	J	MG/KG
N6E06-10F-SS	481609.256	4978690.74	5/24/2006	3.9	J	MG/KG
N6E06-10F-SSR	481609.2546	4978691.077	5/24/2006	4.1	J	MG/KG
N6E06-11B-SS	481602.641	4978675.947	5/24/2006	5.4	J	MG/KG
N6E06-11F-SS	481605.2113	4978655.574	5/24/2006	3	J	MG/KG
N6E06-12B-SS	481590.8321	4978683.387	5/24/2006	7.9		MG/KG
N6E06-12F-SS	481593.4787	4978654.584	5/24/2006	4	J	MG/KG
N6E06-13B-SS	481579.2482	4978680.522	5/24/2006	43.5		MG/KG
N6E06-13F-SS	481578.9165	4978653.798	5/24/2006	178		MG/KG
N6E06-14B-SS	481567.1449	4978674.198	5/24/2006	50.4		MG/KG
N6E06-14F-SS	481566.3045	4978654.622	5/24/2006	18.5		MG/KG
N6E06-15B-SS	481550.0433	4978685.052	5/24/2006	7.7		MG/KG
N6E06-15F-SS	481543.4203	4978652.049	5/24/2006	4	J	MG/KG
N6E06-15S-SS	481543.463	4978666.861	5/24/2006	4.1	J	MG/KG
N6E06-16B-SS	481530.3717	4978685.413	5/24/2006	7.6		MG/KG
N6E06-16F-SS	481532.9098	4978653.931	5/24/2006	3.9	J	MG/KG
N6E06-17B-SS	481518.5094	4978674.338	5/24/2006	3	J	MG/KG
N6E06-17F-SS	481519.765	4978653.969	5/24/2006	4.5	J	MG/KG
N6E06-18B-SS	481546.1721	4978694.625	5/24/2006	5.9	J	MG/KG
N6E06-18F-SS	481516.9048	4978693.774	5/24/2006	19.4		MG/KG
N6E06-19B-SS	481539.6479	4978711.307	5/24/2006	34.9		MG/KG
N6E06-19F-SS	481515.9875	4978711.375	5/24/2006	29.5		MG/KG
N6E06-20B-SS	481557.2	4978715.926	5/24/2006	4.4	J	MG/KG
N6E06-20F-SS	481517.1247	4978717.792	5/24/2006	5.2	J	MG/KG
N6E06-20F-SSD	481517.1413	4978718.07	5/24/2006	5.1	J	MG/KG
N6E06-21B-SS	481538.3975	4978733.528	5/24/2006	37.9		MG/KG
N6E06-21F-SS	481514.7639	4978732.41	5/24/2006	106		MG/KG
N6E06-22B-SS	481543.6928	4978746.473	5/24/2006	4.3	J	MG/KG
N6E06-22F-SS	481516.0677	4978739.147	5/24/2006	4.4	J	MG/KG
N6E06-23B-SS	481547.6767	4978754.938	5/24/2006	44.3		MG/KG
N6E06-23F-SS	481518.7587	4978755.021	5/24/2006	48.9		MG/KG
N6E06-24B-SS	481543.7676	4978772.393	5/24/2006	3.6	J	MG/KG
N6E06-24F-SS	481518.3439	4978769.022	5/24/2006	5.2	J	MG/KG
N6E07-06B-SS	481693.562	4978778.895	5/30/2006	5.4	J	MG/KG
N6E07-06F-SS	481737.0236	4978782.947	5/30/2006	6.3		MG/KG
N6E07-07B-SS	481705.4397	4978770.076	5/30/2006	6.1	J	MG/KG
N6E07-07F-SS	481734.3527	4978768.143	5/30/2006	5.2	J	MG/KG
N6E07-08B-SS	481696.2198	4978753.794	5/30/2006	5.5	J	MG/KG
N6E07-08F-SS	481735.614	4978754.729	5/30/2006	6		MG/KG
N6E07-08F-SSD	481735.6304	4978754.98	5/30/2006	6.5		MG/KG
N6E07-09B-SS	481704.0569	4978746.012	5/30/2006	7.1		MG/KG
N6E07-09F-SS	481735.5372	4978743.315	5/30/2006	6.7		MG/KG
N6E07-10B-SS	481704.0093	4978729.349	5/30/2006	9.1		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N6E07-10F-SS	481736.8703	4978729.255	5/30/2006	6.3		MG/KG
N6E07-11B-SS	481713.5555	4978717.2	5/30/2006	8.1		MG/KG
N6E07-11F-SS	481734.5872	4978717.14	5/30/2006	6.5		MG/KG
N6E07-12B-SS	481710.5125	4978705.261	5/30/2006	79.9		MG/KG
N6E07-12F-SS	481734.1887	4978710.748	5/30/2006	6.4		MG/KG
N6E07-13B-SS	481707.8573	4978696.012	5/30/2006	6.8		MG/KG
N6E07-13B-SSD	481707.874	4978696.29	5/30/2006	6.8		MG/KG
N6E07-13F-SS	481735.4506	4978692.229	5/30/2006	6.4		MG/KG
N6E07-15B-SS	481698.5551	4978660.861	5/30/2006	6.6		MG/KG
N6E07-15F-SS	481695.397	4978683.572	5/30/2006	4.9	J	MG/KG
N6E07-16B-SS	481682.8238	4978675.717	5/30/2006	17.5		MG/KG
N6E07-16F-SS	481682.0177	4978656.043	5/30/2006	4.4	J	MG/KG
N6E07-17F-SS	481668.8017	4978654.618	5/30/2006	4	J+	MG/KG
N6E07-18B-SS	481657.8592	4978679.492	5/30/2006	6	J+	MG/KG
N6E07-18F-SS	481655.2144	4978654.123	5/30/2006	3.9	J+	MG/KG
N6E07-19B-SS	481642.0802	4978677.686	5/30/2006	5.2	J+	MG/KG
N6E07-19F-SS	481642.0111	4978653.616	5/30/2006	3.4	J	MG/KG
N6E07-19S-SS	481643.1751	4978666.489	5/30/2006	3.3	J	MG/KG
N6E07-21B-SS	481663.9915	4978525.803	5/30/2006	77.8		MG/KG
N6E07-21F-SS	481639.0034	4978706.897	5/30/2006	37.8		MG/KG
N6E07-22B-SS	481672.4303	4978718.331	5/30/2006	6.5	J+	MG/KG
N6E07-22F-SS	481638.1924	4978717.674	5/30/2006	4.9	J+	MG/KG
N6E07-23B-SS	481671.1634	4978734.998	5/30/2006	7.3	J+	MG/KG
N6E07-23F-SS	481638.3664	4978731.363	5/30/2006	5	J+	MG/KG
N6E07-24B-SS	481658.0132	4978733.184	5/30/2006	16.1		MG/KG
N6E07-24F-SS	481638.4402	4978742.544	5/30/2006	8.8	J+	MG/KG
N6E08-03B-SS	481834.2935	4978782.67	5/30/2006	4.8	J-	MG/KG
N6E08-03F-SS	481852.6745	4978775.211	5/30/2006	3.7	J	MG/KG
N6E08-04B-SS	481828.9986	4978769.724	5/30/2006	5.9		MG/KG
N6E08-04F-SS	481859.1529	4978766.131	5/30/2006	6.1		MG/KG
N6E08-05B-SS	481839.4772	4978756.735	5/30/2006	4.2	J	MG/KG
N6E08-05F-SS	481859.1992	4978758.53	5/30/2006	4.4	J	MG/KG
N6E08-06B-SS	481839.4561	4978749.329	5/30/2006	4.1	J	MG/KG
N6E08-06F-SS	481857.838	4978741.87	5/30/2006	4.3	J	MG/KG
N6E08-07B-SS	481827.5681	4978728.997	5/30/2006	18		MG/KG
N6E08-07F-SS	481856.4918	4978730.765	5/30/2006	19.3		MG/KG
N6E08-08B-SS	481835.4128	4978714.162	5/30/2006	4	J	MG/KG
N6E08-08F-SS	481859.0574	4978708.541	5/30/2006	6.4		MG/KG
N6E08-09B-SS	481820.0961	4978694.589	5/30/2006	22.3		MG/KG
N6E08-09F-SS	481857.5713	4978694.468	5/30/2006	3.9	J	MG/KG
N6E08-11B-SS	481843.9691	4978684.406	5/30/2006	4.8	J	MG/KG
N6E08-11F-SS	481841.8385	4978662.304	5/30/2006	3.8	J	MG/KG
N6E08-12B-SS	481830.0555	4978679	5/30/2006	5.8	J	MG/KG
N6E08-12F-SS	481828.6882	4978660.489	5/30/2006	4.2	J	MG/KG
N6E08-13F-SS	481816.8685	4978664.226	5/30/2006	6	J	MG/KG
N6E08-14B-SS	481806.3951	4978679.068	5/30/2006	7.6		MG/KG
N6E08-14F-SS	481806.4348	4978654.876	5/30/2006	4.8	J	MG/KG
N6E08-15B-SS	481794.5912	4978688.358	5/30/2006	5.3	J	MG/KG
N6E08-15F-SS	481795.8155	4978656.88	5/30/2006	5.1	J	MG/KG
N6E08-16B-SS	481786.6727	4978677.272	5/30/2006	3.5	J	MG/KG
N6E08-16F-SS	481781.2349	4978655.024	5/30/2006	3.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N6E08-17B-SS	481764.3525	4978686.593	5/30/2006	18.7		MG/KG
N6E08-17F-SS	481766.9081	4978660.665	5/30/2006	11.7		MG/KG
N6E08-18B-SS	481789.3646	4978699.482	5/30/2006	39.8		MG/KG
N6E08-18B-SSR	481789.3684	4978699.787	5/30/2006	43.3		MG/KG
N6E08-18F-SS	481764.5413	4978693.898	5/30/2006	224		MG/KG
N6E08-19B-SS	481793.3397	4978710.579	5/30/2006	6.1		MG/KG
N6E08-19F-SS	481770.9993	4978712.495	5/30/2006	5.2	J	MG/KG
N6E08-20B-SS	481789.4279	4978721.699	5/30/2006	10.4		MG/KG
N6E08-20F-SS	481761.8136	4978718.075	5/30/2006	57.5		MG/KG
N6E08-21B-SS	481786.8362	4978734.667	5/30/2006	2.3	J	MG/KG
N6E08-21F-SS	481760.5411	4978732.89	5/30/2006	5.1	J	MG/KG
N6E08-21F-SSD	481760.5449	4978733.195	5/30/2006	4.6	J	MG/KG
N6E08-22B-SS	481807.5857	4978743.5	5/30/2006	42.7		MG/KG
N6E08-22F-SS	481764.5215	4978745.839	5/30/2006	31.6		MG/KG
N6E08-23B-SS	481793.4715	4978756.866	5/30/2006	34.9		MG/KG
N6E08-23F-SS	481763.4347	4978755.078	5/30/2006	95.3		MG/KG
N6E08-23F-SSR	481763.4347	4978755.078	5/30/2006	105		MG/KG
N6E08-24B-SS	481805.8827	4978766.262	5/30/2006	7.5		MG/KG
N6E08-24F-SS	481763.7397	4978766.971	5/30/2006	5.8		MG/KG
N6E08-25B-SS	481790.9219	4978784.645	5/30/2006	5.3	J	MG/KG
N6E08-25F-SS	481761.9932	4978781.024	5/30/2006	3.1	J	MG/KG
N6W01-02B-SS	480848.4278	4978776.289	5/22/2006	5.6	J	MG/KG
N6W01-02F-SS	480859.1865	4978770.737	5/22/2006	6.8		MG/KG
N6W01-03B-SS	480841.9957	4978746.081	5/22/2006	63.3		MG/KG
N6W01-03F-SS	480860.1637	4978744.779	5/22/2006	111		MG/KG
N6W01-04A-SS	480812.771	4978720.852	6/3/2006	3.1	J	MG/KG
N6W01-04B-SS	480853.5354	4978726.285	6/3/2006	3.6	J	MG/KG
N6W01-04C-SS	480853.4578	4978700.364	6/3/2006	3.1	J	MG/KG
N6W02-04B-SS	480791.5606	4978663.594	5/22/2006	5.4	J	MG/KG
N6W02-04F-SS	480785.0052	4978669.168	5/22/2006	4	J	MG/KG
N6W02-05B-SS	480749.8209	4978672.368	5/22/2006	4.7	J	MG/KG
N6W02-05F-SS	480748.4567	4978655.708	5/22/2006	4.8	J	MG/KG
N6W03-01A-SS	480638.0208	4978783.166	6/3/2006	2.3	J	MG/KG
N6W03-01B-SS	480620.9551	4978790.624	6/3/2006	4.1	J	MG/KG
N6W04-09C-SS	480570.9952	4978787.073	6/3/2006	3.3	J	MG/KG
N6W06-01SE-SS	480340.7299	4978674.148	5/22/2006	3.2	J	MG/KG
N6W07-01CE-SS	480285.619	4978705.793	5/22/2006	3.6	J	MG/KG
N6W07-01CN-SS	480268.5258	4978703.994	5/22/2006	3.2	J	MG/KG
N6W07-01CW-SS	480236.9957	4978709.645	5/22/2006	3.1	J	MG/KG
N6W07-01NW-SS	480234.5093	4978755.94	5/22/2006	3.8	J	MG/KG
N6W07-01S-SS	480294.6608	4978653.924	5/22/2006	3	J	MG/KG
N6W07-01SW-SS	480207.4175	4978656.257	5/22/2006	3.5	J	MG/KG
N6W07-01W-SS	480214.6607	4978713.417	5/22/2006	2.9	J	MG/KG
N6W08-09B-SS	480166.0317	4978715.419	5/22/2006	16		MG/KG
N6W08-09F-SS	480187.0799	4978720.909	5/22/2006	20.5		MG/KG
N6W08-11B-SS	480154.1328	4978694.157	5/22/2006	6	U	MG/KG
N6W08-11F-SS	480185.6799	4978693.141	5/22/2006	5.7	U	MG/KG
N6W08-12F-SS	480184.0925	4978675.776	5/22/2006	3.9	J-	MG/KG
N6W08-13B-SS	480165.8595	4978659.876	5/22/2006	4.1	J-	MG/KG
N6W08-13F-SS	480184.5425	4978661.692	5/22/2006	5.5	U	MG/KG
N6W08-14F-SS	480139.5579	4978656.255	5/22/2006	6	U	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N6W08-14S-SS	480136.9261	4978661.782	5/22/2006	1.8	J-	MG/KG
N6W08-15B-SS	480122.4932	4978663.713	5/22/2006	1.8	J-	MG/KG
N6W08-15F-SS	480125.1104	4978660.003	5/22/2006	2.5	J-	MG/KG
N6W08-16B-SS	480113.3032	4978667.446	5/22/2006	5.6	U	MG/KG
N6W08-16F-SS	480114.5776	4978654.481	5/22/2006	5.7	U	MG/KG
N6W08-17B-SS	480136.9925	4978676.629	5/22/2006	2.2	J-	MG/KG
N6W08-17F-SS	480112.2221	4978675.835	5/22/2006	2.2	J-	MG/KG
N6W08-18F-SS	480112.0345	4978682.261	5/22/2006	1.2	J-	MG/KG
N6W08-19B-SS	480130.4951	4978700.718	5/22/2006	3	J	MG/KG
N6W08-19F-SS	480114.7158	4978698.916	5/22/2006	4	J	MG/KG
N6W09-08C-SS	480056.9133	4978710.204	5/22/2006	1.3	J-	MG/KG
N6W09-08NE-SS	480085.8491	4978715.669	5/22/2006	3.2	J	MG/KG
N6W09-08NW-SS	480050.3874	4978725.036	5/22/2006	6	U	MG/KG
N6W09-08SE-SS	480068.6627	4978684.248	5/22/2006	3.8	J	MG/KG
N6W09-08SW-SS	480017.6785	4978673.69	5/22/2006	2.3	J	MG/KG
N6W10-05B-SS	479987.2236	4978703.016	5/22/2006	7.8	J	MG/KG
N6W10-05F-SS	479988.3301	4978727.565	5/22/2006	2.5	J	MG/KG
N6W10-05S-SS	479994.0049	4978707.489	5/22/2006	4.2	J	MG/KG
N6W10-06BE-SS	479993.7204	4978678.927	5/22/2006	4.4	J	MG/KG
N6W10-06BW-SS	479979.2672	4978680.823	5/22/2006	3.1	J	MG/KG
N6W10-06F-SS	479991.0222	4978656.718	5/22/2006	3.7	J	MG/KG
N6W10-07B-SS	479966.1455	4978688.271	5/22/2006	3.4	J	MG/KG
N6W10-07F-SS	479965.9753	4978651.207	5/22/2006	3	J	MG/KG
N6W10-07SB-SS	479977.9409	4978677.125	5/22/2006	3.8	J	MG/KG
N6W10-08B-SS	479952.9839	4978682.758	5/22/2006	6.7		MG/KG
N6W10-08F-SS	479951.5897	4978651.48	5/22/2006	4	J	MG/KG
N6W10-09B-SS	479934.5749	4978680.963	5/22/2006	2.5	J	MG/KG
N6W10-09F-SS	479937.1521	4978664.292	5/22/2006	4.4	J	MG/KG
N6W10-10F-SS	479910.8388	4978656.97	5/22/2006	3.6	J	MG/KG
N6W10-11B-SS	479924.5073	4978667.091	5/22/2006	1.3	J	MG/KG
N6W10-11F-SS	479912.1207	4978666.679	5/22/2006	2.7	J	MG/KG
N6W10-12C-SS	479917.5629	4978705.086	5/22/2006	4	J	MG/KG
N6W10-12E-SS	479918.9408	4978725.448	5/22/2006	1.8	J	MG/KG
N6W10-12W-SS	479922.7505	4978682.852	5/22/2006	2.8	J	MG/KG
N6W10-13B-SS	479929.3873	4978703.197	5/22/2006	2.5	J	MG/KG
N6W10-13F-SS	479931.1478	4978728.315	5/22/2006	3.3	J	MG/KG
N6W10-14B-SS	479951.7388	4978704.979	5/22/2006	4.5	J	MG/KG
N6W10-14F-SS	479955.7518	4978727.184	5/22/2006	3.1	J	MG/KG
N6W11-02B-SS	479847.2723	4978700.195	5/22/2006	4	J	MG/KG
N6W11-02F-SS	479844.7253	4978726.123	5/22/2006	3.2	J	MG/KG
N6W11-03B-SS	479854.9866	4978701.612	5/22/2006	5.1	J	MG/KG
N6W11-03F-SS	479853.7185	4978716.427	5/22/2006	4	J	MG/KG
N6W11-04F-SS	479889.7952	4978722.742	5/22/2006	4	J	MG/KG
N6W11-04S-SS	479880.775	4978710.756	5/22/2006	3.7	J	MG/KG
N6W11-05B-SS	479868.9157	4978701.537	5/22/2006	4.1	J	MG/KG
N6W11-05S-SS	479887.3413	4978708.884	5/22/2006	3.2	J	MG/KG
N6W11-06F-SS	479888.5861	4978686.662	5/22/2006	4.2	J	MG/KG
N6W11-06S-SS	479876.7792	4978694.106	5/22/2006	5.9	J	MG/KG
N6W11-07B-SS	479874.6737	4978675.567	5/22/2006	5.6		MG/KG
N6W11-07F-SS	479889.6878	4978666.306	5/22/2006	16.5		MG/KG
N6W11-08F-SS	479850.7668	4978652.723	5/22/2006	4.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N6W11-09B-SS	479830.662	4978659.073	5/22/2006	7		MG/KG
N6W11-09F-SS	479808.2979	4978653.589	5/22/2006	5.4	J	MG/KG
N6W11-10B-SS	479832.0227	4978673.881	5/22/2006	3.4	J	MG/KG
N6W11-10F-SS	479810.9858	4978672.095	5/22/2006	3.5	J	MG/KG
N6W11-11B-SS	479828.1143	4978685.002	5/22/2006	5.2	J	MG/KG
N6W11-11F-SS	479809.7061	4978683.208	5/22/2006	4.3	J	MG/KG
N6W11-12B-SS	479830.7847	4978697.953	5/22/2006	5.9	J	MG/KG
N6W11-12F-SS	479809.788	4978709.128	5/22/2006	5.7		MG/KG
N6W12-01B-SS	479712.5177	4978709.436	5/22/2006	3.5	J	MG/KG
N6W12-01F-SS	479713.2641	4978729.662	5/22/2006	3.5	J	MG/KG
N6W12-02B-SS	479732.2405	4978711.225	5/22/2006	4.2	J	MG/KG
N6W12-02F-SS	479727.0411	4978729.757	5/22/2006	2	J	MG/KG
N6W12-03B-SS	479745.3612	4978703.777	5/22/2006	4.3	J	MG/KG
N6W12-03F-SS	479747.0132	4978729.694	5/22/2006	2.5	J	MG/KG
N6W12-04F-SS	479762.7809	4978727.792	5/22/2006	4.1	J	MG/KG
N6W12-05B-SS	479774.3208	4978716.646	5/22/2006	3.9	J	MG/KG
N6W12-05F-SS	479777.2397	4978727.746	5/22/2006	4.6	J	MG/KG
N6W12-06S-SS	479787.0493	4978728.631	5/22/2006	4	J	MG/KG
N6W12-07N-SS	479782.1724	4978705.513	5/22/2006	3.1	J	MG/KG
N6W12-07S-SS	479779.5321	4978701.819	5/22/2006	3.4	J	MG/KG
N6W12-08B-SS	479786.0515	4978685.135	5/22/2006	1.9	J	MG/KG
N6W12-08S-SS	479788.6099	4978662.909	5/22/2006	3.5	J	MG/KG
N6W12-09B-SS	479772.9182	4978688.879	5/22/2006	3.8	J	MG/KG
N6W12-09F-SS	479767.5496	4978653.718	5/22/2006	75.3		MG/KG
N6W12-09S-SS	479774.1568	4978664.806	5/22/2006	4.5	J	MG/KG
N6W12-10BE-SS	479754.5159	4978688.937	5/22/2006	4.1	J	MG/KG
N6W12-10BW-SS	479729.5407	4978689.016	5/22/2006	2.8	J	MG/KG
N6W12-10FE-SS	479750.4787	4978659.326	5/22/2006	3.3	J	MG/KG
N6W12-10FW-SS	479732.0762	4978659.384	5/22/2006	3.7	J	MG/KG
N6W12-11F-SS	479708.5096	4978689.083	5/22/2006	3.4	J	MG/KG
N6W12-11SB-SS	479713.6906	4978664.997	5/22/2006	3.4	J	MG/KG
N6W12-11SF-SS	479715.0641	4978683.508	5/22/2006	4.7	J	MG/KG
N7E01-01NE-SS	480984.3325	4978966.191	5/23/2006	4.4	J	MG/KG
N7E01-01NW-SS	480908.7159	4978964.552	5/23/2006	4	J	MG/KG
N7E01-01SE-SS	480983.1603	4978939.171	5/23/2006	4.3	J	MG/KG
N7E01-01SS-SS	480909.2949	4978939.243	5/23/2006	3.4	J	MG/KG
N7E01-01SW-SS	480889.3916	4978938.303	5/23/2006	3.4	J	MG/KG
N7E01-02B-SS	480940.9385	4978921.386	5/23/2006	3.6	J	MG/KG
N7E01-02B-SSD	480940.9552	4978921.663	5/23/2006	4.4	J	MG/KG
N7E01-02F-SS	480976.3701	4978924.024	5/23/2006	2.9	J	MG/KG
N7E01-02S-SS	480968.4395	4978909.236	5/23/2006	8.6		MG/KG
N7E01-05F-SS	480892.4368	4978892.699	5/23/2006	3.1	J	MG/KG
N7E01-05F-SSR	480892.457	4978892.955	5/23/2006	3.2	J	MG/KG
N7E01-07F-SS	480894.3401	4978927.879	5/23/2006	5	J	MG/KG
N7E03-01CE-SS	481201.0982	4978910.399	5/23/2006	5.1	J	MG/KG
N7E03-01CW-SS	481180.0619	4978908.609	5/23/2006	5.7		MG/KG
N7E03-01NE-SS	481233.1904	4978925.535	5/23/2006	3.6	J	MG/KG
N7E03-01SE-SS	481229.1766	4978901.478	5/23/2006	3.8	J	MG/KG
N7E04-02B-SS	481269.5622	4978949.079	5/23/2006	3.9	J	MG/KG
N7E04-03B-SS	481281.4081	4978954.598	5/23/2006	3.7	J-	MG/KG
N7E04-04B-SS	481287.9694	4978950.876	5/23/2006	3.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N7E04-05B-SS	481294.5469	4978952.709	5/23/2006	4.5	J	MG/KG
N7E04-06B-SS	481304.3746	4978937.997	5/23/2006	3.4	J	MG/KG
N7E04-07B-SS	481310.3091	4978948.96	5/23/2006	3.5	J	MG/KG
N7E04-08B-SS	481315.5775	4978952.647	5/23/2006	4.1	J	MG/KG
N7E04-09B-SS	481323.4532	4978948.921	5/23/2006	4.2	J	MG/KG
N7E04-10B-SS	481331.3451	4978950.75	5/23/2006	4.6	J	MG/KG
N7E04-11B-SS	481337.9118	4978948.879	5/23/2006	3.4	J	MG/KG
N7E04-12B-SS	481346.3461	4978937.235	5/23/2006	3.8	J	MG/KG
N7E04-13B-SS	481357.628	4978948.821	5/23/2006	2.2	J-	MG/KG
N7E04-15BN-SS	481326.0064	4978922.993	5/23/2006	2.3	J	MG/KG
N7E04-15BS-SS	481329.9218	4978904.43	5/23/2006	2.3	J	MG/KG
N7E04-15NE-SS	481360.8947	4978917.367	5/23/2006	1.6	J	MG/KG
N7E04-15SE-SS	481359.5317	4978900.708	5/23/2006	3	J	MG/KG
N7E04-17F-SS	481265.3119	4978888.32	5/23/2006	3	J	MG/KG
N7E04-17F-SSR	481265.3178	4978888.657	5/23/2006	2.7	J	MG/KG
N7E04-18F-SS	481265.4887	4978904.656	5/23/2006	4	J	MG/KG
N7E04-20B-SS	481289.2188	4978928.655	5/23/2006	4.2	J	MG/KG
N7E04-20B-SSD	481289.2354	4978928.933	5/23/2006	3.8	J	MG/KG
N7E04-20F-SS	481264.2448	4978928.728	5/23/2006	3.9	J	MG/KG
N7E05-01NW-SS	481420.7469	4978957.895	5/23/2006	6.3		MG/KG
N7E05-01SW-SS	481416.7499	4978939.392	5/23/2006	2.6	J	MG/KG
N7E05-02NE-SS	481444.2023	4978887.471	5/23/2006	3.4	J	MG/KG
N7E05-02NW-SS	481404.8179	4978904.249	5/23/2006	3.2	J	MG/KG
N7E05-02SE-SS	481452.0352	4978868.934	5/23/2006	3.2	J	MG/KG
N7E05-02SW-SS	481412.6069	4978861.643	5/23/2006	3.6	J	MG/KG
N7E06-01NE-SS	481607.527	4978911.506	5/23/2006	3.3	J	MG/KG
N7E06-01S-SS	481502.8907	4978887.77	5/23/2006	2.9	J	MG/KG
N7W01-01NE-SS	480858.4703	4978964.384	5/22/2006	4.7	J	MG/KG
N7W01-01NW-SS	480817.6628	4978966.762	5/22/2006	4.2	J	MG/KG
N7W01-01SE-SS	480858.164	4978905.739	5/22/2006	3.2	J	MG/KG
N7W01-01SW-SS	480818.4606	4978909.13	5/22/2006	3.5	J	MG/KG
N7W01-02B-SS	480822.4936	4978894.86	5/22/2006	3.2	J	MG/KG
N7W01-02F-SS	480860.6181	4978896.597	5/22/2006	3.2	J	MG/KG
N7W01-03F-SS	480835.5161	4978854.089	5/22/2006	31		MG/KG
N7W02-01B-SS	480779.986	4978942.715	5/22/2006	2.4	J	MG/KG
N7W02-01F-SS	480780.8525	4978968.056	5/22/2006	2.2	J	MG/KG
N7W02-01S-SS	480762.2365	4978963.545	5/22/2006	2.5	J	MG/KG
N7W02-03NE-SS	480808.7678	4978928.838	5/22/2006	2.1	J	MG/KG
N7W02-03NW-SS	480763.4613	4978933.918	5/22/2006	2.2	J	MG/KG
N7W02-03SE-SS	480806.9665	4978905.119	5/22/2006	3.3	J	MG/KG
N7W02-03SW-SS	480767.3266	4978907.986	5/22/2006	3.1	J	MG/KG
N7W03-03NE-SS	480693.121	4979031.712	5/22/2006	2.4	J	MG/KG
N7W03-03SE-SS	480692.6783	4978998.933	5/22/2006	2.9	J	MG/KG
N7W03-03S-SS	480667.6323	4978974.939	5/22/2006	3.3	J	MG/KG
N7W07-02SE-SS	480217.9087	4978913.365	5/22/2006	3.4	J	MG/KG
N7W08-01S-SS	480182.4308	4978917.178	5/22/2006	3.7	J	MG/KG
N7W08-01SW-SS	480161.4055	4978919.094	5/22/2006	4	J	MG/KG
N7W09-01F-SS	479987.6969	4978937.161	5/22/2006	7.6		MG/KG
N7W09-01S-SS	479994.2804	4978940.844	5/22/2006	7.6		MG/KG
N7W09-02B-SS	480018.1562	4978926.946	5/22/2006	12.2		MG/KG
N7W09-02F-SS	480021.2779	4978941.661	5/22/2006	4.4	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
N7W09-06B-SS	479994.6329	4978874.042	5/22/2006	5.6	J	MG/KG
N7W09-10B-SS	480007.6411	4978926.979	5/22/2006	5	J	MG/KG
N7W09-10F-SS	479988.6276	4978923.294	5/22/2006	3.9	J	MG/KG
N8W02-01B-SS	480707.2909	4979238.288	5/23/2006	6.9		MG/KG
N8W02-01F-SS	480706.9724	4979257.464	5/23/2006	4.9	J	MG/KG
N8W02-01F-SSR	480706.9671	4979257.779	5/23/2006	5.2	J	MG/KG
N8W02-02NE-SS	480736.5308	4979250.614	5/23/2006	4.5	J	MG/KG
N8W02-02NW-SS	480731.2678	4979248.778	5/23/2006	5	J	MG/KG
N8W02-02SE-SS	480736.7512	4979230.232	5/23/2006	3.6	J	MG/KG
N8W02-03B-SS	480696.4922	4979217.539	5/23/2006	4.9	J	MG/KG
N8W02-03F-SS	480733.7433	4979213.63	5/23/2006	3.4	J	MG/KG
N8W02-04B-SS	480705.2034	4979197.203	5/23/2006	4.5	J	MG/KG
N8W02-04B-SSD	480705.2197	4979197.454	5/23/2006	4.1	J	MG/KG
N8W02-04F-SS	480734.6773	4979199.241	5/23/2006	3.4	J	MG/KG
N8W02-05B-SS	480720.8505	4979187.697	5/23/2006	6.4		MG/KG
N8W02-05F-SS	480734.0801	4979183.033	5/23/2006	4.5	J	MG/KG
N8W02-06B-SS	480718.9214	4979175.943	5/23/2006	9.8		MG/KG
N8W02-06F-SS	480735.2416	4979165.436	5/23/2006	4.8	J	MG/KG
N8W02-07B-SS	480732.2072	4979142.481	5/23/2006	4.7	J	MG/KG
N8W02-07F-SS	480733.5662	4979157.288	5/23/2006	4.7	J	MG/KG
N8W02-11B-SS	480706.2139	4979168.688	5/23/2006	18.6		MG/KG
N8W02-11B-SSD	480706.2041	4979168.966	5/23/2006	20.7		MG/KG
N8W02-11F-SS	480705.4844	4979144.981	5/23/2006	24.1		MG/KG
N8W02-12B-SS	480696.4186	4979169.041	5/23/2006	6.5	U	MG/KG
N8W02-12F-SS	480697.1416	4979141.801	5/23/2006	5.7	U	MG/KG
N8W02-14F-SS	480713.0927	4979230.304	5/23/2006	6.2	U	MG/KG
N8W03-01B-SS	480651.3795	4979250.856	5/23/2006	6.7	U	MG/KG
N8W03-01F-SS	480638.2832	4979250.859	5/23/2006	5.8	U	MG/KG
N8W03-02B-SS	480669.2168	4979239.538	5/23/2006	6.2	U	MG/KG
N8W03-02F-SS	480670.3797	4979258.382	5/23/2006	6.6	U	MG/KG
N8W03-03B-SS	480687.299	4979238.748	5/23/2006	7	U	MG/KG
N8W03-03F-SS	480686.984	4979258.081	5/23/2006	5.8	U	MG/KG
N8W03-04B-SS	480685.4912	4979230.387	5/23/2006	5.9	U	MG/KG
N8W03-04F-SS	480688.0864	4979219.27	5/23/2006	5.6	U	MG/KG
N8W03-05B-SS	480695.8719	4979205.456	5/23/2006	6	U	MG/KG
N8W03-05F-SS	480676.4411	4979205.776	5/23/2006	5.7	U	MG/KG
N8W03-05S-SS	480676.0303	4979185.629	5/23/2006	5.8	U	MG/KG
N8W03-06B-SS	480681.3524	4979165.598	5/23/2006	12.9		MG/KG
N8W03-06B-SSR	480685.3011	4979167.438	5/23/2006	11.9		MG/KG
N8W03-06F-SS	480682.6373	4979143.664	5/23/2006	5.6	U	MG/KG
N8W03-10F-SS	480655.0941	4979148.536	5/23/2006	5.6	U	MG/KG
N8W03-11B-SS	480655.0858	4979160.411	5/23/2006	5.7	U	MG/KG
N8W03-12B-SS	480662.9959	4979180.465	5/23/2006	5.4	U	MG/KG
N8W03-12F-SS	480638.0341	4979184.244	5/23/2006	5.4	U	MG/KG
N8W03-13B-SS	480665.7799	4979201.616	5/23/2006	8.4		MG/KG
N8W03-13F-SS	480636.96	4979197.151	5/23/2006	5.9	U	MG/KG
N8W03-14B-SS	480667.0398	4979213.78	5/23/2006	5.8	J	MG/KG
N8W03-14F-SS	480639.427	4979210.16	5/23/2006	4.2	J	MG/KG
N8W03-15B-SS	480661.0556	4979225.201	5/23/2006	3.4	J	MG/KG
N8W03-15F-SS	480638.1575	4979224.976	5/23/2006	3.1	J	MG/KG
S1E06-02B-SS	481540.1163	4977615.307	6/4/2006	9		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S1E06-02F-SS	481539.0586	4977624.907	6/4/2006	6.1		MG/KG
S1E06-02F-SSD	481539.0658	4977625.132	6/4/2006	6.6		MG/KG
S1E06-06F-SS	481596.1287	4977577.615	6/4/2006	45.2		MG/KG
S1E06-06F-SSR	481596.129	4977577.952	6/4/2006	41.1		MG/KG
S1E06-07B-SS	481571.8364	4977565.162	6/4/2006	5.1	J	MG/KG
S1E06-07F-SS	481595.4851	4977559.539	6/4/2006	7.6		MG/KG
S1E06-07F-SSD	481595.4926	4977559.791	6/4/2006	7.2		MG/KG
S1E06-08B-SS	481566.5355	4977550.366	6/4/2006	6.2		MG/KG
S1E06-08B-SSR	481566.5392	4977550.67	6/4/2006	7.2		MG/KG
S1E06-08F-SS	481594.1443	4977550.286	6/4/2006	41.3		MG/KG
S1E06-10B-SS	481575.5939	4977500.35	6/4/2006	4.2	J	MG/KG
S1E06-10F-SS	481594.038	4977500.529	6/4/2006	5.6		MG/KG
S1E06-11B-SS	481571.6178	4977489.253	6/4/2006	8.6		MG/KG
S1E06-11F-SS	481595.272	4977485.482	6/4/2006	10.6		MG/KG
S1E06-12F-SS	481592.9547	4977475.33	6/4/2006	6.3		MG/KG
S1E06-19B-SS	481531.1668	4977594.903	6/4/2006	6.7		MG/KG
S1E06-19F-SS	481502.2378	4977593.134	6/4/2006	6.6		MG/KG
S1E06-20B-SS	481528.5636	4977604.167	6/4/2006	10		MG/KG
S1E06-20F-SS	481503.5957	4977607.943	6/4/2006	8.4		MG/KG
S1E07-01SE-SS	481645.8917	4977625.383	6/3/2006	7.8		MG/KG
S1E07-01SW-SS	481624.9286	4977625.254	6/3/2006	7.4		MG/KG
S1E07-02B-SS	481657.4412	4977616.757	6/3/2006	6.2		MG/KG
S1E07-02F-SS	481656.1368	4977620.463	6/3/2006	3.8	J	MG/KG
S1E07-03B-SS	481704.7912	4977624.027	6/3/2006	4.7	J	MG/KG
S1E07-03F-SS	481721.8964	4977625.866	6/3/2006	4.1	J	MG/KG
S1E07-03S-SS	481714.0041	4977627.704	6/3/2006	9.2		MG/KG
S1E07-04B-SS	481676.4688	4977609.115	6/3/2006	4.6	J	MG/KG
S1E07-04F-SS	481720.7347	4977605.727	6/3/2006	4.8	J	MG/KG
S1E07-04S-SS	481711.3273	4977611.048	6/3/2006	5	J	MG/KG
S1E07-05B-SS	481678.2726	4977590.87	6/3/2006	5.3	J	MG/KG
S1E07-05F-SS	481719.791	4977590.482	6/3/2006	5.3	J	MG/KG
S1E07-05F-SSD	481719.7806	4977590.716	6/3/2006	5.8		MG/KG
S1E07-06B-SS	481694.146	4977579.623	6/3/2006	4.7	J	MG/KG
S1E07-06F-SS	481718.3901	4977576.31	6/3/2006	4.2	J	MG/KG
S1E07-07B-SS	481694.1089	4977566.663	6/3/2006	7.2		MG/KG
S1E07-07B-SSR	481694.1177	4977566.938	6/3/2006	7.3		MG/KG
S1E07-07F-SS	481721.7229	4977568.435	6/3/2006	5	J	MG/KG
S1E07-08B-SS	481696.6859	4977548.14	6/3/2006	3.7	J	MG/KG
S1E07-08F-SS	481720.3453	4977546.222	6/3/2006	5.5		MG/KG
S1E07-09B-SS	481693.9677	4977536.692	6/3/2006	5.6		MG/KG
S1E07-09B-SSR	481693.9715	4977536.996	6/3/2006	7.2		MG/KG
S1E07-09F-SS	481719.0966	4977533.923	6/3/2006	10.9		MG/KG
S1E07-10B-SS	481677.2526	4977517.1	6/3/2006	8.8		MG/KG
S1E07-10F-SS	481717.3351	4977522.226	6/3/2006	24.1		MG/KG
S1E07-11B-SS	481684.7316	4977505.591	6/3/2006	6.6		MG/KG
S1E07-11B-SSD	481684.7354	4977505.896	6/3/2006	6.8		MG/KG
S1E07-11F-SS	481718.6006	4977508.237	6/3/2006	4.9	J	MG/KG
S1E07-12B-SS	481677.1065	4977497.822	6/3/2006	5.3		MG/KG
S1E07-12F-SS	481717.9147	4977499.91	6/3/2006	5.5		MG/KG
S1E07-13F-SS	481718.7534	4977488.136	6/3/2006	7.8		MG/KG
S1E07-14B-SS	481676.8799	4977473.057	6/3/2006	119		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S1E07-14F-SS	481716.1895	4977472.175	6/3/2006	174		MG/KG
S1E07-15F-SS	481707.5447	4977455.123	6/3/2006	6.9		MG/KG
S1E07-15S-SS	481717.1724	4977455.811	6/3/2006	6.8		MG/KG
S1E07-16B-SS	481677.9376	4977464.22	6/3/2006	9.5		MG/KG
S1E07-16F-SS	481692.8442	4977455.903	6/3/2006	8.7		MG/KG
S1E07-17F-SS	481666.6438	4977459.151	6/3/2006	9.3		MG/KG
S1E07-17S-SS	481652.6441	4977460.818	6/3/2006	8.7		MG/KG
S1E07-18B-SS	481639.8877	4977455.731	6/3/2006	7.1		MG/KG
S1E07-18F-SS	481622.1539	4977465.888	6/3/2006	9.1		MG/KG
S1E07-19B-SS	481649.16	4977479.773	6/3/2006	8.7		MG/KG
S1E07-19F-SS	481622.8439	4977472.443	6/3/2006	7.1		MG/KG
S1E07-20B-SS	481651.8317	4977494.577	6/3/2006	13.4		MG/KG
S1E07-20F-SS	481628.1402	4977485.388	6/3/2006	7.9		MG/KG
S1E07-20S-SS	481636.4095	4977486.588	6/3/2006	11.7		MG/KG
S1E07-21B-SS	481665.5274	4977504.261	6/3/2006	8.2		MG/KG
S1E07-21F-SS	481622.9396	4977505.769	6/3/2006	8.6		MG/KG
S1E07-23B-SS	481646.6947	4977537.175	6/3/2006	5.9	J	MG/KG
S1E07-23F-SS	481624.3113	4977535.235	6/3/2006	7.5		MG/KG
S1E07-26B-SS	481665.7079	4977563.237	6/3/2006	5.8		MG/KG
S1E07-26SS-SS	481625.8326	4977561.921	6/3/2006	6.8		MG/KG
S1E07-27B-SS	481642.8728	4977579.77	6/3/2006	5.9		MG/KG
S1E07-27F-SS	481627.0698	4977570.557	6/3/2006	8		MG/KG
S1E07-28B-SS	481652.1184	4977594.555	6/3/2006	4.7	J	MG/KG
S1E07-28F-SS	481624.4787	4977593.576	6/3/2006	2.5	J	MG/KG
S1E07-29B-SS	481645.5665	4977601.98	6/3/2006	6.4		MG/KG
S1E07-29F-SS	481625.4595	4977605.346	6/3/2006	6.6		MG/KG
S1E08-01F-SS	481753.4078	4977614.631	6/3/2006	4.5	J	MG/KG
S1E08-02F-SS	481786.3017	4977623.795	6/3/2006	4	J	MG/KG
S1E08-02S-SS	481786.3069	4977625.646	6/3/2006	4	J	MG/KG
S1E08-03B-SS	481840.2036	4977623.642	6/3/2006	5.6	J	MG/KG
S1E08-03S-SS	481807.3211	4977618.181	6/3/2006	4.1	J	MG/KG
S1E08-04B-SS	481822.4042	4977607.971	6/2/2006	9		MG/KG
S1E08-04F-SS	481845.1087	4977606.198	6/2/2006	100		MG/KG
S1E08-05B-SS	481823.008	4977586.661	6/3/2006	71.6		MG/KG
S1E08-05F-SS	481844.0731	4977594.044	6/3/2006	30.6		MG/KG
S1E08-06B-SS	481813.7785	4977577.43	6/3/2006	6.5		MG/KG
S1E08-06F-SS	481841.3767	4977573.649	6/3/2006	5.4	J	MG/KG
S1E08-08B-SS	481817.6384	4977547.795	6/3/2006	26.1		MG/KG
S1E08-08F-SS	481844.9654	4977549.389	6/3/2006	36.3		MG/KG
S1E08-10B-SS	481803.1156	4977517.859	6/2/2006	6.4		MG/KG
S1E08-10F-SS	481843.9043	4977516.987	6/3/2006	4.7	J	MG/KG
S1E08-10F-SSR	481843.908	4977517.292	6/3/2006	5.5		MG/KG
S1E08-16B-SS	481809.8466	4977476.18	6/3/2006	10.7		MG/KG
S1E08-16F-SS	481804.2383	4977458.964	6/3/2006	9.1		MG/KG
S1E08-18B-SS	481752.9483	4977453.555	6/3/2006	8.1		MG/KG
S1E08-18F-SS	481747.6952	4977455.422	6/3/2006	14.9		MG/KG
S1E08-19B-SS	481766.175	4977481.289	6/3/2006	5.7		MG/KG
S1E08-19F-SS	481750.3667	4977470.226	6/3/2006	5.8		MG/KG
S1E08-19F-SSD	481750.3704	4977470.53	6/3/2006	5.3	J	MG/KG
S1E08-20B-SS	481776.7136	4977488.666	6/3/2006	2.6	J	MG/KG
S1E08-20F-SS	481748.308	4977488.717	6/3/2006	2.8	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S1E08-21B-SS	481771.5027	4977505.344	6/3/2006	5.3		MG/KG
S1E08-21F-SS	481748.6205	4977507.216	6/3/2006	4	J	MG/KG
S1E08-22B-SS	481787.3162	4977518.259	6/3/2006	3.8	J	MG/KG
S1E08-22F-SS	481750.3253	4977517.992	6/3/2006	5.1	J	MG/KG
S1E08-22F-SSR	481750.3291	4977518.296	6/3/2006	4.6	J	MG/KG
S1E08-23B-SS	481782.094	4977531.233	6/3/2006	6.8		MG/KG
S1E08-23F-SS	481749.2418	4977536.881	6/3/2006	5.9		MG/KG
S1E08-23F-SSD	481749.2456	4977537.186	6/3/2006	7.3		MG/KG
S1E08-24B-SS	481783.4564	4977547.893	6/3/2006	11.3		MG/KG
S1E08-24F-SS	481754.5379	4977549.827	6/3/2006	10.4		MG/KG
S1E08-25B-SS	481792.5399	4977562.632	6/3/2006	6.5		MG/KG
S1E08-26B-SS	481782.2258	4977577.52	6/3/2006	17.8		MG/KG
S1E08-26B-SSR	481782.2295	4977577.824	6/3/2006	8.1		MG/KG
S1E08-26F-SS	481753.3074	4977579.454	6/3/2006	6.4		MG/KG
S1E08-27B-SS	481790.3685	4977590.313	6/3/2006	6.9		MG/KG
S1E08-27F-SS	481762.5317	4977586.833	6/3/2006	5.6		MG/KG
S1E08-27F-SSD	481762.5354	4977587.137	6/3/2006	6.9		MG/KG
S1E08-28B-SS	481778.3608	4977605.303	6/3/2006	9.2		MG/KG
S1E08-28F-SS	481748.1284	4977607.241	6/3/2006	5.3	U	MG/KG
S1E09-01B-SS	481905.9334	4977621.603	6/3/2006	26.9		MG/KG
S1E09-01F-SS	481878.3301	4977623.533	6/3/2006	60.2		MG/KG
S1E09-02B-SS	481946.6152	4977625.508	6/2/2006	7.6		MG/KG
S1E09-02F-SS	481970.3579	4977620.879	6/2/2006	5.7	J	MG/KG
S1E09-03B-SS	481937.4545	4977610.406	6/2/2006	7.6		MG/KG
S1E09-03B-SSR	481937.4526	4977610.692	6/2/2006	5.6	J	MG/KG
S1E09-03F-SS	481949.292	4977612.224	6/2/2006	4.3	J	MG/KG
S1E09-04B-SS	481930.2883	4977589.523	6/2/2006	5.4	J	MG/KG
S1E09-04F-SS	481971.2122	4977590.097	6/2/2006	6.9		MG/KG
S1E09-05B-SS	481930.3241	4977576.574	6/2/2006	8		MG/KG
S1E09-05F-SS	481972.8677	4977580.682	6/2/2006	7.8		MG/KG
S1E09-06B-SS	481941.2627	4977562.257	6/2/2006	6.9		MG/KG
S1E09-06F-SS	481968.861	4977558.476	6/2/2006	7		MG/KG
S1E09-07B-SS	481942.5246	4977543.739	6/2/2006	26.3		MG/KG
S1E09-07F-SS	481970.1595	4977552.918	6/2/2006	7.9		MG/KG
S1E09-07F-SSR	481970.1575	4977553.193	6/2/2006	7.5		MG/KG
S1E09-08B-SS	481938.5544	4977534.493	6/2/2006	6.8		MG/KG
S1E09-08F-SS	481971.4328	4977538.103	6/2/2006	7		MG/KG
S1E09-09B-SS	481968.7618	4977523.299	6/2/2006	10.9		MG/KG
S1E09-09F-SS	481931.2135	4977518.523	6/2/2006	7.6		MG/KG
S1E09-11B-SS	481942.3887	4977495.602	6/2/2006	11.6		MG/KG
S1E09-11F-SS	481967.3686	4977495.532	6/2/2006	24.9		MG/KG
S1E09-12B-SS	481927.7895	4977473.629	6/2/2006	9.2		MG/KG
S1E09-12F-SS	481972.5808	4977478.854	6/2/2006	6.9		MG/KG
S1E09-13B-SS	481927.3912	4977460.395	6/2/2006	9.3		MG/KG
S1E09-13F-SS	481968.2223	4977460.303	6/2/2006	7.5		MG/KG
S1E09-14B-SS	481915.0657	4977459.786	6/3/2006	6.9		MG/KG
S1E09-14F-SS	481875.2386	4977460.614	6/3/2006	5.8		MG/KG
S1E09-15B-SS	481915.1934	4977475.499	6/3/2006	6.8		MG/KG
S1E09-15F-SS	481873.7053	4977472.613	6/3/2006	5.1	J	MG/KG
S1E09-15F-SSD	481873.709	4977472.917	6/3/2006	5.2	J	MG/KG
S1E09-17B-SS	481895.08	4977503.141	6/3/2006	33		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S1E09-17B-SSD	481895.0837	4977503.445	6/3/2006	40		MG/KG
S1E09-17F-SS	481876.6742	4977503.193	6/3/2006	37.4		MG/KG
S1E09-18B-SS	481914.9999	4977518.473	6/3/2006	8.3		MG/KG
S1E09-18F-SS	481873.9931	4977518.891	6/3/2006	11.4		MG/KG
S1E09-19B-SS	481912.2448	4977529.013	6/3/2006	8.7		MG/KG
S1E09-19F-SS	481874.2711	4977535.13	6/3/2006	6.5		MG/KG
S1E09-19F-SSR	481874.2748	4977535.434	6/3/2006	6.4	J	MG/KG
S1E09-20F-SS	481875.4904	4977549.483	6/3/2006	6.8		MG/KG
S1E09-20F-SSR	481875.4941	4977549.788	6/3/2006	7.7		MG/KG
S1E09-21B-SS	481905.7763	4977566.06	6/3/2006	6.6		MG/KG
S1E09-21B-SSD	481905.78	4977566.365	6/3/2006	7.2		MG/KG
S1E09-21F-SS	481874.5944	4977562.628	6/3/2006	6.5	J	MG/KG
S1E09-22B-SS	481900.5539	4977579.036	6/3/2006	22.8	J	MG/KG
S1E09-22F-SS	481876.6832	4977577.314	6/3/2006	36.3	J	MG/KG
S1E09-23B-SS	481899.2913	4977597.553	6/3/2006	26.1	J	MG/KG
S1E09-23F-SS	481876.9208	4977590.211	6/3/2006	6.9	J	MG/KG
S1E09-24B-SS	481916.7754	4977606.055	6/3/2006	32.7	J	MG/KG
S1E09-24F-SS	481873.0239	4977606.885	6/3/2006	39.3	J	MG/KG
S1E10-01B-SS	482022.9404	4977621.274	6/2/2006	6.5		MG/KG
S1E10-01F-SS	482001.6311	4977622.495	6/2/2006	7.8		MG/KG
S1E10-04B-SS	482075.7494	4977595.218	6/2/2006	4.4	J	MG/KG
S1E10-04F-SS	482048.7677	4977594.358	6/2/2006	2.6	J	MG/KG
S1E10-05B-SS	482050.4502	4977586.018	6/2/2006	22.7		MG/KG
S1E10-05B-SSR	482050.4708	4977586.309	6/2/2006	28.9		MG/KG
S1E10-05F-SS	482079.379	4977587.789	6/2/2006	24.5		MG/KG
S1E10-06B-SS	482050.4346	4977580.464	6/2/2006	3.9	J	MG/KG
S1E10-06F-SS	482076.93	4977579.217	6/2/2006	19.8		MG/KG
S1E10-07B-SS	482044.3204	4977568.28	6/2/2006	5.9		MG/KG
S1E10-07F-SS	482078.0225	4977572.982	6/2/2006	3.8	J	MG/KG
S1E10-07F-SSR	482078.0205	4977573.264	6/2/2006	3.7	J	MG/KG
S1E10-08B-SS	482075.9451	4977557.66	6/2/2006	7.5		MG/KG
S1E10-08F-SS	482044.707	4977557.983	6/2/2006	4.6	J	MG/KG
S1E10-09B-SS	482055.595	4977545.273	6/2/2006	5.1	J	MG/KG
S1E10-09F-SS	482079.2701	4977548.909	6/2/2006	4.2	J	MG/KG
S1E10-10B-SS	482051.6145	4977532.323	6/2/2006	6.2		MG/KG
S1E10-10F-SS	482070.0098	4977528.569	6/2/2006	3.7	J	MG/KG
S1E10-11B-SS	482077.8721	4977519.289	6/2/2006	5.4	J	MG/KG
S1E10-11F-SS	482042.5249	4977518.604	6/2/2006	3.5	J	MG/KG
S1E10-11F-SSD	482042.5414	4977518.864	6/2/2006	3.5	J	MG/KG
S1E10-12B-SS	482042.0976	4977504.413	6/2/2006	3.7	J	MG/KG
S1E10-12F-SS	482076.435	4977505.046	6/2/2006	5	J	MG/KG
S1E10-12F-SSD	482076.425	4977505.307	6/2/2006	4.4	J	MG/KG
S1E10-13B-SS	482043.787	4977487.89	6/2/2006	5.1	J	MG/KG
S1E10-13F-SS	482072.5455	4977495.236	6/2/2006	5.3	J	MG/KG
S1E10-14B-SS	482075.1236	4977476.714	6/2/2006	5.7	J	MG/KG
S1E10-14F-SS	482043.408	4977475.359	6/2/2006	6.4		MG/KG
S1E10-15SE-SS	482076.6204	4977463.784	6/2/2006	5.1	J	MG/KG
S1E10-15SW-SS	482062.1832	4977455.833	6/2/2006	7.3		MG/KG
S1E10-16SE-SS	482054.9002	4977461.223	6/2/2006	6.2		MG/KG
S1E10-16SW-SS	482040.8881	4977453.982	6/2/2006	5.9	J	MG/KG
S1E10-17B-SS	482000.3013	4977461.493	6/2/2006	8.8		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S1E10-17F-SS	482029.5279	4977461.113	6/2/2006	8.5		MG/KG
S1E10-17F-SSR	482029.5316	4977461.417	6/2/2006	8.1		MG/KG
S1E10-18B-SS	482031.7431	4977478.687	6/2/2006	10.7		MG/KG
S1E10-18F-SS	481999.8922	4977472.566	6/2/2006	15.3		MG/KG
S1E10-19B-SS	482023.8756	4977486.114	6/2/2006	14.2		MG/KG
S1E10-19F-SS	482001.7796	4977488.629	6/2/2006	8.8		MG/KG
S1E10-19F-SSD	482001.7833	4977488.934	6/2/2006	8.6		MG/KG
S1E10-20B-SS	482001.5822	4977506.544	6/2/2006	8.7		MG/KG
S1E10-20F-SS	482032.2994	4977502.436	6/2/2006	8		MG/KG
S1E10-21B-SS	482033.8901	4977518.044	6/2/2006	7.8		MG/KG
S1E10-21F-SS	482001.2989	4977516.941	6/2/2006	8.3		MG/KG
S1E10-22B-SS	482032.6309	4977531.918	6/2/2006	7.8		MG/KG
S1E10-22F-SS	481997.7214	4977536.177	6/2/2006	7.3		MG/KG
S1E10-23B-SS	482000.3847	4977544.851	6/2/2006	6.9		MG/KG
S1E10-23F-SS	482033.6736	4977543.885	6/2/2006	7.3		MG/KG
S1E10-24B-SS	482030.6465	4977556.451	6/2/2006	4.8	J	MG/KG
S1E10-24F-SS	482000.4086	4977556.536	6/2/2006	9.8		MG/KG
S1E10-25B-SS	482001.7564	4977563.295	6/2/2006	7		MG/KG
S1E10-25F-SS	482031.1749	4977564.269	6/2/2006	7.7		MG/KG
S1E10-26B-SS	481999.1406	4977573.203	6/2/2006	6.4	J	MG/KG
S1E10-26F-SS	481999.1406	4977573.203	6/2/2006	7.1	J	MG/KG
S1E10-27F-SS	482002.7516	4977584.243	6/2/2006	9.1	J	MG/KG
S1E10-29B-SS	482018.9495	4977604.622	6/2/2006	45.5	J	MG/KG
S1E10-29S-SS	482001.1496	4977603.336	6/2/2006	20.6	J	MG/KG
S1W05-06B-SS	480441.2675	4977592.588	6/17/2006	8.3		MG/KG
S1W05-06F-SS	480466.9988	4977593.63	6/17/2006	7.2		MG/KG
S1W06-04B-SS	480342.0887	4977617.846	6/17/2006	8.1		MG/KG
S1W06-04F-SS	480372.9714	4977615.014	6/17/2006	6.4	J	MG/KG
S1W06-12B-SS	480343.7581	4977520.68	6/17/2006	8.2		MG/KG
S1W06-12F-SS	480372.154	4977519.328	6/17/2006	7		MG/KG
S1W08-01BN-SS	480131.1084	4977628.721	6/17/2006	4.1	J	MG/KG
S1W08-01BS-SS	480129.9093	4977619.407	6/17/2006	3.7	J	MG/KG
S1W08-01F-SS	480099.2938	4977626.947	6/17/2006	4.9	J	MG/KG
S1W08-01S-SS	480108.7645	4977630.642	6/17/2006	6.5		MG/KG
S1W08-02B-SS	480150.8058	4977621.254	6/17/2006	5.1	J	MG/KG
S1W08-02F-SS	480175.7964	4977624.88	6/17/2006	4.6	J	MG/KG
S1W08-03B-SS	480152.0918	4977611.993	6/17/2006	13		MG/KG
S1W08-03F-SS	480174.4415	4977611.924	6/17/2006	17		MG/KG
S1W08-03F-SSR	480174.4453	4977612.228	6/17/2006	26.8		MG/KG
S1W08-04B-SS	480141.2282	4977599.5	6/17/2006	13.8		MG/KG
S1W08-04F-SS	480173.0981	4977602.671	6/17/2006	5.1	J	MG/KG
S1W08-05B-SS	480149.3705	4977582.378	6/17/2006	6.7		MG/KG
S1W08-05B-SSD	480149.3742	4977582.683	6/17/2006	5.6	J	MG/KG
S1W08-05F-SS	480175.2166	4977587.869	6/17/2006	7.9		MG/KG
S1W08-06B-SS	480140.195	4977573.128	6/17/2006	8.3		MG/KG
S1W08-06F-SS	480175.6358	4977573.039	6/17/2006	6.4	J	MG/KG
S1W08-07B-SS	480139.9539	4977560.525	6/17/2006	5.1	J	MG/KG
S1W08-07F-SS	480172.9776	4977563.79	6/17/2006	4.4	J	MG/KG
S1W08-08B-SS	480150.5875	4977550.9	6/17/2006	12.8		MG/KG
S1W08-08F-SS	480175.5439	4977543.416	6/17/2006	7.3		MG/KG
S1W08-09B-SS	480140.0471	4977536.333	6/17/2006	4.4	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S1W08-09F-SS	480171.5711	4977534.171	6/17/2006	3.7	J	MG/KG
S1W08-10B-SS	480153.1135	4977517.566	6/17/2006	6.8	J	MG/KG
S1W08-10F-SS	480172.8457	4977521.207	6/17/2006	9.2		MG/KG
S1W08-11B-SS	480139.5056	4977508.133	6/17/2006	5.5	J	MG/KG
S1W08-11F-SS	480174.1317	4977511.946	6/17/2006	5.3	J	MG/KG
S1W08-12B-SS	480145.1506	4977493.521	6/17/2006	5.2	J	MG/KG
S1W08-12F-SS	480171.841	4977497.174	6/17/2006	5.1	J	MG/KG
S1W08-16B-SS	480108.3212	4977488.081	6/17/2006	5.7	J	MG/KG
S1W08-16F-SS	480097.9948	4977482.521	6/17/2006	4.1	J	MG/KG
S1W08-17B-SS	480114.9293	4977499.17	6/17/2006	6.5	J-	MG/KG
S1W08-17F-SS	480098.9782	4977497.89	6/17/2006	5.2	J	MG/KG
S1W08-18B-SS	480117.5933	4977510.27	6/17/2006	8.1		MG/KG
S1W08-18F-SS	480098.0403	4977511.101	6/17/2006	5.9	J	MG/KG
S1W08-19F-SS	480097.9597	4977524.644	6/17/2006	5	J	MG/KG
S1W08-20B-SS	480124.2474	4977536.17	6/17/2006	4.3	J	MG/KG
S1W08-20F-SS	480105.8472	4977538.078	6/17/2006	10		MG/KG
S1W08-21F-SS	480098.8598	4977549.188	6/17/2006	21.3		MG/KG
S1W08-22B-SS	480120.3953	4977565.805	6/17/2006	6.1	J	MG/KG
S1W08-22F-SS	480098.9498	4977560.675	6/17/2006	6.4	J	MG/KG
S1W08-23B-SS	480119.1151	4977576.918	6/17/2006	5.2	J	MG/KG
S1W08-23F-SS	480098.274	4977575.758	6/17/2006	5.9	J	MG/KG
S1W08-24B-SS	480124.4084	4977588.01	6/17/2006	10.7		MG/KG
S1W08-24F-SS	480096.7825	4977582.542	6/17/2006	10.4		MG/KG
S1W08-25B-SS	480125.7634	4977600.966	6/17/2006	7	J-	MG/KG
S1W08-25F-SS	480098.1375	4977595.498	6/17/2006	37.4		MG/KG
S1W08-26B-SS	480116.6008	4977613.955	6/17/2006	4.1	J-	MG/KG
S1W08-26F-SS	480098.7566	4977613.564	6/17/2006	5.4	J-	MG/KG
S1W08-26F-SSR	480098.7603	4977613.869	6/17/2006	4.4	J-	MG/KG
S1W09-01B-SS	480003.5431	4977616.159	6/17/2006	4.6	J	MG/KG
S1W09-01F-SS	480003.6492	4977628.158	6/17/2006	5.8	J	MG/KG
S1W09-02S-SS	480022.8946	4977629.762	6/17/2006	5.9	J	MG/KG
S1W09-03NE-SS	480070.6097	4977621.504	6/17/2006	3.4	J	MG/KG
S1W09-03NW-SS	480049.5804	4977623.421	6/17/2006	5.7	J	MG/KG
S1W09-03SE-SS	480070.552	4977602.989	6/17/2006	5	J	MG/KG
S1W09-03SW-SS	480053.461	4977603.043	6/17/2006	3.9	J	MG/KG
S1W09-04B-SS	480049.4591	4977584.54	6/17/2006	5.3	J	MG/KG
S1W09-04B-SSR	480049.4629	4977584.845	6/17/2006	5.1	J	MG/KG
S1W09-04F-SS	480070.0038	4977585.194	6/17/2006	4.6	J	MG/KG
S1W09-05B-SS	480046.7836	4977569.737	6/17/2006	5.8	J	MG/KG
S1W09-05F-SS	480069.1508	4977575.222	6/17/2006	4.1	J	MG/KG
S1W09-05S-SS	480057.2954	4977567.853	6/17/2006	5.6	J	MG/KG
S1W09-06F-SS	480069.0873	4977554.856	6/17/2006	43.6		MG/KG
S1W09-06S-SS	480054.614	4977551.198	6/17/2006	26.3		MG/KG
S1W09-07B-SS	480045.3764	4977540.118	6/17/2006	8		MG/KG
S1W09-07F-SS	480059.8382	4977540.073	6/17/2006	5.6	J	MG/KG
S1W09-07F-SSD	480059.842	4977540.378	6/17/2006	5.4	J	MG/KG
S1W09-08B-SS	480047.9712	4977529.001	6/17/2006	32.9		MG/KG
S1W09-08F-SS	480070.3213	4977528.932	6/17/2006	23.7		MG/KG
S1W09-09F-SS	480062.3869	4977514.145	6/17/2006	6.1	J	MG/KG
S1W09-10B-SS	480043.952	4977504.945	6/17/2006	8.3		MG/KG
S1W09-10F-SS	480067.8047	4977501.76	6/17/2006	5.1	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S1W09-12F-SS	480053.3339	4977480.844	6/17/2006	1.1	J-	MG/KG
S1W09-16B-SS	480017.6288	4977495.77	6/17/2006	23.7		MG/KG
S1W09-16F-SS	479991.3113	4977488.446	6/17/2006	4.1	J	MG/KG
S1W09-17B-SS	480021.5903	4977501.312	6/17/2006	7.3		MG/KG
S1W09-17F-SS	479993.9813	4977501.398	6/17/2006	8.1		MG/KG
S1W09-18F-SS	479990.0719	4977512.519	6/17/2006	7.9		MG/KG
S1W09-19B-SS	480017.7676	4977540.204	6/17/2006	23.4		MG/KG
S1W09-19F-SS	479995.3944	4977532.868	6/17/2006	27.8		MG/KG
S1W09-19S-SS	480007.2268	4977532.831	6/17/2006	16.2		MG/KG
S1W09-20B-SS	480021.7233	4977543.895	6/17/2006	7.6	J	MG/KG
S1W09-20F-SS	479994.1318	4977549.536	6/17/2006	6.7		MG/KG
S1W09-21B-SS	480017.8139	4977555.016	6/17/2006	5.7	J	MG/KG
S1W09-21F-SS	480007.2963	4977555.049	6/17/2006	6.5	J	MG/KG
S1W09-21F-SSR	480007.3	4977555.353	6/17/2006	6	J	MG/KG
S1W09-23B-SS	480016.5628	4977575.386	6/17/2006	10.7		MG/KG
S1W09-23F-SS	479994.2071	4977573.604	6/17/2006	76.7		MG/KG
S1W09-24B-SS	480023.1883	4977592.028	6/17/2006	9.8		MG/KG
S1W09-24F-SS	480006.0915	4977590.23	6/17/2006	4.1	J-	MG/KG
S1W09-25B-SS	480023.1883	4977592.028	6/17/2006	7		MG/KG
S1W09-25F-SS	479996.906	4977595.813	6/17/2006	3.3	J-	MG/KG
S1W10-01SN-SS	479898.3532	4977629.07	6/17/2006	5.3	J	MG/KG
S1W10-01SS-SS	479898.3562	4977612.785	6/17/2006	7		MG/KG
S1W10-02B-SS	479910.1768	4977609.045	6/17/2006	575		MG/KG
S1W10-02F-SS	479911.7638	4977629.643	6/17/2006	1060		MG/KG
S1W10-03B-SS	479924.6442	4977610.851	6/17/2006	6.6		MG/KG
S1W10-03F-SS	479925.9777	4977628.912	6/17/2006	7		MG/KG
S1W10-04B-SS	479944.3936	4977620.047	6/17/2006	7		MG/KG
S1W10-04F-SS	479941.168	4977629.463	6/17/2006	3.2	J	MG/KG
S1W10-05F-SS	479970.7164	4977629.221	6/17/2006	6.4	J	MG/KG
S1W10-05SN-SS	479960.3023	4977630.001	6/17/2006	5.1	J	MG/KG
S1W10-05SS-SS	479960.1699	4977619.997	6/17/2006	5	J	MG/KG
S1W10-06B-SS	479949.6059	4977605.219	6/17/2006	3.3	J	MG/KG
S1W10-06F-SS	479971.9557	4977605.149	6/17/2006	4.2	J	MG/KG
S1W10-08B-SS	479946.9301	4977590.415	6/17/2006	6		MG/KG
S1W10-08F-SS	479974.533	4977588.477	6/17/2006	6.3		MG/KG
S1W10-09B-SS	479950.8104	4977570.037	6/17/2006	9.8		MG/KG
S1W10-09F-SS	479967.9015	4977569.984	6/17/2006	12.1		MG/KG
S1W10-11B-SS	479942.8293	4977540.439	6/17/2006	5.9		MG/KG
S1W10-11B-SSR	479942.833	4977540.744	6/17/2006	9.2		MG/KG
S1W10-11F-SS	479970.444	4977542.204	6/17/2006	4	J	MG/KG
S1W10-12B-SS	479940.1708	4977531.19	6/17/2006	3.8	J	MG/KG
S1W10-12F-SS	479966.4534	4977527.405	6/17/2006	5.2	J	MG/KG
S1W10-13F-SS	479972.9864	4977514.424	6/17/2006	5.9	J	MG/KG
S1W10-13S-SS	479958.5362	4977518.172	6/17/2006	4.7	J	MG/KG
S1W10-14B-SS	479949.2694	4977497.835	6/17/2006	6		MG/KG
S1W10-14F-SS	479969.0017	4977501.476	6/17/2006	6.1		MG/KG
S1W10-15B-SS	479939.7531	4977485.229	6/17/2006	5.5	J	MG/KG
S1W10-15B-SSD	479939.7568	4977485.534	6/17/2006	4.5	J	MG/KG
S1W10-15F-SS	479972.9053	4977488.504	6/17/2006	4.9	J	MG/KG
S1W10-20B-SS	479919.5558	4977488.216	6/17/2006	4.1	J	MG/KG
S1W10-20F-SS	479895.8851	4977486.439	6/17/2006	4.2	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S1W10-21B-SS	479916.3957	4977496.087	6/17/2006	3.1	J	MG/KG
S1W10-21F-SS	479900.6191	4977496.136	6/17/2006	2.9	J	MG/KG
S1W10-22B-SS	479916.4131	4977501.641	6/17/2006	2.8	J	MG/KG
S1W10-22F-SS	479894.0688	4977503.563	6/17/2006	4.8	J	MG/KG
S1W10-23B-SS	479920.3979	4977514.589	6/17/2006	2.7	J	MG/KG
S1W10-23F-SS	479899.3567	4977512.803	6/17/2006	2.4	J	MG/KG
S1W10-24B-SS	479909.9209	4977527.582	6/17/2006	5.5	J	MG/KG
S1W10-24F-SS	479895.0803	4977529.448	6/17/2006	4.9	J	MG/KG
S1W10-25B-SS	479921.7882	4977538.653	6/17/2006	8.8		MG/KG
S1W10-25F-SS	479892.8704	4977540.596	6/17/2006	6.8		MG/KG
S1W10-27B-SS	479916.6165	4977566.442	6/17/2006	6.4		MG/KG
S1W10-27F-SS	479892.9519	4977566.516	6/17/2006	5.2	J	MG/KG
S1W10-29B-SS	479911.4043	4977581.27	6/17/2006	5.6	J	MG/KG
S1W10-29F-SS	479893.0101	4977585.03	6/17/2006	5.1	J	MG/KG
S1W10-30B-SS	479923.2772	4977594.193	6/17/2006	6.2		MG/KG
S1W10-30F-SS	479895.6569	4977590.576	6/17/2006	19.4		MG/KG
S1W11-01F-SS	479801.351	4977629.712	6/16/2006	4.1	J	MG/KG
S1W11-01S-SS	479795.2766	4977625.365	6/16/2006	4	J-	MG/KG
S1W11-02B-SS	479812.907	4977614.906	6/16/2006	5.6	J	MG/KG
S1W11-02F-SS	479810.9746	4977629.422	6/16/2006	5.4	J-	MG/KG
S1W11-02F-SSR	479810.9784	4977629.727	6/16/2006	5.1	J-	MG/KG
S1W11-03F-SS	479827.4095	4977627.82	6/16/2006	238		MG/KG
S1W11-03S-SS	479823.0809	4977627.802	6/16/2006	75.2		MG/KG
S1W11-04F-SS	479839.2417	4977627.783	6/16/2006	5.7	J-	MG/KG
S1W11-04S-SS	479838.5992	4977622.105	6/16/2006	5.5	J-	MG/KG
S1W11-05F-SS	479870.7768	4977622.129	6/16/2006	3.6	J-	MG/KG
S1W11-05SN-SS	479861.6789	4977628.531	6/16/2006	4.2	J-	MG/KG
S1W11-05SN-SSR	479861.6826	4977628.836	6/16/2006	5.5	J-	MG/KG
S1W11-05SS-SS	479862.8536	4977611.046	6/16/2006	5.3	J-	MG/KG
S1W11-06B-SS	479845.7802	4977616.654	6/16/2006	5.5	J-	MG/KG
S1W11-06F-SS	479871.6333	4977609.242	6/16/2006	5.6	J-	MG/KG
S1W11-07B-SS	479843.0677	4977598.884	6/16/2006	4.8	J-	MG/KG
S1W11-07F-SS	479872.339	4977595.274	6/16/2006	7.3		MG/KG
S1W11-08B-SS	479839.7337	4977584.34	6/16/2006	9		MG/KG
S1W11-08F-SS	479874.6102	4977586.94	6/16/2006	15.2		MG/KG
S1W11-09B-SS	479848.2696	4977572.211	6/16/2006	30.2		MG/KG
S1W11-09F-SS	479871.9342	4977572.136	6/16/2006	32.4		MG/KG
S1W11-11F-SS	479874.5053	4977553.614	6/16/2006	12.5		MG/KG
S1W11-11S-SS	479866.5879	4977544.381	6/16/2006	11.9		MG/KG
S1W11-12B-SS	479849.4676	4977535.178	6/16/2006	4.5	J	MG/KG
S1W11-12F-SS	479867.8852	4977538.823	6/16/2006	5.3		MG/KG
S1W11-13B-SS	479849.4443	4977527.772	6/16/2006	6.4		MG/KG
S1W11-13F-SS	479871.8002	4977529.553	6/16/2006	5.5		MG/KG
S1W11-22B-SS	479814.1574	4977594.536	6/16/2006	22.6		MG/KG
S1W11-22F-SS	479802.3427	4977600.128	6/16/2006	45.9		MG/KG
S1W11-23B-SS	479830.2803	4977606.739	6/16/2006	6.4		MG/KG
S1W11-23F-SS	479796.2255	4977606.822	6/16/2006	8.5		MG/KG
S1W12-01B-SS	479699.82	4977607.858	6/16/2006	6.5		MG/KG
S1W12-01F-SS	479698.5062	4977628.515	6/16/2006	4.1	J	MG/KG
S1W12-02B-SS	479710.3199	4977602.27	6/16/2006	7.8		MG/KG
S1W12-02B-SSR	479710.3237	4977602.575	6/16/2006	6.3		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S1W12-02F-SS	479714.8121	4977628.47	6/16/2006	3.9	J	MG/KG
S1W12-03B-SS	479724.8344	4977618.887	6/16/2006	3.8	J	MG/KG
S1W12-03F-SS	479727.5048	4977631.839	6/16/2006	3.2	J	MG/KG
S1W12-04B-SS	479747.1548	4977609.559	6/16/2006	5.1	J	MG/KG
S1W12-04F-SS	479743.2845	4977629.857	6/16/2006	4.3	J	MG/KG
S1W12-04F-SSR	479743.2882	4977630.161	6/16/2006	5.9		MG/KG
S1W12-05B-SS	479752.4195	4977611.394	6/16/2006	6.2		MG/KG
S1W12-05F-SS	479755.7493	4977629.987	6/16/2006	7.1		MG/KG
S1W12-06B-SS	479772.1691	4977620.589	6/16/2006	5.8		MG/KG
S1W12-06F-SS	479766.5875	4977630.272	6/16/2006	6.5		MG/KG
S1W12-07B-SS	479747.1138	4977596.599	6/16/2006	6.9		MG/KG
S1W12-07F-SS	479769.4695	4977598.38	6/16/2006	6.4		MG/KG
S1W12-08B-SS	479751.0227	4977585.478	6/16/2006	5.5		MG/KG
S1W12-08F-SS	479770.7374	4977583.564	6/16/2006	5.6		MG/KG
S1W13-01B-SS	479597.2739	4977608.184	6/16/2006	16.9		MG/KG
S1W13-01F-SS	479599.6883	4977629.567	6/16/2006	30.1		MG/KG
S1W13-02B-SS	479611.7356	4977608.138	6/16/2006	7.6		MG/KG
S1W13-02F-SS	479614.7885	4977630.521	6/16/2006	4.1	J	MG/KG
S1W13-02F-SSD	479614.7922	4977630.826	6/16/2006	4.3	J	MG/KG
S1W13-03B-SS	479627.5473	4977619.196	6/16/2006	4.5	J	MG/KG
S1W13-03F-SS	479628.7945	4977630.138	6/16/2006	4.5	J	MG/KG
S1W13-04F-SS	479642.6947	4977629.956	6/16/2006	8.1		MG/KG
S1W13-06B-SS	479645.8999	4977602.475	6/16/2006	9.5		MG/KG
S1W13-06F-SS	479672.2056	4977606.094	6/16/2006	6.6		MG/KG
S1W13-07B-SS	479639.2911	4977591.387	6/16/2006	6.3		MG/KG
S1W13-07F-SS	479672.5618	4977588.726	6/16/2006	7.1		MG/KG
S1W13-08F-SS	479669.4938	4977580.182	6/16/2006	6.3		MG/KG
S1W13-08S-SS	479645.8174	4977576.555	6/16/2006	5.1	J	MG/KG
S1W13-09F-SS	479672.082	4977567.214	6/16/2006	5.3	J	MG/KG
S1W13-10B-SS	479645.7291	4977548.783	6/16/2006	5.3		MG/KG
S1W13-10F-SS	479670.7203	4977552.407	6/16/2006	5.2	J	MG/KG
S1W13-11B-SS	479639.0179	4977536.239	6/16/2006	3.3	J	MG/KG
S1W13-11F-SS	479670.6732	4977537.595	6/16/2006	5.4		MG/KG
S1W13-12B-SS	479648.2937	4977528.409	6/16/2006	5.2	J	MG/KG
S1W13-12F-SS	479673.2732	4977528.33	6/16/2006	5.7		MG/KG
S1W13-13B-SS	479645.6289	4977517.309	6/16/2006	7.9		MG/KG
S1W13-13F-SS	479671.5864	4977516.979	6/16/2006	17.9		MG/KG
S1W13-14B-SS	479649.5436	4977508.039	6/16/2006	30.1		MG/KG
S1W13-14F-SS	479664.0114	4977509.844	6/16/2006	6.5	J	MG/KG
S1W13-15B-SS	479645.57	4977498.794	6/16/2006	7.1		MG/KG
S1W13-15F-SS	479674.482	4977494.999	6/16/2006	4.6	J	MG/KG
S1W13-16F-SS	479670.4852	4977479.774	6/16/2006	31.5		MG/KG
S1W13-22B-SS	479616.7171	4977521.104	6/16/2006	81.8		MG/KG
S1W13-22F-SS	479595.3339	4977517.806	6/16/2006	77.8		MG/KG
S1W13-23B-SS	479620.7379	4977545.16	6/16/2006	5.7		MG/KG
S1W13-23F-SS	479597.0495	4977537.829	6/16/2006	3.4	J	MG/KG
S1W13-24B-SS	479623.3968	4977554.409	6/16/2006	6.3	J	MG/KG
S1W13-24F-SS	479597.0909	4977550.79	6/16/2006	6.1		MG/KG
S1W13-24F-SSD	479597.0946	4977551.094	6/16/2006	6.3		MG/KG
S1W13-25B-SS	479623.4499	4977571.072	6/16/2006	5.1	J	MG/KG
S1W13-25F-SS	479595.1956	4977567.998	6/16/2006	6.6	UJ	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S1W13-26B-SS	479615.5734	4977574.8	6/16/2006	5.1	UJ	MG/KG
S1W13-26F-SS	479597.3836	4977575.413	6/16/2006	9.3		MG/KG
S1W13-27B-SS	479626.1559	4977595.132	6/16/2006	10.6		MG/KG
S1W13-27F-SS	479595.9439	4977592.411	6/16/2006	25.4		MG/KG
S2E07-02B-SS	481673.9192	4977421.875	6/4/2006	7.4		MG/KG
S2E07-02S-SS	481718.1877	4977425.82	6/4/2006	7.4		MG/KG
S2E08-02B-SS	481765.0925	4977420.668	6/4/2006	5	J	MG/KG
S2E08-02F-SS	481781.7369	4977425.354	6/4/2006	3.8	J	MG/KG
S2E08-04B-SS	481810.6282	4977394.145	6/4/2006	28.6		MG/KG
S2E08-04B-SSR	481810.632	4977394.45	6/4/2006	20		MG/KG
S2E08-04F-SS	481841.2602	4977402.568	6/4/2006	29.9		MG/KG
S2E08-04S-SS	481829.0606	4977403.349	6/4/2006	31.7		MG/KG
S2E08-05B-SS	481800.9852	4977375.218	6/4/2006	8.4		MG/KG
S2E08-05F-SS	481843.4541	4977379.24	6/4/2006	12.9		MG/KG
S2E08-06B-SS	481815.813	4977368.21	6/4/2006	9.1		MG/KG
S2E08-06B-SSD	481815.8167	4977368.515	6/4/2006	7.9		MG/KG
S2E08-06F-SS	481840.6693	4977359.459	6/4/2006	8.9		MG/KG
S2E08-08B-SS	481781.6352	4977370.158	6/4/2006	5.9		MG/KG
S2E08-08F-SS	481748.1717	4977361.6	6/4/2006	7.4		MG/KG
S2E08-09B-SS	481776.4077	4977381.282	6/4/2006	5.1	J	MG/KG
S2E08-09F-SS	481746.8454	4977376.972	6/4/2006	5.9		MG/KG
S2E08-10B-SS	481775.1357	4977396.098	6/4/2006	9		MG/KG
S2E08-10F-SS	481747.8322	4977394.259	6/4/2006	6.4		MG/KG
S2E08-11B-SS	481768.5878	4977405.373	6/4/2006	6.5		MG/KG
S2E08-11F-SS	481744.9279	4977407.293	6/4/2006	6		MG/KG
S2E09-01B-SS	481893.5352	4977421.682	6/4/2006	7.7		MG/KG
S2E09-01F-SS	481873.4785	4977423.544	6/4/2006	9.3		MG/KG
S2E09-02B-SS	481902.7169	4977414.249	6/4/2006	8.3		MG/KG
S2E09-02F-SS	481905.373	4977423.5	6/4/2006	8.8		MG/KG
S2E09-03B-SS	481944.8097	4977421.537	6/4/2006	7.4		MG/KG
S2E09-03F-SS	481968.4696	4977419.618	6/4/2006	6		MG/KG
S2E09-04B-SS	481943.4686	4977412.283	6/4/2006	6.4		MG/KG
S2E09-04F-SS	481971.0519	4977402.948	6/4/2006	7.4		MG/KG
S2E09-05B-SS	481946.0508	4977395.613	6/4/2006	5.4	J	MG/KG
S2E09-05F-SS	481967.439	4977392.916	6/4/2006	6.7		MG/KG
S2E09-06B-SS	481940.7453	4977378.965	6/4/2006	4.7	J	MG/KG
S2E09-06F-SS	481970.984	4977378.88	6/4/2006	5.7	J	MG/KG
S2E09-07B-SS	481942.0386	4977371.555	6/4/2006	6.2		MG/KG
S2E09-07F-SS	481969.6116	4977358.517	6/4/2006	6.6		MG/KG
S2E09-07F-SSD	481969.6015	4977358.769	6/4/2006	6.8		MG/KG
S2E09-07S-SS	481948.5972	4977365.982	6/4/2006	6.7		MG/KG
S2E09-08B-SS	481945.9358	4977354.881	6/4/2006	4.9	J	MG/KG
S2E09-08F-SS	481967.6641	4977352.272	6/4/2006	6.6		MG/KG
S2E09-09B-SS	481945.9149	4977347.475	6/4/2006	4.9	J	MG/KG
S2E09-09F-SS	481970.8953	4977347.405	6/4/2006	5.7	J	MG/KG
S2E09-10B-SS	481944.5746	4977338.222	6/4/2006	7.2		MG/KG
S2E09-10F-SS	481967.5966	4977338.213	6/4/2006	5.6	J	MG/KG
S2E09-11B-SS	481927.4505	4977329.798	6/4/2006	7		MG/KG
S2E09-11B-SSR	481927.4609	4977330.202	6/4/2006	7.5		MG/KG
S2E09-11F-SS	481966.864	4977329.575	6/4/2006	9.3		MG/KG
S2E09-12B-SS	481943.2125	4977321.563	6/4/2006	9.7		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S2E09-12F-SS	481967.8288	4977319.396	6/4/2006	6.3		MG/KG
S2E09-12F-SSR	481967.8397	4977319.843	6/4/2006	7.7		MG/KG
S2E09-13B-SS	481943.1812	4977310.454	6/4/2006	9.3		MG/KG
S2E09-13F-SS	481968.1565	4977308.532	6/4/2006	7.2		MG/KG
S2E09-14B-SS	481935.2404	4977291.961	6/4/2006	6.2		MG/KG
S2E09-14F-SS	481968.1096	4977291.869	6/4/2006	8.3		MG/KG
S2E09-19B-SS	481898.4164	4977288.363	6/4/2006	7	U	MG/KG
S2E09-19F-SS	481878.7003	4977290.271	6/4/2006	7.7	J+	MG/KG
S2E09-20B-SS	481894.535	4977310.591	6/4/2006	10.1	J+	MG/KG
S2E09-20F-SS	481872.174	4977306.952	6/4/2006	10.3	J+	MG/KG
S2E09-21F-SS	481870.901	4977321.767	6/4/2006	10.9	J+	MG/KG
S2E09-21F-SSD	481870.9047	4977322.072	6/4/2006	12.6	J+	MG/KG
S2E09-22B-SS	481899.8729	4977338.348	6/4/2006	523		MG/KG
S2E09-22F-SS	481872.258	4977336.575	6/4/2006	1080		MG/KG
S2E09-22F-SSD	481872.2617	4977336.879	6/4/2006	949		MG/KG
S2E09-23B-SS	481914.5578	4977349.565	6/4/2006	13.4	J+	MG/KG
S2E09-23F-SS	481871.5641	4977348.187	6/4/2006	148		MG/KG
S2E09-24B-SS	481897.3065	4977360.573	6/4/2006	9.8	J+	MG/KG
S2E09-24F-SS	481871.0059	4977358.796	6/4/2006	73.8		MG/KG
S2E09-25B-SS	481906.5825	4977386.467	6/4/2006	5.7	J+	MG/KG
S2E09-25FN-SS	481873.0527	4977390.21	6/4/2006	7.9	J+	MG/KG
S2E09-25FS-SS	481873.6779	4977373.6	6/4/2006	8.1	J+	MG/KG
S2E09-25FS-SSD	481873.6816	4977373.905	6/4/2006	8.3	J+	MG/KG
S2E09-26B-SS	481905.3259	4977406.837	6/4/2006	12.1	J+	MG/KG
S2E09-26F-SS	481873.7618	4977403.223	6/4/2006	9.2	J+	MG/KG
S2E10-02B-SS	482018.3771	4977400.964	6/3/2006	11.3		MG/KG
S2E10-02F-SS	482020.3462	4977425.98	6/3/2006	7		MG/KG
S2E10-03B-SS	482031.5351	4977404.629	6/3/2006	32.4		MG/KG
S2E10-03F-SS	482029.2402	4977425.653	6/3/2006	7.6		MG/KG
S2E10-05F-SS	482065.2772	4977424.089	6/3/2006	41.1		MG/KG
S2E10-05SE-SS	482077.6076	4977424.866	6/3/2006	149		MG/KG
S2E10-05SW-SS	482052.1357	4977425.977	6/3/2006	61.4		MG/KG
S2E10-06B-SS	482056.5249	4977408.262	6/3/2006	27.8		MG/KG
S2E10-06B-SSD	482056.5286	4977408.566	6/3/2006	25.5		MG/KG
S2E10-06F-SS	482074.9918	4977403.12	6/3/2006	94.2		MG/KG
S2E10-07B-SS	482056.4782	4977391.599	6/3/2006	127	J	MG/KG
S2E10-07F-SS	482074.885	4977391.547	6/3/2006	171	J	MG/KG
S2E10-08B-SS	482052.508	4977382.353	6/3/2006	17.2		MG/KG
S2E10-08F-SS	482074.2414	4977381.596	6/3/2006	6.3		MG/KG
S2E10-09B-SS	482056.421	4977371.233	6/3/2006	4.6	J	MG/KG
S2E10-09F-SS	482076.1473	4977373.03	6/3/2006	4.8	J	MG/KG
S2E10-10B-SS	482055.0861	4977363.831	6/3/2006	4.8	J	MG/KG
S2E10-10B-SSR	482055.0898	4977364.136	6/3/2006	5.5	J	MG/KG
S2E10-10F-SS	482073.4922	4977363.779	6/3/2006	5.5	J	MG/KG
S2E10-11B-SS	482047.156	4977349.042	6/3/2006	7.6	J	MG/KG
S2E10-11F-SS	482076.0643	4977343.406	6/3/2006	15.6	J	MG/KG
S2E10-11S-SS	482069.4857	4977341.573	6/3/2006	24.7	J	MG/KG
S2E10-12B-SS	482053.6828	4977332.36	6/3/2006	36.5	J	MG/KG
S2E10-12F-SS	482073.404	4977332.305	6/3/2006	52.5	J	MG/KG
S2E10-13B-SS	482054.9666	4977321.248	6/3/2006	6.2	J-	MG/KG
S2E10-13F-SS	482074.6827	4977319.341	6/3/2006	64.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S2E10-14B-SS	482049.6762	4977310.154	6/3/2006	3.9	J	MG/KG
S2E10-14F-SS	482073.6828	4977310.133	6/3/2006	3.9	J	MG/KG
S2E10-15B-SS	482052.2743	4977299.038	6/3/2006	2.6	J-	MG/KG
S2E10-15F-SS	482073.3054	4977297.127	6/3/2006	4.4	J	MG/KG
S2E10-25B-SS	482014.1017	4977289.772	6/3/2006	5.2	J	MG/KG
S2E10-25F-SS	481995.7142	4977289.94	6/3/2006	4.4	J	MG/KG
S2E10-26B-SS	482016.7501	4977299.89	6/3/2006	7.6		MG/KG
S2E10-26F-SS	481997.3332	4977297.082	6/3/2006	5.5		MG/KG
S2E10-27B-SS	482018.1117	4977306.54	6/3/2006	6.6	U	MG/KG
S2E10-27F-SS	481998.3755	4977304.707	6/3/2006	14.3	U	MG/KG
S2E10-27F-SSD	481998.3792	4977305.012	6/3/2006	13	U	MG/KG
S2E10-28B-SS	482019.4579	4977317.645	6/3/2006	35.9		MG/KG
S2E10-28F-SS	481999.2066	4977316.496	6/3/2006	57.9		MG/KG
S2E10-28F-SSD	481999.2103	4977316.801	6/3/2006	66		MG/KG
S2E10-28S-SS	482010.9558	4977315.2	6/3/2006	23.3		MG/KG
S2E10-29B-SS	482019.5204	4977339.863	6/3/2006	59.1		MG/KG
S2E10-29F-SS	481999.4115	4977333.218	6/3/2006	28.9		MG/KG
S2E10-30B-SS	482024.7944	4977345.402	6/3/2006	6	U	MG/KG
S2E10-30B-SSR	482024.7982	4977345.707	6/3/2006	5.4	U	MG/KG
S2E10-30F-SS	481998.5029	4977350.088	6/3/2006	7.2	U	MG/KG
S2E10-31B-SS	482015.6386	4977362.091	6/3/2006	3.9	J	MG/KG
S2E10-31F-SS	481997.9153	4977363.263	6/3/2006	3.4	J	MG/KG
S2E10-32B-SS	482020.9387	4977376.887	6/3/2006	22.2		MG/KG
S2E10-32F-SS	481997.5665	4977376.772	6/3/2006	9.7	U	MG/KG
S2E10-33F-SS	481999.6253	4977392.775	6/3/2006	8.6	J-	MG/KG
S2E10-33S-SS	482002.5586	4977386.196	6/3/2006	6	J	MG/KG
S2W07-05B-SS	480242.0622	4977371.025	6/17/2006	6.1		MG/KG
S2W07-05F-SS	480268.9348	4977367.943	6/17/2006	6.7		MG/KG
S2W07-08F-SS	480267.1008	4977327.543	6/17/2006	35		MG/KG
S2W08-01BN-SS	480129.1324	4977415.81	6/16/2006	8.1		MG/KG
S2W08-01BS-SS	480119.7969	4977373.255	6/16/2006	5.3	UJ	MG/KG
S2W08-01BS-SSD	480119.8007	4977373.56	6/16/2006	6.2	J-	MG/KG
S2W08-01F-SS	480096.4715	4977409.765	6/16/2006	4.8	J-	MG/KG
S2W08-01S-SS	480106.5977	4977356.633	6/16/2006	4.3	J	MG/KG
S2W08-02F-SS	480171.1269	4977422.45	6/16/2006	26.3		MG/KG
S2W08-02S-SS	480162.0294	4977424.965	6/16/2006	20.9		MG/KG
S2W08-02S-SSR	480162.0161	4977423.875	6/16/2006	31.5		MG/KG
S2W08-03F-SS	480170.2432	4977401.957	6/16/2006	31.3		MG/KG
S2W08-03S-SS	480157.1073	4977405.701	6/16/2006	18.4		MG/KG
S2W08-04B-SS	480152.7114	4977387.965	6/16/2006	3.5	J	MG/KG
S2W08-04F-SS	480168.4825	4977386.064	6/16/2006	2.2	J	MG/KG
S2W08-05B-SS	480151.3737	4977380.563	6/16/2006	6.1		MG/KG
S2W08-05F-SS	480171.6024	4977374.804	6/16/2006	5.1	J	MG/KG
S2W08-06B-SS	480148.6925	4977363.908	6/16/2006	19.3		MG/KG
S2W08-06F-SS	480171.5672	4977363.368	6/16/2006	12.1		MG/KG
S2W08-07B-SS	480146.0343	4977354.659	6/16/2006	5.6		MG/KG
S2W08-07B-SSD	480146.0381	4977354.964	6/16/2006	5.6		MG/KG
S2W08-07F-SS	480172.3235	4977352.726	6/16/2006	4.7	J	MG/KG
S2W08-08B-SS	480140.7294	4977339.864	6/16/2006	3.2	J	MG/KG
S2W08-09B-SS	480151.2244	4977332.426	6/16/2006	3.2	J	MG/KG
S2W08-09F-SS	480171.4969	4977332.733	6/16/2006	4	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S2W08-16B-SS	480119.5726	4977301.049	6/16/2006	7.6		MG/KG
S2W08-16F-SS	480098.6001	4977302.072	6/16/2006	14.4		MG/KG
S2W09-01B-SS	480012.1386	4977421.729	6/16/2006	5.4	U	MG/KG
S2W09-01F-SS	479993.7265	4977419.935	6/16/2006	5	J	MG/KG
S2W09-02B-SS	480035.6187	4977423.235	6/16/2006	3.4	J	MG/KG
S2W09-02B-SSD	480035.6225	4977423.54	6/16/2006	3.4	J	MG/KG
S2W09-02F-SS	480063.4246	4977425.272	6/16/2006	3.9	J	MG/KG
S2W09-03F-SS	480062.0926	4977419.721	6/16/2006	7.1		MG/KG
S2W09-04F-SS	480065.7825	4977401.975	6/16/2006	4.9	J	MG/KG
S2W09-05B-SS	480034.9124	4977390.893	6/16/2006	12.4		MG/KG
S2W09-05F-SS	480069.8945	4977391.925	6/16/2006	5.5	J	MG/KG
S2W09-07B-SS	480040.8836	4977364.244	6/16/2006	5.2		MG/KG
S2W09-07F-SS	480069.8253	4977369.708	6/16/2006	7.7		MG/KG
S2W09-08B-SS	480039.5342	4977353.139	6/16/2006	8.2		MG/KG
S2W09-08F-SS	480067.0366	4977352.072	6/16/2006	5.8	UJ	MG/KG
S2W09-15B-SS	480014.6466	4977382.84	6/16/2006	98.7		MG/KG
S2W09-15F-SS	479990.9986	4977388.469	6/16/2006	5.3	U	MG/KG
S2W09-16B-SS	480016.0076	4977397.648	6/16/2006	7.4		MG/KG
S2W09-16F-SS	479992.3191	4977390.316	6/16/2006	6.1		MG/KG
S2W09-17B-SS	480019.9865	4977408.744	6/16/2006	6.8		MG/KG
S2W09-17F-SS	479991.0565	4977406.983	6/16/2006	11.3		MG/KG
S2W10-01B-SS	479920.1074	4977422.017	6/16/2006	40.6		MG/KG
S2W10-01F-SS	479902.9926	4977414.665	6/16/2006	7		MG/KG
S2W10-02B-SS	479946.3962	4977420.083	6/16/2006	6.5		MG/KG
S2W10-02F-SS	479967.4087	4977412.611	6/16/2006	6.4		MG/KG
S2W10-02F-SSD	479967.4124	4977412.916	6/16/2006	6		MG/KG
S2W10-03B-SS	479951.6203	4977408.958	6/16/2006	5.5		MG/KG
S2W10-03F-SS	479967.3971	4977408.908	6/16/2006	6.9		MG/KG
S2W10-04B-SS	479948.9618	4977399.709	6/16/2006	5.8		MG/KG
S2W10-04F-SS	479969.9918	4977397.792	6/16/2006	6.7		MG/KG
S2W10-05B-SS	479947.5948	4977383.05	6/16/2006	5.7	J	MG/KG
S2W10-05F-SS	479967.316	4977382.988	6/16/2006	14.9		MG/KG
S2W10-06B-SS	479951.5217	4977377.483	6/16/2006	5.5		MG/KG
S2W10-06F-SS	479971.2428	4977377.422	6/16/2006	5.3	J	MG/KG
S2W10-07B-SS	479948.84	4977360.829	6/16/2006	28.7		MG/KG
S2W10-07F-SS	479969.8874	4977364.466	6/16/2006	12.5		MG/KG
S2W10-08B-SS	479947.4962	4977351.576	6/16/2006	5.2	J	MG/KG
S2W10-08F-SS	479968.5322	4977351.51	6/16/2006	6.7		MG/KG
S2W10-10B-SS	479951.3766	4977331.197	6/16/2006	4.7	J	MG/KG
S2W10-10F-SS	479967.7007	4977328.159	6/16/2006	7.4		MG/KG
S2W10-11B-SS	479947.3859	4977316.398	6/16/2006	4.9	J	MG/KG
S2W10-11B-SSR	479947.3897	4977316.703	6/16/2006	4.3	J	MG/KG
S2W10-11F-SS	479968.422	4977316.332	6/16/2006	7.3		MG/KG
S2W10-13F-SS	479968.3698	4977299.669	6/16/2006	5.9		MG/KG
S2W10-19B-SS	479917.0943	4977299.83	6/16/2006	5.7		MG/KG
S2W10-19F-SS	479897.3671	4977298.041	6/16/2006	5	J	MG/KG
S2W10-20B-SS	479914.4881	4977307.244	6/16/2006	3.2	J	MG/KG
S2W10-20F-SS	479890.7687	4977307.689	6/16/2006	6.4		MG/KG
S2W10-22B-SS	479915.8842	4977333.16	6/16/2006	6.8		MG/KG
S2W10-22F-SS	479892.2129	4977331.383	6/16/2006	6.7		MG/KG
S2W10-23B-SS	479917.2222	4977340.562	6/16/2006	5.1	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S2W10-23F-SS	479896.192	4977342.479	6/16/2006	4.3	J	MG/KG
S2W10-24B-SS	479918.5718	4977351.666	6/16/2006	11.6		MG/KG
S2W10-24F-SS	479898.8564	4977353.58	6/16/2006	11.9		MG/KG
S2W10-25B-SS	479918.6183	4977366.478	6/16/2006	6.8		MG/KG
S2W10-25F-SS	479897.5766	4977364.692	6/16/2006	6.6		MG/KG
S2W10-26B-SS	479913.3826	4977373.9	6/16/2006	6.9		MG/KG
S2W10-26F-SS	479897.6057	4977373.95	6/16/2006	6.8		MG/KG
S2W10-27B-SS	479923.9412	4977386.827	6/16/2006	6.4		MG/KG
S2W10-27F-SS	479897.6289	4977381.355	6/16/2006	6.5		MG/KG
S2W10-28B-SS	479920.0376	4977399.8	6/16/2006	7.9		MG/KG
S2W10-28F-SS	479895.046	4977396.175	6/16/2006	7.6		MG/KG
S2W10-29B-SS	479925.4969	4977407.097	6/16/2006	6.3		MG/KG
S2W10-29F-SS	479893.0285	4977406.124	6/16/2006	6.5		MG/KG
S2W11-01B-SS	479818.8555	4977416.781	6/16/2006	6.2		MG/KG
S2W11-01F-SS	479795.2961	4977419.343	6/16/2006	4.8	J	MG/KG
S2W11-03B-SS	479846.8914	4977379.361	6/16/2006	6.3		MG/KG
S2W11-03F-SS	479866.6067	4977377.448	6/16/2006	3.7	J-	MG/KG
S2W11-04B-SS	479847.6397	4977372.255	6/16/2006	8		MG/KG
S2W11-04F-SS	479867.355	4977370.342	6/16/2006	5.7		MG/KG
S2W11-05B-SS	479846.2782	4977357.448	6/16/2006	2.4	J-	MG/KG
S2W11-05F-SS	479868.6289	4977357.378	6/16/2006	2.2	J-	MG/KG
S2W11-05S-SS	479860.7463	4977359.254	6/16/2006	5.3	U	MG/KG
S2W11-06B-SS	479850.17	4977340.773	6/16/2006	3.6	J-	MG/KG
S2W11-06F-SS	479871.2118	4977342.558	6/16/2006	184		MG/KG
S2W11-07B-SS	479852.7704	4977331.507	6/16/2006	5	J	MG/KG
S2W11-07F-SS	479868.559	4977335.16	6/16/2006	8		MG/KG
S2W11-08B-SS	479850.1059	4977320.407	6/16/2006	5.3	J-	MG/KG
S2W11-08F-SS	479871.1302	4977316.638	6/16/2006	1.9	J-	MG/KG
S2W11-09B-SS	479847.4414	4977309.306	6/16/2006	5.4	J-	MG/KG
S2W11-09F-SS	479869.7922	4977309.236	6/16/2006	2.2	J-	MG/KG
S2W11-11B-SS	479822.5136	4977326.048	6/16/2006	5.6	J	MG/KG
S2W11-11F-SS	479793.6866	4977327.954	6/16/2006	6		MG/KG
S2W11-12B-SS	479815.9807	4977339.029	6/16/2006	39.2		MG/KG
S2W11-12F-SS	479793.63	4977339.1	6/16/2006	45.2		MG/KG
S2W11-14B-SS	479816.0684	4977366.801	6/16/2006	3.9	J-	MG/KG
S2W11-14F-SS	479793.7236	4977368.723	6/16/2006	4.3	J-	MG/KG
S2W11-16B-SS	479810.897	4977394.589	6/16/2006	6.5		MG/KG
S2W11-16F-SS	479793.8171	4977398.346	6/16/2006	5.7	J	MG/KG
S2W11-17B-SS	479816.1968	4977407.532	6/16/2006	5.2	J-	MG/KG
S2W11-17F-SS	479793.2242	4977404.211	6/16/2006	3.4	J-	MG/KG
S2W12-03B-SS	479749.1395	4977405.893	6/16/2006	6.1		MG/KG
S2W12-03F-SS	479768.8547	4977403.979	6/16/2006	21.2		MG/KG
S2W12-04B-SS	479750.4074	4977391.077	6/16/2006	4.9	J	MG/KG
S2W12-04F-SS	479769.8475	4977389.274	6/16/2006	5.2		MG/KG
S2W12-05B-SS	479746.4163	4977376.278	6/16/2006	6		MG/KG
S2W12-05F-SS	479771.3411	4977378.075	6/16/2006	6.4		MG/KG
S2W12-06B-SS	479749.0047	4977363.31	6/16/2006	160		MG/KG
S2W12-06F-SS	479769.8971	4977364.305	6/16/2006	111		MG/KG
S2W12-07B-SS	479736.1549	4977351.173	6/16/2006	36.2		MG/KG
S2W12-07F-SS	479769.8469	4977350.345	6/16/2006	60.8		MG/KG
S2W12-13B-SS	479719.9865	4977333.778	6/16/2006	14.2		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S2W12-13F-SS	479692.3944	4977339.42	6/16/2006	11.5		MG/KG
S2W12-14B-SS	479723.4611	4977351.206	6/16/2006	7.3		MG/KG
S2W12-14F-SS	479692.4355	4977352.38	6/16/2006	5.7		MG/KG
S2W12-15B-SS	479714.8155	4977361.566	6/16/2006	6.8		MG/KG
S2W12-15F-SS	479693.7679	4977357.93	6/16/2006	6.2		MG/KG
S2W12-16B-SS	479720.1215	4977376.361	6/16/2006	12.7		MG/KG
S2W12-16F-SS	479693.315	4977377.064	6/16/2006	24.1		MG/KG
S2W12-17F-SS	479692.5472	4977387.558	6/16/2006	28.1		MG/KG
S2W12-17S-SS	479709.1037	4977384.599	6/16/2006	23.7		MG/KG
S2W12-18B-SS	479720.2095	4977404.133	6/16/2006	10.4		MG/KG
S2W12-18B-SSR	479720.2132	4977404.438	6/16/2006	8		MG/KG
S2W12-18F-SS	479691.2853	4977404.225	6/16/2006	11.6		MG/KG
S2W13-02B-SS	479644.0197	4977424.741	6/16/2006	6.4		MG/KG
S2W13-02F-SS	479670.9021	4977422.983	6/16/2006	5.2		MG/KG
S2W13-04B-SS	479637.0353	4977397.601	6/16/2006	12.4		MG/KG
S2W13-04F-SS	479670.0637	4977397.781	6/16/2006	59.7		MG/KG
S2W13-04F-SSR	479670.0674	4977398.085	6/16/2006	72.8		MG/KG
S2W13-05B-SS	479646.5313	4977387.704	6/16/2006	8.6		MG/KG
S2W13-05F-SS	479670.1097	4977385.308	6/16/2006	13.8		MG/KG
S2W13-06B-SS	479636.9024	4977375.081	6/16/2006	47.9		MG/KG
S2W13-06F-SS	479669.9484	4977373.052	6/16/2006	6.4		MG/KG
S2W13-07B-SS	479641.184	4977359.949	6/16/2006	9.8		MG/KG
S2W13-07F-SS	479671.4349	4977363.556	6/16/2006	11.3		MG/KG
S2W13-08B-SS	479645.0929	4977348.828	6/16/2006	5		MG/KG
S2W13-08F-SS	479670.0848	4977352.451	6/16/2006	69		MG/KG
S2W13-08F-SSD	479670.0885	4977352.756	6/16/2006	5.2		MG/KG
S2W13-09B-SS	479650.3283	4977341.405	6/16/2006	79.7		MG/KG
S2W13-09F-SS	479670.0436	4977339.491	6/16/2006	96.3		MG/KG
S2W13-09F-SSD	479670.0474	4977339.796	6/16/2006	240		MG/KG
S2W13-10B-SS	479645.0163	4977324.759	6/16/2006	33.3		MG/KG
S2W13-10F-SS	479669.1908	4977323.195	6/16/2006	35.7		MG/KG
S2W13-11B-SS	479643.6662	4977313.655	6/16/2006	4.8	J	MG/KG
S2W13-11F-SS	479669.1205	4977312.623	6/16/2006	5.6		MG/KG
S2W13-19B-SS	479616.0033	4977297.079	6/16/2006	4.1	J	MG/KG
S2W13-19F-SS	479589.7258	4977302.718	6/16/2006	4.2	J	MG/KG
S2W13-20B-SS	479618.6918	4977315.586	6/16/2006	5.4		MG/KG
S2W13-20F-SS	479589.7613	4977313.826	6/16/2006	6.8		MG/KG
S2W13-21B-SS	479612.1534	4977326.715	6/16/2006	7.5		MG/KG
S2W13-21F-SS	479592.5355	4977326.562	6/16/2006	5.7		MG/KG
S2W13-22B-SS	479617.4537	4977339.658	6/16/2006	39.3		MG/KG
S2W13-22F-SS	479592.544	4977340.713	6/16/2006	18.2		MG/KG
S2W13-23F-SS	479591.2001	4977352.702	6/16/2006	8.8		MG/KG
S2W13-23S-SS	479595.1325	4977348.987	6/16/2006	7.4		MG/KG
S3E01-01B-SS	480985.689	4977194.735	6/3/2006	6.8	J-	MG/KG
S3E01-01F-SS	481008.1334	4977226.143	6/3/2006	2.1	J-	MG/KG
S3E01-01SNE-SS	481007.9575	4977166.897	6/3/2006	1.6	J-	MG/KG
S3E01-01SSE-SS	481002.5607	4977120.627	6/3/2006	1.9	J-	MG/KG
S3E01-01SW-SS	480899.0573	4977167.723	6/3/2006	3.2	J-	MG/KG
S3E01-02B-SS	481000.4271	4977081.796	6/3/2006	2.3	J-	MG/KG
S3E01-02FC-SS	480896.0293	4977109.836	6/3/2006	4.8	J	MG/KG
S3E01-02FN-SS	480898.1146	4977132.004	6/3/2006	5.5		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S3E01-02FS-SS	480897.6119	4977068.259	6/3/2006	3	J-	MG/KG
S3E01-02SE-SS	480978.6963	4977054.046	6/3/2006	2.6	J-	MG/KG
S3E01-02SW-SS	480924.7895	4977054.206	6/3/2006	2.1	J-	MG/KG
S3E02-01B-SS	481019.9004	4977203.891	6/5/2006	2.1	J	MG/KG
S3E02-01F-SS	481022.5791	4977220.546	6/5/2006	1.9	J	MG/KG
S3E02-03BE-SS	481055.0262	4977068.027	6/5/2006	3.5	J	MG/KG
S3E02-03BE-SSR	481055.0299	4977068.331	6/5/2006	4.2	J	MG/KG
S3E02-03BW-SS	481076.0308	4977066.716	6/5/2006	5.3		MG/KG
S3E02-03F-SS	481032.015	4977071.111	6/5/2006	4.3	J	MG/KG
S3E02-04B-SS	481051.0328	4977061.236	6/5/2006	2.6	J	MG/KG
S3E02-04F-SS	481031.0055	4977061.274	6/5/2006	1.7	J	MG/KG
S3E06-18B-SS	481567.7565	4977061.578	6/4/2006	5.8		MG/KG
S3E06-18F-SS	481592.754	4977067.061	6/4/2006	4	J	MG/KG
S3E06-18F-SSR	481592.7441	4977067.573	6/4/2006	3.4	J	MG/KG
S3E06-19B-SS	481572.9679	4977044.9	6/4/2006	6		MG/KG
S3E06-19F-SS	481592.7167	4977054.1	6/4/2006	5.4		MG/KG
S3E06-19F-SSD	481592.733	4977054.352	6/4/2006	5.3		MG/KG
S3E08-01B-SS	481744.2411	4977166.605	6/4/2006	6.2	J+	MG/KG
S3E08-01F-SS	481754.2562	4977222.781	6/4/2006	5	J	MG/KG
S3E08-01S-SS	481735.1144	4977187.155	6/4/2006	8.5		MG/KG
S3E08-03S-SS	481807.7814	4977197.945	6/4/2006	7.9		MG/KG
S3E08-04B-SS	481840.9794	4977186.862	6/4/2006	6.5		MG/KG
S3E08-04F-SS	481840.6748	4977222.557	6/4/2006	8.3		MG/KG
S3E08-05F-SS	481840.21	4977162.63	6/4/2006	6		MG/KG
S3E08-06B-SS	481799.1959	4977143.777	6/4/2006	9.5		MG/KG
S3E08-06F-SS	481839.2002	4977143.333	6/4/2006	9.3		MG/KG
S3E08-06F-SSR	481839.204	4977143.637	6/4/2006	10.5		MG/KG
S3E08-07B-SS	481797.619	4977132.418	6/4/2006	13.5		MG/KG
S3E08-07F-SS	481839.7659	4977129.137	6/4/2006	10.5		MG/KG
S3E08-08B-SS	481798.2223	4977112.11	6/4/2006	25.9		MG/KG
S3E08-08F-SS	481840.0982	4977116.417	6/4/2006	33.8		MG/KG
S3E08-10B-SS	481805.8206	4977090.521	6/4/2006	12.9		MG/KG
S3E08-10F-SS	481801.9169	4977085.325	6/4/2006	8.7		MG/KG
S3E08-11NE-SS	481774.4184	4977144.302	6/4/2006	7		MG/KG
S3E08-11NW-SS	481738.3558	4977147.538	6/4/2006	8.7		MG/KG
S3E08-11SE-SS	481786.4933	4977096.366	6/4/2006	6.5		MG/KG
S3E08-11SW-SS	481758.5037	4977096.21	6/4/2006	6.6		MG/KG
S3E09-04B-SS	481965.2756	4977209.662	6/4/2006	3.3	J	MG/KG
S3E09-05F-SS	481967.8278	4977191.891	6/4/2006	5.8		MG/KG
S3E09-05F-SSR	481967.8315	4977192.196	6/4/2006	4.9	J	MG/KG
S3E09-06F-SS	481962.8626	4977175.288	6/4/2006	5.4	J	MG/KG
S3E09-07F-SS	481924.3302	4977175.83	6/4/2006	3.1	J	MG/KG
S3E09-08B-SS	481937.5194	4977167.908	6/4/2006	10.3		MG/KG
S3E09-08B-SSD	481937.5231	4977168.213	6/4/2006	10.4		MG/KG
S3E09-08F-SS	481967.7443	4977162.269	6/4/2006	8.6		MG/KG
S3E09-09B-SS	481923.0624	4977139.69	6/4/2006	6		MG/KG
S3E09-09F-SS	481963.75	4977141.004	6/4/2006	6.9		MG/KG
S3E09-10B-SS	481924.2252	4977128.792	6/4/2006	9.4		MG/KG
S3E09-10B-SSD	481924.2151	4977129.044	6/4/2006	11		MG/KG
S3E09-10F-SS	481966.3271	4977125.255	6/4/2006	23.6		MG/KG
S3E09-12B-SS	481938.6411	4977099.401	6/4/2006	7.6		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S3E09-12F-SS	481963.1692	4977102.214	6/4/2006	7.5		MG/KG
S3E09-12F-SSR	481963.1785	4977102.532	6/4/2006	6.4		MG/KG
S3E09-13B-SS	481934.6601	4977086.452	6/4/2006	10.2		MG/KG
S3E09-13F-SS	481963.9316	4977088.267	6/4/2006	9.9		MG/KG
S3E09-15B-SS	481900.4861	4977090.252	6/4/2006	75.2		MG/KG
S3E09-15B-SSR	481900.4898	4977090.557	6/4/2006	70.7		MG/KG
S3E09-15F-SS	481871.5504	4977090.297	6/4/2006	55		MG/KG
S3E09-16B-SS	481902.6152	4977108.574	6/4/2006	6.9		MG/KG
S3E09-16B-SSD	481902.6189	4977108.879	6/4/2006	8.3		MG/KG
S3E09-16F-SS	481871.9146	4977108.745	6/4/2006	9.1		MG/KG
S3E09-17F-SS	481872.9854	4977129.21	6/4/2006	6.8		MG/KG
S3E09-18B-SS	481898.0026	4977142.099	6/4/2006	10.7		MG/KG
S3E09-18F-SS	481874.3417	4977144.018	6/4/2006	9.6		MG/KG
S3E09-19B-SS	481895.4152	4977156.919	6/4/2006	22.6		MG/KG
S3E09-19F-SS	481887.5317	4977158.792	6/4/2006	30.4		MG/KG
S3E09-20B-SS	481898.1021	4977177.277	6/4/2006	11.7		MG/KG
S3E09-20F-SS	481870.8013	4977176.343	6/4/2006	8.6		MG/KG
S3E09-20F-SSR	481870.805	4977176.647	6/4/2006	8.3		MG/KG
S3E10-04B-SS	482044.4507	4977173.419	6/4/2006	76.7		MG/KG
S3E10-04F-SS	482073.869	4977178.367	6/4/2006	284		MG/KG
S3E10-05B-SS	482043.9998	4977159.828	6/4/2006	160		MG/KG
S3E10-05F-SS	482073.6881	4977154.456	6/4/2006	308		MG/KG
S3E10-05F-SSR	482073.6874	4977154.839	6/4/2006	207		MG/KG
S3E10-06B-SS	482053.1374	4977137.959	6/4/2006	6.5		MG/KG
S3E10-06F-SS	482071.6137	4977139.198	6/4/2006	8.3		MG/KG
S3E10-06F-SSD	482071.6174	4977139.503	6/4/2006	9.9		MG/KG
S3E10-07B-SS	482050.4769	4977126.858	6/4/2006	10.1		MG/KG
S3E10-07B-SSD	482050.4929	4977127.083	6/4/2006	8.2		MG/KG
S3E10-07F-SS	482070.5461	4977125.98	6/4/2006	6.4		MG/KG
S3E10-08B-SS	482042.557	4977115.772	6/4/2006	8.4		MG/KG
S3E10-08F-SS	482072.6972	4977113.257	6/4/2006	8.4		MG/KG
S3E10-08F-SSD	482072.7009	4977113.561	6/4/2006	9.4		MG/KG
S3E10-09B-SS	482051.7133	4977099.083	6/4/2006	7.4		MG/KG
S3E10-09F-SS	482070.1366	4977104.586	6/4/2006	14		MG/KG
S3E10-09S-SS	482059.5969	4977097.209	6/4/2006	6.1		MG/KG
S3E10-10B-SS	482056.9312	4977084.257	6/4/2006	5.3		MG/KG
S3E10-10F-SS	482069.4639	4977090.816	6/4/2006	6.4		MG/KG
S3E10-11B-SS	482021.4524	4977091.762	6/4/2006	7.4		MG/KG
S3E10-11F-SS	481995.9444	4977090.462	6/4/2006	7.5		MG/KG
S3E10-11F-SSR	481995.9482	4977090.767	6/4/2006	7.7		MG/KG
S3E10-12B-SS	482022.8039	4977104.718	6/4/2006	7.8		MG/KG
S3E10-12B-SSR	482022.8076	4977105.023	6/4/2006	8.2		MG/KG
S3E10-12F-SS	481997.8017	4977097.383	6/4/2006	8.8		MG/KG
S3E10-13B-SS	482025.4697	4977117.671	6/4/2006	7.4		MG/KG
S3E10-13F-SS	481996.0297	4977116.397	6/4/2006	6.2		MG/KG
S3E10-13F-SSD	481996.0334	4977116.702	6/4/2006	4.7	J	MG/KG
S3E10-14B-SS	482022.8559	4977123.233	6/4/2006	10.5		MG/KG
S3E10-14F-SS	481994.5105	4977127.401	6/4/2006	12.5		MG/KG
S3E10-14F-SSR	481994.5142	4977127.705	6/4/2006	8.4		MG/KG
S3E10-15B-SS	482015.0244	4977143.621	6/4/2006	5	J	MG/KG
S3E10-15FN-SS	481996.6429	4977152.929	6/4/2006	5.6	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S3E10-15FS-SS	481995.9346	4977139.916	6/4/2006	5.1		MG/KG
S3E10-16B-SS	482019.0416	4977169.529	6/4/2006	56.6		MG/KG
S3E10-16F-SS	481992.7507	4977171.455	6/4/2006	61.6		MG/KG
S3E10-17B-SS	482017.7526	4977178.791	6/4/2006	6.1		MG/KG
S3E10-17F-SS	481995.4225	4977186.259	6/4/2006	6		MG/KG
S3E10-17F-SSD	481995.4262	4977186.564	6/4/2006	5.8		MG/KG
S3W03-10F-SS	480672.4753	4977097.546	6/17/2006	6.2		MG/KG
S3W03-10F-SSD	480672.479	4977097.851	6/17/2006	6.2		MG/KG
S3W03-16B-SS	480621.1757	4977090.296	6/17/2006	6.7		MG/KG
S3W03-16F-SS	480597.4925	4977084.813	6/17/2006	6.7		MG/KG
S3W04-06F-SS	480570.4333	4977196.029	6/17/2006	6.3		MG/KG
S3W05-13F-SS	480468.6364	4977083.354	6/17/2006	6.9		MG/KG
S3W06-02B-SS	480321.7831	4977215.257	6/17/2006	4.9	J	MG/KG
S3W06-11B-SS	480351.7897	4977139.255	6/17/2006	5.9	J	MG/KG
S3W06-11F-SS	480372.8264	4977139.191	6/17/2006	5.4	J	MG/KG
S3W06-11F-SSD	480372.8301	4977139.495	6/17/2006	5.3	J	MG/KG
S3W06-19F-SS	480296.8129	4977060.074	6/17/2006	5.3	J	MG/KG
S3W06-20B-SS	480325.289	4977072.684	6/17/2006	43.5	J	MG/KG
S3W06-20F-SS	480297.6667	4977069.066	6/17/2006	28.6	J	MG/KG
S3W06-23F-SS	480294.5163	4977096.146	6/17/2006	5.9	J	MG/KG
S3W06-23F-SSR	480294.52	4977096.451	6/17/2006	6.1	J	MG/KG
S3W08-11B-SS	480142.2283	4977076.66	6/17/2006	8.3	J	MG/KG
S3W08-11F-SS	480168.5128	4977072.875	6/17/2006	7.5	J	MG/KG
S3W08-14F-SS	480096.2486	4977110.156	6/17/2006	5.6	J	MG/KG
S3W08-15B-SS	480127.0338	4977121.914	6/17/2006	6	J	MG/KG
S3W08-15F-SS	480096.1339	4977120.476	6/17/2006	4.7	J	MG/KG
S3W09-05B-SS	480041.5515	4977156.879	6/15/2006	5.2		MG/KG
S3W09-05F-SS	480065.2176	4977156.805	6/15/2006	5.9		MG/KG
S3W09-06B-SS	480032.2902	4977138.393	6/15/2006	3.4	J	MG/KG
S3W09-06B-SSR	480032.2939	4977138.698	6/15/2006	3.8	J	MG/KG
S3W09-06F-SS	480062.5534	4977145.704	6/15/2006	6.8		MG/KG
S3W09-07B-SS	480033.2842	4977131.51	6/15/2006	5.7		MG/KG
S3W09-07F-SS	480066.3354	4977132.782	6/15/2006	4.9	J	MG/KG
S3W09-07F-SSD	480066.3391	4977133.086	6/15/2006	42.2		MG/KG
S3W09-08B-SS	480034.8273	4977108.762	6/15/2006	6.7		MG/KG
S3W09-08F-SS	480066.2397	4977121.698	6/15/2006	7.3		MG/KG
S3W09-10F-SS	480066.0543	4977093.618	8/16/2006	44.1		MG/KG
S3W09-10F-SSD	480066.0543	4977093.618	8/16/2006	56.1		MG/KG
S3W09-14B-SS	480038.6157	4977058.761	6/15/2006	4.2	J	MG/KG
S3W09-15F-SS	479990.7674	4977056.497	6/15/2006	20.7		MG/KG
S3W09-15S-SS	480006.4935	4977056.128	6/15/2006	43.1		MG/KG
S3W09-16B-SS	480022.8901	4977075.473	6/15/2006	4.6	J	MG/KG
S3W09-16F-SS	479991.3826	4977075.071	6/15/2006	22.2		MG/KG
S3W09-17B-SS	480012.4353	4977095.871	6/15/2006	4.3	J	MG/KG
S3W09-17F-SS	479990.0722	4977092.238	6/15/2006	3.6	J	MG/KG
S3W09-18B-SS	480024.2974	4977105.092	6/15/2006	4.1	J	MG/KG
S3W09-18F-SS	479992.7481	4977107.042	6/15/2006	3.8	J	MG/KG
S3W09-20B-SS	480021.7719	4977138.426	6/15/2006	4.9	J	MG/KG
S3W09-20F-SS	479991.0337	4977131.739	6/15/2006	4.3	J	MG/KG
S3W09-21B-SS	480023.25	4977147.778	6/15/2006	10.6		MG/KG
S3W09-21F-SS	479994.1902	4977147.769	6/15/2006	6.1		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S3W09-22B-SS	480016.5821	4977160.659	6/15/2006	6.3		MG/KG
S3W09-22F-SS	479994.2192	4977157.026	6/15/2006	21.7		MG/KG
S3W09-23F-SS	479996.8951	4977171.83	6/15/2006	9		MG/KG
S3W10-04B-SS	479943.0644	4977196.067	6/15/2006	5.2		MG/KG
S3W10-04S-SS	479957.527	4977196.022	6/15/2006	4.5	J	MG/KG
S3W10-04S-SSR	479957.5307	4977196.326	6/15/2006	4.1	J	MG/KG
S3W10-05B-SS	479944.3328	4977181.252	6/15/2006	4.3	J	MG/KG
S3W10-05F-SS	479969.3136	4977181.173	6/15/2006	4.9	J	MG/KG
S3W10-06B-SS	479942.9657	4977164.593	6/15/2006	4.1	J	MG/KG
S3W10-06F-SS	479970.5878	4977168.209	6/15/2006	4.5	J	MG/KG
S3W10-06F-SSD	479970.5915	4977168.514	6/15/2006	5.5		MG/KG
S3W10-07B-SS	479937.6776	4977155.352	6/15/2006	6.9		MG/KG
S3W10-07F-SS	479967.8805	4977156.973	6/15/2006	5.2		MG/KG
S3W10-08B-SS	479934.929	4977148.516	6/15/2006	82.5		MG/KG
S3W10-08F-SS	479968.446	4977148.22	6/15/2006	58.3		MG/KG
S3W10-09B-SS	479936.3047	4977136.842	6/15/2006	9.9		MG/KG
S3W10-09F-SS	479968.4812	4977139.808	6/15/2006	48		MG/KG
S3W10-09F-SSD	479968.4849	4977140.112	6/15/2006	52.3		MG/KG
S3W10-10B-SS	479946.7882	4977125.7	6/15/2006	35.4		MG/KG
S3W10-10F-SS	479968.3624	4977131.242	6/15/2006	71.2		MG/KG
S3W10-11B-SS	479933.6113	4977116.484	6/15/2006	15.1		MG/KG
S3W10-11B-SSR	479933.615	4977116.789	6/15/2006	5.9		MG/KG
S3W10-11F-SS	479968.3209	4977117.955	6/15/2006	79.3		MG/KG
S3W10-12B-SS	479950.6746	4977107.173	6/15/2006	11.2		MG/KG
S3W10-12S-SS	479968.452	4977107.26	6/15/2006	4	J	MG/KG
S3W10-13B-SS	479942.722	4977086.832	6/15/2006	4.3	J	MG/KG
S3W10-13F-SS	479967.0742	4977088.947	6/15/2006	5	J	MG/KG
S3W10-14B-SS	479940.0749	4977081.286	6/15/2006	3.4	J	MG/KG
S3W10-14F-SS	479970.298	4977075.637	6/15/2006	3.2	J	MG/KG
S3W10-15B-SS	479955.8236	4977071.98	6/15/2006	4	J	MG/KG
S3W10-15F-SS	479963.7124	4977071.955	6/15/2006	3.6	J	MG/KG
S3W10-16B-SS	479946.5735	4977057.197	6/15/2006	5.1	J	MG/KG
S3W10-16F-SS	479967.706	4977058.291	6/15/2006	3.5	J	MG/KG
S3W10-17F-SS	479923.8397	4977057.207	6/16/2006	51.5		MG/KG
S3W10-18B-SS	479919.0207	4977075.798	6/16/2006	8.1		MG/KG
S3W10-18B-SSR	479919.0244	4977076.103	6/16/2006	6.1		MG/KG
S3W10-18F-SS	479894.0511	4977079.579	6/16/2006	15.9		MG/KG
S3W10-19B-SS	479920.382	4977090.605	6/16/2006	10.9		MG/KG
S3W10-19F-SS	479895.4066	4977092.535	6/16/2006	4	J	MG/KG
S3W10-20B-SS	479916.4899	4977107.281	6/16/2006	8.6		MG/KG
S3W10-20F-SS	479890.1823	4977103.66	6/16/2006	5.9		MG/KG
S3W10-21B-SS	479916.5131	4977114.686	6/16/2006	8.3		MG/KG
S3W10-21F-SS	479895.4706	4977112.901	6/16/2006	9.1		MG/KG
S3W10-22B-SS	479917.8744	4977129.494	6/16/2006	4.5	J	MG/KG
S3W10-22B-SSD	479917.8782	4977129.798	6/16/2006	3.8	J	MG/KG
S3W10-22F-SS	479892.1489	4977122.348	6/16/2006	8.1	J	MG/KG
S3W10-23B-SS	479913.9591	4977138.763	6/16/2006	5.5	J	MG/KG
S3W10-23F-SS	479895.5521	4977138.821	6/16/2006	4.1	J	MG/KG
S3W10-24B-SS	479914.0114	4977155.426	6/16/2006	42.9		MG/KG
S3W10-24F-SS	479891.692	4977146.215	6/16/2006	41		MG/KG
S3W11-03B-SS	479834.6357	4977192.705	6/15/2006	14.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S3W11-03F-SS	479868.1104	4977192.6	6/15/2006	27.1	J	MG/KG
S3W11-04B-SS	479843.083	4977177.867	6/15/2006	7.4	J	MG/KG
S3W11-04F-SS	479862.8105	4977179.656	6/15/2006	6	J	MG/KG
S3W11-05B-SS	479840.3951	4977159.361	6/15/2006	5.9	J	MG/KG
S3W11-05F-SS	479865.4168	4977172.242	6/15/2006	5.2	J	MG/KG
S3W11-06F-SS	479867.9997	4977157.422	6/15/2006	6.4	J	MG/KG
S3W11-08B-SS	479838.9928	4977131.593	6/15/2006	9.2	J	MG/KG
S3W11-08F-SS	479866.6209	4977137.061	6/15/2006	7.1	J	MG/KG
S3W11-09B-SS	479842.873	4977111.215	6/15/2006	9.3	J	MG/KG
S3W11-09F-SS	479868.7574	4977114.435	6/15/2006	6.3	J	MG/KG
S3W11-10B-SS	479840.2025	4977098.263	6/15/2006	9.2	J	MG/KG
S3W11-10F-SS	479865.2128	4977107.442	6/15/2006	7.5	J	MG/KG
S3W11-11B-SS	479838.8411	4977083.456	6/15/2006	7.6	J	MG/KG
S3W11-11F-SS	479867.79	4977090.771	6/15/2006	6.2	J	MG/KG
S3W11-12B-SS	479841.4474	4977076.042	6/15/2006	6.7	J	MG/KG
S3W11-12B-SSD	479841.4511	4977076.346	6/15/2006	7	J	MG/KG
S3W11-12F-SS	479865.1138	4977075.967	6/15/2006	5.6	J	MG/KG
S3W11-13B-SS	479836.0456	4977057.926	6/15/2006	10.1	J	MG/KG
S3W11-13F-SS	479867.6968	4977061.147	6/15/2006	6.2	J	MG/KG
S3W12-05F-SS	479768.7623	4977123.372	6/15/2006	63.6		MG/KG
S3W12-06B-SS	479744.2516	4977107.824	6/15/2006	17.9		MG/KG
S3W12-06F-SS	479769.1553	4977110.306	6/15/2006	96.1		MG/KG
S3W12-07F-SS	479765.2357	4977091.094	6/15/2006	8.6	J-	MG/KG
S3W12-08B-SS	479741.4989	4977068.952	6/15/2006	33.3		MG/KG
S3W12-08F-SS	479769.5957	4977075.497	6/15/2006	32.4		MG/KG
S3W12-09F-SS	479763.8213	4977059.624	6/15/2006	2.8	J-	MG/KG
S3W12-09SE-SS	479756.6384	4977056.616	6/15/2006	3	J-	MG/KG
S3W12-09SW-SS	479736.9773	4977056.654	6/15/2006	3.4	J-	MG/KG
S3W12-10B-SS	479725.7036	4977063.447	6/15/2006	6.2	J-	MG/KG
S3W12-10F-SS	479695.4396	4977056.137	6/15/2006	3.5	J-	MG/KG
S3W12-11B-SS	479720.462	4977069.018	6/15/2006	5.1	J	MG/KG
S3W12-11F-SS	479694.936	4977070.908	6/15/2006	5.1	J-	MG/KG
S3W12-12B-SS	479727.8783	4977085.912	6/15/2006	4.5	J	MG/KG
S3W12-12F-SS	479692.8923	4977082.066	6/15/2006	4	J	MG/KG
S3W12-13B-SS	479716.6056	4977096.802	6/15/2006	4.9	J-	MG/KG
S3W12-13F-SS	479695.0182	4977096.828	6/15/2006	4.1	J-	MG/KG
S3W12-14F-SS	479696.9424	4977115.379	6/15/2006	4.5	J-	MG/KG
S3W12-15B-SS	479718.0085	4977124.57	6/15/2006	8	J-	MG/KG
S3W12-15F-SS	479694.3422	4977124.645	6/15/2006	3.5	J	MG/KG
S3W12-16B-SS	479719.3585	4977135.674	6/15/2006	122		MG/KG
S3W12-16F-SS	479695.6864	4977133.898	6/15/2006	158		MG/KG
S4E01-01F-SS	480898.3941	4977020.959	6/5/2006	2.3	J	MG/KG
S4E01-01S-SS	480911.5693	4977030.176	6/5/2006	2.1	J	MG/KG
S4E01-02F-SS	480939.1859	4977031.946	6/5/2006	4.4	J	MG/KG
S4E01-02S-SS	480943.4062	4977012.53	6/5/2006	6.5		MG/KG
S4E01-03F-SS	480960.2286	4977033.734	6/5/2006	3.9	J	MG/KG
S4E01-03F-SSR	480960.2324	4977034.038	6/5/2006	3.2	J	MG/KG
S4E01-03S-SS	480966.7529	4977017.051	6/5/2006	4	J	MG/KG
S4E01-04B-SS	480976.8734	4977017.086	6/5/2006	2.2	J	MG/KG
S4E01-04B-SSD	480976.8771	4977017.391	6/5/2006	2.6	J	MG/KG
S4E01-04F-SS	480972.0564	4977031.848	6/5/2006	2	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4E01-05F-SS	481002.3967	4977017.324	6/5/2006	5.6		MG/KG
S4E01-05F-SSD	481002.4004	4977017.628	6/5/2006	4.7	J	MG/KG
S4E01-05S-SS	480993.0552	4977018.825	6/5/2006	4.6	J	MG/KG
S4E01-10B-SS	480973.1182	4976946.677	6/5/2006	4.2	J	MG/KG
S4E01-10F-SS	481003.3755	4976952.142	6/5/2006	4.7	J	MG/KG
S4E01-11B-SS	480973.0742	4976931.866	6/5/2006	31.9		MG/KG
S4E01-11B-SSR	480973.0779	4976932.171	6/5/2006	31.5		MG/KG
S4E01-11F-SS	481003.326	4976935.479	6/5/2006	25.1		MG/KG
S4E01-13B-SS	480971.671	4976902.247	6/5/2006	4.4	J	MG/KG
S4E01-13F-SS	481001.912	4976902.157	6/5/2006	4.7	J	MG/KG
S4E01-14B-SS	480971.6325	4976889.286	6/5/2006	5.8		MG/KG
S4E01-14F-SS	481002.8299	4976886.07	6/5/2006	7.6		MG/KG
S4E01-16B-SS	480978.1238	4976861.495	6/5/2006	4.8	J	MG/KG
S4E01-16F-SS	481003.0842	4976854.016	6/5/2006	4	J	MG/KG
S4E01-16F-SSD	481003.0879	4976854.321	6/5/2006	3.6	J	MG/KG
S4E01-16S-SS	480991.2616	4976857.754	6/5/2006	4.3	J	MG/KG
S4E01-17B-SS	480957.1254	4976874.518	6/5/2006	3.7	J	MG/KG
S4E01-17F-SS	481001.8487	4977006.504	6/5/2006	4.5	J	MG/KG
S4E01-17F-SSD	481001.8524	4977006.809	6/5/2006	5	J	MG/KG
S4E01-18B-SS	480924.2099	4976859.805	6/5/2006	5.7	J	MG/KG
S4E01-18F-SS	480896.5981	4976859.887	6/5/2006	5.9	J	MG/KG
S4E01-19B-SS	480925.5581	4976870.91	6/5/2006	7.5	J	MG/KG
S4E01-19F-SS	480896.6368	4976872.847	6/5/2006	6.2	J	MG/KG
S4E01-20B-SS	480926.889	4976876.46	6/5/2006	26.3	J	MG/KG
S4E01-20F-SS	480897.9851	4976883.951	6/5/2006	16.4	J	MG/KG
S4E01-20S-SS	480913.7356	4976874.648	6/5/2006	23	J	MG/KG
S4E01-21B-SS	480925.6244	4976893.127	6/5/2006	5.5	J	MG/KG
S4E01-21F-SS	480895.388	4976895.068	6/5/2006	6.8	J	MG/KG
S4E01-22B-SS	480926.9883	4976909.786	6/5/2006	7	J	MG/KG
S4E01-22F-SS	480898.0459	4976904.318	6/5/2006	7.7	J	MG/KG
S4E01-23B-SS	480928.331	4976919.039	6/5/2006	4.7	J	MG/KG
S4E01-23F-SS	480896.7805	4976920.985	6/5/2006	6.9	J	MG/KG
S4E01-24B-SS	480930.9935	4976930.14	6/5/2006	5.2	J	MG/KG
S4E01-24F-SS	480900.7693	4976935.784	6/5/2006	6.1	J	MG/KG
S4E01-25B-SS	480929.7234	4976944.955	6/5/2006	7.3	J	MG/KG
S4E01-25B-SSD	480929.7271	4976945.259	6/5/2006	7.3	J	MG/KG
S4E01-25F-SS	480896.8524	4976945.053	6/5/2006	7.8	J	MG/KG
S4E01-27B-SS	480931.1425	4976980.129	6/5/2006	8.9		MG/KG
S4E01-27F-SS	480900.8964	4976978.367	6/5/2006	9.8		MG/KG
S4E01-28B-SS	480931.1811	4976993.089	6/5/2006	6.8	J	MG/KG
S4E01-28F-SS	480896.9961	4976993.191	6/5/2006	6.5	J	MG/KG
S4E01-29B-SS	480924.646	4977006.068	6/5/2006	6.3		MG/KG
S4E01-29F-SS	480897.0459	4977009.854	6/5/2006	4.8	J	MG/KG
S4E02-02B-SS	481104.0811	4977020.525	6/5/2006	6.9		MG/KG
S4E02-02F-SS	481100.8466	4977027.894	6/5/2006	5.4		MG/KG
S4E02-03B-SS	481117.397	4977019.359	6/5/2006	5		MG/KG
S4E02-03F-SS	481136.3911	4977025.807	6/5/2006	4	J	MG/KG
S4E02-04B-SS	481107.4111	4977007.377	6/5/2006	30.1		MG/KG
S4E02-04F-SS	481137.6626	4977010.991	6/5/2006	3.9	J	MG/KG
S4E02-05F-SS	481136.2929	4976992.481	6/5/2006	3.4	J	MG/KG
S4E02-06B-SS	481106.0031	4976975.907	6/5/2006	4.3	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4E02-06F-SS	481137.5698	4976979.517	6/17/2006	6.7	J	MG/KG
S4E02-07F-SS	481135.5578	4976960.312	6/5/2006	3.2	J	MG/KG
S4E02-07SN-SS	481115.2007	4976966.789	6/5/2006	3.9	J	MG/KG
S4E02-08B-SS	481104.5841	4976940.733	6/5/2006	4	J	MG/KG
S4E02-08F-SS	481137.4715	4976946.191	6/5/2006	4.5	J	MG/KG
S4E02-09B-SS	481089.4269	4976929.402	6/5/2006	3.7	J	MG/KG
S4E02-09F-SS	481137.5643	4976929.6	6/5/2006	4.1	J	MG/KG
S4E02-10B-SS	481113.7117	4976914.787	6/5/2006	3.2	J	MG/KG
S4E02-10F-SS	481137.0567	4976916.669	6/5/2006	3.3	J	MG/KG
S4E02-11B-SS	481108.392	4976894.436	6/5/2006	10.9		MG/KG
S4E02-11F-SS	481136.6313	4976899.95	6/5/2006	3.5	J	MG/KG
S4E02-12B-SS	481108.3646	4976885.179	6/5/2006	5.1		MG/KG
S4E02-12B-SSR	481108.3684	4976885.483	6/5/2006	4.3	J	MG/KG
S4E02-12F-SS	481136.1848	4976886.572	6/5/2006	4.2	J	MG/KG
S4E02-13B-SS	481138.174	4976871.119	6/5/2006	4.6	J	MG/KG
S4E02-13F-SS	481132.9143	4976871.135	6/5/2006	4.3	J	MG/KG
S4E02-14B-SS	481106.9574	4976853.709	6/5/2006	3.1	J	MG/KG
S4E02-14F-SS	481137.5407	4976863.672	6/5/2006	3.9	J	MG/KG
S4E02-15B-SS	481080.7092	4976870.449	6/5/2006	21.5		MG/KG
S4E02-15F-SS	481074.0859	4976853.806	6/5/2006	78.9		MG/KG
S4E02-17B-SS	481060.9975	4976874.21	6/5/2006	5.6		MG/KG
S4E02-17F-SS	481032.066	4976872.444	6/5/2006	3.9	J	MG/KG
S4E02-17F-SSR	481032.0697	4976872.749	6/5/2006	4.3	J	MG/KG
S4E02-18B-SS	481050.5174	4976887.202	6/5/2006	6.7		MG/KG
S4E02-18F-SS	481031.8093	4976889.086	6/5/2006	4.5	J	MG/KG
S4E02-18F-SSD	481031.813	4976889.391	6/5/2006	4.5	J	MG/KG
S4E02-19B-SS	481065.0078	4976896.416	6/5/2006	8.1		MG/KG
S4E02-19F-SS	481034.7612	4976894.653	6/5/2006	4.8	J	MG/KG
S4E02-21B-SS	481058.5489	4976935.315	6/5/2006	8.8		MG/KG
S4E02-21F-SS	481032.6832	4976932.264	6/5/2006	4.9		MG/KG
S4E02-22B-SS	481078.4128	4976946.927	6/5/2006	24		MG/KG
S4E02-22F-SS	481036.23	4976946.49	6/5/2006	52		MG/KG
S4E02-23B-SS	481065.205	4976963.067	6/5/2006	27.4		MG/KG
S4E02-23F-SS	481032.3459	4976966.867	6/5/2006	31.9		MG/KG
S4E02-24B-SS	481062.6304	4976981.59	6/5/2006	8.2		MG/KG
S4E02-24F-SS	481033.6931	4976977.972	6/5/2006	41.7		MG/KG
S4E02-24S-SS	481044.2067	4976976.09	6/5/2006	11.1		MG/KG
S4E02-24S-SSR	481044.2105	4976976.395	6/5/2006	5.1		MG/KG
S4E02-25B-SS	481063.9619	4976987.14	6/5/2006	4.7	J	MG/KG
S4E02-25F-SS	481031.5176	4976992.118	6/5/2006	3.7	J	MG/KG
S4E02-25F-SSD	481031.5213	4976992.423	6/5/2006	3.9	J	MG/KG
S4E02-26B-SS	481056.1443	4977011.232	6/5/2006	4.7		MG/KG
S4E02-26F-SS	481031.319	4977006.475	6/5/2006	5.4		MG/KG
S4E03-01B-SS	481239.7621	4976855.168	6/5/2006	3.5	J	MG/KG
S4E03-01F-SS	481268.6945	4976856.936	6/5/2006	3.6	J	MG/KG
S4E03-02F-SS	481224.5705	4976856.166	6/5/2006	3.8	J	MG/KG
S4E03-02S-SS	481234.546	4976869.996	6/5/2006	4.6	J	MG/KG
S4E03-03B-SS	481205.6525	4976881.19	6/5/2006	5	J	MG/KG
S4E03-03F-SS	481205.5873	4976858.972	6/5/2006	4.9	J	MG/KG
S4E03-04B-SS	481187.2181	4976855.191	6/5/2006	4.3	J	MG/KG
S4E03-04B-SSR	481187.2219	4976855.496	6/5/2006	6		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4E03-04F-SS	481166.3161	4976862.74	6/5/2006	3.5	J+	MG/KG
S4E03-05B-SS	481183.267	4976870.147	6/5/2006	4.3	J	MG/KG
S4E03-05F-SS	481166.1321	4976872.485	6/5/2006	5.2	J	MG/KG
S4E03-06B-SS	481191.216	4976890.489	6/5/2006	5.9		MG/KG
S4E03-06F-SS	481165.6196	4976887.287	6/5/2006	5.2	J	MG/KG
S4E03-07B-SS	481187.2932	4976897.907	6/5/2006	6.4		MG/KG
S4E03-07F-SS	481165.4676	4976902.59	6/5/2006	6.2		MG/KG
S4E03-08B-SS	481188.6573	4976914.566	6/5/2006	3.9	J	MG/KG
S4E03-08F-SS	481166.3054	4976914.632	6/5/2006	6.4		MG/KG
S4E03-09B-SS	481186.0714	4976929.385	6/5/2006	25.8		MG/KG
S4E03-09F-SS	481165.0557	4976936.853	6/5/2006	51.6	J	MG/KG
S4E03-11F-SS	481166.605	4976960.866	6/5/2006	3.1	J	MG/KG
S4E06-04B-SS	481579.9319	4976996.693	6/5/2006	26.2		MG/KG
S4E06-04F-SS	481614.2503	4977013.269	6/5/2006	22.9		MG/KG
S4E06-05B-SS	481610.9322	4976987.396	6/5/2006	8.8		MG/KG
S4E06-05F-SS	481627.077	4976992.329	6/5/2006	12.9		MG/KG
S4E07-02F-SS	481714.0021	4977056.276	6/5/2006	6.7		MG/KG
S4E07-03B-SS	481688.6546	4977039.014	6/5/2006	15		MG/KG
S4E07-03F-SS	481715.291	4977034.659	6/5/2006	27.2		MG/KG
S4E07-04B-SS	481675.2679	4977030.314	6/5/2006	7		MG/KG
S4E07-04S-SS	481652.5486	4977029.884	6/5/2006	8.3		MG/KG
S4E07-04S-SSR	481652.5523	4977030.189	6/5/2006	19.7		MG/KG
S4E07-07B-SS	481692.5514	4977022.339	6/5/2006	6.2		MG/KG
S4E07-07F-SS	481716.218	4977022.272	6/5/2006	5.7		MG/KG
S4E07-11F-SS	481680.7528	4976885.424	6/5/2006	5.5	J	MG/KG
S4E07-12B-SS	481672.4792	4976900.201	6/5/2006	4.9	J	MG/KG
S4E07-12F-SS	481670.7245	4976906.537	6/5/2006	4.7	J	MG/KG
S4E07-13F-SS	481661.5225	4976920.728	6/5/2006	7.1	J	MG/KG
S4E07-14B-SS	481637.0264	4976916.966	6/5/2006	7.7		MG/KG
S4E07-14F-SS	481659.4215	4976931.713	6/5/2006	7	J	MG/KG
S4E07-15B-SS	481635.7546	4976931.781	6/5/2006	6.4	J	MG/KG
S4E07-15F-SS	481651.5069	4976942.158	6/5/2006	7.1	J	MG/KG
S4E07-16B-SS	481629.2065	4976941.057	6/5/2006	5.6	J	MG/KG
S4E07-16F-SS	481646.3208	4976948.413	6/5/2006	4	J	MG/KG
S4E07-17B-SS	481620.0298	4976950.341	6/5/2006	7.1	J	MG/KG
S4E07-17F-SS	481646.3579	4976961.374	6/5/2006	7	J	MG/KG
S4E07-18B-SS	481613.4529	4976955.968	6/5/2006	6.5	J	MG/KG
S4E07-18F-SS	481633.459	4976966.298	6/5/2006	8.3	J	MG/KG
S4E07-19F-SS	481634.96	4976977.916	6/5/2006	7.7	J	MG/KG
S4E08-01B-SS	481776.7998	4977057.277	6/5/2006	8.2		MG/KG
S4E08-01B-SSR	481776.8036	4977057.582	6/5/2006	13.8		MG/KG
S4E08-01F-SS	481753.1122	4977049.938	6/5/2006	15.6		MG/KG
S4E08-02B-SS	481818.8575	4977051.603	6/5/2006	5.7		MG/KG
S4E08-02F-SS	481842.5241	4977051.536	6/5/2006	7.2		MG/KG
S4E08-02F-SSD	481842.5278	4977051.84	6/5/2006	7.3		MG/KG
S4E08-03B-SS	481814.85	4977029.397	6/5/2006	10.8		MG/KG
S4E08-03B-SSR	481814.8537	4977029.702	6/5/2006	9		MG/KG
S4E08-03F-SS	481841.152	4977031.173	6/5/2006	6.7		MG/KG
S4E08-04B-SS	481797.621	4977016.732	6/5/2006	7.7		MG/KG
S4E08-04B-SSD	481797.6247	4977017.037	6/5/2006	6.8		MG/KG
S4E08-04F-SS	481839.7512	4977016.96	6/5/2006	6.7		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4E08-05B-SS	481813.4831	4977010.886	6/5/2006	21.5		MG/KG
S4E08-05F-SS	481842.4085	4977010.804	6/5/2006	7.1		MG/KG
S4E08-06B-SS	481799.2616	4976992.147	6/5/2006	7.6		MG/KG
S4E08-06F-SS	481837.3874	4976991.855	6/5/2006	6.4		MG/KG
S4E08-07B-SS	481809.4281	4976972.017	6/5/2006	6.8		MG/KG
S4E08-07F-SS	481835.7295	4976973.794	6/5/2006	5.7		MG/KG
S4E08-08B-SS	481809.407	4976964.611	6/5/2006	7.1		MG/KG
S4E08-08F-SS	481839.653	4976966.377	6/5/2006	8.6		MG/KG
S4E08-09B-SS	481810.674	4976947.944	6/5/2006	15.4		MG/KG
S4E08-09B-SSD	481810.6777	4976948.249	6/5/2006	16.7		MG/KG
S4E08-09F-SS	481838.5626	4976949.792	6/5/2006	22.6		MG/KG
S4E08-10B-SS	481821.151	4976933.103	6/5/2006	15		MG/KG
S4E08-10F-SS	481837.4657	4976934.764	6/5/2006	10.8		MG/KG
S4E08-11F-SS	481838.6789	4976922.65	6/5/2006	10.2		MG/KG
S4E08-12B-SS	481810.574	4976912.768	6/5/2006	52.6		MG/KG
S4E08-12F-SS	481837.3475	4976908.45	6/5/2006	36.9		MG/KG
S4E08-13B-SS	481806.5926	4976899.818	6/5/2006	9.2		MG/KG
S4E08-13F-SS	481838.8265	4976896.778	6/5/2006	9.9		MG/KG
S4E08-14B-SS	481806.54	4976881.304	6/5/2006	9.4		MG/KG
S4E08-14F-SS	481839.4775	4976881.276	6/5/2006	8		MG/KG
S4E08-15B-SS	481753.9415	4976879.603	6/5/2006	8.2		MG/KG
S4E08-15F-SS	481744.488	4976880.256	6/5/2006	7.7		MG/KG
S4E08-16B-SS	481785.5452	4976896.176	6/5/2006	7.3		MG/KG
S4E08-16F-SS	481746.0948	4976894.436	6/5/2006	7.7		MG/KG
S4E08-17B-SS	481780.3383	4976914.704	6/5/2006	6.9		MG/KG
S4E08-17F-SS	481745.6506	4976908.597	6/5/2006	6.3		MG/KG
S4E08-18F-SS	481746.8918	4976922.125	6/5/2006	11.7		MG/KG
S4E08-19B-SS	481760.6738	4976935.127	6/5/2006	9.9		MG/KG
S4E08-19F-SS	481743.5966	4976940.73	6/5/2006	9.8		MG/KG
S4E08-20B-SS	481772.5653	4976955.459	6/5/2006	7.8		MG/KG
S4E08-20B-SSR	481772.569	4976955.763	6/5/2006	8.5		MG/KG
S4E08-20F-SS	481744.6529	4976951.815	6/5/2006	8.1		MG/KG
S4E08-21B-SS	481769.9517	4976961.021	6/5/2006	7.6		MG/KG
S4E08-21F-SS	481743.506	4976962.964	6/5/2006	7.7		MG/KG
S4E08-22B-SS	481775.2685	4976981.371	6/5/2006	7.2		MG/KG
S4E08-22F-SS	481741.0887	4976983.32	6/5/2006	8.8		MG/KG
S4E08-24B-SS	481771.361	4976994.343	6/5/2006	9.4		MG/KG
S4E08-24F-SS	481743.789	4976991.934	6/5/2006	9.4		MG/KG
S4E08-26B-SS	481774.0703	4977022.107	6/5/2006	9.6		MG/KG
S4E08-26F-SS	481742.52	4977024.049	6/5/2006	11.2		MG/KG
S4E08-27B-SS	481770.1839	4977042.483	6/5/2006	8		MG/KG
S4E08-27F-SS	481743.8819	4977040.708	6/5/2006	8.7		MG/KG
S4E08-27F-SSR	481743.8856	4977041.012	6/5/2006	7.4		MG/KG
S4E09-01B-SS	481891.1721	4977051.398	6/5/2006	11.7		MG/KG
S4E09-01F-SS	481875.4155	4977058.848	6/5/2006	4.6	J	MG/KG
S4E09-02B-SS	481927.426	4977051.916	6/5/2006	36.4		MG/KG
S4E09-02F-SS	481962.1616	4977057.503	6/5/2006	15.5		MG/KG
S4E09-02F-SSR	481962.1654	4977057.808	6/5/2006	13.2		MG/KG
S4E09-03B-SS	481935.8392	4977038.311	6/5/2006	106		MG/KG
S4E09-03F-SS	481962.1352	4977038.237	6/5/2006	78.1		MG/KG
S4E09-04B-SS	481938.4425	4977029.047	6/5/2006	6.2		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4E09-04F-SS	481965.0247	4977025.951	6/5/2006	25.8		MG/KG
S4E09-05B-SS	481941.0352	4977016.079	6/5/2006	87.2		MG/KG
S4E09-05B-SSD	481941.039	4977016.384	6/5/2006	118		MG/KG
S4E09-05F-SS	481964.3965	4977014.222	6/5/2006	115		MG/KG
S4E09-06B-SS	481934.4353	4977006.841	6/5/2006	12.8		MG/KG
S4E09-06F-SS	481966.5123	4977003.054	6/5/2006	32.3	J	MG/KG
S4E09-07B-SS	481937.0072	4976986.467	6/5/2006	10.4	J	MG/KG
S4E09-07F-SS	481967.2538	4976988.233	6/5/2006	6.6	J	MG/KG
S4E09-08B-SS	481938.5294	4976978.408	6/5/2006	7.2	J	MG/KG
S4E09-08F-SS	481958.2569	4976980.203	6/5/2006	7.2	J	MG/KG
S4E09-09B-SS	481939.5903	4976969.796	6/5/2006	7.7	J	MG/KG
S4E09-09F-SS	481963.2519	4976967.879	6/5/2006	6.4	J	MG/KG
S4E09-09F-SSD	481963.2556	4976968.184	6/5/2006	6.5	J	MG/KG
S4E09-10B-SS	481943.4721	4976947.568	6/5/2006	7.4	J	MG/KG
S4E09-10F-SS	481967.1546	4976953.056	6/5/2006	6.6	J	MG/KG
S4E09-11B-SS	481943.7987	4976932.997	6/5/2006	6.8	J	MG/KG
S4E09-11F-SS	481961.858	4976936.486	6/5/2006	8.6	J	MG/KG
S4E09-12B-SS	481938.1393	4976921.663	6/5/2006	6.4	J	MG/KG
S4E09-12F-SS	481965.7613	4976925.288	6/5/2006	6.6	J	MG/KG
S4E09-12F-SSR	481965.765	4976925.592	6/5/2006	6.4	J	MG/KG
S4E09-13B-SS	481938.1132	4976912.406	6/5/2006	7.4	J	MG/KG
S4E09-13F-SS	481964.0837	4976910.509	6/5/2006	9	J	MG/KG
S4E09-14B-SS	481922.7256	4976894.331	6/5/2006	9.6	J	MG/KG
S4E09-14B-SSR	481922.7293	4976894.635	6/5/2006	8.6	J	MG/KG
S4E09-14F-SS	481962.5303	4976893.743	6/5/2006	17.9	J	MG/KG
S4E09-15B-SS	481934.0955	4976886.497	6/5/2006	7.6	J	MG/KG
S4E09-15F-SS	481964.0002	4976880.886	6/5/2006	7.2	J	MG/KG
S4E09-15S-SS	481949.8423	4976875.343	6/5/2006	6.9	J	MG/KG
S4E09-16B-SS	481890.7619	4976876.958	6/5/2006	7.5	J	MG/KG
S4E09-16F-SS	481871.3596	4976886.547	6/5/2006	6.2	J	MG/KG
S4E09-17B-SS	481885.4986	4976905.149	6/5/2006	5.2	J	MG/KG
S4E09-17F-SS	481869.6216	4976907.088	6/5/2006	5.5	J	MG/KG
S4E09-18B-SS	481898.6996	4976923.626	6/5/2006	7.2	J	MG/KG
S4E09-18F-SS	481870.7369	4976924.28	6/5/2006	7.9	J	MG/KG
S4E09-19B-SS	481889.5374	4976938.464	6/5/2006	8.1	J	MG/KG
S4E09-19B-SSR	481889.5412	4976938.768	6/5/2006	7.6	J	MG/KG
S4E09-19F-SS	481871.1196	4976934.813	6/5/2006	7.9	J	MG/KG
S4E09-20B-SS	481885.6139	4976945.881	6/5/2006	20.2	J	MG/KG
S4E09-20F-SS	481869.5363	4976950.852	6/5/2006	30.2	J	MG/KG
S4E09-21B-SS	481893.571	4976969.926	6/5/2006	7.5	J	MG/KG
S4E09-21F-SS	481867.2695	4976968.15	6/5/2006	7.5	J	MG/KG
S4E09-22B-SS	481883.0841	4976981.065	6/5/2006	7.1	J	MG/KG
S4E09-22F-SS	481867.3063	4976981.11	6/5/2006	7.8	J	MG/KG
S4E09-23B-SS	481897.5783	4976992.133	6/5/2006	9.6	J	MG/KG
S4E09-23B-SSD	481897.582	4976992.437	6/5/2006	10.7	J	MG/KG
S4E09-23F-SS	481869.4349	4976990.252	6/5/2006	7.1		MG/KG
S4E09-24B-SS	481894.9856	4977005.1	6/5/2006	9.1		MG/KG
S4E09-24F-SS	481870.9786	4977003.933	6/5/2006	8.8		MG/KG
S4E09-25B-SS	481900.2818	4977018.046	6/5/2006	10.4		MG/KG
S4E09-25F-SS	481869.9191	4977021.811	6/5/2006	8.9		MG/KG
S4E09-26B-SS	481872.6969	4977027.381	6/5/2006	64.2		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4E09-26F-SS	481871.4081	4977036.641	6/5/2006	85.3		MG/KG
S4E09-27B-SS	481891.1119	4977046.48	6/5/2006	13.9		MG/KG
S4E09-27B-SSD	481891.1156	4977046.784	6/5/2006	13.5		MG/KG
S4E09-27F-SS	481871.0432	4977044.638	6/5/2006	10.5		MG/KG
S4E10-01AE-SS	482071.3263	4977060.147	6/4/2006	12.3		MG/KG
S4E10-01AW-SS	481994.0407	4977058.332	6/4/2006	2.3	J	MG/KG
S4E10-01AW-SSD	481994.0445	4977058.637	6/4/2006	1.5	J	MG/KG
S4E10-01BE-SS	482067.138	4976973.141	6/4/2006	1.6	J	MG/KG
S4E10-01BW-SS	481994.8702	4976990.007	6/4/2006	2.3	J	MG/KG
S4E10-01CE-SS	482072.3405	4976952.76	6/4/2006	5.6		MG/KG
S4E10-01CW-SS	481992.1462	4976956.689	6/4/2006	6.1		MG/KG
S4E10-01DE-SS	482053.8086	4976908.377	6/4/2006	6.8		MG/KG
S4E10-01DW-SS	482018.3184	4976912.18	6/5/2006	4.7	J	MG/KG
S4E10-01EE-SS	482052.4415	4976889.867	6/4/2006	5.5	J	MG/KG
S4E10-01EW-SS	482015.6362	4976893.673	6/4/2006	5.3	J	MG/KG
S4W01-01AE-SS	480845.7847	4977015.562	6/4/2006	5.1	J	MG/KG
S4W01-01AW-SS	480803.7387	4977024.944	6/4/2006	4.6	J	MG/KG
S4W01-01BE-SS	480851.0054	4977002.585	6/4/2006	7		MG/KG
S4W01-01BW-SS	480802.3736	4977008.285	6/4/2006	4.8	J	MG/KG
S4W01-01CE-SS	480846.037	4976995.345	6/4/2006	3.8	J	MG/KG
S4W01-01CW-SS	480803.6109	4976982.362	6/4/2006	6		MG/KG
S4W01-01DE-SS	480845.6849	4976982.236	6/4/2006	5.3		MG/KG
S4W01-01DW-SS	480800.6453	4976997.325	6/4/2006	7.1		MG/KG
S4W01-01EE-SS	480846.9557	4976967.419	6/4/2006	5.5		MG/KG
S4W01-01EW-SS	480804.8752	4976965.695	6/4/2006	4.9	J	MG/KG
S4W02-01F-SS	480772.1598	4977024.625	6/4/2006	3	J	MG/KG
S4W02-01G-SS	480731.9723	4977028.322	6/4/2006	3.9	J	MG/KG
S4W02-01H-SS	480694.6143	4977027.125	6/4/2006	3	J	MG/KG
S4W02-01I-SS	480694.8696	4976984.148	6/4/2006	2.9	J	MG/KG
S4W02-01J-SS	480694.43	4976966.027	6/4/2006	4	J	MG/KG
S4W02-01K-SS	480692.9034	4976895.676	6/4/2006	4.4	J	MG/KG
S4W02-01L-SS	480696.8945	4976869.828	6/4/2006	4.9	J	MG/KG
S4W02-01M-SS	480705.9451	4976860.46	6/4/2006	4.6	J	MG/KG
S4W02-01N-SS	480725.6846	4976865.954	6/4/2006	3.9	J	MG/KG
S4W02-01O-SS	480758.3525	4976860.216	6/4/2006	4.5	J	MG/KG
S4W02-01P-SS	480786.1733	4976867.623	6/4/2006	2.2	J	MG/KG
S4W03-01B-SS	480597.2848	4977016.31	6/14/2006	4.3	J	MG/KG
S4W03-01F-SS	480593.3628	4977023.728	6/14/2006	4.8	J	MG/KG
S4W03-02F-SS	480605.2309	4977031.808	6/14/2006	4	J	MG/KG
S4W03-02F-SSR	480605.2346	4977032.113	6/14/2006	11.2		MG/KG
S4W03-04B-SS	480636.9874	4977024.704	6/14/2006	3.6	J	MG/KG
S4W03-04F-SS	480670.9423	4977025.344	6/14/2006	4.2	J	MG/KG
S4W03-05B-SS	480641.9773	4977012.472	6/14/2006	3.7	J	MG/KG
S4W03-05F-SS	480672.2292	4977016.083	6/14/2006	5.3	J	MG/KG
S4W03-06B-SS	480649.8213	4976997.636	6/14/2006	3	J	MG/KG
S4W03-06F-SS	480672.1509	4976990.163	6/14/2006	3.6	J	MG/KG
S4W03-07B-SS	480653.721	4976982.813	6/14/2006	6.2		MG/KG
S4W03-07F-SS	480673.4378	4976980.902	6/14/2006	7.2		MG/KG
S4W03-08B-SS	480652.3614	4976968.005	6/14/2006	5.8		MG/KG
S4W03-08F-SS	480669.4267	4976964.927	6/14/2006	5	J	MG/KG
S4W03-09B-SS	480648.3609	4976949.503	6/14/2006	5.9		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4W03-09F-SS	480670.7298	4976954.99	6/14/2006	5	J	MG/KG
S4W03-10B-SS	480650.9346	4976930.981	6/14/2006	8.5		MG/KG
S4W03-10F-SS	480669.9866	4976934.882	6/14/2006	5.9		MG/KG
S4W03-11B-SS	480650.9066	4976921.723	6/14/2006	9.1		MG/KG
S4W03-11F-SS	480671.9328	4976917.957	6/14/2006	7.4		MG/KG
S4W03-12B-SS	480649.5526	4976908.767	6/14/2006	8.3		MG/KG
S4W03-12F-SS	480670.0169	4976905.268	6/14/2006	6.1		MG/KG
S4W03-13B-SS	480652.1207	4976888.393	6/14/2006	6.4		MG/KG
S4W03-13F-SS	480668.8728	4976888.62	6/14/2006	6.4		MG/KG
S4W03-14B-SS	480650.7499	4976869.883	6/14/2006	5.7	J	MG/KG
S4W03-14F-SS	480670.4837	4976873.526	6/14/2006	5.4	J	MG/KG
S4W03-14F-SSD	480670.4874	4976873.831	6/14/2006	6.7		MG/KG
S4W03-15F-SS	480670.439	4976858.715	6/14/2006	4.5	J	MG/KG
S4W03-19B-SS	480615.3556	4976905.168	6/14/2006	4.4	J	MG/KG
S4W03-19F-SS	480593.9493	4976909.891	6/14/2006	3.3	J-	MG/KG
S4W03-20B-SS	480621.9803	4976921.811	6/14/2006	14.4		MG/KG
S4W03-20F-SS	480598.3076	4976920.031	6/14/2006	5.5	J-	MG/KG
S4W03-20S-SS	480610.1748	4976931.104	6/14/2006	6.3	J-	MG/KG
S4W03-21B-SS	480623.3287	4976932.916	6/14/2006	4.6	J-	MG/KG
S4W03-21F-SS	480598.3694	4976940.397	6/14/2006	5.1	J-	MG/KG
S4W03-21F-SSD	480598.3731	4976940.702	6/14/2006	5.6	J-	MG/KG
S4W03-22B-SS	480618.1143	4976947.743	6/14/2006	4.5	J	MG/KG
S4W03-22F-SS	480595.256	4976947.942	6/14/2006	4.2	J	MG/KG
S4W03-23B-SS	480614.2259	4976966.269	6/14/2006	4.8	J	MG/KG
S4W03-23F-SS	480597.1219	4976962.618	6/14/2006	4.2	J	MG/KG
S4W03-24B-SS	480619.5357	4976982.916	6/14/2006	8.7		MG/KG
S4W03-24F-SS	480597.1725	4976979.281	6/14/2006	5.6		MG/KG
S4W04-01B-SS	480513.1479	4977020.269	6/14/2006	5.3	J+	MG/KG
S4W04-01F-SS	480509.243	4977033.241	6/14/2006	5.4		MG/KG
S4W04-01SE-SS	480530.2518	4977023.919	6/14/2006	5.9		MG/KG
S4W04-01SW-SS	480500.0224	4977027.714	6/14/2006	2.6	J	MG/KG
S4W04-02B-SS	480546.007	4977016.466	6/14/2006	3.5	J	MG/KG
S4W04-02F-SS	480542.1954	4977031.48	6/14/2006	5.4	J	MG/KG
S4W04-03B-SS	480560.4812	4977020.125	6/14/2006	6.9		MG/KG
S4W04-03F-SS	480571.6964	4977022.747	6/14/2006	4.7	J	MG/KG
S4W04-04B-SS	480555.2107	4977016.438	6/14/2006	6.2		MG/KG
S4W04-04F-SS	480571.9026	4977012.877	6/14/2006	6.1		MG/KG
S4W04-05B-SS	480538.0525	4976997.51	6/14/2006	4.3	J	MG/KG
S4W04-05F-SS	480570.8398	4976994.222	6/14/2006	4	J	MG/KG
S4W04-06B-SS	480551.1481	4976977.569	6/14/2006	48.6		MG/KG
S4W04-06F-SS	480573.5225	4976984.907	6/14/2006	115		MG/KG
S4W04-06F-SSR	480573.5263	4976985.212	6/14/2006	162		MG/KG
S4W04-07F-SS	480569.5275	4976968.256	6/14/2006	365		MG/KG
S4W04-07S-SS	480539.7752	4976964.294	6/14/2006	99.6		MG/KG
S4W04-08B-SS	480548.434	4976949.806	6/14/2006	39.9		MG/KG
S4W04-08F-SS	480566.8304	4976946.047	6/14/2006	8.5		MG/KG
S4W04-09B-SS	480548.4059	4976940.549	6/14/2006	39.3		MG/KG
S4W04-09F-SS	480570.7242	4976929.372	6/14/2006	58.3		MG/KG
S4W04-10B-SS	480548.3608	4976925.737	6/14/2006	9.3		MG/KG
S4W04-10F-SS	480568.0833	4976925.677	6/14/2006	15.2		MG/KG
S4W04-11B-SS	480545.6805	4976909.082	6/14/2006	39.6		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4W04-11F-SS	480569.992	4976905.999	6/14/2006	51		MG/KG
S4W04-12B-SS	480544.3038	4976888.72	6/14/2006	6.3		MG/KG
S4W04-12F-SS	480571.9098	4976886.785	6/14/2006	29.7		MG/KG
S4W04-13B-SS	480552.1534	4976875.736	6/14/2006	5.3	J	MG/KG
S4W04-13F-SS	480571.8873	4976879.379	6/14/2006	5.4	J	MG/KG
S4W04-13F-SSD	480571.891	4976879.684	6/14/2006	5.1	J	MG/KG
S4W04-14B-SS	480546.8603	4976864.644	6/14/2006	6.4		MG/KG
S4W04-14F-SS	480571.848	4976866.419	6/14/2006	6.4		MG/KG
S4W04-15B-SS	480520.5464	4976859.169	6/14/2006	6.3		MG/KG
S4W04-15F-SS	480495.5644	4976859.246	6/14/2006	6.8		MG/KG
S4W04-16B-SS	480527.1657	4976873.961	6/14/2006	6.5		MG/KG
S4W04-16F-SS	480494.2947	4976874.061	6/14/2006	5.8		MG/KG
S4W04-16F-SSR	480494.2984	4976874.366	6/14/2006	6		MG/KG
S4W04-17B-SS	480523.2606	4976886.933	6/14/2006	5.8		MG/KG
S4W04-17F-SS	480499.6048	4976890.708	6/14/2006	6.5		MG/KG
S4W04-18B-SS	480525.9467	4976905.439	6/14/2006	4	J	MG/KG
S4W04-18F-SS	480500.9479	4976899.961	6/14/2006	5.3		MG/KG
S4W04-19FN-SS	480498.5044	4976961.067	6/14/2006	4.9	J	MG/KG
S4W04-19FS-SS	480501.072	4976940.693	6/14/2006	5.3		MG/KG
S4W04-19S-SS	480512.8341	4976969.045	6/14/2006	5.3	J	MG/KG
S4W04-21B-SS	480524.4775	4976994.394	6/14/2006	5.4		MG/KG
S4W04-21F-SS	480498.1868	4976996.326	6/14/2006	5.1	J	MG/KG
S4W04-22B-SS	480523.627	4977007.276	6/14/2006	7.2		MG/KG
S4W04-22F-SS	480497.3363	4977009.208	6/14/2006	5	J	MG/KG
S4W05-01B-SS	480410.6378	4977035.393	6/14/2006	2.9	J	MG/KG
S4W05-01F-SS	480394.8544	4977033.59	6/14/2006	3.4	J	MG/KG
S4W05-02B-SS	480422.1752	4977014.271	6/14/2006	4	J	MG/KG
S4W05-02F-SS	480421.8297	4977033.602	6/14/2006	4.6	J	MG/KG
S4W05-03B-SS	480433.6647	4977029.836	6/14/2006	4.4	J	MG/KG
S4W05-03F-SS	480467.8748	4977029.52	6/14/2006	5.1		MG/KG
S4W05-03F-SSR	480467.8785	4977029.825	6/14/2006	4.3	J	MG/KG
S4W05-04B-SS	480444.7494	4977011.22	6/14/2006	3.5	J	MG/KG
S4W05-04F-SS	480466.1994	4977017.63	6/14/2006	5.5		MG/KG
S4W05-05B-SS	480447.3959	4977016.766	6/14/2006	4.6	J	MG/KG
S4W05-05F-SS	480468.416	4977011.148	6/14/2006	4.8	J	MG/KG
S4W05-06B-SS	480434.0724	4976994.992	6/14/2006	3.7	J	MG/KG
S4W05-06F-SS	480467.0504	4976994.787	6/14/2006	5.3	J	MG/KG
S4W05-07B-SS	480440.1391	4976982.202	6/14/2006	3.5	J	MG/KG
S4W05-07F-SS	480467.6627	4976983.308	6/14/2006	3.9	J	MG/KG
S4W05-08B-SS	480432.5214	4976970.728	6/14/2006	4.5	J	MG/KG
S4W05-08F-SS	480466.9938	4976975.974	6/14/2006	5	J	MG/KG
S4W05-09B-SS	480447.2262	4976961.223	6/14/2006	4	J	MG/KG
S4W05-09F-SS	480462.9759	4976951.918	6/14/2006	3	J	MG/KG
S4W05-09S-SS	480449.8672	4976964.918	6/14/2006	3.5	J	MG/KG
S4W05-10B-SS	480447.1414	4976933.452	6/14/2006	3.9	J	MG/KG
S4W05-10F-SS	480469.4991	4976935.235	6/14/2006	3.6	J	MG/KG
S4W05-11B-SS	480441.8537	4976924.21	6/14/2006	4.9	J	MG/KG
S4W05-11F-SS	480466.8129	4976916.728	6/14/2006	6.3		MG/KG
S4W05-12B-SS	480439.1674	4976905.704	6/14/2006	4.9	J	MG/KG
S4W05-12F-SS	480468.1108	4976911.17	6/14/2006	179		MG/KG
S4W05-12S-SS	480453.6306	4976905.66	6/14/2006	11.8		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4W05-13B-SS	480450.9444	4976887.154	6/14/2006	4.7	J	MG/KG
S4W05-13F-SS	480467.231	4976890.51	6/14/2006	12.1		MG/KG
S4W05-14F-SS	480467.9752	4976866.735	6/14/2006	10.8		MG/KG
S4W05-14SN-SS	480458.7848	4976880.375	6/14/2006	6.3		MG/KG
S4W05-14SS-SS	480450.8709	4976863.085	6/14/2006	5.9		MG/KG
S4W05-15F-SS	480391.7028	4976863.266	6/14/2006	47.7		MG/KG
S4W05-15S-SS	480412.6065	4976857.287	6/14/2006	43.1		MG/KG
S4W05-16B-SS	480408.8412	4976878.025	6/14/2006	4.3	J	MG/KG
S4W05-16F-SS	480389.1185	4976878.085	6/14/2006	4.8	J	MG/KG
S4W05-17B-SS	480420.7087	4976889.097	6/14/2006	5.3		MG/KG
S4W05-17F-SS	480391.0707	4976890.886	6/14/2006	5.6		MG/KG
S4W05-18B-SS	480422.0802	4976907.608	6/14/2006	5.9		MG/KG
S4W05-18F-SS	480401.0598	4976913.227	6/14/2006	5	J	MG/KG
S4W05-19F-SS	480392.4575	4976921.501	6/14/2006	30.2		MG/KG
S4W05-20B-SS	480411.6352	4976931.709	6/14/2006	2.8	J	MG/KG
S4W05-20F-SS	480391.907	4976929.918	6/14/2006	3.7	J	MG/KG
S4W05-21B-SS	480424.5639	4976951.825	6/14/2006	4.1	J	MG/KG
S4W05-21F-SS	480394.5878	4976946.572	6/14/2006	3	J	MG/KG
S4W05-21S-SS	480405.1291	4976953.946	6/14/2006	2	J	MG/KG
S4W05-21S-SSD	480405.1328	4976954.251	6/14/2006	2.6	J	MG/KG
S4W05-22B-SS	480410.4451	4976972.444	6/14/2006	4.8	J	MG/KG
S4W05-22F-SS	480392.0262	4976968.798	6/14/2006	4.6	J	MG/KG
S4W05-23B-SS	480411.7769	4976977.995	6/14/2006	3.5	J	MG/KG
S4W05-23G-SS	480390.7398	4976978.059	6/14/2006	16.6	J	MG/KG
S4W05-24B-SS	480419.6999	4976989.079	6/14/2006	3.7	J	MG/KG
S4W05-24F-SS	480393.4034	4976989.16	6/14/2006	4.3	J	MG/KG
S4W05-25B-SS	480412.4039	4976991.072	6/14/2006	3.6	J	MG/KG
S4W05-25F-SS	480395.3169	4976992.976	6/14/2006	3	J	MG/KG
S4W05-26B-SS	480424.217	4977000.209	6/14/2006	10.3		MG/KG
S4W05-26F-SS	480392.3101	4977000.558	6/14/2006	4	J	MG/KG
S4W05-27B-SS	480418.453	4977011.3	6/14/2006	4.3	J	MG/KG
S4W05-27F-SS	480390.8419	4977011.385	6/14/2006	5.3	J	MG/KG
S4W05-28B-SS	480410.5755	4977015.027	6/14/2006	4.2	J	MG/KG
S4W05-28F-SS	480392.1737	4977016.935	6/14/2006	3.7	J	MG/KG
S4W06-01S-SS	480296.5692	4977031.001	6/14/2006	6.4	J	MG/KG
S4W06-02B-SS	480305.3903	4977015.35	6/14/2006	8	J	MG/KG
S4W06-02F-SS	480305.3766	4977033.641	6/14/2006	5.3	J	MG/KG
S4W06-03B-SS	480310.6552	4977017.186	6/14/2006	5.7	J	MG/KG
S4W06-04B-SS	480327.7592	4977020.836	6/14/2006	5.1	J	MG/KG
S4W06-04S-SS	480325.1581	4977030.101	6/14/2006	5.3	J	MG/KG
S4W06-05B-SS	480348.836	4977033.731	6/14/2006	6.6	J	MG/KG
S4W06-05F-SS	480369.7226	4977029.464	6/14/2006	5.8	J	MG/KG
S4W06-06B-SS	480337.4776	4977018.059	6/14/2006	33.9	J	MG/KG
S4W06-06F-SS	480369.2466	4977017.597	6/14/2006	65.1	J	MG/KG
S4W06-07B-SS	480350.0712	4977007.807	6/14/2006	5.4	J	MG/KG
S4W06-07F-SS	480367.1525	4977004.052	6/14/2006	5.3	J	MG/KG
S4W06-08B-SS	480336.6805	4976996.701	6/14/2006	5.3	J	MG/KG
S4W06-08B-SSD	480336.6842	4976997.005	6/14/2006	5.3	J	MG/KG
S4W06-08F-SS	480368.9283	4976996.371	6/14/2006	4.1	J	MG/KG
S4W06-09B-SS	480340.7879	4976981.915	6/14/2006	7.5	J	MG/KG
S4W06-09F-SS	480367.5607	4976983.741	6/14/2006	9.1	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4W06-10B-SS	480349.9575	4976970.778	6/14/2006	54.1	J	MG/KG
S4W06-10F-SS	480368.8415	4976972.628	6/14/2006	34.9	J	MG/KG
S4W06-11B-SS	480343.3379	4976955.987	6/14/2006	10.8	J	MG/KG
S4W06-11F-SS	480370.1409	4976963.041	6/14/2006	10.9	J+	MG/KG
S4W06-12B-SS	480345.9391	4976946.722	6/14/2006	5.3	J+	MG/KG
S4W06-12F-SS	480367.8714	4976949.92	6/14/2006	5.9	J+	MG/KG
S4W06-12F-SSR	480367.8752	4976950.225	6/14/2006	6.4	J+	MG/KG
S4W06-13B-SS	480351.1643	4976935.597	6/14/2006	11.9	J+	MG/KG
S4W06-13F-SS	480368.3058	4976935.628	6/14/2006	41.6		MG/KG
S4W06-14B-SS	480348.4949	4976922.645	6/14/2006	7.5	J+	MG/KG
S4W06-14F-SS	480368.3783	4976920.141	6/14/2006	7.9	J+	MG/KG
S4W06-15B-SS	480347.1345	4976907.838	6/14/2006	5.9	J+	MG/KG
S4W06-15F-SS	480368.2961	4976905.956	6/14/2006	6.3	J+	MG/KG
S4W06-16B-SS	480343.1445	4976893.038	6/14/2006	5.9	J+	MG/KG
S4W06-16F-SS	480368.5916	4976891.165	6/14/2006	5.2	J+	MG/KG
S4W06-17B-SS	480343.0933	4976876.375	6/14/2006	6.6	J+	MG/KG
S4W06-17F-SS	480368.9682	4976876.324	6/14/2006	7.7	J+	MG/KG
S4W06-19F-SS	480327.264	4976859.761	6/14/2006	5.5	J+	MG/KG
S4W06-19S-SS	480306.2321	4976861.677	6/14/2006	6.3	J+	MG/KG
S4W06-20B-SS	480322.0615	4976878.291	6/14/2006	13.1	J+	MG/KG
S4W06-20F-SS	480294.427	4976870.971	6/14/2006	10.8	J+	MG/KG
S4W06-21B-SS	480324.7481	4976896.798	6/14/2006	5.4	J+	MG/KG
S4W06-21F-SS	480297.1308	4976895.031	6/14/2006	17		MG/KG
S4W06-22B-SS	480318.2081	4976907.926	6/14/2006	6.7		MG/KG
S4W06-22F-SS	480294.5297	4976904.296	6/14/2006	7.1		MG/KG
S4W06-22F-SSD	480294.5334	4976904.601	6/14/2006	7.9		MG/KG
S4W06-23B-SS	480320.8833	4976922.73	6/14/2006	6.7		MG/KG
S4W06-23F-SS	480293.2832	4976926.518	6/14/2006	6.3		MG/KG
S4W06-23F-SSD	480293.287	4976926.822	6/14/2006	6.8		MG/KG
S4W06-24B-SS	480319.6141	4976937.545	6/14/2006	4.5	J	MG/KG
S4W06-24F-SS	480299.903	4976941.309	6/14/2006	2.7	J	MG/KG
S4W06-25B-SS	480317.0186	4976948.662	6/14/2006	5		MG/KG
S4W06-25B-SSR	480317.0223	4976948.967	6/14/2006	4.3	J	MG/KG
S4W06-25F-SS	480295.5683	4976949.221	6/14/2006	3.8	J	MG/KG
S4W06-26B-SS	480326.2565	4976959.742	6/14/2006	5.7		MG/KG
S4W06-26F-SS	480295.1675	4976960.685	6/14/2006	5.5		MG/KG
S4W06-26F-SSR	480295.1712	4976960.99	6/14/2006	5.1		MG/KG
S4W06-27B-SS	480315.7835	4976974.586	6/14/2006	4.9		MG/KG
S4W06-27F-SS	480295.0942	4976972.196	6/14/2006	4.2	J	MG/KG
S4W06-28B-SS	480317.1154	4976980.137	6/14/2006	4.1	J	MG/KG
S4W06-28F-SS	480295.2322	4976983.991	6/14/2006	3.6	J	MG/KG
S4W06-29B-SS	480317.1667	4976996.799	6/14/2006	5.5		MG/KG
S4W06-29F-SS	480295.3996	4976993.748	6/14/2006	5.5		MG/KG
S4W06-30B-SS	480319.8248	4977006.049	6/14/2006	8.2		MG/KG
S4W06-30F-SS	480296.7912	4977006.077	6/14/2006	4.7	J	MG/KG
S4W07-01F-SS	480193.5471	4977030.472	6/15/2006	34		MG/KG
S4W07-02F-SS	480222.014	4977034.329	6/15/2006	5	J	MG/KG
S4W07-03F-SS	480238.3976	4977035.923	6/15/2006	6.5		MG/KG
S4W07-04B-SS	480246.4231	4977026.788	6/15/2006	6.8		MG/KG
S4W07-04F-SS	480268.6212	4977030.275	6/15/2006	4.7	J	MG/KG
S4W07-05B-SS	480233.7074	4977016.565	6/15/2006	6.9	J-	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4W07-05F-SS	480267.2492	4977011.765	6/15/2006	4.3	J-	MG/KG
S4W07-05F-SSD	480267.253	4977012.07	6/15/2006	4	J-	MG/KG
S4W07-06B-SS	480243.5483	4977000.729	6/15/2006	5.4	J-	MG/KG
S4W07-06F-SS	480269.8446	4977000.648	6/15/2006	2.8	J-	MG/KG
S4W07-06F-SSD	480269.8484	4977000.953	6/15/2006	3.6	J-	MG/KG
S4W07-07B-SS	480244.8288	4976989.617	6/15/2006	2.4	J-	MG/KG
S4W07-07F-SS	480265.5794	4976991.467	6/15/2006	2.2	J-	MG/KG
S4W07-08B-SS	480242.1591	4976976.665	6/15/2006	11.1	J	MG/KG
S4W07-08F-SS	480268.467	4976980.286	6/15/2006	3.6	J-	MG/KG
S4W07-08F-SSR	480268.4707	4976980.591	6/15/2006	3	J-	MG/KG
S4W07-09B-SS	480246.0579	4976961.841	6/15/2006	6.4	J-	MG/KG
S4W07-09F-SS	480266.5124	4976964.546	6/15/2006	2.1	J-	MG/KG
S4W07-10B-SS	480244.7087	4976950.736	6/15/2006	65	J	MG/KG
S4W07-10F-SS	480265.7574	4976954.374	6/15/2006	3.3	J-	MG/KG
S4W07-11B-SS	480240.7299	4976939.64	6/15/2006	67.4	J	MG/KG
S4W07-11F-SS	480264.3969	4976939.567	6/15/2006	93.1	J	MG/KG
S4W07-13B-SS	480244.6116	4976919.262	6/15/2006	3.8	J-	MG/KG
S4W07-13F-SS	480264.3112	4976911.795	6/15/2006	2.5	J-	MG/KG
S4W07-14B-SS	480240.6099	4976900.76	6/15/2006	3.8	J	MG/KG
S4W07-14F-SS	480268.2272	4976902.526	6/15/2006	4.2	J	MG/KG
S4W07-16B-SS	480218.1374	4976861.949	6/15/2006	7.7	J-	MG/KG
S4W07-16F-SS	480195.7793	4976860.166	6/15/2006	5.1	J	MG/KG
S4W07-17B-SS	480216.8798	4976880.467	6/16/2006	7.5		MG/KG
S4W07-17F-SS	480191.8806	4976874.99	6/15/2006	4	J	MG/KG
S4W07-18B-SS	480216.897	4976886.021	6/15/2006	6		MG/KG
S4W07-18F-SS	480192.3427	4976887.921	6/15/2006	4.1	J	MG/KG
S4W07-19B-SS	480216.9313	4976897.13	6/15/2006	2.6	J	MG/KG
S4W07-19F-SS	480195.9054	4976900.898	6/15/2006	3.1	J	MG/KG
S4W07-20B-SS	480218.2977	4976913.789	6/15/2006	3.3	J	MG/KG
S4W07-20F-SS	480191.9952	4976912.019	6/15/2006	3.2	J	MG/KG
S4W07-21B-SS	480214.3933	4976926.761	6/15/2006	5.5	J	MG/KG
S4W07-21F-SS	480193.3502	4976924.975	6/15/2006	4.7	J	MG/KG
S4W07-22B-SS	480225.9888	4976938.387	6/15/2006	8		MG/KG
S4W07-22B-SSR	480225.9925	4976938.692	6/15/2006	7		MG/KG
S4W07-22F-SS	480192.403	4976937.987	6/15/2006	3.1	J	MG/KG
S4W07-23B-SS	480218.4179	4976952.669	6/15/2006	4.6	J	MG/KG
S4W07-23F-SS	480192.1156	4976950.899	6/15/2006	4.5	J	MG/KG
S4W07-24B-SS	480224.6308	4976964.795	6/15/2006	16.7		MG/KG
S4W07-24F-SS	480193.482	4976967.558	6/15/2006	3.9	J	MG/KG
S4W07-25B-SS	480222.4311	4976974.874	6/15/2006	3.1	J	MG/KG
S4W07-25F-SS	480194.8312	4976978.662	6/15/2006	3.9	J	MG/KG
S4W07-26B-SS	480214.5822	4976987.859	6/15/2006	3.3	J	MG/KG
S4W07-26F-SS	480197.4895	4976987.912	6/15/2006	3.6	J	MG/KG
S4W07-27B-SS	480224.0141	4977003.033	6/15/2006	7.8		MG/KG
S4W07-27F-SS	480192.2704	4977000.888	6/15/2006	8.1		MG/KG
S4W07-28B-SS	480217.3091	4977019.325	6/15/2006	20.4		MG/KG
S4W07-28F-SS	480193.6196	4977011.992	6/15/2006	17		MG/KG
S4W08-01B-SS	480121.345	4977025.177	6/15/2006	25.5		MG/KG
S4W08-01F-SS	480099.0162	4977032.652	6/15/2006	54.8		MG/KG
S4W08-03B-SS	480136.8588	4976991.55	6/15/2006	6.3		MG/KG
S4W08-03F-SS	480169.9416	4976990.398	6/15/2006	11		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4W08-04B-SS	480147.4804	4976973.255	6/15/2006	219		MG/KG
S4W08-04B-SSR	480147.4841	4976973.56	6/15/2006	434		MG/KG
S4W08-04F-SS	480169.7757	4976976.612	6/15/2006	46.4		MG/KG
S4W08-05B-SS	480148.7722	4976965.845	6/15/2006	112		MG/KG
S4W08-05F-SS	480169.798	4976962.077	6/15/2006	28.7		MG/KG
S4W08-06B-SS	480143.4555	4976947.347	6/15/2006	5.8		MG/KG
S4W08-06F-SS	480169.51	4976953.181	6/15/2006	17.7		MG/KG
S4W08-07B-SS	480147.3597	4976934.375	6/15/2006	5.1	J	MG/KG
S4W08-07F-SS	480171.0325	4976936.153	6/15/2006	6.7	J	MG/KG
S4W08-07F-SSD	480171.0362	4976936.457	6/15/2006	5.9	J	MG/KG
S4W08-08B-SS	480149.9492	4976921.406	6/15/2006	6.3	J	MG/KG
S4W08-08F-SS	480168.3684	4976925.052	6/15/2006	6.4	J	MG/KG
S4W08-09B-SS	480147.2966	4976914.009	6/15/2006	7.1	J	MG/KG
S4W08-09F-SS	480169.2268	4976913.969	6/15/2006	6.6	J	MG/KG
S4W08-11B-SS	480145.9013	4976888.093	6/15/2006	5.7	J	MG/KG
S4W08-11F-SS	480168.3112	4976888.573	6/15/2006	6.6	J	MG/KG
S4W08-12B-SS	480141.9166	4976875.145	6/15/2006	8.3	J	MG/KG
S4W08-12B-SSD	480141.9203	4976875.45	6/15/2006	7.4	J	MG/KG
S4W08-12F-SS	480166.8641	4976863.959	6/15/2006	5.3	J	MG/KG
S4W08-13F-SS	480136.1111	4976859.042	6/15/2006	6.9	J	MG/KG
S4W08-14B-SS	480116.8827	4976858.56	6/15/2006	3.3	J	MG/KG
S4W08-15F-SS	480109.6254	4976872.105	6/15/2006	4.8	J	MG/KG
S4W08-16B-SS	480127.5036	4976877.916	6/15/2006	5.9		MG/KG
S4W08-16F-SS	480094.2269	4976879.626	6/15/2006	11.8		MG/KG
S4W08-17B-SS	480114.3506	4976890.043	6/3/2006	94.5		MG/KG
S4W08-17F-SS	480096.657	4976890.007	6/3/2006	287		MG/KG
S4W08-18B-SS	480127.3352	4976900.502	6/15/2006	7.6		MG/KG
S4W08-18F-SS	480093.3595	4976904.919	6/15/2006	5.1	J	MG/KG
S4W08-19B-SS	480118.3587	4976910.396	6/15/2006	5.7		MG/KG
S4W08-19F-SS	480098.6419	4976912.309	6/15/2006	3.9	J	MG/KG
S4W08-20B-SS	480127.3451	4976926.442	6/15/2006	27.9		MG/KG
S4W08-20G-SS	480098.688	4976927.12	6/15/2006	118		MG/KG
S4W08-21B-SS	480114.5005	4976938.18	6/15/2006	5.3	U	MG/KG
S4W08-21F-SS	480094.3818	4976940.612	6/15/2006	5.3	U	MG/KG
S4W08-22B-SS	480123.756	4976954.814	6/15/2006	5.4	U	MG/KG
S4W08-22F-SS	480093.4977	4976949.354	6/15/2006	5.3	U	MG/KG
S4W08-22F-SSR	480093.5015	4976949.658	6/15/2006	5.4	U	MG/KG
S4W08-23B-SS	480114.5868	4976965.951	6/15/2006	7.2		MG/KG
S4W08-23F-SS	480093.5381	4976962.314	6/15/2006	5.3	U	MG/KG
S4W08-24B-SS	480118.5773	4976980.75	6/15/2006	5.5	U	MG/KG
S4W08-24F-SS	480094.9162	4976982.675	6/15/2006	9.8		MG/KG
S4W08-25B-SS	480118.6118	4976991.859	6/15/2006	5.4	U	MG/KG
S4W08-25F-SS	480098.901	4976995.623	6/15/2006	5.8	U	MG/KG
S4W08-26B-SS	480127.4494	4977002.811	6/15/2006	5.2	U	MG/KG
S4W08-26F-SS	480094.9796	4977003.041	6/15/2006	5.3	U	MG/KG
S4W09-01B-SS	480024.3621	4977027.188	6/15/2006	2.1	J-	MG/KG
S4W09-01F-SS	479997.7584	4977027.413	6/15/2006	3.5	J	MG/KG
S4W09-02F-SS	480063.3926	4977019.886	6/15/2006	5.3	U	MG/KG
S4W09-02S-SS	480054.2293	4977032.875	6/15/2006	5.4	U	MG/KG
S4W09-03B-SS	480042.3985	4977006.908	6/15/2006	5.3	U	MG/KG
S4W09-03F-SS	480066.0032	4977007.274	6/15/2006	5.3	U	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4W09-04B-SS	480043.6671	4976992.092	6/15/2006	5.5	U	MG/KG
S4W09-04F-SS	480064.7158	4976995.73	6/15/2006	3.6	J	MG/KG
S4W09-05F-SS	480068.0274	4976985.757	6/15/2006	11.7		MG/KG
S4W09-06B-SS	480039.6649	4976973.59	6/15/2006	5.4		MG/KG
S4W09-06F-SS	480065.5574	4976975.851	6/15/2006	5.1	J	MG/KG
S4W09-06F-SSD	480065.5611	4976976.156	6/15/2006	6		MG/KG
S4W09-07B-SS	480044.878	4976958.762	6/15/2006	4.4	J	MG/KG
S4W09-07F-SS	480067.2531	4976966.098	6/15/2006	8		MG/KG
S4W09-08B-SS	480047.4672	4976945.794	6/15/2006	6.7		MG/KG
S4W09-08F-SS	480067.2012	4976949.435	6/15/2006	8.5		MG/KG
S4W09-10B-SS	480044.7509	4976918.031	6/15/2006	3.3	J	MG/KG
S4W09-10F-SS	480067.1146	4976921.664	6/15/2006	3.5	J	MG/KG
S4W09-11B-SS	480044.6989	4976901.368	6/15/2006	4	J	MG/KG
S4W09-11F-SS	480067.0627	4976905.001	6/15/2006	4.7	J	MG/KG
S4W09-12B-SS	480043.3379	4976886.56	6/15/2006	4.4	J	MG/KG
S4W09-12F-SS	480067.0108	4976888.338	6/15/2006	5.1	J	MG/KG
S4W09-12F-SSR	480067.0146	4976888.643	6/15/2006	5.1	J	MG/KG
S4W09-14F-SS	480064.4531	4976866.153	6/15/2006	49.2		MG/KG
S4W09-14S-SS	480056.5294	4976855.069	6/15/2006	36		MG/KG
S4W09-15F-SS	479990.6632	4976860.805	6/15/2006	4.4	J	MG/KG
S4W09-15S-SS	479997.2664	4976870.041	6/15/2006	3.8	J-	MG/KG
S4W09-16B-SS	480013.0677	4976877.398	6/15/2006	33.6		MG/KG
S4W09-16F-SS	479995.9805	4976879.302	6/15/2006	31.1		MG/KG
S4W09-17B-SS	480013.085	4976882.952	6/15/2006	4.4	J	MG/KG
S4W09-17F-SS	479989.4179	4976883.026	6/15/2006	4.2	J-	MG/KG
S4W09-18B-SS	480014.4346	4976894.056	6/15/2006	3.5	J	MG/KG
S4W09-18F-SS	479990.7559	4976890.428	6/15/2006	4.8	J	MG/KG
S4W09-19B-SS	480021.0319	4976901.442	6/15/2006	4.9	J	MG/KG
S4W09-19F-SS	479989.4931	4976907.095	6/15/2006	4.6	J	MG/KG
S4W09-19F-SSD	479989.4969	4976907.399	6/15/2006	4.5	J-	MG/KG
S4W09-20B-SS	480009.2388	4976914.439	6/15/2006	17.7		MG/KG
S4W09-20F-SS	479993.455	4976912.637	6/15/2006	32.6		MG/KG
S4W09-21B-SS	480015.865	4976931.081	6/15/2006	3.6	J	MG/KG
S4W09-21F-SS	479989.5684	4976931.163	6/15/2006	4.3	J	MG/KG
S4W09-22B-SS	480014.6081	4976949.6	6/15/2006	2.7	J-	MG/KG
S4W09-22F-SS	479991.2607	4976949.15	6/15/2006	1.7	J-	MG/KG
S4W09-23F-SS	479990.7777	4976964.786	6/15/2006	2.8	J	MG/KG
S4W09-24B-SS	480014.7468	4976994.034	6/15/2006	5.6	J-	MG/KG
S4W09-24F-SS	479993.6981	4976990.397	6/15/2006	7		MG/KG
S4W09-24F-SSR	479993.7019	4976990.702	6/15/2006	6.3		MG/KG
S4W09-25B-SS	480013.4841	4977010.701	6/15/2006	2.8	J	MG/KG
S4W09-25F-SS	479992.2527	4977009.573	6/15/2006	3.2	J	MG/KG
S4W10-02B-SS	479946.5039	4977034.98	6/15/2006	4.1	J	MG/KG
S4W10-02F-SS	479968.4868	4977028.175	6/15/2006	4.9	J	MG/KG
S4W10-03F-SS	479966.9883	4977009.035	6/15/2006	34		MG/KG
S4W10-03SN-SS	479958.2605	4977019.039	6/15/2006	23.7		MG/KG
S4W10-03SS-SS	479945.6596	4977001.321	6/15/2006	58.9		MG/KG
S4W10-04F-SS	479968.4737	4976968.309	6/15/2006	562		MG/KG
S4W10-04SNE-SS	479962.1367	4976988.644	6/15/2006	49.5		MG/KG
S4W10-04SNW-SS	479945.0382	4976986.846	6/15/2006	69.5		MG/KG
S4W10-04SS-SS	479960.7349	4976960.877	6/15/2006	20.8		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S4W10-04SS-SSD	479960.7386	4976961.181	6/15/2006	25.3		MG/KG
S4W10-05B-SS	479946.2254	4976946.111	6/15/2006	175		MG/KG
S4W10-05F-SS	479968.1151	4976946.818	6/15/2006	256		MG/KG
S4W10-06B-SS	479940.9254	4976933.167	6/15/2006	13.5		MG/KG
S4W10-06F-SS	479968.5543	4976938.635	6/15/2006	37.3		MG/KG
S4W10-07F-SS	479967.3276	4976926.082	6/15/2006	4.6	J	MG/KG
S4W10-07F-SSR	479967.3314	4976926.387	6/15/2006	4.5	J	MG/KG
S4W10-08B-SS	479943.4796	4976909.09	6/15/2006	7.3		MG/KG
S4W10-08F-SS	479968.784	4976914.692	6/15/2006	5.4	J	MG/KG
S4W10-09B-SS	479935.5198	4976903.279	6/15/2006	26		MG/KG
S4W10-09F-SS	479968.9772	4976903.865	6/15/2006	19.6		MG/KG
S4W10-10B-SS	479948.6926	4976894.262	6/15/2006	4.1	J	MG/KG
S4W10-10F-SS	479968.4267	4976897.903	6/15/2006	7.3		MG/KG
S4W10-11B-SS	479946.0222	4976881.31	6/15/2006	8.9		MG/KG
S4W10-11F-SS	479967.0771	4976886.799	6/15/2006	7.1		MG/KG
S4W10-12B-SS	479947.3139	4976873.9	6/15/2006	26.3		MG/KG
S4W10-12F-SS	479967.2722	4976864.614	6/15/2006	16.7		MG/KG
S4W10-13F-SS	479921.2944	4976855.797	6/15/2006	7.1		MG/KG
S4W10-14F-SS	479894.6561	4976853.7	6/15/2006	6.1		MG/KG
S4W10-15B-SS	479914.4137	4976864.746	6/15/2006	5	J	MG/KG
S4W10-15F-SS	479892.0614	4976864.817	6/15/2006	4.7	J	MG/KG
S4W10-16B-SS	479914.4428	4976874.004	6/15/2006	5.6		MG/KG
S4W10-16F-SS	479889.4724	4976877.785	6/15/2006	5.2	J	MG/KG
S4W10-17B-SS	479914.4893	4976888.815	6/15/2006	6.7		MG/KG
S4W10-17F-SS	479893.446	4976887.03	6/15/2006	5.2	J	MG/KG
S4W10-18B-SS	479917.1538	4976899.915	6/15/2006	6.2		MG/KG
S4W10-18F-SS	479889.5538	4976903.705	6/15/2006	6.7		MG/KG
S4W10-19B-SS	479917.1945	4976912.875	6/15/2006	6.3		MG/KG
S4W10-19F-SS	479892.2068	4976911.102	6/15/2006	5.6		MG/KG
S4W10-20F-SS	479892.1284	4976920.313	6/15/2006	15.7		MG/KG
S4W10-21B-SS	479918.5791	4976935.089	6/15/2006	57.4		MG/KG
S4W10-21F-SS	479890.9676	4976935.175	6/15/2006	113		MG/KG
S4W10-22B-SS	479919.9462	4976951.747	6/15/2006	5.8		MG/KG
S4W10-22F-SS	479893.5363	4976949.932	6/15/2006	7.3		MG/KG
S4W10-23B-SS	479925.2404	4976962.84	6/15/2006	5.1	J	MG/KG
S4W10-23F-SS	479892.3697	4976962.943	6/15/2006	5.2	J	MG/KG
S4W10-24B-SS	479916.0889	4976979.531	6/15/2006	13.6		MG/KG
S4W10-24F-SS	479895.0401	4976975.895	6/15/2006	12.9		MG/KG
S4W10-25B-SS	479925.5774	4976987.167	6/15/2006	5.4	J	MG/KG
S4W10-25F-SS	479892.5104	4976985.456	6/15/2006	5.6		MG/KG
S4W10-26B-SS	479921.4004	4976996.178	6/15/2006	18.5		MG/KG
S4W10-26F-SS	479891.4797	4976998.096	6/15/2006	36.5		MG/KG
S4W10-27B-SS	479914.8554	4977005.456	6/15/2006	5.5		MG/KG
S4W10-27F-SS	479891.212	4977012.936	6/15/2006	4.9	J	MG/KG
S5E01-01B-SS	480930.054	4976821.624	6/6/2006	2.7	J	MG/KG
S5E01-01F-SS	480907.4373	4976825.971	6/6/2006	1.7	J	MG/KG
S5E01-02F-SS	480945.1429	4976824.565	6/6/2006	3	J	MG/KG
S5E01-03F-SS	480958.3075	4976830.08	6/6/2006	3	J	MG/KG
S5E01-03S-SS	480971.4397	4976824.486	6/6/2006	3.2	J	MG/KG
S5E01-04F-SS	480997.7091	4976815.151	6/6/2006	4.4	J	MG/KG
S5E01-04S-SS	480989.8584	4976828.134	6/6/2006	2.2	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5E01-05B-SS	480966.1195	4976804.137	6/6/2006	5.3	J	MG/KG
S5E01-05F-SS	481002.9358	4976804.027	6/6/2006	5	J	MG/KG
S5E01-06B-SS	480972.6503	4976789.305	6/6/2006	5.4	J	MG/KG
S5E01-06F-SS	481004.2179	4976792.915	6/6/2006	3.8	J	MG/KG
S5E01-07B-SS	480971.2856	4976772.646	6/6/2006	5.5	J	MG/KG
S5E01-07F-SS	481004.1739	4976778.102	6/6/2006	5.7	J	MG/KG
S5E01-09B-SS	480965.9433	4976744.89	6/6/2006	4	J	MG/KG
S5E01-09F-SS	481002.5527	4976746.053	6/6/2006	3.3	J	MG/KG
S5E01-10B-SS	480975.1036	4976730.051	6/6/2006	6.2		MG/KG
S5E01-10F-SS	481002.7104	4976728.118	6/6/2006	6		MG/KG
S5E01-11B-SS	480968.4854	4976715.26	6/6/2006	9		MG/KG
S5E01-11F-SS	481000.0424	4976715.166	6/6/2006	5.2	J	MG/KG
S5E01-12B-SS	480969.7667	4976704.147	6/6/2006	3.6	J	MG/KG
S5E01-12B-SSR	480969.7705	4976704.452	6/6/2006	6	J	MG/KG
S5E01-12F-SS	481002.628	4976700.346	6/6/2006	4.8	J	MG/KG
S5E01-13B-SS	480976.2646	4976678.207	6/6/2006	11.4		MG/KG
S5E01-13F-SS	481003.8936	4976683.679	6/6/2006	5.4	J	MG/KG
S5E01-13S-SS	480997.3022	4976678.144	6/6/2006	6.4		MG/KG
S5E01-15B-SS	480977.5624	4976672.649	6/6/2006	13.7		MG/KG
S5E01-15F-SS	480968.7417	4976650.864	6/6/2006	6.7		MG/KG
S5E01-15S-SS	480963.0549	4976657.881	6/6/2006	9.5		MG/KG
S5E01-16B-SS	480931.4755	4976650.568	6/6/2006	5.2	J	MG/KG
S5E01-16F-SS	480906.4924	4976650.643	6/6/2006	8.8		MG/KG
S5E01-17B-SS	480930.2045	4976665.385	6/6/2006	8.4		MG/KG
S5E01-17F-SS	480901.2886	4976669.173	6/6/2006	8.7		MG/KG
S5E01-18B-SS	480945.8621	4976684.745	6/6/2006	19.7		MG/KG
S5E01-18F-SS	480903.9678	4976685.828	6/6/2006	32.3		MG/KG
S5E01-18F-SSR	480903.9716	4976686.133	6/6/2006	10.9		MG/KG
S5E01-19B-SS	480929.0005	4976702.417	6/6/2006	284		MG/KG
S5E01-19F-SS	480902.6803	4976695.089	6/6/2006	312		MG/KG
S5E01-20B-SS	480930.359	4976717.224	6/6/2006	5.2	J	MG/KG
S5E01-20F-SS	480902.7356	4976713.604	6/6/2006	6.1	J	MG/KG
S5E01-21B-SS	480933.0334	4976732.028	6/6/2006	5.1	J	MG/KG
S5E01-21F-SS	480902.7687	4976724.713	6/6/2006	4.3	J	MG/KG
S5E01-22B-SS	480933.072	4976744.988	6/6/2006	5.9	J	MG/KG
S5E01-22F-SS	480900.2	4976745.086	6/6/2006	7		MG/KG
S5E01-23B-SS	480926.5413	4976759.82	6/6/2006	6.1		MG/KG
S5E01-23F-SS	480898.0114	4976756.042	6/6/2006	6.4		MG/KG
S5E01-25B-SS	480930.5852	4976793.134	6/6/2006	272		MG/KG
S5E01-25F-SS	480896.3936	4976791.384	6/6/2006	157		MG/KG
S5E01-26B-SS	480925.3649	4976806.109	6/6/2006	120		MG/KG
S5E01-26F-SS	480896.4378	4976806.195	6/6/2006	220		MG/KG
S5E02-01B-SS	481059.5297	4976822.373	6/6/2006	39.2		MG/KG
S5E02-01F-SS	481033.0956	4976822.404	6/6/2006	51.7		MG/KG
S5E02-02B-SS	481093.6719	4976807.461	6/6/2006	7.3		MG/KG
S5E02-02F-SS	481093.5339	4976828.658	6/6/2006	6		MG/KG
S5E02-02F-SSD	481093.5376	4976828.963	6/6/2006	6.7		MG/KG
S5E02-03B-SS	481107.2191	4976821.93	6/6/2006	5.2	J	MG/KG
S5E02-03F-SS	481137.0591	4976821.451	6/6/2006	5.4	J+	MG/KG
S5E02-04B-SS	481105.5056	4976807.426	6/6/2006	5.7	J+	MG/KG
S5E02-04F-SS	481137.2355	4976806.095	6/6/2006	6	J+	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5E02-05B-SS	481108.0968	4976794.458	6/6/2006	6.2	J+	MG/KG
S5E02-05F-SS	481138.3336	4976792.518	6/6/2006	5.1	J+	MG/KG
S5E02-06B-SS	481105.4181	4976777.803	6/6/2006	5.4	J+	MG/KG
S5E02-06F-SS	481133.0303	4976777.721	6/6/2006	5.6	J+	MG/KG
S5E02-08B-SS	481100.0655	4976746.344	6/6/2006	25	J	MG/KG
S5E02-08F-SS	481130.3134	4976748.107	6/6/2006	25.7	J	MG/KG
S5E02-09B-SS	481103.9609	4976729.67	6/6/2006	5.3	J	MG/KG
S5E02-09F-SS	481131.5732	4976729.588	6/6/2006	5.1	J	MG/KG
S5E02-10B-SS	481105.2377	4976716.705	6/6/2006	6.6	J	MG/KG
S5E02-10F-SS	481135.4796	4976716.616	6/6/2006	5.7	J	MG/KG
S5E02-10F-SSR	481135.4833	4976716.921	6/6/2006	2.4	J	MG/KG
S5E02-11B-SS	481106.5037	4976700.038	6/6/2006	9.2	J	MG/KG
S5E02-11F-SS	481128.8618	4976701.824	6/6/2006	5.7	J	MG/KG
S5E02-13B-SS	481105.112	4976674.123	6/6/2006	38.2	J	MG/KG
S5E02-13F-SS	481134.0233	4976668.483	6/6/2006	12.5	J	MG/KG
S5E02-14B-SS	481099.792	4976653.773	6/6/2006	6.3	J	MG/KG
S5E02-14F-SS	481131.3548	4976655.53	6/6/2006	55.4	J	MG/KG
S5E02-15B-SS	481053.7712	4976653.909	6/6/2006	59.5	J	MG/KG
S5E02-15F-SS	481034.3288	4976651.764	6/6/2006	61.8	J	MG/KG
S5E02-15S-SS	481048.4493	4976649.85	6/6/2006	70.2	J	MG/KG
S5E02-16B-SS	481060.3892	4976668.7	6/6/2006	389	J	MG/KG
S5E02-16B-SSR	481060.3929	4976669.005	6/6/2006	24.2	J	MG/KG
S5E02-16F-SS	481035.6981	4976670.273	6/6/2006	144		MG/KG
S5E02-17B-SS	481060.4385	4976685.363	6/6/2006	5.8	J	MG/KG
S5E02-17F-SS	481035.2345	4976682.661	6/6/2006	25.9	J	MG/KG
S5E02-18B-SS	481061.803	4976702.022	6/6/2006	29.8	J	MG/KG
S5E02-18F-SS	481034.8016	4976697.61	6/6/2006	42.1	J	MG/KG
S5E02-19B-SS	481078.4636	4976713.345	6/6/2006	8.6	J	MG/KG
S5E02-19F-SS	481033.1987	4976713.119	6/6/2006	5.4	J	MG/KG
S5E02-19F-SSD	481033.2025	4976713.423	6/6/2006	5.4	J	MG/KG
S5E02-20B-SS	481051.361	4976727.973	6/6/2006	6.7	J	MG/KG
S5E02-20F-SS	481032.9407	4976728.426	6/6/2006	6.7	J	MG/KG
S5E02-21F-SS	481033.8958	4976743.563	6/6/2006	28	J	MG/KG
S5E02-22B-SS	481058.0063	4976752.023	6/6/2006	39.3	J	MG/KG
S5E02-22F-SS	481034.361	4976755.441	6/6/2006	80.1	J	MG/KG
S5E02-23B-SS	481059.3653	4976766.83	6/6/2006	7	J	MG/KG
S5E02-23F-SS	481032.7387	4976767.899	6/6/2006	4.7	J	MG/KG
S5E02-25B-SS	481058.1269	4976792.755	6/6/2006	6	J	MG/KG
S5E02-25F-SS	481033.8541	4976792.171	6/6/2006	7.8	J	MG/KG
S5E02-26B-SS	481060.8112	4976811.261	6/6/2006	4.4	J	MG/KG
S5E02-26F-SS	481034.4486	4976808.72	6/6/2006	4.2	J	MG/KG
S5E03-01B-SS	481177.8775	4976825.728	6/6/2006	4	J	MG/KG
S5E03-01F-SS	481165.4627	4976827.161	6/6/2006	4.5	J	MG/KG
S5E03-02B-SS	481188.3307	4976803.479	6/6/2006	5.5	J	MG/KG
S5E03-02F-SS	481192.7451	4976825.27	6/6/2006	4.6	J	MG/KG
S5E03-03B-SS	481213.3568	4976818.217	6/6/2006	5.8	J	MG/KG
S5E03-03B-SSR	481213.3605	4976818.522	6/6/2006	4.9	J	MG/KG
S5E03-03F-SS	481208.5068	4976826.57	6/6/2006	3.8	J	MG/KG
S5E03-04B-SS	481228.7186	4976784.367	6/6/2006	27.1	J	MG/KG
S5E03-04F-SS	481230.4711	4976825.573	6/6/2006	35	J	MG/KG
S5E03-06B-SS	481260.9221	4976827.221	6/6/2006	3.6	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5E03-06F-SS	481271.7506	4976821.78	6/6/2006	4.4	J	MG/KG
S5E03-07B-SS	481247.5264	4976812.563	6/6/2006	14.2	J	MG/KG
S5E03-07F-SS	481271.7077	4976809.818	6/6/2006	4.6	J	MG/KG
S5E03-08B-SS	481247.483	4976797.752	6/6/2006	4.8	J	MG/KG
S5E03-08F-SS	481268.5427	4976805.095	6/6/2006	3.9	J	MG/KG
S5E03-09B-SS	481239.3638	4976787.061	6/6/2006	4.7	J	MG/KG
S5E03-09F-SS	481271.426	4976789.046	6/6/2006	4.6	J	MG/KG
S5E03-10B-SS	481247.4233	4976777.385	6/6/2006	44	J	MG/KG
S5E03-10F-SS	481271.0963	4976779.167	6/6/2006	46.4	J	MG/KG
S5E03-11B-SS	481235.5407	4976760.757	6/6/2006	8	J	MG/KG
S5E03-11B-SSD	481235.5444	4976761.061	6/6/2006	6	J	MG/KG
S5E03-11F-SS	481269.7378	4976764.36	6/6/2006	6.1		MG/KG
S5E03-12B-SS	481223.777	4976752.614	6/6/2006	5	J	MG/KG
S5E03-12F-SS	481269.2958	4976752.975	6/6/2006	4.8	J	MG/KG
S5E03-13B-SS	481252.5854	4976744.044	6/6/2006	4.2	J	MG/KG
S5E03-13F-SS	481272.2976	4976740.283	6/6/2006	3.9	J	MG/KG
S5E03-14B-SS	481223.6875	4976728.393	6/6/2006	4.8	J	MG/KG
S5E03-14F-SS	481273.5849	4976731.023	6/6/2006	3.8	J	MG/KG
S5E03-15B-SS	481223.1885	4976717.746	6/6/2006	5	J	MG/KG
S5E03-15B-SSR	481223.1922	4976718.051	6/6/2006	4.5	J	MG/KG
S5E03-15F-SS	481270.9556	4976716.65	6/6/2006	4.4	J	MG/KG
S5E03-16B-SS	481249.8575	4976710.726	6/6/2006	29		MG/KG
S5E03-16F-SS	481268.8636	4976705.028	6/6/2006	121		MG/KG
S5E03-17B-SS	481243.2454	4976697.785	6/6/2006	7.2		MG/KG
S5E03-17F-SS	481270.8524	4976695.853	6/6/2006	31.3		MG/KG
S5E03-18B-SS	481273.4494	4976684.736	6/6/2006	4.2	J	MG/KG
S5E03-18F-SS	481265.4571	4976649.582	6/6/2006	6.6		MG/KG
S5E03-19B-SS	481255.0142	4976675.534	6/6/2006	59		MG/KG
S5E03-19F-SS	481250.9936	4976649.624	6/6/2006	148		MG/KG
S5E03-20B-SS	481239.2193	4976670.025	6/6/2006	7.2		MG/KG
S5E03-20F-SS	481240.4748	4976649.655	6/6/2006	5.5	J	MG/KG
S5E03-21B-SS	481231.2974	4976658.94	6/6/2006	4.2	J	MG/KG
S5E03-21F-SS	481229.1808	4976650.624	6/6/2006	4.4	J	MG/KG
S5E03-22B-SS	481208.9827	4976671.965	6/6/2006	5.5	J	MG/KG
S5E03-22F-SS	481213.9558	4976651.177	6/6/2006	83.2		MG/KG
S5E03-23B-SS	481187.8844	4976651.661	6/6/2006	3.7	J	MG/KG
S5E03-23F-SS	481166.1043	4976653.872	6/6/2006	5.1	J	MG/KG
S5E03-23F-SSR	481166.108	4976654.177	6/6/2006	5.4	J	MG/KG
S5E03-24B-SS	481190.5629	4976668.316	6/6/2006	5.7	J	MG/KG
S5E03-24F-SS	481165.554	4976667.722	6/6/2006	3.5	J	MG/KG
S5E03-25B-SS	481184.0214	4976679.444	6/6/2006	4.7	J	MG/KG
S5E03-25F-SS	481166.345	4976679.296	6/6/2006	5.3	J	MG/KG
S5E03-26B-SS	481193.253	4976688.674	6/6/2006	3.2	J	MG/KG
S5E03-26F-SS	481166.7895	4976690.498	6/6/2006	2.7	J	MG/KG
S5E03-27B-SS	481189.3574	4976705.349	6/6/2006	3.3	J	MG/KG
S5E03-27F-SS	481166.9242	4976705.789	6/6/2006	3.9	J	MG/KG
S5E03-28B-SS	481185.4726	4976725.727	6/6/2006	11.4		MG/KG
S5E03-28F-SS	481164.4289	4976723.937	6/6/2006	464		MG/KG
S5E03-29B-SS	481196.0457	4976744.21	6/6/2006	4.5	J	MG/KG
S5E03-29F-SS	481165.7035	4976741.714	6/6/2006	112		MG/KG
S5E03-30B-SS	481188.1837	4976753.491	6/6/2006	5.9	U	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5E03-30F-SS	481176.3772	4976762.782	6/6/2006	5.8	U	MG/KG
S5E03-31B-SS	481186.9067	4976766.454	6/6/2006	17.5		MG/KG
S5E03-31F-SS	481168.5316	4976777.617	6/6/2006	23.6		MG/KG
S5E03-32B-SS	481185.6305	4976779.418	6/6/2006	6.4	U	MG/KG
S5E03-32F-SS	481166.2534	4976786.842	6/6/2006	17.4	J	MG/KG
S5E03-32F-SSD	481166.2571	4976787.146	6/6/2006	12.1	J	MG/KG
S5E03-33B-SS	481197.2356	4976798.547	6/6/2006	6.1	U	MG/KG
S5E03-33F-SS	481166.0017	4976799.808	6/6/2006	5.8	U	MG/KG
S5E03-34B-SS	481179.1373	4976807.209	6/6/2006	5.6	U	MG/KG
S5E03-34F-SS	481167.4329	4976810.835	6/6/2006	6.5		MG/KG
S5E04-02A-SS	481352.5959	4976771.523	6/6/2006	3.6	J	MG/KG
S5E04-02B-SS	481368.3743	4976771.477	6/6/2006	3.3	J	MG/KG
S5E04-02C-SS	481377.5086	4976747.383	6/6/2006	3.4	J	MG/KG
S5E04-02D-SS	481365.6532	4976740.011	6/6/2006	3.6	J	MG/KG
S5E04-02E-SS	481390.566	4976715.869	6/6/2006	3.1	J	MG/KG
S5E04-02F-SS	481351.1251	4976717.836	6/6/2006	9.9		MG/KG
S5E04-02G-SS	481387.8872	4976699.214	6/6/2006	3.3	J	MG/KG
S5E04-02H-SS	481360.2856	4976702.998	6/6/2006	5.6	J	MG/KG
S5E04-03BE-SS	481370.7243	4976675.196	6/6/2006	10.4		MG/KG
S5E04-03BW-SS	481353.6305	4976675.245	6/6/2006	11.6		MG/KG
S5E04-03FE-SS	481370.6812	4976660.383	6/6/2006	10		MG/KG
S5E04-03FW-SS	481352.256	4976654.883	6/6/2006	4.5	J	MG/KG
S5E04-04B-SS	481324.6596	4976660.518	6/6/2006	4.1	J	MG/KG
S5E04-04F-SS	481298.3567	4976658.744	6/6/2006	3.9	J	MG/KG
S5E04-05B-SS	481334.7961	4976674.048	6/6/2006	7.3		MG/KG
S5E04-05F-SS	481299.8011	4976672.087	6/6/2006	4.9	J	MG/KG
S5E04-05F-SSR	481299.8049	4976672.392	6/6/2006	4.6	J	MG/KG
S5E04-06B-SS	481333.9397	4976686.412	6/6/2006	5.3	J	MG/KG
S5E04-06F-SS	481301.0782	4976690.21	6/6/2006	5.5	J	MG/KG
S5E04-06F-SSR	481301.0819	4976690.515	6/6/2006	5.9	J	MG/KG
S5E04-07B-SS	481323.4533	4976697.551	6/6/2006	5.2	J	MG/KG
S5E04-07F-SS	481303.7355	4976699.459	6/6/2006	6.1		MG/KG
S5E04-08B-SS	481335.8226	4976711.996	6/6/2006	5.8	J	MG/KG
S5E04-08F-SS	481315.6127	4976714.237	6/6/2006	8.4		MG/KG
S5E04-10B-SS	481330.1409	4976736.412	6/6/2006	21.8		MG/KG
S5E04-10F-SS	481301.2135	4976736.496	6/6/2006	11.3		MG/KG
S5E04-10F-SSD	481301.2172	4976736.801	6/6/2006	17.1		MG/KG
S5E04-11B-SS	481320.9635	4976745.696	6/6/2006	45.8		MG/KG
S5E04-11F-SS	481298.6218	4976749.463	6/6/2006	70.8		MG/KG
S5E04-12B-SS	481321.0014	4976758.656	6/6/2006	5.5		MG/KG
S5E04-12F-SS	481299.8453	4976761.721	6/6/2006	15.8		MG/KG
S5E04-13SE-SS	481330.2597	4976777.143	6/6/2006	3.8	J	MG/KG
S5E04-13SW-SS	481328.534	4976786.809	6/6/2006	3.9	J	MG/KG
S5E04-14B-SS	481331.6451	4976801.208	6/6/2006	5.2	J	MG/KG
S5E04-14F-SS	481300.0993	4976805.003	6/6/2006	3.6	J	MG/KG
S5E04-14F-SSD	481300.103	4976805.307	6/6/2006	3.5	J	MG/KG
S5E05-01B-SS	481406.2853	4976695.458	6/6/2006	4.5	J	MG/KG
S5E05-01F-SS	481414.0724	4976660.257	6/6/2006	4.3	J	MG/KG
S5E07-03F-SS	481713.0119	4976820.472	6/6/2006	6.8		MG/KG
S5E07-03S-SS	481709.0885	4976827.89	6/6/2006	5.8	J	MG/KG
S5E07-04B-SS	481703.7441	4976798.281	6/6/2006	5.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5E07-04F-SS	481724.8191	4976811.182	6/6/2006	40.9		MG/KG
S5E07-05B-SS	481712.906	4976783.444	6/6/2006	15.2		MG/KG
S5E07-05F-SS	481730.0365	4976796.355	6/6/2006	15.8		MG/KG
S5E07-06B-SS	481707.5987	4976766.796	6/6/2006	8.7		MG/KG
S5E07-06F-SS	481731.3086	4976781.539	6/6/2006	8.5		MG/KG
S5E07-07B-SS	481720.7106	4976753.798	6/6/2006	10.1		MG/KG
S5E07-07F-SS	481740.4759	4976768.554	6/6/2006	9.7		MG/KG
S5E07-14B-SS	481681.2698	4976755.763	6/6/2006	8.6		MG/KG
S5E07-14F-SS	481653.6417	4976750.287	6/6/2006	12.2		MG/KG
S5E08-01F-SS	481743.3229	4976846.119	6/6/2006	9.5		MG/KG
S5E08-01S-SS	481744.6529	4976850.006	6/6/2006	6.9		MG/KG
S5E08-02B-SS	481810.8785	4976841.416	6/6/2006	8.1		MG/KG
S5E08-02F-SS	481840.6358	4976845.707	6/6/2006	8.4		MG/KG
S5E08-03B-SS	481799.9202	4976833.339	6/6/2006	10.3		MG/KG
S5E08-03F-SS	481840.5897	4976833.069	6/6/2006	6.4	J	MG/KG
S5E08-04F-SS	481839.8382	4976803.491	6/6/2006	4.9	J	MG/KG
S5E08-04S-SS	481839.8788	4976822.056	6/6/2006	4.7	J	MG/KG
S5E08-05F-SS	481841.7464	4976777.523	6/6/2006	6	J	MG/KG
S5E08-05S-SS	481820.7039	4976775.731	6/6/2006	7.3		MG/KG
S5E08-06B-SS	481822.6975	4976765.495	6/6/2006	8.2		MG/KG
S5E08-06F-SS	481841.0502	4976768.324	6/6/2006	7.5		MG/KG
S5E08-07B-SS	481822.3957	4976756.684	6/6/2006	6	J	MG/KG
S5E08-07F-SS	481841.6729	4976751.603	6/6/2006	6.2	J	MG/KG
S5E08-07F-SSR	481841.6766	4976751.908	6/6/2006	6.7		MG/KG
S5E08-08B-SS	481825.8734	4976744.242	6/6/2006	5.2	J	MG/KG
S5E08-08F-SS	481798.1886	4976741.931	6/6/2006	5	J	MG/KG
S5E08-09F-SS	481808.7385	4976729.479	6/6/2006	5.8	J	MG/KG
S5E08-09F-SSR	481808.7423	4976729.784	6/6/2006	6.5		MG/KG
S5E08-10B-SS	481840.3592	4976716.334	6/6/2006	8.2		MG/KG
S5E08-10F-SS	481810.8598	4976718.751	6/6/2006	6.1		MG/KG
S5E08-11F-SS	481819.1889	4976705.38	6/6/2006	7.3	J+	MG/KG
S5E08-11S-SS	481827.1221	4976698.986	6/6/2006	7.1	J+	MG/KG
S5E08-12B-SS	481841.4604	4976691.719	6/6/2006	5.3	J	MG/KG
S5E08-12F-SS	481838.2426	4976673.165	6/6/2006	5.3	J	MG/KG
S5E08-13F-SS	481842.6208	4976653.306	6/6/2006	4.2	J	MG/KG
S5E08-15F-SS	481756.0167	4976654.854	6/6/2006	7.7		MG/KG
S5E08-15S-SS	481757.2315	4976650.013	6/6/2006	8		MG/KG
S5E08-16F-SS	481745.2924	4976650.353	6/6/2006	21.9		MG/KG
S5E08-17B-SS	481773.0946	4976679.591	6/6/2006	6.7		MG/KG
S5E08-17F-SS	481782.3193	4976686.97	6/6/2006	6.6		MG/KG
S5E08-18B-SS	481753.4083	4976692.607	6/6/2006	8.2		MG/KG
S5E08-18F-SS	481775.7716	4976696.247	6/6/2006	10.6		MG/KG
S5E08-19B-SS	481749.4742	4976696.322	6/6/2006	61		MG/KG
S5E08-19F-SS	481774.4933	4976709.21	6/6/2006	28.6		MG/KG
S5E08-20B-SS	481758.6661	4976716.136	6/6/2006	6.1	J	MG/KG
S5E08-20F-SS	481770.5158	4976721.656	6/6/2006	7.8		MG/KG
S5E08-21B-SS	481737.7249	4976725.978	6/6/2006	6.4		MG/KG
S5E08-21F-SS	481760.0986	4976733.32	6/6/2006	6.5		MG/KG
S5E08-22B-SS	481736.452	4976740.794	6/6/2006	7.8		MG/KG
S5E08-22F-SS	481750.9523	4976753.712	6/6/2006	9.2		MG/KG
S5E08-23F-SS	481790.4405	4976768.412	6/6/2006	8		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5E08-23S-SS	481786.4906	4976766.571	6/6/2006	4.6	J	MG/KG
S5E08-24B-SS	481799.708	4976790.603	6/6/2006	7.8		MG/KG
S5E08-24F-SS	481773.3952	4976785.123	6/6/2006	22.2		MG/KG
S5E08-25B-SS	481801.0547	4976801.707	6/6/2006	7.1		MG/KG
S5E08-25F-SS	481764.2542	4976807.367	6/6/2006	4.6	J	MG/KG
S5E08-26B-SS	481795.8513	4976828.897	6/6/2006	4.8	J	MG/KG
S5E08-26F-SS	481752.4839	4976829.618	6/6/2006	7.6		MG/KG
S5E09-01B-SS	481911.8877	4976844.833	6/5/2006	3.5	J	MG/KG
S5E09-01B-SSR	481911.8914	4976845.137	6/5/2006	4.5	J	MG/KG
S5E09-01F-SS	481869.2216	4976842.926	6/5/2006	4.6	J	MG/KG
S5E09-02B-SS	481922.1941	4976844.222	6/5/2006	2.7	J	MG/KG
S5E09-02B-SSD	481922.1979	4976844.527	6/5/2006	3.3	J	MG/KG
S5E09-02F-SS	481953.7032	4976845.71	6/5/2006	3.4	J	MG/KG
S5E09-03F-SS	481965.4899	4976829.014	6/5/2006	2.9	J	MG/KG
S5E09-04B-SS	481928.6467	4976816.344	6/5/2006	4.4	J	MG/KG
S5E09-04F-SS	481966.7789	4976819.752	6/5/2006	4.4	J	MG/KG
S5E09-05B-SS	481923.2477	4976803.484	6/5/2006	17		MG/KG
S5E09-05F-SS	481965.1995	4976802.44	6/5/2006	20.1		MG/KG
S5E09-06B-SS	481929.8896	4976793.936	6/5/2006	31.3		MG/KG
S5E09-06F-SS	481966.6902	4976788.278	6/5/2006	60.5		MG/KG
S5E09-06F-SSD	481966.694	4976788.583	6/5/2006	80.3		MG/KG
S5E09-07B-SS	481937.7421	4976780.953	6/5/2006	26.3		MG/KG
S5E09-07F-SS	481967.0009	4976781.196	6/5/2006	21.2		MG/KG
S5E09-07F-SSD	481967.0046	4976781.5	6/5/2006	22.5		MG/KG
S5E09-08B-SS	481924.7827	4976765.356	6/5/2006	3.3	J	MG/KG
S5E09-08F-SS	481966.7201	4976768.831	6/5/2006	3.6	J	MG/KG
S5E09-09B-SS	481924.6909	4976755.595	6/5/2006	4.2	J	MG/KG
S5E09-09F-SS	481964.6959	4976752.431	6/5/2006	4.3	J	MG/KG
S5E09-10B-SS	481938.9371	4976738.367	6/5/2006	4	J	MG/KG
S5E09-10F-SS	481964.3977	4976741.502	6/5/2006	3.9	J	MG/KG
S5E09-11B-SS	481944.1647	4976727.244	6/5/2006	10.5		MG/KG
S5E09-11F-SS	481954.6842	4976727.214	6/5/2006	5.6	J	MG/KG
S5E09-12B-SS	481933.6146	4976716.165	6/5/2006	7.4		MG/KG
S5E09-12F-SS	481965.983	4976715.926	6/5/2006	5.7		MG/KG
S5E09-13B-SS	481940.1364	4976697.631	6/5/2006	2.8	J	MG/KG
S5E09-13F-SS	481962.9523	4976703.116	6/5/2006	5.5	J	MG/KG
S5E09-14B-SS	481929.602	4976692.107	6/5/2006	16.9		MG/KG
S5E09-14F-SS	481965.6258	4976691.622	6/5/2006	18.2		MG/KG
S5E09-15B-SS	481932.1897	4976677.288	6/5/2006	2.8	J	MG/KG
S5E09-15F-SS	481966.3719	4976675.34	6/5/2006	4	J	MG/KG
S5E09-16B-SS	481905.908	4976682.917	6/5/2006	4.6	J	MG/KG
S5E09-16F-SS	481873.0865	4976677.796	6/5/2006	3.7	J	MG/KG
S5E09-17B-SS	481887.5156	4976688.523	6/5/2006	4.9	J	MG/KG
S5E09-17F-SS	481871.636	4976690.57	6/5/2006	5.1	J	MG/KG
S5E09-17F-SSD	481871.6397	4976690.875	6/5/2006	5.2	J	MG/KG
S5E09-18B-SS	481895.452	4976705.164	6/5/2006	4	J	MG/KG
S5E09-18F-SS	481873.6327	4976704.165	6/5/2006	2.9	J	MG/KG
S5E09-19B-SS	481896.7926	4976714.417	6/5/2006	4.8	J	MG/KG
S5E09-19F-SS	481867.8816	4976720.053	6/5/2006	3.8	J	MG/KG
S5E09-19F-SSR	481867.8853	4976720.358	6/5/2006	5	J	MG/KG
S5E09-20B-SS	481911.1845	4976729.355	6/5/2006	4.6	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5E09-20F-SS	481872.3486	4976730	6/5/2006	3.9	J	MG/KG
S5E09-20F-SSR	481872.3523	4976730.305	6/5/2006	4.7	J	MG/KG
S5E09-21B-SS	481890.2918	4976740.356	6/5/2006	11		MG/KG
S5E09-21F-SS	481872.0415	4976739.098	6/5/2006	10.1		MG/KG
S5E09-22B-SS	481898.2334	4976758.848	6/5/2006	7.1		MG/KG
S5E09-22F-SS	481871.2983	4976756.122	6/5/2006	8.7		MG/KG
S5E09-25B-SS	481898.3434	4976797.728	6/5/2006	15.1		MG/KG
S5E09-25F-SS	481868.6666	4976793.427	6/5/2006	31.8		MG/KG
S5E09-26B-SS	481891.7956	4976807.004	6/5/2006	60.7		MG/KG
S5E09-26B-SSR	481891.7993	4976807.309	6/5/2006	30		MG/KG
S5E09-26F-SS	481869.3181	4976802.613	6/5/2006	73.6		MG/KG
S5E09-27B-SS	481893.1466	4976819.96	6/5/2006	3.5	J	MG/KG
S5E09-27F-SS	481868.9168	4976820.449	6/5/2006	8.8		MG/KG
S5E09-28B-SS	481913.5863	4976832.624	6/5/2006	9.9		MG/KG
S5E09-28F-SS	481869.5492	4976830.69	6/5/2006	9.7		MG/KG
S5W01-01B-SS	480814.4867	4976822.985	6/13/2006	4	J	MG/KG
S5W01-01F-SS	480793.929	4976823.165	6/13/2006	5.5		MG/KG
S5W01-02F-SS	480820.6626	4976828.082	6/13/2006	4.1	J	MG/KG
S5W01-03B-SS	480842.5841	4976824.871	6/13/2006	44.4		MG/KG
S5W01-03F-SS	480868.0406	4976823.109	6/13/2006	95.2		MG/KG
S5W01-04B-SS	480845.175	4976811.903	6/13/2006	23.1		MG/KG
S5W01-04F-SS	480870.1462	4976808.125	6/13/2006	11.1		MG/KG
S5W01-05B-SS	480845.1085	4976789.686	6/13/2006	35.9		MG/KG
S5W01-05F-SS	480870.1019	4976793.314	6/13/2006	77.4		MG/KG
S5W01-06B-SS	480841.114	4976773.035	6/13/2006	183		MG/KG
S5W01-06F-SS	480871.3725	4976778.498	6/13/2006	134		MG/KG
S5W01-07B-SS	480843.705	4976760.067	6/13/2006	2.9	J	MG/KG
S5W01-07F-SS	480870.0134	4976763.691	6/13/2006	59.1		MG/KG
S5W01-08B-SS	480844.981	4976747.103	6/13/2006	13.3		MG/KG
S5W01-08F-SS	480864.7096	4976748.895	6/13/2006	20.4		MG/KG
S5W01-08F-SSD	480864.7133	4976749.2	6/13/2006	16.1		MG/KG
S5W01-10B-SS	480843.5719	4976715.632	6/13/2006	9.6		MG/KG
S5W01-10F-SS	480871.1733	4976711.847	6/13/2006	19.5		MG/KG
S5W01-10F-SSD	480871.177	4976712.151	6/13/2006	19.3		MG/KG
S5W01-11B-SS	480847.4833	4976704.512	6/13/2006	62.6		MG/KG
S5W01-11F-SS	480868.5103	4976700.746	6/13/2006	87.3		MG/KG
S5W01-12B-SS	480843.4833	4976686.009	6/13/2006	8.7		MG/KG
S5W01-12F-SS	480868.455	4976682.232	6/13/2006	38		MG/KG
S5W01-13B-SS	480844.7593	4976673.045	6/13/2006	15.9		MG/KG
S5W01-13F-SS	480871.3994	4976670.278	6/13/2006	34.4		MG/KG
S5W01-14B-SS	480846.0188	4976654.527	6/13/2006	5.6	UJ	MG/KG
S5W01-14F-SS	480869.6868	4976654.456	6/13/2006	3.5	J-	MG/KG
S5W01-15B-SS	480818.4006	4976652.758	6/13/2006	2.2	J-	MG/KG
S5W01-15B-SSR	480818.4043	4976653.063	6/13/2006	4.1	J-	MG/KG
S5W01-15F-SS	480794.7382	4976654.681	6/13/2006	3	J-	MG/KG
S5W01-16B-SS	480822.3896	4976667.558	6/13/2006	19.7		MG/KG
S5W01-16F-SS	480796.0864	4976665.785	6/13/2006	56.8		MG/KG
S5W01-17B-SS	480815.8596	4976682.389	6/13/2006	47.3		MG/KG
S5W01-17F-SS	480794.8271	4976684.304	6/13/2006	46.2		MG/KG
S5W01-18B-SS	480827.5023	4976693.281	6/13/2006	91.3		MG/KG
S5W01-18F-SS	480793.5843	4976691.627	6/13/2006	132		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5W01-19B-SS	480817.2356	4976702.751	6/13/2006	9.9		MG/KG
S5W01-19F-SS	480792.2584	4976704.677	6/13/2006	8.8		MG/KG
S5W01-19F-SSR	480792.2622	4976704.982	6/13/2006	14.6		MG/KG
S5W01-20B-SS	480827.4099	4976717.845	6/13/2006	17.5		MG/KG
S5W01-20F-SS	480794.9271	4976717.629	6/13/2006	6.2	J-	MG/KG
S5W01-21B-SS	480819.9541	4976732.366	6/13/2006	33.6		MG/KG
S5W01-21F-SS	480800.2088	4976725.019	6/13/2006	55		MG/KG
S5W01-22B-SS	480821.3189	4976749.025	6/13/2006	31.9		MG/KG
S5W01-22F-SS	480795.6747	4976741.075	6/13/2006	59.9		MG/KG
S5W01-23B-SS	480817.391	4976754.591	6/13/2006	3.9	J-	MG/KG
S5W01-23F-SS	480795.0215	4976749.104	6/13/2006	3.8	J-	MG/KG
S5W01-24B-SS	480822.6726	4976761.981	6/13/2006	8.6		MG/KG
S5W01-24F-SS	480796.3864	4976765.763	6/13/2006	6.7		MG/KG
S5W01-25B-SS	480824.0152	4976771.234	6/13/2006	35.6		MG/KG
S5W01-25F-SS	480800.3532	4976773.157	6/13/2006	43.8		MG/KG
S5W01-26B-SS	480814.8723	4976791.628	6/13/2006	42.1		MG/KG
S5W01-26F-SS	480792.5085	4976787.992	6/13/2006	68.4		MG/KG
S5W02-01B-SS	480703.2208	4976828.993	6/13/2006	3.6	J	MG/KG
S5W02-01F-SS	480693.0666	4976819.75	6/13/2006	6.6		MG/KG
S5W02-02B-SS	480724.225	4976817.821	6/13/2006	8.3		MG/KG
S5W02-02F-SS	480723.7303	4976827.647	6/13/2006	9.9		MG/KG
S5W02-03B-SS	480742.6162	4976812.211	6/13/2006	5.7		MG/KG
S5W02-03F-SS	480749.2406	4976828.854	6/13/2006	4.1	J	MG/KG
S5W02-04B-SS	480757.0462	4976801.059	6/13/2006	5.7		MG/KG
S5W02-04F-SS	480769.9097	4976814.02	6/13/2006	4.4	J	MG/KG
S5W02-06B-SS	480749.0791	4976775.162	6/13/2006	15.1		MG/KG
S5W02-06F-SS	480770.0929	4976775.896	6/13/2006	60.8		MG/KG
S5W02-07B-SS	480751.6643	4976760.343	6/13/2006	6.3		MG/KG
S5W02-07F-SS	480770.078	4976762.139	6/13/2006	4.6	J	MG/KG
S5W02-08B-SS	480747.6863	4976749.246	6/13/2006	4.3	J	MG/KG
S5W02-08B-SSD	480747.69	4976749.551	6/13/2006	4.3	J	MG/KG
S5W02-08F-SS	480770.5625	4976744.508	6/13/2006	6.6		MG/KG
S5W02-09B-SS	480752.9012	4976734.419	6/13/2006	37.6		MG/KG
S5W02-09F-SS	480771.2983	4976730.661	6/13/2006	23.5		MG/KG
S5W02-10B-SS	480750.2157	4976715.912	6/13/2006	10.8		MG/KG
S5W02-10F-SS	480771.2649	4976719.552	6/13/2006	16.4		MG/KG
S5W02-11B-SS	480751.486	4976701.097	6/13/2006	42.5		MG/KG
S5W02-11F-SS	480765.9553	4976702.905	6/13/2006	48.7		MG/KG
S5W02-12B-SS	480750.1211	4976684.438	6/13/2006	2.6	J	MG/KG
S5W02-12F-SS	480768.535	4976686.234	6/13/2006	2.2	J	MG/KG
S5W02-13B-SS	480744.8337	4976675.197	6/13/2006	22.6		MG/KG
S5W02-13F-SS	480769.7942	4976667.716	6/13/2006	30.9		MG/KG
S5W02-13S-SS	480754.0267	4976671.466	6/13/2006	33		MG/KG
S5W02-14B-SS	480753.9933	4976660.357	6/13/2006	1.8	J	MG/KG
S5W02-14F-SS	480768.4348	4976652.908	6/13/2006	1.7	J	MG/KG
S5W02-14G-SS	480753.9913	4976651.81	6/13/2006	4.5	J	MG/KG
S5W02-15B-SS	480718.4802	4976656.761	6/13/2006	2.7	J	MG/KG
S5W02-15F-SS	480692.1824	4976656.841	6/13/2006	4.7	J	MG/KG
S5W02-16B-SS	480714.5746	4976669.733	6/13/2006	5.7		MG/KG
S5W02-16F-SS	480692.2159	4976667.949	6/13/2006	4.9	J	MG/KG
S5W02-17B-SS	480726.4532	4976684.509	6/13/2006	28.2		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5W02-17F-SS	480698.8239	4976679.038	6/13/2006	24.9		MG/KG
S5W02-17F-SSR	480698.8276	4976679.343	6/13/2006	29.5		MG/KG
S5W02-18B-SS	480715.9787	4976699.352	6/13/2006	71.4		MG/KG
S5W02-18F-SS	480696.2612	4976701.263	6/13/2006	151		MG/KG
S5W02-19B-SS	480719.9736	4976716.003	6/13/2006	3.9	J	MG/KG
S5W02-19F-SS	480693.6649	4976712.38	6/13/2006	19		MG/KG
S5W02-20B-SS	480716.0848	4976734.53	6/13/2006	3.8	J	MG/KG
S5W02-20F-SS	480700.2951	4976730.874	6/13/2006	6		MG/KG
S5W02-21B-SS	480727.8868	4976745.833	6/13/2006	12.6		MG/KG
S5W02-21F-SS	480695.0803	4976745.702	6/13/2006	21		MG/KG
S5W02-22B-SS	480725.3892	4976767.828	6/13/2006	5.2	J	MG/KG
S5W02-22B-SSD	480725.393	4976768.132	6/13/2006	5.1	J	MG/KG
S5W02-22F-SS	480692.4953	4976760.521	6/13/2006	4.4	J	MG/KG
S5W02-23B-SS	480717.5335	4976778.96	6/13/2006	6.2		MG/KG
S5W02-23F-SS	480697.7882	4976771.614	6/13/2006	4.9	J	MG/KG
S5W02-24B-SS	480713.6113	4976786.378	6/13/2006	3.9	J	MG/KG
S5W02-24F-SS	480695.2144	4976790.136	6/13/2006	4.6	J	MG/KG
S5W02-25B-SS	480720.2414	4976804.872	6/13/2006	4.6	J	MG/KG
S5W02-25F-SS	480697.9055	4976810.494	6/13/2006	3.5	J	MG/KG
S5W02-25S-SS	480707.0872	4976803.061	6/13/2006	3.8	J	MG/KG
S5W03-01B-SS	480620.357	4976819.986	6/13/2006	29.7		MG/KG
S5W03-01F-SS	480595.3916	4976825.616	6/13/2006	8.3		MG/KG
S5W03-02B-SS	480644.1867	4976810.871	6/13/2006	7.2		MG/KG
S5W03-02F-SS	480640.6787	4976827.293	6/13/2006	6.1		MG/KG
S5W03-03F-SS	480662.4492	4976825.413	6/13/2006	3.3	J	MG/KG
S5W03-03S-SS	480667.6918	4976819.843	6/13/2006	5.9		MG/KG
S5W03-04B-SS	480651.8744	4976806.93	6/13/2006	8.8		MG/KG
S5W03-04F-SS	480674.2269	4976806.863	6/13/2006	17.4		MG/KG
S5W03-05B-SS	480642.6536	4976801.404	6/13/2006	4.1	J	MG/KG
S5W03-05F-SS	480672.8729	4976793.907	6/13/2006	4.1	J	MG/KG
S5W03-06B-SS	480639.979	4976786.6	6/13/2006	5.4	J	MG/KG
S5W03-06F-SS	480671.3028	4976787.024	6/13/2006	4.1	J	MG/KG
S5W03-08B-SS	480643.8564	4976764.371	6/13/2006	5.1	J	MG/KG
S5W03-08F-SS	480667.496	4976755.042	6/13/2006	4.2	J	MG/KG
S5W03-09B-SS	480642.4967	4976749.563	6/13/2006	5.6		MG/KG
S5W03-09F-SS	480664.8439	4976747.645	6/13/2006	4.8	J	MG/KG
S5W03-10B-SS	480646.4077	4976738.443	6/13/2006	4.2	J	MG/KG
S5W03-10F-SS	480670.0698	4976736.52	6/13/2006	3.1	J	MG/KG
S5W03-11B-SS	480639.5687	4976722.429	6/13/2006	32.9		MG/KG
S5W03-11B-SSR	480639.5724	4976722.734	6/13/2006	37.4		MG/KG
S5W03-11F-SS	480671.0337	4976723.198	6/13/2006	46		MG/KG
S5W03-12B-SS	480639.4601	4976710.789	6/13/2006	5.8		MG/KG
S5W03-12F-SS	480671.7167	4976712.032	6/13/2006	16.8		MG/KG
S5W03-14B-SS	480647.549	4976681.044	6/13/2006	5.5		MG/KG
S5W03-14F-SS	480671.2449	4976690.23	6/13/2006	12.1		MG/KG
S5W03-14S-SS	480659.3942	4976684.712	6/13/2006	5.9		MG/KG
S5W03-15B-SS	480639.2046	4976669.013	6/13/2006	20.3		MG/KG
S5W03-15F-SS	480673.028	4976669.89	6/13/2006	25.3		MG/KG
S5W03-16B-SS	480640.8906	4976653.293	6/13/2006	8.5		MG/KG
S5W03-16F-SS	480671.1442	4976656.904	6/13/2006	4.7	J	MG/KG
S5W03-17B-SS	480621.1673	4976653.352	6/13/2006	7.6		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5W03-17F-SS	480596.1844	4976653.428	6/13/2006	8		MG/KG
S5W03-18B-SS	480631.7424	4976671.835	6/13/2006	44.7		MG/KG
S5W03-18F-SS	480596.2237	4976666.388	6/13/2006	24.5		MG/KG
S5W03-18F-SSD	480596.2274	4976666.693	6/13/2006	22.6		MG/KG
S5W03-19B-SS	480619.9701	4976692.237	6/13/2006	4	J	MG/KG
S5W03-19F-SS	480597.6059	4976688.601	6/13/2006	4.6	J	MG/KG
S5W03-20B-SS	480612.0977	4976697.815	6/13/2006	10.4		MG/KG
S5W03-20F-SS	480595.7894	4976697.833	6/13/2006	9.9		MG/KG
S5W03-21B-SS	480620.0542	4976720.008	6/13/2006	5.7		MG/KG
S5W03-21F-SS	480597.6677	4976708.967	6/13/2006	6.1		MG/KG
S5W03-22B-SS	480614.8396	4976734.836	6/13/2006	5.9	J	MG/KG
S5W03-22F-SS	480595.8219	4976731.135	6/13/2006	5.5	J	MG/KG
S5W03-23B-SS	480622.7625	4976745.92	6/13/2006	3.8	J	MG/KG
S5W03-23S-SS	480595.1122	4976745.693	6/13/2006	5.2	J	MG/KG
S5W03-25B-SS	480621.5373	4976775.547	6/13/2006	25.1		MG/KG
S5W03-25F-SS	480594.7499	4976774.656	6/13/2006	39.6		MG/KG
S5W03-26B-SS	480620.2673	4976790.363	6/13/2006	5.8	J	MG/KG
S5W03-26F-SS	480593.9071	4976792.271	6/13/2006	5.8	J	MG/KG
S5W03-27B-SS	480620.329	4976810.729	6/13/2006	6.4	J	MG/KG
S5W03-27F-SS	480595.9697	4976805.866	6/13/2006	5.6	J	MG/KG
S5W04-02F-SS	480544.5864	4976817.087	6/13/2006	6.1		MG/KG
S5W04-03F-SS	480567.7652	4976828.693	6/13/2006	4.4	J	MG/KG
S5W04-03F-SSD	480567.7689	4976828.997	6/13/2006	5	J	MG/KG
S5W04-03S-SS	480563.8126	4976818.306	6/13/2006	4.1	J	MG/KG
S5W04-04B-SS	480537.5478	4976805.703	6/13/2006	4.2	J	MG/KG
S5W04-04F-SS	480570.4895	4976804.375	6/13/2006	4.6	J	MG/KG
S5W04-05B-SS	480538.7421	4976790.312	6/13/2006	23.9		MG/KG
S5W04-05F-SS	480572.9211	4976786.803	6/13/2006	26.6		MG/KG
S5W04-06B-SS	480551.8552	4976777.61	6/13/2006	111		MG/KG
S5W04-06F-SS	480574.2022	4976775.691	6/13/2006	116		MG/KG
S5W04-06F-SSR	480574.2059	4976775.996	6/13/2006	71.5		MG/KG
S5W04-07B-SS	480539.7526	4976762.701	6/13/2006	7.2	J-	MG/KG
S5W04-07F-SS	480566.2849	4976766.458	6/13/2006	32.5		MG/KG
S5W04-07F-SSR	480566.2887	4976766.762	6/13/2006	14.8		MG/KG
S5W04-08B-SS	480546.4944	4976744.3	6/13/2006	15.4		MG/KG
S5W04-08F-SS	480568.8584	4976747.935	6/13/2006	4.8	J	MG/KG
S5W04-09B-SS	480539.8193	4976730.521	6/13/2006	5.5		MG/KG
S5W04-09F-SS	480571.0467	4976731.416	6/13/2006	4.5	J	MG/KG
S5W04-11B-SS	480552.7967	4976703.991	6/13/2006	5.5		MG/KG
S5W04-11F-SS	480571.4033	4976701.987	6/13/2006	4.9	J	MG/KG
S5W04-12B-SS	480547.6179	4976681.347	6/13/2006	5.3	J	MG/KG
S5W04-12F-SS	480571.297	4976684.978	6/13/2006	7.9		MG/KG
S5W04-13B-SS	480539.1339	4976670.477	6/13/2006	12.9		MG/KG
S5W04-13F-SS	480565.9981	4976672.034	6/13/2006	4.4	J	MG/KG
S5W04-14B-SS	480543.6001	4976657.291	6/13/2006	4	J	MG/KG
S5W04-14B-SSD	480543.6038	4976657.595	6/13/2006	4	J	MG/KG
S5W04-14F-SS	480573.8369	4976655.347	6/13/2006	4.3	J	MG/KG
S5W04-15F-SS	480529.125	4976653.632	6/13/2006	3.8	J	MG/KG
S5W04-16F-SS	480494.9999	4976656.009	6/13/2006	6.2		MG/KG
S5W04-16S-SS	480505.4514	4976651.852	6/13/2006	5.9		MG/KG
S5W04-17B-SS	480522.6182	4976675.869	6/13/2006	47.9		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5W04-17F-SS	480494.8258	4976669.642	6/13/2006	29.8		MG/KG
S5W04-18B-SS	480522.6407	4976683.275	6/13/2006	4	J	MG/KG
S5W04-18F-SS	480495.0169	4976679.656	6/13/2006	3.4	J	MG/KG
S5W04-18S-SS	480505.577	4976680.19	6/13/2006	4.3	J	MG/KG
S5W04-19B-SS	480514.7965	4976698.11	6/13/2006	4.5	J	MG/KG
S5W04-19F-SS	480495.813	4976697.226	6/13/2006	5.2	J	MG/KG
S5W04-19S-SS	480504.317	4976711.102	6/13/2006	5.2	J	MG/KG
S5W04-20B-SS	480528.0524	4976733.248	6/13/2006	10.1		MG/KG
S5W04-20S-SS	480495.9973	4976731.73	6/13/2006	5.6		MG/KG
S5W04-22B-SS	480520.2646	4976766.598	6/13/2006	4.6	J	MG/KG
S5W04-22F-SS	480496.9176	4976762.183	6/13/2006	3.6	J	MG/KG
S5W04-23B-SS	480513.741	4976783.281	6/13/2006	3.3	J	MG/KG
S5W04-23F-SS	480496.4532	4976775.823	6/13/2006	4.1	J	MG/KG
S5W04-24B-SS	480528.0777	4976790.994	6/13/2006	39		MG/KG
S5W04-24F-SS	480495.3668	4976794.445	6/13/2006	96.2	J	MG/KG
S5W04-24S-SS	480508.5267	4976798.108	6/13/2006	76.4		MG/KG
S5W05-01B-SS	480423.1572	4976829.843	6/13/2006	4.7	J	MG/KG
S5W05-01S-SS	480404.7265	4976822.494	6/13/2006	3.7	J	MG/KG
S5W05-02B-SS	480434.6519	4976821.698	6/13/2006	41.7	J	MG/KG
S5W05-02F-SS	480466.7915	4976821.799	6/13/2006	126	J	MG/KG
S5W05-03B-SS	480440.1653	4976802.02	6/13/2006	85.4	J	MG/KG
S5W05-03F-SS	480466.4851	4976809.345	6/13/2006	7.7	J	MG/KG
S5W05-04B-SS	480437.4847	4976785.365	6/13/2006	3.5	J	MG/KG
S5W05-04F-SS	480463.5386	4976791.9	6/13/2006	3.4	J	MG/KG
S5W05-05B-SS	480434.2017	4976775.309	6/13/2006	4.5	J	MG/KG
S5W05-05F-SS	480467.4436	4976778.928	6/13/2006	4.8	J	MG/KG
S5W05-06B-SS	480449.2562	4976764.963	6/13/2006	6.8	J	MG/KG
S5W05-06B-SSD	480449.2599	4976765.267	6/13/2006	7.3	J	MG/KG
S5W05-06F-SS	480467.3518	4976761.699	6/13/2006	59.4	J	MG/KG
S5W05-07B-SS	480446.5869	4976752.011	6/13/2006	4	J	MG/KG
S5W05-07F-SS	480467.2219	4976744.159	6/13/2006	5	J	MG/KG
S5W05-07F-SSR	480467.2256	4976744.464	6/13/2006	5	J	MG/KG
S5W05-08B-SS	480447.8452	4976733.492	6/13/2006	3.4	J	MG/KG
S5W05-08F-SS	480468.1177	4976730.858	6/13/2006	3.5	J	MG/KG
S5W05-09B-SS	480434.4423	4976715.594	6/13/2006	4.4	J	MG/KG
S5W05-09F-SS	480468.8323	4976716.765	6/13/2006	4.6	J	MG/KG
S5W05-11B-SS	480441.1237	4976685.375	6/13/2006	34.6	J	MG/KG
S5W05-11F-SS	480468.7418	4976687.142	6/13/2006	25.2		MG/KG
S5W05-11F-SSD	480468.7456	4976687.447	6/13/2006	23.8		MG/KG
S5W05-12B-SS	480445.04	4976676.106	6/13/2006	5.1	J	MG/KG
S5W05-12F-SS	480467.7561	4976672.207	6/13/2006	8		MG/KG
S5W05-12F-SSR	480467.7598	4976672.512	6/13/2006	7.7		MG/KG
S5W05-14B-SS	480414.7153	4976656.974	6/13/2006	3.2	J	MG/KG
S5W05-14F-SS	480400.2659	4976654.025	6/13/2006	19.9		MG/KG
S5W05-15B-SS	480421.3438	4976666.921	6/13/2006	33.3		MG/KG
S5W05-15F-SS	480393.1214	4976663.249	6/13/2006	152		MG/KG
S5W05-16B-SS	480414.7977	4976676.198	6/13/2006	5.7		MG/KG
S5W05-16F-SS	480395.063	4976672.556	6/13/2006	10.1		MG/KG
S5W05-17B-SS	480417.4728	4976691.002	6/13/2006	6.8		MG/KG
S5W05-17F-SS	480397.7326	4976685.508	6/13/2006	7		MG/KG
S5W05-18B-SS	480414.894	4976707.673	6/13/2006	5.6		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5W05-18F-SS	480393.2406	4976702.13	6/13/2006	6.5		MG/KG
S5W05-20B-SS	480411.0174	4976729.902	6/13/2006	7	J	MG/KG
S5W05-20F-SS	480391.3	4976731.814	6/13/2006	5.8	J	MG/KG
S5W05-21B-SS	480417.6541	4976750.248	6/13/2006	6.8	J	MG/KG
S5W05-21F-SS	480397.9197	4976746.605	6/13/2006	6.5	J	MG/KG
S5W05-22B-SS	480419.0199	4976766.907	6/13/2006	6.9	J	MG/KG
S5W05-22F-SS	480392.717	4976765.136	6/13/2006	5.6	J	MG/KG
S5W05-23B-SS	480419.0709	4976783.57	6/13/2006	6	J	MG/KG
S5W05-23F-SS	480393.037	4976775.893	6/13/2006	5.6	J	MG/KG
S5W05-24B-SS	480416.4752	4976794.686	6/13/2006	6	J	MG/KG
S5W05-24F-SS	480392.3582	4976790.162	6/13/2006	6.3	J	MG/KG
S5W05-24F-SSR	480392.3619	4976790.467	6/13/2006	7.4		MG/KG
S5W05-25B-SS	480409.9123	4976798.409	6/13/2006	5.5	J	MG/KG
S5W05-25F-SS	480392.1978	4976799.296	6/13/2006	5.2	J	MG/KG
S5W06-01B-SS	480317.9405	4976820.909	6/14/2006	4.6	J	MG/KG
S5W06-01F-SS	480296.8288	4976821.902	6/14/2006	6.2	J+	MG/KG
S5W06-02B-SS	480344.266	4976830.085	6/14/2006	5	J	MG/KG
S5W06-02B-SSD	480344.2697	4976830.39	6/14/2006	6.3		MG/KG
S5W06-02F-SS	480369.3778	4976822.505	6/14/2006	4.4	J	MG/KG
S5W06-03B-SS	480350.7777	4976809.699	6/14/2006	4.9	J	MG/KG
S5W06-03F-SS	480367.8652	4976807.795	6/14/2006	6.1		MG/KG
S5W06-03F-SSD	480367.8689	4976808.1	6/14/2006	5.3	J	MG/KG
S5W06-04B-SS	480349.4174	4976794.892	6/14/2006	7.2		MG/KG
S5W06-04F-SS	480370.4438	4976791.124	6/14/2006	5.3	J	MG/KG
S5W06-05B-SS	480336.8968	4976776.605	6/14/2006	8.2		MG/KG
S5W06-05B-SSR	480336.9005	4976776.909	6/14/2006	7.8		MG/KG
S5W06-05F-SS	480368.4411	4976778.249	6/14/2006	7.4		MG/KG
S5W06-06B-SS	480344.0555	4976761.582	6/14/2006	5.6	J	MG/KG
S5W06-06F-SS	480371.6621	4976759.646	6/14/2006	7.6		MG/KG
S5W06-06F-SSR	480371.6658	4976759.951	6/14/2006	5.5		MG/KG
S5W06-06S-SS	480357.1929	4976757.839	6/14/2006	5.6		MG/KG
S5W06-07B-SS	480354.529	4976746.738	6/14/2006	4.6	J	MG/KG
S5W06-07F-SS	480365.0423	4976744.855	6/14/2006	5.4		MG/KG
S5W06-08B-SS	480347.9262	4976737.501	6/14/2006	46.4		MG/KG
S5W06-08F-SS	480370.2734	4976735.581	6/14/2006	42		MG/KG
S5W06-11B-SS	480349.0819	4976685.657	6/14/2006	5.2	J	MG/KG
S5W06-11F-SS	480370.1877	4976682.767	6/14/2006	5.4		MG/KG
S5W06-12B-SS	480349.0421	4976672.697	6/14/2006	6.1		MG/KG
S5W06-12F-SS	480370.1423	4976667.955	6/14/2006	3.8	J	MG/KG
S5W06-13B-SS	480347.6704	4976654.187	6/14/2006	5.2		MG/KG
S5W06-13F-SS	480370.1025	4976654.995	6/14/2006	5.6		MG/KG
S5W06-15B-SS	480310.899	4976669.111	6/14/2006	5.8	J-	MG/KG
S5W06-15F-SS	480300.3856	4976670.995	6/14/2006	5.4	J-	MG/KG
S5W06-16F-SS	480295.166	4976683.971	6/14/2006	59.1		MG/KG
S5W06-16S-SS	480317.5076	4976680.2	6/14/2006	58.8		MG/KG
S5W06-17B-SS	480320.1829	4976695.003	6/14/2006	9.9	J-	MG/KG
S5W06-17F-SS	480297.8585	4976704.329	6/14/2006	22.1		MG/KG
S5W06-18B-SS	480316.2952	4976713.53	6/14/2006	3.8	J-	MG/KG
S5W06-18F-SS	480297.9041	4976719.141	6/14/2006	5.7	J-	MG/KG
S5W06-19B-SS	480326.9638	4976732.534	6/14/2006	30.1		MG/KG
S5W06-19F-SS	480296.2012	4976732.065	6/14/2006	39.1		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5W06-20B-SS	480320.3481	4976748.695	6/14/2006	7.6	J+	MG/KG
S5W06-20F-SS	480296.5012	4976748.111	6/14/2006	7.1	J+	MG/KG
S5W06-21B-SS	480327.7234	4976761.101	6/14/2006	18.6		MG/KG
S5W06-21F-SS	480298.0247	4976762.33	6/14/2006	20.9		MG/KG
S5W06-22B-SS	480321.7541	4976778.314	6/14/2006	6.5	J+	MG/KG
S5W06-22F-SS	480295.4454	4976774.692	6/14/2006	4.7	J	MG/KG
S5W06-22F-SSD	480295.4491	4976774.996	6/14/2006	4.5	J	MG/KG
S5W06-23B-SS	480316.5459	4976794.993	6/14/2006	6	J+	MG/KG
S5W06-23F-SS	480297.2587	4976790.203	6/14/2006	4	J	MG/KG
S5W06-24A-SS	480296.3598	4976811.543	6/14/2006	2.2	J	MG/KG
S5W06-24B-SS	480297.0679	4976809.38	6/14/2006	3.3	J	MG/KG
S5W06-24C-SS	480296.8515	4976804.311	6/14/2006	5.2	J	MG/KG
S5W06-24D-SS	480313.9542	4976802.263	6/14/2006	4.7	J	MG/KG
S5W06-24E-SS	480319.1642	4976791.282	6/14/2006	3.8	J	MG/KG
S5W06-24F-SS	480319.2211	4976809.796	6/14/2006	18.8		MG/KG
S5W07-01F-SS	480193.0066	4976829.132	6/14/2006	6.7	J	MG/KG
S5W07-02B-SS	480219.351	4976819.074	6/7/2006	7.1		MG/KG
S5W07-02F-SS	480214.7885	4976828.468	6/7/2006	5.9		MG/KG
S5W07-03F-SS	480265.4539	4976824.255	6/7/2006	4.7	J	MG/KG
S5W07-03F-SSR	480265.4576	4976824.559	6/7/2006	4	J	MG/KG
S5W07-03SN-SS	480250.9114	4976830.373	6/7/2006	4.5	J	MG/KG
S5W07-03SS-SS	480244.3143	4976822.987	6/7/2006	4.8	J	MG/KG
S5W07-04B-SS	480249.5451	4976813.714	6/7/2006	4.7	J	MG/KG
S5W07-04B-SSD	480249.5489	4976814.018	6/7/2006	5.6		MG/KG
S5W07-04F-SS	480267.9474	4976811.806	6/7/2006	5.2	J	MG/KG
S5W07-06B-SS	480248.1389	4976784.095	6/7/2006	4.1	J	MG/KG
S5W07-06F-SS	480266.9367	4976783.767	6/7/2006	5.2	J	MG/KG
S5W07-06F-SSR	480266.9404	4976784.071	6/7/2006	4.5	J	MG/KG
S5W07-07B-SS	480244.16	4976772.998	6/7/2006	5.1	J	MG/KG
S5W07-07F-SS	480267.0005	4976769.544	6/7/2006	4	J	MG/KG
S5W07-08B-SS	480244.1142	4976758.187	6/7/2006	4.8	J	MG/KG
S5W07-08F-SS	480266.9777	4976762.139	6/7/2006	5.2	J	MG/KG
S5W07-09B-SS	480245.3948	4976747.074	6/7/2006	5.6		MG/KG
S5W07-09F-SS	480266.1421	4976748.358	6/7/2006	5.6		MG/KG
S5W07-10B-SS	480247.9845	4976734.106	6/7/2006	4.6	J	MG/KG
S5W07-10F-SS	480265.6505	4976733.397	6/7/2006	4.3	J	MG/KG
S5W07-11B-SS	480250.5686	4976719.286	6/7/2006	3.6	J	MG/KG
S5W07-11F-SS	480264.7825	4976721.157	6/7/2006	4	J	MG/KG
S5W07-13B-SS	480247.8817	4976700.78	6/7/2006	4.6	J	MG/KG
S5W07-13F-SS	480265.0877	4976695.963	6/7/2006	5.1	J	MG/KG
S5W07-14B-SS	480245.1947	4976682.274	6/7/2006	179		MG/KG
S5W07-14F-SS	480265.0704	4976682.116	6/7/2006	93.9		MG/KG
S5W07-14F-SSD	480265.0742	4976682.42	6/7/2006	83.5		MG/KG
S5W07-19B-SS	480217.6509	4976704.576	6/7/2006	22.2		MG/KG
S5W07-19B-SSR	480217.6546	4976704.881	6/7/2006	23.2		MG/KG
S5W07-19F-SS	480192.6682	4976704.654	6/7/2006	29.9		MG/KG
S5W07-20B-SS	480219.0058	4976717.532	6/7/2006	5.9		MG/KG
S5W07-20F-SS	480194.0346	4976721.313	6/7/2006	47.6		MG/KG
S5W07-21B-SS	480220.7914	4976737.733	6/7/2006	4.4	J	MG/KG
S5W07-21F-SS	480191.8413	4976730.417	6/7/2006	4.3	J	MG/KG
S5W07-22B-SS	480215.1528	4976747.168	6/7/2006	4.4	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S5W07-22F-SS	480196.7446	4976747.225	6/7/2006	4	J	MG/KG
S5W07-23B-SS	480224.9079	4976758.799	6/14/2006	4.2	J	MG/KG
S5W07-23F-SS	480194.4429	4976759.408	6/14/2006	5	J	MG/KG
S5W07-24B-SS	480219.1718	4976771.224	6/7/2006	6.4	J	MG/KG
S5W07-24F-SS	480195.5157	4976775	6/7/2006	6.9	J	MG/KG
S5W07-25B-SS	480221.8302	4976780.473	6/14/2006	31.5	J	MG/KG
S5W07-25F-SS	480190.2849	4976784.274	6/14/2006	26.9	J	MG/KG
S5W07-26B-SS	480215.3074	4976797.156	6/7/2006	80.6	J	MG/KG
S5W07-26F-SS	480192.9433	4976793.523	6/7/2006	14.4	J	MG/KG
S5W07-27B-SS	480216.6566	4976808.261	6/14/2006	6.7	J	MG/KG
S5W07-27F-SS	480195.6418	4976815.732	6/14/2006	5.3	J	MG/KG
S6E01-01B-SS	480901.0894	4976602.522	6/7/2006	5.3		MG/KG
S6E01-01F-SS	480904.0276	4976627.101	6/7/2006	5.1	J	MG/KG
S6E01-02B-SS	480918.2107	4976611.728	6/7/2006	3.9	J	MG/KG
S6E01-02F-SS	480928.774	4976626.508	6/7/2006	3.8	J	MG/KG
S6E01-03B-SS	480940.5694	4976613.513	6/7/2006	8.5		MG/KG
S6E01-03F-SS	480937.9672	4976622.778	6/7/2006	5.4	J	MG/KG
S6E01-04B-SS	480960.2764	4976607.9	6/7/2006	5	J	MG/KG
S6E01-04F-SS	480956.3813	4976624.574	6/7/2006	3.7	J	MG/KG
S6E01-05B-SS	480966.8619	4976611.583	6/7/2006	6.1		MG/KG
S6E01-05F-SS	480965.6021	4976630.101	6/7/2006	7.1		MG/KG
S6E01-06B-SS	480987.9332	4976622.629	6/7/2006	5.7	U	MG/KG
S6E01-06F-SS	480997.1375	4976622.602	6/7/2006	5.8	U	MG/KG
S6E01-07B-SS	480993.1653	4976613.356	6/7/2006	7.3		MG/KG
S6E01-07F-SS	481002.7333	4976602.261	6/7/2006	5.6	U	MG/KG
S6E01-08B-SS	480974.6852	4976589.342	6/7/2006	5.6	J	MG/KG
S6E01-08F-SS	481003.635	4976596.662	6/7/2006	4.8	J-	MG/KG
S6E01-11B-SS	480973.2327	4976543.06	6/7/2006	17.2		MG/KG
S6E01-11F-SS	480998.2215	4976544.837	6/7/2006	186		MG/KG
S6E01-12B-SS	480956.1469	4976530.044	6/7/2006	54.9		MG/KG
S6E01-12F-SS	481004.7466	4976528.155	6/7/2006	99.2		MG/KG
S6E01-14B-SS	480966.515	4976494.942	6/7/2006	4	J	MG/KG
S6E01-14F-SS	480995.4432	4976494.856	6/7/2006	19.6		MG/KG
S6E01-14F-SSD	480995.447	4976495.161	6/7/2006	17.1		MG/KG
S6E01-15B-SS	480973.051	4976481.963	6/7/2006	7.4		MG/KG
S6E01-15F-SS	481002.7095	4976482.406	6/7/2006	21.4	J	MG/KG
S6E01-15F-SSR	481002.7132	4976482.711	6/7/2006	8.1	J	MG/KG
S6E01-16B-SS	480930.9955	4976489.494	6/7/2006	7.7		MG/KG
S6E01-16F-SS	480925.7138	4976482.104	6/7/2006	5.1		MG/KG
S6E01-17B-SS	480915.222	4976491.392	6/7/2006	40.7		MG/KG
S6E01-17F-SS	480911.5703	4976476.003	6/7/2006	29	J	MG/KG
S6E01-17F-SSR	480911.5741	4976476.307	6/7/2006	36.6	J	MG/KG
S6E01-18B-SS	480934.9568	4976495.036	6/7/2006	39		MG/KG
S6E01-18F-SS	480902.1114	4976504.392	6/7/2006	29.1		MG/KG
S6E01-19B-SS	480913.9733	4976513.613	6/7/2006	9.6	J	MG/KG
S6E01-19B-SSR	480913.9771	4976513.918	6/7/2006	9.1	J	MG/KG
S6E01-19F-SS	480901.9998	4976515.124	6/7/2006	9.8		MG/KG
S6E01-20B-SS	480946.2789	4976524.262	6/7/2006	10.3		MG/KG
S6E01-20F-SS	480898.233	4976526.621	6/7/2006	7.4		MG/KG
S6E01-21B-SS	480940.3434	4976537.604	6/7/2006	11.5		MG/KG
S6E01-21F-SS	480900.896	4976537.721	6/7/2006	5.8	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S6E01-23B-SS	480946.5832	4976562.568	6/7/2006	87.2		MG/KG
S6E01-23F-SS	480899.2734	4976562.786	6/7/2006	37.3		MG/KG
S6E01-25B-SS	480928.6581	4976587.628	6/7/2006	44.4		MG/KG
S6E01-25F-SS	480910.2605	4976591.386	6/7/2006	73.2		MG/KG
S6E02-01B-SS	481049.5489	4976616.459	6/7/2006	59.3		MG/KG
S6E02-01F-SS	481033.1388	4976622.629	6/7/2006	3.7	J	MG/KG
S6E02-02B-SS	481064.7819	4976617.485	6/7/2006	42.8		MG/KG
S6E02-02F-SS	481070.7771	4976624.235	6/7/2006	143		MG/KG
S6E02-04B-SS	481128.5943	4976611.104	6/7/2006	5.6		MG/KG
S6E02-04F-SS	481136.4891	4976612.932	6/7/2006	10.7		MG/KG
S6E02-04S-SS	481103.6167	4976613.029	6/7/2006	5.4	J	MG/KG
S6E02-05B-SS	481099.6173	4976594.526	6/7/2006	6.3		MG/KG
S6E02-05F-SS	481131.1749	4976594.433	6/7/2006	18		MG/KG
S6E02-05F-SSR	481131.1787	4976594.738	6/7/2006	32.6		MG/KG
S6E02-06B-SS	481090.5202	4976575.444	6/7/2006	54.5		MG/KG
S6E02-06F-SS	481136.827	4976575.39	6/7/2006	50.6		MG/KG
S6E02-07B-SS	481090.5122	4976558.792	6/7/2006	7		MG/KG
S6E02-07F-SS	481136.4021	4976561.021	6/7/2006	6.9		MG/KG
S6E02-08B-SS	481107.3591	4976544.514	6/7/2006	282		MG/KG
S6E02-08F-SS	481134.9832	4976548.136	6/7/2006	201		MG/KG
S6E02-09B-SS	481103.3707	4976529.714	6/7/2006	77.2		MG/KG
S6E02-09F-SS	481136.2435	4976529.617	6/7/2006	437		MG/KG
S6E02-10B-SS	481123.0397	4976511.142	6/7/2006	4.6	J	MG/KG
S6E02-10F-SS	481136.2488	4976513.977	6/7/2006	4	J	MG/KG
S6E02-11B-SS	481105.913	4976500.084	6/7/2006	5.3	J	MG/KG
S6E02-11F-SS	481136.1507	4976498.143	6/7/2006	5.1	J	MG/KG
S6E02-12SE-SS	481136.7487	4976476.333	6/7/2006	48.8		MG/KG
S6E02-12SW-SS	481117.2513	4976475.623	6/7/2006	37.4	J	MG/KG
S6E02-12SW-SSR	481117.2551	4976475.928	6/7/2006	69.1	J	MG/KG
S6E02-13B-SS	481100.5822	4976476.031	6/7/2006	12.2		MG/KG
S6E02-13F-SS	481134.7921	4976483.335	6/7/2006	14.4		MG/KG
S6E02-13S-SS	481111.1167	4976482.104	6/7/2006	67.4		MG/KG
S6E02-14B-SS	481079.6201	4976502.013	6/7/2006	27.1		MG/KG
S6E02-14F-SS	481075.3651	4976475.331	6/7/2006	35.4		MG/KG
S6E02-15B-SS	481065.145	4976498.353	6/7/2006	15.1		MG/KG
S6E02-15F-SS	481061.7127	4976476.316	6/7/2006	112	J	MG/KG
S6E02-16B-SS	481045.4048	4976492.857	6/7/2006	93.4		MG/KG
S6E02-16F-SS	481048.2138	4976478.175	6/7/2006	392	J	MG/KG
S6E02-17B-SS	481032.272	4976498.45	6/7/2006	12.5	J	MG/KG
S6E02-17F-SS	481033.9972	4976475.894	6/7/2006	72.9	J	MG/KG
S6E02-19B-SS	481053.3929	4976526.159	6/7/2006	4.7	J	MG/KG
S6E02-19F-SS	481031.0449	4976528.077	6/7/2006	3.6	J	MG/KG
S6E02-20B-SS	481053.4478	4976544.674	6/7/2006	5.2	J	MG/KG
S6E02-20F-SS	481033.8534	4976545.75	6/7/2006	4.9	J	MG/KG
S6E02-21B-SS	481054.7956	4976555.778	6/7/2006	8.2		MG/KG
S6E02-21B-SSD	481054.7993	4976556.083	6/7/2006	7.9		MG/KG
S6E02-21F-SS	481033.4054	4976558.877	6/7/2006	8.1	J	MG/KG
S6E02-22B-SS	481079.3344	4976575.403	6/7/2006	5.3	J	MG/KG
S6E02-22F-SS	481036.4527	4976578.05	6/7/2006	3.4	J	MG/KG
S6E02-23B-SS	481061.4797	4976592.788	6/7/2006	4.6	J	MG/KG
S6E02-23F-SS	481034.69	4976589.89	6/7/2006	3.8	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S6E02-24B-SS	481062.822	4976602.041	6/7/2006	15.2		MG/KG
S6E02-24F-SS	481034.3292	4976604.848	6/7/2006	208		MG/KG
S6E03-01F-SS	481166.7644	4976623.952	6/8/2006	132		MG/KG
S6E03-01G-SS	481193.0569	4976622.023	6/8/2006	28.5		MG/KG
S6E03-02F-SS	481208.8519	4976627.531	6/7/2006	4.9	J	MG/KG
S6E03-03F-SS	481229.0576	4976626.848	6/7/2006	60.5		MG/KG
S6E03-04B-SS	481249.5811	4976616.303	6/7/2006	6.3		MG/KG
S6E03-04F-SS	481269.3154	4976619.948	6/7/2006	5.8		MG/KG
S6E03-05B-SS	481245.5984	4976603.354	6/7/2006	5		MG/KG
S6E03-05F-SS	481271.1739	4976601.003	6/7/2006	5.1		MG/KG
S6E03-06B-SS	481237.6656	4976588.566	6/7/2006	5	J	MG/KG
S6E03-06F-SS	481269.2341	4976592.176	6/7/2006	5	J	MG/KG
S6E03-07B-SS	481222.393	4976572.062	6/7/2006	5.8		MG/KG
S6E03-07F-SS	481269.3338	4976573.473	6/7/2006	6.4		MG/KG
S6E03-07F-SSR	481269.3375	4976573.777	6/7/2006	5.9		MG/KG
S6E03-08B-SS	481241.5397	4976564.485	6/7/2006	9.9		MG/KG
S6E03-08B-SSR	481241.5435	4976564.79	6/7/2006	8.4		MG/KG
S6E03-08F-SS	481270.446	4976556.995	6/7/2006	7.9		MG/KG
S6E03-09B-SS	481241.4692	4976540.417	6/7/2006	104		MG/KG
S6E03-09F-SS	481258.5793	4976545.921	6/7/2006	36.6		MG/KG
S6E03-09F-SSD	481258.583	4976546.226	6/7/2006	36.7		MG/KG
S6E03-10B-SS	481237.4864	4976527.468	6/7/2006	5.8	J	MG/KG
S6E03-10F-SS	481269.6342	4976529.106	6/7/2006	5.7	J	MG/KG
S6E03-11B-SS	481266.3983	4976521.829	6/7/2006	5.8		MG/KG
S6E03-11F-SS	481269.8992	4976516.182	6/7/2006	7.1		MG/KG
S6E03-11F-SSR	481269.9029	4976516.487	6/7/2006	7.4		MG/KG
S6E03-12B-SS	481247.9352	4976503.369	6/7/2006	9.2		MG/KG
S6E03-12B-SSD	481247.939	4976503.673	6/7/2006	9.2		MG/KG
S6E03-12F-SS	481270.3233	4976505.333	6/7/2006	6.8	J	MG/KG
S6E03-13B-SS	481249.2067	4976488.553	6/7/2006	12.2	J	MG/KG
S6E03-13F-SS	481263.6872	4976494.065	6/7/2006	7.4	J	MG/KG
S6E03-14B-SS	481247.8701	4976481.152	6/7/2006	50		MG/KG
S6E03-14F-SS	481268.8926	4976475.536	6/7/2006	29.4		MG/KG
S6E03-15B-SS	481225.5382	4976488.623	6/7/2006	14.7		MG/KG
S6E03-15F-SS	481223.059	4976475.37	6/7/2006	59.8	J	MG/KG
S6E03-15F-SSD	481223.0627	4976475.675	6/7/2006	63.5	J	MG/KG
S6E03-16B-SS	481211.1229	4976505.328	6/7/2006	6.4		MG/KG
S6E03-16F-SS	481211.0414	4976477.557	6/7/2006	31.1	J	MG/KG
S6E03-17B-SS	481198.1309	4976477.565	6/7/2006	25.6	J	MG/KG
S6E03-17F-SS	481171.5922	4976474.743	6/7/2006	71	J	MG/KG
S6E03-17S-SS	481170.2787	4976477.677	6/7/2006	22.2	J	MG/KG
S6E03-19B-SS	481190.0897	4976507.241	6/7/2006	23.7		MG/KG
S6E03-19F-SS	481166.4157	4976505.46	6/7/2006	205		MG/KG
S6E03-20B-SS	481192.7304	4976510.937	6/7/2006	11.5		MG/KG
S6E03-20F-SS	481165.6688	4976517.107	6/7/2006	65.2		MG/KG
S6E03-21B-SS	481192.7848	4976529.451	6/8/2006	47.5		MG/KG
S6E03-21F-SS	481167.27	4976527.739	6/8/2006	81.6		MG/KG
S6E03-21F-SSD	481167.2737	4976528.043	6/8/2006	109		MG/KG
S6E03-23B-SS	481213.5275	4976559.18	6/7/2006	5.8	J	MG/KG
S6E03-23F-SS	481171.8388	4976560.987	6/7/2006	4.5	J	MG/KG
S6E03-24B-SS	481196.8547	4976572.022	6/8/2006	164		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S6E03-24F-SS	481167.9213	4976570.256	6/8/2006	132		MG/KG
S6E03-25B-SS	481192.9535	4976586.846	6/8/2006	13.9		MG/KG
S6E03-25F-SS	481164.6663	4976585.965	6/8/2006	37.9		MG/KG
S6E03-25F-SSD	481164.6701	4976586.27	6/8/2006	48.2		MG/KG
S6E03-26B-SS	481214.4739	4976597.755	6/8/2006	4.3	J	MG/KG
S6E03-26F-SS	481164.288	4976595.507	6/8/2006	6.9		MG/KG
S6E03-27B-SS	481191.7093	4976610.918	6/8/2006	11.4		MG/KG
S6E03-27F-SS	481165.8646	4976610.192	6/8/2006	8		MG/KG
S6E04-02B-SS	481356.1198	4976627.1	6/6/2006	6.2		MG/KG
S6E04-02F-SS	481378.4008	4976622.325	6/6/2006	7.5		MG/KG
S6E04-03B-SS	481350.8283	4976616.006	6/6/2006	6.1		MG/KG
S6E04-03F-SS	481378.685	4976610.535	6/6/2006	7.1	J	MG/KG
S6E04-04B-SS	481344.6941	4976594.956	6/6/2006	7.7		MG/KG
S6E04-04F-SS	481378.2314	4976595.474	6/6/2006	8.3		MG/KG
S6E04-05B-SS	481344.6122	4976583.259	6/6/2006	8.6		MG/KG
S6E04-05F-SS	481379.0707	4976584.311	6/6/2006	10.3		MG/KG
S6E04-06B-SS	481350.6881	4976567.869	6/6/2006	91.1		MG/KG
S6E04-06F-SS	481375.8264	4976569.873	6/6/2006	47.5		MG/KG
S6E04-07B-SS	481344.4671	4976555.774	6/6/2006	9.2		MG/KG
S6E04-07F-SS	481378.2055	4976554.987	6/6/2006	9.1		MG/KG
S6E04-09B-SS	481344.3347	4976525.215	6/6/2006	6.3		MG/KG
S6E04-09F-SS	481370.2985	4976528.932	6/6/2006	7.1		MG/KG
S6E04-10B-SS	481353.1558	4976512.319	6/6/2006	6.2		MG/KG
S6E04-10F-SS	481344.3187	4976506.725	6/6/2006	6.5		MG/KG
S6E04-11B-SS	481349.157	4976493.815	6/6/2006	5.8		MG/KG
S6E04-11F-SS	481378.1071	4976501.137	6/6/2006	6.2		MG/KG
S6E04-12B-SS	481353.0694	4976482.695	6/6/2006	10.3		MG/KG
S6E04-12S-SS	481364.2248	4976475.463	6/6/2006	7.4		MG/KG
S6E04-13B-SS	481335.2259	4976478.426	6/6/2006	6.2		MG/KG
S6E04-13F-SS	481299.7715	4976481.432	6/6/2006	8		MG/KG
S6E04-14B-SS	481322.8805	4976501.298	6/6/2006	30.9		MG/KG
S6E04-14F-SS	481303.1567	4976501.356	6/6/2006	8.6		MG/KG
S6E04-15B-SS	481318.9844	4976517.973	6/6/2006	33.5		MG/KG
S6E04-15F-SS	481299.4713	4976510.471	6/6/2006	65.4		MG/KG
S6E04-16B-SS	481321.6464	4976529.074	6/6/2006	11.7		MG/KG
S6E04-16F-SS	481299.8931	4976526.433	6/6/2006	43.9		MG/KG
S6E04-17B-SS	481304.5847	4976540.232	6/6/2006	119		MG/KG
S6E04-17F-SS	481298.4519	4976540.028	6/6/2006	65.2		MG/KG
S6E05-01B-SS	481427.1243	4976626.894	6/7/2006	22.2	J	MG/KG
S6E05-01F-SS	481402.8152	4976622.445	6/7/2006	29.3	J	MG/KG
S6E05-03A-SS	481459.6124	4976476.689	6/7/2006	4.7	J	MG/KG
S6E05-03C-SS	481471.4447	4976493.46	6/7/2006	5.2	J	MG/KG
S6E05-03D-SS	481474.2139	4976541.59	6/7/2006	4.8	J	MG/KG
S6E05-03E-SS	481457.2864	4976599.034	6/7/2006	5.3	J	MG/KG
S6E05-03F-SS	481446.6974	4976574.996	6/7/2006	4	J	MG/KG
S6E05-04B-SS	481429.4845	4976482.95	6/7/2006	42.4		MG/KG
S6E05-04F-SS	481403.1427	4976481.563	6/7/2006	88.3		MG/KG
S6E05-05B-SS	481417.5491	4976499.171	6/7/2006	140		MG/KG
S6E05-05F-SS	481401.77	4976499.217	6/7/2006	176		MG/KG
S6E05-06B-SS	481425.4708	4976510.257	6/7/2006	49.9		MG/KG
S6E05-06B-SSD	481425.4746	4976510.562	6/7/2006	47.4		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S6E05-06F-SS	481404.4322	4976510.318	6/7/2006	100		MG/KG
S6E05-07B-SS	481414.9891	4976523.247	6/7/2006	11.1		MG/KG
S6E05-07B-SSD	481414.9929	4976523.552	6/7/2006	12		MG/KG
S6E05-07F-SS	481401.7609	4976523.25	6/7/2006	8.7		MG/KG
S6E05-08B-SS	481420.3026	4976541.747	6/7/2006	2.9	J	MG/KG
S6E05-08F-SS	481403.8495	4976538.175	6/7/2006	1.7	J	MG/KG
S6E05-09B-SS	481425.5891	4976550.988	6/7/2006	8.4		MG/KG
S6E05-09F-SS	481403.2356	4976551.053	6/7/2006	6.8		MG/KG
S6E05-10B-SS	481422.9915	4976562.105	6/7/2006	5.7	J	MG/KG
S6E05-10F-SS	481403.2019	4976563.962	6/7/2006	5.8	J	MG/KG
S6E05-10F-SSR	481403.2056	4976564.267	6/7/2006	6.5		MG/KG
S6E05-12F-SS	481400.7188	4976589.941	6/7/2006	5.7	J	MG/KG
S6E05-13B-SS	481430.2381	4976604.079	6/7/2006	9.6	J	MG/KG
S6E05-13F-SS	481401.672	4976604.621	6/7/2006	11.8	J	MG/KG
S6E06-03B-SS	481508.193	4976469.285	6/7/2006	5.7	J	MG/KG
S6E06-03G-SS	481493.8626	4976515.613	6/7/2006	5.5	J	MG/KG
S6E06-03H-SS	481492.5209	4976506.36	6/7/2006	3.8	J	MG/KG
S6W01-01B-SS	480818.3173	4976624.987	6/12/2006	3.9	J	MG/KG
S6W01-01F-SS	480795.3606	4976623.629	6/12/2006	1.4	J	MG/KG
S6W01-02B-SS	480845.9301	4976624.904	6/12/2006	1.5	J	MG/KG
S6W01-02F-SS	480866.9574	4976621.138	6/12/2006	2.7	J	MG/KG
S6W01-03B-SS	480844.5709	4976610.096	6/12/2006	14.8		MG/KG
S6W01-03F-SS	480868.2557	4976615.58	6/12/2006	32.9		MG/KG
S6W01-04B-SS	480845.8359	4976593.429	6/12/2006	407		MG/KG
S6W01-04F-SS	480873.4488	4976593.347	6/12/2006	1230		MG/KG
S6W01-05B-SS	480845.786	4976576.767	6/12/2006	4.1	J	MG/KG
S6W01-05F-SS	480870.7526	4976571.138	6/12/2006	8.8		MG/KG
S6W01-05S-SS	480857.6091	4976573.028	6/12/2006	10.5		MG/KG
S6W01-06B-SS	480848.3826	4976565.65	6/12/2006	65		MG/KG
S6W01-06F-SS	480868.0841	4976558.185	6/12/2006	762		MG/KG
S6W01-07B-SS	480848.3106	4976541.581	6/12/2006	44		MG/KG
S6W01-07F-SS	480869.3547	4976543.37	6/12/2006	43.9		MG/KG
S6W01-08B-SS	480848.2773	4976530.473	6/12/2006	18.1		MG/KG
S6W01-08B-SSR	480848.2811	4976530.777	6/12/2006	15.4		MG/KG
S6W01-08F-SS	480870.6143	4976524.852	6/12/2006	9.4		MG/KG
S6W01-09B-SS	480842.9622	4976511.974	6/12/2006	26.5		MG/KG
S6W01-09F-SS	480865.3435	4976521.164	6/12/2006	83.9		MG/KG
S6W01-11B-SS	480850.7631	4976482.328	6/12/2006	8.1	J-	MG/KG
S6W01-11F-SS	480870.4759	4976478.566	6/12/2006	4.8	J-	MG/KG
S6W01-12B-SS	480842.171	4976491.491	6/12/2006	3.5	J-	MG/KG
S6W01-12F-SS	480838.9122	4976476.809	6/12/2006	1.6	J-	MG/KG
S6W01-13B-SS	480824.4591	4976480.555	6/12/2006	14.8	J	MG/KG
S6W01-13B-SSR	480824.4628	4976480.86	6/12/2006	10.8	J	MG/KG
S6W01-13F-SS	480800.796	4976482.477	6/12/2006	33.3	J	MG/KG
S6W01-14B-SS	480817.9622	4976506.495	6/12/2006	110	J	MG/KG
S6W01-14F-SS	480796.9068	4976501.003	6/12/2006	42.3	J	MG/KG
S6W01-15B-SS	480812.7413	4976519.471	6/12/2006	363	J	MG/KG
S6W01-15F-SS	480798.2717	4976517.662	6/12/2006	101	J	MG/KG
S6W01-17B-SS	480818.0898	4976549.078	6/12/2006	56.2	J	MG/KG
S6W01-17F-SS	480797.0512	4976549.141	6/12/2006	159	J	MG/KG
S6W01-18B-SS	480828.4682	4976559.601	6/12/2006	28.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S6W01-18F-SS	480793.1398	4976560.261	6/12/2006	16.6	J	MG/KG
S6W01-19B-SS	480827.3774	4976576.822	6/12/2006	13.4	J	MG/KG
S6W01-19F-SS	480798.4606	4976580.611	6/12/2006	2.6	J	MG/KG
S6W01-20B-SS	480818.2119	4976589.809	6/12/2006	40	J	MG/KG
S6W01-20F-SS	480799.8533	4976606.527	6/12/2006	23.9	J	MG/KG
S6W01-22B-SS	480828.4013	4976611.954	6/12/2006	18.7	J	MG/KG
S6W01-22F-SS	480795.9308	4976613.945	6/12/2006	50.6	J	MG/KG
S6W02-01A-SS	480724.7922	4976569.724	6/4/2006	2.3	J	MG/KG
S6W02-01B-SS	480749.798	4976577.055	6/4/2006	1.9	J	MG/KG
S6W02-01C-SS	480694.9568	4976551.271	6/4/2006	2.8	J	MG/KG
S6W02-01D-SS	480697.6212	4976515.446	6/4/2006	2.5	J	MG/KG
S6W02-01E-SS	480712.6902	4976480.891	6/4/2006	2.3	J	MG/KG
S6W02-01F-SS	480720.7806	4976547.519	6/4/2006	3.3	J	MG/KG
S6W02-01G-SS	480740.3148	4976484.51	6/4/2006	2.3	J	MG/KG
S6W02-01H-SS	480745.4764	4976527.878	6/4/2006	3	J	MG/KG
S6W02-01I-SS	480769.4159	4976541.818	6/4/2006	2.3	J	MG/KG
S6W02-01J-SS	480761.1932	4976505.617	6/4/2006	2.5	J	MG/KG
S6W02-01J-SSD	480761.1969	4976505.922	6/4/2006	2.8	J	MG/KG
S6W02-02F-SS	480706.4564	4976593.849	6/4/2006	3.1	J	MG/KG
S6W02-03F-SS	480705.1803	4976606.812	6/4/2006	2	J	MG/KG
S6W02-04F-SS	480709.1641	4976619.76	6/4/2006	3.9	J	MG/KG
S6W03-01B-SS	480621.0888	4976627.432	6/12/2006	4.4	J-	MG/KG
S6W03-01F-SS	480596.5095	4976626.847	6/12/2006	4.3	J-	MG/KG
S6W03-02B-SS	480647.3866	4976627.353	6/12/2006	6	J-	MG/KG
S6W03-02F-SS	480672.045	4976624.221	6/12/2006	5.1	J	MG/KG
S6W03-03B-SS	480644.7121	4976612.549	6/12/2006	4.5	J	MG/KG
S6W03-03F-SS	480670.982	4976603.213	6/12/2006	4.1	J	MG/KG
S6W03-04F-SS	480671.0103	4976593.523	6/12/2006	22.5		MG/KG
S6W03-05B-SS	480645.9205	4976577.368	6/12/2006	19.3		MG/KG
S6W03-05F-SS	480672.2186	4976577.288	6/12/2006	6.1		MG/KG
S6W03-06B-SS	480647.2019	4976566.255	6/12/2006	9.5		MG/KG
S6W03-06F-SS	480671.9739	4976560.117	6/12/2006	5.3	J-	MG/KG
S6W03-07B-SS	480639.7403	4976544.998	6/12/2006	1.4	J-	MG/KG
S6W03-07B-SSD	480639.744	4976545.303	6/12/2006	1.8	J-	MG/KG
S6W03-07F-SS	480673.4273	4976542.107	6/12/2006	1.2	J-	MG/KG
S6W03-08B-SS	480639.8782	4976532.481	6/12/2006	1.4	J-	MG/KG
S6W03-08B-SSD	480639.8819	4976532.785	6/12/2006	1.3	J-	MG/KG
S6W03-08F-SS	480671.4695	4976532.934	6/12/2006	5.3	U	MG/KG
S6W03-09F-SS	480671.3418	4976519.166	6/12/2006	3.8	J	MG/KG
S6W03-10B-SS	480670.6521	4976493.978	6/12/2006	99.2		MG/KG
S6W03-10F-SS	480669.1106	4976479.043	6/12/2006	4.1	J-	MG/KG
S6W03-12B-SS	480637.807	4976503.334	6/12/2006	1.6	J-	MG/KG
S6W03-12F-SS	480645.6686	4976494.053	6/12/2006	2.4	J-	MG/KG
S6W03-13B-SS	480611.4469	4976483.048	6/12/2006	4.4	J-	MG/KG
S6W03-13F-SS	480596.6672	4976486.291	6/12/2006	5.8	U	MG/KG
S6W03-14SN-SS	480610.2049	4976507.121	6/12/2006	4.1	J-	MG/KG
S6W03-14SS-SS	480608.8792	4976496.484	6/12/2006	1.5	J-	MG/KG
S6W03-16B-SS	480618.1842	4976536.72	6/12/2006	1.2	J-	MG/KG
S6W03-16S-SS	480610.2835	4976533.041	6/12/2006	10.3	J-	MG/KG
S6W03-18B-SS	480630.6321	4976557.417	6/12/2006	5.4	UJ	MG/KG
S6W03-18F-SS	480595.6143	4976558.374	6/12/2006	5.3	UJ	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S6W03-19B-SS	480630.0499	4976565.265	6/12/2006	5.5	UJ	MG/KG
S6W03-19F-SS	480596.3053	4976564.204	6/12/2006	1.5	J-	MG/KG
S6W03-20B-SS	480611.7498	4976583.026	6/12/2006	5.6	UJ	MG/KG
S6W03-20F-SS	480595.0631	4976576.267	6/12/2006	3.7	J	MG/KG
S6W03-21B-SS	480618.8331	4976595.646	6/12/2006	4.1	J	MG/KG
S6W03-21S-SS	480605.6785	4976593.834	6/12/2006	4.8	J	MG/KG
S6W03-22B-SS	480614.4522	4976614.024	6/12/2006	4.6	J	MG/KG
S6W03-22F-SS	480594.7516	4976614.552	6/12/2006	4.8	J	MG/KG
S6W04-01B-SS	480527.7256	4976625.864	6/13/2006	2.2	J	MG/KG
S6W04-01F-SS	480496.1512	4976620.406	6/13/2006	3.1	J	MG/KG
S6W04-01S-SS	480522.5083	4976614.019	6/13/2006	2.6	J	MG/KG
S6W04-02B-SS	480551.3937	4976625.792	6/13/2006	2.7	J	MG/KG
S6W04-02F-SS	480572.4039	4976616.471	6/13/2006	3.5	J	MG/KG
S6W04-02F-SSD	480572.4077	4976616.776	6/13/2006	4.4	J	MG/KG
S6W04-03B-SS	480551.3431	4976609.129	6/13/2006	3.5	J-	MG/KG
S6W04-03F-SS	480575.0112	4976609.058	6/13/2006	1.7	J	MG/KG
S6W04-04B-SS	480551.2924	4976592.466	6/13/2006	6.4		MG/KG
S6W04-04F-SS	480573.5223	4976589.286	6/13/2006	5.4		MG/KG
S6W04-04F-SSR	480573.526	4976589.59	6/13/2006	5.1	J	MG/KG
S6W04-05B-SS	480551.2474	4976577.655	6/13/2006	5.5		MG/KG
S6W04-05F-SS	480574.9157	4976577.583	6/13/2006	6.1		MG/KG
S6W04-06F-SS	480570.3904	4976562.624	6/13/2006	9		MG/KG
S6W04-06G-SS	480552.5061	4976559.137	6/13/2006	7.6		MG/KG
S6W04-08B-SS	480547.0607	4976498.055	6/13/2006	82.7		MG/KG
S6W04-08F-SS	480574.6965	4976505.377	6/13/2006	98.1		MG/KG
S6W04-09F-SS	480573.3254	4976486.867	6/13/2006	5.5		MG/KG
S6W04-09S-SS	480571.2901	4976480.588	6/13/2006	5.2	J	MG/KG
S6W04-10F-SS	480539.9413	4976478.335	6/13/2006	5.7	J	MG/KG
S6W04-10S-SS	480549.6737	4976492.493	6/13/2006	6.7	J	MG/KG
S6W04-12B-SS	480529.8774	4976518.112	6/13/2006	37	J	MG/KG
S6W04-12F-SS	480496.7739	4976516.361	6/13/2006	37	J	MG/KG
S6W04-13B-SS	480516.9134	4976529.622	6/13/2006	9.9	J	MG/KG
S6W04-13F-SS	480497.1896	4976529.682	6/13/2006	6.2	J	MG/KG
S6W04-14B-SS	480522.2293	4976548.12	6/13/2006	5.5	J	MG/KG
S6W04-14F-SS	480495.7673	4976546.278	6/13/2006	6.7	J	MG/KG
S6W04-15B-SS	480519.6446	4976562.939	6/13/2006	6.8	J	MG/KG
S6W04-15F-SS	480495.6659	4976562.991	6/13/2006	6.3	J	MG/KG
S6W04-16B-SS	480530.1977	4976574.016	6/13/2006	6		MG/KG
S6W04-16F-SS	480498.6456	4976575.964	6/13/2006	9.7		MG/KG
S6W04-17F-SS	480498.7077	4976596.329	6/13/2006	4.8	J	MG/KG
S6W04-18F-SS	480495.9517	4976609.653	6/13/2006	4.6	J	MG/KG
S6W05-02B-SS	480443.578	4976627.972	6/13/2006	4.1	J	MG/KG
S6W05-02F-SS	480467.5973	4976623.118	6/13/2006	4.4	J	MG/KG
S6W05-02F-SSD	480467.601	4976623.423	6/13/2006	4.1	J	MG/KG
S6W05-03B-SS	480451.3882	4976602.028	6/13/2006	4.1	J	MG/KG
S6W05-03F-SS	480461.9187	4976605.699	6/13/2006	3.9	J	MG/KG
S6W05-03F-SSD	480461.9224	4976606.004	6/13/2006	3.9	J	MG/KG
S6W05-04B-SS	480448.7414	4976596.482	6/13/2006	5.3		MG/KG
S6W05-04F-SS	480466.5916	4976594.617	6/13/2006	3.9	J	MG/KG
S6W05-05B-SS	480435.868	4976575.582	6/13/2006	4.3	J	MG/KG
S6W05-05F-SS	480468.3533	4976576.765	6/13/2006	5.4		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S6W05-06B-SS	480452.5843	4976563.144	6/13/2006	4.7	J	MG/KG
S6W05-06F-SS	480468.3576	4976561.244	6/13/2006	4.6	J	MG/KG
S6W05-07F-SS	480467.391	4976546.905	6/13/2006	11.6		MG/KG
S6W05-07F-SSR	480467.3947	4976547.21	6/13/2006	14		MG/KG
S6W05-07S-SS	480439.5135	4976546.352	6/13/2006	5.1		MG/KG
S6W05-08B-SS	480445.9136	4976531.69	6/13/2006	4.9		MG/KG
S6W05-08F-SS	480468.2451	4976531.625	6/13/2006	4.7	J	MG/KG
S6W05-09B-SS	480457.6913	4976513.139	6/13/2006	3.7	J	MG/KG
S6W05-09F-SS	480456.3764	4976513.143	6/13/2006	5.2	J	MG/KG
S6W05-10F-SS	480467.797	4976498.324	6/13/2006	34.5		MG/KG
S6W05-10S-SS	480458.961	4976498.324	6/13/2006	21.5		MG/KG
S6W05-10S-SSR	480458.9647	4976498.628	6/13/2006	34.4		MG/KG
S6W05-11F-SS	480469.1382	4976486.152	6/13/2006	4	J	MG/KG
S6W05-11S-SS	480458.6357	4976491.738	6/13/2006	4.1	J	MG/KG
S6W05-12B-SS	480443.1197	4976478.006	6/13/2006	3.4	J	MG/KG
S6W05-12F-SS	480468.7597	4976478.823	6/13/2006	3.7	J	MG/KG
S6W05-13B-SS	480419.468	4976483.633	6/13/2006	132		MG/KG
S6W05-13F-SS	480424.7221	4976481.765	6/13/2006	289		MG/KG
S6W05-14B-SS	480408.9543	4976485.516	6/13/2006	12.4		MG/KG
S6W05-14F-SS	480395.7994	4976483.705	6/13/2006	104		MG/KG
S6W05-15B-SS	480427.5275	4976501.406	6/13/2006	40.2		MG/KG
S6W05-15F-SS	480402.4251	4976500.348	6/13/2006	49.3		MG/KG
S6W05-16B-SS	480415.6026	4976509.565	6/13/2006	23		MG/KG
S6W05-16F-SS	480395.9015	4976517.031	6/13/2006	116		MG/KG
S6W05-17B-SS	480416.9685	4976526.224	6/13/2006	28		MG/KG
S6W05-17F-SS	480395.9526	4976533.694	6/13/2006	34.6		MG/KG
S6W05-18B-SS	480415.7046	4976542.891	6/13/2006	4.1	J	MG/KG
S6W05-18B-SSD	480415.7083	4976543.195	6/13/2006	3.7	J	MG/KG
S6W05-18F-SS	480393.3625	4976546.662	6/13/2006	5.1	J	MG/KG
S6W05-19B-SS	480414.4577	4976565.112	6/13/2006	4.9	J	MG/KG
S6W05-19F-SS	480393.9038	4976561.789	6/13/2006	5.4	J	MG/KG
S6W05-20B-SS	480417.1158	4976574.361	6/13/2006	48.4		MG/KG
S6W05-20F-SS	480394.7681	4976576.281	6/13/2006	32.6		MG/KG
S6W05-21B-SS	480424.5442	4976591.738	6/13/2006	6		MG/KG
S6W05-21F-SS	480394.0245	4976591.871	6/13/2006	5.7		MG/KG
S6W05-22B-SS	480404.0462	4976600.322	6/13/2006	91.7		MG/KG
S6W05-22F-SS	480397.4943	4976607.747	6/13/2006	178		MG/KG
S6W05-23B-SS	480417.2631	4976622.498	6/13/2006	5.7		MG/KG
S6W05-23F-SS	480396.2362	4976626.266	6/13/2006	14.7		MG/KG
S7E01-01B-SS	480905.8297	4976428.471	6/7/2006	6.9	J-	MG/KG
S7E01-01F-SS	480903.2081	4976448.76	6/7/2006	11.3	J-	MG/KG
S7E01-01S-SS	480897.929	4976424.792	6/7/2006	19.9		MG/KG
S7E01-02B-SS	480921.6144	4976430.275	6/7/2006	9.9	J-	MG/KG
S7E01-02F-SS	480920.3022	4976448.709	6/7/2006	4.7	J-	MG/KG
S7E01-03B-SS	480933.4378	4976426.537	6/7/2006	21.9		MG/KG
S7E01-03F-SS	480933.504	4976448.754	6/7/2006	14.3		MG/KG
S7E01-04B-SS	480946.5927	4976428.349	6/7/2006	2.7	J-	MG/KG
S7E01-04F-SS	480942.714	4976450.578	6/7/2006	5	J-	MG/KG
S7E01-04F-SSR	480942.7178	4976450.883	6/7/2006	5.7	J	MG/KG
S7E01-05B-SS	480963.6813	4976426.447	6/7/2006	18		MG/KG
S7E01-05F-SS	480958.4932	4976450.531	6/7/2006	40.9		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S7E01-06B-SS	480980.7645	4976422.693	6/7/2006	5.6	J-	MG/KG
S7E01-06F-SS	480976.8967	4976448.625	6/7/2006	12.8		MG/KG
S7E01-06G-SS	480971.5709	4976426.424	6/7/2006	4	J-	MG/KG
S7E01-06S-SS	480972.9134	4976435.677	6/7/2006	4.5	J-	MG/KG
S7E01-07B-SS	480989.991	4976430.072	6/7/2006	34.2		MG/KG
S7E01-07F-SS	480992.6759	4976448.578	6/7/2006	10.4	J-	MG/KG
S7E01-08B-SS	480997.8751	4976428.197	6/7/2006	8.1	J-	MG/KG
S7E01-08F-SS	480999.2451	4976446.707	6/7/2006	5.1	J-	MG/KG
S7E01-09B-SS	480974.1403	4976406.05	6/7/2006	16.6	J	MG/KG
S7E01-09F-SS	481003.0635	4976404.113	6/7/2006	39.6	J	MG/KG
S7E01-10B-SS	480971.4608	4976389.395	6/7/2006	6.3	J	MG/KG
S7E01-10F-SS	481001.7045	4976389.305	6/7/2006	4.6	J	MG/KG
S7E01-11B-SS	480958.0043	4976377.514	6/7/2006	4.4	J	MG/KG
S7E01-11F-SS	480999.0526	4976381.907	6/7/2006	3.7	J	MG/KG
S7E01-12B-SS	480972.6987	4976363.471	6/7/2006	4.4	J	MG/KG
S7E01-12F-SS	481000.3236	4976367.092	6/7/2006	3.4	J	MG/KG
S7E01-13B-SS	480972.6657	4976352.362	6/7/2006	4.9	J	MG/KG
S7E01-13F-SS	481004.241	4976357.823	6/7/2006	4.5	J	MG/KG
S7E01-14B-SS	480973.9476	4976341.25	6/7/2006	469		MG/KG
S7E01-14B-SSD	480973.9513	4976341.554	6/7/2006	406		MG/KG
S7E01-14F-SS	481000.2467	4976341.172	6/7/2006	312		MG/KG
S7E01-15B-SS	480973.9201	4976331.993	6/7/2006	10.1		MG/KG
S7E01-15F-SS	481000.2192	4976331.914	6/7/2006	143	J	MG/KG
S7E01-15F-SSD	481000.2229	4976332.219	6/7/2006	94.2	J	MG/KG
S7E01-16B-SS	480975.1965	4976319.029	6/7/2006	10.1		MG/KG
S7E01-16F-SS	480998.8603	4976317.107	6/7/2006	111		MG/KG
S7E01-17B-SS	481005.3636	4976293.019	6/7/2006	35		MG/KG
S7E01-17F-SS	481000.0488	4976274.52	6/7/2006	77.1		MG/KG
S7E01-18B-SS	480992.225	4976296.761	6/7/2006	67.1		MG/KG
S7E01-18F-SS	480994.8054	4976280.09	6/7/2006	124		MG/KG
S7E01-19B-SS	480981.6943	4976293.089	6/7/2006	5.2		MG/KG
S7E01-19F-SS	480981.6776	4976274.899	6/7/2006	4.1	J	MG/KG
S7E01-20B-SS	480971.1801	4976294.972	6/7/2006	6.6		MG/KG
S7E01-20F-SS	480973.7495	4976274.598	6/7/2006	6.3		MG/KG
S7E01-22B-SS	480951.4556	4976295.03	6/7/2006	6.6		MG/KG
S7E01-22F-SS	480952.71	4976274.661	6/7/2006	6.6		MG/KG
S7E01-23B-SS	480943.1688	4976297.427	6/7/2006	7.1		MG/KG
S7E01-23F-SS	480943.1081	4976277.061	6/7/2006	4.5	J	MG/KG
S7E01-24B-SS	480933.0351	4976291.382	6/7/2006	7.7		MG/KG
S7E01-24F-SS	480931.6891	4976273.437	6/7/2006	8.8	J	MG/KG
S7E01-24F-SSR	480931.6928	4976273.742	6/7/2006	6.4	J	MG/KG
S7E01-25B-SS	480922.5155	4976291.414	6/7/2006	9.4		MG/KG
S7E01-25F-SS	480922.4658	4976274.751	6/7/2006	9.4		MG/KG
S7E01-26B-SS	480915.1035	4976276.032	6/7/2006	43.3		MG/KG
S7E01-26F-SS	480899.9122	4976274.555	6/7/2006	20.2		MG/KG
S7E01-27B-SS	480914.6869	4976289.43	6/7/2006	9.5		MG/KG
S7E01-27F-SS	480898.6272	4976289.611	6/7/2006	30.4		MG/KG
S7E01-28F-SS	480899.218	4976301.856	6/7/2006	27.6		MG/KG
S7E01-29B-SS	480927.8415	4976313.615	6/7/2006	32.7	J	MG/KG
S7E01-29B-SSR	480927.8452	4976313.92	6/7/2006	127	J	MG/KG
S7E01-29F-SS	480901.39	4976318.864	6/7/2006	46.4		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S7E01-30B-SS	480926.5596	4976324.728	6/7/2006	5.6	J-	MG/KG
S7E01-30F-SS	480900.2771	4976330.36	6/7/2006	13		MG/KG
S7E01-31B-SS	480930.5597	4976343.23	6/7/2006	34.5		MG/KG
S7E01-31F-SS	480897.6969	4976347.031	6/7/2006	67.1		MG/KG
S7E01-32B-SS	480926.6535	4976356.202	6/7/2006	27.9		MG/KG
S7E01-32F-SS	480901.2317	4976352.53	6/7/2006	28.9		MG/KG
S7E01-33B-SS	480930.6369	4976369.15	6/7/2006	3.8	J	MG/KG
S7E01-33F-SS	480897.7577	4976367.397	6/7/2006	1.8	J	MG/KG
S7E01-34B-SS	480926.7141	4976376.568	6/7/2006	43.7		MG/KG
S7E01-34F-SS	480900.4373	4976384.052	6/7/2006	277		MG/KG
S7E01-35B-SS	480922.8024	4976387.688	6/7/2006	2.4	J	MG/KG
S7E01-35F-SS	480900.7945	4976389.228	6/7/2006	7.1		MG/KG
S7E01-36B-SS	480924.1615	4976402.496	6/7/2006	5.9		MG/KG
S7E01-36B-SSD	480924.1653	4976402.801	6/7/2006	5.8		MG/KG
S7E01-36F-SS	480897.8682	4976404.426	6/7/2006	1.5	J	MG/KG
S7E02-01B-SS	481037.3122	4976424.377	6/7/2006	8.3		MG/KG
S7E02-01F-SS	481037.2826	4976447.231	6/7/2006	91.3		MG/KG
S7E02-02B-SS	481046.5003	4976418.795	6/7/2006	132		MG/KG
S7E02-02F-SS	481049.151	4976448.567	6/7/2006	308		MG/KG
S7E02-03B-SS	481057.0308	4976422.467	6/7/2006	48.1		MG/KG
S7E02-03F-SS	481054.3998	4976444.848	6/7/2006	55.9		MG/KG
S7E02-03F-SSD	481054.4035	4976445.153	6/7/2006	57.6		MG/KG
S7E02-04B-SS	481076.7822	4976431.666	6/7/2006	4.5	J	MG/KG
S7E02-04F-SS	481071.5718	4976448.344	6/7/2006	7.1		MG/KG
S7E02-04S-SS	481082.0748	4976442.759	6/7/2006	6.7		MG/KG
S7E02-05F-SS	481093.9256	4976448.278	6/7/2006	4.6	J	MG/KG
S7E02-06B-SS	481104.3903	4976429.733	6/7/2006	5.6	J	MG/KG
S7E02-06F-SS	481104.445	4976448.247	6/7/2006	5.7		MG/KG
S7E02-07B-SS	481120.1587	4976425.984	6/7/2006	4.8	J	MG/KG
S7E02-07F-SS	481120.1572	4976448.357	6/7/2006	4.5	J	MG/KG
S7E02-07F-SSR	481120.1609	4976448.662	6/7/2006	5.6		MG/KG
S7E02-08F-SS	481130.7933	4976446.087	6/7/2006	44.6		MG/KG
S7E02-08S-SS	481137.3079	4976425.702	6/7/2006	82.2		MG/KG
S7E02-09B-SS	481110.128	4976408.877	6/7/2006	48.3		MG/KG
S7E02-09F-SS	481133.7969	4976408.807	6/7/2006	10.2		MG/KG
S7E02-10B-SS	481108.2423	4976398.247	6/7/2006	5.2	J	MG/KG
S7E02-10F-SS	481137.8164	4976400.079	6/7/2006	4.4	J	MG/KG
S7E02-10F-SSD	481137.8201	4976400.383	6/7/2006	4.2	J	MG/KG
S7E02-11B-SS	481108.1931	4976381.584	6/7/2006	5	J-	MG/KG
S7E02-11F-SS	481139.7463	4976379.639	6/7/2006	4.3	J	MG/KG
S7E02-12B-SS	481106.8399	4976368.628	6/7/2006	9.1		MG/KG
S7E02-12B-SSR	481106.8436	4976368.932	6/7/2006	8		MG/KG
S7E02-12F-SS	481136.8101	4976370.883	6/7/2006	5.5	J	MG/KG
S7E02-13B-SS	481106.8016	4976355.668	6/7/2006	11		MG/KG
S7E02-13F-SS	481137.0345	4976351.876	6/7/2006	6.4		MG/KG
S7E02-14B-SS	481109.3768	4976337.146	6/7/2006	13.2		MG/KG
S7E02-14F-SS	481136.9963	4976338.916	6/7/2006	30.6		MG/KG
S7E02-15B-SS	481100.1229	4976320.51	6/7/2006	4.6	J	MG/KG
S7E02-15F-SS	481133.0023	4976322.264	6/7/2006	14.2		MG/KG
S7E02-15F-SSR	481133.0061	4976322.569	6/7/2006	181		MG/KG
S7E02-16B-SS	481113.2452	4976311.214	6/7/2006	569		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S7E02-16F-SS	481135.6049	4976312.999	6/7/2006	1230		MG/KG
S7E02-19B-SS	481102.6982	4976301.988	6/7/2006	36.7		MG/KG
S7E02-19F-SS	481106.5556	4976272.353	6/7/2006	49.9		MG/KG
S7E02-20B-SS	481096.1015	4976294.601	6/7/2006	13.8	J	MG/KG
S7E02-20F-SS	481093.4333	4976281.649	6/7/2006	9.4	J	MG/KG
S7E02-21B-SS	481082.9464	4976292.789	6/7/2006	4.3	J	MG/KG
S7E02-21F-SS	481078.1885	4976272.529	6/7/2006	5.2	J	MG/KG
S7E02-22B-SS	481069.7913	4976290.976	6/7/2006	4.8	J	MG/KG
S7E02-22F-SS	481065.8301	4976272.798	6/7/2006	4.9	J	MG/KG
S7E02-23B-SS	481054.0337	4976298.429	6/7/2006	8	J	MG/KG
S7E02-23B-SSD	481054.0374	4976298.733	6/7/2006	7.5	J	MG/KG
S7E02-23F-SS	481057.2858	4976272.997	6/7/2006	9.2	J	MG/KG
S7E02-24B-SS	481047.4643	4976300.3	6/7/2006	5.4	J	MG/KG
S7E02-24F-SS	481051.327	4976272.516	6/7/2006	7.7	J	MG/KG
S7E02-25B-SS	481034.3147	4976300.339	6/7/2006	6.7	J	MG/KG
S7E02-25F-SS	481035.4994	4976272.466	6/7/2006	8	J	MG/KG
S7E02-26B-SS	481067.2271	4976313.201	6/7/2006	5.1	J	MG/KG
S7E02-26B-SSD	481067.2308	4976313.506	6/7/2006	5.2	J	MG/KG
S7E02-26F-SS	481031.7342	4976317.009	6/7/2006	4.9	J	MG/KG
S7E02-26S-SS	481044.8783	4976315.119	6/7/2006	5.4	J	MG/KG
S7E02-27B-SS	481079.3892	4976329.594	6/7/2006	20.2	J	MG/KG
S7E02-27F-SS	481033.0766	4976326.263	6/7/2006	24.3	J	MG/KG
S7E02-28B-SS	481064.6684	4976337.278	6/7/2006	6.1	J	MG/KG
S7E02-28F-SS	481033.6826	4976341.164	6/7/2006	9.3	J	MG/KG
S7E02-29B-SS	481067.3312	4976348.379	6/7/2006	26.7	J	MG/KG
S7E02-29F-SS	481034.4794	4976355.882	6/7/2006	26	J	MG/KG
S7E02-30B-SS	481056.8719	4976368.776	6/7/2006	4.5	J	MG/KG
S7E02-30F-SS	481031.8714	4976363.295	6/7/2006	24.8		MG/KG
S7E02-31B-SS	481066.1094	4976379.857	6/7/2006	4.1	J	MG/KG
S7E02-31F-SS	481034.5617	4976383.653	6/7/2006	3.8	J	MG/KG
S7E02-32F-SS	481031.9482	4976389.215	6/7/2006	7.9		MG/KG
S7E02-32F-SSR	481031.952	4976389.52	6/7/2006	10.4		MG/KG
S7E02-33F-SS	481033.8993	4976403.991	6/7/2006	42		MG/KG
S7E03-02B-SS	481206.9824	4976438.688	6/8/2006	5.8		MG/KG
S7E03-02B-SSD	481206.9862	4976438.993	6/8/2006	6.6		MG/KG
S7E03-02F-SS	481201.7445	4976446.109	6/8/2006	6		MG/KG
S7E03-03B-SS	481227.9888	4976427.518	6/8/2006	7.5		MG/KG
S7E03-03F-SS	481227.7106	4976445.825	6/8/2006	4.2	J	MG/KG
S7E03-03F-SSR	481227.7143	4976446.129	6/8/2006	3.9	J	MG/KG
S7E03-04B-SS	481237.1988	4976429.342	6/8/2006	111	J	MG/KG
S7E03-04F-SS	481242.5127	4976447.841	6/8/2006	15.5	J	MG/KG
S7E03-05B-SS	481249.082	4976445.97	6/8/2006	14.5	J	MG/KG
S7E03-05F-SS	481262.2421	4976449.635	6/8/2006	29.3	J	MG/KG
S7E03-06B-SS	481255.6133	4976431.14	6/8/2006	99.4	J	MG/KG
S7E03-06F-SS	481270.0829	4976432.949	6/8/2006	223		MG/KG
S7E03-06F-SSR	481270.0867	4976433.253	6/8/2006	221		MG/KG
S7E03-07B-SS	481241.1001	4976414.519	6/8/2006	15	J	MG/KG
S7E03-07F-SS	481264.7582	4976410.747	6/8/2006	11.3	J	MG/KG
S7E03-08B-SS	481239.7418	4976399.711	6/8/2006	5.4	J	MG/KG
S7E03-08F-SS	481267.3555	4976399.631	6/8/2006	10.2		MG/KG
S7E03-09B-SS	481237.0522	4976379.353	6/8/2006	5.5	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S7E03-09F-SS	481267.323	4976388.522	6/8/2006	6.6	J	MG/KG
S7E03-09F-SSR	481267.3267	4976388.827	6/8/2006	5.3	J	MG/KG
S7E03-10B-SS	481239.6549	4976370.089	6/8/2006	7.1	J	MG/KG
S7E03-10F-SS	481265.9539	4976370.011	6/8/2006	34.5		MG/KG
S7E03-10F-SSR	481265.9576	4976370.316	6/8/2006	64.6		MG/KG
S7E03-11B-SS	481236.987	4976357.136	6/8/2006	5.7		MG/KG
S7E03-11F-SS	481269.422	4976352.934	6/8/2006	4	J	MG/KG
S7E03-11F-SSR	481269.4257	4976353.239	6/8/2006	3.4	J	MG/KG
S7E03-12B-SS	481222.857	4976339.416	6/8/2006	6.2		MG/KG
S7E03-12F-SS	481269.9896	4976337.637	6/8/2006	5.5	J	MG/KG
S7E03-13B-SS	481243.4641	4976323.791	6/8/2006	5.7		MG/KG
S7E03-13F-SS	481269.1723	4976324.104	6/8/2006	6		MG/KG
S7E03-14B-SS	481231.5861	4976309.014	6/8/2006	4.6	J	MG/KG
S7E03-14F-SS	481269.7253	4976310.754	6/8/2006	5	J	MG/KG
S7E03-15F-SS	481264.9569	4976271.258	6/8/2006	4.6	J	MG/KG
S7E03-15S-SS	481264.3679	4976277.444	6/8/2006	5.1	J	MG/KG
S7E03-16B-SS	481253.8916	4976292.286	6/8/2006	4.3	J	MG/KG
S7E03-16F-SS	481253.8319	4976271.92	6/8/2006	7.2		MG/KG
S7E03-17B-SS	481239.4433	4976297.883	6/8/2006	4.5	J	MG/KG
S7E03-17F-SS	481236.7427	4976273.822	6/8/2006	4.5	J	MG/KG
S7E03-18B-SS	481224.9515	4976288.668	6/8/2006	2.6	J-	MG/KG
S7E03-18F-SS	481224.9027	4976272.005	6/8/2006	4.9	J	MG/KG
S7E03-19B-SS	481206.5475	4976290.573	6/8/2006	3	J	MG/KG
S7E03-19F-SS	481206.4877	4976270.207	6/8/2006	3.5	J	MG/KG
S7E03-20B-SS	481195.7204	4976299.552	6/8/2006	4.1	J	MG/KG
S7E03-20F-SS	481193.3136	4976272.22	6/8/2006	3.3	J	MG/KG
S7E03-21F-SS	481168.3536	4976270.32	6/8/2006	3.7	J	MG/KG
S7E03-21S-SS	481166.3628	4976281.164	6/8/2006	4.1	J	MG/KG
S7E03-22B-SS	481193.4468	4976307.275	6/8/2006	3.5	J	MG/KG
S7E03-22F-SS	481165.8272	4976305.505	6/8/2006	4.1	J	MG/KG
S7E03-23B-SS	481201.3855	4976323.915	6/8/2006	7.5		MG/KG
S7E03-23F-SS	481171.1252	4976318.449	6/8/2006	14.8	J	MG/KG
S7E03-24B-SS	481214.1378	4976332.359	6/8/2006	33.9	J	MG/KG
S7E03-24F-SS	481167.7426	4976332.219	6/8/2006	56.9		MG/KG
S7E03-24F-SSR	481167.7463	4976332.524	6/8/2006	64.1		MG/KG
S7E03-25B-SS	481198.8209	4976346.139	6/8/2006	9.7	J	MG/KG
S7E03-25F-SS	481168.5661	4976342.526	6/8/2006	4.1	J	MG/KG
S7E03-26B-SS	481205.4174	4976353.526	6/8/2006	3.6	J	MG/KG
S7E03-26F-SS	481168.6206	4976361.04	6/8/2006	4.9	J	MG/KG
S7E03-27B-SS	481188.3666	4976368.388	6/8/2006	115		MG/KG
S7E03-27F-SS	481167.5292	4976370.262	6/8/2006	458		MG/KG
S7E03-27F-SSD	481167.533	4976370.567	6/8/2006	486		MG/KG
S7E03-28B-SS	481195.0011	4976388.734	6/8/2006	17.7		MG/KG
S7E03-28F-SS	481171.3267	4976386.952	6/8/2006	6.7	J	MG/KG
S7E03-29B-SS	481198.9841	4976401.683	6/8/2006	6	J	MG/KG
S7E03-29F-SS	481170.0445	4976398.065	6/8/2006	5.9	J	MG/KG
S7E03-30B-SS	481212.03	4976412.132	6/8/2006	4.8	J	MG/KG
S7E03-30F-SS	481165.2615	4976411.159	6/8/2006	18.6		MG/KG
S7E03-31B-SS	481189.8665	4976431.333	6/8/2006	43.8		MG/KG
S7E03-31F-SS	481166.1977	4976431.402	6/8/2006	43.9		MG/KG
S7E04-01B-SS	481322.7235	4976447.607	6/8/2006	89		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S7E04-01F-SS	481296.4303	4976449.535	6/8/2006	207		MG/KG
S7E04-02B-SS	481351.6358	4976441.968	6/8/2006	11.6		MG/KG
S7E04-02B-SSR	481351.6395	4976442.273	6/8/2006	5.5		MG/KG
S7E04-02F-SS	481373.1298	4976444.008	6/8/2006	9.2		MG/KG
S7E04-03B-SS	481354.2279	4976429	6/8/2006	41		MG/KG
S7E04-03F-SS	481373.0457	4976433.174	6/8/2006	60.7		MG/KG
S7E04-03F-SSD	481373.0494	4976433.479	6/8/2006	47.1		MG/KG
S7E04-04F-SS	481372.1453	4976422.892	6/8/2006	6.5	J	MG/KG
S7E04-04F-SSD	481372.149	4976423.197	6/8/2006	6.3	J	MG/KG
S7E04-05B-SS	481355.4781	4976406.779	6/8/2006	5.2	J	MG/KG
S7E04-05F-SS	481370.2709	4976417.83	6/8/2006	5	J	MG/KG
S7E04-06B-SS	481348.8872	4976401.244	6/8/2006	5.3	J	MG/KG
S7E04-06F-SS	481367.2749	4976393.785	6/8/2006	6.6		MG/KG
S7E04-07B-SS	481348.8441	4976386.432	6/8/2006	422		MG/KG
S7E04-07F-SS	481369.8886	4976388.223	6/8/2006	849		MG/KG
S7E04-09B-SS	481340.5535	4976360	6/8/2006	6.6		MG/KG
S7E04-09F-SS	481372.4376	4976360.443	6/8/2006	5.9		MG/KG
S7E04-10B-SS	481354.0014	4976351.24	6/8/2006	5.2	J	MG/KG
S7E04-10F-SS	481365.8197	4976345.651	6/8/2006	4.9	J	MG/KG
S7E04-11B-SS	481356.5935	4976338.272	6/8/2006	3.9	J	MG/KG
S7E04-11F-SS	481371.9834	4976334.577	6/8/2006	5.4	J	MG/KG
S7E04-12B-SS	481347.3565	4976327.19	6/8/2006	7.9		MG/KG
S7E04-12F-SS	481372.3406	4976327.118	6/8/2006	6.4		MG/KG
S7E04-13B-SS	481348.6121	4976306.821	6/8/2006	15.3		MG/KG
S7E04-13F-SS	481373.6017	4976308.599	6/8/2006	17.4		MG/KG
S7E04-14B-SS	481348.6013	4976303.118	6/8/2006	6.2		MG/KG
S7E04-14F-SS	481370.9556	4976303.053	6/8/2006	6.9	J	MG/KG
S7E04-15B-SS	481345.9174	4976284.611	6/8/2006	6.4		MG/KG
S7E04-15F-SS	481369.6029	4976290.096	6/8/2006	5.1	J	MG/KG
S7E04-16F-SS	481370.8694	4976273.43	6/8/2006	5.7	J	MG/KG
S7E04-16S-SS	481361.6538	4976269.754	6/8/2006	6.6		MG/KG
S7E04-17B-SS	481322.2102	4976271.72	6/8/2006	22.6	J	MG/KG
S7E04-17F-SS	481299.8666	4976275.488	6/8/2006	51.9	J	MG/KG
S7E04-18B-SS	481323.563	4976284.676	6/8/2006	90.5	J	MG/KG
S7E04-18F-SS	481298.5895	4976288.452	6/8/2006	102	J	MG/KG
S7E04-19B-SS	481324.9104	4976295.781	6/8/2006	61.3	J	MG/KG
S7E04-19F-SS	481298.6219	4976299.561	6/8/2006	145	J	MG/KG
S7E04-19F-SSD	481298.6257	4976299.865	6/8/2006	556	J	MG/KG
S7E04-20B-SS	481319.71	4976316.162	6/8/2006	67.9		MG/KG
S7E04-20F-SS	481301.2897	4976312.513	6/8/2006	29.2		MG/KG
S7E04-21B-SS	481324.9914	4976323.553	6/8/2006	59.2		MG/KG
S7E04-21F-SS	481301.3168	4976321.77	6/8/2006	98.8		MG/KG
S7E04-21F-SSR	481301.3205	4976322.075	6/8/2006	155		MG/KG
S7E04-22B-SS	481323.7089	4976334.665	6/8/2006	6.6		MG/KG
S7E04-22F-SS	481299.6818	4976336.758	6/8/2006	3.9	J	MG/KG
S7E04-23B-SS	481322.4209	4976343.926	6/8/2006	9.7		MG/KG
S7E04-23F-SS	481300.0667	4976343.991	6/8/2006	7.5		MG/KG
S7E04-24B-SS	481323.7899	4976362.437	6/8/2006	369		MG/KG
S7E04-24B-SSD	481323.7936	4976362.741	6/8/2006	407		MG/KG
S7E04-24F-SS	481300.1263	4976364.357	6/8/2006	2880		MG/KG
S7E04-25B-SS	481327.7672	4976373.534	6/8/2006	88.8		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S7E04-25F-SS	481298.8329	4976371.767	6/8/2006	83.2		MG/KG
S7E04-26B-SS	481322.529	4976380.955	6/8/2006	132		MG/KG
S7E04-26B-SSR	481322.5327	4976381.259	6/8/2006	92		MG/KG
S7E04-26F-SS	481298.8816	4976388.43	6/8/2006	592		MG/KG
S7E04-28B-SS	481331.8254	4976412.402	6/8/2006	275		MG/KG
S7E04-28F-SS	481300.2561	4976408.792	6/8/2006	263		MG/KG
S7E04-29B-SS	481325.2832	4976423.53	6/8/2006	5.9		MG/KG
S7E04-29F-SS	481296.3546	4976423.615	6/8/2006	6.2		MG/KG
S7E04-30B-SS	481322.6857	4976434.646	6/8/2006	28.8		MG/KG
S7E04-30F-SS	481299.8721	4976436.195	6/8/2006	62.6		MG/KG
S7W01-01B-SS	480821.7238	4976445.385	6/12/2006	3.8	J	MG/KG
S7W01-01F-SS	480796.7401	4976445.46	6/12/2006	3.2	J	MG/KG
S7W01-02B-SS	480838.7847	4976434.226	6/12/2006	42.4		MG/KG
S7W01-02F-SS	480840.0816	4976448.143	6/12/2006	100		MG/KG
S7W01-03B-SS	480854.5472	4976428.624	6/12/2006	5.1	J	MG/KG
S7W01-03F-SS	480853.2309	4976448.104	6/12/2006	8.5		MG/KG
S7W01-03F-SSD	480853.2346	4976448.409	6/12/2006	9.7		MG/KG
S7W01-04B-SS	480870.3486	4976435.983	6/12/2006	4.4	J	MG/KG
S7W01-04F-SS	480868.9271	4976448.296	6/12/2006	3.5	J	MG/KG
S7W01-05B-SS	480845.3261	4976423.097	6/12/2006	4.1	J	MG/KG
S7W01-05F-SS	480868.9894	4976421.175	6/12/2006	3.8	J	MG/KG
S7W01-06B-SS	480842.6408	4976404.591	6/12/2006	6.3		MG/KG
S7W01-06F-SS	480871.2727	4976407.059	6/12/2006	4.1	J	MG/KG
S7W01-07B-SS	480846.5468	4976391.619	6/12/2006	3.2	J	MG/KG
S7W01-07F-SS	480872.8567	4976395.243	6/12/2006	3.1	J	MG/KG
S7W01-08B-SS	480853.0994	4976384.194	6/12/2006	5.5		MG/KG
S7W01-08F-SS	480871.432	4976383.489	6/12/2006	3.9	J	MG/KG
S7W01-09B-SS	480837.7969	4976363.617	6/12/2006	3.9	J	MG/KG
S7W01-09B-SSD	480837.8007	4976363.922	6/12/2006	3.9	J	MG/KG
S7W01-09F-SS	480872.7792	4976369.323	6/12/2006	3.4	J	MG/KG
S7W01-10B-SS	480851.6736	4976347.169	6/12/2006	4.9	J	MG/KG
S7W01-10B-SSR	480851.6774	4976347.473	6/12/2006	3.3	J	MG/KG
S7W01-10F-SS	480872.6963	4976341.552	6/12/2006	3.7	J	MG/KG
S7W01-11B-SS	480872.1078	4976335.101	6/12/2006	4.1	J	MG/KG
S7W01-11F-SS	480849.0216	4976339.771	6/12/2006	3.2	J	MG/KG
S7W01-12B-SS	480836.9581	4976320.92	6/12/2006	5.4		MG/KG
S7W01-12F-SS	480873.9614	4976324.885	6/12/2006	4.7	J	MG/KG
S7W01-12F-SSR	480873.9651	4976325.189	6/12/2006	4.1	J	MG/KG
S7W01-13B-SS	480850.2423	4976308.293	6/12/2006	5	J	MG/KG
S7W01-13F-SS	480873.9116	4976308.222	6/12/2006	4.5	J	MG/KG
S7W01-14B-SS	480847.5847	4976299.043	6/12/2006	5.5		MG/KG
S7W01-14F-SS	480868.613	4976295.277	6/12/2006	8		MG/KG
S7W01-15B-SS	480848.8609	4976286.079	6/12/2006	4.2	J	MG/KG
S7W01-15F-SS	480868.5854	4976286.02	6/12/2006	6.4		MG/KG
S7W01-16B-SS	480848.8276	4976274.971	6/12/2006	16.3		MG/KG
S7W01-16F-SS	480873.7239	4976274.115	6/12/2006	289		MG/KG
S7W01-17B-SS	480825.5715	4976288.994	6/12/2006	4.7	J	MG/KG
S7W01-17F-SS	480827.4385	4976273.101	6/12/2006	4.8	J	MG/KG
S7W01-19B-SS	480822.606	4976300.97	6/12/2006	5	J	MG/KG
S7W01-19F-SS	480795.5685	4976298.364	6/12/2006	5.8		MG/KG
S7W01-20B-SS	480814.7551	4976313.953	6/12/2006	577		MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S7W01-20B-SSD	480814.7588	4976314.258	6/12/2006	565		MG/KG
S7W01-20F-SS	480796.329	4976308.454	6/12/2006	166		MG/KG
S7W01-21B-SS	480828.366	4976322.032	6/12/2006	4.8	J	MG/KG
S7W01-21F-SS	480795.064	4976325.121	6/12/2006	4.1	J	MG/KG
S7W01-22B-SS	480821.3965	4976336.151	6/12/2006	5.1		MG/KG
S7W01-22F-SS	480793.7768	4976334.382	6/12/2006	7		MG/KG
S7W01-23B-SS	480818.8054	4976349.119	6/12/2006	4.5	J	MG/KG
S7W01-23F-SS	480793.8213	4976349.194	6/12/2006	15.2		MG/KG
S7W01-24B-SS	480813.5844	4976362.094	6/12/2006	13.9		MG/KG
S7W01-24F-SS	480795.8445	4976360.229	6/12/2006	22		MG/KG
S7W01-25B-SS	480818.872	4976371.336	6/12/2006	6.5		MG/KG
S7W01-25F-SS	480792.5841	4976375.118	6/12/2006	7		MG/KG
S7W01-27B-SS	480808.419	4976393.585	6/12/2006	4.8	J	MG/KG
S7W01-27F-SS	480792.662	4976401.038	6/12/2006	4.2	J	MG/KG
S7W01-28B-SS	480818.983	4976408.365	6/12/2006	3	J	MG/KG
S7W01-28F-SS	480792.6842	4976408.444	6/12/2006	2.9	J	MG/KG
S7W01-29B-SS	480816.3864	4976419.481	6/12/2006	3.9	J	MG/KG
S7W01-29F-SS	480797.9662	4976415.833	6/12/2006	3.5	J	MG/KG
S7W01-30F-SS	480792.7564	4976432.512	6/12/2006	3.2	J	MG/KG
S7W02-01F-SS	480695.8235	4976448.752	6/12/2006	4.6	J	MG/KG
S7W02-01S-SS	480711.2696	4976445.717	6/12/2006	4.8	J	MG/KG
S7W02-02F-SS	480759.9109	4976441.868	6/12/2006	6.3	J-	MG/KG
S7W02-02S-SS	480751.7286	4976449.566	6/12/2006	6.7	J	MG/KG
S7W02-03F-SS	480771.3953	4976431.667	6/12/2006	5.7	J-	MG/KG
S7W02-03F-SSR	480771.3991	4976431.972	6/12/2006	5.8	J-	MG/KG
S7W02-04B-SS	480751.9489	4976417.823	6/12/2006	5.7	J-	MG/KG
S7W02-04F-SS	480771.4559	4976419.618	6/12/2006	4.6	J-	MG/KG
S7W02-05B-SS	480754.5509	4976408.558	6/12/2006	5.7	J-	MG/KG
S7W02-05B-SSD	480754.5547	4976408.863	6/12/2006	5.9	J-	MG/KG
S7W02-05F-SS	480771.6507	4976410.358	6/12/2006	5.4	J-	MG/KG
S7W02-06B-SS	480747.9317	4976393.766	6/12/2006	59.9	J-	MG/KG
S7W02-06F-SS	480770.9135	4976394.364	6/12/2006	49.9	J-	MG/KG
S7W02-07B-SS	480750.5337	4976384.501	6/12/2006	5	J-	MG/KG
S7W02-07F-SS	480772.8822	4976382.583	6/12/2006	6.6	J-	MG/KG
S7W02-08B-SS	480747.8593	4976369.698	6/12/2006	5.6	J-	MG/KG
S7W02-08F-SS	480771.545	4976375.181	6/12/2006	6.5	J-	MG/KG
S7W02-08F-SSD	480771.5487	4976375.486	6/12/2006	6.7	J-	MG/KG
S7W02-09B-SS	480749.1408	4976358.585	6/12/2006	4.1	J-	MG/KG
S7W02-09F-SS	480770.6024	4976359.611	6/12/2006	5.3	J-	MG/KG
S7W02-10B-SS	480743.8476	4976347.492	6/12/2006	5.7	J-	MG/KG
S7W02-10F-SS	480771.0784	4976348.509	6/12/2006	4.7	J-	MG/KG
S7W02-11B-SS	480747.7367	4976328.966	6/12/2006	5.9	J-	MG/KG
S7W02-11F-SS	480768.7704	4976327.051	6/12/2006	6.1	J	MG/KG
S7W02-12B-SS	480749.0071	4976314.151	6/12/2006	4.5	J	MG/KG
S7W02-12F-SS	480770.0353	4976310.385	6/12/2006	4.9	J	MG/KG
S7W02-12S-SS	480759.5157	4976310.416	6/12/2006	4.9	J	MG/KG
S7W02-13F-SS	480769.9964	4976297.424	6/12/2006	4.7	J	MG/KG
S7W02-13SW-SS	480744.9954	4976291.945	6/12/2006	5.8	J	MG/KG
S7W02-14B-SS	480748.9125	4976282.676	6/12/2006	4.4	J	MG/KG
S7W02-14F-SS	480771.2669	4976282.609	6/12/2006	5.3	J	MG/KG
S7W02-14S-SS	480760.7434	4976273.949	6/12/2006	4.9	J	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S7W02-15F-SS	480725.2264	4976277.193	6/12/2006	4.3	J	MG/KG
S7W02-15SE-SS	480713.3973	4976279.08	6/12/2006	3.6	J	MG/KG
S7W02-15SW-SS	480696.5033	4976274.317	6/12/2006	4.4	J	MG/KG
S7W02-15SW-SSD	480696.5071	4976274.622	6/12/2006	5.2	UJ	MG/KG
S7W02-16B-SS	480718.7296	4976303.133	6/12/2006	4.4	J	MG/KG
S7W02-16F-SS	480696.3362	4976290.24	6/12/2006	5.3	J	MG/KG
S7W02-16F-SSD	480696.3399	4976290.545	6/12/2006	5.7	J	MG/KG
S7W02-17F-SS	480693.7677	4976310.614	6/12/2006	55.6	J	MG/KG
S7W02-17S-SS	480714.8015	4976308.699	6/12/2006	38.5	J	MG/KG
S7W02-18B-SS	480713.5479	4976329.069	6/12/2006	4.2	J	MG/KG
S7W02-18F-SS	480694.6964	4976329.222	6/12/2006	3.7	J	MG/KG
S7W02-19F-SS	480696.487	4976340.229	6/12/2006	4.5	J	MG/KG
S7W02-19F-SSR	480696.4907	4976340.534	6/12/2006	5.9	J	MG/KG
S7W02-20B-SS	480730.2167	4976357.817	6/12/2006	5.5	UJ	MG/KG
S7W02-20F-SS	480695.4475	4976358.082	6/12/2006	6	J	MG/KG
S7W02-20F-SSR	480695.4513	4976358.387	6/12/2006	5.5	UJ	MG/KG
S7W02-21B-SS	480717.6099	4976367.937	6/12/2006	6.7	J	MG/KG
S7W02-21F-SS	480695.0451	4976373.778	6/12/2006	6.6	J	MG/KG
S7W02-22B-SS	480728.4973	4976382.121	6/12/2006	185	J	MG/KG
S7W02-22F-SS	480694.912	4976383.098	6/12/2006	15.7	J	MG/KG
S7W02-23B-SS	480718.9918	4976390.151	6/12/2006	8.7	J	MG/KG
S7W02-23F-SS	480695.3508	4976399.479	6/12/2006	6	J	MG/KG
S7W02-24B-SS	480729.4244	4976409.173	6/12/2006	5.7	J	MG/KG
S7W02-24F-SS	480695.4568	4976410.475	6/12/2006	6.8	J	MG/KG
S7W02-25B-SS	480716.4735	4976427.187	6/12/2006	5.8	J	MG/KG
S7W02-25F-SS	480695.901	4976422.542	6/12/2006	6	J	MG/KG
S7W03-01B-SS	480629.907	4976445.37	6/12/2006	5.5	J	MG/KG
S7W03-01F-SS	480602.5887	4976448.866	6/12/2006	3.6	J	MG/KG
S7W03-02B-SS	480649.4734	4976447.755	6/12/2006	3.7	J	MG/KG
S7W03-02F-SS	480671.7992	4976438.431	6/12/2006	3.5	J	MG/KG
S7W03-03B-SS	480640.3561	4976431.323	6/12/2006	4.7	J	MG/KG
S7W03-03F-SS	480670.4647	4976432.218	6/12/2006	4.5	J	MG/KG
S7W03-04B-SS	480641.4998	4976420.008	6/12/2006	199	J	MG/KG
S7W03-04B-SSD	480641.5035	4976420.312	6/12/2006	451	J	MG/KG
S7W03-04F-SS	480671.7433	4976419.916	6/12/2006	19.8	J	MG/KG
S7W03-05B-SS	480648.0185	4976401.474	6/12/2006	4.7	J	MG/KG
S7W03-05F-SS	480671.3947	4976406.438	6/12/2006	6.5	J	MG/KG
S7W03-05F-SSR	480671.3985	4976406.743	6/12/2006	4.6	J	MG/KG
S7W03-06B-SS	480649.311	4976394.064	6/12/2006	5.8	J	MG/KG
S7W03-06B-SSR	480649.3148	4976394.368	6/12/2006	5.9	UJ	MG/KG
S7W03-06F-SS	480671.6028	4976393.106	6/12/2006	6.1	J	MG/KG
S7W03-07B-SS	480659.8026	4976384.775	6/12/2006	6.6	J-	MG/KG
S7W03-07F-SS	480671.6371	4976384.739	6/12/2006	5.8	J	MG/KG
S7W03-07F-SSD	480671.6408	4976385.044	6/12/2006	6.4	J-	MG/KG
S7W03-08B-SS	480650.5476	4976368.14	6/12/2006	78.5	J	MG/KG
S7W03-08F-SS	480672.5469	4976368.691	6/12/2006	154	J	MG/KG
S7W03-09F-SS	480672.8737	4976358.815	6/12/2006	28.9	J	MG/KG
S7W03-10B-SS	480645.2038	4976340.384	6/12/2006	78.1	J	MG/KG
S7W03-10F-SS	480671.1241	4976340.358	6/12/2006	6.7	J	MG/KG
S7W03-11B-SS	480658.303	4976323.681	6/12/2006	13.2	J	MG/KG
S7W03-11F-SS	480669.0779	4976331.654	6/12/2006	5.3	UJ	MG/KG

South Minneapolis Soil Contamination Site
Surface Soil Sampling Investigation
Surface Soil Sample Results

SampleId	X	Y	CollectDate	TrueValue	TrueQualifier	Units
S7W03-12B-SS	480642.5011	4976316.323	6/12/2006	8.9	J	MG/KG
S7W03-12F-SS	480672.0179	4976316.217	6/12/2006	21	J	MG/KG
S7W03-13B-SS	480639.1679	4976303.775	6/12/2006	103		MG/KG
S7W03-13F-SS	480673.5475	4976304.992	6/12/2006	269		MG/KG
S7W03-14B-SS	480642.4171	4976288.552	6/12/2006	44.9		MG/KG
S7W03-14F-SS	480672.678	4976294.015	6/12/2006	20.6		MG/KG
S7W03-15B-SS	480640.7356	4976279.002	6/12/2006	35.6	J	MG/KG
S7W03-15F-SS	480667.3846	4976282.922	6/12/2006	30.2	J	MG/KG
S7W03-16B-SS	480626.6039	4976277.491	6/12/2006	10.1		MG/KG
S7W03-16F-SS	480595.5081	4976275.925	6/12/2006	24		MG/KG
S7W03-17B-SS	480629.2034	4976291.382	6/12/2006	62.7		MG/KG
S7W03-17F-SS	480595.8993	4976292.043	6/12/2006	56.9		MG/KG
S7W03-18F-SS	480594.9622	4976304.025	6/12/2006	10.7		MG/KG
S7W03-18S-SS	480613.5383	4976305.302	6/12/2006	7.8		MG/KG
S7W03-19B-SS	480631.0358	4976316.772	6/12/2006	4.6	J	MG/KG
S7W03-19F-SS	480595.794	4976317.636	6/12/2006	5	J-	MG/KG
S7W03-20B-SS	480624.1421	4976333.042	6/12/2006	5.2	J-	MG/KG
S7W03-20F-SS	480596.5337	4976334.977	6/12/2006	4.7	J-	MG/KG
S7W03-21B-SS	480620.2421	4976347.865	6/12/2006	19.3	J	MG/KG
S7W03-21F-SS	480600.3131	4976342.368	6/12/2006	9	J	MG/KG
S7W03-22B-SS	480624.2262	4976360.814	6/12/2006	51.8	J	MG/KG
S7W03-22F-SS	480597.916	4976357.19	6/12/2006	63.3		MG/KG
S7W03-23B-SS	480622.9449	4976371.926	6/12/2006	29.3	J	MG/KG
S7W03-23F-SS	480595.3142	4976366.455	6/12/2006	86.2	J	MG/KG
S7W03-24B-SS	480624.2991	4976384.882	6/12/2006	11.9	J	MG/KG
S7W03-24F-SS	480599.3039	4976381.255	6/12/2006	11.8	J	MG/KG
S7W03-25B-SS	480617.758	4976396.011	6/12/2006	6.7	J	MG/KG
S7W03-25F-SS	480595.9282	4976392.772	6/12/2006	5.6	J	MG/KG
S7W03-26F-SS	480595.4927	4976406.103	6/12/2006	5	J-	MG/KG
S7W03-26S-SS	480607.2722	4976407.151	6/12/2006	4.5	J	MG/KG
S7W03-27B-SS	480621.7757	4976420.067	6/12/2006	5.6	J	MG/KG
S7W03-27F-SS	480595.9186	4976418.469	6/12/2006	9	J	MG/KG
S7W03-28B-SS	480616.5496	4976431.192	6/12/2006	6.4	J	MG/KG
S7W03-28F-SS	480594.9879	4976431.238	6/12/2006	6.7	J-	MG/KG

Appendix A-4

Subsurface Soil Sampling Technical Memorandum

Subsurface Soil Sampling

South Minneapolis Soil Contamination Site, Minneapolis, MN
WA No. 016-RICO-B5BY, Contract No. EP-S5-06-01

PREPARED FOR: USEPA

PREPARED BY: CH2M HILL

DATE: October 24, 2006

Introduction

This memorandum documents the direct push subsurface soil sampling activities associated with the remedial investigation (RI) at the South Minneapolis Neighborhood Residential Soil Contamination Site (SMNRSCS) located in Minneapolis, Minnesota. The investigation activities were conducted between August 14th and 17th, 2006.

This memorandum contains the following components:

- Description of specific field activities performed, including objectives, sampling procedures, field observations, and deviations from the site-specific plans
- A summary of the samples collected, coordinates (X,Y,Z), and analytical results
- Soil boring logs describing materials encountered and samples collected at each location (Attachment 1)
- Photographic documentation showing sampling procedures as well as typical and non typical soil conditions (Attachment 2)

Soil Investigation

Sampling Objective

The objective for the direct push subsurface soil sampling was to characterize the vertical distribution of total arsenic in soils within the limits of the USEPA air dispersion model for the SMNRSCS. Co-located direct push soil cores were collected from 0-2 feet at each boring location for use by the USEPA TRIAD group to determine the effectiveness of X-Ray Florescence (XRF) for use in real-time data collection.

Sampling Procedures

Subsurface soil borings were drilled using direct push soil sampling techniques (e.g. Geoprobe®). Initial property selections were based on background, moderate, and elevated arsenic concentrations. Final selection was determined by consent of the property owner in

the form of a written access agreement. The boring location(s) were performed as close to the center of the properties front and/or back yard as possible. Occasionally borings were collected off center because of existing utilities and physical restrictions (i.e. steep slopes, landscaping, fencing, etc.). The boring locations are shown in Figure 1.

Soil borings were collected by Ecology and Environment (E&E) of Chicago, Illinois using a Geoprobe® macrocore sampler with a disposable acetate liner. The soil sample collection and boring log composition was performed by CH2M HILL personnel. Samples were collected at one foot intervals to a depth of five feet and one additional sample was collected at ten feet below ground surface (bgs), resulting in six parent samples collected from each boring location. The soil boring was continuously logged to a depth of 10 feet bgs using the ASTM D-2487, Unified Soil Classification System. Observations during sampling activities are discussed below and are noted within the soil boring logs (Attachment 1).

A total of 120 parent soil samples were collected from twenty soil borings. Twelve field duplicates (D) and six matrix spike/matrix spike duplicate (MS/MSD) samples were collected for quality assurance and quality control (QA/QC). Samples were submitted to Chemtech, a laboratory in USEPA's Contract Laboratory Program (CLP), and analyzed for total arsenic.

Soil boring locations were marked with pin-flags and florescent spray paint to allow for efficient identification of sampling locations for surveying purposes. Coordinates and ground surface elevations were collected at each boring location by Howard R. Green Surveyors of St. Paul, Minnesota.

Sampling equipment was decontaminated in accordance with FOP-06, *Decontamination of Personnel and Equipment* of the FSP. The water and Alconox® solution used to decon the Geoprobe® macrocore sampler was collected in five gallon buckets and disposed of at the City of Minneapolis Public Works Facility in accordance with MCES Discharge Approval #2111. No additional decon of sampling equipment (i.e. spoons, bowls, etc.) was necessary since all remaining sampling equipment utilized was disposable. Remaining soil from the sampling process was placed back into the bore hole. The bore hole was then filled with bentonite chips followed by approximately six inches of topsoil to match the existing grade.

A summary of the samples collected, coordinates, and analytical results is provided in Table 1.

Field Observations

The following item was observed while conducting subsurface soil sampling in the South Minneapolis site:

- Soil boring N6W01-03B located at 2100 21st Avenue South contained a substance similar to ash from 2.0-2.4 and 2.5-3.0 feet bgs. Figure 9 in the Photo Log (Attachment 2) illustrates the ash material.

Field Quality Assurance/Quality Control Samples

Field QC samples were collected throughout the sampling effort to determine the accuracy and precision of the analytical results. Field duplicates were collected at a frequency of 10%. Matrix spike and matrix spike duplicates were collected at a frequency of 5%.

Field duplicates were collected to measure the heterogeneity of the sample matrix and the precision of the field sampling and analytical process. To collect field duplicate samples, an additional 4-oz soil jar was collected from the same composite sample as the parent sample after the homogenization was complete. The sample jar was labeled with the same sample ID with the addition of a "D" at the end of the sample ID to designate the sample was a duplicate.

MS/MSD samples are used by the laboratories to assess the precision and accuracy of sample analysis. Sample volumes for MS/MSDs were taken from the same sample container as the parent sample.

Equipment blanks were collected to show that no contamination of samples occurred from the sampling equipment. Equipment blanks were collected at a rate of one sample per week for subsurface soil sampling. To prepare the equipment blanks, analyte-free distilled and deionized water was poured directly through a clean, unused acetate liner, over the decontaminated cutter head and collected in a plastic bag. The water was then poured into a 1-L poly bottle with nitric acid (HNO_3) preservative.

Field blanks were collected to evaluate ambient environmental conditions and were collected at a rate of 1 field blank per week while subsurface soil sampling was being performed. To prepare the field blanks, analyte-free distilled and deionized water was poured directly into a 1-L poly bottle with nitric acid (HNO_3) preservative.

Deviations

No deviations to the FSP relative to sample collection occurred.

Four samples, N4W07-29B-SB_00-01, N4W07-29B-SB_01-02, N4W07-29B-SB_02-03 and N5W07-01F-SB_02-03, were lost due to breakage at the laboratory. Results of replicate samples collected for the EPA TRIAD group may be substituted to provide results for samples N4W07-29B-SB_00-01 and N4W07-29B-SB_01-02 if available. Results for these four samples are shown in Table 1 as NS, for no sample.

References

CH2M HILL. 2006. Field Sampling Plan, South Minneapolis Neighborhood Residential Soil Contamination Site, Minneapolis, Minnesota. April 2006.

Metropolitan Council Environmental Services. MCES Discharge Approval #2111, South Minneapolis Neighborhood Residential Soil Contamination Site. June 22, 2006.

Metropolitan Council Environmental Services. MCES Discharge Approval #2111 Extension, South Minneapolis Neighborhood Residential Soil Contamination Site. August 2, 2006.

Figures

West (W)
East (E)
North (N)
South (S)
HIAWATHA AVENUE
N6W01-03F-SB
N6W01-03B-SB
N6W10-08F-SB
N5W07-01F-SB
N5E06-30F-SB
N5W08-13F-SB
N5W11-07SW-SB
N4W11-05F-SB
N4W08-34F-SB
N4W08-18F-SB
N4W08-19F-SB
N4W12-12F-SB
N4W10-17F-SB
N4W07-29B-SB
N4W09-13F-SB
N3W09-09F-SB
N3W09-10F-SB
N3W07-18F-SB
N2W11-10B-SB
N1W10-10F-SB

Legend

Sample Type

- Geoprobe Samples

Arsenic Dispersion Boundary above 10 ppm

- Revised 2006 Residential Soil Sample Boundary
- Arsenic Dispersion Boundary

N

0 400 800

Feet

Figure 1
Geoprobe Locations
South Minneapolis Site
Minneapolis, MN

CH2MHILL

File Path: E:\EPA\336752-South_Minneapolis\MXDs\CMC_Geoprobe_Locations_for_Public.mxd, Date: October 24, 2006, User: MPETERSH

Tables

TABLE 1
Summary of Subsurface Soil Samples
South Minneapolis Neighborhood Residential Soil Contamination Site

Location ID	Sample ID	X[1]	Y[1]	Surface Elevation[2]	Sample Depth Minimum (ft bgs)	Sample Depth Maximum (ft bgs)	Sample Elevation Minimum (ft)	Sample Elevation Maximum (ft)	Total Arsenic (ppm)	Duplicate Result for Total Arsenic (ppm)
N1W10-10F-SB	N1W10-10F-SB_00-01	479974.8590	4977731.3724	863.20	00	01	863.20	862.20	4.6 J-	
N1W10-10F-SB	N1W10-10F-SB_01-02	479974.8590	4977731.3724	863.20	01	02	862.20	861.20	3.6 J-	
N1W10-10F-SB	N1W10-10F-SB_02-03	479974.8590	4977731.3724	863.20	02	03	861.20	860.20	4.7 J-	
N1W10-10F-SB	N1W10-10F-SB_03-04	479974.8590	4977731.3724	863.20	03	04	860.20	859.20	1.2 J-	
N1W10-10F-SB	N1W10-10F-SB_04-05	479974.8590	4977731.3724	863.20	04	05	859.20	858.20	5.1 U	1.4 J-
N1W10-10F-SB	N1W10-10F-SB_09-10	479974.8590	4977731.3724	863.20	09	10	854.20	853.20	3.8 J-	
N2W11-10B-SB	N2W11-10B-SB_00-01	479848.6031	4977938.7324	854.28	00	01	854.28	853.28	80.8	
N2W11-10B-SB	N2W11-10B-SB_01-02	479848.6031	4977938.7324	854.28	01	02	853.28	852.28	11.6	
N2W11-10B-SB	N2W11-10B-SB_02-03	479848.6031	4977938.7324	854.28	02	03	852.28	851.28	4.5 J	
N2W11-10B-SB	N2W11-10B-SB_03-04	479848.6031	4977938.7324	854.28	03	04	851.28	850.28	4.8 J	
N2W11-10B-SB	N2W11-10B-SB_04-05	479848.6031	4977938.7324	854.28	04	05	850.28	849.28	2.5 J	5.2 U
N2W11-10B-SB	N2W11-10B-SB_09-10	479848.6031	4977938.7324	854.28	09	10	845.28	844.28	1 J	
N3W07-18F-SB	N3W07-18F-SB_00-01	480273.0033	4978061.9497	850.47	00	01	850.47	849.47	2.4 J-	
N3W07-18F-SB	N3W07-18F-SB_01-02	480273.0033	4978061.9497	850.47	01	02	849.47	848.47	0.48 J-	
N3W07-18F-SB	N3W07-18F-SB_02-03	480273.0033	4978061.9497	850.47	02	03	848.47	847.47	5.4 U	
N3W07-18F-SB	N3W07-18F-SB_03-04	480273.0033	4978061.9497	850.47	03	04	847.47	846.47	5.4 U	
N3W07-18F-SB	N3W07-18F-SB_04-05	480273.0033	4978061.9497	850.47	04	05	846.47	845.47	0.88 J-	
N3W07-18F-SB	N3W07-18F-SB_09-10	480273.0033	4978061.9497	850.47	09	10	841.47	840.47	1.4 J-	
N3W09-09F-SB	N3W09-09F-SB_00-01	480072.0589	4978168.9524	851.59	00	01	851.59	850.59	8.1	7.1
N3W09-09F-SB	N3W09-09F-SB_01-02	480072.0589	4978168.9524	851.59	01	02	850.59	849.59	23.5	
N3W09-09F-SB	N3W09-09F-SB_02-03	480072.0589	4978168.9524	851.59	02	03	849.59	848.59	5.3 J	
N3W09-09F-SB	N3W09-09F-SB_03-04	480072.0589	4978168.9524	851.59	03	04	848.59	847.59	2.3 J	
N3W09-09F-SB	N3W09-09F-SB_04-05	480072.0589	4978168.9524	851.59	04	05	847.59	846.59	5.2 U	
N3W09-09F-SB	N3W09-09F-SB_09-10	480072.0589	4978168.9524	851.59	09	10	842.59	841.59	1.4 J	
N3W09-10F-SB	N3W09-10F-SB_00-01	480071.4900	4978152.8642	851.97	00	01	851.97	850.97	4.5 J	
N3W09-10F-SB	N3W09-10F-SB_01-02	480071.4900	4978152.8642	851.97	01	02	850.97	849.97	5.5 U	
N3W09-10F-SB	N3W09-10F-SB_02-03	480071.4900	4978152.8642	851.97	02	03	849.97	848.97	5.7 U	
N3W09-10F-SB	N3W09-10F-SB_03-04	480071.4900	4978152.8642	851.97	03	04	848.97	847.97	5.7 U	
N3W09-10F-SB	N3W09-10F-SB_04-05	480071.4900	4978152.8642	851.97	04	05	847.97	846.97	5.3 UJ	
N3W09-10F-SB	N3W09-10F-SB_09-10	480071.4900	4978152.8642	851.97	09	10	842.97	841.97	5.1 U	
N4W07-29B-SB	N4W07-29B-SB_00-01	480226.4874	4978288.5835	849.14	00	01	849.14	848.14	NS	
N4W07-29B-SB	N4W07-29B-SB_01-02	480226.4874	4978288.5835	849.14	01	02	848.14	847.14	NS	
N4W07-29B-SB	N4W07-29B-SB_02-03	480226.4874	4978288.5835	849.14	02	03	847.14	846.14	NS	6.4
N4W07-29B-SB	N4W07-29B-SB_03-04	480226.4874	4978288.5835	849.14	03	04	846.14	845.14	1 J-	
N4W07-29B-SB	N4W07-29B-SB_04-05	480226.4874	4978288.5835	849.14	04	05	845.14	844.14	2 J-	
N4W07-29B-SB	N4W07-29B-SB_09-10	480226.4874	4978288.5835	849.14	09	10	840.14	839.14	2 J-	
N4W08-18F-SB	N4W08-18F-SB_00-01	480180.4251	4978351.6152	849.04	00	01	849.04	848.04	5.1 J-	
N4W08-18F-SB	N4W08-18F-SB_01-02	480180.4251	4978351.6152	849.04	01	02	848.04	847.04	1.4 J-	1.5 J-
N4W08-18F-SB	N4W08-18F-SB_02-03	480180.4251	4978351.6152	849.04	02	03	847.04	846.04	5.2 U	
N4W08-18F-SB	N4W08-18F-SB_03-04	480180.4251	4978351.6152	849.04	03	04	846.04	845.04	5.3 U	
N4W08-18F-SB	N4W08-18F-SB_04-05	480180.4251	4978351.6152	849.04	04	05	845.04	844.04	5.4 UJ	
N4W08-18F-SB	N4W08-18F-SB_09-10	480180.4251	4978351.6152	849.04	09	10	840.04	839.04	5.1 U	
N4W08-19F-SB	N4W08-19F-SB_00-01	480177.9199	4978340.3958	848.55	00	01	848.55	847.55	2.9 J-	
N4W08-19F-SB	N4W08-19F-SB_01-02	480177.9199	4978340.3958	848.55	01	02	847.55	846.55	3.3 J-	
N4W08-19F-SB	N4W08-19F-SB_02-03	480177.9199	4978340.3958	848.55	02	03	846.55	845.55	2.2 J-	
N4W08-19F-SB	N4W08-19F-SB_03-04	480177.9199	4978340.3958	848.55	03	04	845.55	844.55	3.1 J-	
N4W08-19F-SB	N4W08-19F-SB_04-05	480177.9199	4978340.3958	848.55	04	05	844.55	843.55	5.1 U	
N4W08-19F-SB	N4W08-19F-SB_09-10	480177.9199	4978340.3958	848.55	09	10	839.55	838.55	0.86 J-	
N4W08-34F-SB	N4W08-34F-SB_00-01	480114.3649	4978376.6775	850.97	00	01	850.97	849.97	5.3 U	
N4W08-34F-SB	N4W08-34F-SB_01-02	480114.3649	4978376.6775	850.97	01	02	849.97	848.97	2.3 J-	
N4W08-34F-SB	N4W08-34F-SB_02-03	480114.3649	4978376.6775	850.97	02	03	848.97	847.97	3.1 J-	
N4W08-34F-SB	N4W08-34F-SB_03-04	480114.3649	4978376.6775	850.97	03	04	847.97	846.97	0.67 J-	
N4W08-34F-SB	N4W08-34F-SB_04-05	480114.3649	4978376.6775	850.97	04	05	846.97	845.97	1.3 J-	
N4W08-34F-SB	N4W08-34F-SB_09-10	480114.3649	4978376.6775	850.97	09	10	841.97	840.97	3 J	
N4W09-13F-SB	N4W09-13F-SB_00-01	480034.3968	4978257.2671	849.96	00	01	849.96	848.96	3.1 J	
N4W09-13F-SB	N4W09-13F-SB_01-02	480034.3968	4978257.2671	849.96	01	02	848.96	847.96	5.3 U	
N4W09-13F-SB	N4W09-13F-SB_02-03	480034.3968	4978257.2671	849.96	02	03	847.96	846.96	1.8 J	
N4W09-13F-SB	N4W09-13F-SB_03-04	480034.3968	4978257.2671	849.96	03	04	846.96	845.96	1.5 J	
N4W09-13F-SB	N4W09-13F-SB_04-05	480034.3968	4978257.2671	849.96	04	05	845.96	844.96	3.9 J	
N4W09-13F-SB	N4W09-13F-SB_09-10	480034.3968	4978257.2671	849.96	09	10	840.96	839.96	5.1 UJ	
N4W10-17F-SB	N4W10-17F-SB_00-01	479901.1085	4978308.0642	851.58	00	01	851.58	850.58	5.7 U	
N4W10-17F-SB	N4W10-17F-SB_01-02	479901.1085	4978308.0642	851.58	01	02	850.58	849.58	5.4 U	
N4W10-17F-SB	N4W10-17F-SB_02-03	479901.1085	4978308.0642	851.58	02	03	849.58	848.58	5.4 U	

TABLE 1
Summary of Subsurface Soil Samples
South Minneapolis Neighborhood Residential Soil Contamination Site

Location ID	Sample ID	X[1]	Y[1]	Surface Elevation[2]	Sample Depth Minimum (ft bgs)	Sample Depth Maximum (ft bgs)	Sample Elevation Minimum (ft)	Sample Elevation Maximum (ft)	Total Arsenic (ppm)	Duplicate Result for Total Arsenic (ppm)
N4W10-17F-SB	N4W10-17F-SB_03-04	479901.1085	4978308.0642	851.58	03	04	848.58	847.58	5.5 U	
N4W10-17F-SB	N4W10-17F-SB_04-05	479901.1085	4978308.0642	851.58	04	05	847.58	846.58	5.3 U	
N4W10-17F-SB	N4W10-17F-SB_09-10	479901.1085	4978308.0642	851.58	09	10	842.58	841.58	5.4 U	
N4W11-05F-SB	N4W11-05F-SB_00-01	479882.3082	4978375.9815	851.65	00	01	851.65	850.65	4.7 J-	
N4W11-05F-SB	N4W11-05F-SB_01-02	479882.3082	4978375.9815	851.65	01	02	850.65	849.65	0.79 J-	
N4W11-05F-SB	N4W11-05F-SB_02-03	479882.3082	4978375.9815	851.65	02	03	849.65	848.65	1.2 J-	
N4W11-05F-SB	N4W11-05F-SB_03-04	479882.3082	4978375.9815	851.65	03	04	848.65	847.65	1.4 J-	
N4W11-05F-SB	N4W11-05F-SB_04-05	479882.3082	4978375.9815	851.65	04	05	847.65	846.65	1 J-	5.2 U
N4W11-05F-SB	N4W11-05F-SB_09-10	479882.3082	4978375.9815	851.65	09	10	842.65	841.65	0.87 J-	
N4W12-12F-SB	N4W12-12F-SB_00-01	479777.4412	4978305.5093	853.60	00	01	853.60	852.60	5.5 U	
N4W12-12F-SB	N4W12-12F-SB_01-02	479777.4412	4978305.5093	853.60	01	02	852.60	851.60	6.7	
N4W12-12F-SB	N4W12-12F-SB_02-03	479777.4412	4978305.5093	853.60	02	03	851.60	850.60	5.4 U	
N4W12-12F-SB	N4W12-12F-SB_03-04	479777.4412	4978305.5093	853.60	03	04	850.60	849.60	4.2 J-	
N4W12-12F-SB	N4W12-12F-SB_04-05	479777.4412	4978305.5093	853.60	04	05	849.60	848.60	3 J-	
N4W12-12F-SB	N4W12-12F-SB_09-10	479777.4412	4978305.5093	853.60	09	10	844.60	843.60	0.8 J-	
N5W07-01F-SB	N5W07-01F-SB_00-01	480204.1613	4978624.6890	846.43	00	01	846.43	845.43	1.9 J-	
N5W07-01F-SB	N5W07-01F-SB_01-02	480204.1613	4978624.6890	846.43	01	02	845.43	844.43	0.54 J-	
N5W07-01F-SB	N5W07-01F-SB_02-03	480204.1613	4978624.6890	846.43	02	03	844.43	843.43	NS	
N5W07-01F-SB	N5W07-01F-SB_03-04	480204.1613	4978624.6890	846.43	03	04	843.43	842.43	1.1 J-	
N5W07-01F-SB	N5W07-01F-SB_04-05	480204.1613	4978624.6890	846.43	04	05	842.43	841.43	5.1 U	
N5W07-01F-SB	N5W07-01F-SB_09-10	480204.1613	4978624.6890	846.43	09	10	837.43	836.43	5.2 U	
N5W08-13F-SB	N5W08-13F-SB_00-01	480184.1218	4978483.6465	847.94	00	01	847.94	846.94	6.3	
N5W08-13F-SB	N5W08-13F-SB_01-02	480184.1218	4978483.6465	847.94	01	02	846.94	845.94	5.4 U	
N5W08-13F-SB	N5W08-13F-SB_02-03	480184.1218	4978483.6465	847.94	02	03	845.94	844.94	5.4 U	
N5W08-13F-SB	N5W08-13F-SB_03-04	480184.1218	4978483.6465	847.94	03	04	844.94	843.94	1.6 J-	
N5W08-13F-SB	N5W08-13F-SB_04-05	480184.1218	4978483.6465	847.94	04	05	843.94	842.94	5.2 U	
N5W08-13F-SB	N5W08-13F-SB_09-10	480184.1218	4978483.6465	847.94	09	10	838.94	837.94	5.3 U	
N5W11-07SW-SB	N5W11-07SW-SB_00-01	479812.8050	4978459.4729	852.60	00	01	852.60	851.60	2.9 J-	
N5W11-07SW-SB	N5W11-07SW-SB_01-02	479812.8050	4978459.4729	852.60	01	02	851.60	850.60	3 J-	
N5W11-07SW-SB	N5W11-07SW-SB_02-03	479812.8050	4978459.4729	852.60	02	03	850.60	849.60	3 J-	
N5W11-07SW-SB	N5W11-07SW-SB_03-04	479812.8050	4978459.4729	852.60	03	04	849.60	848.60	2.8 J-	2.6 J-
N5W11-07SW-SB	N5W11-07SW-SB_04-05	479812.8050	4978459.4729	852.60	04	05	848.60	847.60	2.7 J	
N5W11-07SW-SB	N5W11-07SW-SB_09-10	479812.8050	4978459.4729	852.60	09	10	843.60	842.60	0.84 J	
N6W01-03B-SB	N6W01-03B-SB_00-01	480839.9314	4978749.1790	839.61	00	01	839.61	838.61	41.4	41.6
N6W01-03B-SB	N6W01-03B-SB_01-02	480839.9314	4978749.1790	839.61	01	02	838.61	837.61	45.4	46
N6W01-03B-SB	N6W01-03B-SB_02-03	480839.9314	4978749.1790	839.61	02	03	837.61	836.61	18.8	
N6W01-03B-SB	N6W01-03B-SB_03-04	480839.9314	4978749.1790	839.61	03	04	836.61	835.61	0.52 J-	
N6W01-03B-SB	N6W01-03B-SB_04-05	480839.9314	4978749.1790	839.61	04	05	835.61	834.61	0.7 J-	
N6W01-03B-SB	N6W01-03B-SB_09-10	480839.9314	4978749.1790	839.61	09	10	830.61	829.61	1.3 J-	
N6W01-03F-SB	N6W01-03F-SB_00-01	480862.9404	4978746.4348	839.48	00	01	839.48	838.48	76.3	98.4
N6W01-03F-SB	N6W01-03F-SB_01-02	480862.9404	4978746.4348	839.48	01	02	838.48	837.48	36.7	
N6W01-03F-SB	N6W01-03F-SB_02-03	480862.9404	4978746.4348	839.48	02	03	837.48	836.48	3.8 J-	
N6W01-03F-SB	N6W01-03F-SB_03-04	480862.9404	4978746.4348	839.48	03	04	836.48	835.48	2.1 J-	
N6W01-03F-SB	N6W01-03F-SB_04-05	480862.9404	4978746.4348	839.48	04	05	835.48	834.48	5 U	
N6W01-03F-SB	N6W01-03F-SB_09-10	480862.9404	4978746.4348	839.48	09	10	830.48	829.48	5.1 U	
N6W10-08F-SB	N6W10-08F-SB_00-01	479948.6772	4978651.0191	847.91	00	01	847.91	846.91	3.9 J-	
N6W10-08F-SB	N6W10-08F-SB_01-02	479948.6772	4978651.0191	847.91	01	02	846.91	845.91	0.87 J-	
N6W10-08F-SB	N6W10-08F-SB_02-03	479948.6772	4978651.0191	847.91	02	03	845.91	844.91	5.2 U	
N6W10-08F-SB	N6W10-08F-SB_03-04	479948.6772	4978651.0191	847.91	03	04	844.91	843.91	2 J-	
N6W10-08F-SB	N6W10-08F-SB_04-05	479948.6772	4978651.0191	847.91	04	05	843.91	842.91	5.2 U	
N6W10-08F-SB	N6W10-08F-SB_09-10	479948.6772	4978651.0191	847.91	09	10	838.91	837.91	0.77 J-	0.67 J-
N5E06-30F-SB	N5E06-30F-SB_00-01	481511.3084	4978592.6040	839.58	00	01	839.58	838.58	224	217
N5E06-30F-SB	N5E06-30F-SB_01-02	481511.3084	4978592.6040	839.58	01	02	838.58	837.58	12.6	
N5E06-30F-SB	N5E06-30F-SB_02-03	481511.3084	4978592.6040	839.58	02	03	837.58	836.58	1.6 J-	
N5E06-30F-SB	N5E06-30F-SB_03-04	481511.3084	4978592.6040	839.58	03	04	836.58	835.58	5.1 U	
N5E06-30F-SB	N5E06-30F-SB_04-05	481511.3084	4978592.6040	839.58	04	05	835.58	834.58	1.3 J-	
N5E06-30F-SB	N5E06-30F-SB_09-10	481511.3084	4978592.6040	839.58	09	10	830.58	829.58	5.2 U	

Notes:
1. Coordinates are provided in UTM 15 North in meters
2. Vertical datum is NAVD 88 with results in feet above sea level

Attachment 1

Soil Boring Logs

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
345488		SHEET 1 OF 1

SOIL BORING LOG

PROJECT S. MN LOCATION N1W10-10F

ELEVATION DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro-sampler

WATER LEVELS 8.16.06 START 13:45 FINISH 14:10 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-1.2 dark brown clayey silt w/ fine sand	N1W10-10F-SB-0001
			3.9/4		1.2-2.5 dark brown fine sandy clay, med dense	" -0102
2.0	0-4					" -0203
					2.5-6.0 orange/brown gravelly course sand w/ trace stone	" -0304
4.0						" -0405
						Duplicate
	4-8		2.7/4			
6.0					6.0-7.6 light brown med to course sand	
					7.6-10 same as above + trace stone	
8.0						
	8-10		2/2			" -0910
10.0					EOB @ 10'	

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
345488		1	1

SOIL BORING LOG

PROJECT S. MN LOCATION N2W11-10B

ELEVATION _____ DRILLING CONTRACTOR E&E

DRILLING METHOD AND EQUIPMENT G.P w/ macro-sampler

WATER LEVELS 8.16.00 START 10:00 FINISH 10:40 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-1.5 dark brown/grey clayey silt, loose	N2W11-10B-SB-0001
					1.5-1.9 orange brown gravelly silty sand	" -0002
2.0	0-4		3.5/4		1.9-2.1 light brown med sand, loose	" -0203
					2.1-4.2 med/dark brown sandy clay	" -0304
4.0						
					4.2-5.9 Gravelly course Sand w/ trace Stone	" -0405 DUPLICATE
6.0	4-8		3.4/4		5.9-10.0 light brown med Sand, loose, granular	
8.0						
	8-10		1/2			" -0910
10.0					EOB @ 10'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER
345488	SHEET 1 OF 1

SOIL BORING LOG

PROJECT S. MN LOCATION N3W07-18F

ELEVATION _____ DRILLING CONTRACTOR E&E

DRILLING METHOD AND EQUIPMENT G.P w/ Macrosampler

WATER LEVELS 8.15.00 START 11:10 FINISH 11:40 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-0.3 Drk bwn Silty clay	N3W07-18F-SB-0001
			3.7/4		0.3-0.7 brown clay	" - 0102
2.0	0-4				0.7-1.2 brwn silty Clay	" - 0203
					1.2-2.0 med brwn med sand	" - 0304
4.0					2.0-4.2 drk bwn fine sandy silt	
					4.2-6.8 brwn med sand	" - 0405
6.0	4-8		4/4			
					6.8-10.0 Lt. brwn med. Sand	
8.0						
	8-10		2/2			" - 0910
10.0					EOB @ 10'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
345488	N3W09-09F	1	1

SOIL BORING LOG

PROJECT S. MN. LOCATION N3W09-09F

ELEVATION _____ DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P. w/ Macrosampler

WATER LEVELS 8.15.06 START 0920 FINISH 0950 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-1.3 Drk brown Gravelly silty sand	N3W09-09F-0001 DUPLICATE
						" - 0102
2.0	0/4		3/4		1.3-4.0 Drk brwn clayey silt	" - 0203
						" - 0304
4.0						
					4.0-7.0 med. brown med. Sand	" - 0405
6.0	4-8		3/4			
8.0					7.0-10.0 med. brown course Sand	
	8-10		2/2			" - 0910
10.0					EOB @ 10'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	SHEET
345488		1 OF 1

SOIL BORING LOG

PROJECT S. MN LOCATION N3W09-10F

ELEVATION DRILLING CONTRACTOR E&E

DRILLING METHOD AND EQUIPMENT G.P. w/ Macrosampler

WATER LEVELS 8.15.00 START 0830 FINISH 0908 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-1.5 Drk brn silty sand	N3W09-10F-SB-0001
	0/4		4/4			" - 0102
2.0					1.5-1.6 concrete fragment 1.6-2.3 grey/brown silty sand w/ trace gravel	" - 0203
						" - 0304
4.0					2.3-4.3 Drk brown/black silty sand	" - 0405
					4.3-6.5 brown/orange fine sand	
6.0	4-8		4/4			
					6.5-10.0 med. brown med. sand	
8.0						
	8-10		2/2			" - 0910
10.0					EOB @ 10'	

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
345498		1	1

SOIL BORING LOG

PROJECT S. MN LOCATION N4W07-29B

ELEVATION _____ DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P w/ macro-sampler

WATER LEVELS 8.15.00 START 15:00 FINISH 15:30 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-1.2 dark brown sandy silt	N4W07-29B-SB-0001
						" - 0802
2.0	0-4		3/4		1.2-1.5 light grey gravelly course sand w/ stone	" - 0203
					1.5-4.5 dark brown sandy silt	DUPLICATE
						" - 0304
4.0						" - 0405
					4.5-8.7 brown med. sand, loose	
6.0	4-8		3.8/4			
8.0						
					8.7-10.0 light brown gravelly course sand	" - 0910
	8-10		2/2			
10.0						
					EOB @ 10'	

CRM HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
345488		1	1

SOIL BORING LOG

PROJECT S. MN LOCATION N4W08-18F

ELEVATION DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro sampler

WATER LEVELS 8.15.06 START 13:30 FINISH 14:00 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0.0					0.0-2.9 Dark brown Sandy silt	N4W08-18F-SB-0001
1.0						
					2.9-3.1 med brown course sand	" -0102
2.0	0-4		4/4			DUPLIRATE
						" -0203
3.0					3.1-5.6 Dark brown sandy silt	" -0304
						" -0405
5.0						
6.0	4-8		4/4		5.6-10.0 brown gravelly course sand, loose & dry	
8.0						
	8-10		2/2			" -0910
10.0						
					EOB @ 10'	

CH2M HILL

PROJECT NUMBER	BORING NUMBER
345488	SHEET 1 OF 1

SOIL BORING LOG

PROJECT S. MN LOCATION N4W08-19F

ELEVATION _____ DRILLING CONTRACTOR E&E

DRILLING METHOD AND EQUIPMENT G.P. w/ Macro-Sampler

WATER LEVELS 8.15.06 START 14:00 FINISH 14:35 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0					0.0 - 1.0 dark brown loose sandy silt	N4W08-19F-SB-0001
1.0	0-4		4/4		1.0 - 1.2 light grey stony engineered fill	" -0102
2.0					1.2 - 3.6 dark brown loose sandy silt	" -0203
3.0						" -0304
4.0					3.6 - 4.6 med brown sandy silt	" -0405
	4-8		3.8/4		4.6 - 8.3 light brown loose course sand	
6.0						
8.0					8.3 - 10.0 light grey gravelly course sand	
	8-10		2/2			" -0910
10.0					EoB @ 10'	

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET
345488		1 OF 1

SOIL BORING LOG

PROJECT S. MN. LOCATION N4W08-34F

ELEVATION _____ DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro sampler

WATER LEVELS 8.15.06 START 1015 FINISH 1040 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
0.0					0.0-4.0 Drk brown gravelly course sand	N4W08-34F-SB-0001
	0-4		4/4			" -0102
2.0						" -0203
						" -0304
4.0					4.0-4.1 Drk grey med sand	" -0405
	4-8		4/4		4.1-7.0 Brown gravelly course sand	
6.0						
					7.0-7.8 Brown course sand	
8.0					7.8-9.7 Drk brown Silty sand	
	8-10		2/2		9.7-10.0 Lt. brown gravelly crs. sand	" -0910
10.0					EOB @ 10'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER
345488	SHEET 1 OF 1

SOIL BORING LOG

PROJECT S. MU LOCATION N4W09-13F

ELEVATION _____ DRILLING CONTRACTOR E&E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro-sampler

WATER LEVELS 8.15.06 START 16:00 FINISH 16:25 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-2.0 Drk brown Sandy silt	N4W09-13F-SB-0001
						" -0102
2.0	0-4		4/4		2.0-4.5 red/brown dense fine sand	" -0203
						" -0304
4.0						
					4.5-7.8 light brown loose medium Sand	" -0405
6.0	4-8		3.3/4			
8.0					7.8-10.0 med brown gravelly course sand	
	8-10		2/2			" -0910
10.0						
					EOB @ 10'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	SHEET
345488		1 OF 1

SOIL BORING LOG

PROJECT S. MN LOCATION N4W10-17F

ELEVATION DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P w/ macro - sampler

WATER LEVELS 8.16.06 START 11:15 FINISH 11:45 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-1.8 dark brown clayey silt w/ fine sand	N4W10-17F-SB-0001
						" -0102
2.0	0-4		3.7/4		1.8-2.4 orange/brown clayey silt w/ increasing sand	" -0203
					2.4-6.1 dark brown clayey med. sand	" -0304
4.0						" -0405
6.0	4-8		3.5/4		6.1-10.0 light brown med sand, loose, granular	
8.0						
	8-10		0.7/2			" -0910
10.0					EOB @ 10'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
345488		1	1

SOIL BORING LOG

PROJECT S. MN LOCATION N4W11-05F

ELEVATION DRILLING CONTRACTOR E&E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro-Sampler

WATER LEVELS 8.17.06 START 0840 FINISH 0910 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-0.9 dark brown clayey silt w/ fine sand	N4W11-05F-SB-0001
					0.9-10.0 med brown med sand, loose, granular	" -0102
2.0	0-4		2.8/4		trace gravel	" -0203
						" -0304
4.0						" -0405 DUPLICATE
6.0	4-8		2.6/4			
8.0	8-10		1.5/2			" -0910
10.0					EOB @ 10'	

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET
345488		1 OF 1

SOIL BORING LOG

PROJECT S. MN LOCATION N4W12-12F

ELEVATION DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro-sampler

WATER LEVELS 8·16·06 START 0915 FINISH 0950 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-2.0 dark brown/grey silt w/ trace fine sand, loose, small blocky	N4W12-12F-SB_0001
	0-4		3.8/4			" -0102
2.0					2.0-2.9 red brown silt w/ trace fine sand loose, small blocky	" -0203
					2.9-4.0 course sandy silt w/ trace gravel med. brown	" -0304
4.0					4.0-6.2 med. brown med sand	" -0405
6.0	4-8		3.9/4		6.2-10.0 light brown med/course sand	
8.0						
	8-10		2/2			" -0910
10.0					EOB @ 10'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
345488		1	1

SOIL BORING LOG

PROJECT S. MN LOCATION N5W07-01F

ELEVATION DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P. & macro-Sampler

WATER LEVELS 8.16.06 START 14:40 FINISH 15:10 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0 – 1.1 Dark brown clayey silt w/ fine sand.	N5W07-01F-SB-0001
					1.1 – 2.3 med brown med sand	" -0102
2.0	0-4		3.4/4		2.3 – 6.3 light/med brown course sand w/ trace gravel	" -0203
						" -0304
4.0						" -0405
6.0	4-8		3.3/4		6.3 – 10.0 light brown gravelly course sand, loose	
8.0						
	8-10		1.8/2			" -0910
10.0					EOB @ 10'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
345488		1	1

SOIL BORING LOG

PROJECT S. MN LOCATION N5W08-13F

ELEVATION DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro-sampler

WATER LEVELS 8·16·06 START 15:35 FINISH 16:15 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0 - 1.9 Dark brown clayey silt w/ fine sand	N5W08-13F-SB-0001
						" -0102
2.0	0-4		3.8/4		1.9 - 3.2 brown fine/med sand, dense	" -0203
						" -0304
4.0					3.2 - 5.3 med brown med sand, loose, granular	" -0405
					5.3 - 7.7 light brown gravelly med/course sand, loose, granular	
6.0	4-8		3.8/4			
					7.7 - 10.0 grey/brown gravelly course sand w/ trace stone, loose, granular	
8.0						
	8-10		2/2			" -0910
10.0					EOB @ 10'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
345488		1	1

SOIL BORING LOG

PROJECT S. MN LOCATION N5W11-075W

ELEVATION ____ DRILLING CONTRACTOR E&E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro-sampler

WATER LEVELS 8.16.06 START 0815 FINISH 0900 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0 - 0.7 dark brown sandy silt w/ gravel	N5W11-075W-SB-0001
2.0	0-4		3.7/4		0.7-7.5 med. brown med. sand, loose, granular	" -0102
						" -0203
4.0						" -0304 DUPLICATE
						" -0405
6.0	4-8		4/4			
8.0					7.5 - 7.8 light grey stony gravel	
	8-10		2/2		7.8 - 9.4 med brown gravelly sand.	
					9.4 - 9.6 light grey stony gravel	
10.0					9.6 - 10.0 med brown gravelly sand w/ trace stone	" -0910
					EOB @ 10'	

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
345488		1	1

SOIL BORING LOG

PROJECT S. MN LOCATION N6W01-03F

ELEVATION DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro sampler

WATER LEVELS 8.17.06 START 1500 FINISH 1530 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-0.8 Drk brown/blk clayey silt w/ fine sand loose	N6W01-03F-SB-0001 DUPLICATE
					0.8-1.5 Same as above w/ med. density	" -0102
2.0	0-4		3.6/4		1.5-2.8 brown silty med. sand, med dense	" -0203
					2.8-3.3 black sandy silt, loose, granular	" -0304
4.0						" -0405
					3.3-10.0 Lt. brn med/fine sand w/ trace gravel	
6.0	4-8		3.1/4			
8.0						
	8-10		1.9/2			" -0910
10.0					EOB @ 10'	

PROJECT NUMBER	BORING NUMBER	
345488		SHEET 1 OF 1

SOIL BORING LOG

PROJECT S. MN LOCATION N6W01-03B

ELEVATION ____ DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro Sampler

WATER LEVELS 8.17.06 START 1550 FINISH 1630 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE: INTERVAL	SAMPLE: NUMBER AND TYPE	SAMPLE: RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-1.1 Drk brn/black clayey silt w/ fine sand weak structure, loose	N6W01-03B-SB-0001 DUPLICATE
					1.1-2.0 Same as above w/ med structure & density	" -0102 DUPLICATE
2.0	0-4		3.3/4		2.0-2.4 light grey ash like substance, very weak structure, loose	" -0203 (ash substance)
					2.4-2.5 dark brn clayey silt w/ fine sand, loose	" -0304
4.0					2.5-3.0 light grey ash substance w/ glass	" -0405
					3.0-5.3 Drk brown silty med. sand, loose	
6.0	4-8		3.8/4		5.3-6.5 brown silty med. sand, loose	
					6.5-8.5 light brown med/course sand	
8.0					8.5-10.0 light brn gravelly course sand	
	8-10		2/2			" -0910
10.0					EOB @ 10'	

CH2M HILL

PROJECT NUMBER	BORING NUMBER	SHEET	OF
345488		1	1

SOIL BORING LOG

PROJECT S. MN LOCATION N6W10-08F

ELEVATION DRILLING CONTRACTOR E+E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro-sampler

WATER LEVELS 8.17.06 START 0925 FINISH 0955 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0 – 0.6 dark brown/black silty fine sand, loose, weak structure	N6W10-08F-SB-0001
			3.6/4		0.6 – 2.4 dark brown silty sand, loose	" -0102
2.0	0-4					" -0203
					2.4 – 5.7 brown med sand w/ trace silt, loose	" -0304
4.0						" -0405
					5.7 – 10.0 med brown gravelly course sand, loose, trace stone	
6.0	4-8		3.5/4			
8.0						
	8-10		1.8/2			" -0910 DUPLICATE
10.0					EOB @ 10'	

CH2MHILL

PROJECT NUMBER	BORING NUMBER	SHEET / OF /
345488		

SOIL BORING LOG

PROJECT S. MN LOCATION N5E06-30F

ELEVATION _____ DRILLING CONTRACTOR E & E

DRILLING METHOD AND EQUIPMENT G.P. w/ macro sampler

WATER LEVELS 8.17.06 START 1415 FINISH 1445 LOGGER HR

DEPTH BELOW SURFACE (FT)	SAMPLE INTERVAL	SAMPLE NUMBER AND TYPE	SAMPLE RECOVERY (FT)	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS AND INSTRUMENTATION
					0.0-0.7 Drk brown/ black clayey silt w/ trace fine sand, loose	N5E06-30F-SB-0001 DUPLICATE
2.0	0-4		3.7/4		0.7-2.2 Drk brn clayey silt w/ fine sand, med. dense	" - 0102
					2.2-4.3 brn silty med sand, med dense granular	" - 0203
4.0						" - 0304
					4.3-4.4 Granite Stone	" - 0405
					4.4-5.0 Stoney course sand w/ med sand	
6.0	4-8		3.3/4		5.0-10.0 light brn. med sand w/ trace gravel	
8.0						
	8-10		2/2			" - 0910
10.0					EOB @ 10'	

Attachment 2

Photographic Documentation Log

Figure 1: View of typical Geoprobe rig setup. Note: construction cones and usage of plywood to prevent compaction and rutting of lawn.

Figure 2: View of typical operation of Geoprobe rig advancing macrosampler to collect soil boring.

Figure 3: View of typical procedure used for decon of Geoprobe equipment.

Figure 4: Typical soil profile of study area (0.0-8.0 feet bgs shown). Typically soil consists of a dark brown to black sandy loam surface soil with medium structure. Subsoil has an increasing amount of medium to course sand with traces of gravel and decreasing structure.

Figure 5: View of typical surface soil (0.0-1.0 feet bgs) found within study area.

Figure 6: View of typical upper portion of subsoil (1.0-4.0 feet bgs). Soil description is medium brown medium sand with trace gravel, loose, granular structure.

Figure 7: View of soil typically found in lower portion of subsoil (4.0-8.0 feet bgs). Soil description is medium brown to light brown medium to course sand with trace gravel, loose, granular structure.

Figure 8: View of typical subsoil from 8.0-10.0 feet bgs. Soil contains increasing amount of course material with depth.

Figure 9: View of "ash-like" substance found at location N6W01-03B. Soil boring interval is from 2.0-2.4 and 2.5-3.0 feet bgs.

Appendix A-5

Surface Soil Statistical Evaluation Technical Memorandum

Surface Soil Statistical Evaluation

South Minneapolis Soil Contamination Site, Minneapolis, MN
WA No. 016-RICO-B5BY, Contract No. EP-S5-06-01

PREPARED FOR: Tim Prendiville/USEPA

PREPARED BY: CH2M HILL

DATE: January 10, 2007

Introduction

The following is a summary of the statistical data evaluation performed on the surface soil results from the South Minneapolis Neighborhood Residential Soil Contamination Site (SMNRSCS). Results from sampling events conducted from 2001 through 2005 were combined with the most recent 2006 sampling results. Figure 1 provides the sample locations from the historic and 2006 sampling events. Statistical evaluations were conducted to evaluate differences in historic versus recent sampling events and evaluate sampling precision. Upon determination that the historic and recent data were compatible, a background concentration range was established, and sampling precision was evaluated comparing against the background concentration range and the 95 mg/Kg removal action criteria.

As part of the statistical data evaluation, the arsenic concentrations were evaluated in different directions and at various distances from the CMC Heartland Site (the facility) to determine if the distribution was consistent with aerial dispersion (wind-blown transport of materials) from the facility. Previous investigations had focused primarily on the area to the northwest of the CMC Heartland Site where arsenic based fertilizers were blended during summer months because prevailing winds during these months were from the southeast. The 2006 sampling involved sampling approximately ¾-mile radius in all directions from the CMC Heartland Site. Wind rose data from the Minneapolis area indicate that winds are predominantly from the northwest from November through April, with prevailing winds from the southeast or south from May through October. Wind rose diagrams illustrating the direction from which the wind blows are provided in Attachment 1.

Study Differences: 2006 versus Historic

Table 1 lists the 97 parcel/yard combinations sampled during historic events and resampled in 2006. Records include block and parcel identifier; yard sampled and the reported 2006 and historic concentrations; and the relative percent difference (RPD) between historic and 2006 sample results, followed by the absolute value of the RPD. Two fields also document yes or no (Y/N) if the 2006_historic results exceed either the 10 mg/Kg background or 95 mg/Kg removal action concentrations. The upper panel includes the 13 results where both

2006 and historic results exceed the background. The middle two panels document the 7 cases where there are discrepancies between the two results with respect to exceeding the background. The lower portion of the table includes the remaining 77 parcel|yard results where neither the 2006 nor the historic reported concentration exceeds the 10 mg/Kg background level. Table 2 lists the percentile estimates of the difference between the 2006 and historic results.

Plots of historic versus 2006 arsenic concentrations from parcels or yards sampled during both events are presented in Figure 2, along with a plot of the difference versus the average concentrations. A boxplot is then used to show the distribution of paired differences (2006 concentration minus historic concentration).

The following observations have been made from this evaluation:

- Discrepancies in determining whether a parcel exceeds 10 mg/Kg occur in 7 of 97 cases. In 6 of those, 2006 results indicate that the arsenic level exceeds 10 mg/Kg but the historic result is less. The 7th results in the historic result exceeding 10 mg/Kg while the 2006 result is less than 10 mg/Kg. The remaining 90 cases (93 percent) give consistent results from the paired analyses, including 13 cases where both indicate that the parcel exceeds 10 mg/Kg and 77 where neither result exceeds.
- None of the 97 cases indicates a discrepancy in determining if the 95 mg/Kg removal action criterion has been exceeded.
- Testing the paired differences using a nonparametric test indicates that the reported concentrations differ between the 2006 and historic sampling events. This statistical 'significance' is put into context by the value of the actual reported difference, median of which is -0.7 mg/Kg, where difference is defined as the 2006 result minus the historic result. A 95 percent confidence interval about the median is -1.15 and 0.1 mg/Kg (Table 2). Discrepancies become significant only at the upper bound of the distribution, at the 90th percentile.

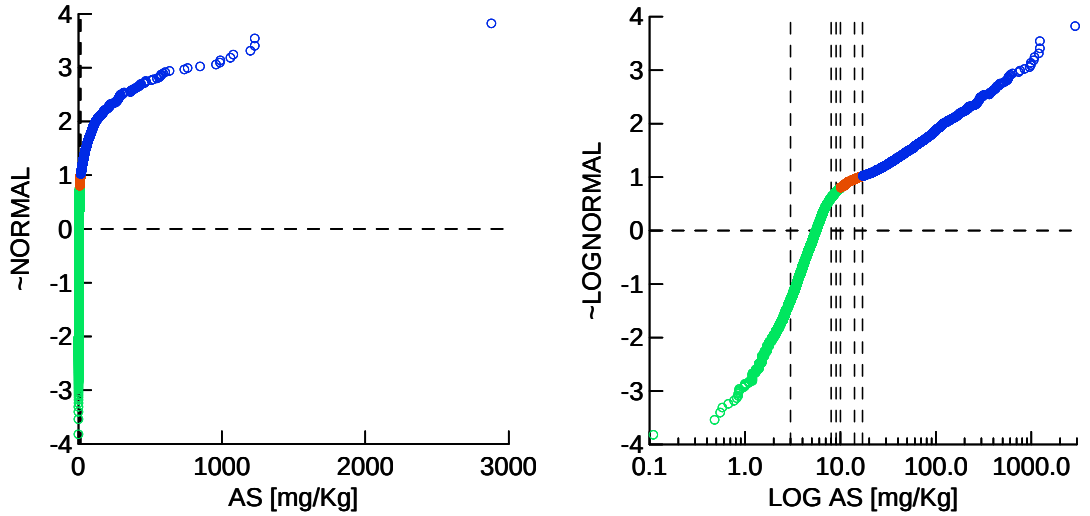
It must be noted that no parcels exceeding 95 mg/Kg were sampled for this comparison because removal actions were already completed on the historic properties exceeding 95 mg/Kg.

Background Determination

Background evaluations were conducted in January 2006 during an evaluation of available historic data. Those evaluations have been regenerated for the combined 2006 and historic sample results, focusing on the probability plots of arsenic values from both the historic and 2006 investigation (7519 sample results total) and the nature of estimates of central tendency and upper bounds of various potential background subsets with differing maximum values. Statistical methods involved the use of probability plots, goodness-of-fit tests and point-interval estimations.

Probability plots are graphical displays used to compare observations to theoretical distributions. Ordered concentrations (x-axis) are plotted against the corresponding estimated cumulative probabilities for the distribution tested, log normal or normal (y-axis). Points which lie on a straight line indicate a positive correlation between the observed

values and the theoretical distribution. The following figures plot the 7519 arsenic concentrations (left panel) and log transformed arsenic concentrations (right panel) against the corresponding probability assuming a normal distribution; thus, testing for normal and log normal distributions:



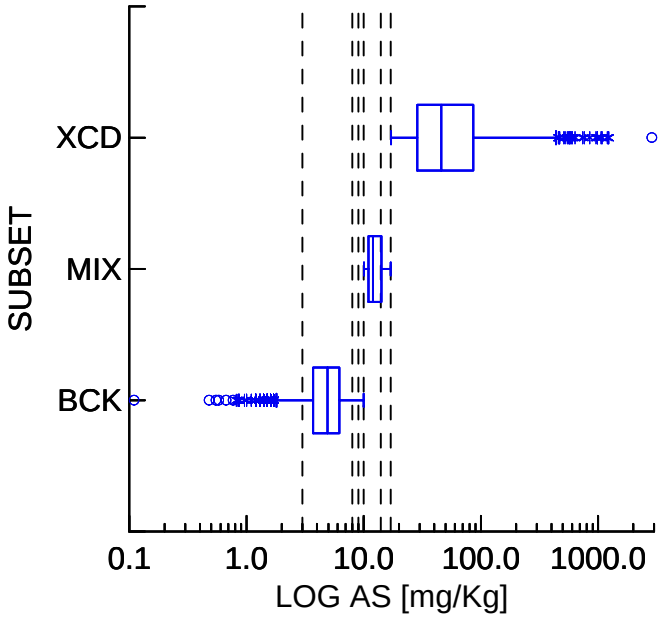
The broken lines cut the x-axis at arsenic concentrations which correspond to literature values originally proposed for background arsenic concentrations at the SMNRSCS, including:

- Minnesota Department of Health (MDH)/Minnesota Department of Agriculture (MDA) determined background concentration of 4–5 mg/kg (Tetra Tech, 2005)
- US Borax investigation neighborhood background concentration of 7.15 mg/kg (Geomega, 2004)
- Background arsenic concentration of 12 mg/kg or lower (MDA, 2003)
- Morris Arsenic Dump background (Morris, MN) of 3 – 14 mg/kg (EPA, 2006).

The untransformed values in the left panel are compressed at the lower range of concentrations so the broken lines which are distinct in the log transform-scaled panel (on the right) collapse into what appears to be a single line.

The above figures indicate several things. First, the arsenic data are neither normally nor log normally distributed. Next, the break in the plots suggests the existence of two distinct and different distributions (bimodal). The set of color-coded green points corresponds to lower 'background' levels while the dark blue points indicate a population that is distinctly different, evidencing a flatter slope, limited to concentrations in excess of approximately 16-17 mg/kg. Points coded red suggest a region of potentially 'mixed' results, the range over which the highest background and the lowest contaminated results overlap. The subsets indicated in the arsenic probability plot correspond to arsenic levels from the minimum detected to 10 mg/Kg (preliminarily 'background'), concentrations in excess of 17 mg/Kg (exceeding background) and the intermediate concentrations greater than 10 mg/Kg but less than 17 mg/Kg, which are mixed points, overlapping the upper bound of background

and lower bound of contamination. A boxplot comparing the three subsets, including summary statistics follows:



SUBSET SUMMARY STATISTICS: HISTORIC + 2006

EXCEEDS BACKGROUND (N=1159)	
RANGE	17.1 – 2880 mg/Kg
MEDIAN	45.9
MEAN	86.6
SD	150.0
95% CI	78.0, 95.3
CV	1.731
MIXED POPULATIONS (N=431)	
RANGE	10.06 - 17
MEDIAN	12.0
MEAN	12.67
SD	1.94
95% CI	12.48, 12.85
CV	0.153
LIKELY UNCONTAMINATED (N=5929)	
RANGE	0.11 – 10.0
MEDIAN	4.9
MEAN	5.07
SD	1.84
95% CI	5.02, 5.11
CV	0.363

The arsenic results less than 10 mg/Kg (5929 results) represent the majority of available results. While this lower portion of the probability plot appears to represent a single population, the distribution may be artificially truncated at the upper end. Potential background populations were examined by successively limiting the potential background datasets from <20 mg/Kg, decreasing by 1 mg/Kg, down to <3 mg/Kg. Statistical evaluations of the 19 subsets included goodness-of-fit tests for normal and lognormal distributions using the Shapiro-Francia test; point-interval estimates using nonparametric estimation methods of the 50th, 95th and 99th percentiles of the distribution. Nonparametric estimates are listed in Table 3. Sample size, median and upper 95th and upper 99th upper tolerance levels (UTLs) with confidence intervals are plotted against the subset maximum concentration in Figure 3.

The following observations were made from the evaluation of historic and 2006 surface soil sampling results:

- The background range developed for the project is: <10 mg/Kg represents background; >10 mg/Kg and <17 mg/Kg represents mixed results background and contaminated soils; and > 17mg/Kg soils affected by arsenic contamination.
- The bimodal nature of arsenic concentrations in soils originally observed in the historic data is corroborated in the full data set which includes both the historic and 2006 results.
- Best estimates have been based upon nonparametric rank statistics.
- Comparison of subsets with maximum values ranging from 3 to 20 mg/Kg indicate comparative stability in median values for subsets with maxima ranging from 10 to 20 mg/Kg. The 95th UTL flattens at approximately 17 mg/Kg while the 99th climbs on track with the maximum selected.

- There is subjectivity in selecting the cutpoint maximum of the mixed population when the background is being identified from within the area of investigation as opposed to an unimpacted area with similar features. The maximum 17 mg/Kg strikes a midground in identifying an upper limit on background without clearly extending into the obviously contaminated levels.
- The subset of values less than 17 mg/Kg includes 6325 observations with median, upper 95th and upper 99th percentile estimates of 5.1, 11.0 and 14.4 mg/Kg. Confidence intervals about those estimates are: (5.0, 5.1), (10.6, 11.0) and (14.0, 14.8) mg/Kg, respectively. The upper bound of the background range (14.8 mg/Kg) may be considered for use as background for the risk assessment.

Linking Elevated Arsenic Concentrations to the CMC Site

Direction and distance from the facility are major factors in the analyses provided. Rings around the site at 500, 750, 1000, 1250, 1500, and 1750 meters were utilized to create subsets of data for the evaluation of distance Figure 1. Figure 1 also displays the 8 octants centered around the facility: N, NE, E, SE, S, SW, W and NW. The intended degrees within each octant are defined clockwise from north (0°), with the associated sample counts per direction, as follows:

OCTANT	Target Degrees	Actual Degrees	Count
1_NW	292.5 – 337.5	292.50 – 337.48	1692
2_W	247.5 – 292.5	247.53 – 292.43	1452
3_SW	202.5 – 247.5	202.55 – 247.45	956
4_S	157.5 – 202.5	157.53 – 202.49	1267
5_N	337.5 – 22.5	0.001 – 359.96	516
6_NE	22.5 – 67.5	22.54 - 67.36	729
7_E	67.5 – 112.5	67.71 – 112.49	470
8_SE	112.5 – 157.5	112.49 – 157.44	437
		TOTAL	*7519*

Arsenic Concentration as Function of Distance from Facility

Figure 4 plots sample size (upper panel), median concentration with confidence intervals (middle panel), and the 95th UTL with confidence intervals, for arsenic concentrations as a function of distance from the facility. Distance breaks are 250 meter increments beyond 500 meters from the facility. Samples closer than 500 meters are limited to 4 directions, including: SE, S, SW and W. Estimated concentrations used in Figure 4 are summarized in Table 4. Plots and estimates include concentrations within individual rings (e.g., from 0 to 500 meters, from >500 up to 750 meters) and within concentric circles of the indicated radius (e.g., 0-500 meters, 0-750 meters). Figure 5 is boxplot of arsenic concentrations corresponding to non-overlapping concentric rings around the facility at distances indicated.

The following observations relate to the evaluation of arsenic concentration as a function of distance from the facility:

- Estimates based upon both ring and circle evaluations document the overall decreasing median arsenic concentration as a function of distance from the facility. The median of samples collected within 500 meters of the facility is 7.8 mg/Kg (with 95 percent confidence interval of 7.1 and 8.5 mg/Kg). This is higher than concentrations observed in the ring between 1250 and 1500 meters where the median concentration is 5.2 mg/Kg or the entire population of samples within a circle of radius 1500 meters where the median estimate is 5.6 mg/Kg. This is also higher than concentrations observed in samples collected between 1500 and 1750 meters where the median concentration is 3.5 mg/Kg. However, samples collected at distances between 1500 and 1750 meters are limited to the NW and N octants which limits the validity of the comparison at these distances.
- Ring and circle estimates of the median concentration track until a distance of approximately 1500 meters, at which point the ring-specific estimates drop markedly. Samples collected at a distance of 1500 meters or greater are limited to the NW and N octants, limiting the validity of the comparison. As a result, ring and circle estimates were prepared by octant to further evaluate the distance trends in each direction. These results are presented later in an evaluation by octants.
- Boxplot comparison of ring subsets corroborates results from a nonparametric test which indicates statistically significant differences among rings. Rings at 1000 and 1500 meters do not differ from each other, but do differ from the intervening 1250 meter ring.
- Boxplots show that exceedances of the 95 mg/Kg removal action limit occur up to the 1500 meter ring but as atypical values at all distances from the facility.
- The 75th percentile exceeds 10 mg/Kg only within the first 500 meter ring.

Arsenic Concentration as Function of Direction from Facility

Figure 6 is a boxplot of arsenic concentration across octants. Figure 7 includes boxplots of arsenic concentrations in the 8 directions from the facility at distances ranging from 500 to 1750 meters. Table 5 documents results comparing octants at the different distances where cell entries indicate the sample size, the probability of the test statistics, where <0.05 indicates statistically significant differences, followed by the average rank where 1 is highest, 8 is lowest, for each direction. The upper panel of the table lists results for distances (750 meters or less) where individual direction sample sizes limit interpretation of results. The lower panel lists results from distances greater than 1000 meters from the facility.

The following observations were made regarding arsenic concentration as a function of direction from the facility:

- At distances greater than 750 meters, concentrations in different octants differ significantly. The trend is consistent with highest concentrations occurring in SE and E (ranks 1 and 2 at all distances greater than 1000 meters); comparatively lower concentrations in S, SW and W (ranks 3-5); with lowest concentrations consistently in NW, NE and N (ranks 6-8).
- There are discrepancies in relative concentrations in different directions at different distances.
- There are individual samples with concentrations which exceed 95 mg/Kg in all directions from the facility at virtually all distances.

Directional Plots at Different Concentration Levels

Figure 7 is a boxplot of the octants at 6 distances from the facility. Figures 8-1 through 8-8 are condition plots of arsenic concentration versus distance from facility in the 8 directions at 8 different levels of arsenic concentration. The arsenic concentrations include: up to 6.5, 10, 17, 30, 50, 75, 95 and 2880 mg/Kg. Table 6 documents regression results from least squares best linear fit using results at all distances in the 8 directions. Data summarized in Table 6 includes: sample size; regression F-test; probability of the F-test where < 0.05 is considered 'significant'; adjusted R-square statistics; and the direction of the slope estimate for 'significant' results. Based upon wind rose evaluations (Attachment 1), predominant winds are from the southeast to the northwest in the summer and from the northwest to the southeast in the winter. Based on the conceptual site model of wind dispersion, contamination is expected to trend outward from the site in both the northwest and southeast directions.

Observations from evaluation of directional plots at different concentration levels include:

- Concentration plots versus distance from facility are consistent across each concentration level in the following directions: northeast and south (increasing), northwest and west (decreasing) and southeast where a localized increase-to-sharp decrease at ~1200 meters occurs. Linear regression fits are significant in all five, including a decrease with distance to the southeast. **While the fits are significant, the high variability in the data limits predictability of the relationships**.
- Concentration plots exhibit minor differences in the pattern of concentration with distance from the facility at low concentration levels in three directions: east, north and southwest. Moving east from the facility, low arsenic concentrations are influenced by one or more distant samples which pull the smoothed line upward, while at other concentration levels, there is a fairly consistent downward trend. In the north direction, low levels exhibit an increase with distance from the facility while at mid to higher levels, there is a concave pattern, with initial decreases moving from the facility then increasing at locations farther from the facility. In the southwest direction, low level concentrations appear flat while higher level concentrations exhibit slightly decreasing trends with distance. Regression fits are not significant in these three directions.

Arsenic Concentration Estimates within Octants at Different Distances from the Facility

Figures 9-1 and 9-2 display arsenic concentrations at distances from 500 to 1750 meters from the facility in each of the 8 octants. Figure 9-1 includes panels for northwest, west, southwest and south octants. Figure 9-2 includes panels for north, northeast, east and southeast octants. Octant-specific results in the two figures are displayed in three plots per panel: sample size (upper), median estimate and confidence intervals (middle), and upper 95th UTL estimate and confidence intervals (lower), each plotted against distance from the facility. Similar to the overall plot given in Figure 4, color coding distinguishes between ring and circle subsets. Table 7 lists the estimates used in the plots, including sample size; median best estimate; confidence of the nonparametric interval; the lower and upper limits on the median estimate; the best estimate of the 95th UTL; the confidence of the associated nonparametric interval; and the lower and upper limits on the 95th UTL. Octant-specific results are broken into the subsets of circle (including all points less than the distance from

the facility) and ring (including points between two distances from the facility) and sorted by distance.

Observations from evaluation of directional plots at different distances include:

- Sample distribution among octants is apparent in the plots. East and northeast octants are limited to single observations within the 500 meter radius. Samples at greater than 1500 meters from the facility occur only in the N and NW octants. The sample distribution is a result of the location of commercial and industrial properties (commercial and industrial properties were not sampled in this investigation) as well as the investigation boundary.
- Patterns in the circle estimates corroborate the regressions previously discussed. No 'significant' trend in arsenic concentration with distance from the facility is observable in the north, east or southwest octants. Decreasing trend in median and best estimate arsenic concentration with distance from the facility is observable to the northwest, west (beyond 500 meters) and the southeast. Arsenic concentrations increase with distance from the facility in the northeast and south. **While the trends are significant, the high variability in the data limits predictability of the relationships**.
- Discrepancies between ring and circle estimates are useful to identify where localized behavior differs from observations closer to the facility. For example, in the E and SE octants, ring estimates for the 95th UTL at distances beyond 1250 meters are elevated as compared to the circle estimates. In the case of the E octant, the small sample size influences the observed effect. However, samples sizes in the S octant outer rings (N= 336) are sufficient to document that the elevated concentrations within the outer concentric rings are real.

Evaluation of Replicate and Duplicate Results

Reliability of arsenic quantitation has been examined by comparing paired results collected as replicate or duplicate samples. Replicate samples consisted of two separate composites collected from the same yard. The original five on the dice pattern was rotated 45° for collection of the second sample. A total of 276 paired replicates were collected during the 2006 sampling effort. A duplicate sample was collected by splitting sample volume from a 'parent' sample. A total of 342 paired duplicates were collected during the 2006 sampling effort. Cases in which duplicates and replicates are from the same location (nested) are limited to 4 locations. Potentially different variability structures at different locations means that differences between small-scale (duplicate) and larger-scale (yard replicate) information are not directly comparable.

Three measures have been applied in the evaluations. The first is comparison of the paired results to the conservative background criterion of 10 mg/Kg. Paired results include: 'Y_Y' where both exceed the background; 'N_N' where neither exceeds; and either 'N_Y' or 'Y_N' where one exceeds and the other does not. Additionally, pairs have been used to calculate RPD and absolute RPD (RPDabsolute). RPD is the percentage of the average represented by the difference between the two concentrations. In most instances, it is equally likely that the parent or the paired replicate/duplicate would be greater, meaning theoretically the RPD should average zero. The alternate calculation is the absolute value of the RPD where sign is

not accounted for and which gives a more conservative estimate of the variability between paired results.

Table 8 summarizes duplicate and replicate results from paired sample results by octant. Results have been distinguished by classes of consistent and inconsistent results. Within class, results are summarized by the count of observations per class per octant, followed by the mean RPDabsolute. Figures 10-1 and 10-2 compare replicate and duplicate RPD and RPD absolute, respectively. Paired boxplots show potential differences across octants (left column) and distances from the facility. Tabled values below the plots give results from nonparametric comparisons across type of pair (replicate versus duplicate) and across octants and distances from the facility.

Observations from evaluation of replicate and duplicate results include:

- The majority of replicate and duplicate paired sample results give consistent results; 558 of the 618 total pairs or, 95 percent.
- Segregated by replicates versus duplicates, consistent results account for 334 of the 342 duplicates (98 percent) and 254 of the 276 replicates (92 percent).
- The range of RPD for duplicates is -158.4 to +172.0 percent, averaging -0.9 percent. Range of RPD for replicates is -170.9 to +176.6 percent, averaging +0.4 percent.
- Ranges and averages of absolute RPD are: 0 to 172 percent (14.3 percent average) for duplicates and 0 to 176.6 percent (averaging 25.2 percent) for replicates.
- While there are no acceptable RPD values for either field duplicates or replicates, laboratory replicates on this order for arsenic quantification are acceptable from a QA perspective.
- Comparisons of RPDs indicate no statistically significant differences between replicate and duplicate pairs. There are no significant differences among either direction (octants) or distance (meters) from the facility with respect to duplicate or replicate RPD of arsenic measures.
- Absolute RPDs do differ significantly between replicate and duplicate pairs with replicates, which represent true field variability, exhibiting slightly higher absolute differences between pairs than simple measurement split duplicate pairs.
- Replicate absolute RPDs do not differ as a function of distance from the facility. There are, however, differences among direction with higher variability evidenced in the S octant than in either the SW, E or SE octants.

Multiple Yard Parcel Comparisons

The 7519 arsenic results correspond to samples collected on 3596 individual parcels. Two or more independent samples (non-replicate, non-duplicate) were collected on 2958 of the parcels. Table 9 lists the 2958 cases, including: parcel and block ids; octant; distance class; count of samples; results from the individual yards (back, front, garden, other, side, unknown); binary field Y/N for both the background and removal action criteria, indicating whether the minimum_maximum of the yard results exceeds the criterion; and minimum, maximum and RPD of all yard samples where the RPD is fixed to a positive value by consistently subtracting the minimum from the maximum. Figure 11 compares RPD by octant and distance from the facility.

Observations from evaluation of multiple yard sample results include:

- Of the 2958 multi-yard properties, 2139 parcels (72 percent) would have been considered less than the 10 mg/Kg and/or less than the 95 mg/Kg removal action concentration, regardless of yard sampled. RPDs in this subset of parcels range from 0 to 153 percent, averaging 25 percent.
- 52 of the parcels would have been considered elevated above both criteria, regardless of yard sampled, representing another 2 percent where yard results give internally consistent results. RPDs in the subset range between 4 and 158 percent, averaging 62 percent.
- 321 parcels have results which are all below the 95 mg/Kg removal action limit but have minimum and maximum results which are inconsistent with respect to the 10 mg/Kg background level. The 321 parcels represent 11 percent of the parcels with multiple yard results and RPDs range between 3 and 181 percent, averaging 97 percent.
- 432 parcels have results all of which exceed the 10 mg/Kg background. 326 are consistent with no exceedance of 95 mg/Kg (another 11 percent with overall yards consistent results with respect to both criteria). On the remaining 106 parcels, the minimum yard result is less than the 95 mg/Kg removal action concentration while the maximum exceeds. RPDs for the 326 cases range from 0 to 152 percent, averaging 49 percent. The more inconsistent 106 parcel RPDs range from 12 to 192 percent, averaging 107 percent.
- The final 14 parcels have minimum concentrations which are less than both criteria but maximum concentrations which exceed the two criteria. Results are consistently different at both levels and RPDs are high, ranging between 167 and 195 percent, averaging 184 percent.
- Explicit comparison of the RPDs indicates no statistically significant differences across distances from the facility.
- As indicated in the boxplot of octants, RPDs of results from multiple yards within parcels in the S octant are significantly greater than the remaining octants.

Summary of the Observations

Historic Data and 2006

- Data are comparable, and the datasets can be combined.
- Discrepancies become substantive only at the upper bound of the distribution, at the 90th percentile.

Background Evaluation

- 1159 samples exceed background with a range of 17 mg/Kg to 2880 mg/Kg
- 431 samples are present in the mixed population of higher level background concentrations and low level contamination from 10 mg/kg to 17 mg/kg
- 5929 samples are within the conservative background concentration range of 0.11 mg/kg to 10 mg/kg.

- The combination of the 2006 results with the historic sample results did not result in a significantly different evaluation of the background concentration range than was determined using only the historic sample results.

Arsenic Concentration as a Function of Distance

- The 75th percentile exceeds 10 mg/Kg concentration only within the first 500 meter ring.
- Boxplots show that exceedances of the 95 mg/Kg removal action limit occur up to the 1500 meter ring but as atypical values at all distances from the facility.

Arsenic Concentration as a Function of Direction

- At distances greater than 750 meters, concentrations in different octants are significantly different.
- The trend is consistent with highest concentrations occurring in SE and E (ranks 1 and 2); comparatively lower concentrations in S, SW and W (ranks 3-5); with lowest concentrations consistently in NW, NE and N (ranks 6-8).
- There are individual samples with concentrations which exceed 95 mg/Kg in all directions from the facility at virtually all distances.

Directional Plots at Different Concentration Levels

- Regression fits are significant but weak in 5 directions (Figure 8-1 to 8-8, Table 6):
  - Northeast – increasing
  - South – increasing
  - Northwest – decreasing
  - West – decreasing
  - Southeast – decreasing (localized increase then sharp decrease shown on plots).
- While the fits are significant in all 5 directions, variability in the data limits predictability of the relationships.

Arsenic Concentration Estimates within Octants

- Patterns in the circle estimates for the median concentration corroborate the regressions discussed in the directional plots.

Replicate/Duplicate Results (Figure 10-1 to 10-2 and Table 3)

- Ranges and averages of absolute RPD are 0 – 172% with an average of 14% for duplicates and 0 – 177%, averaging 25% for replicates.
- Absolute RPDs differ significantly between replicate and duplicate pairs. Replicate pairs, which more accurately represent true field variability, exhibit higher variability.
- There are no significant differences among either direction or distance from the facility in terms of the duplicate RPDs.
- There are differences in replicate RPDs with higher variability evidenced in the S octant than in either the SW, E or SE octant.

Multiple Yard Comparisons

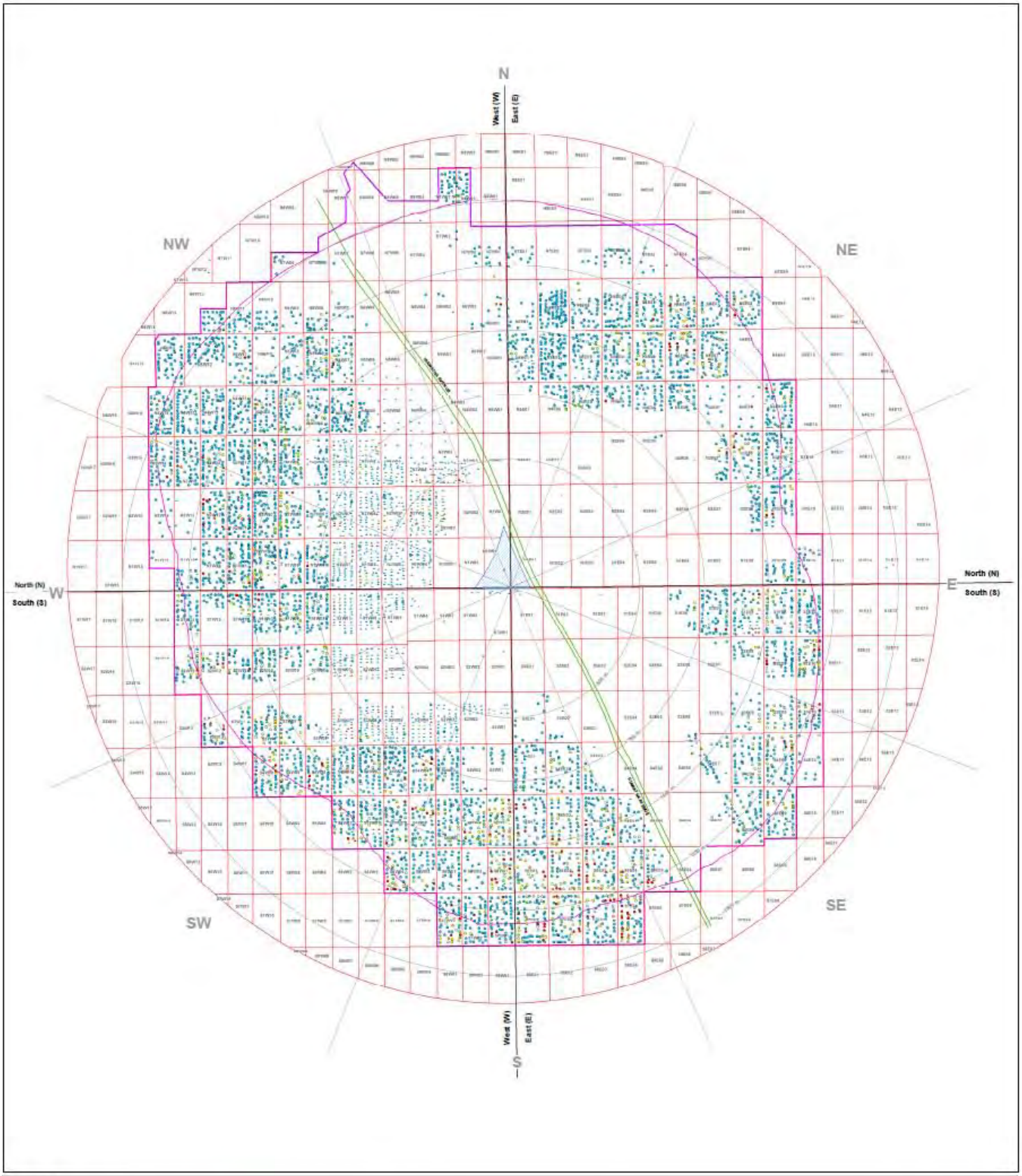
- Of the 2958 multi-yard properties, 2139 parcels (72 percent) of the front, side or back yard results fell within the same concentration range with respect to their relative relationship to background or the removal action limit. RPDs in this subset of parcels range from 0 to 153 percent, averaging 25 percent.
- On 106 parcels, the minimum yard result is less than the 95 mg/Kg removal action concentration while the maximum exceeds. The RPDs for the 106 parcels range from 12 to 192 percent, averaging 107 percent.

Conclusions from the Statistical Evaluation

- Historic and 2006 data sets appear to be comparable; the data can be combined into a single data set for evaluation.
- The background concentration of arsenic in surface soils within the study area ranges from 0.11 mg/Kg to 10 mg/Kg. Mixed population of higher level background concentrations and low level contamination appear to be present from 10 mg/kg up to 17 mg/kg. The upper bound of the background range (14.8 mg/Kg) may be considered for use as background for the risk assessment.
- Decreasing trends are present with distance which would be consistent with aerial dispersion. However, the trends are present in only some directions from the CMC Heartland Site and the trends are weak with a high variability in the data limiting predictability of the relationships. The original conceptual site model, which is contamination in the residential areas due to air dispersion, does not appear to be supported by the data for the high concentrations which occur atypically in all directions at virtually all distances.
- Arsenic concentrations greater than background may not be linked to the CMC Heartland Site.

Figures

TABLE OF CONTENTS



Legend

Sample Type

- Current Sampling Events
- Historic Sampling Events

Samples with Results (mg/kg)

- 0 - 10.0 (ppm)
- 10.0 - 20.0 (ppm)
- 20.0 - 30.0 (ppm)
- 30.0 - 60.0 (ppm)
- 60.0 - 95.0 (ppm)
- > 95.0 (ppm)

Arsenic Dispersion Boundary above 10 ppm

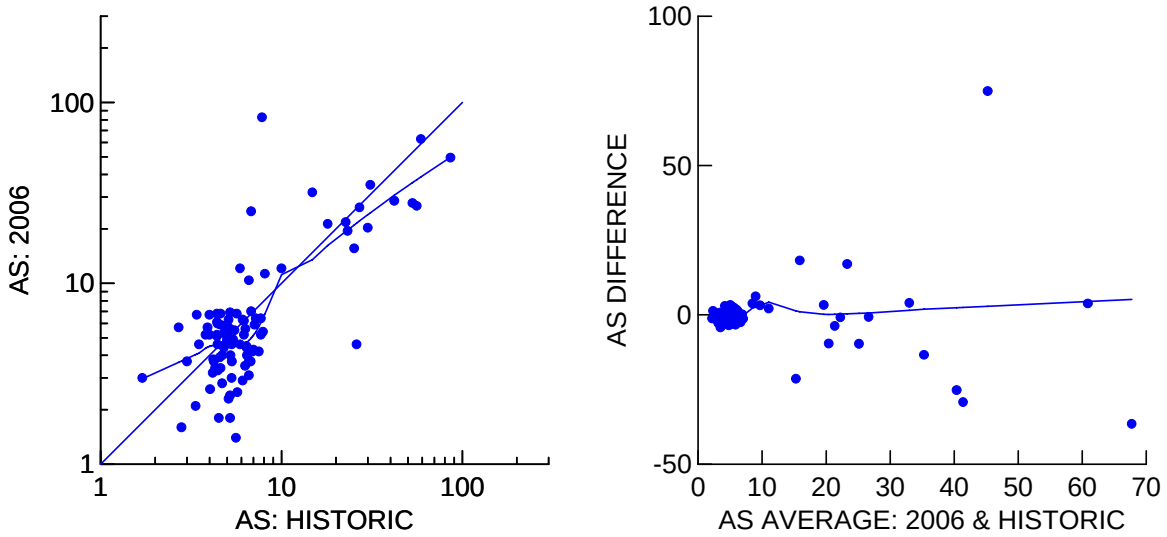
- Revised 2006 Residential Soil Sample Boundary
- Arsenic Dispersion Boundary

N

0 200 400
Meters

Figure 1
Sample Result Analysis
South Minneapolis Site
Minneapolis, MN

CH2MHILL



STUDY-SPECIFIC RESULTS

DIFFERENCE DISTRIBUTION [AS_{2006} – $AS_{HISTORIC}$]

Figure 2
STUDY COMPARISONS: 2006 *versus* HISTORIC

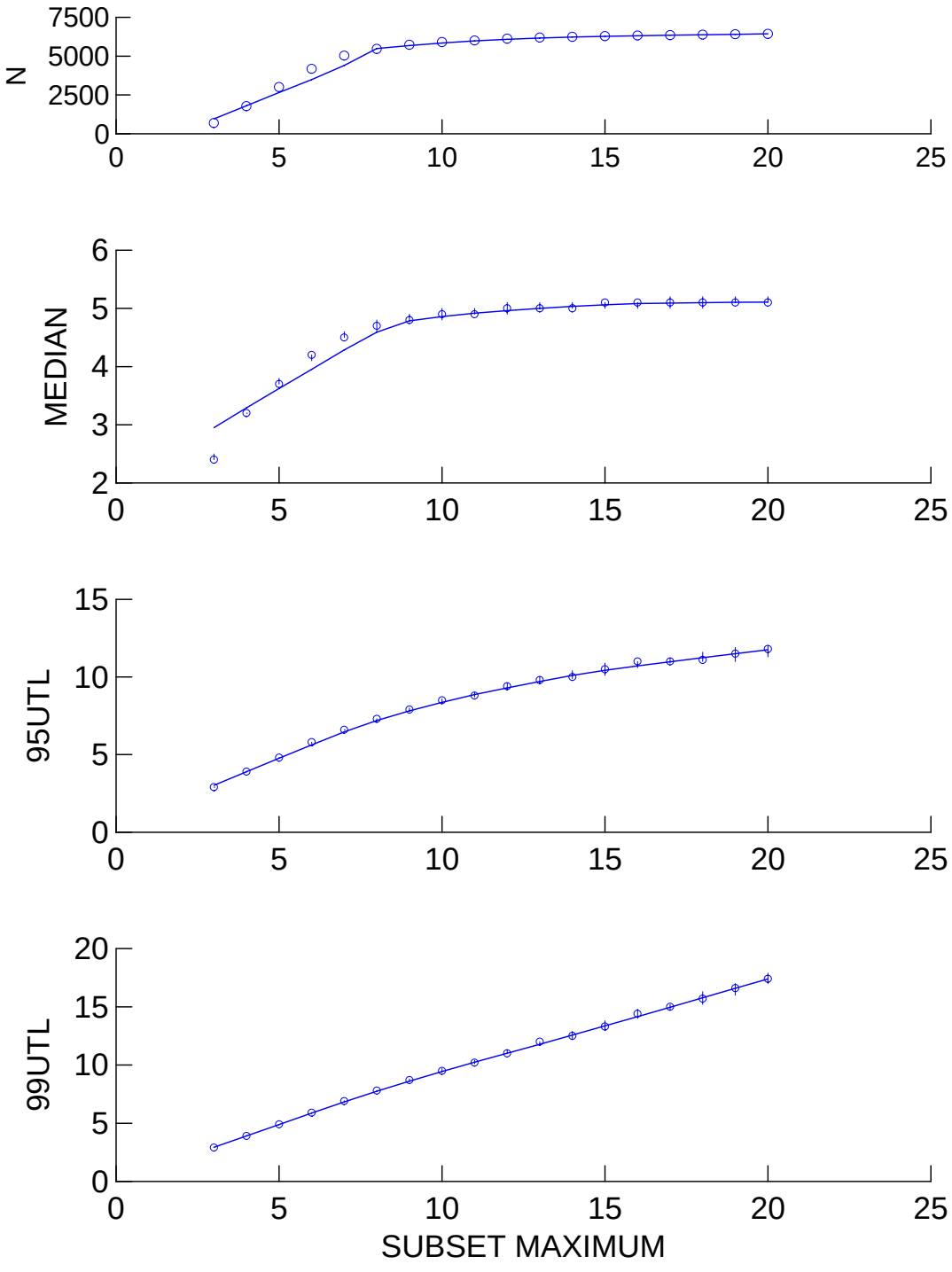


Figure 3
Background Estimate Subset Comparison: N, Median, 95th UTL, 99th UTL

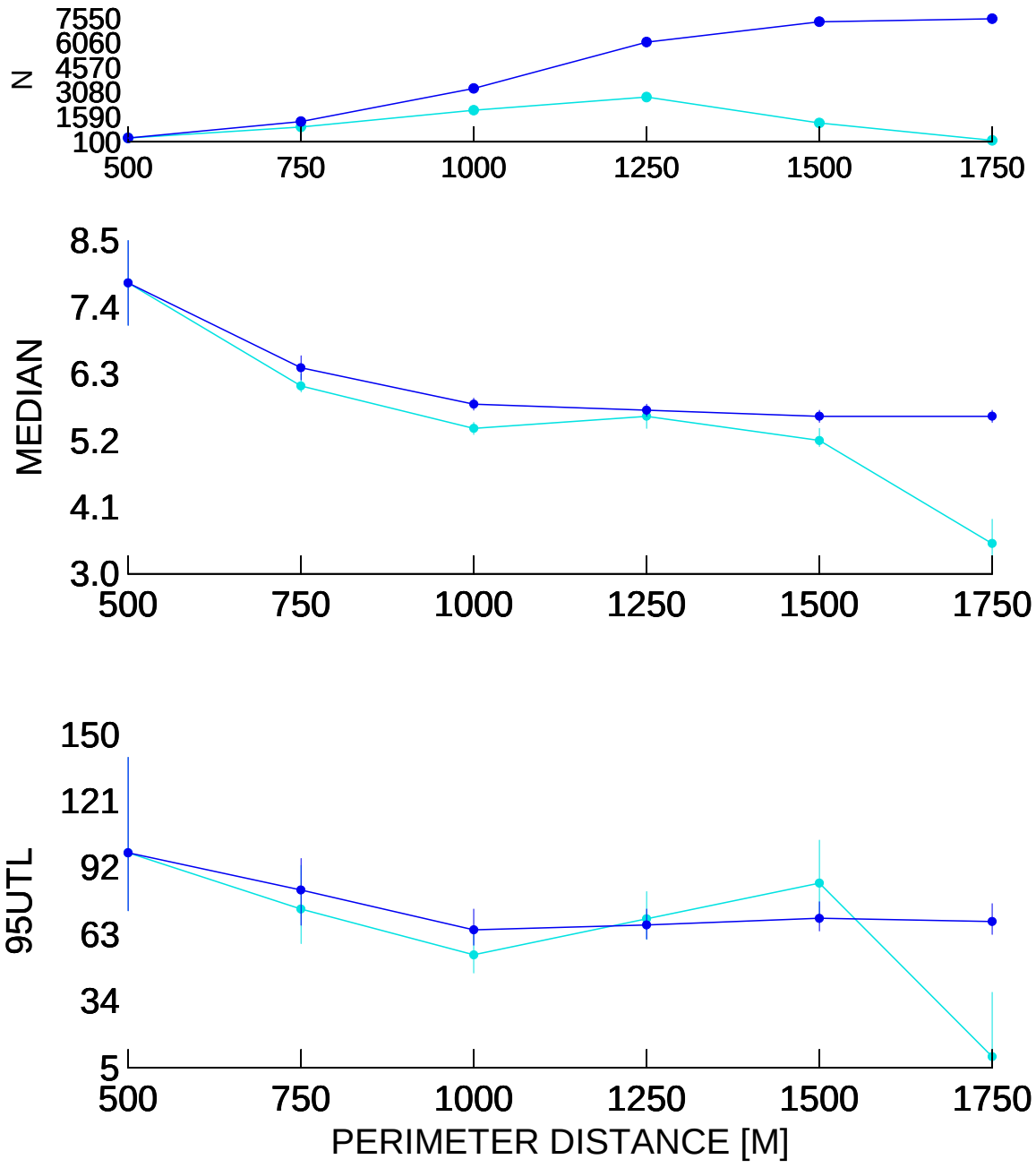


Figure 4
Arsenic Concentration As Function of Distance from Facility

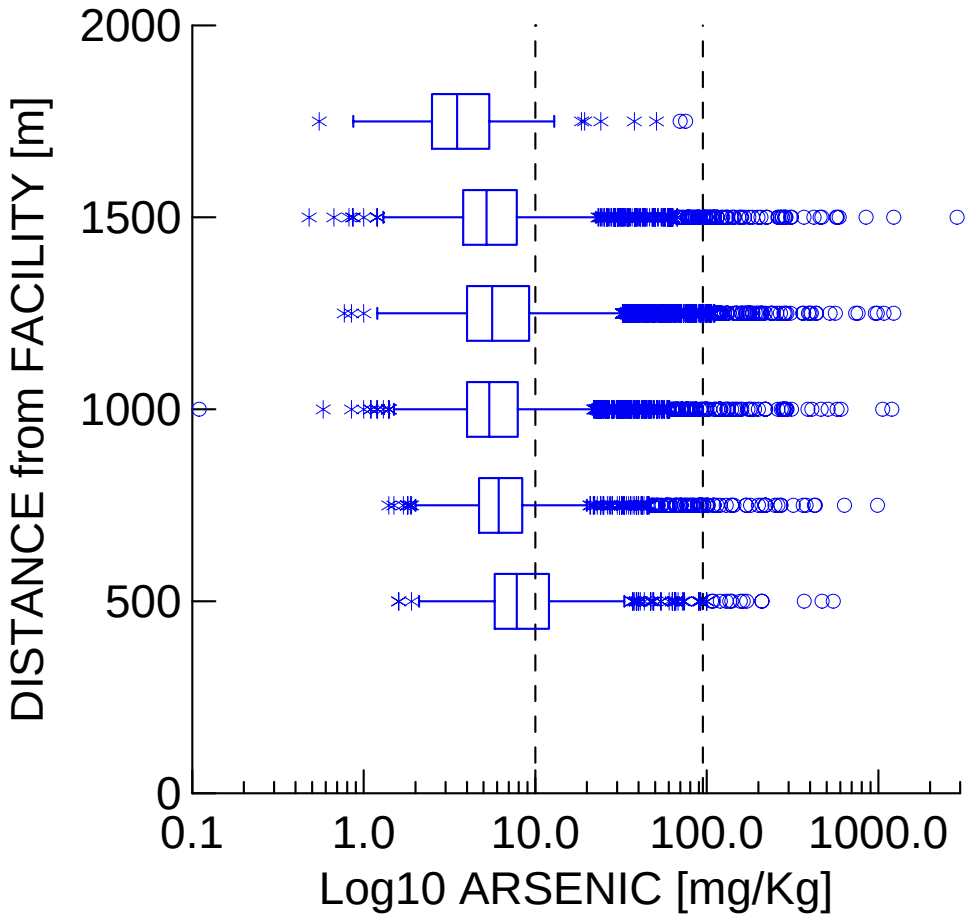


Figure 5

Boxplot of Arsenic Concentration As Function of Distance from Facility

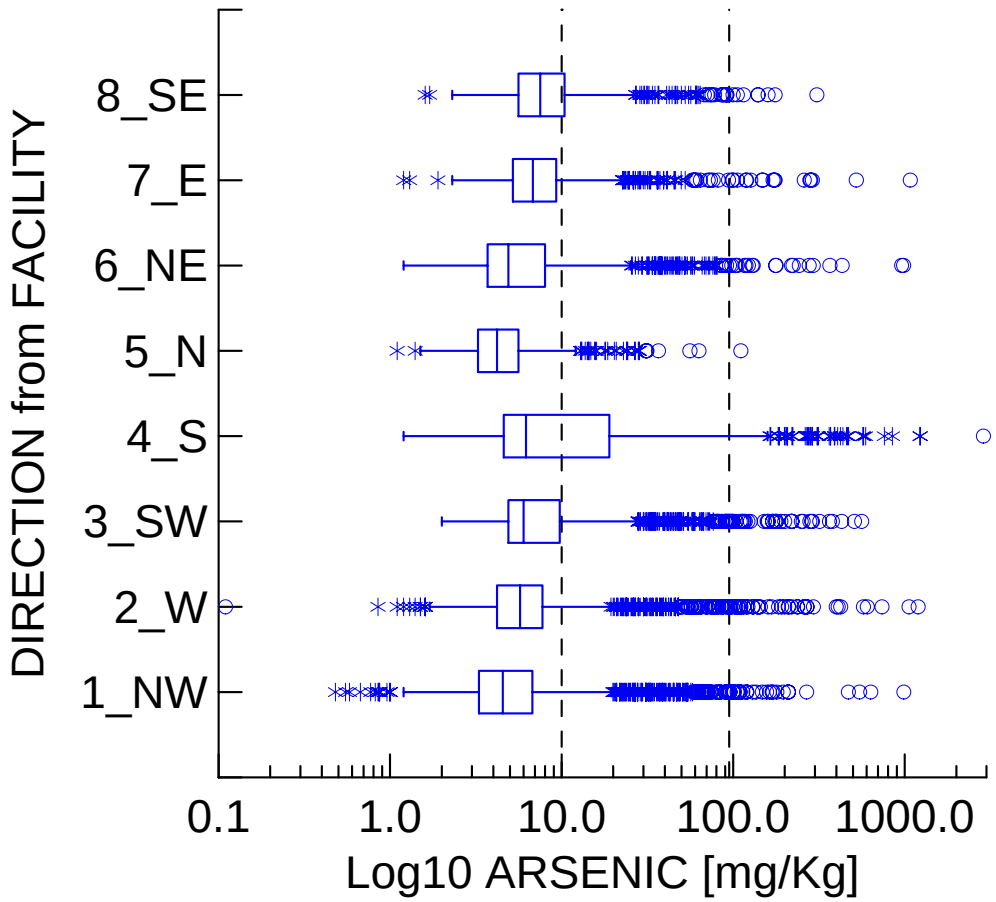


Figure 6

Boxplot of Arsenic Concentration As Function of Direction from Facility

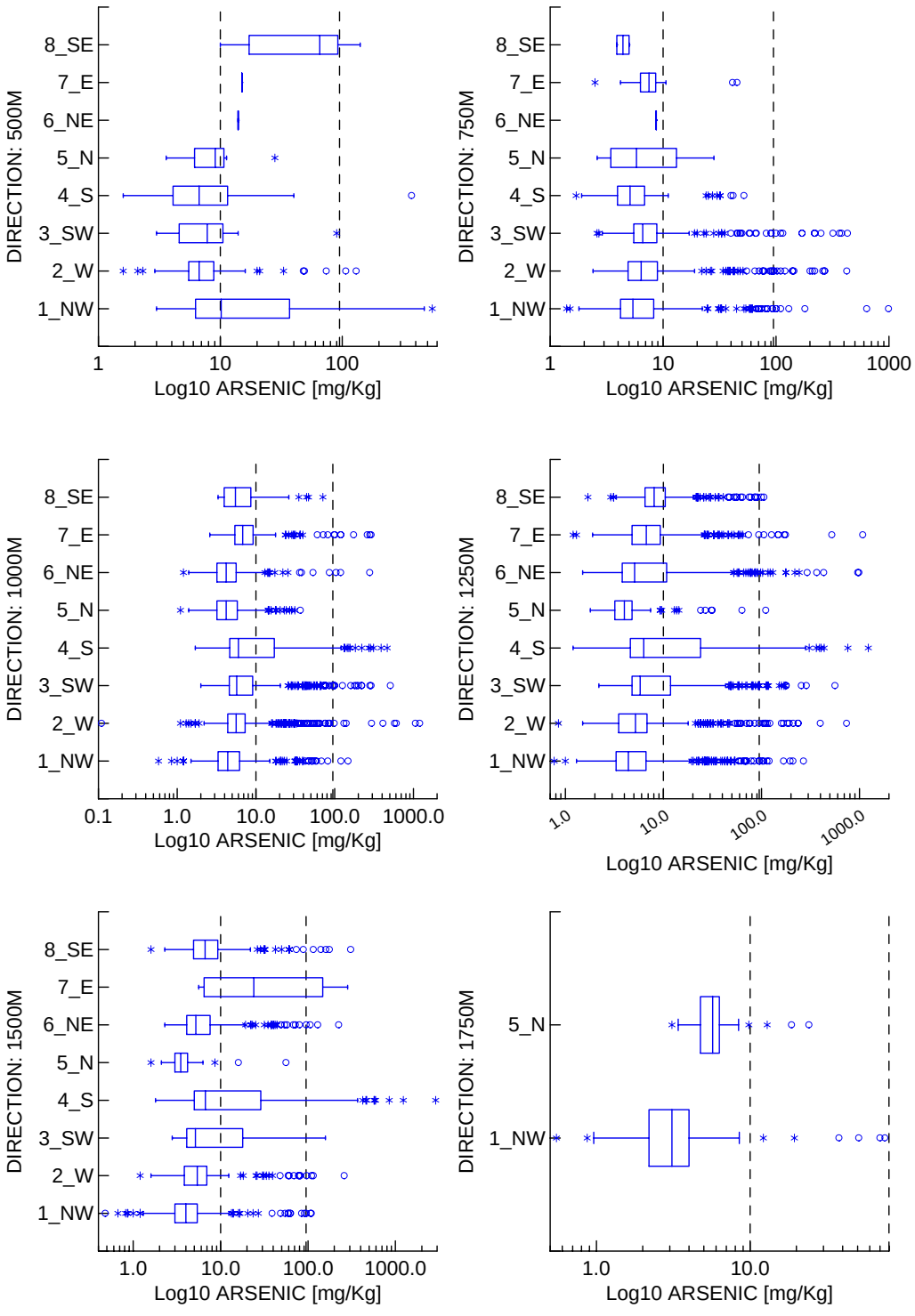


Figure 7

Boxplot of Arsenic Concentration As Function of Direction from Facility: By Distance from Facility

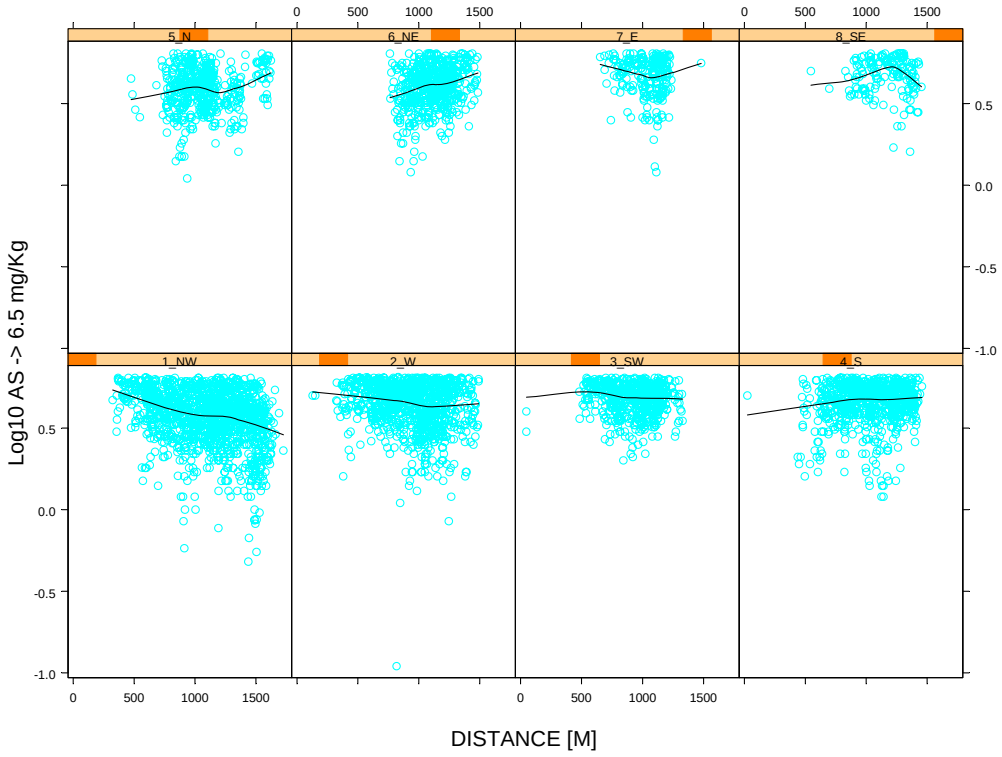


Figure 8-1

Condition Plot of Arsenic Concentration As Function of Direction from Facility: Concentrations up to 6.5 mg/Kg

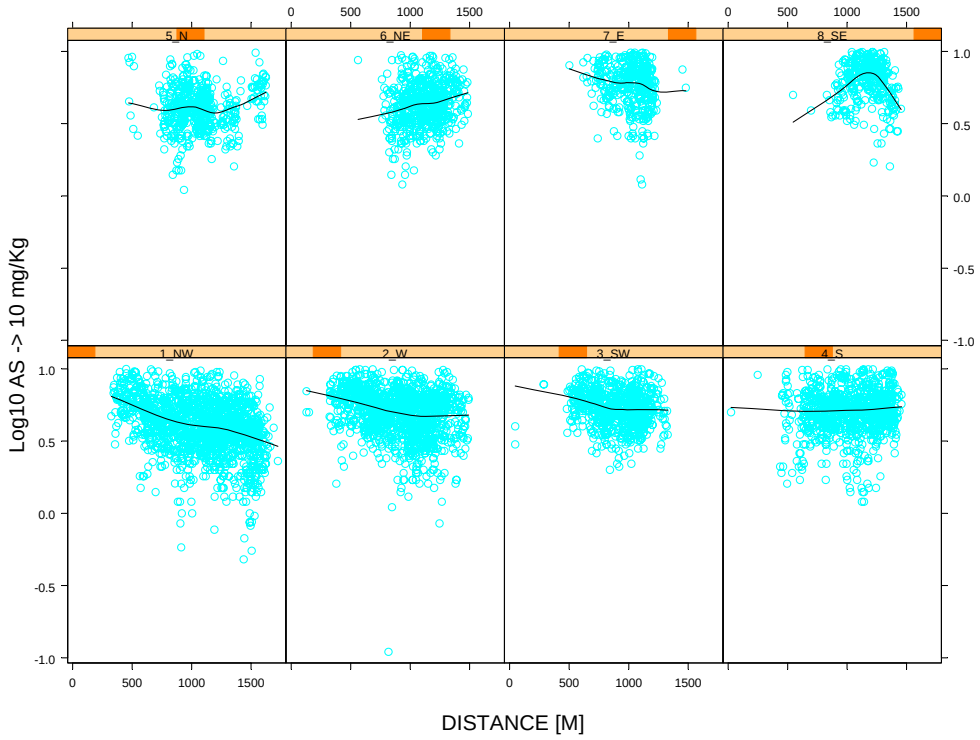


Figure 8-2

Condition Plot of Arsenic Concentration As Function of Direction from Facility: Concentrations up to 10 mg/Kg

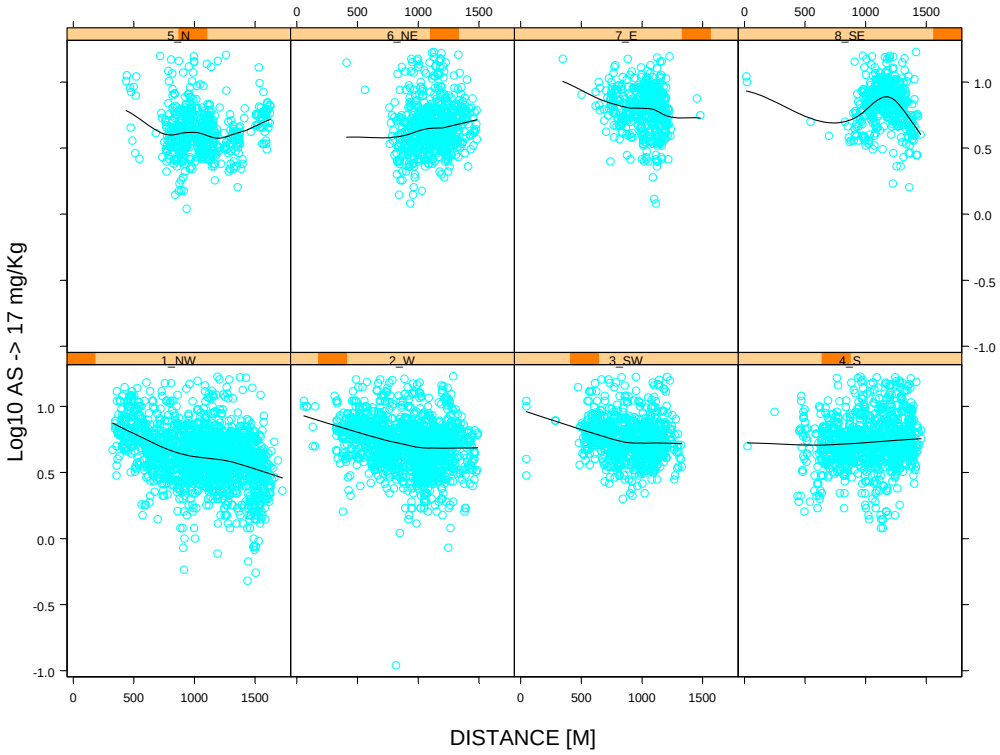


Figure 8-3

Condition Plot of Arsenic Concentration As Function of Direction from Facility: Concentrations up to 17 mg/Kg

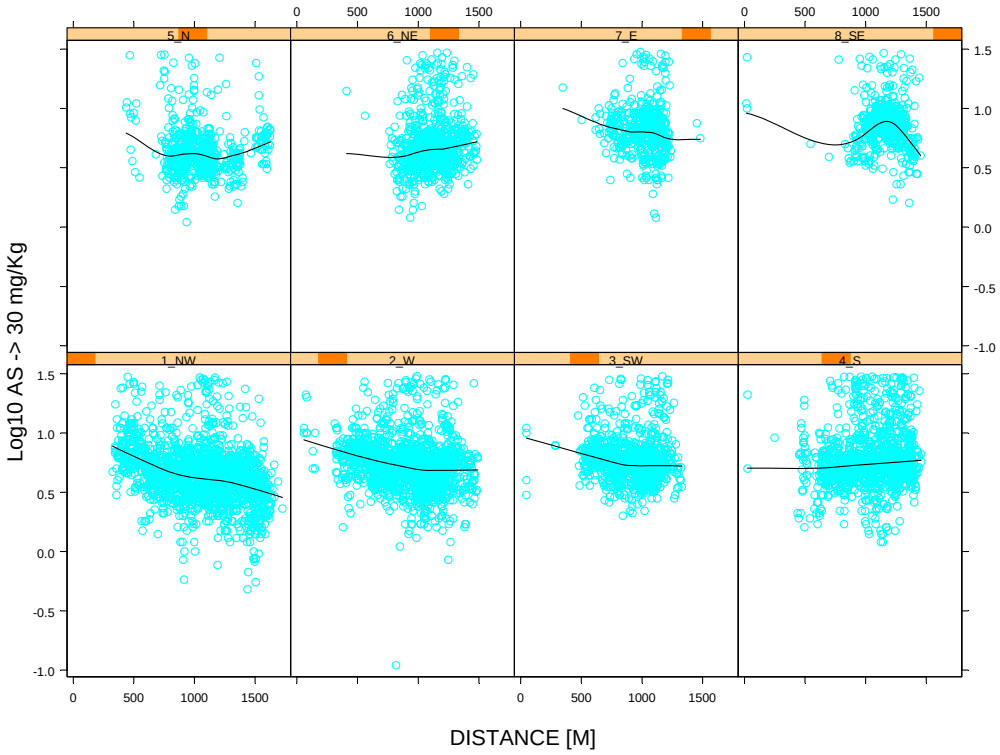


Figure 8-4

Condition Plot of Arsenic Concentration As Function of Direction from Facility: Concentrations up to 30 mg/Kg

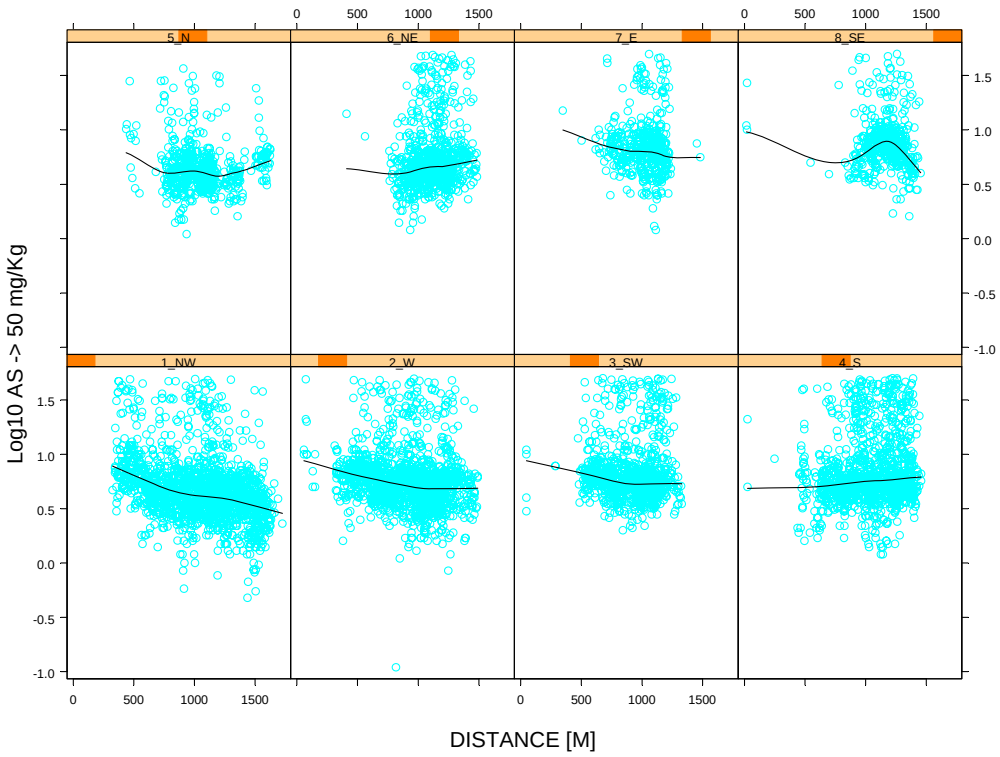


Figure 8- 5

Condition Plot of Arsenic Concentration As Function of Direction from Facility: Concentrations up to 50 mg/Kg

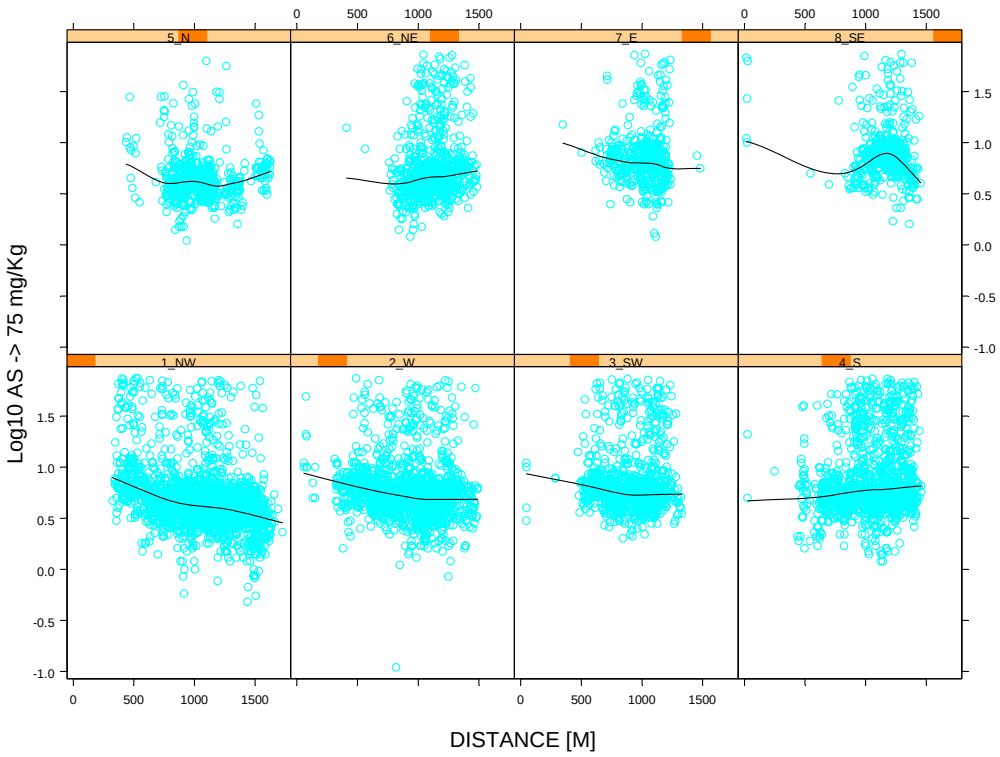


Figure 8-6

Condition Plot of Arsenic Concentration As Function of Direction from Facility: Concentrations up to 75 mg/Kg

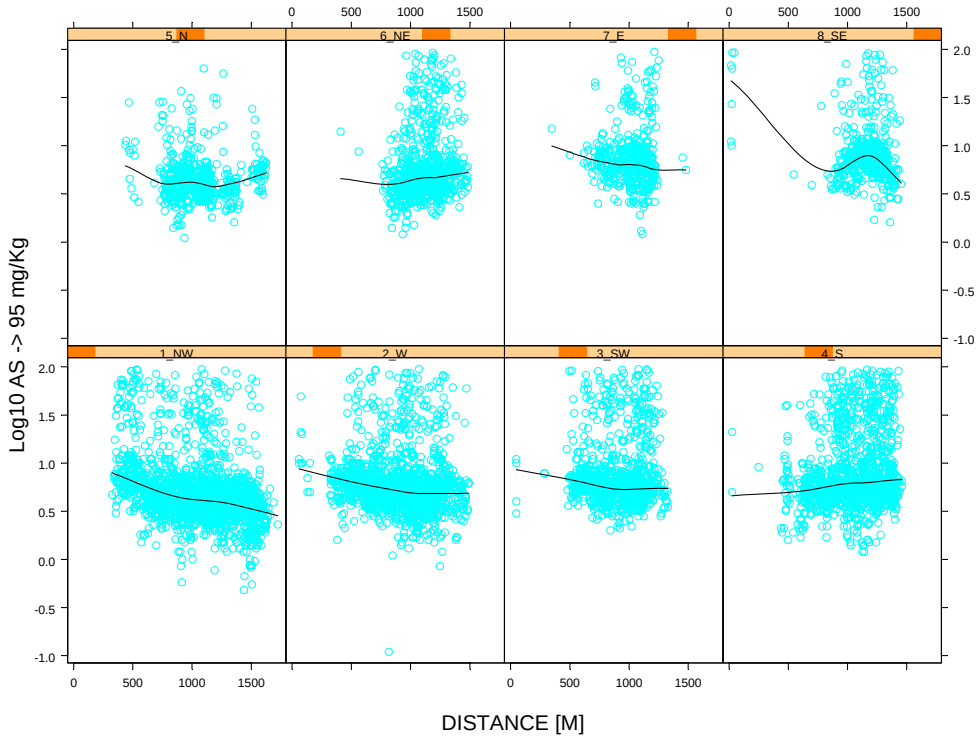


Figure 8-7

Condition Plot of Arsenic Concentration As Function of Direction from Facility: Concentrations up to 95 mg/Kg

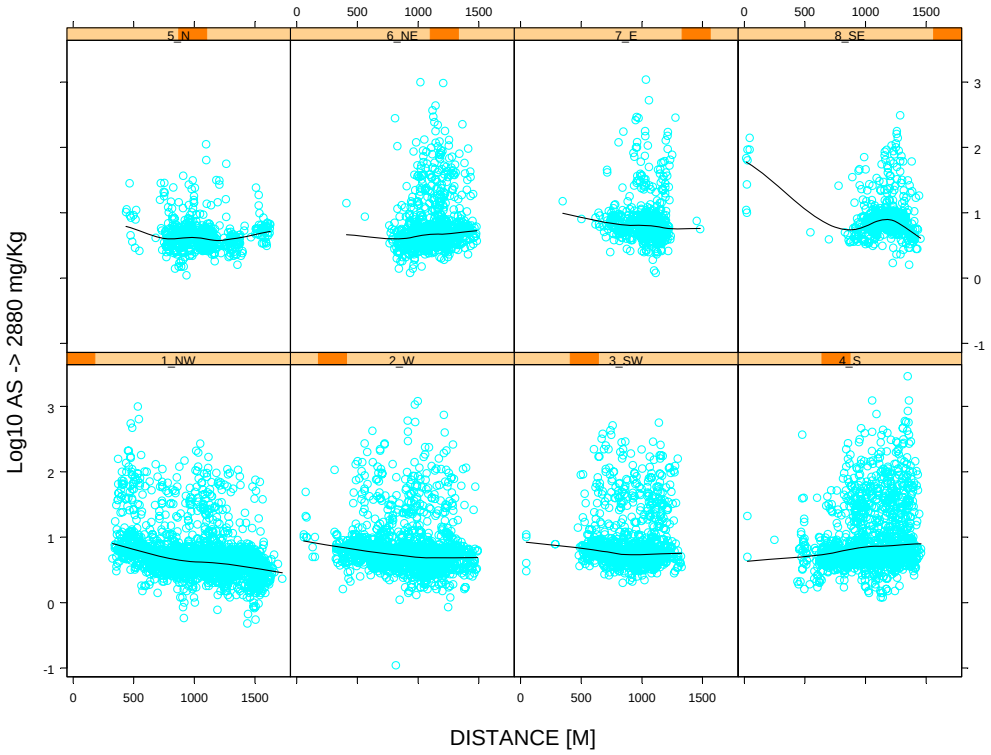


Figure 8-8

Condition Plot of Arsenic Concentration As Function of Direction from Facility: Concentrations up to 2880 mg/Kg

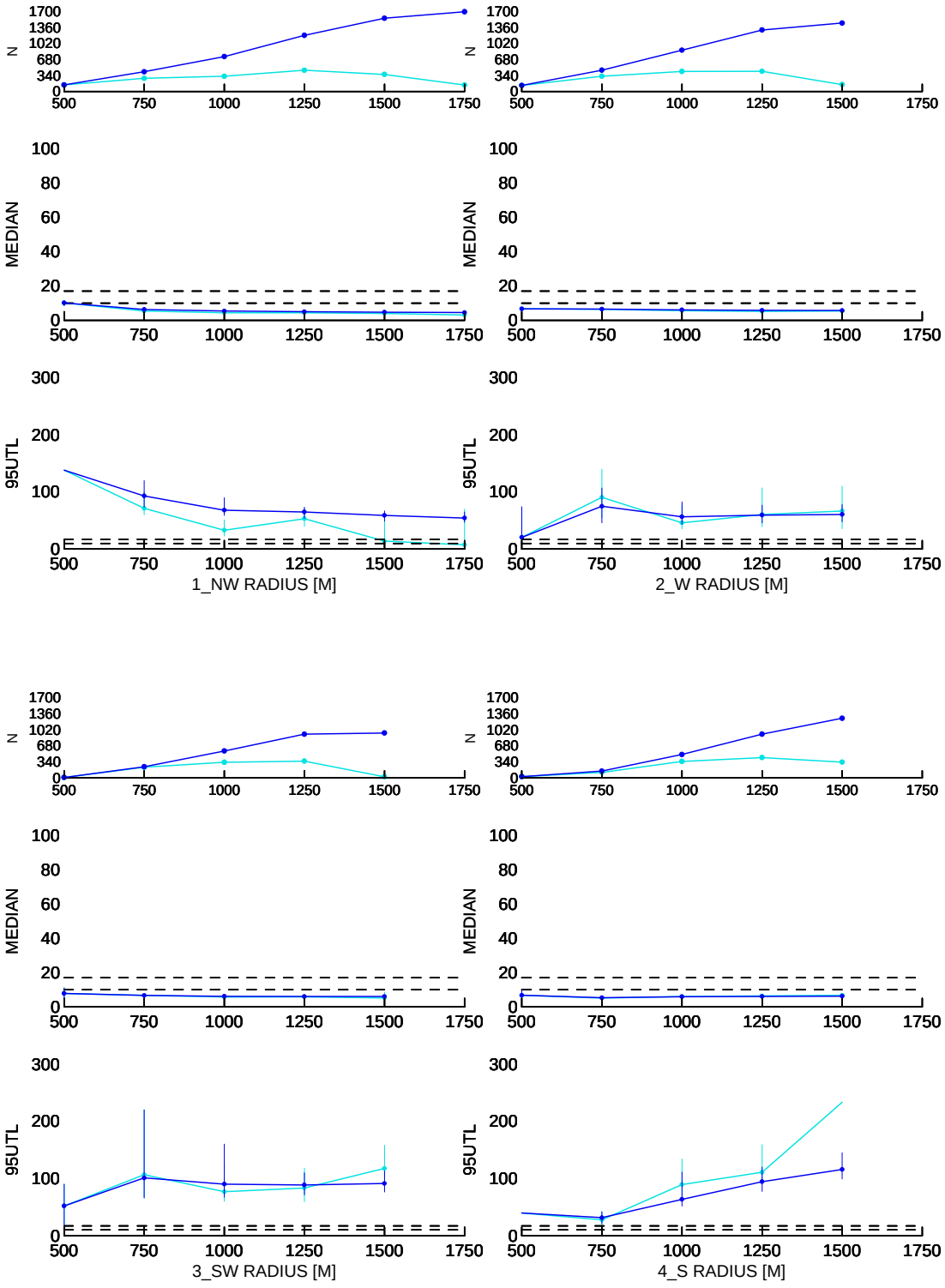


Figure 9-1

Arsenic vs Distance from Facility: NW, W, SW, S

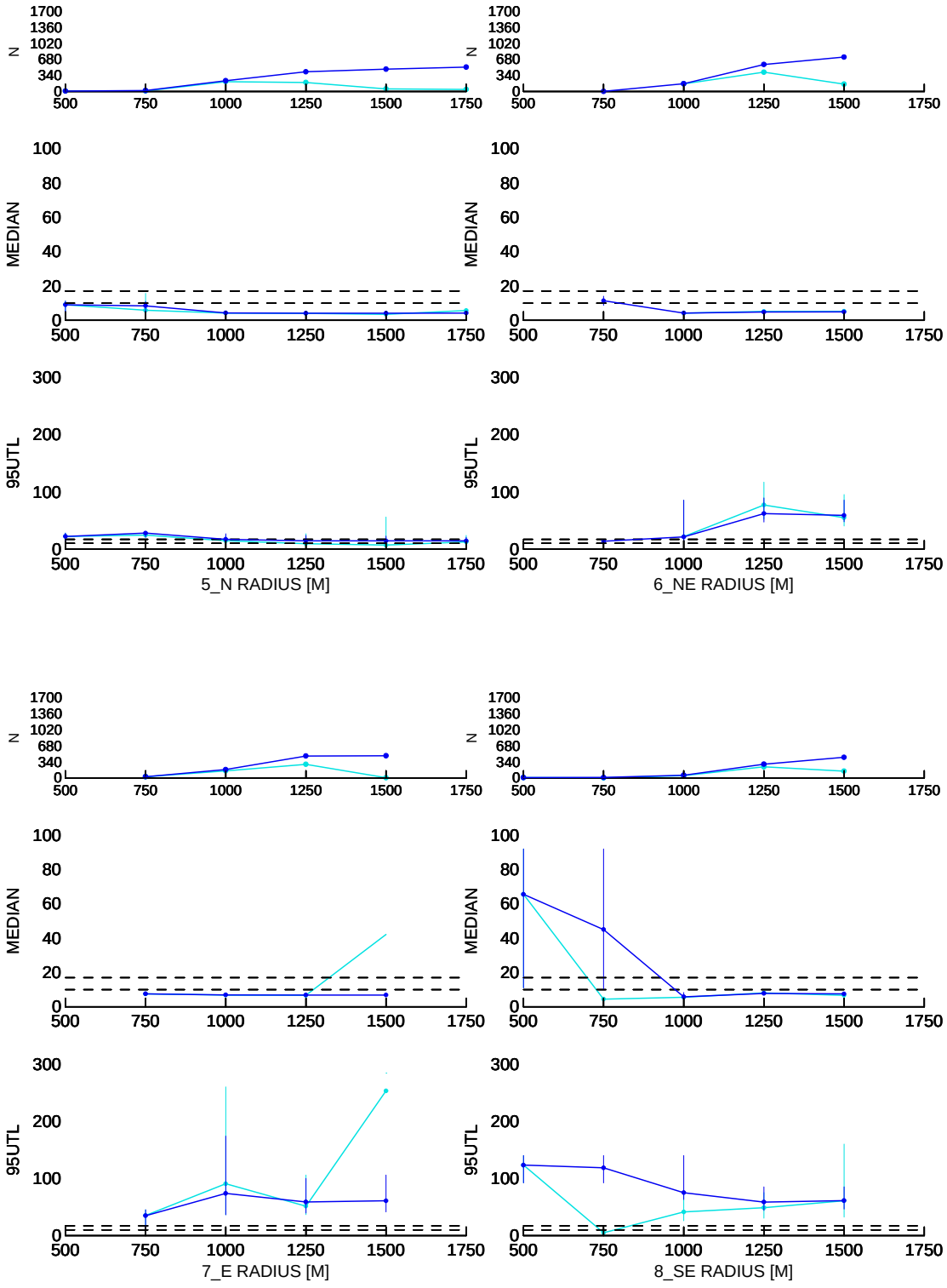


Figure 9-2

Arsenic vs Distance from Facility: N, NE, E, SE

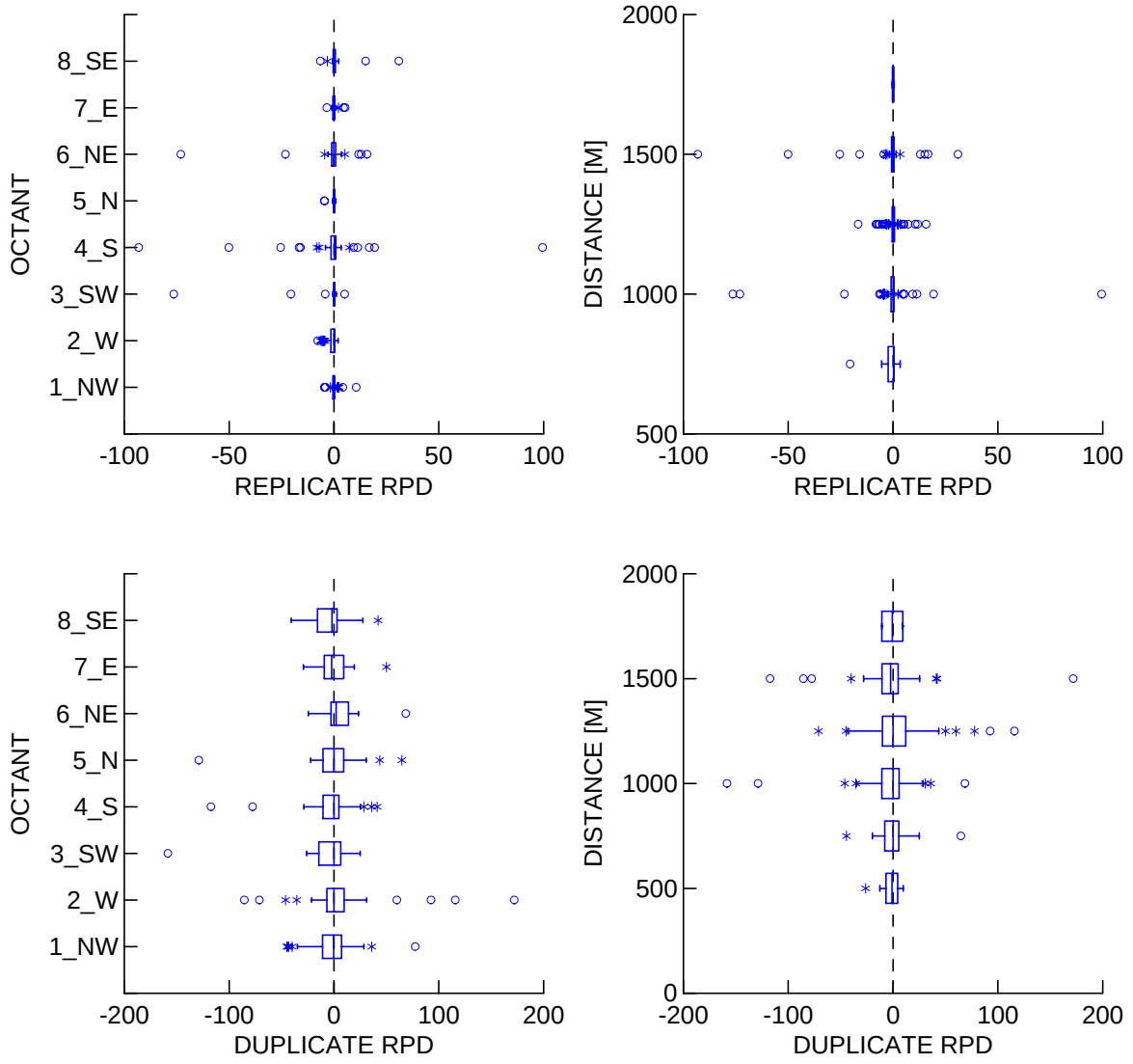


Figure 10-1
REPLICATE | DUPLICATE RPD

NONPARAMETRIC COMPARISON RESULTS

REPLICATE = DUPLICATE	[p = 0.30]
OCTANTS COMPARABLE	[p = 0.82]
DISTANCES COMPARABLE	[p = 0.42]

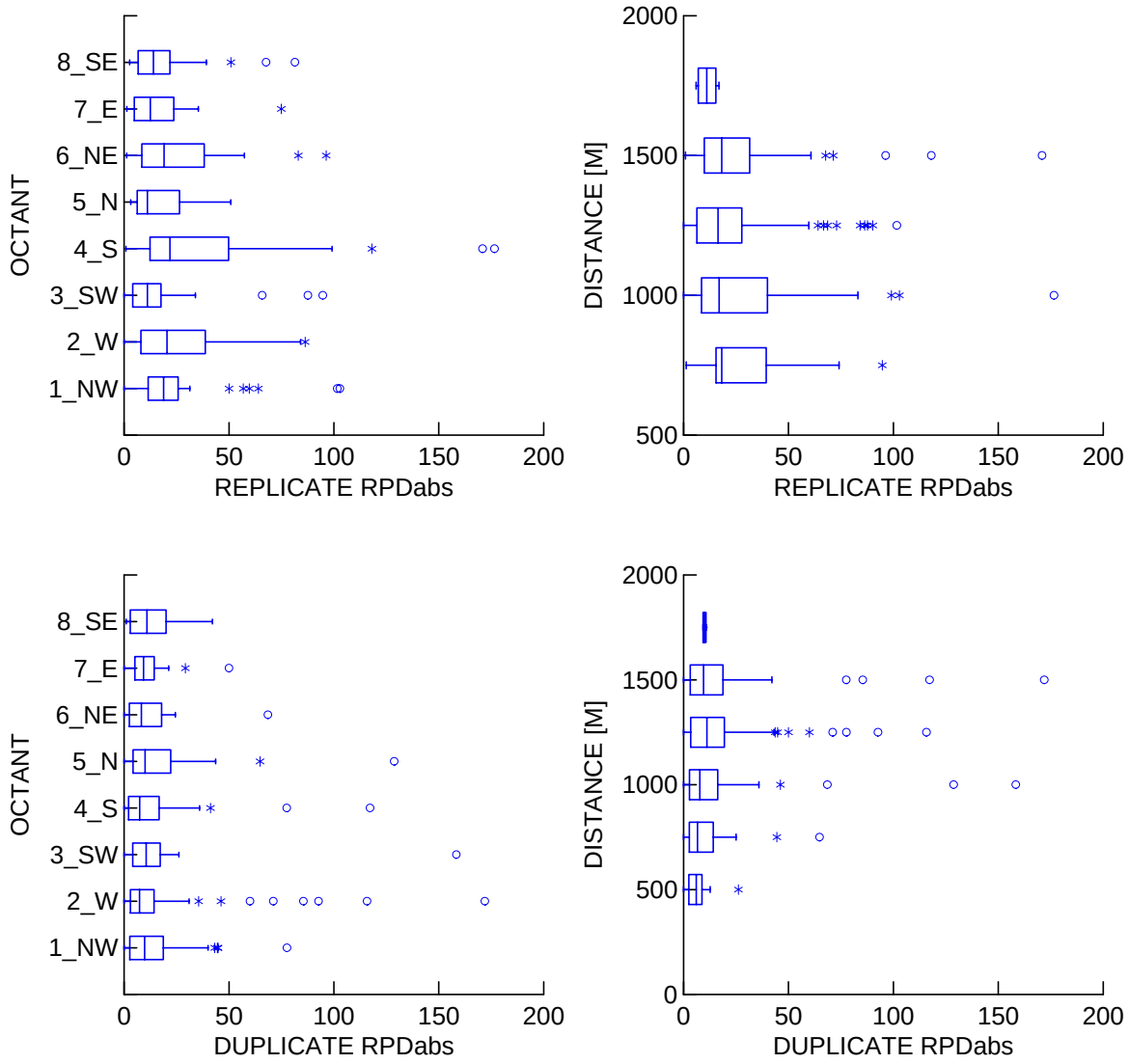


Figure 10-2
REPLICATE | DUPLICATE $RPD_{ABSOLUTE}$

NONPARAMETRIC COMPARISON RESULTS

REPLICATE > DUPLICATE [p < 0.001]

REPLICATES

OCTANTS DIFFER [p = 0.03]

SW ~ E ~ SE < 2

DISTANCES COMPARABLE [p = 0.55]

DUPLICATES

OCTANTS COMPARABLE [p = 0.24]

DISTANCES COMPARABLE [p = 0.98]

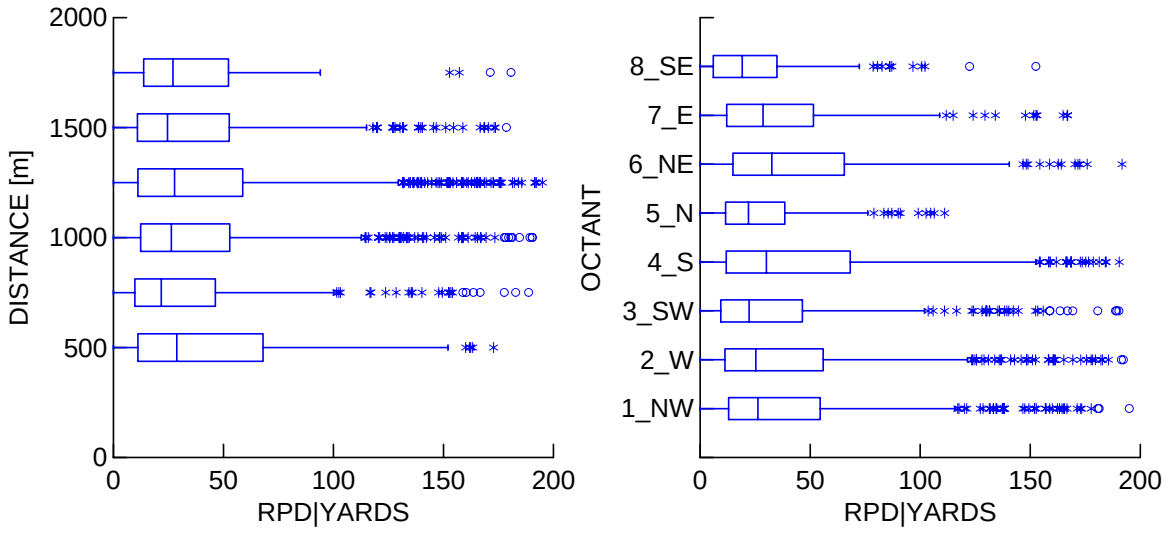


Figure 11
Yard RPD: By Octant | By Distance from Facility

Tables

TABLE 1
Consistency Evaluation of Historic vs 2006 Sample Results for Commonly Sampled Properties
South Minneapolis Soil Arsenic Evaluatio
RESULTS_061120.2006_HISTORIC.xls

Block_ID	Parcel_ID	YARD AREA	2006	Historic	DIFFERENCE [2006-Historic]	RPD	|RPD|	>10 mg/kg Background Conc.[1]	>95 mg/kg Removal Action Limit[2]
BOTH EXCEED BACKGROUND [13 of 97: 13.4%]									
N1W10	N1W10-17	Back	49.5	86	-36.5	-53.9	53.9	Y_Y	N_N
N2W09	N2W09-16	Back	26.8	56	-29.2	-70.5	70.5	Y_Y	N_N
S1W09	S1W09-19	Front	27.8	53	-25.2	-62.4	62.4	Y_Y	N_N
S3W06	S3W06-20	Front	28.6	42	-13.4	-38.0	38.0	Y_Y	N_N
N1W10	N1W10-19	Front	20.3	30	-9.7	-38.6	38.6	Y_Y	N_N
N4W09	N4W09-10	Front	15.6	25.22	-9.6	-47.1	47.1	Y_Y	N_N
N5W07	N5W07-15	Back	19.5	23.21	-3.7	-17.4	17.4	Y_Y	N_N
N5W08	N5W08-12	Front	21.8	22.66	-0.9	-3.9	3.9	Y_Y	N_N
N4W09	N4W09-24	Back	26.3	27	-0.7	-2.6	2.6	Y_Y	N_N
S1W08	S1W08-21	Front	21.3	18	3.3	16.8	16.8	Y_Y	N_N
N1W10	N1W10-16	Front	62.8	59	3.8	6.2	6.2	Y_Y	N_N
S2W07	S2W07-08	Front	35	31	4.0	12.1	12.1	Y_Y	N_N
N3W09	N3W09-10	Front	31.8	14.81	17.0	72.9	72.9	Y_Y	N_N
2006 EXCEEDS BACKGROUND [6 of 97: 6.2%]									
S6W04	S6W04-08	Back	82.7	7.8	74.9	165.5	165.5	Y_N	N_N
N5W07	N5W07-12	Front	25	6.8	18.2	114.5	114.5	Y_N	N_N
N5W08	N5W08-06	Front	12.1	5.9	6.2	68.9	68.9	Y_N	N_N
S1W08	S1W08-24	Front	10.4	6.6	3.8	44.7	44.7	Y_N	N_N
S2W09	S2W09-17	Front	11.3	8.1	3.2	33.0	33.0	Y_N	N_N
S1W10	S1W10-09	Front	12.1	10	2.1	19.0	19.0	Y_N	N_N
HISTORIC EXCEEDS BACKGROUND [1 of 97: 1.0%]									
N1W10	N1W10-18	Back	4.6	26	-21.4	-139.9	139.9	N_Y	N_N
NEITHER EXCEEDS BACKGROUND [77 of 97: 79.4%]									
N1W10	N1W10-06	Front	1.4	5.6	-4.2	-120.0	120.0	N_N	N_N
N2W12	N2W12-07	Front	3.1	6.6	-3.5	-72.2	72.2	N_N	N_N
N2W05	N2W05-21	Front	1.8	5.2	-3.4	-97.1	97.1	N_N	N_N
N1W11	N1W11-12	Front	4.2	7.5	-3.3	-56.4	56.4	N_N	N_N
N6W08	N6W08-15	Front	2.5	5.7	-3.2	-78.0	78.0	N_N	N_N
N2W05	N2W05-22	Front	2.9	6.1	-3.2	-71.1	71.1	N_N	N_N
N3W08	N3W08-02	Front	3.7	6.75	-3.1	-58.4	58.4	N_N	N_N
N3W08	N3W08-04	Front	3.7	6.6	-2.9	-56.3	56.3	N_N	N_N
N1W10	N1W10-10	Front	2.3	5.1	-2.8	-75.7	75.7	N_N	N_N
N1W09	N1W09-13	Side	2.4	5.2	-2.8	-73.7	73.7	N_N	N_N
N2W11	N2W11-13	Front	3.5	6.3	-2.8	-57.1	57.1	N_N	N_N
N6W08	N6W08-14	Side	1.8	4.5	-2.7	-85.7	85.7	N_N	N_N
N1W09	N1W09-10	Front	4.2	6.9	-2.7	-48.6	48.6	N_N	N_N
N1W10	N1W10-04	Front	4.3	6.99	-2.7	-47.7	47.7	N_N	N_N
N3W09	N3W09-29	Front	4.2	6.8	-2.6	-47.3	47.3	N_N	N_N
N1W06	N1W06-27	Front	5.2	7.7	-2.5	-38.8	38.8	N_N	N_N
N5W08	N5W08-25	Front	5.4	7.9	-2.5	-37.6	37.6	N_N	N_N
N1W08	N1W08-12	Front	4	6.45	-2.5	-46.9	46.9	N_N	N_N
N4W11	N4W11-07	Front	3	5.3	-2.3	-55.4	55.4	N_N	N_N
N1W09	N1W09-05	Front	4.4	6.42	-2.0	-37.3	37.3	N_N	N_N
N6E05	N6E05-03	Front	2.8	4.7	-1.9	-50.7	50.7	N_N	N_N
S1W11	S1W11-12	Back	4.5	6.4	-1.9	-34.9	34.9	N_N	N_N
S1W08	S1W08-09	Front	3.7	5.32	-1.6	-35.9	35.9	N_N	N_N
N3W10	N3W10-03	Side	2.6	4.03	-1.4	-43.1	43.1	N_N	N_N
N3W12	N3W12-10	Front	4.6	5.9	-1.3	-24.8	24.8	N_N	N_N
S1W12	S1W12-07	Front	6.4	7.7	-1.3	-18.4	18.4	N_N	N_N
N4W10	N4W10-03	Front	2.1	3.35	-1.3	-45.9	45.9	N_N	N_N
N3W08	N3W08-05	Front	4	5.23	-1.2	-26.7	26.7	N_N	N_N

TABLE 1
Consistency Evaluation of Historic vs 2006 Sample Results for Commonly Sampled Properties
South Minneapolis Soil Arsenic Evaluatio
RESULTS_061120.2006_HISTORIC.xls

Block_ID	Parcel_ID	YARD AREA	2006	Historic	DIFFERENCE [2006-Historic]	RPD	|RPD|	>10 mg/kg Background Conc.[1]	>95 mg/kg Removal Action Limit[2]
N5W12	N5W12-16	Front	1.6	2.8	-1.2	-54.5	54.5	N_N	N_N
N5W08	N5W08-08	Front	3.4	4.6	-1.2	-30.0	30.0	N_N	N_N
S1W10	S1W10-13	Front	5.9	7.1	-1.2	-18.5	18.5	N_N	N_N
N5W07	N5W07-17	Back	3.3	4.45	-1.2	-29.7	29.7	N_N	N_N
S1W10	S1W10-12	Front	5.2	6.2	-1.0	-17.5	17.5	N_N	N_N
N4W10	N4W10-09	Front	3.2	4.17	-1.0	-26.3	26.3	N_N	N_N
N3W11	N3W11-13	Front	3.4	4.3	-0.9	-23.4	23.4	N_N	N_N
S1W06	S1W06-04	Front	6.4	7.2	-0.8	-11.8	11.8	N_N	N_N
N2W09	N2W09-10	Front	5.6	6.32	-0.7	-12.1	12.1	N_N	N_N
N2W10	N2W10-08	Front	4.6	5.31	-0.7	-14.3	14.3	N_N	N_N
S1W10	S1W10-11	Front	4	4.7	-0.7	-16.1	16.1	N_N	N_N
N3W09	N3W09-08	Front	3.9	4.56	-0.7	-15.6	15.6	N_N	N_N
N5W10	N5W10-03	Front	3.7	4.23	-0.5	-13.4	13.4	N_N	N_N
S1W08	S1W08-01	Front	4.9	5.4	-0.5	-9.7	9.7	N_N	N_N
N1W04	N1W04-20	Front	3.8	4.2	-0.4	-10.0	10.0	N_N	N_N
N5W08	N5W08-28	Front	4.8	5.2	-0.4	-8.0	8.0	N_N	N_N
S4W09	S4W09-15	Front	4.4	4.8	-0.4	-8.7	8.7	N_N	N_N
S1W08	S1W08-02	Front	4.6	4.89	-0.3	-6.1	6.1	N_N	N_N
N3W09	N3W09-16	Front	4.8	5	-0.2	-4.1	4.1	N_N	N_N
S3W10	S3W10-05	Front	4.9	5	-0.1	-2.0	2.0	N_N	N_N
S1W08	S1W08-19	Front	5	5.1	-0.1	-2.0	2.0	N_N	N_N
N2W09	N2W09-23	Back	5.5	5.5	0.0	0.0	0.0	N_N	N_N
S3W03	S3W03-10	Front	6.2	6.2	0.0	0.0	0.0	N_N	N_N
S1W09	S1W09-04	Front	4.6	4.43	0.2	3.8	3.8	N_N	N_N
S1W06	S1W06-12	Front	7	6.8	0.2	2.9	2.9	N_N	N_N
S3W04	S3W04-06	Front	6.3	6.1	0.2	3.2	3.2	N_N	N_N
N1W10	N1W10-07	Front	5.6	5.2	0.4	7.4	7.4	N_N	N_N
S3W06	S3W06-19	Front	5.3	4.8	0.5	9.9	9.9	N_N	N_N
S2W08	S2W08-05	Front	5.1	4.4	0.7	14.7	14.7	N_N	N_N
N5W07	N5W07-16	Front	3.7	3	0.7	20.9	20.9	N_N	N_N
S1W10	S1W10-27	Front	5.2	4.4	0.8	16.7	16.7	N_N	N_N
N5W08	N5W08-05	Front	5.9	5	0.9	16.5	16.5	N_N	N_N
N4W09	N4W09-15	Front	5.8	4.8	1.0	18.9	18.9	N_N	N_N
N4W12	N4W12-10	Front	4.6	3.5	1.1	27.2	27.2	N_N	N_N
N3W04	N3W04-02	Front	6.8	5.66	1.1	18.3	18.3	N_N	N_N
S1W10	S1W10-08	Front	6.3	5.1	1.2	21.1	21.1	N_N	N_N
S2W12	S2W12-04	Front	5.2	4	1.2	26.1	26.1	N_N	N_N
S3W06	S3W06-23	Front	5.9	4.6	1.3	24.8	24.8	N_N	N_N
N3W09	N3W09-24	Front	3	1.7	1.3	55.3	55.3	N_N	N_N
S3W11	S3W11-05	Front	5.2	3.8	1.4	31.1	31.1	N_N	N_N
N2W10	N2W10-15	Front	6	4.43	1.6	30.1	30.1	N_N	N_N
S3W05	S3W05-13	Front	6.9	5.2	1.7	28.1	28.1	N_N	N_N
N1W10	N1W10-09	Front	6.1	4.4	1.7	32.4	32.4	N_N	N_N
N6W08	N6W08-16	Front	5.7	3.9	1.8	37.5	37.5	N_N	N_N
S1W10	S1W10-25	Front	6.8	4.6	2.2	38.6	38.6	N_N	N_N
S3W09	S3W09-06	Front	6.8	4.4	2.4	42.9	42.9	N_N	N_N
S1W09	S1W09-20	Front	6.7	4	2.7	50.5	50.5	N_N	N_N
N5W08	N5W08-27	Front	5.7	2.7	3.0	71.4	71.4	N_N	N_N
N3W09	N3W09-30	Back	6.7	3.4	3.3	65.3	65.3	N_N	N_N

TABLE 1
Consistency Evaluation of Historic vs 2006 Sample Results for Commonly Sampled Properties
South Minneapolis Soil Arsenic Evaluatio
RESULTS_061120.2006_HISTORIC.xls

Block_ID	Parcel_ID	YARD AREA	2006	Historic	DIFFERENCE [2006-Historic]	RPD	|RPD|	>10 mg/kg Background Conc.[1]	>95 mg/kg Removal Action Limit[2]

Notes:

[1] Y_Y indicates both the 2006 and historic results exceed background concentration of 10 mg/kg
Y_N indicates the 2006 result exceed background concentration of 10 mg/kg, but the historic result is less than background
N_Y indicates the 2006 result is less than background concentration of 10 mg/kg, but the historic result exceeds background
N_N indicates neither the 2006 nor historic result exceeds background

[2] N_N indicates neither the 2006 nor historic result exceeds the removal action limit of 95 mg/kg

TABLE 2
Percentile Estimates of 2006 and Historic Result Differences [AS_{2006} - $AS_{HISTORIC}$]
South Minneapolis Soil Arsenic Evaluation

PERCENTILE	BEST ESTIMATE	CONFIDENCE	LCL	UCL
50	-0.7	95%	-1.15	**BE**
75	1.14	94%	0.4	1.7
80	1.38	94%	1	2.7
85	1.98	94%	1.3	3.3
90	3.08	94%	1.8	4
95	3.84	94%	3.3	74.9
99	20.5	55%	17	74.9

TABLE 3
Background Concentration Evaluation
South Minneapolis Soil Arsenic Evaluation
RESULTS.ESTIMATES.xls

	No. of	50th Percentile			95th Percentile			99th Percentile		
	Samples	BE	95LCL	95UCL	BE	95LCL	95UCL	BE	95LCL	95UCL
Entire Data Set	7519	5.6	5.5	5.7	68.6	63.0	76.4	235.0	207.0	278.0
Exceeds Background >16 mg/Kg	1159	45.9	43.1	48.1	280.0	250.0	312.0	679.0	562.0	1060.0
Mixed 10-16mg/Kg	431	12	12.0	12.3	16.5	16.0	16.8	17.0	17.0	17.0
Potential Background Subsets										
<20 mg/Kg	6431	5.1	5.1	5.2	11.8	11.3	12.0	17.4	17.0	17.9
<19 mg/Kg	6407	5.1	5.1	5.2	11.5	11.0	11.9	16.6	16.0	17.0
<18 mg/Kg	6383	5.1	5.0	5.2	11.1	11.0	11.6	15.7	15.2	16.3
<17 mg/Kg	6351	5.1	5.0	5.2	11.0	10.9	11.2	15.0	14.7	15.2
<16 mg/Kg	6325	5.1	5.0	5.1	11.0	10.6	11.0	14.4	14.0	14.8
<15 mg/Kg	6282	5.1	5.0	5.1	10.5	10.1	10.9	13.3	13.0	13.8
<14 mg/Kg	6239	5.0	5.0	5.1	10.0	9.9	10.4	12.5	12.2	12.9
<13 mg/Kg	6192	5.0	5.0	5.1	9.8	9.6	10.0	12.0	11.8	12.0
<12 mg/Kg	6121	5.0	4.9	5.1	9.4	9.2	9.6	11.0	11.0	11.3
<11 mg/Kg	6007	4.9	4.9	5.0	8.8	8.7	9.0	10.2	10.1	10.4
≤10 mg/Kg	5929	4.9	4.8	5.0	8.6	8.4	8.7	9.8	9.6	9.8
<10 mg/Kg	5902	4.9	4.8	5.0	8.5	8.3	8.6	9.5	9.5	9.7
< 9 mg/Kg	5726	4.8	4.8	4.9	7.9	7.8	8.0	8.7	8.7	8.8
< 8 mg/Kg	5464	4.7	4.6	4.8	7.3	7.2	7.3	7.8	7.8	7.8
< 7 mg/Kg	5026	4.5	4.5	4.6	6.6	6.6	6.6	6.9	6.8	6.9
< 6 mg/Kg	4181	4.2	4.1	4.2	5.8	5.7	5.8	5.9	5.9	5.9
< 5 mg/Kg	3008	3.7	3.7	3.8	4.8	4.8	4.8	4.9	4.9	4.9
< 4 mg/Kg	1770	3.2	3.2	3.2	3.9	3.9	3.9	3.9	3.9	3.9
< 3 mg/Kg	682	2.4	2.4	2.5	2.9	2.9	2.9	2.9	2.9	3.0

TABLE 4
Arsenic Concentrations at Various Distances from the Facility
South Minneapolis Soil Arsenic Evaluation
RESULTS_061122.BE.xls

	Distance[1]					
RING	**<500 m**	**500 - 750 m**	**750 - 1000 m**	**1000 - 1250 m**	**1250 - 1500 m**	**1500 - 1750 m**
DISTRIBUTION	NP	NP	NP	NP	NP	NP
N (number of samples)	324	989	2001	2793	1231	181
Median Concentration	**7.8**	**6.1**	**5.4**	**5.6**	**5.2**	**3.5**
MED_95LCL	7.1	6.0	5.3	5.4	5.1	3.3
MED_95UCL	8.5	6.3	5.5	5.7	5.4	3.9
95th Percentile Concentration	**98.5**	**74**	**54.1**	**69.8**	**85.3**	**9.8**
95_95LCL	73.3	59	46.2	60.8	67.9	7
95_95UCL	140	93	65	81.6	104	37.8

	Distance[1]					
CIRCLE	**<500 m**	**<750 m**	**<1000 m**	**<1250 m**	**<1500 m**	**<1750 m**
DISTRIBUTION	NP	NP	NP	NP	NP	NP
N (number of samples)	324	1313	3314	6107	7338	7519
Median Concentration	**7.8**	**6.4**	**5.8**	**5.7**	**5.6**	**5.6**
MED_95LCL	7.1	6.2	5.7	5.6	5.5	5.5
MED_95UCL	8.5	6.6	5.9	5.8	5.7	5.7
95th Percentile Concentration	**98.5**	**82.3**	**65**	**67.1**	**70.0**	**68.6**
95_95LCL	73.3	67	58.3	61	64.5	63
95_95UCL	140	96	74.0	74.0	77.2	76.4

Notes:
[1] Distances are shown in meters from the facility (CMC Heartland Site)
Concentrations are shown in mg/kg

TABLE 5
Ranking of the Octants by Arsenic Concentration
South Minneapolis Soil Arsenic Evaluation
RESULTS_061122.KW.xls

Distance[1]	Number of Samples	Probability of Test Statistics[2]	Octant[3] N	NE	E	SE	S	SW	W	NW
INSUFFICIENT SAMPLES PER OCTANT[4]										
<250 m	*27*	*0.008*	*-*	*-*	*-*	*1 N=8*	*3 N=3*	*4 N=4*	*2 N=12*	*-*
<500 m	*324*	*<0.001*	*5 N=8*	*3 N=1*	*2 N=1*	*1 N=8*	*7*	*6*	*8*	*4*
<750 m	*1313*	*<0.001*	*5 N=19*	*1 N=2*	*3*	*2 N=10*	*8*	*4*	*7*	*6*
SUFFICIENT SAMPLES PER OCTANT										
<1000 m	3314	<0.001	7 *N=228*	8 *N=164*	1 *N=177*	3 *N=57*	5 *N=498*	2 *N=573*	4 *N=877*	6 *N=740*
<1250 m	6109	<0.001	8	7	2	1	4	3	5	6
<1500 m	7340	<0.001	8	6	2	1	3	4	5	7
<1750 m	7521	<0.001	8	6	2	1	3	4	5	7
AVERAGE RANK			7.8	6.8	1.8	1.5	3.8	3.3	4.8	6.5

Notes:

[1] Distances are shown in meters from the facility (CMC Heartland Site)

[2] <0.05 indicates statistically significant differences

[3] Octants are ranked with 1 having the highest median concentration and 8 having the lowest.

[4] For distances <750 meters, the sample distribution was insufficient in 1 or more octants to effectively rank. The number of samples is shown for the octants with limited sample distribution.

TABLE 6
Regression Results from Least Squares Best Linear Fit on the Condition Plots
South Minneapolis Soil Arsenic Evaluation
RESULTS_061126.TABLE3.xls

Octant	Number of Samples	F-Test$_{DF}$	Probability of F-Test[1]	Adjusted R-square	Slope Estimate [sign][2]
N	516	$1.0_{1,514}$	0.32	0	
NE	729	$9.3_{1,727}$	0.002	0.011	POS
E	470	$0.3_{1,468}$	0.568	0.026	
SE	437	$14.0_{1,435}$	<0.001	0.029	NEG
S	1267	$42.1_{1,1265}$	<0.001	0.031	POS
SW	956	$0.8_{1,954}$	0.366	0	
W	1452	$9.6_{1,1450}$	0.002	0.006	NEG
NW	1692	$238.6_{1,1690}$	<0.001	0.123	NEG

Notes:

[1] <0.05 indicates statistically significant differences

[2] Direction of the slope estimate is only provided for 'significant' results (probability of F-Test <0.05)

[3] Positive sign indicates concentrations are increasing with distance from the CMC Heartland Site (facility). Negative sign indicates concentrations are decreasing with distance from the facility.

TABLE 7
Summary of Arsenic Concentration by Octant as Function of Distance from Facility
South Minneapolis Soil Arsenic Evaluation

Octant and Distance	No. of Samples N	Median BE50[1]	CONF50[2]	LCL50[3]	UCL50[4]	Upper 95 UTL BE95[5]	CONF95[6]	LCL95[7]	UCL95[8]
NW									
CIRCLE									
0 - 500 m	139	10.15	95%	8.5	11	138.19	95%	100	470
0 - 750 m	418	6.3	95%	6	6.8	93	95%	73.32	120
0 - 1000 m	740	5.4	95%	5.2	5.7	68.1	95%	59	90
0 - 1250 m	1191	5	95%	4.8	5.2	65	95%	54	73.32
0 - 1500 m	1554	4.7	95%	4.6	4.8	59	95%	48.83	66.8
0 - 1750 m	1692	4.535	95%	4.4	4.65	54.315	95%	47	65
RING									
0 - 500 m	139	10.15	95%	8.5	11	138.19	95%	100	470
500 - 750 m	279	5.4	94%	5.2	5.8	71.3	94%	60	100
750 - 1000 m	322	4.4	95%	4.2	4.6	33.095	95%	23	51
1000 - 1250 m	451	4.4	95%	4.1	4.6	53.3	95%	40	71
1250 - 1500 m	363	4	95%	3.8	4.1	13.98	95%	8	48.5
1500 - 1750 m	138	3.1	94%	2.8	3.4	7.735	95%	6.1	70
W									
CIRCLE									
0 - 500 m	128	6.7	95%	6.38	7.2	20.65	93%	12	74
0 - 750 m	452	6.5	95%	6.3	6.8	74.9	95%	46	106.9
0 - 1000 m	877	6.1	95%	5.8	6.2	56.6	95%	43.6	82.7
0 - 1250 m	1305	5.8	95%	5.6	6	59.56	94%	46	77
0 - 1500 m	1452	5.72	95%	5.6	5.9	60.635	95%	47.9	77.8
RING									
0 - 500 m	128	6.7	95%	6.38	7.2	20.65	93%	12	74
500 - 750 m	324	6.4	95%	6.2	6.8	90.55	95%	55	140
750 - 1000 m	425	5.6	95%	5.4	5.8	46.08	94%	35.4	76.7
1000 - 1250 m	428	5.2	95%	4.8	5.5	60.415	94%	39.2	107
1250 - 1500 m	147	5.4	94%	5.1	6	66.63	95%	35.7	110
SW									
CIRCLE									
0 - 500 m	11	7.8	93%	4	11	52	33%	14	90
0 - 750 m	239	6.6	95%	6.2	6.9	101	95%	66	220
0 - 1000 m	573	6.1	95%	5.9	6.3	90	95%	67	160
0 - 1250 m	930	6	95%	5.9	6.3	88.65	94%	71.2	110
0 - 1500 m	956	6	95%	5.9	6.2	91.175	95%	76.4	113
RING									
0 - 500 m	11	7.8	93%	4	11	52	33%	14	90
500 - 750 m	228	6.6	95%	6.2	6.9	106.5	93%	66	220
750 - 1000 m	334	5.7	94%	5.4	6	76.61	94%	60	126
1000 - 1250 m	357	5.8	95%	5.6	6.3	83.4	95%	59.1	118
1250 - 1500 m	26	5.15	95%	4.5	8.6	117.5	70%	98	158

TABLE 7
Summary of Arsenic Concentration by Octant as Function of Distance from Facility
South Minneapolis Soil Arsenic Evaluation

Octant and Distance	No. of Samples N	Median BE50[1]	Median CONF50[2]	Median LCL50[3]	Median UCL50[4]	Upper 95 UTL BE95[5]	Upper 95 UTL CONF95[6]	Upper 95 UTL LCL95[7]	Upper 95 UTL UCL95[8]
S									
CIRCLE									
0 - 500 m	28	6.7	94%	5	9.5	39.65	71%	21	370
0 - 750 m	147	5.3	94%	4.9	6	31.36	95%	21	41.7
0 - 1000 m	498	5.9	95%	5.7	6.1	63.47	94%	51.6	111
0 - 1250 m	931	6	95%	5.8	6.2	94.3	95%	77.4	120
0 - 1500 m	1267	6.2	95%	6	6.4	115.7	95%	99.2	145
RING									
0 - 500 m	28	6.7	94%	5	9.5	39.65	71%	21	370
500 - 750 m	119	5.1	95%	4.7	5.8	27.67	95%	10	41.7
750 - 1000 m	351	6	95%	5.8	6.4	89.3	93%	60.8	134
1000 - 1250 m	433	6.3	95%	5.8	6.9	110.8	94%	91.3	159
1250 - 1500 m	336	6.7	94%	6.4	7.7	233	94%	143	369
N									
CIRCLE									
0 - 500 m	8	9.08	93%	4.5	11.24	22.134	28%	11.24	28
0 - 750 m	19	8.4	94%	4.5	11	28.02	56%	20.8	28.2
0 - 1000 m	228	4.3	95%	4.1	4.7	17.13	93%	14.1	26.8
0 - 1250 m	418	4.1	95%	4	4.3	14.46	95%	11.8	24
0 - 1500 m	473	4.1	95%	3.9	4.2	14.4	94%	11.8	22.9
0 - 1750 m	516	4.2	95%	4.1	4.3	14.4	95%	11.8	20.8
RING									
0 - 500 m	8	9.08	93%	4.5	11.24	22.134	28%	11.24	28
500 - 750 m	11	5.8	93%	2.9	15.7	24.5	33%	20.8	28.2
750 - 1000 m	209	4.2	95%	4	4.5	14.64	95%	11.8	24.3
1000 - 1250 m	190	4	94%	3.9	4.2	9.465	93%	6.7	26.8
1250 - 1500 m	55	3.5	94%	3.3	3.9	6.99	88%	5.3	56
1500 - 1750 m	43	5.7	93%	5.4	5.9	12.59	83%	8.4	24.1
NE									
CIRCLE									
0 - 750 m	2	11.35	50%	8.7	14	13.735	0%	14	14
0 - 1000 m	164	4.2	95%	3.8	4.6	21.31	93%	14.1	85.8
0 - 1250 m	573	4.8	95%	4.5	5	62.1	95%	47.4	89.3
0 - 1500 m	729	4.9	95%	4.7	5.1	58.94	95%	47.9	85.8
RING									
0 - 1000 m	162	4.2	94%	3.8	4.6	21.77	93%	14.1	85.8
1000 - 1250 m	409	5.1	95%	4.7	5.3	77.12	95%	52.3	117
1250 - 1500 m	156	5.2	94%	4.9	5.8	54.95	93%	40.3	95.3

TABLE 7
Summary of Arsenic Concentration by Octant as Function of Distance from Facility
South Minneapolis Soil Arsenic Evaluation

Octant and Distance	No. of Samples N	Median BE50[1]	CONF50[2]	LCL50[3]	UCL50[4]	Upper 95 UTL BE95[5]	CONF95[6]	LCL95[7]	UCL95[8]
E									
CIRCLE									
0 - 750 m	26	7.55	95%	6.6	8.6	34.725	70%	10.6	45.2
0 - 1000 m	177	6.9	95%	6.5	7.5	73.68	95%	36.3	174
0 - 1250 m	466	6.8	95%	6.5	7.1	58.8	95%	39.4	100
0 - 1500 m	470	6.8	95%	6.6	7.1	60.86	94%	41.3	106
RING									
0 - 750 m	25	7.5	92%	6.6	8.4	35.16	69%	10	45.2
750 - 1000 m	151	6.8	95%	6.4	7.4	90.5	94%	36.3	260
1000 - 1250 m	289	6.7	95%	6.3	7	51.42	94%	36.5	106
1250 - 1500 m	4	42.1	88%	5.6	284	252.905	0%	284	284
SE									
CIRCLE									
0 - 500 m	8	65.5	93%	11	92	123.2	28%	92	140
0 - 750 m	10	45	93%	10	92	118.4	32%	92	140
0 - 1000 m	57	5.8	94%	5	8.3	75.04	88%	63	140
0 - 1250 m	293	7.8	95%	7.5	8.4	58.6	94%	44	85.3
0 - 1500 m	437	7.5	94%	7.1	7.8	61.12	94%	46.4	85.3
RING									
0 - 500 m	8	65.5	93%	11	92	123.2	28%	92	140
500 - 750 m	2	4.45	50%	3.9	5	4.945	0%	5	5
750 - 1000 m	47	5.5	94%	4.8	6.8	41.3	88%	25.8	70.8
1000 - 1250 m	236	8.05	95%	7.7	8.6	48.775	92%	30.4	75.2
1250 - 1500 m	144	6.65	95%	6.4	7.4	60.955	95%	32.3	160

Notes:
[1] Best estimate of the median concentration
[2] Confidence of the nonparametric interval for the median estimate
[3] Lower limit on the median estimate
[4] Upper limit on the median estimate
[5] Best estimate of the 95th UTL
[6] Confidence of the nonparametric interval for the 95th UTL
[7] Lower limit on the 95th UTL
[8] Upper limit on the 95th UTL

TABLE 8
Evaluation of Duplicate and Replicate Consistency
South Minneapolis Soil Arsenic Evaluation

Octant	Duplicates Consistently Above or Below 10 mg/kg					Duplicates Inconsistent Relative to 10 mg/kg			
	% Consistent	N_N[1]	RPD	Y_Y[2]	RPD	N_Y[3]	RPD	Y_N[4]	RPD
DUPLICATES									
1_NW	100.0	59	11.2184	10	23.4				
2_W	95.5	57	14.0227	6	26.9	2	10.4	1	172.0
3_SW	97.5	31	10.4903	8	11.5	1	158.4		
4_S	100.0	39	8.02129	18	24.3				
5_N	95.2	17	10.2501	3	39.7	1	128.8		
6_NE	100.0	28	10.8936	4	18.2				
7_E	100.0	25	11.7	7	11.3				
8_SE	88.0	13	12.4791	9	14.4	2	13.3	1	20.8

Octant	Replicates Consistently Above or Below 10 mg/kg					Replicates Inconsistent Relative to 10 mg/kg			
	% Consistent	N_N[1]	RPD	Y_Y[2]	RPD	N_Y[3]	RPD	Y_N[4]	RPD
REPLICATES									
1_NW	90.5	32	20.5171	6	24.6	2	66.1	2	42.3
2_W	93.6	35	22.6108	9	31.3	2	78.5	1	26.1
3_SW	92.6	22	10.756	3	34.7	1	94.7	1	87.6
4_S	91.1	30	20.4339	21	53.5	2	38.4	3	78.5
5_N	100.0	13	17.412	4	21.4				
6_NE	93.5	17	18.16	12	34.2	1	39.6	1	40.0
7_E	96.4	24	12.7498	3	23.0			1	74.9
8_SE	82.1	19	11.5762	4	32.3	3	48.2	2	28.7

[1] N_N indicates neither the 2006 nor historic result exceeds background

[2] Y_Y indicates both the 2006 and historic results exceed background concentration of 10 mg/kg

[3] N_Y indicates the 2006 result is less than background concentration of 10 mg/kg, but the historic result exceeds background

[4] Y_N indicates the 2006 result exceed background concentration of 10 mg/kg, but the historic result is less than background

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1W10-26	S1W10	2_W	1000	2	Y_Y	Y_Y	1200	140	158.21	140	1200				
S7E04-24	S7E04	4_S	1500	2	Y_Y	Y_Y	2880	369	154.57	369	2880				
S7E04-26	S7E04	4_S	1500	2	Y_Y	Y_Y	592	132	127.07	132	592				
S7E03-27	S7E03	4_S	1500	2	Y_Y	Y_Y	458	115	119.72	115	458				
S6W01-15	S6W01	4_S	1250	2	Y_Y	Y_Y	363	101	112.93	363	101				
N2W12-30	N2W12	2_W	1250	3	Y_Y	Y_Y	739	211	111.16	739	211			399	
S7W01-20	S7W01	4_S	1500	2	Y_Y	Y_Y	577	166	110.63	577	166				
N2W04-21	N2W04	1_NW	500	2	Y_Y	Y_Y	547.2	163.3	108.06		163.3				547.2
S6W01-04	S6W01	4_S	1250	2	Y_Y	Y_Y	1230	407	100.55	407	1230				
S5E02-16	S5E02	4_S	1000	2	Y_Y	Y_Y	389	144	91.932	389	144				
N4E04-08	N4E04	6_NE	1000	2	Y_Y	Y_Y	278	104	91.099	104	278				
S1E08-15	S1E08	7_E	1000	2	Y_Y	Y_Y	260	99	89.694	260	99				
S7W03-13	S7W03	4_S	1500	2	Y_Y	Y_Y	269	103	89.247	103	269				
S1E08-14	S1E08	7_E	1000	2	Y_Y	Y_Y	280	120	80	120	280				
S7E02-02	S7E02	4_S	1250	2	Y_Y	Y_Y	308	132	80	132	308				
S7E03-06	S7E03	4_S	1500	2	Y_Y	Y_Y	223	99.4	76.675	99.4	223				
S3W05-11	S3W05	3_SW	750	2	Y_Y	Y_Y	220	100	75	100	220				
S6W05-13	S6W05	4_S	1500	2	Y_Y	Y_Y	289	132	74.584	132	289				
S7E02-16	S7E02	4_S	1500	2	Y_Y	Y_Y	1230	569	73.485	569	1230				
S2E09-22	S2E09	7_E	1250	2	Y_Y	Y_Y	1080	523	69.495	523	1080				
S7E04-07	S7E04	4_S	1500	2	Y_Y	Y_Y	849	422	67.191	422	849				
N1W06-03	N1W06	2_W	750	2	Y_Y	Y_Y	270	140	63.415	270	140				
S3E10-05	S3E10	8_SE	1500	2	Y_Y	Y_Y	308	160	63.248	160	308				
S3W05-29	S3W05	3_SW	750	2	Y_Y	Y_Y	320	170	61.224	170	320				
N5E07-23	N5E07	6_NE	1250	2	Y_Y	Y_Y	219	117	60.714	219	117				
S1W10-02	S1W10	2_W	1000	2	Y_Y	Y_Y	1060	575	59.327	575	1060				
S5E01-26	S5E01	4_S	1000	2	Y_Y	Y_Y	220	120	58.824	120	220				
S1W07-23	S1W07	2_W	750	2	Y_Y	Y_Y	210	120	54.545	120	210				
S5E01-25	S5E01	4_S	1000	2	Y_Y	Y_Y	272	157	53.613	272	157				
N5E06-11	N5E06	6_NE	1250	2	Y_Y	Y_Y	177	103	52.857	177	103				
N2E09-23	N2E09	7_E	1250	2	Y_Y	Y_Y	176	106	49.645	106	176				
N5W07-09	N5W07	1_NW	1250	2	Y_Y	Y_Y	165	103.65	45.673	165	103.65				
N3W04-04	N3W04	1_NW	750	2	Y_Y	Y_Y	990	635.8	43.572	635.8	990				
N5E06-29	N5E06	6_NE	1250	2	Y_Y	Y_Y	367	243	40.656	243	367				
S7E01-14	S7E01	4_S	1500	2	Y_Y	Y_Y	469	312	40.205	469	312				
N5E06-30	N5E06	6_NE	1250	2	Y_Y	Y_Y	433	293	38.567	433	293				
S4W10-05	S4W10	3_SW	1250	2	Y_Y	Y_Y	256	175	37.587	175	256				
S1E07-14	S1E07	7_E	1000	2	Y_Y	Y_Y	174	119	37.543	119	174				
S2W12-06	S2W12	2_W	1250	2	Y_Y	Y_Y	160	111	36.162	160	111				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S6E02-08	S6E02	4_S	1250	2	Y_Y	Y_Y	282	201	33.54	282	201				
S3W07-11	S3W07	3_SW	1000	2	Y_Y	Y_Y	280	200	33.333	280	200				
S5W01-06	S5W01	4_S	1000	2	Y_Y	Y_Y	183	134	30.915	183	134				
S2E10-07	S2E10	7_E	1250	2	Y_Y	Y_Y	171	127	29.53	127	171				
S3W07-14	S3W07	3_SW	1000	2	Y_Y	Y_Y	290	220	27.451	290	220				
S3W12-16	S3W12	3_SW	1500	2	Y_Y	Y_Y	158	122	25.714	122	158				
S6E05-05	S6E05	8_SE	1500	2	Y_Y	Y_Y	176	140	22.785	140	176				
S6E03-24	S6E03	4_S	1250	2	Y_Y	Y_Y	164	132	21.622	164	132				
S1W07-19	S1W07	2_W	750	2	Y_Y	Y_Y	110	96	13.592	96	110				
S2W07-09	S2W07	3_SW	750	2	Y_Y	Y_Y	250	220	12.766	220	250				
S5E01-19	S5E01	4_S	1000	2	Y_Y	Y_Y	312	284	9.396	284	312				
S7E04-28	S7E04	4_S	1500	2	Y_Y	Y_Y	275	263	4.461	275	263				
S5W04-06	S5W04	4_S	1000	2	Y_Y	Y_Y	116	111	4.4053	111	116				
N4W08-10	N4W08	1_NW	1250	2	N_Y	N_Y	268.6	3.4	195		3.4				268.6
S2W11-06	S2W11	2_W	1250	2	N_Y	N_Y	184	3.6	192.32	3.6	184				
N6E05-23	N6E05	6_NE	1250	2	Y_Y	N_Y	960	20.3	191.72	20.3	960				
N2W12-22	N2W12	2_W	1250	2	N_Y	N_Y	192	4.2	191.44	4.2	192				
S5E03-28	S5E03	4_S	1000	2	Y_Y	N_Y	464	11.4	190.41	11.4	464				
S3W08-10	S3W08	3_SW	1000	2	N_Y	N_Y	190	4.7	190.34	4.7	190				
S4W05-12	S4W05	3_SW	1000	3	N_Y	N_Y	179	4.9	189.34	4.9	179			11.8	
S3W05-10	S3W05	3_SW	750	2	Y_Y	N_Y	380	11	188.75	11	380				
N1W11-23	N1W11	2_W	1250	3	N_Y	N_Y	237	8.9	185.52	54	237			8.9	
S5E03-29	S5E03	4_S	1000	2	N_Y	N_Y	112	4.5	184.55	4.5	112				
S6W03-10	S6W03	4_S	1250	2	N_Y	N_Y	99.2	4.1	184.12	99.2	4.1				
N1W07-07	N1W07	2_W	750	2	Y_Y	N_Y	424	19	182.84	19					424
N2W12-29	N2W12	2_W	1250	2	N_Y	N_Y	107	5	182.14	5	107				
S2W09-15	S2W09	2_W	1000	2	N_Y	N_Y	98.7	5.3	179.62	98.7	5.3				
S7W01-16	S7W01	4_S	1500	2	Y_Y	N_Y	289	16.3	178.64	16.3	289				
N1W08-21	N1W08	2_W	1000	2	N_Y	N_Y	131	7.5	178.34	7.5	131				
N3W06-04	N3W06	1_NW	750	3	N_Y	N_Y	110	6.5	177.68		110			6.5	27.333
N5E06-28	N5E06	6_NE	1250	2	N_Y	N_Y	98.2	6.3	175.89	6.3	98.2				
S7E01-15	S7E01	4_S	1500	2	Y_Y	N_Y	143	10.1	173.61	10.1	143				
S6E02-24	S6E02	4_S	1250	2	Y_Y	N_Y	208	15.2	172.76	15.2	208				
N3E08-24	N3E08	6_NE	1250	2	Y_Y	N_Y	987	72.9	172.49	72.9	987				
S4W10-04	S4W10	3_SW	1250	2	Y_Y	N_Y	562	46.6	169.37		562			46.6	
N1W10-08	N1W10	2_W	1000	2	Y_Y	N_Y	410	34	169.37	34	410				
S7W02-22	S7W02	4_S	1500	2	Y_Y	N_Y	185	15.7	168.71	185	15.7				
S6W01-06	S6W01	4_S	1250	2	Y_Y	N_Y	762	65	168.56	65	762				
S1E08-04	S1E08	7_E	1000	2	N_Y	N_Y	100	9	166.97	9	100				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S2E09-23	S2E09	7_E	1250	2	Y_Y	N_Y	148	13.4	166.79	13.4	148				
S7E01-16	S7E01	4_S	1500	2	Y_Y	N_Y	111	10.1	166.64	10.1	111				
S6E01-11	S6E01	4_S	1250	2	Y_Y	N_Y	186	17.2	166.14	17.2	186				
N2W11-21	N2W11	2_W	1250	2	Y_Y	N_Y	122	11.6	165.27	11.6	122				
S3W04-14	S3W04	3_SW	750	2	Y_Y	N_Y	170	17	163.64	17	170				
N3W03-01	N3W03	1_NW	500	2	Y_Y	N_Y	100	10.105	163.29	100					10.105
N2W04-23	N2W04	1_NW	500	2	Y_Y	N_Y	470	48.83	162.35	48.83	470				
S3W01-09	S3W01	4_S	500	2	Y_Y	N_Y	370	39	161.86	39	370				
N1W10-12	N1W10	2_W	1000	2	Y_Y	N_Y	605.3	65	161.21	65	605.3				
N2W03-03	N2W03	1_NW	500	2	Y_Y	N_Y	157	17.42	160.05	17.42	157				
S6E03-19	S6E03	4_S	1250	2	Y_Y	N_Y	205	23.7	158.55	23.7	205				
S6E02-15	S6E02	4_S	1250	2	Y_Y	N_Y	112	15.1	152.48	15.1	112				
N1W06-16	N1W06	2_W	750	2	Y_Y	N_Y	200	27	152.42	27	200				
S7E03-04	S7E03	4_S	1500	2	Y_Y	N_Y	111	15.5	150.99	111	15.5				
N6E05-13	N6E05	6_NE	1250	2	Y_Y	N_Y	123	18	148.94	123	18				
S1W10-10	S1W10	2_W	1000	2	Y_Y	N_Y	294.1	46	145.9	46	294.1				
S7E01-34	S7E01	4_S	1500	2	Y_Y	N_Y	277	43.7	145.49	43.7	277				
S6E02-09	S6E02	4_S	1250	2	Y_Y	N_Y	437	77.2	139.95	77.2	437				
N6E08-18	N6E08	6_NE	1500	2	Y_Y	N_Y	224	39.8	139.65	39.8	224				
N3E08-01	N3E08	6_NE	1250	3	Y_Y	N_Y	131	23.9	138.28	23.9	89.3			131	
N2W03-13	N2W03	1_NW	500	2	Y_Y	N_Y	210	39	137.35	39	210				
S1W07-25	S1W07	2_W	750	2	Y_Y	N_Y	220	42	135.88	42	220				
S4W08-04	S4W08	3_SW	1000	2	Y_Y	N_Y	219	46.4	130.07	219	46.4				
S6E03-01	S6E03	4_S	1250	2	Y_Y	N_Y	132	28.5	128.97		132	28.5			
S5W05-15	S5W05	3_SW	1250	2	Y_Y	N_Y	152	33.3	128.12	33.3	152				
N1W12-20	N1W12	2_W	1250	2	Y_Y	N_Y	110	25.6	124.48	25.6	110				
S4W08-20	S4W08	3_SW	1250	2	Y_Y	N_Y	118	27.9	123.51	27.9		118			
S6E02-16	S6E02	4_S	1250	2	Y_Y	N_Y	392	93.4	123.03	93.4	392				
S5E03-16	S5E03	4_S	1250	2	Y_Y	N_Y	121	29	122.67	29	121				
N6E06-13	N6E06	6_NE	1250	2	Y_Y	N_Y	178	43.5	121.44	43.5	178				
N2W04-19	N2W04	1_NW	500	2	Y_Y	N_Y	99.67	25.84	117.65	99.67	25.84				
S3W04-11	S3W04	3_SW	750	2	Y_Y	N_Y	220	58	116.55	58	220				
N5W07-14	N5W07	1_NW	1250	2	Y_Y	N_Y	168.6	45	115.73	168.6	45				
N3W14-11	N3W14	2_W	1500	2	Y_Y	N_Y	115	31	115.07		31			115	
S3E10-04	S3E10	7_E	1500	2	Y_Y	N_Y	284	76.7	114.94	76.7	284				
N3W10-26	N3W10	1_NW	1250	2	Y_Y	N_Y	114	30.9	114.7	114	30.9				
S1E08-09	S1E08	7_E	1000	2	Y_Y	N_Y	290	82	111.83	82	290				
S6E02-02	S6E02	4_S	1250	2	Y_Y	N_Y	143	42.8	107.86	42.8	143				
N4E09-32	N4E09	6_NE	1500	2	Y_Y	N_Y	129	40.3	104.78	40.3	129				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1W11-03	S1W11	2_W	1250	2	Y_Y	N_Y	238	75.2	103.96		238			75.2	
S4W08-17	S4W08	3_SW	1250	2	Y_Y	N_Y	287	94.5	100.92	94.5	287				
S5W05-02	S5W05	3_SW	1000	2	Y_Y	N_Y	126	41.7	100.54	41.7	126				
S1W06-14	S1W06	2_W	750	2	Y_Y	N_Y	102.2	34	100.15	34	102.2				
N3W04-05	N3W04	1_NW	750	2	Y_Y	N_Y	180	61	98.755	61	180				
N3W10-08	N3W10	1_NW	1250	2	Y_Y	N_Y	196	67.2	97.872	67.2	196				
S3W07-23	S3W07	3_SW	1000	2	Y_Y	N_Y	160	55	97.674	160	55				
N2W07-20	N2W07	2_W	750	2	Y_Y	N_Y	270	93	97.521	93	270				
N2W07-19	N2W07	2_W	750	2	Y_Y	N_Y	260	91	96.296	91	260				
S6E03-09	S6E03	4_S	1250	2	Y_Y	N_Y	104	36.6	95.875	104	36.6				
S6W01-17	S6W01	4_S	1250	2	Y_Y	N_Y	159	56.2	95.539	56.2	159				
N3W07-31	N3W07	1_NW	1000	2	Y_Y	N_Y	120	42.9	94.659	42.9	120				
N6E06-21	N6E06	6_NE	1500	2	Y_Y	N_Y	106	37.9	94.649	37.9	106				
S3W06-09	S3W06	3_SW	750	2	Y_Y	N_Y	110	40	93.333	40	110				
N6E08-23	N6E08	6_NE	1500	2	Y_Y	N_Y	95.3	34.9	92.78	34.9	95.3				
N1W07-29	N1W07	2_W	750	2	Y_Y	N_Y	96	36	90.909	36	96				
S6W01-14	S6W01	4_S	1250	2	Y_Y	N_Y	110	42.3	88.903	110	42.3				
S2E10-05	S2E10	7_E	1250	2	Y_Y	N_Y	105.2	41.1	87.628		41.1			105.2	
S5E03-19	S5E03	4_S	1250	2	Y_Y	N_Y	148	59	85.99	59	148				
S5W04-24	S5W04	3_SW	1000	3	Y_Y	N_Y	96.2	39	84.615	39	96.2			76.4	
S4W04-06	S4W04	3_SW	750	2	Y_Y	N_Y	115	48.6	81.174	48.6	115				
S7E04-19	S7E04	4_S	1500	2	Y_Y	N_Y	145	61.3	81.144	61.3	145				
S7W01-02	S7W01	4_S	1250	2	Y_Y	N_Y	100	42.4	80.899	42.4	100				
S7E04-01	S7E04	4_S	1500	2	Y_Y	N_Y	207	89	79.73	89	207				
S6W04-08	S6W04	4_S	1250	2	Y_Y	N_Y	98.1	45.25	73.736	45.25	98.1				
S5W01-03	S5W01	4_S	1000	2	Y_Y	N_Y	95.2	44.4	72.779	44.4	95.2				
S5W02-18	S5W02	4_S	1000	2	Y_Y	N_Y	151	71.4	71.583	71.4	151				
S5W06-09	S5W06	3_SW	1250	2	Y_Y	N_Y	170	81	70.916	81	170				
N2W04-15	N2W04	1_NW	500	2	Y_Y	N_Y	136.1	65	70.711	65					136.1
N1W11-16	N1W11	2_W	1250	2	Y_Y	N_Y	115	57.3	66.976	57.3	115				
S4W10-21	S4W10	3_SW	1250	2	Y_Y	N_Y	113	57.4	65.258	57.4	113				
S7W03-08	S7W03	4_S	1500	2	Y_Y	N_Y	154	78.5	64.946	78.5	154				
S6W05-22	S6W05	3_SW	1250	2	Y_Y	N_Y	178	91.7	63.997	91.7	178				
S5W07-14	S5W07	3_SW	1250	2	Y_Y	N_Y	179	93.9	62.367	179	93.9				
S7E01-18	S7E01	4_S	1500	2	Y_Y	N_Y	124	67.1	59.55	67.1	124				
N1W07-04	N1W07	2_W	750	2	Y_Y	N_Y	139.8	76	59.129	76	139.8				
S5W07-15	S5W07	3_SW	1250	2	Y_Y	N_Y	160	87	59.109	87	160				
S6E04-17	S6E04	4_S	1250	2	Y_Y	N_Y	119	65.2	58.415	119	65.2				
S6E01-12	S6E01	4_S	1250	2	Y_Y	N_Y	99.2	54.9	57.495	54.9	99.2				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N3W13-20	N3W13	2_W	1500	2	Y_Y	N_Y	110	61.1	57.16	61.1	110				
N2W11-11	N2W11	2_W	1250	2	Y_Y	N_Y	168	94.7	55.805	94.7	168				
N6W01-03	N6W01	5_N	1250	2	Y_Y	N_Y	111	63.3	54.733	63.3	111				
N2W06-10	N2W06	1_NW	750	2	Y_Y	N_Y	100.7	57.595	54.462	57.595	100.7				
N4W11-03	N4W11	1_NW	1500	2	Y_Y	N_Y	109	63.4	52.9	109	63.4				
N5W11-04	N5W11	1_NW	1500	3	Y_Y	N_Y	107	62.4	52.656	62.4	107			84.4	
S7E04-21	S7E04	4_S	1500	2	Y_Y	N_Y	98.8	59.2	50.127	59.2	98.8				
N3W12-28	N3W12	1_NW	1500	2	Y_Y	N_Y	95.7	59.6	46.491	59.6	95.7				
N2W07-10	N2W07	1_NW	750	2	Y_Y	N_Y	130	84	42.991	84	130				
S5W01-18	S5W01	4_S	1000	2	Y_Y	N_Y	132	91.3	36.453	91.3	132				
N3E07-09	N3E07	6_NE	1000	2	Y_Y	N_Y	119	85.8	32.422	85.8	119				
S4E09-03	S4E09	8_SE	1250	2	Y_Y	N_Y	106	78.1	30.31	106	78.1				
N5W08-04	N5W08	1_NW	1250	2	Y_Y	N_Y	96	71	29.94	71	96				
S3W05-19	S3W05	3_SW	1000	2	Y_Y	N_Y	100	77	25.989	77	100				
S2W13-09	S2W13	2_W	1500	2	Y_Y	N_Y	96.3	79.7	18.864	79.7	96.3				
S7E04-18	S7E04	4_S	1500	2	Y_Y	N_Y	102	90.5	11.948	90.5	102				
N5W07-11	N5W07	1_NW	1250	4	N_Y	N_N	53.25	2.6	181.38	2.6	4.2			53.25	22.45
S5W01-07	S5W01	4_S	1000	2	N_Y	N_N	59.1	2.9	181.29	2.9	59.1				
N6W12-09	N6W12	1_NW	1750	3	N_Y	N_N	75.3	3.8	180.78	3.8	75.3			4.5	
S4W07-10	S4W07	3_SW	1000	2	N_Y	N_N	65	3.3	180.67	65	3.3				
N1W10-16	N1W10	2_W	1000	3	N_Y	N_N	60.9	3.6	177.67	12.9	60.9			3.6	
S6E02-01	S6E02	4_S	1250	2	N_Y	N_N	59.3	3.7	176.51	59.3	3.7				
N2W11-10	N2W11	2_W	1250	2	N_Y	N_N	57	3.7	175.62	57	3.7				
S5E03-22	S5E03	4_S	1250	2	N_Y	N_N	83.2	5.5	175.2	5.5	83.2				
N3W07-23	N3W07	1_NW	1000	2	N_Y	N_N	53	3.78	173.37		53				3.78
S2W13-08	S2W13	2_W	1500	2	N_Y	N_N	69	5	172.97	5	69				
N2W04-03	N2W04	1_NW	500	3	N_Y	N_N	60.24	4.4	172.77	4.4	6.8				60.24
N5E07-25	N5E07	6_NE	1250	2	N_Y	N_N	91.6	7	171.6	91.6	7				
N4W14-23	N4W14	1_NW	1750	2	N_Y	N_N	19.4	1.5	171.29	1.5	19.4				
N6E07-12	N6E07	6_NE	1500	2	N_Y	N_N	79.9	6.4	170.34	79.9	6.4				
S7W03-10	S7W03	4_S	1500	2	N_Y	N_N	78.1	6.7	168.4	78.1	6.7				
S5W05-03	S5W05	3_SW	1000	2	N_Y	N_N	85.4	7.7	166.92	85.4	7.7				
N3W03-10	N3W03	1_NW	750	2	N_Y	N_N	93	8.44	166.72	93					8.44
S7E02-01	S7E02	4_S	1250	2	N_Y	N_N	91.3	8.3	166.67	8.3	91.3				
N3W09-10	N3W09	1_NW	1000	2	N_Y	N_N	23.305	2.2	165.5	2.2	23.305				
N5W08-02	N5W08	1_NW	1250	2	N_Y	N_N	66.3	6.3	165.29		66.3			6.3	
S2E10-13	S2E10	7_E	1250	2	N_Y	N_N	64.5	6.2	164.92	6.2	64.5				
N4W06-07	N4W06	1_NW	1000	3	N_Y	N_N	16.5	1.61	164.44	4.8	16.5				1.61
N5E07-14	N5E07	6_NE	1250	2	N_Y	N_N	66	6.5	164.14	66	6.5				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N5E07-22	N5E07	6_NE	1250	2	N_Y	N_N	46.7	4.8	162.72	4.8	46.7				
N2W12-10	N2W12	2_W	1250	2	N_Y	N_N	62.5	6.7	161.27	62.5	6.7				
N1W12-09	N1W12	2_W	1250	2	N_Y	N_N	38.4	4.2	160.56	38.4	4.2				
N2W07-21	N2W07	2_W	750	2	N_Y	N_N	43	4.73	160.36		43				4.73
S5E02-14	S5E02	4_S	1250	2	N_Y	N_N	55.4	6.3	159.16	6.3	55.4				
S5W05-06	S5W05	3_SW	1000	2	N_Y	N_N	59.4	6.8	158.91	6.8	59.4				
S2W06-15	S2W06	3_SW	750	2	N_Y	N_N	82	9.4	158.86	82	9.4				
N3W06-02	N3W06	1_NW	1000	2	N_Y	N_N	68	7.8	158.84	68	7.8				
N6E06-08	N6E06	6_NE	1500	2	N_Y	N_N	38.3	4.4	158.78	4.4	38.3				
N1W11-15	N1W11	2_W	1250	2	N_Y	N_N	47.4	5.5	158.41	5.5	47.4				
S6W03-16	S6W03	4_S	1250	2	N_Y	N_N	10.3	1.2	158.26	1.2				10.3	
N4W14-24	N4W14	1_NW	1750	2	N_Y	N_N	50.9	6.1	157.19	50.9	6.1				
N3W09-11	N3W09	1_NW	1000	2	N_Y	N_N	33.9	4.1	156.84	4.1	33.9				
S5W07-20	S5W07	3_SW	1250	2	N_Y	N_N	47.6	5.9	155.89	5.9	47.6				
N5E06-15	N5E06	6_NE	1250	2	N_Y	N_N	48.9	6.3	154.35	6.3	48.9				
S4E02-04	S4E02	4_S	750	2	N_Y	N_N	30.1	3.9	154.12	30.1	3.9				
S3W04-18	S3W04	3_SW	750	2	N_Y	N_N	50	6.6	153.36	50	6.6				
S2E09-24	S2E09	7_E	1250	2	N_Y	N_N	73.8	9.8	153.11	9.8	73.8				
N5W12-12	N5W12	1_NW	1750	2	N_N	N_N	6.5	0.87	152.78	6.5	0.87				
S5E07-04	S5E07	8_SE	1250	2	N_Y	N_N	40.9	5.5	152.59	5.5	40.9				
N1E09-09	N1E09	7_E	1250	3	N_Y	N_N	49.8	6.7	152.57	49.8	6.7			22.8	
S2W06-16	S2W06	3_SW	750	2	N_Y	N_N	66	8.9	152.47	66	8.9				
N3W02-04	N3W02	1_NW	500	2	Y_Y	N_N	88	12	152	12					88
N5W08-11	N5W08	1_NW	1250	2	Y_Y	N_N	84.1	11.5	151.88	11.5	84.1				
N2E09-24	N2E09	7_E	1250	2	N_Y	N_N	28.3	3.9	151.55	3.9	28.3				
S1W09-23	S1W09	2_W	1000	2	Y_Y	N_N	76.7	10.7	151.03	10.7	76.7				
N3W06-08	N3W06	1_NW	750	2	N_Y	N_N	25	3.62	149.41	25					3.62
N1W09-09	N1W09	2_W	1000	2	Y_Y	N_N	82.7	12.1	148.95	12.1	82.7				
N1W10-25	N1W10	2_W	1000	2	N_Y	N_N	32.35	4.8	148.32	32.35	4.8				
N1W12-12	N1W12	2_W	1250	2	N_Y	N_N	40.4	6	148.28		40.4			6	
N3E07-18	N3E07	6_NE	1000	2	N_Y	N_N	25.5	3.8	148.12	25.5	3.8				
S1E06-08	S1E06	7_E	750	2	N_Y	N_N	41.3	6.2	147.79	6.2	41.3				
N5W07-07	N5W07	1_NW	1250	3	N_Y	N_N	53.66	8.1	147.54	8.1	26.6				53.66
N5E06-04	N5E06	6_NE	1250	2	Y_Y	N_N	76.1	11.7	146.7	11.7	76.1				
N6W08-10	N6W08	1_NW	1500	2	Y_Y	N_N	91	14	146.67	91	14				
S5W05-14	S5W05	3_SW	1250	2	N_Y	N_N	19.9	3.2	144.59	3.2	19.9				
N1W11-27	N1W11	2_W	1250	3	N_Y	N_N	28.2	4.7	142.86	17.4	28.2			4.7	
S3W07-12	S3W07	3_SW	1000	2	N_Y	N_N	32	5.4	142.25	5.4	32				
S6E02-17	S6E02	4_S	1250	2	Y_Y	N_N	72.9	12.5	141.45	12.5	72.9				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1W09-16	S1W09	2_W	1000	2	N_Y	N_N	23.7	4.1	141.01	23.7	4.1				
N6E08-09	N6E08	6_NE	1500	2	N_Y	N_N	22.3	3.9	140.46	22.3	3.9				
S5W01-09	S5W01	4_S	1000	2	N_Y	N_N	52	9.1	140.43	9.1	52				
S2W05-01	S2W05	3_SW	750	2	N_Y	N_N	33	5.8	140.21	5.8	33				
S6E03-20	S6E03	4_S	1250	2	Y_Y	N_N	65.2	11.5	140.03	11.5	65.2				
N3E09-10	N3E09	6_NE	1250	2	N_Y	N_N	17	3	140	3	17				
S5W07-26	S5W07	3_SW	1250	2	Y_Y	N_N	80.6	14.4	139.37	80.6	14.4				
N6E08-20	N6E08	6_NE	1500	2	Y_Y	N_N	57.5	10.4	138.73	10.4	57.5				
S6E02-13	S6E02	4_S	1250	3	Y_Y	N_N	67.4	12.2	138.69	12.2	14.4			67.4	
S7E02-30	S7E02	4_S	1500	2	N_Y	N_N	24.8	4.5	138.57	4.5	24.8				
S3W07-13	S3W07	3_SW	1000	2	N_Y	N_N	45	8.2	138.35	45	8.2				
N5W07-04	N5W07	1_NW	1250	2	N_Y	N_N	48.1	8.8	138.14	8.8	48.1				
N4W09-07	N4W09	1_NW	1250	2	N_Y	N_N	44.8	8.2	138.11	8.2	44.8				
N5W08-27	N5W08	1_NW	1250	2	N_N	N_N	4.2	0.77	138.03	0.77	4.2				
N3W03-02	N3W03	1_NW	500	2	N_Y	N_N	37	6.88	137.28	37	6.88				
S1W08-25	S1W08	2_W	1000	2	N_Y	N_N	37.4	7	136.94	7	37.4				
N3E09-11	N3E09	6_NE	1250	2	Y_Y	N_N	69.5	13.1	136.56	13.1	69.5				
N2W12-26	N2W12	2_W	1250	2	Y_Y	N_N	70.5	13.3	136.52	13.3	70.5				
S3W10-11	S3W10	3_SW	1250	2	Y_Y	N_N	79.3	15.1	136.02	15.1	79.3				
S3W05-14	S3W05	3_SW	750	2	N_Y	N_N	28	5.4	135.33	28	5.4				
S6W01-19	S6W01	4_S	1250	2	N_Y	N_N	13.4	2.6	135	13.4	2.6				
N4W09-05	N4W09	1_NW	1250	2	N_Y	N_N	38.5	7.5	134.78		38.5			7.5	
N3W07-28	N3W07	1_NW	1000	2	N_Y	N_N	51	10	134.43	51	10				
S4E02-24	S4E02	4_S	750	3	N_Y	N_N	41.7	8.2	134.27	8.2	41.7			11.1	
S1E10-06	S1E10	7_E	1250	2	N_Y	N_N	19.8	3.9	134.18	3.9	19.8				
N1W10-09	N1W10	2_W	1000	2	N_Y	N_N	26.5	5.25	133.86	26.5	5.25				
N4W07-20	N4W07	1_NW	1000	2	N_N	N_N	2.9	0.58	133.33	0.58	2.9				
N2W09-01	N2W09	1_NW	1000	2	N_Y	N_N	35.9	7.2	133.18	7.2	35.9				
S6E01-14	S6E01	4_S	1250	2	N_Y	N_N	19.6	4	132.2	4	19.6				
S5W02-19	S5W02	4_S	1000	2	N_Y	N_N	19	3.9	131.88	3.9	19				
N3W10-17	N3W10	1_NW	1250	2	N_Y	N_N	28.7	5.9	131.79	5.9	28.7				
S6E03-16	S6E03	4_S	1250	2	N_Y	N_N	31.1	6.4	131.73	6.4	31.1				
S7E03-10	S7E03	4_S	1500	2	N_Y	N_N	34.5	7.1	131.73	7.1	34.5				
S3W10-09	S3W10	3_SW	1250	2	N_Y	N_N	48	9.9	131.61	9.9	48				
N5W12-06	N5W12	1_NW	1500	2	N_N	N_N	4.2	0.87	131.36	4.2	0.87				
S3W09-16	S3W09	3_SW	1250	2	N_Y	N_N	22.2	4.6	131.34	4.6	22.2				
N1W10-02	N1W10	2_W	1000	3	N_N	N_N	7.2	1.5	131.03	7.2	1.5			1.7	
S4W05-23	S4W05	3_SW	1000	2	N_Y	N_N	16.6	3.5	130.35	3.5		16.6			
S7E02-09	S7E02	4_S	1500	2	Y_Y	N_N	48.3	10.2	130.26	48.3	10.2				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S4W04-08	S4W04	3_SW	1000	2	N_Y	N_N	39.9	8.5	129.75	39.9	8.5				
N2E09-11	N2E09	7_E	1250	2	N_N	N_N	5.6	1.2	129.41	1.2	5.6				
S1W13-14	S1W13	2_W	1250	2	N_Y	N_N	30.1	6.5	128.96	30.1	6.5				
N3W05-12	N3W05	1_NW	750	2	N_Y	N_N	17	3.7	128.5	3.7	17				
N2W12-06	N2W12	2_W	1250	2	N_Y	N_N	22.8	5	128.06	5	22.8				
N6E06-07	N6E06	6_NE	1500	2	N_Y	N_N	41	9	128	9	41				
S5W04-07	S5W04	4_S	1000	2	N_Y	N_N	32.5	7.2	127.46	7.2	32.5				
N3W12-27	N3W12	1_NW	1500	2	N_Y	N_N	27	6	127.27	27	6				
S5E02-17	S5E02	4_S	1000	2	N_Y	N_N	25.9	5.8	126.81	5.8	25.9				
N5E07-06	N5E07	6_NE	1500	2	N_Y	N_N	23.2	5.2	126.76	5.2	23.2				
N5E06-02	N5E06	6_NE	1250	2	N_Y	N_N	17.1	3.9	125.71	3.9	17.1				
N5E04-23	N5E04	6_NE	1000	2	N_Y	N_N	14.9	3.4	125.68	3.4				14.9	
N1W11-14	N1W11	2_W	1250	2	N_Y	N_N	25.8	5.9	125.55	5.9	25.8				
S5W01-12	S5W01	4_S	1000	2	N_Y	N_N	38	8.7	125.48	8.7	38				
S1W05-21	S1W05	2_W	500	2	Y_Y	N_N	48	11	125.42	48	11				
S5E03-17	S5E03	4_S	1250	2	N_Y	N_N	31.3	7.2	125.19	7.2	31.3				
S4W07-24	S4W07	3_SW	1000	2	N_Y	N_N	16.7	3.9	124.27	16.7	3.9				
S2E10-03	S2E10	7_E	1250	2	N_Y	N_N	32.4	7.6	124	32.4	7.6				
N1W06-26	N1W06	2_W	750	2	N_Y	N_N	42	9.9	123.7	9.9	42				
N2W08-09	N2W08	2_W	1000	2	N_Y	N_N	18.6	4.4	123.48	18.6	4.4				
S4E09-04	S4E09	8_SE	1250	2	N_Y	N_N	25.8	6.2	122.5	6.2	25.8				
N1W12-06	N1W12	2_W	1250	2	N_N	N_N	6.55	1.6	121.47	1.6	6.55				
N5E05-13	N5E05	6_NE	1250	2	N_Y	N_N	22.9	5.6	121.4	5.6	22.9				
N3E08-25	N3E08	6_NE	1250	2	Y_Y	N_N	47.4	11.6	121.36	11.6	47.4				
N4W09-06	N4W09	1_NW	1250	2	N_Y	N_N	27.7	6.8	121.16	6.8	27.7				
S6E03-15	S6E03	4_S	1250	2	Y_Y	N_N	59.8	14.7	121.07	14.7	59.8				
N3E06-03	N3E06	6_NE	1000	2	N_Y	N_N	13	3.2	120.99	3.2	13				
N5E05-28	N5E05	6_NE	1250	2	N_Y	N_N	21.8	5.4	120.59	21.8	5.4				
S5W02-06	S5W02	4_S	1000	2	Y_Y	N_N	60.8	15.1	120.42	15.1	60.8				
N1W10-18	N1W10	2_W	1000	3	N_Y	N_N	15.3	3.8	120.42	15.3	14.6			3.8	
N2W03-02	N2W03	1_NW	500	2	N_Y	N_N	31	7.73	120.17	7.73	31				
N4E09-10	N4E09	6_NE	1500	2	N_Y	N_N	25.2	6.3	120	6.3	25.2				
N6E07-16	N6E07	6_NE	1500	2	N_Y	N_N	17.5	4.4	119.63	17.5	4.4				
S7E01-36	S7E01	4_S	1250	2	N_N	N_N	5.9	1.5	118.92	5.9	1.5				
S7E03-30	S7E03	4_S	1500	2	N_Y	N_N	18.6	4.8	117.95	4.8	18.6				
N2W05-07	N2W05	1_NW	750	2	N_Y	N_N	21.78	5.7	117.03	5.7					21.78
N4E06-03	N4E06	6_NE	1250	2	N_Y	N_N	35	9.2	116.74	35	9.2				
S6W03-08	S6W03	4_S	1250	2	N_N	N_N	5.3	1.4	116.42	1.4	5.3				
S6E04-16	S6E04	4_S	1250	2	Y_Y	N_N	43.9	11.7	115.83	11.7	43.9				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N4E05-04	N4E05	6_NE	1000	2	N_Y	N_N	12	3.2	115.79	12	3.2				
N4W07-33	N4W07	1_NW	1000	2	N_N	N_N	8.5	2.3	114.81	8.5	2.3				
N5W09-14	N5W09	1_NW	1250	2	N_Y	N_N	20.2	5.5	114.4	5.5				20.2	
S4E02-15	S4E02	4_S	1000	2	Y_Y	N_N	78.9	21.5	114.34	21.5	78.9				
S6W03-19	S6W03	4_S	1250	2	N_N	N_N	5.5	1.5	114.29	5.5	1.5				
N5W07-05	N5W07	1_NW	1250	2	N_Y	N_N	17.4	4.8	113.51	4.8	17.4				
N6E05-14	N6E05	6_NE	1250	2	N_Y	N_N	31.4	8.7	113.22	8.7	31.4				
N5W08-07	N5W08	1_NW	1250	3	Y_Y	N_N	42.5	11.8	113.08	11.8	42.5			42	
S6E04-14	S6E04	4_S	1250	2	N_Y	N_N	30.9	8.6	112.91	30.9	8.6				
S5W03-01	S5W03	4_S	1000	2	N_Y	N_N	29.7	8.3	112.63	29.7	8.3				
N4W07-22	N4W07	1_NW	1000	3	N_N	N_N	4.25	1.2	111.93	1.2	1.2				4.25
N7E01-06	N7E01	5_N	1500	2	Y_Y	N_N	56	16	111.11	16	56				
S4W06-13	S4W06	3_SW	1000	2	Y_Y	N_N	41.6	11.9	111.03	11.9	41.6				
S2W12-03	S2W12	2_W	1250	2	N_Y	N_N	21.2	6.1	110.62	6.1	21.2				
N1W13-07	N1W13	2_W	1500	3	N_N	N_N	6.5	1.9	109.52	6.5	1.9			4.6	
S2E10-06	S2E10	7_E	1250	2	Y_Y	N_N	94.2	27.8	108.85	27.8	94.2				
S7W01-23	S7W01	4_S	1500	2	N_Y	N_N	15.2	4.5	108.63	4.5	15.2				
N1W11-03	N1W11	2_W	1250	2	N_N	N_N	6.4	1.9	108.43	1.9	6.4				
N4W07-21	N4W07	1_NW	1000	2	N_N	N_N	6.7	2	108.05	6.7	2				
N1E10-15	N1E10	7_E	1250	2	N_Y	N_N	11	3.3	107.69	11	3.3				
N5E06-10	N5E06	6_NE	1250	2	Y_Y	N_N	78.6	23.6	107.63	23.6				78.6	
S1E09-07	S1E09	7_E	1250	2	N_Y	N_N	26.3	7.9	107.6	26.3	7.9				
N5W08-29	N5W08	1_NW	1250	2	Y_Y	N_N	53	16	107.25	16	53				
N3W11-11	N3W11	1_NW	1250	2	N_Y	N_N	12.5	3.8	106.75	3.8	12.5				
S7E01-07	S7E01	4_S	1250	2	Y_Y	N_N	34.2	10.4	106.73	34.2	10.4				
N6E06-18	N6E06	6_NE	1250	2	N_Y	N_N	19.4	5.9	106.72	5.9	19.4				
N3E07-10	N3E07	6_NE	1000	2	N_Y	N_N	14.1	4.3	106.52	14.1	4.3				
N6E04-26	N6E04	5_N	1250	2	N_Y	N_N	14.4	4.4	106.38	14.4	4.4				
N2W12-28	N2W12	2_W	1250	2	N_N	N_N	6.2	1.9	106.17	6.2	1.9				
S2E10-11	S2E10	7_E	1250	3	N_Y	N_N	24.7	7.6	105.88	7.6	15.6			24.7	
S3W07-10	S3W07	3_SW	1000	2	N_Y	N_N	26	8	105.88	8	26				
S3E01-01	S3E01	4_S	500	3	N_N	N_N	6.8	2.1	105.62	6.8	2.1			2.4	
N6E05-10	N6E05	6_NE	1250	2	Y_Y	N_N	86.4	26.9	105.03	26.9	86.4				
S5W04-08	S5W04	4_S	1000	2	N_Y	N_N	15.4	4.8	104.95	15.4	4.8				
S1W11-10	S1W11	2_W	1250	2	Y_Y	N_N	77	24	104.95	24	77				
S7E01-06	S7E01	4_S	1250	4	N_Y	N_N	12.8	4	104.76	5.6	12.8	4		4.5	
N5E01-12	N5E01	5_N	1000	2	N_Y	N_N	14.4	4.5	104.76	4.5	14.4				
S7E01-27	S7E01	4_S	1500	2	N_Y	N_N	30.4	9.5	104.76	9.5	30.4				
S6E03-17	S6E03	4_S	1250	3	Y_Y	N_N	71	22.2	104.72	25.6	71			22.2	

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N3W14-10	N3W14	2_W	1500	2	N_N	N_N	5.4	1.7	104.23	5.4	1.7				
S6W01-09	S6W01	4_S	1250	2	Y_Y	N_N	83.9	26.5	103.99	26.5	83.9				
S6W03-05	S6W03	4_S	1250	2	N_Y	N_N	19.3	6.1	103.94	19.3	6.1				
S4W06-21	S4W06	3_SW	1000	2	N_Y	N_N	17	5.4	103.57	5.4	17				
N4W14-18	N4W14	1_NW	1500	2	N_Y	N_N	13.8	4.4	103.3	13.8	4.4				
N5E06-09	N5E06	6_NE	1250	2	N_Y	N_N	18.5	5.9	103.28	5.9	18.5				
N2W06-27	N2W06	1_NW	750	2	N_Y	N_N	31	9.9	103.18	9.9	31				
N3W10-05	N3W10	1_NW	1250	2	N_Y	N_N	14.4	4.6	103.16		4.6			14.4	
S1W10-30	S1W10	2_W	1000	2	N_Y	N_N	19.4	6.2	103.13	6.2	19.4				
N6W10-05	N6W10	1_NW	1500	3	N_N	N_N	7.8	2.5	102.91	7.8	2.5			4.2	
S4E02-11	S4E02	4_S	1000	2	N_Y	N_N	10.9	3.5	102.78	10.9	3.5				
N5E01-22	N5E01	5_N	1000	2	Y_Y	N_N	36.7	11.8	102.68		36.7			11.8	
N2W05-03	N2W05	1_NW	750	2	N_Y	N_N	31	10	102.44	10	31				
N4W14-13	N4W14	1_NW	1500	2	N_N	N_N	6.5	2.1	102.33	6.5	2.1				
S5E03-07	S5E03	8_SE	1000	2	N_Y	N_N	14.2	4.6	102.13	14.2	4.6				
S7E02-15	S7E02	4_S	1500	2	N_Y	N_N	14.2	4.6	102.13	4.6	14.2				
S4W07-08	S4W07	3_SW	1000	2	N_Y	N_N	11.1	3.6	102.04	11.1	3.6				
N2W04-10	N2W04	1_NW	500	2	Y_Y	N_N	43.15	14	102.01	14	43.15				
N1W06-23	N1W06	2_W	750	2	N_Y	N_N	15.3	5	101.48	15.3	5				
S4W07-09	S4W07	3_SW	1000	2	N_N	N_N	6.4	2.1	101.18	6.4	2.1				
S4E08-05	S4E08	8_SE	1250	2	N_Y	N_N	21.5	7.1	100.7	21.5	7.1				
N4W07-35	N4W07	1_NW	1000	2	N_Y	N_N	10.9	3.6	100.69	3.6	10.9				
N5E06-14	N5E06	6_NE	1250	2	Y_Y	N_N	33.9	11.2	100.67	33.9	11.2				
N1W07-19	N1W07	2_W	750	2	N_Y	N_N	11	3.7	99.32	3.7	11				
N7E01-02	N7E01	5_N	1500	3	N_N	N_N	8.6	2.9	99.13	3.6	2.9			8.6	
N4W11-13	N4W11	1_NW	1250	2	N_N	N_N	8.3	2.8	99.099	2.8	8.3				
S7E01-35	S7E01	4_S	1500	2	N_N	N_N	7.1	2.4	98.947	2.4	7.1				
N6W11-07	N6W11	1_NW	1500	2	N_Y	N_N	16.5	5.6	98.643	5.6	16.5				
N5W08-30	N5W08	1_NW	1250	2	N_Y	N_N	26.2	8.9	98.575	8.9	26.2				
S7W03-23	S7W03	4_S	1500	2	Y_Y	N_N	86.2	29.3	98.528	29.3	86.2				
N3W03-13	N3W03	1_NW	750	2	N_N	N_N	10	3.4	98.507	3.4	10				
S5W04-13	S5W04	4_S	1250	2	N_Y	N_N	12.9	4.4	98.266	12.9	4.4				
N3E08-11	N3E08	6_NE	1250	2	N_Y	N_N	12.2	4.2	97.561	12.2	4.2				
S5W03-12	S5W03	4_S	1000	2	N_Y	N_N	16.8	5.8	97.345	5.8	16.8				
S6E01-15	S6E01	4_S	1250	2	N_Y	N_N	21.4	7.4	97.222	7.4	21.4				
S1W06-09	S1W06	2_W	750	2	N_Y	N_N	24	8.3	97.214	24	8.3				
S7E01-01	S7E01	4_S	1250	3	N_Y	N_N	19.9	6.9	97.015	6.9	11.3			19.9	
S5W01-16	S5W01	4_S	1000	2	Y_Y	N_N	56.8	19.7	96.993	19.7	56.8				
S2W06-17	S2W06	3_SW	750	2	N_Y	N_N	19	6.6	96.875	19	6.6				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S5E04-12	S5E04	8_SE	1000	2	N_Y	N_N	15.8	5.5	96.714	5.5	15.8				
S6E02-05	S6E02	4_S	1250	2	N_Y	N_N	18	6.3	96.296	6.3	18				
S1W10-07	S1W10	2_W	1000	2	N_N	N_N	10	3.5	96.296		3.5			10	
N1W11-10	N1W11	2_W	1250	2	N_N	N_N	9.7	3.4	96.183	3.4	9.7				
N4W07-24	N4W07	1_NW	1000	3	N_Y	N_N	19.88	7	95.833		7.2			7	19.88
S2W05-17	S2W05	3_SW	750	2	N_Y	N_N	17	6	95.652	17	6				
S5W01-20	S5W01	4_S	1000	2	N_Y	N_N	17.5	6.2	95.359	17.5	6.2				
N3W07-01	N3W07	1_NW	1000	2	N_Y	N_N	23	8.2	94.872	8.2	23				
N5E06-06	N5E06	6_NE	1250	2	Y_Y	N_N	46.2	16.5	94.737	16.5	46.2				
N2W12-27	N2W12	2_W	1250	2	N_N	N_N	4.2	1.5	94.737	1.5	4.2				
S3W06-26	S3W06	3_SW	1000	2	N_Y	N_N	14	5	94.737	14	5				
S3W10-12	S3W10	3_SW	1250	2	N_Y	N_N	11.2	4	94.737	11.2				4	
N2W08-02	N2W08	1_NW	1000	3	N_N	N_N	9.3	3.33	94.537	9.3	6				3.33
S2W11-08	S2W11	2_W	1250	2	N_N	N_N	5.3	1.9	94.444	5.3	1.9				
S6W01-01	S6W01	4_S	1250	2	N_N	N_N	3.9	1.4	94.34	3.9	1.4				
N2W10-17	N2W10	2_W	1000	2	N_Y	N_N	24.5	8.8	94.294	8.8	24.5				
S1E08-26	S1E08	7_E	1000	2	N_Y	N_N	17.8	6.4	94.215	17.8	6.4				
N2W09-15	N2W09	2_W	1000	2	N_Y	N_N	22.2	8	94.04	8	22.2				
N7W09-02	N7W09	1_NW	1750	2	N_Y	N_N	12.2	4.4	93.976	12.2	4.4				
S4W10-06	S4W10	3_SW	1250	2	Y_Y	N_N	37.3	13.5	93.701	13.5	37.3				
N3E09-24	N3E09	6_NE	1250	2	N_Y	N_N	14	5.1	93.194	5.1	14				
S1E07-10	S1E07	7_E	1000	2	N_Y	N_N	24.1	8.8	93.009	8.8	24.1				
N3E08-07	N3E08	6_NE	1250	2	N_Y	N_N	17.5	6.4	92.887	17.5	6.4				
S2E10-08	S2E10	7_E	1250	2	N_Y	N_N	17.2	6.3	92.766	17.2	6.3				
S6E03-25	S6E03	4_S	1250	2	Y_Y	N_N	37.9	13.9	92.664	13.9	37.9				
S3W10-19	S3W10	3_SW	1250	2	N_Y	N_N	10.9	4	92.617	10.9	4				
N6E06-14	N6E06	6_NE	1250	2	Y_Y	N_N	50.4	18.5	92.598	50.4	18.5				
S5E03-32	S5E03	4_S	1000	2	N_Y	N_N	17.4	6.4	92.437	6.4	17.4				
S1W08-04	S1W08	2_W	750	2	N_Y	N_N	13.8	5.1	92.063	13.8	5.1				
S6W01-22	S6W01	4_S	1250	2	Y_Y	N_N	50.6	18.7	92.063	18.7	50.6				
N3E05-02	N3E05	6_NE	1000	2	N_N	N_N	5.4	2	91.892	2	5.4				
N2W04-04	N2W04	1_NW	500	2	Y_Y	N_N	29.64	11	91.732	11	29.64				
N4E09-29	N4E09	6_NE	1250	2	N_Y	N_N	14	5.2	91.667	5.2	14				
N2W11-03	N2W11	2_W	1250	2	N_Y	N_N	26.9	10	91.599	26.9	10				
S3W04-19	S3W04	3_SW	750	2	N_Y	N_N	16	6	90.909	16	6				
N1W12-23	N1W12	2_W	1250	3	N_N	N_N	6.4	2.4	90.909	6.4	2.4			3.8	
N6E04-04	N6E04	5_N	1250	2	N_N	N_N	6.4	2.4	90.909	6.4	2.4				
N2E08-03	N2E08	7_E	1250	2	N_N	N_N	6.9	2.6	90.526	2.6	6.9				
S5W02-14	S5W02	4_S	1250	2	N_N	N_N	4.5	1.7	90.323		1.7	4.5			

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S7E03-28	S7E03	4_S	1500	2	N_Y	N_N	17.7	6.7	90.164	17.7	6.7				
N5E02-05	N5E02	5_N	1000	2	N_N	N_N	5.8	2.2	90	5.8	2.2				
N2W13-02	N2W13	2_W	1500	2	N_N	N_N	3.15	1.2	89.655				3.15	1.2	
N5E06-26	N5E06	6_NE	1250	2	N_N	N_N	6.3	2.4	89.655	6.3	2.4				
S4W03-20	S4W03	4_S	1000	3	N_Y	N_N	14.4	5.5	89.447	14.4	5.5			6.3	
N1W13-05	N1W13	2_W	1250	2	N_N	N_N	6.8	2.6	89.362	6.8	2.6				
S2W10-05	S2W10	2_W	1000	2	N_Y	N_N	14.9	5.7	89.32	5.7	14.9				
N4W08-24	N4W08	1_NW	1000	3	N_N	N_N	8.35	3.2	89.177	8.35	3.8				3.2
N1W07-25	N1W07	2_W	750	2	Y_Y	N_N	39	15	88.889	15	39				
N4W09-24	N4W09	1_NW	1250	2	Y_Y	N_N	69.2	26.65	88.785	26.65	69.2				
N2E09-22	N2E09	7_E	1250	2	N_Y	N_N	24.6	9.5	88.563	9.5	24.6				
N2W11-17	N2W11	2_W	1250	2	N_N	N_N	8.8	3.4	88.525	3.4	8.8				
N5W13-06	N5W13	1_NW	1750	2	N_N	N_N	4.4	1.7	88.525	4.4	1.7				
S4W07-22	S4W07	3_SW	1000	2	N_N	N_N	8	3.1	88.288	8	3.1				
S6W05-23	S6W05	3_SW	1250	2	N_Y	N_N	14.7	5.7	88.235	5.7	14.7				
S4W05-26	S4W05	3_SW	1000	2	N_Y	N_N	10.3	4	88.112	10.3	4				
S4W05-13	S4W05	3_SW	1000	2	N_Y	N_N	12.1	4.7	88.095	4.7	12.1				
N2W07-08	N2W07	1_NW	750	2	N_Y	N_N	19	7.4	87.879	19	7.4				
N3W13-12	N3W13	2_W	1500	3	N_N	N_N	9.5	3.7	87.879	9.5	5.8			3.7	
N5E05-21	N5E05	6_NE	1000	2	N_Y	N_N	11.8	4.6	87.805		4.6			11.8	
N5W13-15	N5W13	1_NW	1750	2	N_N	N_N	5.9	2.3	87.805	5.9	2.3				
S6W01-05	S6W01	4_S	1250	3	N_Y	N_N	10.5	4.1	87.671	4.1	8.8			10.5	
N3E09-14	N3E09	6_NE	1250	2	N_Y	N_N	13.3	5.2	87.568	13.3	5.2				
N3W12-30	N3W12	1_NW	1500	2	N_Y	N_N	11.5	4.5	87.5	11.5	4.5				
N3E09-03	N3E09	6_NE	1250	2	N_N	N_N	6.9	2.7	87.5	6.9	2.7				
S4E09-01	S4E09	8_SE	1250	2	N_Y	N_N	11.7	4.6	87.117	11.7	4.6				
N5E02-40	N5E02	5_N	1000	2	N_N	N_N	6.1	2.4	87.059	6.1	2.4				
N2W12-04	N2W12	2_W	1250	3	N_N	N_N	4.8	1.9	86.567	3.2	1.9			4.8	
S3W05-16	S3W05	3_SW	750	2	N_N	N_N	7.3	2.9	86.275	2.9	7.3				
S5E09-27	S5E09	8_SE	1500	2	N_N	N_N	8.8	3.5	86.179	3.5	8.8				
S3E09-10	S3E09	8_SE	1250	2	N_Y	N_N	23.6	9.4	86.061	9.4	23.6				
N5W07-15	N5W07	1_NW	1250	2	Y_Y	N_N	53.6	21.355	86.038	21.355				53.6	
S2W07-18	S2W07	3_SW	750	2	N_Y	N_N	16	6.4	85.714	16	6.4				
N1W04-20	N1W04	2_W	500	2	N_N	N_N	4	1.6	85.714	1.6	4				
N2W05-22	N2W05	1_NW	750	2	N_N	N_N	4.5	1.8	85.714	1.8	4.5				
N6E05-21	N6E05	6_NE	1250	2	N_Y	N_N	15	6	85.714	6	15				
S5W04-01	S5W04	3_SW	1000	3	N_N	N_N	10	4	85.714	10	4	4			
S1W09-19	S1W09	2_W	1000	3	Y_Y	N_N	40.4	16.2	85.512	23.4	40.4			16.2	
N3W02-02	N3W02	5_N	500	2	Y_Y	N_N	28	11.24	85.423	28	11.24				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S7W03-11	S7W03	4_S	1500	2	N_Y	N_N	13.2	5.3	85.405	13.2	5.3				
N2W09-06	N2W09	2_W	1000	2	N_Y	N_N	10.2	4.1	85.315	4.1	10.2				
S2E10-28	S2E10	7_E	1250	3	Y_Y	N_N	57.9	23.3	85.222	35.9	57.9			23.3	
N1W12-19	N1W12	2_W	1250	3	N_N	N_N	6.7	2.7	85.106	2.7	6.7			3.1	
N5W08-19	N5W08	1_NW	1250	3	N_N	N_N	5.6	2.26	84.987	5.6	4.3				2.26
N5E04-21	N5E04	6_NE	1000	2	N_N	N_N	9.4	3.8	84.848	9.4	3.8				
S3W04-20	S3W04	3_SW	750	2	N_Y	N_N	23	9.3	84.83	23	9.3				
N2W10-04	N2W10	2_W	1250	2	N_N	N_N	8.4	3.4	84.746	8.4	3.4				
N3W09-24	N3W09	1_NW	1000	3	N_N	N_N	5.8	2.35	84.663	5.8	2.35			2.7	
N4W09-10	N4W09	1_NW	1250	2	N_Y	N_N	20.41	8.3	84.361	8.3	20.41				
N4W11-06	N4W11	1_NW	1250	2	N_N	N_N	5.4	2.2	84.211	5.4	2.2				
S2W11-09	S2W11	2_W	1250	2	N_N	N_N	5.4	2.2	84.211	5.4	2.2				
N5E04-20	N5E04	6_NE	1000	3	N_Y	N_N	12	4.9	84.024	5.6	4.9			12	
N4E09-09	N4E09	6_NE	1500	2	Y_Y	N_N	54.1	22.1	83.99	22.1	54.1				
N3W06-14	N3W06	1_NW	750	2	N_Y	N_N	11	4.5	83.871	4.5					11
N1W08-19	N1W08	2_W	1000	3	N_N	N_N	9.5	3.9	83.582	9.5	3.9				5.72
N5E03-08	N5E03	5_N	1000	2	N_Y	N_N	18	7.4	83.465	7.4	18				
N1W11-24	N1W11	2_W	1250	2	N_N	N_N	8.5	3.5	83.333	3.5	8.5				
S3E09-11	S3E09	8_SE	1250	2	N_Y	N_N	20	8.3	82.686	20	8.3				
S2W11-05	S2W11	2_W	1250	3	N_N	N_N	5.3	2.2	82.667	2.4	2.2			5.3	
N1E10-04	N1E10	7_E	1250	2	N_Y	N_N	21.9	9.1	82.581	21.9	9.1				
N1W13-09	N1W13	2_W	1500	2	N_N	N_N	7.7	3.2	82.569	7.7	3.2				
S1W13-27	S1W13	2_W	1500	2	Y_Y	N_N	25.4	10.6	82.222	10.6	25.4				
N5E07-12	N5E07	6_NE	1250	2	N_N	N_N	9.1	3.8	82.171	9.1	3.8				
S1W09-24	S1W09	2_W	1000	2	N_N	N_N	9.8	4.1	82.014	9.8	4.1				
N3W10-12	N3W10	1_NW	1250	3	N_N	N_N	7.4	3.1	81.905	7.4	3.1			3.3	
S7E01-09	S7E01	4_S	1250	2	Y_Y	N_N	39.6	16.6	81.851	16.6	39.6				
N5W08-06	N5W08	1_NW	1250	2	N_Y	N_N	16.8	7.0667	81.564	16.8	7.0667				
S7W03-16	S7W03	4_S	1500	2	Y_Y	N_N	24	10.1	81.525	10.1	24				
N2W08-06	N2W08	1_NW	1000	3	N_N	N_N	8.6	3.62	81.506	6	8.6				3.62
N5W08-01	N5W08	1_NW	1250	3	N_N	N_N	9.5	4	81.481	9.5	5.8			4	
N3E07-16	N3E07	6_NE	1000	2	N_N	N_N	7.6	3.2	81.481	7.6	3.2				
S7E03-25	S7E03	4_S	1500	2	N_N	N_N	9.7	4.1	81.159	9.7	4.1				
S7W03-12	S7W03	4_S	1500	2	N_Y	N_N	21	8.9	80.936	8.9	21				
N1W11-22	N1W11	2_W	1250	2	N_N	N_N	6.6	2.8	80.851	6.6	2.8				
N3W09-09	N3W09	1_NW	1000	2	N_N	N_N	7.3	3.1	80.769	3.1	7.3				
S3W01-08	S3W01	4_S	500	2	Y_Y	N_N	40	17	80.702	17	40				
N1W10-04	N1W10	2_W	1000	2	N_N	N_N	5.645	2.4	80.671	2.4	5.645				
S4E09-02	S4E09	8_SE	1250	2	Y_Y	N_N	36.4	15.5	80.539	36.4	15.5				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1E08-05	S1E08	7_E	1000	2	Y_Y	N_N	71.6	30.6	80.235	71.6	30.6				
S6E01-23	S6E01	4_S	1250	2	Y_Y	N_N	87.2	37.3	80.161	87.2	37.3				
N2W05-21	N2W05	1_NW	750	2	N_N	N_N	3.5	1.5	80	1.5	3.5				
N4E04-15	N4E04	6_NE	1000	2	N_N	N_N	5.6	2.4	80	5.6	2.4				
S1W08-20	S1W08	2_W	1000	2	N_N	N_N	10	4.3	79.72	4.3	10				
S7E04-20	S7E04	4_S	1500	2	Y_Y	N_N	67.9	29.2	79.712	67.9	29.2				
N2W06-19	N2W06	1_NW	750	2	N_Y	N_N	13	5.6	79.57	5.6	13				
S7E01-30	S7E01	4_S	1500	2	N_Y	N_N	13	5.6	79.57	5.6	13				
N1E09-06	N1E09	7_E	1250	2	N_N	N_N	5.8	2.5	79.518	2.5	5.8				
N4W14-21	N4W14	1_NW	1750	2	N_N	N_N	5.8	2.5	79.518	5.8	2.5				
S7E02-14	S7E02	4_S	1500	2	Y_Y	N_N	30.6	13.2	79.452	13.2	30.6				
N1W06-18	N1W06	2_W	750	2	Y_Y	N_N	51	22	79.452	51	22				
S1W06-13	S1W06	2_W	750	2	Y_Y	N_N	88	38	79.365	88	38				
N8W03-06	N8W03	5_N	1750	2	N_Y	N_N	12.9	5.6	78.919	12.9	5.6				
N4E09-11	N4E09	6_NE	1500	2	N_N	N_N	7.6	3.3	78.899	7.6	3.3				
S7E04-17	S7E04	4_S	1500	2	Y_Y	N_N	51.9	22.6	78.658	22.6	51.9				
S2W10-07	S2W10	2_W	1000	2	Y_Y	N_N	28.7	12.5	78.641	28.7	12.5				
S3E10-09	S3E10	8_SE	1500	3	N_Y	N_N	14	6.1	78.607	7.4	14			6.1	
N3W12-19	N3W12	2_W	1500	2	N_N	N_N	3.9	1.7	78.571		1.7			3.9	
S2E10-32	S2E10	7_E	1250	2	N_Y	N_N	22.2	9.7	78.37	22.2	9.7				
S1W07-26	S1W07	2_W	750	2	N_Y	N_N	16	7	78.261	7	16				
S3W12-15	S3W12	3_SW	1500	2	N_N	N_N	8	3.5	78.261	8	3.5				
N5W13-23	N5W13	1_NW	1750	2	N_N	N_N	4.8	2.1	78.261	4.8	2.1				
N6W08-15	N6W08	1_NW	1500	2	N_N	N_N	4.1	1.8	77.966	1.8	4.1				
N4W07-36	N4W07	1_NW	1000	3	N_N	N_N	2.73	1.2	77.863	1.8	1.2				2.73
S6W05-07	S6W05	4_S	1250	2	N_Y	N_N	11.6	5.1	77.844		11.6			5.1	
N2W09-23	N2W09	2_W	1000	2	N_Y	N_N	12.5	5.5	77.778	5.5	12.5				
S7E01-05	S7E01	4_S	1250	2	Y_Y	N_N	40.9	18	77.759	18	40.9				
N3W14-22	N3W14	2_W	1500	2	Y_Y	N_N	59.4	26.2	77.57	26.2	59.4				
S1W13-13	S1W13	2_W	1250	2	N_Y	N_N	17.9	7.9	77.519	7.9	17.9				
N5E07-24	N5E07	6_NE	1250	2	Y_Y	N_N	29.4	13	77.358	13	29.4				
N1E10-03	N1E10	7_E	1250	2	N_Y	N_N	10.6	4.7	77.124	10.6	4.7				
S2W09-05	S2W09	2_W	1000	2	N_Y	N_N	12.4	5.5	77.095	12.4	5.5				
N2W04-07	N2W04	1_NW	500	2	N_Y	N_N	11	4.88	77.078	11	4.88				
S6W01-13	S6W01	4_S	1250	2	Y_Y	N_N	33.3	14.8	76.923	14.8	33.3				
N3E09-12	N3E09	6_NE	1250	2	Y_Y	N_N	33.7	15	76.797	15	33.7				
S1E07-03	S1E07	7_E	1000	3	N_N	N_N	9.2	4.1	76.692	4.7	4.1			9.2	
N1W05-20	N1W05	2_W	500	2	Y_Y	N_N	74	33	76.636	33	74				
N5W09-15	N5W09	1_NW	1250	2	N_Y	N_N	16.8	7.5	76.543	16.8	7.5				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N3W14-17	N3W14	2_W	1500	2	N_N	N_N	5.6	2.5	76.543	5.6	2.5				
S3E01-02	S3E01	4_S	750	3	N_N	N_N	5.15	2.3	76.51	2.3	5.15			2.5667	
S5W06-17	S5W06	3_SW	1250	2	N_Y	N_N	22.1	9.9	76.25	9.9	22.1				
N5E02-06	N5E02	5_N	1000	2	N_N	N_N	5.8	2.6	76.19	5.8	2.6				
N2W06-12	N2W06	1_NW	750	2	Y_Y	N_N	24.53	11	76.161	11	24.53				
S6W01-03	S6W01	4_S	1250	2	Y_Y	N_N	32.9	14.8	75.891	14.8	32.9				
N4W14-27	N4W14	1_NW	1750	2	N_N	N_N	4	1.8	75.862	1.8	4				
N2W05-17	N2W05	1_NW	750	2	N_Y	N_N	22.22	10	75.854	10					22.22
N4W06-05	N4W06	1_NW	1000	4	N_N	N_N	7.32	3.3	75.706	4.5	3.3			6.5	7.32
N6E08-21	N6E08	6_NE	1500	2	N_N	N_N	5.1	2.3	75.676	2.3	5.1				
S1E10-29	S1E10	7_E	1250	2	Y_Y	N_N	45.5	20.6	75.34	45.5				20.6	
S7E01-17	S7E01	4_S	1500	2	Y_Y	N_N	77.1	35	75.112	35	77.1				
N2W04-24	N2W04	1_NW	500	2	Y_Y	N_N	26.405	12	75.016	12					26.405
S2W06-09	S2W06	3_SW	750	2	Y_Y	N_N	33	15	75	33	15				
S5W03-14	S5W03	4_S	1000	3	N_Y	N_N	12.1	5.5	75	5.5	12.1			5.9	
N1W05-01	N1W05	2_W	750	2	N_Y	N_N	14	6.4	74.51	14	6.4				
S1W10-04	S1W10	2_W	1000	2	N_N	N_N	7	3.2	74.51	7	3.2				
S6W01-12	S6W01	4_S	1250	2	N_N	N_N	3.5	1.6	74.51	3.5	1.6				
N2W04-20	N2W04	1_NW	500	2	N_N	N_N	10	4.58	74.348	4.58	10				
N3E08-06	N3E08	6_NE	1250	2	Y_Y	N_N	56.5	25.9	74.272	56.5	25.9				
S7W03-14	S7W03	4_S	1500	2	Y_Y	N_N	44.9	20.6	74.198	44.9	20.6				
S7E04-30	S7E04	4_S	1500	2	Y_Y	N_N	62.6	28.8	73.961	28.8	62.6				
N3W13-06	N3W13	1_NW	1500	2	N_Y	N_N	11.5	5.3	73.81	5.3	11.5				
S2E10-27	S2E10	7_E	1250	2	N_Y	N_N	14.3	6.6	73.684	6.6	14.3				
S4E02-22	S4E02	4_S	750	2	Y_Y	N_N	52	24	73.684	24	52				
N2E08-02	N2E08	7_E	1000	2	Y_Y	N_N	23.6	10.9	73.623		23.6			10.9	
S5W01-13	S5W01	4_S	1000	2	Y_Y	N_N	34.4	15.9	73.559	15.9	34.4				
S2W13-22	S2W13	2_W	1500	2	Y_Y	N_N	39.3	18.2	73.391	39.3	18.2				
S5W01-05	S5W01	4_S	1000	2	Y_Y	N_N	77.4	35.9	73.257	35.9	77.4				
N3W04-11	N3W04	1_NW	750	2	N_N	N_N	3.9	1.81	73.205	1.81	3.9				
S4W08-01	S4W08	3_SW	1000	2	Y_Y	N_N	54.8	25.5	72.976	25.5	54.8				
N4E02-10	N4E02	5_N	750	2	N_N	N_N	5.8	2.7	72.941	5.8	2.7				
S1E09-11	S1E09	7_E	1250	2	Y_Y	N_N	24.9	11.6	72.877	11.6	24.9				
S7W03-21	S7W03	4_S	1500	2	N_Y	N_N	19.3	9	72.792	19.3	9				
S7E01-26	S7E01	4_S	1500	2	Y_Y	N_N	43.3	20.2	72.756	43.3	20.2				
N6E02-18	N6E02	5_N	1250	2	N_N	N_N	6	2.8	72.727	6	2.8				
N1W05-21	N1W05	2_W	500	2	N_N	N_N	8.9	4.155	72.692	8.9					4.155
N3W07-24	N3W07	1_NW	1000	2	Y_Y	N_N	32	15	72.34	15	32				
N2W10-27	N2W10	2_W	1250	2	N_Y	N_N	12.8	6	72.34	12.8	6				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S5E08-19	S5E08	8_SE	1500	2	Y_Y	N_N	61	28.6	72.321	61	28.6				
N6E05-19	N6E05	6_NE	1250	2	Y_Y	N_N	24.2	11.4	71.91	11.4	24.2				
S1W09-25	S1W09	2_W	1000	2	N_N	N_N	7	3.3	71.845	7	3.3				
N5E06-27	N5E06	6_NE	1250	2	N_Y	N_N	10.6	5	71.795	10.6	5				
N4W09-25	N4W09	1_NW	1250	2	N_Y	N_N	13.1	6.2	71.503	6.2	13.1				
S5E01-13	S5E01	4_S	1000	3	N_Y	N_N	11.4	5.4	71.429	11.4	5.4			6.4	
N5E02-09	N5E02	5_N	1000	2	N_N	N_N	3.8	1.8	71.429	3.8	1.8				
S7E01-33	S7E01	4_S	1500	2	N_N	N_N	3.8	1.8	71.429	3.8	1.8				
S7E01-02	S7E01	4_S	1250	2	N_N	N_N	9.9	4.7	71.233	9.9	4.7				
S5E09-25	S5E09	8_SE	1500	2	Y_Y	N_N	31.8	15.1	71.215	15.1	31.8				
N1W04-05	N1W04	2_W	500	2	N_N	N_N	8.5	4.04	71.132	8.5	4.04				
N6W12-02	N6W12	1_NW	1750	2	N_N	N_N	4.2	2	70.968	4.2	2				
N2E08-12	N2E08	7_E	1000	2	N_N	N_N	9.4	4.5	70.504	9.4	4.5				
N2W05-16	N2W05	1_NW	750	2	Y_Y	N_N	66.8	32	70.445	32	66.8				
S6E05-04	S6E05	8_SE	1500	2	Y_Y	N_N	88.3	42.4	70.237	42.4	88.3				
S3W09-15	S3W09	3_SW	1250	2	Y_Y	N_N	43.1	20.7	70.219		20.7			43.1	
S5W01-04	S5W01	4_S	1000	2	Y_Y	N_N	23.1	11.1	70.175	23.1	11.1				
N5W08-21	N5W08	1_NW	1250	2	Y_Y	N_N	23.2	11.15	70.16	11.15	23.2				
N5W09-17	N5W09	1_NW	1250	2	N_N	N_N	5.4	2.6	70	5.4	2.6				
N6W10-11	N6W10	1_NW	1500	2	N_N	N_N	2.7	1.3	70	1.3	2.7				
N1W10-07	N1W10	2_W	1000	3	N_N	N_N	5.6	2.7	69.88	2.7	5.4			5.6	
N3E09-22	N3E09	6_NE	1250	2	N_N	N_N	5.8	2.8	69.767	2.8				5.8	
N5W13-21	N5W13	1_NW	1750	2	N_N	N_N	2.9	1.4	69.767	2.9	1.4				
N4E09-28	N4E09	6_NE	1250	2	N_Y	N_N	12	5.8	69.663	5.8	12				
N1W10-06	N1W10	2_W	1000	3	N_N	N_N	6	2.9	69.663	2.9	3.5			6	
N2W07-06	N2W07	1_NW	750	2	N_N	N_N	2.89	1.4	69.464		1.4				2.89
N4W10-22	N4W10	1_NW	1250	3	Y_Y	N_N	68.9	33.4	69.404	33.4	68.9			62.1	
N2W08-08	N2W08	2_W	1000	3	Y_Y	N_N	31.1	15.1	69.264	31.1				15.1	15.81
N1W11-07	N1W11	2_W	1250	2	N_N	N_N	3.5	1.7	69.231	3.5	1.7				
S6W04-03	S6W04	4_S	1250	2	N_N	N_N	3.5	1.7	69.231	3.5	1.7				
N2W12-12	N2W12	2_W	1250	2	N_Y	N_N	10.7	5.2	69.182	10.7	5.2				
S4W05-21	S4W05	3_SW	1000	3	N_N	N_N	4.1	2	68.852	4.1	3			2	
N3W09-15	N3W09	1_NW	1000	2	Y_Y	N_N	42.6	20.8	68.77	20.8	42.6				
N5E01-27	N5E01	5_N	1000	2	Y_Y	N_N	26.8	13.1	68.672	26.8	13.1				
S2E10-29	S2E10	7_E	1250	2	Y_Y	N_N	59.1	28.9	68.636	59.1	28.9				
S5E01-15	S5E01	4_S	1000	3	N_Y	N_N	13.7	6.7	68.627	13.7	6.7			9.5	
N8W02-06	N8W02	5_N	1750	2	N_N	N_N	9.8	4.8	68.493	9.8	4.8				
S1E10-24	S1E10	7_E	1250	2	N_N	N_N	9.8	4.8	68.493	4.8	9.8				
S5E02-22	S5E02	4_S	1000	2	Y_Y	N_N	80.1	39.3	68.342	39.3	80.1				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N6E02-39	N6E02	5_N	1250	2	N_N	N_N	6.3	3.1	68.085	3.1	6.3				
S5W01-10	S5W01	4_S	1000	2	N_Y	N_N	19.5	9.6	68.041	9.6	19.5				
S1W11-22	S1W11	2_W	1250	2	Y_Y	N_N	45.9	22.6	68.029	22.6	45.9				
N5E03-13	N5E03	5_N	1000	2	N_N	N_N	7.7	3.8	67.826	7.7	3.8				
S7E03-05	S7E03	4_S	1500	2	Y_Y	N_N	29.3	14.5	67.58	14.5	29.3				
N6E03-21	N6E03	5_N	1250	2	N_Y	N_N	13.7	6.8	67.317	6.8	13.7				
S3W10-10	S3W10	3_SW	1250	2	Y_Y	N_N	71.2	35.4	67.167	35.4	71.2				
N4W07-13	N4W07	1_NW	1000	3	N_N	N_N	3.62	1.8	67.159		3.5			1.8	3.62
N5E05-08	N5E05	6_NE	1250	2	N_N	N_N	4.8	2.4	66.667	2.4	4.8				
S1W12-02	S1W12	2_W	1250	2	N_N	N_N	7.8	3.9	66.667	7.8	3.9				
S4W08-16	S4W08	3_SW	1250	2	N_Y	N_N	11.8	5.9	66.667	5.9	11.8				
N1W11-09	N1W11	2_W	1250	3	N_N	N_N	5.4	2.7	66.667	5.4	2.7			4	
N6W11-09	N6W11	1_NW	1500	3	N_N	N_N	7	3.5	66.667	7	5.4			3.5	
N1W12-27	N1W12	2_W	1250	2	N_N	N_N	6	3	66.667	6	3				
N3E09-02	N3E09	6_NE	1250	2	N_N	N_N	7.4	3.7	66.667	7.4	3.7				
N5E04-13	N5E04	6_NE	1000	2	N_N	N_N	7.2	3.6	66.667	3.6	7.2				
N6E05-12	N6E05	6_NE	1250	2	N_N	N_N	8	4	66.667	8	4				
S2W10-20	S2W10	2_W	1250	2	N_N	N_N	6.4	3.2	66.667	3.2	6.4				
S5E01-04	S5E01	4_S	1000	2	N_N	N_N	4.4	2.2	66.667		4.4			2.2	
N3W03-12	N3W03	1_NW	750	2	N_N	N_N	7.5	3.76	66.43	3.76	7.5				
S6E01-21	S6E01	4_S	1250	2	N_Y	N_N	11.5	5.8	65.896	11.5	5.8				
S6E02-04	S6E02	4_S	1250	3	N_Y	N_N	10.7	5.4	65.839	5.6	10.7			5.4	
N4W08-05	N4W08	1_NW	1250	2	N_N	N_N	6	3.03	65.781		6				3.03
N3W11-22	N3W11	1_NW	1250	3	N_N	N_N	9.5	4.8	65.734	7.3	9.5			4.8	
S3W03-03	S3W03	3_SW	750	2	Y_Y	N_N	91	46	65.693	46	91				
S5W03-04	S5W03	4_S	1000	2	N_Y	N_N	17.4	8.8	65.649	8.8	17.4				
S1W07-01	S1W07	2_W	750	2	Y_Y	N_N	77	39	65.517	39	77				
S7E03-23	S7E03	4_S	1500	2	N_Y	N_N	14.8	7.5	65.471	7.5	14.8				
S4W10-26	S4W10	3_SW	1250	2	Y_Y	N_N	36.5	18.5	65.455	18.5	36.5				
N2W04-12	N2W04	1_NW	500	2	Y_Y	N_N	23.65	12	65.358	12					23.65
N3W09-03	N3W09	1_NW	1250	2	Y_Y	N_N	78.8	40	65.32	40	78.8				
N1W08-16	N1W08	2_W	1000	3	N_N	N_N	5.9	3	65.169	3	5.9				5.81
S1W06-02	S1W06	2_W	750	2	N_Y	N_N	11	5.6	65.06	5.6	11				
S5E09-13	S5E09	8_SE	1500	2	N_N	N_N	5.5	2.8	65.06	2.8	5.5				
S3W10-18	S3W10	3_SW	1250	2	N_Y	N_N	15.9	8.1	65	8.1	15.9				
N6E02-35	N6E02	5_N	1250	2	N_N	N_N	5.3	2.7	65	5.3	2.7				
S6E04-15	S6E04	4_S	1250	2	Y_Y	N_N	65.4	33.5	64.51	33.5	65.4				
N2W10-01	N2W10	2_W	1250	2	N_N	N_N	3.9	2	64.407	3.9	2				
N6E06-16	N6E06	6_NE	1250	2	N_N	N_N	7.6	3.9	64.348	7.6	3.9				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1E07-09	S1E07	7_E	1000	2	N_Y	N_N	10.9	5.6	64.242	5.6	10.9				
S7E01-31	S7E01	4_S	1500	2	Y_Y	N_N	67.1	34.5	64.173	34.5	67.1				
N3W14-16	N3W14	2_W	1500	2	N_N	N_N	6.4	3.3	63.918	6.4	3.3				
N5W07-17	N5W07	1_NW	1250	2	N_N	N_N	3.875	2	63.83	3.875	2				
S5E09-06	S5E09	8_SE	1500	2	Y_Y	N_N	60.5	31.3	63.617	31.3	60.5				
S5E04-10	S5E04	8_SE	1250	2	Y_Y	N_N	21.8	11.3	63.444	21.8	11.3				
N4E06-16	N4E06	6_NE	1000	3	N_N	N_N	5.4	2.8	63.415	2.8	5.4			3.5	
S4W07-06	S4W07	3_SW	1000	2	N_N	N_N	5.4	2.8	63.415	5.4	2.8				
S6W01-08	S6W01	4_S	1250	2	N_Y	N_N	18.1	9.4	63.273	18.1	9.4				
N6E06-15	N6E06	6_NE	1250	3	N_N	N_N	7.7	4	63.248	7.7	4			4.1	
N4W12-15	N4W12	1_NW	1500	2	N_Y	N_N	12.5	6.5	63.158	6.5	12.5				
S4W06-06	S4W06	3_SW	1000	2	Y_Y	N_N	65.1	33.9	63.03	33.9	65.1				
S6E04-06	S6E04	8_SE	1250	2	Y_Y	N_N	91.1	47.5	62.915	91.1	47.5				
N2W05-05	N2W05	1_NW	750	2	N_N	N_N	6.9	3.6	62.857	3.6	6.9				
N4W10-05	N4W10	1_NW	1250	3	N_N	N_N	9.2	4.8	62.857	4.8	9			9.2	
N1W09-10	N1W09	2_W	1000	3	N_N	N_N	5.55	2.9	62.722	2.9	5.55		4.7		
N5E06-25	N5E06	6_NE	1250	2	N_N	N_N	8.4	4.4	62.5	8.4	4.4				
N5E06-12	N5E06	6_NE	1250	2	N_N	N_N	8	4.2	62.295	8	4.2				
N6W08-14	N6W08	1_NW	1500	2	N_N	N_N	6	3.15	62.295		6			3.15	
S4E08-01	S4E08	8_SE	1250	2	N_Y	N_N	15.6	8.2	62.185	8.2	15.6				
N4W12-13	N4W12	1_NW	1500	2	N_N	N_N	7.8	4.1	62.185	4.1	7.8				
N5W08-12	N5W08	1_NW	1250	2	Y_Y	N_N	22.23	11.7	62.069	11.7	22.23				
N5W07-08	N5W07	1_NW	1250	3	N_N	N_N	9.5	5	62.069	5	9			9.5	
N4W07-10	N4W07	1_NW	1000	2	N_N	N_N	3.04	1.6	62.069		1.6				3.04
N4W14-28	N4W14	1_NW	1750	2	N_N	N_N	3.8	2	62.069	2	3.8				
S2W12-16	S2W12	2_W	1250	2	Y_Y	N_N	24.1	12.7	61.957	12.7	24.1				
S2W08-16	S2W08	3_SW	1000	2	N_Y	N_N	14.4	7.6	61.818	7.6	14.4				
N5W07-12	N5W07	1_NW	1250	2	N_Y	N_N	15.9	8.4	61.728	8.4	15.9				
S7E03-08	S7E03	4_S	1500	2	N_Y	N_N	10.2	5.4	61.538	5.4	10.2				
N4E09-23	N4E09	6_NE	1250	2	N_N	N_N	6.8	3.6	61.538	6.8	3.6				
S7E03-18	S7E03	4_S	1500	2	N_N	N_N	4.9	2.6	61.333	2.6	4.9				
N2W07-01	N2W07	1_NW	750	2	N_N	N_N	9.6	5.1	61.224	5.1	9.6				
S5W01-22	S5W01	4_S	1000	2	Y_Y	N_N	59.9	31.9	61.002	31.9	59.9				
S5E09-11	S5E09	8_SE	1500	2	N_Y	N_N	10.5	5.6	60.87	10.5	5.6				
S4W07-17	S4W07	3_SW	1250	2	N_N	N_N	7.5	4	60.87	7.5	4				
S3W11-03	S3W11	3_SW	1250	2	Y_Y	N_N	27.1	14.5	60.577	14.5	27.1				
N4W07-14	N4W07	1_NW	1000	2	N_N	N_N	2.8	1.5	60.465	1.5	2.8				
S4E09-14	S4E09	8_SE	1500	2	N_Y	N_N	17.9	9.6	60.364	9.6	17.9				
S3W03-05	S3W03	3_SW	750	2	N_Y	N_N	11	5.9	60.355	11	5.9				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N3E07-14	N3E07	6_NE	1000	2	N_N	N_N	6.15	3.3	60.317		3.3			6.15	
N2E09-28	N2E09	7_E	1250	2	N_N	N_N	6.7	3.6	60.194	3.6	6.7				
S3W03-08	S3W03	3_SW	750	2	N_N	N_N	6.7	3.6	60.194	6.7	3.6				
N2W07-07	N2W07	1_NW	750	2	N_N	N_N	7.8	4.2	60	7.8	4.2				
N5E02-28	N5E02	5_N	1000	2	N_N	N_N	2.6	1.4	60	2.6				1.4	
S1W13-02	S1W13	2_W	1500	2	N_N	N_N	7.6	4.1	59.829	7.6	4.1				
N4W14-29	N4W14	1_NW	1750	2	Y_Y	N_N	70	37.8	59.74	70	37.8				
S7E01-04	S7E01	4_S	1250	2	N_N	N_N	5	2.7	59.74	2.7	5				
N3W10-20	N3W10	1_NW	1250	2	N_N	N_N	6.1	3.3	59.574	3.3	6.1				
N1W04-13	N1W04	2_W	500	2	N_Y	N_N	12	6.5	59.459	6.5					12
N4E05-11	N4E05	6_NE	1000	3	N_N	N_N	5.35	2.9	59.394	2.9	4.1			5.35	
S7E02-08	S7E02	4_S	1250	2	Y_Y	N_N	82.2	44.6	59.306		44.6			82.2	
S4W09-20	S4W09	3_SW	1250	2	Y_Y	N_N	32.6	17.7	59.245	17.7	32.6				
N4W09-22	N4W09	1_NW	1250	2	N_N	N_N	4.6	2.5	59.155	4.6	2.5				
S1E08-18	S1E08	7_E	1000	2	N_Y	N_N	14.9	8.1	59.13	8.1	14.9				
N3W09-20	N3W09	1_NW	1000	2	N_Y	N_N	13.6	7.4	59.048	7.4	13.6				
N1W13-03	N1W13	2_W	1250	2	N_Y	N_N	11	6	58.824	11	6				
N3W12-13	N3W12	2_W	1250	2	N_N	N_N	4.4	2.4	58.824	4.4	2.4				
S5W02-01	S5W02	4_S	1000	2	N_N	N_N	6.6	3.6	58.824	3.6	6.6				
N6E07-24	N6E07	6_NE	1500	2	N_Y	N_N	16.1	8.8	58.635	16.1	8.8				
N1W11-12	N1W11	2_W	1250	2	N_N	N_N	5.85	3.2	58.564	3.2	5.85				
N3W11-23	N3W11	1_NW	1250	2	N_N	N_N	5.3	2.9	58.537	5.3	2.9				
S5W03-18	S5W03	4_S	1250	2	Y_Y	N_N	44.7	24.5	58.382	44.7	24.5				
S1W13-26	S1W13	2_W	1500	2	N_N	N_N	9.3	5.1	58.333	5.1	9.3				
N2W10-30	N2W10	2_W	1250	2	N_N	N_N	5.1	2.8	58.228	5.1	2.8				
N2W07-15	N2W07	2_W	750	2	N_N	N_N	9.1	5	58.156	9.1	5				
S3W06-21	S3W06	3_SW	1000	2	N_Y	N_N	12	6.6	58.065	6.6	12				
N1W06-09	N1W06	2_W	750	2	N_N	N_N	10	5.5	58.065	5.5	10				
N4E03-04	N4E03	5_N	1000	2	N_N	N_N	6	3.3	58.065		6			3.3	
N2W10-14	N2W10	2_W	1000	2	N_N	N_N	8	4.4	58.065	4.4	8				
S4W09-07	S4W09	3_SW	1250	2	N_N	N_N	8	4.4	58.065	4.4	8				
S4E07-03	S4E07	8_SE	1250	2	Y_Y	N_N	27.2	15	57.82	15	27.2				
S5W03-16	S5W03	4_S	1250	2	N_N	N_N	8.5	4.7	57.576	8.5	4.7				
N3W11-10	N3W11	1_NW	1250	2	N_N	N_N	6.5	3.6	57.426	3.6	6.5				
N4E09-16	N4E09	6_NE	1250	2	N_N	N_N	7.2	4	57.143	4	7.2				
S6W01-02	S6W01	4_S	1250	2	N_N	N_N	2.7	1.5	57.143	1.5	2.7				
N1E09-10	N1E09	7_E	1250	2	N_N	N_N	9	5	57.143	9	5				
N4E04-03	N4E04	6_NE	1000	2	N_N	N_N	4.5	2.5	57.143	2.5	4.5				
S3W10-22	S3W10	3_SW	1250	2	N_N	N_N	8.1	4.5	57.143	4.5	8.1				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N5E05-07	N5E05	6_NE	1250	2	Y_Y	N_N	58.1	32.3	57.08		58.1			32.3	
N4E02-11	N4E02	5_N	750	2	Y_Y	N_N	28.2	15.7	56.948	15.7	28.2				
S4E02-21	S4E02	4_S	750	2	N_N	N_N	8.8	4.9	56.934	8.8	4.9				
N5E02-17	N5E02	5_N	1000	2	N_N	N_N	7	3.9	56.881	7				3.9	
N5E06-05	N5E06	6_NE	1250	2	Y_Y	N_N	80.7	45	56.802	45	80.7				
S6W03-06	S6W03	4_S	1250	2	N_N	N_N	9.5	5.3	56.757	9.5	5.3				
N1W10-17	N1W10	2_W	1000	2	Y_Y	N_N	67.75	37.8	56.75	67.75	37.8				
N5W12-19	N5W12	1_NW	1500	2	N_N	N_N	1.2	0.67	56.684	1.2	0.67				
S3W02-07	S3W02	4_S	750	2	N_N	N_N	6.8	3.8	56.604	3.8	6.8				
N5E07-13	N5E07	6_NE	1250	2	N_N	N_N	9.3	5.2	56.552	9.3	5.2				
S5W03-03	S5W03	4_S	1000	2	N_N	N_N	5.9	3.3	56.522		3.3			5.9	
N4E04-05	N4E04	6_NE	1000	2	N_N	N_N	2.5	1.4	56.41	2.5	1.4				
N5E07-17	N5E07	6_NE	1250	2	Y_Y	N_N	41.6	23.3	56.394	41.6	23.3				
S3W06-27	S3W06	3_SW	1000	2	N_N	N_N	9.1	5.1	56.338	9.1	5.1				
S4W08-24	S4W08	3_SW	1250	2	N_N	N_N	9.8	5.5	56.209	5.5	9.8				
S1W13-01	S1W13	2_W	1500	2	Y_Y	N_N	30.1	16.9	56.17	16.9	30.1				
S3W05-08	S3W05	3_SW	750	2	N_Y	N_N	13	7.3	56.158	7.3	13				
S4W10-10	S4W10	3_SW	1250	2	N_N	N_N	7.3	4.1	56.14	4.1	7.3				
N5E06-01	N5E06	6_NE	1250	3	N_N	N_N	6.4	3.6	56	6.4	3.6			5.3	
N1W09-01	N1W09	2_W	1000	2	N_N	N_N	6.4	3.6	56		3.6			6.4	
N2W07-27	N2W07	1_NW	1000	2	N_N	N_N	3.73	2.1	55.918	2.1					3.73
N2W11-14	N2W11	2_W	1250	3	N_N	N_N	7.1	4	55.856	6.3	7.1			4	
S5W05-16	S5W05	3_SW	1250	2	N_Y	N_N	10.1	5.7	55.696	5.7	10.1				
S3W12-10	S3W12	3_SW	1500	2	N_N	N_N	6.2	3.5	55.67	6.2	3.5				
N4W14-22	N4W14	1_NW	1750	2	N_N	N_N	1.7	0.96	55.639	1.7	0.96				
S4W05-14	S4W05	3_SW	1000	2	N_Y	N_N	10.8	6.1	55.621		10.8			6.1	
N2E09-15	N2E09	7_E	1250	2	N_N	N_N	2.3	1.3	55.556	1.3	2.3				
S1E09-03	S1E09	7_E	1250	2	N_N	N_N	7.6	4.3	55.462	7.6	4.3				
N6E04-12	N6E04	6_NE	1250	2	N_N	N_N	9	5.1	55.319	9	5.1				
N3W05-03	N3W05	1_NW	750	2	N_N	N_N	3.3	1.87	55.319	3.3					1.87
N6W10-09	N6W10	1_NW	1500	2	N_N	N_N	4.4	2.5	55.072	2.5	4.4				
N4W09-20	N4W09	1_NW	1250	2	N_N	N_N	5.1	2.9	55	5.1	2.9				
N5E04-01	N5E04	5_N	1250	2	N_N	N_N	6.5	3.7	54.902		3.7			6.5	
N5E04-09	N5E04	6_NE	1250	2	Y_Y	N_N	36.7	20.9	54.861	20.9	36.7				
S1W08-08	S1W08	2_W	750	2	N_Y	N_N	12.8	7.3	54.726	12.8	7.3				
N2W09-20	N2W09	2_W	1000	2	N_N	N_N	9.8	5.6	54.545	5.6	9.8				
N4W13-25	N4W13	1_NW	1500	2	N_N	N_N	4.9	2.8	54.545	4.9	2.8				
N5W13-28	N5W13	1_NW	1750	2	N_N	N_N	3.5	2	54.545	2	3.5				
S2W06-18	S2W06	3_SW	750	2	N_N	N_N	7	4	54.545	4	7				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N1W04-04	N1W04	1_NW	500	2	N_Y	N_N	13	7.44	54.403	13	7.44				
S4W08-03	S4W08	3_SW	1000	2	N_Y	N_N	11	6.3	54.335	6.3	11				
S4W06-30	S4W06	3_SW	1000	2	N_N	N_N	8.2	4.7	54.264	8.2	4.7				
N5W12-09	N5W12	1_NW	1500	2	N_N	N_N	1.5	0.86	54.237	1.5	0.86				
N5E06-13	N5E06	6_NE	1250	3	N_N	N_N	5.4	3.1	54.118	5.4	3.1			3.8	
N3W07-13	N3W07	1_NW	1000	2	N_N	N_N	5.4	3.1	54.118	5.4					3.1
S5W02-15	S5W02	4_S	1250	2	N_N	N_N	4.7	2.7	54.054	2.7	4.7				
S5E08-23	S5E08	8_SE	1500	2	N_N	N_N	8	4.6	53.968		8			4.6	
S1E08-28	S1E08	7_E	1000	2	N_N	N_N	9.2	5.3	53.793	9.2	5.3				
N4E09-02	N4E09	6_NE	1500	2	N_N	N_N	5.9	3.4	53.763	5.9	3.4				
N5W01-01	N5W01	5_N	1000	3	N_N	N_N	4.5	2.6	53.521	4.1	2.6				4.5
S5E01-11	S5E01	4_S	1000	2	N_N	N_N	9	5.2	53.521	9	5.2				
N5E01-16	N5E01	5_N	1000	3	N_N	N_N	6.4	3.7	53.465	6.4	4.4			3.7	
N4E02-03	N4E02	5_N	1000	2	N_N	N_N	5.7	3.3	53.333	3.3	5.7				
N2W09-22	N2W09	2_W	1000	2	Y_Y	N_N	75.3	43.6	53.322	43.6	75.3				
N4W08-01	N4W08	1_NW	1250	3	N_N	N_N	4.6	2.67	53.095	2.7	4.6				2.67
N3W09-28	N3W09	1_NW	1250	3	N_N	N_N	6.2	3.6	53.061	6.2	3.6			3.6	
N3E09-28	N3E09	6_NE	1250	2	N_N	N_N	6.2	3.6	53.061	6.2	3.6				
N2W05-04	N2W05	1_NW	750	2	N_N	N_N	9.46	5.5	52.941	5.5					9.46
N6W12-03	N6W12	1_NW	1750	2	N_N	N_N	4.3	2.5	52.941	4.3	2.5				
S7E02-13	S7E02	4_S	1500	2	N_Y	N_N	11	6.4	52.874	11	6.4				
N1W11-13	N1W11	2_W	1250	3	N_N	N_N	5.5	3.2	52.874	5.5	4.2			3.2	
N5E01-08	N5E01	5_N	1000	2	N_N	N_N	6.7	3.9	52.83	6.7	3.9				
S6E03-21	S6E03	4_S	1250	2	Y_Y	N_N	81.6	47.5	52.827	47.5	81.6				
N1W06-12	N1W06	2_W	750	2	Y_Y	N_N	79	46	52.8	46	79				
S6W01-18	S6W01	4_S	1250	2	Y_Y	N_N	28.5	16.6	52.772	28.5	16.6				
S2W07-19	S2W07	3_SW	750	2	N_N	N_N	6	3.5	52.632	6	3.5				
N2W03-04	N2W03	1_NW	500	2	N_N	N_N	6.1	3.56	52.588	3.56	6.1				
N3W07-06	N3W07	1_NW	1000	2	N_N	N_N	8.9	5.2	52.482	8.9	5.2				
S1W05-02	S1W05	2_W	500	2	N_Y	N_N	13	7.6	52.427	13	7.6				
N6E08-25	N6E08	6_NE	1500	2	N_N	N_N	5.3	3.1	52.381	5.3	3.1				
N1E09-08	N1E09	7_E	1250	2	N_N	N_N	9.4	5.5	52.349	9.4	5.5				
S1W07-24	S1W07	2_W	750	2	N_N	N_N	9.9	5.8	52.229	5.8	9.9				
N5E04-24	N5E04	6_NE	1000	2	N_N	N_N	8.7	5.1	52.174	5.1	8.7				
S6E05-08	S6E05	8_SE	1250	2	N_N	N_N	2.9	1.7	52.174	2.9	1.7				
S2W11-03	S2W11	2_W	1250	2	N_N	N_N	6.3	3.7	52	6.3	3.7				
N3W04-03	N3W04	1_NW	750	2	Y_Y	N_N	18.39	10.81	51.918	10.81	18.39				
S2W08-03	S2W08	2_W	1000	2	Y_Y	N_N	31.3	18.4	51.911		31.3			18.4	
S6E03-14	S6E03	4_S	1250	2	Y_Y	N_N	50	29.4	51.889	50	29.4				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S3E08-01	S3E08	8_SE	1000	3	N_N	N_N	8.5	5	51.852	6.2	5			8.5	
S2W06-10	S2W06	3_SW	750	2	N_N	N_N	9	5.3	51.748	5.3	9				
S1E07-20	S1E07	7_E	1000	3	N_Y	N_N	13.4	7.9	51.643	13.4	7.9			11.7	
N7W12-ROW	N7W12	1_NW	1750	2	N_N	N_N	3.9	2.3	51.613	3.9	2.3				
N3W12-10	N3W12	1_NW	1250	2	N_N	N_N	5.25	3.1	51.497	3.1	5.25				
S1E10-04	S1E10	7_E	1250	2	N_N	N_N	4.4	2.6	51.429	4.4	2.6				
S2E10-15	S2E10	7_E	1250	2	N_N	N_N	4.4	2.6	51.429	2.6	4.4				
S5E01-16	S5E01	4_S	1000	2	N_N	N_N	8.8	5.2	51.429	5.2	8.8				
S7E04-22	S7E04	4_S	1500	2	N_N	N_N	6.6	3.9	51.429	6.6	3.9				
N5E02-37	N5E02	5_N	1000	2	N_N	N_N	4.9	2.9	51.282	4.9	2.9				
S1W11-08	S1W11	2_W	1250	2	N_Y	N_N	15.2	9	51.24	9	15.2				
S2W08-01	S2W08	2_W	1000	3	N_N	N_N	8.1	4.8	51.163	8.1	4.8			4.8	
S4E02-19	S4E02	4_S	1000	2	N_N	N_N	8.1	4.8	51.163	8.1	4.8				
S6W01-11	S6W01	4_S	1250	2	N_N	N_N	8.1	4.8	51.163	8.1	4.8				
N5W12-31	N5W12	1_NW	1750	2	N_N	N_N	2.7	1.6	51.163	2.7	1.6				
N2E08-04	N2E08	7_E	1250	2	N_N	N_N	4.55	2.7	51.034		2.7			4.55	
N2E09-06	N2E09	7_E	1250	2	N_N	N_N	4.2	2.5	50.746	4.2	2.5				
S2W12-07	S2W12	2_W	1250	2	Y_Y	N_N	60.8	36.2	50.722	36.2	60.8				
S7E03-24	S7E03	4_S	1500	2	Y_Y	N_N	56.9	33.9	50.661	33.9	56.9				
N4E02-08	N4E02	5_N	1000	3	N_N	N_N	5.2	3.1	50.602	5.2	3.1			3.1	
N1W09-04	N1W09	2_W	1000	2	N_Y	N_N	10.9	6.5	50.575	10.9	6.5				
N3E08-15	N3E08	6_NE	1250	2	N_N	N_N	5.7	3.4	50.549	5.7	3.4				
S1W13-23	S1W13	2_W	1500	2	N_N	N_N	5.7	3.4	50.549	5.7	3.4				
N6W10-06	N6W10	1_NW	1500	3	N_N	N_N	6.2	3.7	50.505	3.75	3.7			6.2	
S1E10-10	S1E10	7_E	1250	2	N_N	N_N	6.2	3.7	50.505	6.2	3.7				
N6W10-08	N6W10	1_NW	1500	2	N_N	N_N	6.7	4	50.467	6.7	4				
S7E03-16	S7E03	4_S	1500	2	N_N	N_N	7.2	4.3	50.435	4.3	7.2				
S6W01-20	S6W01	4_S	1250	2	Y_Y	N_N	40	23.9	50.391	40	23.9				
S1W07-22	S1W07	2_W	750	2	N_N	N_N	8.7	5.2	50.36	5.2	8.7				
S5W02-21	S5W02	4_S	1000	2	Y_Y	N_N	21	12.6	50	12.6	21				
N4E03-16	N4E03	5_N	1000	2	N_N	N_N	5	3	50	3	5				
N6E05-16	N6E05	6_NE	1250	2	N_N	N_N	5.5	3.3	50	5.5	3.3				
S4W06-24	S4W06	3_SW	1000	2	N_N	N_N	4.5	2.7	50	4.5	2.7				
S7W01-03	S7W01	4_S	1250	2	N_N	N_N	8.5	5.1	50	5.1	8.5				
N2W06-25	N2W06	1_NW	750	2	N_N	N_N	4.5	2.71	49.653	4.5					2.71
N3W05-15	N3W05	1_NW	750	3	N_N	N_N	6.3	3.8	49.505	3.8	6.3				4.45
S1W09-06	S1W09	2_W	1000	2	Y_Y	N_N	43.6	26.3	49.499		43.6			26.3	
S5W06-10	S5W06	3_SW	1250	2	N_N	N_N	9.6	5.8	49.351	5.8	9.6				
S7E02-12	S7E02	4_S	1500	2	N_N	N_N	9.1	5.5	49.315	9.1	5.5				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S6E01-25	S6E01	4_S	1250	2	Y_Y	N_N	73.2	44.4	48.98	44.4	73.2				
S6E03-13	S6E03	4_S	1250	2	N_Y	N_N	12.2	7.4	48.98	12.2	7.4				
N4E09-08	N4E09	6_NE	1500	2	N_Y	N_N	11.2	6.8	48.889	11.2	6.8				
S3W09-06	S3W09	3_SW	1000	2	N_N	N_N	5.6	3.4	48.889	3.4	5.6				
N3W06-18	N3W06	1_NW	750	2	Y_Y	N_N	34.5	21	48.649	21					34.5
N5E05-11	N5E05	6_NE	1250	2	N_N	N_N	4.6	2.8	48.649	4.6	2.8				
N6E02-28	N6E02	5_N	1250	2	N_N	N_N	4.6	2.8	48.649	4.6	2.8				
N4E03-03	N4E03	5_N	1000	2	Y_Y	N_N	24.3	14.8	48.593	14.8	24.3				
S4E03-08	S4E03	4_S	1000	2	N_N	N_N	6.4	3.9	48.544	3.9	6.4				
N2W04-02	N2W04	1_NW	500	2	N_N	N_N	5.2	3.17	48.507	5.2	3.17				
N1W11-17	N1W11	2_W	1250	3	N_N	N_N	4.1	2.5	48.485	4.1	3.3			2.5	
N1W06-07	N1W06	2_W	750	2	N_N	N_N	4.1	2.5	48.485	4.1					2.5
S5E01-18	S5E01	4_S	1000	2	Y_Y	N_N	32.3	19.7	48.462	19.7	32.3				
N4W12-18	N4W12	1_NW	1500	2	N_N	N_N	5.9	3.6	48.421	5.9	3.6				
S5W01-21	S5W01	4_S	1000	2	Y_Y	N_N	55	33.6	48.307	33.6	55				
N3E07-8	N3E07	6_NE	1000	2	Y_Y	N_N	36	22	48.276	22	36				
N4W12-02	N4W12	1_NW	1500	2	N_N	N_N	9	5.5	48.276	5.5	9				
N5W12-16	N5W12	1_NW	1500	2	N_N	N_N	3.6	2.2	48.276	3.6	2.2				
N3W06-25	N3W06	1_NW	1000	2	N_N	N_N	7.8	4.77	48.21	7.8					4.77
S4W04-10	S4W04	3_SW	1000	2	N_Y	N_N	15.2	9.3	48.163	9.3	15.2				
S1E07-02	S1E07	7_E	1000	2	N_N	N_N	6.2	3.8	48	6.2	3.8				
N6E05-03	N6E05	6_NE	1500	2	N_N	N_N	3.75	2.3	47.934	2.3	3.75				
S1E10-08	S1E10	7_E	1250	2	N_N	N_N	7.5	4.6	47.934	7.5	4.6				
S3W11-13	S3W11	3_SW	1250	2	N_Y	N_N	10.1	6.2	47.853	10.1	6.2				
N1W13-10	N1W13	2_W	1500	3	N_N	N_N	5.7	3.5	47.826	3.5	5.2			5.7	
S5E03-24	S5E03	4_S	1250	2	N_N	N_N	5.7	3.5	47.826	5.7	3.5				
S1W09-10	S1W09	2_W	1000	2	N_N	N_N	8.3	5.1	47.761	8.3	5.1				
N2W06-26	N2W06	1_NW	750	2	N_N	N_N	9.6	5.9	47.742	5.9	9.6				
S5W01-26	S5W01	4_S	1000	2	Y_Y	N_N	68.4	42.1	47.602	42.1	68.4				
S6W04-16	S6W04	4_S	1250	2	N_N	N_N	9.7	6	47.134	6	9.7				
S2E10-02	S2E10	7_E	1250	2	N_Y	N_N	11.3	7	46.995	11.3	7				
S5E02-11	S5E02	4_S	1000	2	N_N	N_N	9.2	5.7	46.98	9.2	5.7				
S1E10-19	S1E10	7_E	1250	2	N_Y	N_N	14.2	8.8	46.957	14.2	8.8				
N5W11-09	N5W11	1_NW	1500	2	N_N	N_N	5	3.1	46.914	3.1	5				
N5E07-27	N5E07	6_NE	1250	2	N_Y	N_N	10.8	6.7	46.857	10.8	6.7				
S4E08-03	S4E08	8_SE	1250	2	N_Y	N_N	10.8	6.7	46.857	10.8	6.7				
N5E05-02	N5E05	6_NE	1250	2	Y_Y	N_N	35.1	21.8	46.749	21.8	35.1				
S5W04-17	S5W04	4_S	1250	2	Y_Y	N_N	47.9	29.8	46.589	47.9	29.8				
N3W12-07	N3W12	1_NW	1250	2	N_N	N_N	4.5	2.8	46.575	2.8	4.5				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S7W03-27	S7W03	4_S	1500	2	N_N	N_N	9	5.6	46.575	5.6	9				
S5W06-12	S5W06	3_SW	1250	2	N_N	N_N	6.1	3.8	46.465	6.1	3.8				
N2W07-04	N2W07	1_NW	750	2	N_Y	N_N	13	8.1	46.445	13	8.1				
S4W07-05	S4W07	3_SW	1000	2	N_N	N_N	6.9	4.3	46.429	6.9	4.3				
S6E03-26	S6E03	4_S	1250	2	N_N	N_N	6.9	4.3	46.429	4.3	6.9				
S6W05-10	S6W05	4_S	1250	2	Y_Y	N_N	34.5	21.5	46.429		34.5			21.5	
S4E01-20	S4E01	4_S	1000	3	Y_Y	N_N	26.3	16.4	46.37	26.3	16.4			23	
S3W03-13	S3W03	4_S	750	2	N_N	N_N	8.8	5.5	46.154	5.5	8.8				
S5W02-09	S5W02	4_S	1000	2	Y_Y	N_N	37.6	23.5	46.154	37.6	23.5				
N1W08-13	N1W08	2_W	750	3	N_N	N_N	8	5	46.154	5.7	5			8	
N4W13-03	N4W13	1_NW	1500	2	N_N	N_N	6.4	4	46.154		4			6.4	
N5W12-02	N5W12	1_NW	1750	2	N_N	N_N	2.4	1.5	46.154	2.4	1.5				
N6E08-08	N6E08	6_NE	1500	2	N_N	N_N	6.4	4	46.154	4	6.4				
S2W11-07	S2W11	2_W	1250	2	N_N	N_N	8	5	46.154	5	8				
S5W01-14	S5W01	4_S	1000	2	N_N	N_N	5.6	3.5	46.154	5.6	3.5				
N3W06-23	N3W06	1_NW	1000	2	N_N	N_N	9.75	6.1	46.057	6.1					9.75
N6E08-17	N6E08	6_NE	1500	2	Y_Y	N_N	18.7	11.7	46.053	18.7	11.7				
S6W04-13	S6W04	4_S	1250	2	N_N	N_N	9.9	6.2	45.963	9.9	6.2				
N5E04-25	N5E04	6_NE	1000	2	N_N	N_N	6.7	4.2	45.872	6.7	4.2				
S2W08-06	S2W08	2_W	1000	2	Y_Y	N_N	19.3	12.1	45.86	19.3	12.1				
N1W05-16	N1W05	2_W	500	2	N_Y	N_N	11	6.9	45.81	6.9	11				
N6E02-25	N6E02	5_N	1250	2	N_N	N_N	5.1	3.2	45.783	5.1	3.2				
S5E02-19	S5E02	4_S	1000	2	N_N	N_N	8.6	5.4	45.714	8.6	5.4				
S2W08-04	S2W08	2_W	1000	2	N_N	N_N	3.5	2.2	45.614	3.5	2.2				
S1W06-03	S1W06	2_W	750	2	N_Y	N_N	14	8.81	45.506	14	8.81				
N1E09-07	N1E09	7_E	1250	2	N_N	N_N	5.4	3.4	45.455	5.4	3.4				
N1W09-15	N1W09	2_W	1000	2	N_N	N_N	2.7	1.7	45.455	2.7	1.7				
S5E01-01	S5E01	4_S	1000	2	N_N	N_N	2.7	1.7	45.455	2.7	1.7				
S7E01-08	S7E01	4_S	1250	2	N_N	N_N	8.1	5.1	45.455	8.1	5.1				
S1W07-03	S1W07	2_W	750	2	N_N	N_N	7.3	4.6	45.378	4.6	7.3				
S1W12-01	S1W12	2_W	1250	2	N_N	N_N	6.5	4.1	45.283	6.5	4.1				
N1W07-06	N1W07	2_W	750	2	N_N	N_N	9.82	6.2	45.194	6.2	9.82				
N6E03-06	N6E03	5_N	1250	2	N_N	N_N	3.8	2.4	45.161	3.8	2.4				
N6E08-14	N6E08	6_NE	1500	2	N_N	N_N	7.6	4.8	45.161	7.6	4.8				
S5E08-26	S5E08	8_SE	1250	2	N_N	N_N	7.6	4.8	45.161	4.8	7.6				
N5E07-19	N5E07	6_NE	1250	2	N_N	N_N	5.7	3.6	45.161	3.6	5.7				
S7W01-24	S7W01	4_S	1500	2	Y_Y	N_N	22	13.9	45.125	13.9	22				
N4W13-10	N4W13	1_NW	1500	2	N_N	N_N	4.9	3.1	45	4.9	3.1				
S5W02-20	S5W02	4_S	1000	2	N_N	N_N	6	3.8	44.898	3.8	6				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S3E10-07	S3E10	8_SE	1500	2	N_Y	N_N	10.1	6.4	44.848	10.1	6.4				
N3W09-30	N3W09	1_NW	1250	2	N_N	N_N	5.05	3.2	44.848	5.05	3.2				
S7E02-04	S7E02	4_S	1250	3	N_N	N_N	7.1	4.5	44.828	4.5	7.1			6.7	
S7E01-23	S7E01	4_S	1500	2	N_N	N_N	7.1	4.5	44.828	7.1	4.5				
S5W03-25	S5W03	4_S	1000	2	Y_Y	N_N	39.6	25.1	44.822	25.1	39.6				
N4W08-20	N4W08	1_NW	1000	2	Y_Y	N_N	38.8	24.6	44.795		24.6			38.8	
N3E09-29	N3E09	6_NE	1250	2	N_N	N_N	9.3	5.9	44.737	9.3	5.9				
N6E07-19	N6E07	6_NE	1500	3	N_N	N_N	5.2	3.3	44.706	5.2	3.4			3.3	
S4W10-12	S4W10	3_SW	1250	2	Y_Y	N_N	26.3	16.7	44.651	26.3	16.7				
S2W10-10	S2W10	2_W	1000	2	N_N	N_N	7.4	4.7	44.628	4.7	7.4				
S6E01-03	S6E01	4_S	1250	2	N_N	N_N	8.5	5.4	44.604	8.5	5.4				
N5W12-11	N5W12	1_NW	1750	2	N_N	N_N	2.2	1.4	44.444	1.4	2.2				
S3W04-22	S3W04	3_SW	750	2	N_N	N_N	8.8	5.6	44.444	8.8	5.6				
S4W05-04	S4W05	3_SW	1000	2	N_N	N_N	5.5	3.5	44.444	3.5	5.5				
N1W11-02	N1W11	2_W	1250	2	N_N	N_N	3.3	2.1	44.444	2.1	3.3				
N5W13-09	N5W13	1_NW	1750	2	N_N	N_N	3.3	2.1	44.444	2.1	3.3				
S5E03-18	S5E03	4_S	1250	2	N_N	N_N	6.6	4.2	44.444	4.2	6.6				
S5W05-12	S5W05	3_SW	1250	2	N_N	N_N	8	5.1	44.275	5.1	8				
N5E04-16	N5E04	6_NE	1000	3	N_N	N_N	6.9	4.4	44.248	6.9	4.7			4.4	
N5E02-16	N5E02	5_N	1000	2	N_N	N_N	5.8	3.7	44.211	5.8	3.7				
S4W08-12	S4W08	3_SW	1250	2	N_N	N_N	8.3	5.3	44.118	8.3	5.3				
N3E08-14	N3E08	6_NE	1250	2	N_N	N_N	3.6	2.3	44.068	3.6	2.3				
N3E07-17	N3E07	6_NE	1000	2	N_N	N_N	6.4	4.1	43.81	6.4	4.1				
N2W10-31	N2W10	2_W	1250	3	N_N	N_N	5.3	3.4	43.678	5.3	3.9			3.4	
S6E02-22	S6E02	4_S	1250	2	N_N	N_N	5.3	3.4	43.678	5.3	3.4				
N3W08-06	N3W08	1_NW	1000	3	N_N	N_N	6.5	4.17	43.674	6.5				4.4	4.17
S4E02-06	S4E02	4_S	750	2	N_N	N_N	6.7	4.3	43.636	4.3	6.7				
N4W12-05	N4W12	1_NW	1500	2	N_N	N_N	5.6	3.6	43.478	3.6	5.6				
N6E04-25	N6E04	5_N	1250	2	N_N	N_N	2.8	1.8	43.478	2.8	1.8				
S2W05-06	S2W05	3_SW	750	2	N_N	N_N	7.3	4.7	43.333	4.7	7.3				
N5W08-20	N5W08	1_NW	1250	4	N_N	N_N	5.9	3.8	43.299	5.9	5.1			3.8	5.45
S1E10-07	S1E10	7_E	1250	2	N_N	N_N	5.9	3.8	43.299	5.9	3.8				
N4W10-07	N4W10	1_NW	1250	2	N_N	N_N	4.5	2.9	43.243	4.5	2.9				
S4W06-10	S4W06	3_SW	1000	2	Y_Y	N_N	54.1	34.9	43.146	54.1	34.9				
N1W08-08	N1W08	2_W	750	4	N_N	N_N	6.1	3.94	43.028	4.8	4.4			6.1	3.94
N3E09-06	N3E09	6_NE	1250	2	N_N	N_N	5.1	3.3	42.857	5.1	3.3				
N1W07-28	N1W07	2_W	750	2	N_N	N_N	8.5	5.5	42.857	5.5					8.5
S3W05-18	S3W05	3_SW	1000	2	N_N	N_N	6.8	4.4	42.857	6.8	4.4				
S1W10-25	S1W10	2_W	1000	2	N_N	N_N	8.8	5.7	42.759	8.8	5.7				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1W13-15	S1W13	2_W	1250	2	N_N	N_N	7.1	4.6	42.735	7.1	4.6				
S5E08-25	S5E08	8_SE	1250	2	N_N	N_N	7.1	4.6	42.735	7.1	4.6				
N4W12-11	N4W12	1_NW	1500	2	N_N	N_N	5.4	3.5	42.697	3.5	5.4				
S1E10-11	S1E10	7_E	1250	2	N_N	N_N	5.4	3.5	42.697	5.4	3.5				
S4W04-02	S4W04	3_SW	750	2	N_N	N_N	5.4	3.5	42.697	3.5	5.4				
N3W10-21	N3W10	1_NW	1250	2	N_N	N_N	7.4	4.8	42.623	7.4				4.8	
S2E09-12	S2E09	7_E	1250	2	N_N	N_N	9.7	6.3	42.5	9.7	6.3				
N6E07-18	N6E07	6_NE	1500	2	N_N	N_N	6	3.9	42.424	6	3.9				
N2W09-14	N2W09	2_W	1000	2	N_N	N_N	8.3	5.4	42.336	8.3	5.4				
S7W01-06	S7W01	4_S	1250	2	N_N	N_N	6.3	4.1	42.308	6.3	4.1				
N2W12-05	N2W12	2_W	1250	3	N_N	N_N	4.3	2.8	42.254	3.3	2.8			4.3	
S2E08-05	S2E08	7_E	1000	2	N_Y	N_N	12.9	8.4	42.254	8.4	12.9				
S5W02-08	S5W02	4_S	1000	2	N_N	N_N	6.6	4.3	42.202	4.3	6.6				
S5W01-08	S5W01	4_S	1000	2	Y_Y	N_N	20.4	13.3	42.136	13.3	20.4				
N6E03-07	N6E03	5_N	1250	2	N_N	N_N	4.6	3	42.105	4.6	3				
S7E01-03	S7E01	4_S	1250	2	Y_Y	N_N	21.9	14.3	41.989	21.9	14.3				
N5E06-23	N5E06	6_NE	1250	2	N_N	N_N	4.9	3.2	41.975	4.9	3.2				
N3W05-07	N3W05	1_NW	750	2	N_N	N_N	7.5	4.9	41.935	4.9	7.5				
S2W11-17	S2W11	2_W	1250	2	N_N	N_N	5.2	3.4	41.86	5.2	3.4				
S3E02-04	S3E02	4_S	750	2	N_N	N_N	2.6	1.7	41.86	2.6	1.7				
S3W03-07	S3W03	3_SW	750	2	N_Y	N_N	13	8.5	41.86	13	8.5				
N4E09-04	N4E09	6_NE	1500	2	N_N	N_N	5.5	3.6	41.758	5.5	3.6				
S4W09-04	S4W09	3_SW	1250	2	N_N	N_N	5.5	3.6	41.758	5.5	3.6				
S7W03-01	S7W03	4_S	1250	2	N_N	N_N	5.5	3.6	41.758	5.5	3.6				
N3W07-27	N3W07	1_NW	1000	2	N_N	N_N	4.2	2.75	41.727		4.2				2.75
S3W05-27	S3W05	3_SW	750	2	N_N	N_N	8.4	5.5	41.727	5.5	8.4				
S3W04-16	S3W04	3_SW	750	2	N_N	N_N	5.8	3.8	41.667	3.8	5.8				
S5E03-03	S5E03	4_S	1000	2	N_N	N_N	5.8	3.8	41.667	5.8	3.8				
N3W14-01	N3W14	1_NW	1500	2	Y_Y	N_N	59.2	38.8	41.633	59.2	38.8				
N3W05-17	N3W05	1_NW	750	2	N_N	N_N	6.1	4	41.584	6.1	4				
S7E02-28	S7E02	4_S	1500	2	N_N	N_N	9.3	6.1	41.558	6.1	9.3				
N3W05-02	N3W05	1_NW	750	2	N_N	N_N	3.2	2.1	41.509	3.2	2.1				
S7W01-15	S7W01	4_S	1500	2	N_N	N_N	6.4	4.2	41.509	4.2	6.4				
N4W08-27	N4W08	1_NW	1250	2	N_N	N_N	5.5	3.61	41.493		5.5				3.61
N5E02-18	N5E02	5_N	1000	2	N_N	N_N	3.5	2.3	41.379	3.5	2.3				
S1W11-07	S1W11	2_W	1250	2	N_N	N_N	7.3	4.8	41.322	4.8	7.3				
S4W07-13	S4W07	3_SW	1000	2	N_N	N_N	3.8	2.5	41.27	3.8	2.5				
S1E08-17	S1E08	7_E	1000	2	N_Y	N_N	12	7.9	41.206	7.9	12				
N1W12-13	N1W12	2_W	1250	2	N_N	N_N	6	3.95	41.206	6	3.95				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S5W02-10	S5W02	4_S	1000	2	Y_Y	N_N	16.4	10.8	41.176	10.8	16.4				
S5E04-03	S5E04	8_SE	1250	2	N_Y	N_N	11	7.25	41.096	11	7.25				
N3W09-27	N3W09	1_NW	1000	2	N_N	N_N	5	3.3	40.964	5				3.3	
S6W03-20	S6W03	4_S	1250	2	N_N	N_N	5.6	3.7	40.86	5.6	3.7				
S4W07-16	S4W07	3_SW	1250	2	N_N	N_N	7.7	5.1	40.625	7.7	5.1				
S6E01-16	S6E01	4_S	1250	2	N_N	N_N	7.7	5.1	40.625	7.7	5.1				
S4W06-02	S4W06	3_SW	1000	2	N_N	N_N	8	5.3	40.602	8	5.3				
N1W12-10	N1W12	2_W	1250	2	N_N	N_N	2.7	1.8	40	1.8	2.7				
N2E09-26	N2E09	7_E	1250	2	N_N	N_N	3.9	2.6	40	3.9	2.6				
N2W11-27	N2W11	2_W	1250	2	N_N	N_N	3.9	2.6	40	3.9	2.6				
N3E08-20	N3E08	6_NE	1000	2	N_N	N_N	4.5	3	40	4.5	3				
N3E09-01	N3E09	6_NE	1250	2	N_N	N_N	4.5	3	40	4.5	3				
N3W11-14	N3W11	1_NW	1250	2	N_N	N_N	2.7	1.8	40	1.8	2.7				
N3W13-13	N3W13	2_W	1500	2	N_N	N_N	6	4	40	4	6				
N3W14-07	N3W14	2_W	1500	2	N_N	N_N	6.3	4.2	40	4.2	6.3				
N4W07-18	N4W07	1_NW	1000	2	N_N	N_N	2.4	1.6	40	2.4	1.6				
N5W12-08	N5W12	1_NW	1500	2	N_N	N_N	1.5	1	40	1.5	1				
N5W12-30	N5W12	1_NW	1750	2	N_N	N_N	2.1	1.4	40	2.1	1.4				
N6E06-17	N6E06	6_NE	1250	2	N_N	N_N	4.5	3	40	3	4.5				
S1W10-12	S1W10	2_W	1000	2	N_N	N_N	5.7	3.8	40	3.8	5.7				
S2W06-05	S2W06	3_SW	750	2	N_N	N_N	6.6	4.4	40	4.4	6.6				
S2W07-01	S2W07	2_W	750	2	N_N	N_N	8.7	5.8	40	8.7	5.8				
S5W06-18	S5W06	3_SW	1250	2	N_N	N_N	5.7	3.8	40	3.8	5.7				
S5W06-23	S5W06	3_SW	1250	2	N_N	N_N	6	4	40	6	4				
S6W03-12	S6W03	4_S	1250	2	N_N	N_N	2.4	1.6	40	1.6	2.4				
S4E09-20	S4E09	8_SE	1250	2	Y_Y	N_N	30.2	20.2	39.683	20.2	30.2				
N3W08-02	N3W08	1_NW	1000	2	N_N	N_N	5.225	3.5	39.542	3.5	5.225				
S3W07-22	S3W07	3_SW	1000	2	N_N	N_N	9.7	6.5	39.506	9.7	6.5				
S5W04-12	S5W04	4_S	1250	2	N_N	N_N	7.9	5.3	39.394	5.3	7.9				
S1E06-07	S1E06	7_E	750	2	N_N	N_N	7.6	5.1	39.37	5.1	7.6				
S4W08-18	S4W08	3_SW	1250	2	N_N	N_N	7.6	5.1	39.37	7.6	5.1				
S2W10-11	S2W10	2_W	1000	2	N_N	N_N	7.3	4.9	39.344	4.9	7.3				
S5E04-05	S5E04	8_SE	1250	2	N_N	N_N	7.3	4.9	39.344	7.3	4.9				
S5E02-23	S5E02	4_S	1000	2	N_N	N_N	7	4.7	39.316	7	4.7				
S4E02-18	S4E02	4_S	1000	2	N_N	N_N	6.7	4.5	39.286	6.7	4.5				
N5E03-20	N5E03	5_N	1000	2	N_N	N_N	6.4	4.3	39.252	6.4	4.3				
N5E02-43	N5E02	5_N	1000	2	N_N	N_N	6.1	4.1	39.216	4.1	6.1				
S1E07-08	S1E07	7_E	1000	2	N_N	N_N	5.5	3.7	39.13	3.7	5.5				
N1W11-21	N1W11	2_W	1250	2	N_N	N_N	4.9	3.3	39.024		4.9			3.3	

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S6W05-20	S6W05	3_SW	1250	2	Y_Y	N_N	48.4	32.6	39.012	48.4	32.6				
N6E03-08	N6E03	5_N	1250	2	N_N	N_N	4.6	3.1	38.961	4.6	3.1				
S4W04-09	S4W04	3_SW	1000	2	Y_Y	N_N	58.3	39.3	38.934	39.3	58.3				
S3E08-10	S3E08	8_SE	1250	2	N_Y	N_N	12.9	8.7	38.889	12.9	8.7				
N4W13-04	N4W13	1_NW	1500	2	N_N	N_N	8	5.4	38.806	8	5.4				
S2W09-07	S2W09	2_W	1000	2	N_N	N_N	7.7	5.2	38.76	5.2	7.7				
S7E04-03	S7E04	4_S	1500	2	Y_Y	N_N	60.7	41	38.741	41	60.7				
N2W11-18	N2W11	2_W	1250	2	N_N	N_N	3.7	2.5	38.71	2.5	3.7				
N2W07-17	N2W07	2_W	750	2	Y_Y	N_N	71	48	38.655	48	71				
N2E09-03	N2E09	7_E	1250	2	N_N	N_N	7.1	4.8	38.655	4.8	7.1				
S1W05-09	S1W05	2_W	500	2	N_N	N_N	7.1	4.8	38.655	4.8	7.1				
S4E01-02	S4E01	4_S	750	2	N_N	N_N	6.5	4.4	38.532		4.4			6.5	
N5E03-06	N5E03	5_N	1250	2	N_N	N_N	9.3	6.3	38.462	6.3	9.3				
S3W11-09	S3W11	3_SW	1250	2	N_N	N_N	9.3	6.3	38.462	9.3	6.3				
N5E02-08	N5E02	5_N	1000	2	N_N	N_N	3.1	2.1	38.462		3.1			2.1	
S1E06-02	S1E06	7_E	750	2	N_N	N_N	9	6.1	38.411	9	6.1				
S3W07-24	S3W07	3_SW	1000	2	Y_Y	N_N	28	19	38.298	28	19				
S6E06-03	S6E06	8_SE	1500	2	N_N	N_N	5.6	3.8	38.298			3.8	5.6		
S1W05-19	S1W05	2_W	500	2	N_N	N_N	7.5	5.1	38.095	5.1	7.5				
S3W07-16	S3W07	3_SW	1000	2	N_N	N_N	5	3.4	38.095	3.4	5				
N2W11-25	N2W11	2_W	1250	2	N_N	N_N	4.7	3.2	37.975	4.7	3.2				
N3W13-25	N3W13	1_NW	1500	2	N_N	N_N	4.7	3.2	37.975	3.2	4.7				
N4E03-02	N4E03	5_N	1000	2	N_Y	N_N	11.6	7.9	37.949	11.6	7.9				
S7E02-20	S7E02	4_S	1500	2	N_Y	N_N	13.8	9.4	37.931	13.8	9.4				
S4E01-23	S4E01	4_S	750	2	N_N	N_N	6.9	4.7	37.931	4.7	6.9				
S4W04-03	S4W04	3_SW	750	2	N_N	N_N	6.9	4.7	37.931	6.9	4.7				
S4E08-09	S4E08	8_SE	1250	2	Y_Y	N_N	22.6	15.4	37.895	15.4	22.6				
N2W11-07	N2W11	2_W	1250	2	N_N	N_N	4.4	3	37.838	3	4.4				
N3E09-30	N3E09	6_NE	1250	2	N_N	N_N	4.4	3	37.838	4.4				3	
S4E06-05	S4E06	8_SE	1000	2	N_Y	N_N	12.9	8.8	37.788	8.8	12.9				
N5E03-10	N5E03	5_N	1000	2	N_N	N_N	6.3	4.3	37.736	6.3	4.3				
N5W13-16	N5W13	1_NW	1750	2	N_N	N_N	4.1	2.8	37.681	4.1	2.8				
N6E02-46	N6E02	5_N	1250	2	N_N	N_N	4.1	2.8	37.681	4.1	2.8				
S4W07-18	S4W07	3_SW	1250	2	N_N	N_N	6	4.1	37.624	6	4.1				
N1W09-13	N1W09	2_W	1000	3	N_N	N_N	3.8	2.6	37.5	2.7	2.6			3.8	
N5E02-03	N5E02	5_N	1000	2	N_N	N_N	3.8	2.6	37.5	2.6	3.8				
S4W08-19	S4W08	3_SW	1250	2	N_N	N_N	5.7	3.9	37.5	5.7	3.9				
S5W02-13	S5W02	4_S	1000	3	Y_Y	N_N	33	22.6	37.41	22.6	30.9			33	
N6E07-23	N6E07	6_NE	1500	2	N_N	N_N	7.3	5	37.398	7.3	5				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1W05-05	S1W05	2_W	500	2	N_N	N_N	8.9	6.1	37.333	6.1	8.9				
N6E02-26	N6E02	5_N	1250	2	N_N	N_N	3.5	2.4	37.288	3.5	2.4				
S3W10-20	S3W10	3_SW	1250	2	N_N	N_N	8.6	5.9	37.241	8.6	5.9				
S3W10-16	S3W10	3_SW	1250	2	N_N	N_N	5.1	3.5	37.209	5.1	3.5				
N2E09-21	N2E09	7_E	1250	2	N_N	N_N	8	5.5	37.037	8	5.5				
N5E07-26	N5E07	6_NE	1250	2	N_N	N_N	8	5.5	37.037	8	5.5				
S7W01-14	S7W01	4_S	1500	2	N_N	N_N	8	5.5	37.037	5.5	8				
N6W10-14	N6W10	1_NW	1500	2	N_N	N_N	4.5	3.1	36.842	4.5	3.1				
N1W08-12	N1W08	2_W	750	3	N_N	N_N	5.225	3.6	36.827	3.6	5.225			4.3	
S3E06-18	S3E06	8_SE	1000	2	N_N	N_N	5.8	4	36.735	5.8	4				
S3W04-13	S3W04	3_SW	750	2	N_N	N_N	8.7	6	36.735	8.7	6				
S7W02-23	S7W02	4_S	1500	2	N_N	N_N	8.7	6	36.735	8.7	6				
N3W11-08	N3W11	1_NW	1250	2	N_N	N_N	4.2	2.9	36.62	2.9	4.2				
S5E04-08	S5E04	8_SE	1250	2	N_N	N_N	8.4	5.8	36.62	5.8	8.4				
S2W05-13	S2W05	3_SW	750	2	N_Y	N_N	11	7.6	36.559	11	7.6				
N3W09-22	N3W09	1_NW	1000	2	N_N	N_N	5.5	3.8	36.559		5.5			3.8	
S4W07-04	S4W07	3_SW	1000	2	N_N	N_N	6.8	4.7	36.522	6.8	4.7				
N5E03-22	N5E03	5_N	1000	2	N_N	N_N	8.1	5.6	36.496	8.1	5.6				
S2W07-07	S2W07	3_SW	750	2	N_Y	N_N	12	8.3	36.453	8.3	12				
N1W10-15	N1W10	2_W	1000	3	N_N	N_N	5.2	3.6	36.364	5.2	3.6			3.6	
N4E09-20	N4E09	6_NE	1250	2	N_N	N_N	5.2	3.6	36.364	3.6	5.2				
N5E01-04	N5E01	5_N	1000	2	N_N	N_N	9.1	6.3	36.364	9.1	6.3				
N6E06-24	N6E06	6_NE	1500	2	N_N	N_N	5.2	3.6	36.364	3.6	5.2				
N6E07-10	N6E07	6_NE	1500	2	N_N	N_N	9.1	6.3	36.364	9.1	6.3				
S5E04-14	S5E04	8_SE	1000	2	N_N	N_N	5.2	3.6	36.364	5.2	3.6				
N1W12-08	N1W12	2_W	1250	2	N_N	N_N	3.9	2.7	36.364	3.9				2.7	
S7W02-17	S7W02	4_S	1500	2	Y_Y	N_N	55.6	38.5	36.344		55.6			38.5	
N3W10-09	N3W10	1_NW	1250	2	N_N	N_N	7.5	5.2	36.22	5.2	7.5				
N2W10-28	N2W10	2_W	1250	2	N_N	N_N	6.2	4.3	36.19	6.2	4.3				
N3E08-04	N3E08	6_NE	1250	2	N_N	N_N	6.2	4.3	36.19	6.2	4.3				
N2W11-29	N2W11	2_W	1250	3	N_N	N_N	4.9	3.4	36.145	3.4	4.9			3.6	
N8W02-03	N8W02	5_N	1750	2	N_N	N_N	4.9	3.4	36.145	4.9	3.4				
N3W12-01	N3W12	1_NW	1500	2	N_N	N_N	3.6	2.5	36.066	3.6	2.5				
S1E07-07	S1E07	7_E	1000	2	N_N	N_N	7.2	5	36.066	7.2	5				
S4W04-22	S4W04	3_SW	750	2	N_N	N_N	7.2	5	36.066	7.2	5				
S1W13-06	S1W13	2_W	1250	2	N_N	N_N	9.5	6.6	36.025	9.5	6.6				
S2E10-12	S2E10	7_E	1250	2	Y_Y	N_N	52.5	36.5	35.955	36.5	52.5				
N1W04-09	N1W04	2_W	500	2	N_N	N_N	6.7	4.66	35.915	6.7					4.66
N5W09-16	N5W09	1_NW	1250	2	N_N	N_N	6.9	4.8	35.897	6.9	4.8				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N2W11-04	N2W11	2_W	1250	2	N_N	N_N	2.3	1.6	35.897	2.3	1.6				
N5E03-11	N5E03	5_N	1000	2	N_N	N_N	4.6	3.2	35.897	4.6	3.2				
N6E02-24	N6E02	5_N	1250	2	N_N	N_N	4.6	3.2	35.897	4.6	3.2				
N6E03-11	N6E03	5_N	1250	2	N_N	N_N	4.6	3.2	35.897	4.6				3.2	
S4E02-17	S4E02	4_S	1000	2	N_N	N_N	5.6	3.9	35.789	5.6	3.9				
N3W11-24	N3W11	1_NW	1250	2	N_N	N_N	3.3	2.3	35.714	3.3	2.3				
S3W05-09	S3W05	3_SW	750	2	N_N	N_N	6.6	4.6	35.714	6.6	4.6				
S1E09-09	S1E09	7_E	1250	2	N_Y	N_N	10.9	7.6	35.676	10.9	7.6				
S1W05-20	S1W05	2_W	500	2	N_N	N_N	7.6	5.3	35.659	5.3	7.6				
N5E02-11	N5E02	5_N	1000	2	N_N	N_N	4.3	3	35.616	4.3				3	
S2E10-33	S2E10	7_E	1250	2	N_N	N_N	8.6	6	35.616		8.6			6	
N4W12-16	N4W12	1_NW	1500	2	N_N	N_N	5.3	3.7	35.556	3.7	5.3				
S4W03-05	S4W03	4_S	750	2	N_N	N_N	5.3	3.7	35.556	3.7	5.3				
S4W05-06	S4W05	3_SW	1000	2	N_N	N_N	5.3	3.7	35.556	3.7	5.3				
N5E04-03	N5E04	6_NE	1250	2	Y_Y	N_N	85.2	59.5	35.522	59.5	85.2				
S1E10-18	S1E10	7_E	1250	2	Y_Y	N_N	15.3	10.7	35.385	10.7	15.3				
N5E07-28	N5E07	6_NE	1250	2	N_N	N_N	4	2.8	35.294	2.8	4				
N5W08-08	N5W08	1_NW	1250	2	N_N	N_N	4	2.8	35.294	2.8	4				
N5W13-07	N5W13	1_NW	1750	2	N_N	N_N	4	2.8	35.294	2.8	4				
N6E02-23	N6E02	5_N	1250	2	N_N	N_N	4	2.8	35.294	4	2.8				
S1W09-07	S1W09	2_W	1000	2	N_N	N_N	8	5.6	35.294	8	5.6				
S5E09-15	S5E09	8_SE	1500	2	N_N	N_N	4	2.8	35.294	2.8	4				
N2W12-15	N2W12	2_W	1250	2	N_N	N_N	5	3.5	35.294	3.5	5				
S4W09-01	S4W09	3_SW	1250	2	N_N	N_N	5	3.5	35.294	5	3.5				
N4W14-20	N4W14	1_NW	1750	3	N_N	N_N	3	2.1	35.294	2.3	3			2.1	
S2W09-17	S2W09	2_W	1000	2	N_N	N_N	9.7	6.8	35.152	6.8	9.7				
S7E02-24	S7E02	4_S	1500	2	N_N	N_N	7.7	5.4	35.115	5.4	7.7				
S4E08-12	S4E08	8_SE	1250	2	Y_Y	N_N	52.6	36.9	35.084	52.6	36.9				
S6E03-27	S6E03	4_S	1250	2	N_Y	N_N	11.4	8	35.052	11.4	8				
N5W08-22	N5W08	1_NW	1250	2	N_N	N_N	5.7	4	35.052	5.7	4				
S7E03-11	S7E03	4_S	1500	2	N_N	N_N	5.7	4	35.052	5.7	4				
N4W10-23	N4W10	1_NW	1250	2	N_N	N_N	4.7	3.3	35	3.3	4.7				
N5E05-29	N5E05	6_NE	1250	2	N_N	N_N	4.7	3.3	35	3.3	4.7				
N8W03-13	N8W03	5_N	1750	2	N_N	N_N	8.4	5.9	34.965	8.4	5.9				
N3E08-02	N3E08	6_NE	1250	2	N_N	N_N	6.4	4.5	34.862	6.4	4.5				
N8W02-05	N8W02	5_N	1750	2	N_N	N_N	6.4	4.5	34.862	6.4	4.5				
S5E01-06	S5E01	4_S	1000	2	N_N	N_N	5.4	3.8	34.783	5.4	3.8				
S2E09-25	S2E09	7_E	1250	3	N_N	N_N	8.1	5.7	34.783	5.7	7.9			8.1	
S1W09-20	S1W09	2_W	1000	2	N_N	N_N	7.6	5.35	34.749	7.6	5.35				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N4W11-09	N4W11	1_NW	1250	2	N_N	N_N	8.8	6.2	34.667	8.8	6.2				
N5W07-18	N5W07	1_NW	1250	2	N_N	N_N	8.8	6.2	34.667	8.8	6.2				
S7E01-29	S7E01	4_S	1500	2	Y_Y	N_N	46.4	32.7	34.64	32.7	46.4				
S5E07-14	S5E07	8_SE	1250	2	N_Y	N_N	12.2	8.6	34.615	8.6	12.2				
N4E09-05	N4E09	6_NE	1500	2	N_N	N_N	6.1	4.3	34.615	6.1	4.3				
N4W06-06	N4W06	1_NW	1000	2	N_N	N_N	7.8	5.5	34.586	7.8	5.5				
N3W14-06	N3W14	2_W	1500	2	N_N	N_N	5.1	3.6	34.483	3.6	5.1				
S3W09-19	S3W09	3_SW	1250	2	N_N	N_N	5.1	3.6	34.483	3.6	5.1				
S3W10-08	S3W10	3_SW	1250	2	Y_Y	N_N	82.5	58.3	34.375	82.5	58.3				
S1W09-05	S1W09	2_W	1000	3	N_N	N_N	5.8	4.1	34.343	5.8	4.1			5.6	
N3W07-11	N3W07	1_NW	1000	2	N_N	N_N	5.8	4.1	34.343	4.1	5.8				
N2W06-15	N2W06	2_W	750	2	N_N	N_N	7.2	5.09	34.337	7.2					5.09
N1W08-20	N1W08	2_W	1000	2	N_N	N_N	4.1	2.9	34.286	2.9	4.1				
S2W09-08	S2W09	2_W	1000	2	N_N	N_N	8.2	5.8	34.286	8.2	5.8				
N4W11-24	N4W11	1_NW	1500	3	N_N	N_N	6.5	4.6	34.234	5.4	4.6			6.5	
S5E02-18	S5E02	4_S	1000	2	Y_Y	N_N	42.1	29.8	34.214	29.8	42.1				
S3W06-25	S3W06	3_SW	1000	2	N_N	N_N	7.2	5.1	34.146	7.2	5.1				
N1W08-23	N1W08	2_W	1000	3	N_N	N_N	5.5	3.9	34.043	5.5	4.5			3.9	
N2W10-13	N2W10	2_W	1000	2	N_N	N_N	5.5	3.9	34.043	5.5	3.9				
S7W01-08	S7W01	4_S	1500	2	N_N	N_N	5.5	3.9	34.043	5.5	3.9				
N1W08-27	N1W08	2_W	1000	3	N_N	N_N	5.78	4.1	34.008	4.1	4.4				5.78
S6W04-01	S6W04	4_S	1250	3	N_N	N_N	3.1	2.2	33.962	2.2	3.1			2.6	
N3W06-20	N3W06	1_NW	750	2	N_N	N_N	6.2	4.4	33.962	6.2	4.4				
N2W03-10	N2W03	1_NW	500	2	N_N	N_N	8.2	5.82	33.951	5.82	8.2				
N8W02-01	N8W02	5_N	1750	2	N_N	N_N	6.9	4.9	33.898	6.9	4.9				
N1W10-19	N1W10	2_W	1000	2	Y_Y	N_N	35.4	25.15	33.856	35.4	25.15				
N4W12-10	N4W12	1_NW	1500	2	N_N	N_N	5.7	4.05	33.846	5.7	4.05				
N1W13-08	N1W13	2_W	1500	2	N_N	N_N	3.8	2.7	33.846		3.8			2.7	
N5E02-45	N5E02	5_N	1000	2	N_N	N_N	7.6	5.4	33.846		5.4			7.6	
N5E05-19	N5E05	6_NE	1000	2	N_N	N_N	3.8	2.7	33.846	3.8	2.7				
N5W07-03	N5W07	1_NW	1250	2	N_N	N_N	3.8	2.7	33.846	3.8	2.7				
N6E02-14	N6E02	5_N	1250	2	N_N	N_N	3.8	2.7	33.846	3.8	2.7				
N5E07-16	N5E07	6_NE	1250	3	N_N	N_N	4.5	3.2	33.766	3.2	4.5			3.6	
N5E04-12	N5E04	6_NE	1000	2	N_N	N_N	4.5	3.2	33.766	4.5	3.2				
N5E07-29	N5E07	6_NE	1250	2	N_N	N_N	4.5	3.2	33.766	3.2	4.5				
S2E08-10	S2E08	7_E	1000	2	N_N	N_N	9	6.4	33.766	9	6.4				
S6W05-09	S6W05	4_S	1250	2	N_N	N_N	5.2	3.7	33.708	3.7	5.2				
N3E09-23	N3E09	6_NE	1250	2	N_N	N_N	5.9	4.2	33.663	5.9	4.2				
N3W09-17	N3W09	1_NW	1000	2	N_N	N_N	5.9	4.2	33.663	4.2	5.9				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N6W11-06	N6W11	1_NW	1500	2	N_N	N_N	5.9	4.2	33.663		4.2			5.9	
S3W06-22	S3W06	3_SW	1000	2	N_N	N_N	5.9	4.2	33.663	5.9	4.2				
S2W11-04	S2W11	2_W	1250	2	N_N	N_N	8	5.7	33.577	8	5.7				
S6E01-17	S6E01	4_S	1250	2	Y_Y	N_N	40.7	29	33.572	40.7	29				
N2W11-13	N2W11	2_W	1250	2	N_N	N_N	4.9	3.5	33.333	3.5	4.9				
N2E09-27	N2E09	7_E	1250	2	N_N	N_N	4.2	3	33.333	4.2	3				
N5E01-05	N5E01	5_N	1000	2	N_N	N_N	7.7	5.5	33.333	7.7	5.5				
N5W07-10	N5W07	1_NW	1250	3	N_N	N_N	3.5	2.5	33.333	3.1	2.5			3.5	
N4W07-32	N4W07	1_NW	1000	2	N_N	N_N	2.8	2	33.333	2.8	2				
N5E01-23	N5E01	5_N	1000	2	N_N	N_N	5.6	4	33.333	4	5.6				
N5W08-26	N5W08	1_NW	1250	2	N_N	N_N	3.5	2.5	33.333	3.5	2.5				
S2W07-20	S2W07	2_W	750	2	N_N	N_N	5.6	4	33.333	4	5.6				
S4E07-16	S4E07	8_SE	1250	2	N_N	N_N	5.6	4	33.333	5.6	4				
S5W03-11	S5W03	4_S	1000	2	Y_Y	N_N	46	32.9	33.207	32.9	46				
N4W09-17	N4W09	1_NW	1250	2	Y_Y	N_N	45.3	32.4	33.205	32.4	45.3				
N5E05-26	N5E05	6_NE	1250	2	Y_Y	N_N	52.1	37.3	33.11	37.3	52.1				
N3W07-02	N3W07	1_NW	1000	2	N_N	N_N	3.7	2.65	33.071	3.7					2.65
S1W05-08	S1W05	2_W	500	2	N_N	N_N	6.7	4.8	33.043	4.8	6.7				
S3W04-21	S3W04	3_SW	750	2	Y_Y	N_N	67	48	33.043	48	67				
N2E09-14	N2E09	7_E	1250	2	N_Y	N_N	12.7	9.1	33.028	9.1	12.7				
N3W03-03	N3W03	1_NW	500	2	N_Y	N_N	12	8.6	33.01	8.6	12				
N5E01-11	N5E01	5_N	1000	2	N_N	N_N	5.3	3.8	32.967	3.8	5.3				
S5W01-11	S5W01	4_S	1000	2	Y_Y	N_N	87.3	62.6	32.955	62.6	87.3				
N4W14-16	N4W14	1_NW	1500	2	N_N	N_N	4.6	3.3	32.911	3.3	4.6				
N4W13-15	N4W13	1_NW	1500	2	N_N	N_N	7.1	5.1	32.787	7.1	5.1				
S6E01-20	S6E01	4_S	1250	2	N_Y	N_N	10.3	7.4	32.768	10.3	7.4				
S6E04-12	S6E04	4_S	1500	2	N_Y	N_N	10.3	7.4	32.768	10.3				7.4	
N4E05-05	N4E05	6_NE	1000	2	N_N	N_N	3.2	2.3	32.727	2.3	3.2				
S1E08-08	S1E08	7_E	1000	2	Y_Y	N_N	36.3	26.1	32.692	26.1	36.3				
N1W05-23	N1W05	2_W	500	2	N_N	N_N	5.7	4.1	32.653	5.7	4.1				
S1W08-16	S1W08	2_W	1000	2	N_N	N_N	5.7	4.1	32.653	5.7	4.1				
S5W02-03	S5W02	4_S	1000	2	N_N	N_N	5.7	4.1	32.653	5.7	4.1				
N2W04-16	N2W04	1_NW	500	2	N_N	N_N	7.2	5.18	32.633	5.18	7.2				
S3W01-07	S3W01	4_S	500	2	N_N	N_N	8.2	5.9	32.624	8.2	5.9				
N1W06-15	N1W06	2_W	750	2	N_N	N_N	7	5.04	32.558		7				5.04
S4E08-10	S4E08	8_SE	1250	2	Y_Y	N_N	15	10.8	32.558	15	10.8				
N4E09-24	N4E09	6_NE	1250	3	N_N	N_N	5	3.6	32.558	4.2	3.6			5	
N4E04-04	N4E04	6_NE	1000	2	N_N	N_N	2.5	1.8	32.558	2.5	1.8				
N4W11-01	N4W11	1_NW	1500	2	N_N	N_N	2.5	1.8	32.558	1.8	2.5				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1W09-08	S1W09	2_W	1000	2	Y_Y	N_N	32.9	23.7	32.509	32.9	23.7				
N2W07-24	N2W07	1_NW	750	2	N_N	N_N	4.3	3.1	32.432	4.3	3.1				
N3E07-12	N3E07	6_NE	1000	2	N_N	N_N	6.1	4.4	32.381	4.4	6.1				
N3W14-25	N3W14	2_W	1500	2	N_N	N_N	6.1	4.4	32.381	4.4	6.1				
S1W06-11	S1W06	2_W	750	2	N_N	N_N	6.1	4.4	32.381	6.1	4.4				
S7E04-11	S7E04	4_S	1500	2	N_N	N_N	5.4	3.9	32.258	3.9	5.4				
N1E10-09	N1E10	7_E	1250	2	N_N	N_N	3.6	2.6	32.258	3.6	2.6				
N2W10-29	N2W10	2_W	1250	2	N_N	N_N	3.6	2.6	32.258	2.6	3.6				
S1W10-13	S1W10	2_W	1000	2	N_N	N_N	6.5	4.7	32.143		6.5			4.7	
S5W06-22	S5W06	3_SW	1250	2	N_N	N_N	6.5	4.7	32.143	6.5	4.7				
S7W03-05	S7W03	4_S	1500	2	N_N	N_N	6.5	4.7	32.143	4.7	6.5				
S2E10-26	S2E10	7_E	1250	2	N_N	N_N	7.6	5.5	32.061	7.6	5.5				
S4W07-11	S4W07	3_SW	1000	2	Y_Y	N_N	93.1	67.4	32.025	67.4	93.1				
N5E04-04	N5E04	6_NE	1250	2	N_N	N_N	5.8	4.2	32	5.8	4.2				
N6E06-09	N6E06	6_NE	1500	2	N_N	N_N	5.8	4.2	32	5.8	4.2				
N6E08-12	N6E08	6_NE	1500	2	N_N	N_N	5.8	4.2	32	5.8	4.2				
N8W03-14	N8W03	5_N	1750	2	N_N	N_N	5.8	4.2	32	5.8	4.2				
S1W05-04	S1W05	2_W	500	2	N_N	N_N	2.9	2.1	32	2.1	2.9				
N4W14-15	N4W14	1_NW	1500	2	N_N	N_N	4	2.9	31.884	2.9	4				
S5E09-18	S5E09	8_SE	1500	2	N_N	N_N	4	2.9	31.884	4	2.9				
N2W08-14	N2W08	2_W	1000	3	N_N	N_N	6.48	4.7	31.843		4.7			4.9	6.48
N4W10-12	N4W10	1_NW	1250	2	N_N	N_N	5.1	3.7	31.818	5.1	3.7				
S5E03-23	S5E03	4_S	1250	2	N_N	N_N	5.1	3.7	31.818	3.7	5.1				
S5E08-01	S5E08	8_SE	1250	2	N_N	N_N	9.5	6.9	31.707		9.5			6.9	
N1W04-01	N1W04	1_NW	500	2	N_N	N_N	7.98	5.8	31.64	7.98	5.8				
N2W07-03	N2W07	1_NW	750	2	N_N	N_N	4.4	3.2	31.579	3.2	4.4				
S1W06-10	S1W06	2_W	750	2	N_N	N_N	8.8	6.4	31.579	8.8	6.4				
S3W06-16	S3W06	3_SW	1000	2	N_N	N_N	5.5	4	31.579	4	5.5				
S5W01-01	S5W01	4_S	1000	2	N_N	N_N	5.5	4	31.579	4	5.5				
S5W05-11	S5W05	3_SW	1250	2	Y_Y	N_N	34.6	25.2	31.438	34.6	25.2				
N5E01-02	N5E01	5_N	1000	2	N_N	N_N	8.1	5.9	31.429	8.1	5.9				
S1W08-18	S1W08	2_W	1000	2	N_N	N_N	8.1	5.9	31.429	8.1	5.9				
N4E03-08	N4E03	6_NE	1000	2	N_N	N_N	7	5.1	31.405	7	5.1				
S7W01-22	S7W01	4_S	1500	2	N_N	N_N	7	5.1	31.405	5.1	7				
N4W13-29	N4W13	1_NW	1500	2	N_N	N_N	5.9	4.3	31.373	5.9	4.3				
S7W03-18	S7W03	4_S	1500	2	N_Y	N_N	10.7	7.8	31.351		10.7			7.8	
N3W10-18	N3W10	1_NW	1250	2	Y_Y	N_N	94.1	68.6	31.346	68.6	94.1				
S4W09-18	S4W09	3_SW	1250	2	N_N	N_N	4.8	3.5	31.325	3.5	4.8				
N3E08-26	N3E08	6_NE	1250	2	N_N	N_N	8.5	6.2	31.293	8.5	6.2				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N4W09-04	N4W09	1_NW	1250	2	N_N	N_N	3.7	2.7	31.25	3.7	2.7				
N5E02-19	N5E02	5_N	1000	2	N_N	N_N	3.7	2.7	31.25		2.7			3.7	
S5W02-07	S5W02	4_S	1000	2	N_N	N_N	6.3	4.6	31.193	6.3	4.6				
S7E01-10	S7E01	4_S	1500	2	N_N	N_N	6.3	4.6	31.193	6.3	4.6				
N1W10-05	N1W10	2_W	1000	2	N_N	N_N	2.6	1.9	31.111	1.9	2.6				
N4W11-19	N4W11	1_NW	1500	2	N_N	N_N	2.6	1.9	31.111	2.6	1.9				
S5W03-23	S5W03	4_S	1000	2	N_N	N_N	5.2	3.8	31.111	3.8				5.2	
S3W07-25	S3W07	3_SW	1000	2	Y_Y	N_N	67	49	31.034	67	49				
S3E09-15	S3E09	8_SE	1250	2	Y_Y	N_N	75.2	55	31.029	75.2	55				
S4W09-14	S4W09	3_SW	1250	2	Y_Y	N_N	49.2	36	30.986		49.2			36	
S1E08-03	S1E08	7_E	1000	2	N_N	N_N	5.6	4.1	30.928	5.6				4.1	
N3W05-13	N3W05	1_NW	750	2	Y_Y	N_N	71	52	30.894	71	52				
N2E08-07	N2E08	7_E	1250	2	N_N	N_N	4.5	3.3	30.769		3.3			4.5	
N3E07-15	N3E07	6_NE	1000	2	N_N	N_N	9	6.6	30.769	6.6	9				
S5W01-15	S5W01	4_S	1000	2	N_N	N_N	3	2.2	30.769	2.2	3				
N2W04-17	N2W04	1_NW	500	2	N_N	N_N	6.68	4.9	30.743	4.9					6.68
N5W08-05	N5W08	1_NW	1250	2	N_N	N_N	5.45	4	30.688	4	5.45				
N5E03-09	N5E03	5_N	1000	2	Y_Y	N_N	31.2	22.9	30.684	22.9	31.2				
N2W09-13	N2W09	2_W	1000	3	N_N	N_N	7.9	5.8	30.657	7.9	5.8			6.3	
S1E08-10	S1E08	7_E	1000	2	N_N	N_N	6.4	4.7	30.631	6.4	4.7				
N6E03-13	N6E03	5_N	1250	3	N_N	N_N	4.9	3.6	30.588	3.6	4.4			4.9	
S7E03-26	S7E03	4_S	1500	2	N_N	N_N	4.9	3.6	30.588	3.6	4.9				
S4W03-12	S4W03	4_S	1000	2	N_N	N_N	8.3	6.1	30.556	8.3	6.1				
S3E09-20	S3E09	8_SE	1250	2	N_Y	N_N	11.7	8.6	30.542	11.7	8.6				
N2E08-06	N2E08	7_E	1250	2	N_N	N_N	3.4	2.5	30.508		2.5			3.4	
N3W06-09	N3W06	1_NW	750	2	N_N	N_N	6.8	5	30.508	5	6.8				
N5W09-04	N5W09	1_NW	1500	2	N_N	N_N	3.4	2.5	30.508		2.5			3.4	
N5W13-31	N5W13	1_NW	1750	2	N_N	N_N	3.4	2.5	30.508		3.4			2.5	
S7E02-19	S7E02	4_S	1500	2	Y_Y	N_N	49.9	36.7	30.485	36.7	49.9				
S4W08-23	S4W08	3_SW	1250	2	N_N	N_N	7.2	5.3	30.4	7.2	5.3				
N4E09-19	N4E09	6_NE	1250	2	Y_Y	N_N	52.3	38.5	30.396	52.3	38.5				
S5W06-06	S5W06	3_SW	1250	3	N_N	N_N	7.6	5.6	30.303	5.6	7.6			5.6	
N1W12-28	N1W12	2_W	1250	2	N_N	N_N	7.6	5.6	30.303	7.6	5.6				
N5W12-17	N5W12	1_NW	1500	2	N_N	N_N	1.9	1.4	30.303	1.9	1.4				
S1W10-11	S1W10	2_W	1000	2	N_N	N_N	5.9	4.35	30.244	5.9	4.35				
S3W05-15	S3W05	3_SW	750	2	N_N	N_N	6.1	4.5	30.189	4.5	6.1				
N5W09-08	N5W09	1_NW	1250	2	N_N	N_N	4.2	3.1	30.137	4.2	3.1				
S5W03-10	S5W03	4_S	1000	2	N_N	N_N	4.2	3.1	30.137	4.2	3.1				
N1W08-07	N1W08	2_W	750	2	N_N	N_N	3.25	2.4	30.088	2.4	3.25				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N3W11-21	N3W11	1_NW	1250	2	N_N	N_N	6.5	4.8	30.088	6.5	4.8				
N1W04-15	N1W04	2_W	500	2	N_Y	N_N	10.56	7.8	30.065	7.8					10.56
S1W08-10	S1W08	2_W	750	2	N_N	N_N	9.2	6.8	30	6.8	9.2				
S6E03-12	S6E03	4_S	1250	2	N_N	N_N	9.2	6.8	30	9.2	6.8				
N2W07-02	N2W07	1_NW	750	2	N_N	N_N	2.84	2.1	29.96	2.1					2.84
S4E09-23	S4E09	8_SE	1250	2	N_N	N_N	9.6	7.1	29.94	9.6	7.1				
S4W10-08	S4W10	3_SW	1250	2	N_N	N_N	7.3	5.4	29.921	7.3	5.4				
N4W13-17	N4W13	1_NW	1500	2	N_N	N_N	5	3.7	29.885	5	3.7				
S1E10-12	S1E10	7_E	1250	2	N_N	N_N	5	3.7	29.885	3.7	5				
S6E01-04	S6E01	4_S	1250	2	N_N	N_N	5	3.7	29.885	5	3.7				
N6E08-22	N6E08	6_NE	1500	2	Y_Y	N_N	42.7	31.6	29.879	42.7	31.6				
N3W14-18	N3W14	2_W	1500	2	N_N	N_N	5.4	4	29.787	5.4	4				
N6W02-04	N6W02	5_N	1250	2	N_N	N_N	5.4	4	29.787	5.4	4				
N6E05-24	N6E05	6_NE	1250	2	N_N	N_N	5.8	4.3	29.703	4.3	5.8				
S5E03-31	S5E03	4_S	1000	2	Y_Y	N_N	23.6	17.5	29.684	17.5	23.6				
N3W07-26	N3W07	1_NW	1000	2	N_N	N_N	6.2	4.6	29.63	6.2	4.6				
N4W10-04	N4W10	1_NW	1250	2	N_N	N_N	3.1	2.3	29.63	3.1	2.3				
S5W06-01	S5W06	3_SW	1250	2	N_N	N_N	6.2	4.6	29.63	4.6	6.2				
N3W14-09	N3W14	2_W	1500	2	N_N	N_N	6.6	4.9	29.565		4.9			6.6	
N6E07-15	N6E07	6_NE	1500	2	N_N	N_N	6.6	4.9	29.565	6.6	4.9				
S1E07-11	S1E07	7_E	1000	2	N_N	N_N	6.6	4.9	29.565	6.6	4.9				
S2E09-08	S2E09	7_E	1250	2	N_N	N_N	6.6	4.9	29.565	4.9	6.6				
S5W07-19	S5W07	3_SW	1250	2	Y_Y	N_N	29.9	22.2	29.559	22.2	29.9				
N1W05-06	N1W05	2_W	500	2	N_Y	N_N	11	8.17	29.525	11					8.17
N4E02-06	N4E02	5_N	1000	2	N_N	N_N	3.5	2.6	29.508	2.6	3.5				
N4W09-03	N4W09	1_NW	1250	2	N_N	N_N	3.5	2.6	29.508	3.5	2.6				
N5E02-30	N5E02	5_N	1000	2	N_N	N_N	3.5	2.6	29.508	3.5	2.6				
S3E09-19	S3E09	8_SE	1250	2	Y_Y	N_N	30.4	22.6	29.434	22.6	30.4				
N1W10-21	N1W10	2_W	1000	2	N_N	N_N	5.85	4.35	29.412	4.35	5.85				
N4E03-07	N4E03	6_NE	1000	2	N_N	N_N	3.9	2.9	29.412	2.9	3.9				
N6E03-24	N6E03	5_N	1250	2	N_N	N_N	3.9	2.9	29.412	3.9	2.9				
S5E08-10	S5E08	8_SE	1500	2	N_N	N_N	8.2	6.1	29.371	8.2	6.1				
N3W04-10	N3W04	1_NW	750	2	N_N	N_N	4.7	3.5	29.268	4.7	3.5				
N3W05-14	N3W05	1_NW	750	2	N_N	N_N	5.1	3.8	29.213	3.8	5.1				
N6E04-14	N6E04	6_NE	1250	2	N_N	N_N	5.1	3.8	29.213	5.1	3.8				
S1E08-22	S1E08	7_E	1000	2	N_N	N_N	5.1	3.8	29.213	3.8	5.1				
N2W04-18	N2W04	1_NW	500	2	N_N	N_N	9.3	6.93	29.205	6.93	9.3				
S3W04-12	S3W04	3_SW	750	2	N_Y	N_N	11	8.2	29.167	11	8.2				
N6W08-13	N6W08	1_NW	1250	2	N_N	N_N	5.5	4.1	29.167	4.1	5.5				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S3W10-23	S3W10	3_SW	1250	2	N_N	N_N	5.5	4.1	29.167	5.5	4.1				
N3W05-04	N3W05	1_NW	750	2	N_N	N_N	6.3	4.7	29.091	4.7					6.3
N3W10-19	N3W10	1_NW	1250	2	N_Y	N_N	13	9.7	29.075	9.7	13				
S6E01-18	S6E01	4_S	1250	2	Y_Y	N_N	39	29.1	29.075	39	29.1				
N2W06-11	N2W06	1_NW	750	2	Y_Y	N_N	60	44.77	29.073	60	44.77				
N1E13-01	N1E13	7_E	1500	2	N_N	N_N	7.5	5.6	29.008	5.6	7.5				
S1W05-07	S1W05	2_W	500	2	N_N	N_N	7.5	5.6	29.008	5.6	7.5				
N5E04-08	N5E04	6_NE	1250	2	N_N	N_N	7.9	5.9	28.986	7.9	5.9				
S2E09-14	S2E09	7_E	1250	2	N_N	N_N	8.3	6.2	28.966	6.2	8.3				
S4W03-19	S4W03	4_S	1000	2	N_N	N_N	4.4	3.3	28.571	4.4	3.3				
N1E10-13	N1E10	7_E	1250	2	N_N	N_N	5.2	3.9	28.571	5.2	3.9				
N3W12-04	N3W12	1_NW	1250	2	N_N	N_N	6.4	4.8	28.571		6.4			4.8	
N4E03-01	N4E03	5_N	1000	2	N_N	N_N	5.2	3.9	28.571	3.9	5.2				
N4W08-33	N4W08	1_NW	1250	2	N_N	N_N	6.4	4.8	28.571	6.4	4.8				
N5W13-27	N5W13	1_NW	1750	2	N_N	N_N	3.2	2.4	28.571	3.2	2.4				
N6E01-05	N6E01	5_N	1250	2	N_N	N_N	5.2	3.9	28.571	5.2	3.9				
S1W10-27	S1W10	2_W	1000	2	N_N	N_N	6.4	4.8	28.571	6.4	4.8				
S2W06-14	S2W06	3_SW	750	2	N_N	N_N	8.4	6.3	28.571	6.3	8.4				
N3E08-03	N3E08	6_NE	1250	2	N_N	N_N	6.8	5.1	28.571	6.8	5.1				
S1E09-15	S1E09	7_E	1250	2	N_N	N_N	6.8	5.1	28.571	6.8	5.1				
N4W12-01	N4W12	1_NW	1500	3	N_N	N_N	4	3	28.571	4	3			3.5	
S4W05-09	S4W05	3_SW	1000	3	N_N	N_N	4	3	28.571	4	3			3.5	
N1W10-14	N1W10	2_W	1000	2	N_N	N_N	4	3	28.571	3	4				
N6W08-19	N6W08	1_NW	1500	2	N_N	N_N	4	3	28.571	3	4				
N1W05-22	N1W05	2_W	500	2	N_N	N_N	7.6	5.7	28.571	7.6	5.7				
N4W11-17	N4W11	1_NW	1500	2	N_N	N_N	4.8	3.6	28.571	4.8	3.6				
S1E08-11	S1E08	7_E	1000	2	N_N	N_N	7.2	5.4	28.571	7.2	5.4				
S1E09-02	S1E09	7_E	1250	2	N_N	N_N	7.6	5.7	28.571	7.6	5.7				
S5E01-12	S5E01	4_S	1000	2	N_N	N_N	4.8	3.6	28.571	3.6	4.8				
N4E01-02	N4E01	5_N	1000	2	N_N	N_N	2.8	2.1	28.571		2.1			2.8	
N5W09-03	N5W09	1_NW	1500	2	N_N	N_N	2.8	2.1	28.571	2.8	2.1				
S1E06-10	S1E06	7_E	750	2	N_N	N_N	5.6	4.2	28.571	4.2	5.6				
S1E09-12	S1E09	7_E	1250	2	N_N	N_N	9.2	6.9	28.571	9.2	6.9				
S4E09-26	S4E09	8_SE	1250	2	Y_Y	N_N	85.3	64.2	28.227	64.2	85.3				
S2E09-11	S2E09	7_E	1250	2	N_N	N_N	9.3	7	28.221	7	9.3				
N1W07-15	N1W07	2_W	750	2	N_N	N_N	5.2	3.915	28.195	5.2					3.915
S1W11-23	S1W11	2_W	1250	2	N_N	N_N	8.5	6.4	28.188	6.4	8.5				
S7E03-07	S7E03	4_S	1500	2	Y_Y	N_N	15	11.3	28.137	15	11.3				
S3W10-07	S3W10	3_SW	1250	2	N_N	N_N	6.9	5.2	28.099	6.9	5.2				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S4W10-09	S4W10	3_SW	1250	2	Y_Y	N_N	26	19.6	28.07	26	19.6				
N6E07-22	N6E07	6_NE	1500	2	N_N	N_N	6.5	4.9	28.07	6.5	4.9				
S1W06-21	S1W06	2_W	750	2	N_N	N_N	6.5	4.9	28.07	4.9	6.5				
S1E08-21	S1E08	7_E	1000	2	N_N	N_N	5.3	4	27.957	5.3	4				
S4W04-18	S4W04	3_SW	1000	2	N_N	N_N	5.3	4	27.957	4	5.3				
N2W03-06	N2W03	1_NW	500	3	Y_Y	N_N	49	37	27.907	37	41				49
N1W10-10	N1W10	2_W	1000	2	N_N	N_N	4.9	3.7	27.907	4.9	3.7				
S7W01-10	S7W01	4_S	1500	2	N_N	N_N	4.9	3.7	27.907	4.9	3.7				
S4E09-27	S4E09	8_SE	1250	2	Y_Y	N_N	13.9	10.5	27.869	13.9	10.5				
N4W10-15	N4W10	1_NW	1250	2	N_N	N_N	4.5	3.4	27.848	4.5	3.4				
N4W14-05	N4W14	1_NW	1750	2	N_N	N_N	4.5	3.4	27.848	4.5				3.4	
N8W02-04	N8W02	5_N	1750	2	N_N	N_N	4.5	3.4	27.848	4.5	3.4				
N5W08-16	N5W08	1_NW	1250	2	N_N	N_N	4.1	3.1	27.778		4.1			3.1	
N6E02-17	N6E02	5_N	1250	2	N_N	N_N	4.1	3.1	27.778	4.1	3.1				
N2W12-23	N2W12	2_W	1250	2	N_N	N_N	3.7	2.8	27.692	2.8	3.7				
S4W05-20	S4W05	3_SW	1000	2	N_N	N_N	3.7	2.8	27.692	2.8	3.7				
N5W12-21	N5W12	1_NW	1500	2	N_N	N_N	3.3	2.5	27.586	2.5	3.3				
N6W10-13	N6W10	1_NW	1500	2	N_N	N_N	3.3	2.5	27.586	2.5	3.3				
S7W02-07	S7W02	4_S	1500	2	N_N	N_N	6.6	5	27.586	5	6.6				
S6E05-01	S6E05	8_SE	1250	2	Y_Y	N_N	29.3	22.2	27.573	22.2	29.3				
S1W11-05	S1W11	2_W	1250	2	N_N	N_N	4.75	3.6	27.545		3.6			4.75	
S5E02-01	S5E02	4_S	1000	2	Y_Y	N_N	51.7	39.2	27.503	39.2	51.7				
S1W06-20	S1W06	2_W	750	2	N_N	N_N	9.1	6.9	27.5	9.1	6.9				
S3E09-16	S3E09	8_SE	1250	2	N_N	N_N	9.1	6.9	27.5	6.9	9.1				
N4W09-16	N4W09	1_NW	1250	2	N_N	N_N	8.7	6.6	27.451	6.6	8.7				
N3W12-14	N3W12	2_W	1250	2	N_N	N_N	2.9	2.2	27.451	2.2	2.9				
S6W03-13	S6W03	4_S	1250	2	N_N	N_N	5.8	4.4	27.451	4.4	5.8				
S1W08-26	S1W08	2_W	1000	2	N_N	N_N	5.4	4.1	27.368	4.1	5.4				
S5W03-06	S5W03	4_S	1000	2	N_N	N_N	5.4	4.1	27.368	5.4	4.1				
N1E09-11	N1E09	7_E	1250	2	N_N	N_N	7.9	6	27.338	7.9				6	
N2E09-13	N2E09	7_E	1250	2	N_N	N_N	2.5	1.9	27.273	1.9	2.5				
S2E08-02	S2E08	7_E	1000	2	N_N	N_N	5	3.8	27.273	5	3.8				
S4W06-25	S4W06	3_SW	1000	2	N_N	N_N	5	3.8	27.273	5	3.8				
S2W13-21	S2W13	2_W	1500	2	N_N	N_N	7.5	5.7	27.273	7.5	5.7				
S2E09-26	S2E09	7_E	1250	2	N_Y	N_N	12.1	9.2	27.23	12.1	9.2				
S3W04-09	S3W04	3_SW	750	2	N_N	N_N	7.1	5.4	27.2	5.4	7.1				
S5W02-25	S5W02	4_S	1000	3	N_N	N_N	4.6	3.5	27.16	4.6	3.5			3.8	
N6E04-15	N6E04	6_NE	1250	2	N_N	N_N	4.6	3.5	27.16	4.6	3.5				
S5E09-01	S5E09	8_SE	1500	2	N_N	N_N	4.6	3.5	27.16	3.5	4.6				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S4W08-07	S4W08	3_SW	1250	2	N_N	N_N	6.7	5.1	27.119	5.1	6.7				
N1W08-25	N1W08	2_W	1000	2	N_N	N_N	6.3	4.8	27.027	4.8	6.3				
N3W06-03	N3W06	1_NW	1000	2	N_N	N_N	6.3	4.8	27.027	6.3					4.8
S4E01-29	S4E01	4_S	750	2	N_N	N_N	6.3	4.8	27.027	6.3	4.8				
N5W12-28	N5W12	1_NW	1750	2	N_N	N_N	2.1	1.6	27.027	2.1	1.6				
N1W07-27	N1W07	2_W	750	2	N_N	N_N	5.9	4.5	26.923	5.9					4.5
N2E09-04	N2E09	7_E	1250	2	N_N	N_N	5.9	4.5	26.923	5.9	4.5				
S3W11-05	S3W11	3_SW	1250	2	N_N	N_N	5.9	4.5	26.923	5.9	4.5				
S2W06-13	S2W06	3_SW	750	2	Y_Y	N_N	59	45	26.923	59	45				
N2W11-23	N2W11	2_W	1250	2	N_N	N_N	3.8	2.9	26.866	2.9	3.8				
S1W06-16	S1W06	2_W	750	2	N_N	N_N	7.6	5.8	26.866	5.8	7.6				
S3W02-08	S3W02	4_S	750	2	N_N	N_N	7.6	5.8	26.866	7.6	5.8				
S4E01-14	S4E01	4_S	1000	2	N_N	N_N	7.6	5.8	26.866	5.8	7.6				
S2W06-08	S2W06	3_SW	750	2	N_N	N_N	7.2	5.5	26.772	7.2	5.5				
S5E03-20	S5E03	4_S	1250	2	N_N	N_N	7.2	5.5	26.772	7.2	5.5				
S1W08-03	S1W08	2_W	750	2	Y_Y	N_N	17	13	26.667	13	17				
N3W14-15	N3W14	2_W	1500	2	N_N	N_N	3.4	2.6	26.667	2.6	3.4				
N4W07-30	N4W07	1_NW	1000	2	N_N	N_N	3.4	2.6	26.667	3.4	2.6				
N5W12-04	N5W12	1_NW	1750	2	N_N	N_N	1.7	1.3	26.667	1.7	1.3				
N6E02-22	N6E02	5_N	1250	2	N_N	N_N	3.4	2.6	26.667	3.4	2.6				
N1W05-07	N1W05	2_W	500	2	N_N	N_N	8.1	6.2	26.573	6.2	8.1				
S3W03-20	S3W03	3_SW	750	2	N_N	N_N	8.1	6.2	26.573	6.2	8.1				
S6E02-14	S6E02	4_S	1250	2	Y_Y	N_N	35.4	27.1	26.56	27.1	35.4				
N4E03-12	N4E03	6_NE	1000	2	N_N	N_N	6.4	4.9	26.549	6.4	4.9				
N3W06-06	N3W06	1_NW	750	2	N_N	N_N	6.53	5	26.539	5					6.53
N4W08-17	N4W08	1_NW	1250	2	N_N	N_N	9.4	7.2	26.506	9.4				7.2	
S6E02-19	S6E02	4_S	1250	2	N_N	N_N	4.7	3.6	26.506	4.7	3.6				
S3E08-08	S3E08	8_SE	1250	2	Y_Y	N_N	33.8	25.9	26.466	25.9	33.8				
N3W09-23	N3W09	1_NW	1000	2	N_N	N_N	6	4.6	26.415	6	4.6				
N5E04-19	N5E04	6_NE	1000	2	N_N	N_N	3	2.3	26.415	2.3	3				
S6E01-07	S6E01	4_S	1250	2	N_N	N_N	7.3	5.6	26.357	7.3	5.6				
N4E03-10	N4E03	6_NE	1000	2	N_N	N_N	5.6	4.3	26.263	5.6	4.3				
N5W07-01	N5W07	1_NW	1250	2	N_N	N_N	5.6	4.3	26.263	4.3	5.6				
S2W06-02	S2W06	3_SW	750	2	N_N	N_N	6.9	5.3	26.23	5.3	6.9				
N5W08-14	N5W08	1_NW	1250	3	N_N	N_N	4.1	3.15	26.207	3.6	4.1				3.15
N3W06-01	N3W06	1_NW	1000	2	N_N	N_N	5.2	4	26.087	5.2	4				
N3W12-08	N3W12	1_NW	1250	2	N_N	N_N	2.6	2	26.087	2	2.6				
N4W13-13	N4W13	1_NW	1500	2	N_N	N_N	5.2	4	26.087	5.2	4				
N5W12-27	N5W12	1_NW	1750	2	N_N	N_N	2.6	2	26.087	2.6	2				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N3W10-04	N3W10	1_NW	1250	2	N_N	N_N	6.5	5	26.087	6.5	5				
S2W07-22	S2W07	2_W	750	2	N_N	N_N	6.5	5	26.087	6.5	5				
S5E02-25	S5E02	4_S	1000	2	N_N	N_N	7.8	6	26.087	6	7.8				
S5W06-19	S5W06	3_SW	1250	2	Y_Y	N_N	39.1	30.1	26.012	30.1	39.1				
N5W12-15	N5W12	1_NW	1500	2	N_N	N_N	7.4	5.7	25.954	7.4	5.7				
S5E09-12	S5E09	8_SE	1500	2	N_N	N_N	7.4	5.7	25.954	7.4	5.7				
N4W10-03	N4W10	1_NW	1250	2	N_N	N_N	2.725	2.1	25.907	2.1	2.725				
N5E07-07	N5E07	6_NE	1500	2	N_N	N_N	4.8	3.7	25.882	4.8	3.7				
N6E08-03	N6E08	6_NE	1500	2	N_N	N_N	4.8	3.7	25.882	4.8	3.7				
S1W08-06	S1W08	2_W	750	2	N_N	N_N	8.3	6.4	25.85	8.3	6.4				
N3E09-18	N3E09	7_E	1250	2	N_N	N_N	3.5	2.7	25.806	2.7				3.5	
S6W04-02	S6W04	4_S	1250	2	N_N	N_N	3.5	2.7	25.806	2.7	3.5				
S3W11-08	S3W11	3_SW	1250	2	N_N	N_N	9.2	7.1	25.767	9.2	7.1				
N8W02-11	N8W02	5_N	1750	2	Y_Y	N_N	24.1	18.6	25.761	18.6	24.1				
S5W02-04	S5W02	4_S	1000	2	N_N	N_N	5.7	4.4	25.743	5.7	4.4				
N3W10-11	N3W10	1_NW	1250	2	N_N	N_N	4.4	3.4	25.641	4.4	3.4				
N5E05-20	N5E05	6_NE	1000	2	N_N	N_N	4.4	3.4	25.641	4.4	3.4				
S7E01-12	S7E01	4_S	1500	2	N_N	N_N	4.4	3.4	25.641	4.4	3.4				
N2W07-12	N2W07	1_NW	750	2	N_N	N_N	6.6	5.1	25.641	5.1	6.6				
S1W13-25	S1W13	2_W	1500	2	N_N	N_N	6.6	5.1	25.641	5.1	6.6				
S7E04-23	S7E04	4_S	1500	2	N_N	N_N	9.7	7.5	25.581	9.7	7.5				
N1W05-13	N1W05	2_W	500	2	N_N	N_N	3	2.32	25.564	3					2.32
N6E08-24	N6E08	6_NE	1500	2	N_N	N_N	7.5	5.8	25.564	7.5	5.8				
S2W07-06	S2W07	3_SW	750	2	N_N	N_N	7.5	5.8	25.564	5.8	7.5				
S5E08-18	S5E08	8_SE	1500	2	N_Y	N_N	10.6	8.2	25.532	8.2	10.6				
S4W06-08	S4W06	3_SW	1000	2	N_N	N_N	5.3	4.1	25.532	5.3	4.1				
S7W02-09	S7W02	4_S	1500	2	N_N	N_N	5.3	4.1	25.532	4.1	5.3				
N3W13-22	N3W13	2_W	1500	2	N_N	N_N	8.4	6.5	25.503	8.4	6.5				
N1W04-23	N1W04	1_NW	500	2	N_N	N_N	6.2	4.8	25.455	6.2	4.8				
N2W07-09	N2W07	1_NW	750	2	N_N	N_N	6.2	4.8	25.455	4.8	6.2				
N3E10-21	N3E10	7_E	1250	2	N_N	N_N	6.2	4.8	25.455	6.2	4.8				
N3W08-08	N3W08	1_NW	1000	2	N_N	N_N	3.1	2.4	25.455	3.1	2.4				
S2E09-13	S2E09	7_E	1250	2	N_N	N_N	9.3	7.2	25.455	9.3	7.2				
S2W11-01	S2W11	2_W	1250	2	N_N	N_N	6.2	4.8	25.455	6.2	4.8				
N1W09-16	N1W09	2_W	1000	2	N_N	N_N	4	3.1	25.352	3.1	4				
N2W12-20	N2W12	2_W	1250	2	N_N	N_N	4.9	3.8	25.287	3.8	4.9				
N3W07-30	N3W07	1_NW	1000	2	N_N	N_N	4.9	3.8	25.287	3.8	4.9				
N4W13-21	N4W13	1_NW	1500	2	N_N	N_N	5.8	4.5	25.243	5.8	4.5				
S6E03-23	S6E03	4_S	1250	2	N_N	N_N	5.8	4.5	25.243	5.8	4.5				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S2W10-08	S2W10	2_W	1000	2	N_N	N_N	6.7	5.2	25.21	5.2	6.7				
N4W14-30	N4W14	1_NW	1750	2	N_N	N_N	8.5	6.6	25.166		8.5			6.6	
S4W04-11	S4W04	3_SW	1000	2	Y_Y	N_N	51	39.6	25.166	39.6	51				
S3E08-07	S3E08	8_SE	1250	2	Y_Y	N_N	13.5	10.5	25	13.5	10.5				
N1E10-10	N1E10	7_E	1250	2	N_N	N_N	3.6	2.8	25	3.6	2.8				
N4E03-09	N4E03	6_NE	1000	2	N_N	N_N	3.6	2.8	25	3.6	2.8				
S2E09-10	S2E09	7_E	1250	2	N_N	N_N	7.2	5.6	25	7.2	5.6				
S3W02-03	S3W02	4_S	500	2	N_N	N_N	6.3	4.9	25	6.3	4.9				
S4W05-11	S4W05	3_SW	1000	2	N_N	N_N	6.3	4.9	25	4.9	6.3				
N2W06-22	N2W06	1_NW	750	2	N_N	N_N	4.6	3.58	24.939	4.6					3.58
S2W08-05	S2W08	2_W	1000	2	N_N	N_N	6.1	4.75	24.885	6.1	4.75				
S5W01-24	S5W01	4_S	1000	2	N_N	N_N	8.6	6.7	24.837	8.6	6.7				
S3W07-19	S3W07	3_SW	1000	3	Y_Y	N_N	77	60	24.818	60	73			77	
N3W05-10	N3W05	1_NW	750	2	N_N	N_N	6.8	5.3	24.793	5.3	6.8				
N3W07-14	N3W07	1_NW	1000	2	N_N	N_N	5.9	4.6	24.762	4.6	5.9				
N7W09-10	N7W09	1_NW	1750	2	N_N	N_N	5	3.9	24.719	5	3.9				
N3E08-23	N3E08	6_NE	1250	2	Y_Y	N_N	23.2	18.1	24.697	23.2	18.1				
S1E07-18	S1E07	7_E	1000	2	N_N	N_N	9.1	7.1	24.691	7.1	9.1				
N6W08-09	N6W08	1_NW	1500	2	Y_Y	N_N	20.5	16	24.658	16	20.5				
N1W09-08	N1W09	2_W	1000	2	N_N	N_N	4.1	3.2	24.658	3.2	4.1				
N2W07-22	N2W07	2_W	750	2	N_N	N_N	4.1	3.2	24.658	4.1	3.2				
N5E06-08	N5E06	6_NE	1250	2	N_N	N_N	4.1	3.2	24.658	3.2	4.1				
N6W11-05	N6W11	1_NW	1500	2	N_N	N_N	4.1	3.2	24.658	4.1				3.2	
S7W01-11	S7W01	4_S	1500	2	N_N	N_N	4.1	3.2	24.658	4.1	3.2				
S2W12-14	S2W12	2_W	1250	2	N_N	N_N	7.3	5.7	24.615	7.3	5.7				
N4W13-01	N4W13	1_NW	1500	3	N_N	N_N	3.2	2.5	24.561	2.9	3.2			2.5	
N2W10-02	N2W10	2_W	1250	2	N_N	N_N	3.2	2.5	24.561	3.2	2.5				
N3W09-29	N3W09	1_NW	1250	2	N_N	N_N	5.5	4.3	24.49	4.3	5.5				
S5E08-20	S5E08	8_SE	1500	2	N_N	N_N	7.8	6.1	24.46	6.1	7.8				
S1E09-04	S1E09	7_E	1250	2	N_N	N_N	6.9	5.4	24.39	5.4	6.9				
S4E02-02	S4E02	4_S	750	2	N_N	N_N	6.9	5.4	24.39	6.9	5.4				
N5W12-29	N5W12	1_NW	1750	2	N_N	N_N	2.3	1.8	24.39	2.3	1.8				
S5W04-22	S5W04	3_SW	1000	2	N_N	N_N	4.6	3.6	24.39	4.6	3.6				
S3E08-04	S3E08	8_SE	1250	2	N_N	N_N	8.3	6.5	24.324	6.5	8.3				
S3E10-06	S3E10	8_SE	1500	2	N_N	N_N	8.3	6.5	24.324	6.5	8.3				
S4E07-18	S4E07	8_SE	1250	2	N_N	N_N	8.3	6.5	24.324	6.5	8.3				
S3W03-22	S3W03	3_SW	750	2	N_N	N_N	6	4.7	24.299	6	4.7				
S3W08-15	S3W08	3_SW	1000	2	N_N	N_N	6	4.7	24.299	6	4.7				
N2W12-07	N2W12	2_W	1250	2	N_N	N_N	4.85	3.8	24.277	3.8	4.85				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N4E05-01	N4E05	6_NE	1000	3	N_N	N_N	3.7	2.9	24.242	3.7	3.5			2.9	
S6E05-07	S6E05	8_SE	1250	2	N_Y	N_N	11.1	8.7	24.242	11.1	8.7				
N6W11-03	N6W11	1_NW	1500	2	N_N	N_N	5.1	4	24.176	5.1	4				
S5W07-07	S5W07	3_SW	1250	2	N_N	N_N	5.1	4	24.176	5.1	4				
N2W06-09	N2W06	1_NW	750	2	N_N	N_N	5.6	4.4	24	4.4	5.6				
N5E02-15	N5E02	5_N	1000	2	N_N	N_N	4.2	3.3	24	4.2	3.3				
N5W13-30	N5W13	1_NW	1750	2	N_N	N_N	2.8	2.2	24	2.2	2.8				
S1W06-07	S1W06	2_W	750	2	N_N	N_N	9.8	7.7	24	9.8	7.7				
S1W10-06	S1W10	2_W	1000	2	N_N	N_N	4.2	3.3	24	3.3	4.2				
N2W04-22	N2W04	1_NW	500	2	N_N	N_N	8.5	6.68	23.979	6.68	8.5				
N1W05-15	N1W05	2_W	500	2	N_N	N_N	8.1	6.37	23.912	8.1					6.37
S4E01-11	S4E01	4_S	750	2	Y_Y	N_N	31.9	25.1	23.86	31.9	25.1				
N4W12-04	N4W12	1_NW	1500	3	N_N	N_N	6.1	4.8	23.853	4.8	6.1			5.7	
S4W04-01	S4W04	3_SW	750	3	N_N	N_N	5.4	4.25	23.834	5.3	5.4			4.25	
N1W07-12	N1W07	2_W	750	2	N_N	N_N	4.7	3.7	23.81	4.7	3.7				
N6E04-23	N6E04	5_N	1250	2	N_N	N_N	4.7	3.7	23.81	4.7				3.7	
S4E02-25	S4E02	4_S	750	2	N_N	N_N	4.7	3.7	23.81	4.7	3.7				
S5W05-01	S5W05	3_SW	1000	2	N_N	N_N	4.7	3.7	23.81	4.7				3.7	
N1W11-05	N1W11	2_W	1250	2	N_N	N_N	3.3	2.6	23.729	2.6	3.3				
N3W10-15	N3W10	1_NW	1250	2	N_N	N_N	3.3	2.6	23.729	3.3	2.6				
S4W09-08	S4W09	3_SW	1250	2	N_N	N_N	8.5	6.7	23.684	6.7	8.5				
S5W07-06	S5W07	3_SW	1250	2	N_N	N_N	5.2	4.1	23.656	4.1	5.2				
S7E01-19	S7E01	4_S	1500	2	N_N	N_N	5.2	4.1	23.656	5.2	4.1				
S1W10-05	S1W10	2_W	1000	2	N_N	N_N	6.4	5.05	23.581		6.4			5.05	
N5E06-24	N5E06	6_NE	1250	2	N_N	N_N	5.7	4.5	23.529	5.7	4.5				
N3W08-07	N3W08	1_NW	1000	3	N_N	N_N	5.32	4.2	23.529	4.4	4.2			5.32	
N3W11-16	N3W11	2_W	1250	3	N_N	N_N	3.8	3	23.529	3	3.8			3.2	
N5E02-23	N5E02	5_N	1000	2	N_N	N_N	1.9	1.5	23.529	1.9				1.5	
S3W03-18	S3W03	3_SW	750	2	N_N	N_N	7.6	6	23.529	6	7.6				
S5W02-23	S5W02	4_S	1000	2	N_N	N_N	6.2	4.9	23.423	6.2	4.9				
S5W04-18	S5W04	4_S	1250	3	N_N	N_N	4.3	3.4	23.377	4	3.4			4.3	
S4E09-11	S4E09	8_SE	1500	2	N_N	N_N	8.6	6.8	23.377	6.8	8.6				
S5W07-27	S5W07	3_SW	1250	2	N_N	N_N	6.7	5.3	23.333	6.7	5.3				
N3E08-18	N3E08	6_NE	1000	2	N_N	N_N	4.8	3.8	23.256	3.8	4.8				
N6E08-11	N6E08	6_NE	1500	2	N_N	N_N	4.8	3.8	23.256	4.8	3.8				
S4E08-02	S4E08	8_SE	1250	2	N_N	N_N	7.2	5.7	23.256	5.7	7.2				
S5E09-19	S5E09	8_SE	1500	2	N_N	N_N	4.8	3.8	23.256	4.8	3.8				
N2W03-12	N2W03	1_NW	500	2	N_N	N_N	9.97	7.9	23.167	7.9	9.97				
N1W10-23	N1W10	2_W	1000	2	N_N	N_N	5.3	4.2	23.158	4.2	5.3				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N4E09-03	N4E09	6_NE	1500	2	N_N	N_N	5.3	4.2	23.158	5.3	4.2				
N1W05-18	N1W05	2_W	500	2	N_N	N_N	8.2	6.5	23.129	8.2	6.5				
N5W11-01	N5W11	1_NW	1500	2	N_N	N_N	2.3333	1.85	23.108	1.85	2.3333				
S7E04-02	S7E04	4_S	1500	2	N_Y	N_N	11.6	9.2	23.077	11.6	9.2				
N4E09-06	N4E09	6_NE	1500	2	N_N	N_N	5.8	4.6	23.077	5.8	4.6				
S1W09-01	S1W09	2_W	1000	2	N_N	N_N	5.8	4.6	23.077	4.6	5.8				
S1W07-05	S1W07	2_W	750	2	N_N	N_N	9.2	7.3	23.03	7.3	9.2				
N6E02-20	N6E02	5_N	1250	2	N_N	N_N	3.4	2.7	22.951	3.4	2.7				
S2W13-20	S2W13	2_W	1500	2	N_N	N_N	6.8	5.4	22.951	5.4	6.8				
S5E09-02	S5E09	8_SE	1500	2	N_N	N_N	3.4	2.7	22.951	2.7	3.4				
S1W08-24	S1W08	2_W	1000	2	N_Y	N_N	10.7	8.5	22.917	10.7	8.5				
S4W10-22	S4W10	3_SW	1250	2	N_N	N_N	7.3	5.8	22.901	5.8	7.3				
N4W14-02	N4W14	1_NW	1750	3	N_N	N_N	3.9	3.1	22.857	3.9	3.2			3.1	
N6E02-19	N6E02	5_N	1250	2	N_N	N_N	3.9	3.1	22.857	3.9	3.1				
S4E02-14	S4E02	4_S	1000	2	N_N	N_N	3.9	3.1	22.857	3.1	3.9				
S4W07-25	S4W07	3_SW	1000	2	N_N	N_N	3.9	3.1	22.857	3.1	3.9				
N3E08-08	N3E08	6_NE	1250	2	Y_Y	N_N	47.9	38.1	22.791	47.9	38.1				
N1W09-11	N1W09	2_W	1000	3	N_N	N_N	4.4	3.5	22.785	3.5	4.3			4.4	
S7W01-04	S7W01	4_S	1250	2	N_N	N_N	4.4	3.5	22.785	4.4	3.5				
N4W14-11	N4W14	1_NW	1500	2	N_N	N_N	4.9	3.9	22.727	4.9	3.9				
N6E02-07	N6E02	5_N	1250	2	N_N	N_N	4.9	3.9	22.727		3.9			4.9	
S1W08-01	S1W08	2_W	1000	3	N_N	N_N	5.15	4.1	22.703	4.1	5.15			5.1	
N6E02-29	N6E02	5_N	1250	2	N_N	N_N	5.4	4.3	22.68	5.4				4.3	
N3W07-29	N3W07	1_NW	1000	2	Y_Y	N_N	59	47	22.642	47	59				
N5E07-15	N5E07	6_NE	1250	2	N_N	N_N	5.9	4.7	22.642	5.9	4.7				
N1W08-14	N1W08	2_W	750	4	N_N	N_N	4.77	3.8	22.637	3.8	4.3			3.8	4.77
N3E08-12	N3E08	6_NE	1250	2	N_N	N_N	6.4	5.1	22.609	6.4	5.1				
S7E04-15	S7E04	4_S	1500	2	N_N	N_N	6.4	5.1	22.609	6.4	5.1				
N4W07-26	N4W07	1_NW	1000	2	N_N	N_N	6.9	5.5	22.581	6.9	5.5				
S2W10-03	S2W10	2_W	1000	2	N_N	N_N	6.9	5.5	22.581	5.5	6.9				
S2E08-08	S2E08	7_E	1000	2	N_N	N_N	7.4	5.9	22.556	5.9	7.4				
S4W10-11	S4W10	3_SW	1250	2	N_N	N_N	8.9	7.1	22.5	8.9	7.1				
S6E03-08	S6E03	4_S	1250	2	N_N	N_N	9.9	7.9	22.472	9.9	7.9				
N3W07-10	N3W07	1_NW	1000	2	N_N	N_N	5	3.99	22.469	5					3.99
N1W07-02	N1W07	2_W	750	2	N_N	N_N	6.89	5.5	22.437	5.5	6.89				
S4W09-24	S4W09	3_SW	1250	2	N_N	N_N	7	5.6	22.222	5.6	7				
N5W09-11	N5W09	1_NW	1250	2	N_N	N_N	3	2.4	22.222	3	2.4				
N6E02-48	N6E02	5_N	1250	2	N_N	N_N	6	4.8	22.222		6			4.8	
S3W06-29	S3W06	3_SW	1000	2	N_N	N_N	6	4.8	22.222	6	4.8				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N5W07-02	N5W07	1_NW	1250	3	N_N	N_N	4.5	3.6	22.222	4.5	3.7			3.6	
N4W10-20	N4W10	1_NW	1250	2	N_N	N_N	2.5	2	22.222	2.5	2				
S1W08-17	S1W08	2_W	1000	2	N_N	N_N	6.5	5.2	22.222	6.5	5.2				
S4E02-03	S4E02	4_S	750	2	N_N	N_N	5	4	22.222	5	4				
S5W05-07	S5W05	3_SW	1000	2	N_N	N_N	5	4	22.222	4	5				
N5E02-14	N5E02	5_N	1000	2	N_N	N_N	4	3.2	22.222		3.2			4	
N6W11-02	N6W11	1_NW	1500	2	N_N	N_N	4	3.2	22.222	4	3.2				
S2W08-09	S2W08	3_SW	1000	2	N_N	N_N	4	3.2	22.222	3.2	4				
N1W07-08	N1W07	2_W	750	2	N_N	N_N	5.87	4.7	22.138	4.7	5.87				
N1W07-05	N1W07	2_W	750	2	N_N	N_N	7.11	5.7	22.014	5.7	7.11				
N3W07-16	N3W07	1_NW	1000	2	N_N	N_N	5.7	4.57	22.006	5.7	4.57				
S5W03-15	S5W03	4_S	1250	2	Y_Y	N_N	25.3	20.3	21.93	20.3	25.3				
N6E07-11	N6E07	6_NE	1500	2	N_N	N_N	8.1	6.5	21.918	8.1	6.5				
S3W05-28	S3W05	3_SW	750	2	N_N	N_N	7.1	5.7	21.875	5.7	7.1				
S7E04-06	S7E04	4_S	1500	2	N_N	N_N	6.6	5.3	21.849	5.3	6.6				
N1W11-11	N1W11	2_W	1250	2	N_N	N_N	6.1	4.9	21.818	4.9	6.1				
N3W06-13	N3W06	1_NW	750	2	N_N	N_N	6.1	4.9	21.818	4.9					6.1
N3W09-19	N3W09	1_NW	1000	2	N_N	N_N	6.1	4.9	21.818	6.1				4.9	
S3W05-24	S3W05	3_SW	750	2	N_N	N_N	6.1	4.9	21.818	6.1	4.9				
S5W06-03	S5W06	3_SW	1000	2	N_N	N_N	6.1	4.9	21.818	4.9	6.1				
N3W12-26	N3W12	1_NW	1500	2	N_N	N_N	5.6	4.5	21.782	5.6	4.5				
N4W13-22	N4W13	1_NW	1500	2	N_N	N_N	5.6	4.5	21.782	5.6	4.5				
N5E04-07	N5E04	6_NE	1250	2	N_N	N_N	5.6	4.5	21.782	5.6	4.5				
N3E09-25	N3E09	6_NE	1250	2	Y_Y	N_N	20.9	16.8	21.751	16.8	20.9				
N3W14-08	N3W14	2_W	1500	2	N_N	N_N	5.1	4.1	21.739	5.1	4.1				
S6W05-18	S6W05	3_SW	1250	2	N_N	N_N	5.1	4.1	21.739	4.1	5.1				
N1W04-06	N1W04	2_W	500	2	N_N	N_N	4.6	3.7	21.687	3.7	4.6				
N2E09-20	N2E09	7_E	1250	2	N_N	N_N	4.6	3.7	21.687		3.7			4.6	
N5W13-29	N5W13	1_NW	1750	2	N_N	N_N	4.6	3.7	21.687	3.7	4.6				
S5E09-16	S5E09	8_SE	1500	2	N_N	N_N	4.6	3.7	21.687	4.6	3.7				
N5E01-17	N5E01	5_N	1000	2	N_N	N_N	8.2	6.6	21.622	6.6	8.2				
S5W04-23	S5W04	3_SW	1000	2	N_N	N_N	4.1	3.3	21.622	3.3	4.1				
S7E03-20	S7E03	4_S	1500	2	N_N	N_N	4.1	3.3	21.622	4.1	3.3				
S1W07-13	S1W07	2_W	750	2	N_N	N_N	7.7	6.2	21.583	7.7	6.2				
N2W10-03	N2W10	2_W	1250	2	N_N	N_N	3.6	2.9	21.538	2.9	3.6				
N4W11-10	N4W11	1_NW	1250	2	N_N	N_N	3.6	2.9	21.538	2.9	3.6				
N2W06-02	N2W06	1_NW	750	2	N_N	N_N	5.2	4.19	21.512	5.2					4.19
S2E09-05	S2E09	7_E	1250	2	N_N	N_N	6.7	5.4	21.488	5.4	6.7				
S5E09-07	S5E09	8_SE	1500	2	Y_Y	N_N	26.3	21.2	21.474	26.3	21.2				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N1W06-01	N1W06	2_W	750	2	N_N	N_N	6.2	5	21.429	6.2	5				
N2W11-22	N2W11	2_W	1250	2	N_N	N_N	6.2	5	21.429	6.2	5				
N6E05-08	N6E05	6_NE	1250	2	N_N	N_N	3.1	2.5	21.429	3.1	2.5				
S1E09-13	S1E09	7_E	1250	2	N_N	N_N	9.3	7.5	21.429	9.3	7.5				
N1W05-12	N1W05	2_W	500	2	N_N	N_N	8.8	7.1	21.384	7.1	8.8				
S7W02-04	S7W02	4_S	1250	2	N_N	N_N	5.7	4.6	21.359	5.7	4.6				
N1W05-19	N1W05	2_W	500	2	N_N	N_N	7.9	6.38	21.289	7.9					6.38
N5E01-20	N5E01	5_N	1000	3	N_N	N_N	5.2	4.2	21.277	4.2	5.2			4.5	
N1W11-08	N1W11	2_W	1250	2	N_N	N_N	5.2	4.2	21.277	4.2	5.2				
N5E05-30	N5E05	6_NE	1250	2	N_N	N_N	5.2	4.2	21.277	5.2	4.2				
N2W06-08	N2W06	1_NW	750	2	N_N	N_N	5.69	4.6	21.186	5.69	4.6				
N6E06-06	N6E06	6_NE	1500	2	N_N	N_N	4.7	3.8	21.176	4.7	3.8				
S4E01-21	S4E01	4_S	1000	2	N_N	N_N	6.8	5.5	21.138	5.5	6.8				
S6W05-17	S6W05	3_SW	1250	2	Y_Y	N_N	34.6	28	21.086	28	34.6				
N2W04-13	N2W04	1_NW	500	2	N_N	N_N	8.6	6.96	21.08	8.6	6.96				
N2W10-32	N2W10	2_W	1250	2	N_N	N_N	2.1	1.7	21.053	2.1	1.7				
N6E01-07	N6E01	5_N	1250	2	N_N	N_N	4.2	3.4	21.053	4.2	3.4				
S6E05-09	S6E05	8_SE	1250	2	N_N	N_N	8.4	6.8	21.053	8.4	6.8				
N3W13-04	N3W13	1_NW	1500	2	N_N	N_N	6.3	5.1	21.053	6.3	5.1				
S1W13-08	S1W13	2_W	1250	2	N_N	N_N	6.3	5.1	21.053		6.3			5.1	
N1W07-18	N1W07	2_W	750	2	N_N	N_N	5.68	4.6	21.012	5.68	4.6				
S2W12-13	S2W12	2_W	1250	2	Y_Y	N_N	14.2	11.5	21.012	14.2	11.5				
N5E05-25	N5E05	6_NE	1250	2	N_N	N_N	10	8.1	20.994	10	8.1				
S7E04-12	S7E04	4_S	1500	2	N_N	N_N	7.9	6.4	20.979	7.9	6.4				
S7W02-13	S7W02	4_S	1500	2	N_N	N_N	5.8	4.7	20.952		4.7			5.8	
N4W11-23	N4W11	1_NW	1500	2	N_N	N_N	3.7	3	20.896	3.7	3				
N6E04-20	N6E04	5_N	1250	2	N_N	N_N	3.7	3	20.896	3	3.7				
S2E09-03	S2E09	7_E	1250	2	N_N	N_N	7.4	6	20.896	7.4	6				
S3W11-04	S3W11	3_SW	1250	2	N_N	N_N	7.4	6	20.896	7.4	6				
S1W07-20	S1W07	2_W	750	2	N_N	N_N	9	7.3	20.859	9	7.3				
S1E06-11	S1E06	7_E	750	2	N_Y	N_N	10.6	8.6	20.833	8.6	10.6				
N3W07-15	N3W07	1_NW	1000	2	N_N	N_N	5.3	4.3	20.833	5.3	4.3				
S4W05-27	S4W05	3_SW	1000	2	N_N	N_N	5.3	4.3	20.833	4.3	5.3				
S3W06-20	S3W06	3_SW	1000	2	Y_Y	N_N	43.5	35.3	20.812	43.5	35.3				
S1E08-27	S1E08	7_E	1000	2	N_N	N_N	6.9	5.6	20.8	6.9	5.6				
N2W11-20	N2W11	2_W	1250	3	N_N	N_N	8	6.5	20.69	8	7.2			6.5	
N4E06-11	N4E06	6_NE	1000	2	N_N	N_N	3.2	2.6	20.69	3.2	2.6				
N5E01-09	N5E01	5_N	1000	2	N_N	N_N	3.2	2.6	20.69	2.6	3.2				
N5W08-24	N5W08	1_NW	1250	2	N_N	N_N	6.4	5.2	20.69	5.2	6.4				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S2W05-08	S2W05	3_SW	750	2	N_N	N_N	4.8	3.9	20.69	4.8	3.9				
S5E03-08	S5E03	8_SE	1000	2	N_N	N_N	4.8	3.9	20.69	4.8	3.9				
S5W01-25	S5W01	4_S	1000	2	Y_Y	N_N	43.8	35.6	20.655	35.6	43.8				
S4W03-11	S4W03	4_S	1000	2	N_N	N_N	9.1	7.4	20.606	9.1	7.4				
N4W09-26	N4W09	1_NW	1250	2	N_N	N_N	7.5	6.1	20.588	7.5	6.1				
S6E05-13	S6E05	8_SE	1250	2	N_Y	N_N	11.8	9.6	20.561	9.6	11.8				
N1W07-01	N1W07	2_W	750	2	N_N	N_N	5.16	4.2	20.513	4.2	5.16				
N1W07-21	N1W07	2_W	750	2	N_N	N_N	4.3	3.5	20.513	4.3	3.5				
S4E03-04	S4E03	4_S	1000	2	N_N	N_N	4.3	3.5	20.513	4.3	3.5				
N5E07-11	N5E07	6_NE	1250	2	N_N	N_N	8.1	6.6	20.408	8.1	6.6				
N2W11-15	N2W11	2_W	1250	2	N_N	N_N	2.7	2.2	20.408	2.2	2.7				
S3W11-10	S3W11	3_SW	1250	2	N_N	N_N	9.2	7.5	20.359	9.2	7.5				
N3W13-14	N3W13	2_W	1500	3	N_N	N_N	7.6	6.2	20.29	7.6	7			6.2	
S3W11-11	S3W11	3_SW	1250	2	N_N	N_N	7.6	6.2	20.29	7.6	6.2				
S1E07-19	S1E07	7_E	1000	2	N_N	N_N	8.7	7.1	20.253	8.7	7.1				
S5E09-22	S5E09	8_SE	1500	2	N_N	N_N	8.7	7.1	20.253	7.1	8.7				
N4W07-34	N4W07	1_NW	1000	2	N_N	N_N	7.1	5.8	20.155	7.1	5.8				
S6E03-11	S6E03	4_S	1250	2	N_N	N_N	7.1	5.8	20.155	5.8	7.1				
N4W12-19	N4W12	1_NW	1500	2	N_N	N_N	4.65	3.8	20.118		3.8			4.65	
N3W05-08	N3W05	1_NW	750	2	N_N	N_N	4.4	3.6	20	4.4	3.6				
S3W04-17	S3W04	3_SW	750	2	N_N	N_N	3.3	2.7	20	2.7	3.3				
S3W07-26	S3W07	3_SW	1000	2	N_N	N_N	5.5	4.5	20	4.5	5.5				
S4E08-22	S4E08	8_SE	1250	2	N_N	N_N	8.8	7.2	20	7.2	8.8				
S5E03-06	S5E03	8_SE	1000	2	N_N	N_N	4.4	3.6	20	3.6	4.4				
S5W04-09	S5W04	4_S	1000	2	N_N	N_N	5.5	4.5	20	5.5	4.5				
S7W03-22	S7W03	4_S	1500	2	Y_Y	N_N	63.3	51.8	19.983	51.8	63.3				
N2E08-11	N2E08	7_E	1000	3	N_N	N_N	7.2	5.9	19.847	7.2	6.5			5.9	
N2W08-15	N2W08	2_W	1000	3	N_N	N_N	5.6	4.59	19.823	5	5.6				4.59
S6E03-22	S6E03	4_S	1250	2	N_N	N_N	6.1	5	19.82	5	6.1				
N3W12-12	N3W12	2_W	1250	2	N_N	N_N	3.9	3.2	19.718	3.9	3.2				
S4E02-07	S4E02	4_S	750	2	N_N	N_N	3.9	3.2	19.718		3.2			3.9	
S6W04-14	S6W04	4_S	1250	2	N_N	N_N	6.7	5.5	19.672	5.5	6.7				
N4W06-12	N4W06	1_NW	1000	3	N_N	N_N	2.8	2.3	19.608	2.8	2.3			2.4	
N4W10-16	N4W10	1_NW	1250	2	N_N	N_N	2.8	2.3	19.608	2.3	2.8				
S4E01-05	S4E01	4_S	750	2	N_N	N_N	5.6	4.6	19.608		5.6			4.6	
N3W06-16	N3W06	1_NW	750	2	N_N	N_N	4.6	3.78	19.57	4.6					3.78
N3W13-21	N3W13	2_W	1500	2	N_N	N_N	7.3	6	19.549	6	7.3				
S5E02-02	S5E02	4_S	1000	2	N_N	N_N	7.3	6	19.549	7.3	6				
S5E08-05	S5E08	8_SE	1500	2	N_N	N_N	7.3	6	19.549		6			7.3	

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S4E09-13	S4E09	8_SE	1500	2	N_N	N_N	9	7.4	19.512	7.4	9				
N5W11-07	N5W11	1_NW	1500	2	N_N	N_N	2.675	2.2	19.487	2.2	2.675				
N1W06-28	N1W06	2_W	750	2	N_N	N_N	6.2	5.1	19.469	6.2	5.1				
N3W13-11	N3W13	2_W	1500	2	N_N	N_N	6.2	5.1	19.469	6.2	5.1				
S5E02-05	S5E02	4_S	1000	2	N_N	N_N	6.2	5.1	19.469	6.2	5.1				
N3E07-11	N3E07	6_NE	1000	2	N_N	N_N	7.9	6.5	19.444	6.5	7.9				
S4W10-03	S4W10	3_SW	1250	2	Y_Y	N_N	41.3	34	19.389		34			41.3	
N4W07-27	N4W07	1_NW	1000	2	N_N	N_N	3.4	2.8	19.355	3.4	2.8				
N5W12-05	N5W12	1_NW	1500	2	N_N	N_N	1.7	1.4	19.355	1.7	1.4				
N6W01-02	N6W01	5_N	1250	2	N_N	N_N	6.8	5.6	19.355	5.6	6.8				
N4W07-25	N4W07	1_NW	1000	2	N_N	N_N	5.1	4.2	19.355	5.1				4.2	
N5E01-26	N5E01	5_N	1000	2	N_N	N_N	5.1	4.2	19.355	4.2	5.1				
N5E02-32	N5E02	5_N	1000	2	N_N	N_N	5.1	4.2	19.355	4.2	5.1				
S1E10-09	S1E10	7_E	1250	2	N_N	N_N	5.1	4.2	19.355	5.1	4.2				
S4E02-12	S4E02	4_S	1000	2	N_N	N_N	5.1	4.2	19.355	5.1	4.2				
S5W03-08	S5W03	4_S	1000	2	N_N	N_N	5.1	4.2	19.355	5.1	4.2				
N3W05-11	N3W05	1_NW	750	2	N_N	N_N	4.6	3.79	19.309	4.6					3.79
S4W06-09	S4W06	3_SW	1000	2	N_N	N_N	9.1	7.5	19.277	7.5	9.1				
S2W09-16	S2W09	2_W	1000	2	N_N	N_N	7.4	6.1	19.259	7.4	6.1				
S4W06-20	S4W06	3_SW	1000	2	Y_Y	N_N	13.1	10.8	19.247	13.1	10.8				
S2E09-06	S2E09	7_E	1250	2	N_N	N_N	5.7	4.7	19.231	4.7	5.7				
S7W02-10	S7W02	4_S	1500	2	N_N	N_N	5.7	4.7	19.231	5.7	4.7				
S5E09-26	S5E09	8_SE	1500	2	Y_Y	N_N	73.6	60.7	19.211	60.7	73.6				
N3W14-24	N3W14	2_W	1500	2	N_N	N_N	4	3.3	19.178	4	3.3				
S5E01-09	S5E01	4_S	1000	2	N_N	N_N	4	3.3	19.178	4	3.3				
S4E08-08	S4E08	8_SE	1250	2	N_N	N_N	8.6	7.1	19.108	7.1	8.6				
N3E09-13	N3E09	6_NE	1250	2	N_N	N_N	6.9	5.7	19.048	6.9	5.7				
S3W03-15	S3W03	3_SW	750	2	N_N	N_N	6.9	5.7	19.048	5.7	6.9				
N2W11-32	N2W11	2_W	1250	2	N_N	N_N	4.6	3.8	19.048	3.8	4.6				
N4W09-11	N4W09	1_NW	1250	2	N_N	N_N	4.6	3.8	19.048	3.8	4.6				
S4E03-02	S4E03	8_SE	1000	2	N_N	N_N	4.6	3.8	19.048		3.8			4.6	
S4W09-15	S4W09	3_SW	1250	2	N_N	N_N	4.6	3.8	19.048		4.6			3.8	
S6E02-23	S6E02	4_S	1250	2	N_N	N_N	4.6	3.8	19.048	4.6	3.8				
S4E01-19	S4E01	4_S	1000	2	N_N	N_N	7.5	6.2	18.978	7.5	6.2				
S6E04-02	S6E04	8_SE	1250	2	N_N	N_N	7.5	6.2	18.978	6.2	7.5				
N3E08-13	N3E08	6_NE	1250	2	N_N	N_N	5.2	4.3	18.947	4.3	5.2				
N3W10-10	N3W10	1_NW	1250	2	N_N	N_N	5.2	4.3	18.947	4.3	5.2				
N5E02-44	N5E02	5_N	1000	2	N_N	N_N	5.2	4.3	18.947	5.2	4.3				
N6W11-11	N6W11	1_NW	1500	2	N_N	N_N	5.2	4.3	18.947	5.2	4.3				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S4E03-05	S4E03	4_S	1000	2	N_N	N_N	5.2	4.3	18.947	4.3	5.2				
S7E02-21	S7E02	4_S	1500	2	N_N	N_N	5.2	4.3	18.947	4.3	5.2				
N4W07-16	N4W07	1_NW	1000	3	N_N	N_N	5.1	4.22	18.884	5.1	4.4				4.22
S2E09-01	S2E09	7_E	1250	2	N_N	N_N	9.3	7.7	18.824	7.7	9.3				
N5E03-23	N5E03	5_N	1000	3	N_N	N_N	6.4	5.3	18.803	6.4	5.3			5.8	
N3W07-05	N3W07	1_NW	1000	2	N_N	N_N	6.4	5.3	18.803	6.4	5.3				
S3E10-10	S3E10	8_SE	1500	2	N_N	N_N	6.4	5.3	18.803	5.3	6.4				
N1W09-17	N1W09	2_W	1000	2	N_N	N_N	3.5	2.9	18.75	2.9	3.5				
N4W13-24	N4W13	1_NW	1500	2	N_N	N_N	7	5.8	18.75	7	5.8				
N5W13-10	N5W13	1_NW	1750	2	N_N	N_N	3.5	2.9	18.75	3.5	2.9				
N8W03-03	N8W03	5_N	1750	2	N_N	N_N	7	5.8	18.75	7	5.8				
S5W05-20	S5W05	3_SW	1250	2	N_N	N_N	7	5.8	18.75	7	5.8				
N4W10-11	N4W10	1_NW	1250	2	N_N	N_N	4.1	3.4	18.667	4.1	3.4				
N5E07-21	N5E07	6_NE	1250	2	N_N	N_N	4.1	3.4	18.667	3.4	4.1				
N5W08-23	N5W08	1_NW	1250	2	N_N	N_N	4.1	3.4	18.667	3.4	4.1				
N4W14-12	N4W14	1_NW	1500	2	N_N	N_N	4.7	3.9	18.605	3.9	4.7				
N6E03-16	N6E03	5_N	1250	2	N_N	N_N	4.7	3.9	18.605	4.7	3.9				
S7W02-14	S7W02	4_S	1500	3	N_N	N_N	5.3	4.4	18.557	4.4	5.3			4.9	
N3E09-26	N3E09	6_NE	1250	2	N_N	N_N	5.3	4.4	18.557	5.3	4.4				
S7W02-16	S7W02	4_S	1500	2	N_N	N_N	5.3	4.4	18.557	4.4	5.3				
N4W13-11	N4W13	1_NW	1500	2	N_N	N_N	5.9	4.9	18.519	4.9	5.9				
N3W07-20	N3W07	1_NW	1000	2	N_N	N_N	3.6	2.99	18.513		3.6				2.99
S1E08-06	S1E08	7_E	1000	2	N_N	N_N	6.5	5.4	18.487	6.5	5.4				
S5W07-02	S5W07	3_SW	1250	2	N_N	N_N	7.1	5.9	18.462	7.1	5.9				
S4E09-09	S4E09	8_SE	1500	2	N_N	N_N	7.7	6.4	18.44	7.7	6.4				
S7E02-27	S7E02	4_S	1500	2	Y_Y	N_N	24.3	20.2	18.427	20.2	24.3				
N2W06-07	N2W06	1_NW	750	2	N_N	N_N	8.9	7.4	18.405	8.9	7.4				
S7W02-06	S7W02	4_S	1500	2	Y_Y	N_N	59.9	49.9	18.215	59.9	49.9				
N1W05-24	N1W05	2_W	500	2	N_N	N_N	5.4	4.5	18.182	5.4	4.5				
N5W11-02	N5W11	1_NW	1500	3	N_N	N_N	1.8	1.5	18.182	1.5	1.8			1.8	
N2E09-25	N2E09	7_E	1250	2	N_N	N_N	4.2	3.5	18.182	4.2	3.5				
N2W10-20	N2W10	2_W	1000	2	N_N	N_N	4.2	3.5	18.182	4.2	3.5				
N4E02-07	N4E02	5_N	1000	2	N_N	N_N	3	2.5	18.182	2.5	3				
N5E02-38	N5E02	5_N	1000	2	N_N	N_N	3	2.5	18.182	3	2.5				
N6W10-07	N6W10	1_NW	1500	2	N_N	N_N	3.6	3	18.182	3.6	3				
S2E10-30	S2E10	7_E	1250	2	N_N	N_N	7.2	6	18.182	6	7.2				
S3W08-09	S3W08	3_SW	1000	2	N_N	N_N	6	5	18.182	6	5				
S4W03-06	S4W03	4_S	750	2	N_N	N_N	3.6	3	18.182	3	3.6				
S4W05-25	S4W05	3_SW	1000	2	N_N	N_N	3.6	3	18.182	3.6	3				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1E10-01	S1E10	7_E	1250	2	N_N	N_N	7.8	6.5	18.182	6.5	7.8				
S4E01-16	S4E01	4_S	1000	3	N_N	N_N	4.8	4	18.182	4.8	4			4.3	
N2W11-24	N2W11	2_W	1250	2	N_N	N_N	4.8	4	18.182	4.8	4				
N5E04-06	N5E04	6_NE	1250	2	N_N	N_N	4.8	4	18.182	4	4.8				
N5E05-27	N5E05	6_NE	1250	2	N_N	N_N	4.8	4	18.182	4	4.8				
S7E03-09	S7E03	4_S	1500	2	N_N	N_N	6.6	5.5	18.182	5.5	6.6				
S4W07-28	S4W07	3_SW	1000	2	Y_Y	N_N	20.4	17	18.182	20.4	17				
N4E03-18	N4E03	5_N	1000	2	Y_Y	N_N	12.1	10.1	18.018	10.1	12.1				
S3E09-08	S3E09	8_SE	1250	2	N_Y	N_N	10.3	8.6	17.989	10.3	8.6				
S6E04-05	S6E04	8_SE	1250	2	N_Y	N_N	10.3	8.6	17.989	8.6	10.3				
S1W06-19	S1W06	2_W	750	2	N_N	N_N	7.9	6.6	17.931	7.9	6.6				
S3W06-07	S3W06	3_SW	750	2	N_N	N_N	7.3	6.1	17.91	7.3	6.1				
N2E08-05	N2E08	7_E	1250	2	N_N	N_N	6.7	5.6	17.886	6.7	5.6				
S3W11-12	S3W11	3_SW	1250	2	N_N	N_N	6.7	5.6	17.886	6.7	5.6				
S7W03-25	S7W03	4_S	1500	2	N_N	N_N	6.7	5.6	17.886	6.7	5.6				
S3W04-15	S3W04	3_SW	750	2	N_N	N_N	6.1	5.1	17.857	5.1	6.1				
S5E03-02	S5E03	4_S	1000	2	N_N	N_N	5.5	4.6	17.822	5.5	4.6				
N5E05-14	N5E05	6_NE	1250	2	Y_Y	N_N	38.5	32.2	17.822	32.2	38.5				
N4W08-28	N4W08	1_NW	1250	2	Y_Y	N_N	58.7	49.1	17.811	49.1	58.7				
N5E01-15	N5E01	5_N	1000	2	N_N	N_N	4.9	4.1	17.778	4.1				4.9	
N6E04-11	N6E04	6_NE	1250	2	N_N	N_N	4.9	4.1	17.778	4.9	4.1				
S3W12-13	S3W12	3_SW	1500	2	N_N	N_N	4.9	4.1	17.778	4.9	4.1				
S4W10-02	S4W10	3_SW	1250	2	N_N	N_N	4.9	4.1	17.778	4.1	4.9				
N1W06-22	N1W06	2_W	750	2	N_N	N_N	6.93	5.8	17.753	5.8					6.93
S1W07-12	S1W07	2_W	750	2	N_N	N_N	9.2	7.7	17.751	7.7	9.2				
N2W06-05	N2W06	1_NW	750	2	N_N	N_N	5.4	4.52	17.742	5.4				4.52	
N3W11-05	N3W11	1_NW	1250	2	N_N	N_N	4.3	3.6	17.722	4.3	3.6				
S3W09-17	S3W09	3_SW	1250	2	N_N	N_N	4.3	3.6	17.722	4.3	3.6				
S4W09-21	S4W09	3_SW	1250	2	N_N	N_N	4.3	3.6	17.722	3.6	4.3				
S1W07-11	S1W07	2_W	750	2	N_N	N_N	8	6.7	17.687	8	6.7				
S7E02-25	S7E02	4_S	1500	2	N_N	N_N	8	6.7	17.687	6.7	8				
N4E05-14	N4E05	6_NE	1000	2	N_N	N_N	3.7	3.1	17.647	3.7	3.1				
N5E01-18	N5E01	5_N	1000	2	N_N	N_N	3.7	3.1	17.647	3.7	3.1				
N3E09-16	N3E09	7_E	1250	2	N_N	N_N	6.8	5.7	17.6	5.7	6.8				
S4E08-07	S4E08	8_SE	1250	2	N_N	N_N	6.8	5.7	17.6	6.8	5.7				
S5W02-02	S5W02	4_S	1000	2	N_N	N_N	9.9	8.3	17.582	8.3	9.9				
N4E09-26	N4E09	6_NE	1250	2	N_N	N_N	3.1	2.6	17.544	2.6	3.1				
N4W10-10	N4W10	1_NW	1250	2	N_N	N_N	3.1	2.6	17.544	3.1	2.6				
S3W03-14	S3W03	3_SW	750	2	N_N	N_N	6.2	5.2	17.544	6.2	5.2				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S4W07-19	S4W07	3_SW	1250	2	N_N	N_N	3.1	2.6	17.544	2.6	3.1				
N2W07-05	N2W07	1_NW	750	2	N_N	N_N	4.9	4.11	17.536		4.9				4.11
N1W07-24	N1W07	2_W	750	2	N_N	N_N	5.6	4.7	17.476	5.6	4.7				
N6E04-19	N6E04	5_N	1250	2	N_N	N_N	5.6	4.7	17.476	5.6	4.7				
S2W08-07	S2W08	2_W	1000	2	N_N	N_N	5.6	4.7	17.476	5.6	4.7				
N6W12-11	N6W12	1_NW	1750	2	N_N	N_N	4.05	3.4	17.45	3.4	4.05				
S1W06-04	S1W06	2_W	750	2	N_N	N_N	8.1	6.8	17.45	8.1	6.8				
N2W06-13	N2W06	1_NW	750	2	N_N	N_N	7.3	6.13	17.424	7.3					6.13
S1W06-23	S1W06	2_W	750	2	N_N	N_N	7.5	6.3	17.391	7.5	6.3				
S1W07-18	S1W07	2_W	750	2	N_N	N_N	7.5	6.3	17.391	6.3	7.5				
S1E06-20	S1E06	7_E	750	2	N_N	N_N	10	8.4	17.391	10	8.4				
S1W07-08	S1W07	2_W	750	2	N_N	N_N	5	4.2	17.391	4.2	5				
S5W07-23	S5W07	3_SW	1250	2	N_N	N_N	5	4.2	17.391	4.2	5				
N2W07-23	N2W07	1_NW	750	2	N_N	N_N	5.95	5	17.352	5.95	5				
S1E09-14	S1E09	7_E	1250	2	N_N	N_N	6.9	5.8	17.323	6.9	5.8				
N4W08-22	N4W08	1_NW	1000	3	N_N	N_N	6.78	5.7	17.308	5.7	6.7				6.78
N4W13-07	N4W13	1_NW	1500	2	N_N	N_N	4.4	3.7	17.284	3.7	4.4				
N5E05-03	N5E05	6_NE	1250	2	N_N	N_N	4.4	3.7	17.284	4.4	3.7				
N6E03-10	N6E03	5_N	1250	2	N_N	N_N	4.4	3.7	17.284	4.4	3.7				
S2W13-23	S2W13	2_W	1500	2	N_N	N_N	8.8	7.4	17.284		8.8			7.4	
S7E01-11	S7E01	4_S	1500	2	N_N	N_N	4.4	3.7	17.284	4.4	3.7				
N6E05-18	N6E05	6_NE	1250	2	N_N	N_N	6.3	5.3	17.241	6.3	5.3				
S1W06-12	S1W06	2_W	750	2	N_N	N_N	8.2	6.9	17.219	8.2	6.9				
N3W09-02	N3W09	1_NW	1250	2	Y_Y	N_N	34.8	29.3	17.161	34.8	29.3				
N3W11-06	N3W11	1_NW	1250	2	N_N	N_N	5.7	4.8	17.143	4.8	5.7				
N1W06-11	N1W06	2_W	750	2	N_N	N_N	9.5	8	17.143	8	9.5				
N5E03-12	N5E03	5_N	1000	2	N_N	N_N	3.8	3.2	17.143	3.2	3.8				
S1W12-03	S1W12	2_W	1250	2	N_N	N_N	3.8	3.2	17.143	3.8	3.2				
S4E08-06	S4E08	8_SE	1250	2	N_N	N_N	7.6	6.4	17.143	7.6	6.4				
S7W01-01	S7W01	4_S	1250	2	N_N	N_N	3.8	3.2	17.143	3.8	3.2				
N2W06-28	N2W06	1_NW	750	2	N_N	N_N	3.3	2.78	17.105	3.3					2.78
S5E01-22	S5E01	4_S	1000	2	N_N	N_N	7	5.9	17.054	5.9	7				
S1W12-04	S1W12	2_W	1250	2	N_N	N_N	5.1	4.3	17.021	5.1	4.3				
S2W10-23	S2W10	2_W	1250	2	N_N	N_N	5.1	4.3	17.021	5.1	4.3				
S5E01-21	S5E01	4_S	1000	2	N_N	N_N	5.1	4.3	17.021	5.1	4.3				
S2W12-17	S2W12	2_W	1250	2	Y_Y	N_N	28.1	23.7	16.988		28.1			23.7	
N1W06-19	N1W06	2_W	750	2	N_N	N_N	7.8	6.58	16.968	7.8					6.58
N5E07-01	N5E07	6_NE	1250	3	N_N	N_N	3.2	2.7	16.949	3.2	2.8			2.7	
N5E02-27	N5E02	5_N	1000	2	N_N	N_N	3.2	2.7	16.949	2.7	3.2				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N5E06-19	N5E06	6_NE	1250	2	N_N	N_N	3.2	2.7	16.949	2.7	3.2				
N5W13-11	N5W13	1_NW	1750	2	N_N	N_N	3.2	2.7	16.949	2.7	3.2				
S6W04-04	S6W04	4_S	1250	2	N_N	N_N	6.4	5.4	16.949	6.4	5.4				
N3W14-20	N3W14	2_W	1500	2	N_N	N_N	4.5	3.8	16.867	3.8	4.5				
S6W04-06	S6W04	4_S	1250	2	N_N	N_N	9	7.6	16.867		9	7.6			
N1W10-22	N1W10	2_W	1000	2	N_N	N_N	5.8	4.9	16.822	4.9	5.8				
N3W07-12	N3W07	1_NW	1000	2	N_N	N_N	5.8	4.9	16.822	4.9	5.8				
N3W13-08	N3W13	2_W	1500	2	N_N	N_N	5.8	4.9	16.822		5.8			4.9	
N6E06-19	N6E06	6_NE	1250	2	Y_Y	N_N	34.9	29.5	16.77	34.9	29.5				
S5E09-05	S5E09	8_SE	1500	2	Y_Y	N_N	20.1	17	16.712	17	20.1				
N1W06-02	N1W06	2_W	750	2	N_N	N_N	7.8	6.6	16.667	6.6	7.8				
N5E01-10	N5E01	5_N	1000	2	N_N	N_N	3.9	3.3	16.667	3.3				3.9	
N6E02-16	N6E02	5_N	1250	2	N_N	N_N	3.9	3.3	16.667	3.9				3.3	
S5E03-27	S5E03	4_S	1000	2	N_N	N_N	3.9	3.3	16.667	3.3	3.9				
N1W06-17	N1W06	2_W	750	2	Y_Y	N_N	65	55	16.667	55	65				
N1W06-05	N1W06	2_W	750	2	N_N	N_N	5.2	4.4	16.667	5.2	4.4				
S2E10-25	S2E10	7_E	1250	2	N_N	N_N	5.2	4.4	16.667	5.2	4.4				
S5W02-12	S5W02	4_S	1000	2	N_N	N_N	2.6	2.2	16.667	2.6	2.2				
S5W02-22	S5W02	4_S	1000	2	N_N	N_N	5.2	4.4	16.667	5.2	4.4				
S7E02-10	S7E02	4_S	1500	2	N_N	N_N	5.2	4.4	16.667	5.2	4.4				
N3W09-14	N3W09	1_NW	1000	2	N_N	N_N	7.2	6.1	16.541	7.2	6.1				
S5W03-02	S5W03	4_S	1000	2	N_N	N_N	7.2	6.1	16.541	7.2	6.1				
N5W08-28	N5W08	1_NW	1250	2	N_N	N_N	5.9	5	16.514	5.9	5				
S4W03-09	S4W03	4_S	750	2	N_N	N_N	5.9	5	16.514	5.9	5				
S4W05-18	S4W05	3_SW	1000	2	N_N	N_N	5.9	5	16.514	5.9	5				
S5E02-15	S5E02	4_S	1250	3	Y_Y	N_N	70.2	59.5	16.5	59.5	61.8			70.2	
N2W09-07	N2W09	2_W	1000	2	N_N	N_N	4.6	3.9	16.471		3.9			4.6	
N6W12-05	N6W12	1_NW	1750	2	N_N	N_N	4.6	3.9	16.471	3.9	4.6				
S5E08-22	S5E08	8_SE	1250	2	N_N	N_N	9.2	7.8	16.471	7.8	9.2				
S5E09-20	S5E09	8_SE	1500	2	N_N	N_N	4.6	3.9	16.471	4.6	3.9				
S5W02-24	S5W02	4_S	1000	2	N_N	N_N	4.6	3.9	16.471	3.9	4.6				
S1W08-05	S1W08	2_W	750	2	N_N	N_N	7.9	6.7	16.438	6.7	7.9				
S7W03-15	S7W03	4_S	1500	2	Y_Y	N_N	35.6	30.2	16.413	35.6	30.2				
N2W06-16	N2W06	2_W	750	2	N_N	N_N	3.1	2.63	16.405	3.1					2.63
N2W09-18	N2W09	2_W	1000	2	N_N	N_N	6.6	5.6	16.393	5.6	6.6				
N5E03-16	N5E03	6_NE	1000	2	N_N	N_N	3.3	2.8	16.393		2.8			3.3	
N3W04-07	N3W04	1_NW	750	2	N_N	N_N	7.6	6.45	16.37	7.6					6.45
N3W04-08	N3W04	1_NW	750	2	N_N	N_N	6.48	5.5	16.361	5.5					6.48
N6E04-13	N6E04	6_NE	1250	2	N_N	N_N	5.3	4.5	16.327	4.5	5.3				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S6W03-02	S6W03	4_S	1250	2	N_N	N_N	6	5.1	16.216	6	5.1				
N4W07-19	N4W07	1_NW	1000	2	N_N	N_N	1	0.85	16.216	1	0.85				
N3W10-03	N3W10	1_NW	1250	2	N_N	N_N	3.9	3.315	16.216		3.9			3.315	
N1W09-05	N1W09	2_W	1000	3	N_N	N_N	5.41	4.6	16.184	5.3	5.41			4.6	
N2W04-01	N2W04	1_NW	500	2	Y_Y	N_N	76.44	65	16.176	65					76.44
S1E08-16	S1E08	7_E	1000	2	N_Y	N_N	10.7	9.1	16.162	10.7	9.1				
N3W03-09	N3W03	1_NW	750	2	N_N	N_N	8.7	7.4	16.149	8.7	7.4				
S3W05-21	S3W05	3_SW	750	2	N_N	N_N	6.7	5.7	16.129	5.7	6.7				
S6W04-10	S6W04	4_S	1250	2	N_N	N_N	6.7	5.7	16.129		5.7			6.7	
N6E03-02	N6E03	5_N	1250	2	Y_Y	N_N	31.5	26.8	16.123	31.5	26.8				
N4E02-04	N4E02	5_N	1000	2	N_N	N_N	4.7	4	16.092	4.7	4				
S4E08-14	S4E08	8_SE	1250	2	N_N	N_N	9.4	8	16.092	9.4	8				
S4W09-11	S4W09	3_SW	1250	2	N_N	N_N	4.7	4	16.092	4	4.7				
S3W04-24	S3W04	3_SW	750	2	N_N	N_N	7.4	6.3	16.058	6.3	7.4				
N3W08-12	N3W08	1_NW	1000	3	N_N	N_N	5.4	4.6	16	4.6	5.4				4.67
N4E09-12	N4E09	6_NE	1500	2	N_N	N_N	5.4	4.6	16	5.4	4.6				
S5W06-07	S5W06	3_SW	1250	2	N_N	N_N	5.4	4.6	16	4.6	5.4				
S1W09-04	S1W09	2_W	1000	2	N_N	N_N	5.3	4.515	15.996	5.3	4.515				
N6E07-07	N6E07	6_NE	1500	2	N_N	N_N	6.1	5.2	15.929	6.1	5.2				
N6E08-19	N6E08	6_NE	1500	2	N_N	N_N	6.1	5.2	15.929	6.1	5.2				
S4E01-24	S4E01	4_S	750	2	N_N	N_N	6.1	5.2	15.929	5.2	6.1				
S5E01-20	S5E01	4_S	1000	2	N_N	N_N	6.1	5.2	15.929	5.2	6.1				
S5E04-07	S5E04	8_SE	1250	2	N_N	N_N	6.1	5.2	15.929	5.2	6.1				
N3W06-17	N3W06	1_NW	750	2	N_N	N_N	4.34	3.7	15.92	4.34	3.7				
N2W07-26	N2W07	1_NW	1000	2	Y_Y	N_N	12.9	11	15.9	12.9	11				
N2E09-08	N2E09	7_E	1250	2	Y_Y	N_N	46.2	39.4	15.888		39.4			46.2	
N4E04-01	N4E04	6_NE	1000	3	N_N	N_N	3.4	2.9	15.873	3.4	3.1			2.9	
N1W09-03	N1W09	2_W	1000	2	N_N	N_N	3.4	2.9	15.873	2.9	3.4				
N4W11-20	N4W11	1_NW	1500	2	N_N	N_N	3.4	2.9	15.873	2.9	3.4				
S4W05-01	S4W05	3_SW	1000	2	N_N	N_N	3.4	2.9	15.873	2.9	3.4				
S5E07-03	S5E07	8_SE	1250	2	N_N	N_N	6.8	5.8	15.873		6.8			5.8	
N2W04-14	N2W04	1_NW	500	2	N_N	N_N	8.67	7.4	15.806	7.4					8.67
N5E04-02	N5E04	6_NE	1250	2	Y_Y	N_N	28	23.9	15.8	28	23.9				
N1W07-22	N1W07	2_W	750	2	N_N	N_N	4.1	3.5	15.789	4.1	3.5				
N3E09-27	N3E09	6_NE	1250	2	N_N	N_N	4.1	3.5	15.789	4.1	3.5				
S7E03-22	S7E03	4_S	1500	2	N_N	N_N	4.1	3.5	15.789	3.5	4.1				
S5W07-25	S5W07	3_SW	1250	2	Y_Y	N_N	31.5	26.9	15.753	31.5	26.9				
N3W05-16	N3W05	1_NW	750	2	N_N	N_N	4.8	4.1	15.73	4.1	4.8				
S1W10-20	S1W10	2_W	1000	2	N_N	N_N	4.8	4.1	15.73	4.1					4.8

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S6W03-21	S6W03	4_S	1250	2	N_N	N_N	4.8	4.1	15.73	4.1				4.8	
S7W01-21	S7W01	4_S	1500	2	N_N	N_N	4.8	4.1	15.73	4.8	4.1				
N3W11-13	N3W11	1_NW	1250	2	N_N	N_N	4.5	3.85	15.569	4.5	3.85				
S4E09-25	S4E09	8_SE	1250	2	N_Y	N_N	10.4	8.9	15.544	10.4	8.9				
N5E02-01	N5E02	5_N	1000	2	Y_Y	N_N	11.8	10.1	15.525		10.1			11.8	
S4W06-17	S4W06	3_SW	1000	2	N_N	N_N	7.7	6.6	15.385	6.6	7.7				
N3W09-16	N3W09	1_NW	1000	3	N_N	N_N	4.9	4.2	15.385	4.4	4.9			4.2	
N1W07-09	N1W07	2_W	750	2	N_N	N_N	4.2	3.6	15.385	4.2	3.6				
N3W10-22	N3W10	1_NW	1250	2	N_N	N_N	4.2	3.6	15.385	4.2	3.6				
N4E05-07	N4E05	6_NE	1000	2	N_N	N_N	4.9	4.2	15.385	4.9	4.2				
N4W14-19	N4W14	1_NW	1500	2	N_N	N_N	4.2	3.6	15.385	3.6	4.2				
N5W12-03	N5W12	1_NW	1750	2	N_N	N_N	2.1	1.8	15.385	1.8	2.1				
S4W03-04	S4W03	4_S	750	2	N_N	N_N	4.2	3.6	15.385	3.6	4.2				
S4W06-27	S4W06	3_SW	1000	2	N_N	N_N	4.9	4.2	15.385	4.9	4.2				
S7E03-19	S7E03	4_S	1500	2	N_N	N_N	3.5	3	15.385	3	3.5				
S4E08-26	S4E08	8_SE	1250	2	N_Y	N_N	11.2	9.6	15.385	9.6	11.2				
N2E08-14	N2E08	7_E	1000	3	N_N	N_N	9.1	7.8	15.385	9.1	7.9			7.8	
N3W10-23	N3W10	1_NW	1250	2	N_N	N_N	2.8	2.4	15.385	2.8	2.4				
N6W08-16	N6W08	1_NW	1500	2	N_N	N_N	5.6	4.8	15.385	5.6	4.8				
S2W13-11	S2W13	2_W	1500	2	N_N	N_N	5.6	4.8	15.385	4.8	5.6				
S5W03-09	S5W03	4_S	1000	2	N_N	N_N	5.6	4.8	15.385	5.6	4.8				
S6E01-08	S6E01	4_S	1250	2	N_N	N_N	5.6	4.8	15.385	5.6	4.8				
S6W03-07	S6W03	4_S	1250	2	N_N	N_N	1.4	1.2	15.385	1.4	1.2				
N6E07-06	N6E07	6_NE	1500	2	N_N	N_N	6.3	5.4	15.385	5.4	6.3				
N2W09-16	N2W09	2_W	1000	2	Y_Y	N_N	41.4	35.5	15.345	41.4	35.5				
S4E02-23	S4E02	4_S	750	2	Y_Y	N_N	31.9	27.4	15.177	27.4	31.9				
N4W06-09	N4W06	1_NW	1000	2	N_N	N_N	7.1	6.1	15.152	7.1	6.1				
S6E01-05	S6E01	4_S	1250	2	N_N	N_N	7.1	6.1	15.152	6.1	7.1				
S6E04-03	S6E04	8_SE	1250	2	N_N	N_N	7.1	6.1	15.152	6.1	7.1				
S1W11-13	S1W11	2_W	1250	2	N_N	N_N	6.4	5.5	15.126	6.4	5.5				
S2E09-09	S2E09	7_E	1250	2	N_N	N_N	5.7	4.9	15.094	4.9	5.7				
S3W09-07	S3W09	3_SW	1000	2	N_N	N_N	5.7	4.9	15.094	5.7	4.9				
S5W02-16	S5W02	4_S	1000	2	N_N	N_N	5.7	4.9	15.094	5.7	4.9				
S2W05-18	S2W05	3_SW	750	2	N_N	N_N	5	4.3	15.054	4.3	5				
S3W10-13	S3W10	3_SW	1250	2	N_N	N_N	5	4.3	15.054	4.3	5				
S7E02-11	S7E02	4_S	1500	2	N_N	N_N	5	4.3	15.054	5	4.3				
S7E02-03	S7E02	4_S	1250	2	Y_Y	N_N	55.9	48.1	15	48.1	55.9				
N5E03-21	N5E03	5_N	1000	2	N_N	N_N	4.3	3.7	15	4.3	3.7				
N6E03-15	N6E03	5_N	1250	2	N_N	N_N	4.3	3.7	15		4.3			3.7	

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N6E04-24	N6E04	5_N	1250	2	N_N	N_N	4.3	3.7	15	4.3	3.7				
S4W05-24	S4W05	3_SW	1000	2	N_N	N_N	4.3	3.7	15	3.7	4.3				
N4W13-27	N4W13	1_NW	1500	2	N_N	N_N	3.6	3.1	14.925	3.6	3.1				
S2W07-03	S2W07	2_W	750	2	N_N	N_N	7.2	6.2	14.925	6.2	7.2				
S4W03-07	S4W03	4_S	750	2	N_N	N_N	7.2	6.2	14.925	6.2	7.2				
S5E03-34	S5E03	4_S	1000	2	N_N	N_N	6.5	5.6	14.876	5.6	6.5				
S5W05-18	S5W05	3_SW	1250	2	N_N	N_N	6.5	5.6	14.876	5.6	6.5				
S7W02-08	S7W02	4_S	1500	2	N_N	N_N	6.5	5.6	14.876	5.6	6.5				
N3W05-09	N3W05	1_NW	750	2	N_N	N_N	5.8	5	14.815	5	5.8				
N3W11-15	N3W11	1_NW	1250	2	N_N	N_N	2.9	2.5	14.815	2.9	2.5				
N4W09-27	N4W09	1_NW	1250	2	N_N	N_N	2.9	2.5	14.815	2.5	2.9				
N5E02-39	N5E02	5_N	1000	2	N_N	N_N	2.9	2.5	14.815		2.5			2.9	
N5W13-26	N5W13	1_NW	1750	2	N_N	N_N	2.9	2.5	14.815	2.9	2.5				
S4W03-08	S4W03	4_S	750	2	N_N	N_N	5.8	5	14.815	5.8	5				
S5W07-12	S5W07	3_SW	1250	2	N_N	N_N	5.8	5	14.815	5	5.8				
S7W01-19	S7W01	4_S	1500	2	N_N	N_N	5.8	5	14.815	5	5.8				
S4W09-12	S4W09	3_SW	1250	2	N_N	N_N	5.1	4.4	14.737	4.4	5.1				
N5W13-03	N5W13	1_NW	1750	2	N_N	N_N	2.2	1.9	14.634	1.9	2.2				
N4W13-09	N4W13	1_NW	1500	2	N_N	N_N	6.6	5.7	14.634	5.7	6.6				
S4W08-11	S4W08	3_SW	1250	2	N_N	N_N	6.6	5.7	14.634	5.7	6.6				
S5E02-10	S5E02	4_S	1000	2	N_N	N_N	6.6	5.7	14.634	6.6	5.7				
S7E04-16	S7E04	4_S	1500	2	N_N	N_N	6.6	5.7	14.634		5.7			6.6	
N3W12-18	N3W12	2_W	1250	2	Y_Y	N_N	11.8	10.2	14.545		11.8			10.2	
S2E08-09	S2E08	7_E	1000	2	N_N	N_N	5.9	5.1	14.545	5.1	5.9				
S3W08-08	S3W08	3_SW	1000	2	N_N	N_N	5.9	5.1	14.545	5.1	5.9				
N3W13-15	N3W13	2_W	1500	2	N_N	N_N	7.4	6.4	14.493		7.4			6.4	
S2E09-04	S2E09	7_E	1250	2	N_N	N_N	7.4	6.4	14.493	6.4	7.4				
S5W04-19	S5W04	4_S	1250	3	N_N	N_N	5.2	4.5	14.433	4.5	5.2			5.2	
N6E02-13	N6E02	5_N	1250	2	N_N	N_N	5.2	4.5	14.433	5.2	4.5				
S3W10-04	S3W10	3_SW	1250	2	N_N	N_N	5.2	4.5	14.433	5.2				4.5	
N8W03-01	N8W03	5_N	1750	2	N_N	N_N	6.7	5.8	14.4	6.7	5.8				
S2W10-04	S2W10	2_W	1000	2	N_N	N_N	6.7	5.8	14.4	5.8	6.7				
N3W10-27	N3W10	1_NW	1250	2	N_N	N_N	4.5	3.9	14.286	3.9	4.5				
N4W12-03	N4W12	1_NW	1500	2	N_N	N_N	4.5	3.9	14.286	4.5	3.9				
N4W13-14	N4W13	1_NW	1500	2	N_N	N_N	4.5	3.9	14.286	4.5	3.9				
N5E02-02	N5E02	5_N	1000	2	N_N	N_N	4.5	3.9	14.286		4.5			3.9	
N4W10-02	N4W10	1_NW	1250	2	N_N	N_N	1.5	1.3	14.286	1.5	1.3				
N4W12-21	N4W12	1_NW	1500	2	N_N	N_N	3	2.6	14.286	3	2.6				
N5E06-20	N5E06	6_NE	1250	2	N_N	N_N	3	2.6	14.286	3	2.6				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N6E02-45	N6E02	5_N	1250	2	N_N	N_N	3	2.6	14.286	2.6	3				
N2W04-27	N2W04	1_NW	750	2	N_N	N_N	7.15	6.2	14.232	6.2	7.15				
S2W11-12	S2W11	2_W	1250	2	Y_Y	N_N	45.2	39.2	14.218	39.2	45.2				
N4W07-31	N4W07	1_NW	1000	3	N_N	N_N	4.6	3.99	14.203	4.6	4				3.99
S1W05-06	S1W05	2_W	500	2	N_N	N_N	8.3	7.2	14.194	8.3	7.2				
S3W05-12	S3W05	3_SW	750	2	N_N	N_N	8.3	7.2	14.194	7.2	8.3				
N4W06-10	N4W06	1_NW	1000	3	N_N	N_N	4.38	3.8	14.181	3.9	3.8				4.38
S1E08-23	S1E08	7_E	1000	2	N_N	N_N	6.8	5.9	14.173	6.8	5.9				
N6E03-14	N6E03	5_N	1250	2	N_N	N_N	3.8	3.3	14.085	3.3	3.8				
S3W10-05	S3W10	3_SW	1250	2	N_N	N_N	4.95	4.3	14.054	4.3	4.95				
N2W05-01	N2W05	1_NW	750	2	N_N	N_N	5.64	4.9	14.042	4.9					5.64
N2W10-10	N2W10	2_W	1000	2	N_N	N_N	6.1	5.3	14.035	6.1	5.3				
N3W09-12	N3W09	1_NW	1000	2	N_N	N_N	6.1	5.3	14.035	5.3	6.1				
N4W09-15	N4W09	1_NW	1250	2	N_N	N_N	6.1	5.3	14.035	6.1	5.3				
S3E09-09	S3E09	8_SE	1250	2	N_N	N_N	6.9	6	13.953	6	6.9				
N3W12-09	N3W12	1_NW	1250	2	N_N	N_N	2.3	2	13.953	2	2.3				
S4W05-02	S4W05	3_SW	1000	2	N_N	N_N	4.6	4	13.953	4	4.6				
S6E02-10	S6E02	4_S	1250	2	N_N	N_N	4.6	4	13.953	4.6	4				
S7E02-23	S7E02	4_S	1500	2	N_N	N_N	9.2	8	13.953	8	9.2				
S4E08-04	S4E08	8_SE	1250	2	N_N	N_N	7.7	6.7	13.889	7.7	6.7				
N2W05-12	N2W05	1_NW	750	2	Y_Y	N_N	13.79	12	13.881	12					13.79
S4E02-26	S4E02	4_S	750	2	N_N	N_N	5.4	4.7	13.861	4.7	5.4				
S7W01-12	S7W01	4_S	1500	2	N_N	N_N	5.4	4.7	13.861	5.4	4.7				
N4W06-11	N4W06	1_NW	1000	3	N_N	N_N	4.8	4.18	13.808	4.2	4.8				4.18
N2W04-28	N2W04	1_NW	750	2	N_N	N_N	6.2	5.4	13.793	5.4					6.2
N2W10-05	N2W10	2_W	1250	2	N_N	N_N	3.1	2.7	13.793	3.1	2.7				
N4E09-18	N4E09	6_NE	1250	2	N_N	N_N	6.2	5.4	13.793	5.4	6.2				
N4W10-08	N4W10	1_NW	1250	2	N_N	N_N	3.1	2.7	13.793	3.1	2.7				
N1W04-08	N1W04	2_W	500	2	N_N	N_N	7.8	6.8	13.699	6.8	7.8				
N3E09-19	N3E09	7_E	1250	2	N_N	N_N	3.9	3.4	13.699		3.4			3.9	
N3W08-11	N3W08	1_NW	1000	2	N_N	N_N	3.9	3.4	13.699	3.4	3.9				
N4E03-11	N4E03	6_NE	1000	2	N_N	N_N	3.9	3.4	13.699	3.4	3.9				
S2E10-31	S2E10	7_E	1250	2	N_N	N_N	3.9	3.4	13.699	3.9	3.4				
S2W09-02	S2W09	2_W	1000	2	N_N	N_N	3.9	3.4	13.699	3.4	3.9				
S7W01-09	S7W01	4_S	1500	2	N_N	N_N	3.9	3.4	13.699	3.9	3.4				
S5W02-11	S5W02	4_S	1000	2	Y_Y	N_N	48.7	42.5	13.596	42.5	48.7				
S2E10-10	S2E10	7_E	1250	2	N_N	N_N	5.5	4.8	13.592	4.8	5.5				
S4W06-19	S4W06	3_SW	1000	2	N_N	N_N	6.3	5.5	13.559		5.5			6.3	
S1W12-05	S1W12	2_W	1250	2	N_N	N_N	7.1	6.2	13.534	6.2	7.1				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S4E06-04	S4E06	8_SE	1000	2	Y_Y	N_N	26.2	22.9	13.442	26.2	22.9				
N3W09-04	N3W09	1_NW	1250	2	N_N	N_N	6.4	5.6	13.333	5.6	6.4				
N3W14-23	N3W14	2_W	1500	2	N_N	N_N	3.2	2.8	13.333	2.8	3.2				
N6E03-17	N6E03	5_N	1250	2	N_N	N_N	6.4	5.6	13.333	5.6	6.4				
S3W12-09	S3W12	3_SW	1500	2	N_N	N_N	3.2	2.8	13.333		2.8			3.2	
S4W09-25	S4W09	3_SW	1250	2	N_N	N_N	3.2	2.8	13.333	2.8	3.2				
S5W03-27	S5W03	4_S	1000	2	N_N	N_N	6.4	5.6	13.333	6.4	5.6				
S7E01-24	S7E01	4_S	1500	2	N_N	N_N	8.8	7.7	13.333	7.7	8.8				
N2W11-08	N2W11	2_W	1250	2	N_N	N_N	4	3.5	13.333	3.5	4				
N4W12-14	N4W12	1_NW	1500	2	N_N	N_N	8	7	13.333	8	7				
N5W10-05	N5W10	1_NW	1250	2	N_N	N_N	4	3.5	13.333	3.5	4				
N2W11-05	N2W11	2_W	1250	2	N_N	N_N	4.8	4.2	13.333	4.2	4.8				
N3W07-03	N3W07	1_NW	1000	2	N_N	N_N	4.8	4.2	13.333	4.2	4.8				
N4E09-22	N4E09	6_NE	1250	2	N_N	N_N	4.8	4.2	13.333		4.8			4.2	
N5E03-01	N5E03	5_N	1250	2	N_N	N_N	4.8	4.2	13.333	4.8	4.2				
N4E05-02	N4E05	6_NE	1000	2	N_N	N_N	5.6	4.9	13.333	5.6	4.9				
N1W06-25	N1W06	2_W	750	2	N_N	N_N	7.77	6.8	13.315	6.8					7.77
N1W05-10	N1W05	2_W	500	2	N_N	N_N	7.5	6.57	13.22	7.5					6.57
N4E06-04	N4E06	6_NE	1250	2	N_N	N_N	8.9	7.8	13.174	8.9	7.8				
S4E06-02	S4E06	8_SE	1000	2	N_N	N_N	8.1	7.1	13.158	8.1	7.1				
N8W02-12	N8W02	5_N	1750	2	N_N	N_N	6.5	5.7	13.115	6.5	5.7				
S1W09-21	S1W09	2_W	1000	2	N_N	N_N	6.5	5.7	13.115	5.7	6.5				
S2W11-16	S2W11	2_W	1250	2	N_N	N_N	6.5	5.7	13.115	6.5	5.7				
N5E02-41	N5E02	5_N	1000	2	N_N	N_N	5.7	5	13.084		5.7			5	
S2W10-19	S2W10	2_W	1250	2	N_N	N_N	5.7	5	13.084	5.7	5				
N4E06-01	N4E06	6_NE	1250	2	N_N	N_N	4.9	4.3	13.043	4.9				4.3	
S3W09-20	S3W09	3_SW	1250	2	N_N	N_N	4.9	4.3	13.043	4.9	4.3				
S1W07-02	S1W07	2_W	750	2	N_N	N_N	3.76	3.3	13.031	3.3	3.76				
N3W11-19	N3W11	1_NW	1250	2	N_N	N_N	4.1	3.6	12.987	3.6	4.1				
N4E09-13	N4E09	6_NE	1500	2	N_N	N_N	4.1	3.6	12.987	4.1	3.6				
S4W06-28	S4W06	3_SW	1000	2	N_N	N_N	4.1	3.6	12.987	4.1	3.6				
N4W07-28	N4W07	1_NW	1000	2	N_N	N_N	3.3	2.9	12.903	3.3	2.9				
S4W06-05	S4W06	3_SW	1000	2	N_N	N_N	6.6	5.8	12.903	6.6	5.8				
S7W03-07	S7W03	4_S	1500	2	N_N	N_N	6.6	5.8	12.903	6.6	5.8				
N1W04-18	N1W04	2_W	500	2	N_N	N_N	5.8	5.1	12.844	5.8	5.1				
S7E04-13	S7E04	4_S	1500	2	Y_Y	N_N	17.4	15.3	12.844	15.3	17.4				
N7W02-01	N7W02	5_N	1500	3	N_N	N_N	2.5	2.2	12.766	2.4	2.2			2.5	
N3E09-05	N3E09	6_NE	1250	2	N_N	N_N	5	4.4	12.766	4.4	5				
S5W06-02	S5W06	3_SW	1000	2	N_N	N_N	5	4.4	12.766	5	4.4				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N3W11-20	N3W11	1_NW	1250	2	N_N	N_N	4.2	3.7	12.658	4.2	3.7				
S4W05-28	S4W05	3_SW	1000	2	N_N	N_N	4.2	3.7	12.658	4.2	3.7				
S7W02-18	S7W02	4_S	1500	2	N_N	N_N	4.2	3.7	12.658	4.2	3.7				
S1W08-23	S1W08	2_W	1000	2	N_N	N_N	5.9	5.2	12.613	5.2	5.9				
S3W09-05	S3W09	3_SW	1000	2	N_N	N_N	5.9	5.2	12.613	5.2	5.9				
S4E03-06	S4E03	4_S	1000	2	N_N	N_N	5.9	5.2	12.613	5.9	5.2				
S4W06-16	S4W06	3_SW	1000	2	N_N	N_N	5.9	5.2	12.613	5.9	5.2				
N1W07-30	N1W07	2_W	750	2	N_N	N_N	7.6	6.7	12.587	7.6	6.7				
N5W07-16	N5W07	1_NW	1250	2	N_N	N_N	3.8	3.35	12.587	3.8	3.35				
N4E03-15	N4E03	5_N	1000	2	Y_Y	N_N	20.3	17.9	12.565	20.3	17.9				
S1E09-17	S1E09	7_E	1250	2	Y_Y	N_N	37.4	33	12.5	33	37.4				
N1W10-01	N1W10	2_W	1000	2	N_N	N_N	5.1	4.5	12.5	4.5				5.1	
N5E02-24	N5E02	5_N	1000	2	N_N	N_N	1.7	1.5	12.5	1.7	1.5				
N6E05-17	N6E05	6_NE	1250	2	N_N	N_N	3.4	3	12.5	3.4	3				
S5W02-17	S5W02	4_S	1000	2	Y_Y	N_N	28.2	24.9	12.429	28.2	24.9				
N4W06-08	N4W06	1_NW	1000	2	N_N	N_N	6	5.3	12.389	6	5.3				
S3W03-17	S3W03	3_SW	750	2	N_N	N_N	6	5.3	12.389	6	5.3				
N1W06-06	N1W06	2_W	750	2	N_N	N_N	4.3	3.8	12.346	3.8	4.3				
N3W14-12	N3W14	2_W	1500	2	N_N	N_N	4.3	3.8	12.346	3.8	4.3				
S3W04-10	S3W04	3_SW	750	2	N_N	N_N	8.6	7.6	12.346	7.6	8.6				
N2W09-11	N2W09	2_W	1000	2	N_N	N_N	6.9	6.1	12.308	6.1	6.9				
N5E02-35	N5E02	5_N	1000	2	N_N	N_N	2.6	2.3	12.245	2.6	2.3				
N3W04-09	N3W04	1_NW	750	2	N_N	N_N	5.9	5.22	12.23	5.9					5.22
N3W02-01	N3W02	5_N	500	2	N_Y	N_N	10.17	9	12.207	9	10.17				
N4W12-17	N4W12	1_NW	1500	2	N_N	N_N	6.1	5.4	12.174	6.1	5.4				
N2W12-09	N2W12	2_W	1250	2	N_N	N_N	7	6.2	12.121	6.2	7				
N4W12-29	N4W12	1_NW	1500	2	N_N	N_N	3.5	3.1	12.121	3.5	3.1				
N2W06-17	N2W06	2_W	750	2	N_N	N_N	4.4	3.9	12.048	4.4	3.9				
N4W13-20	N4W13	1_NW	1500	2	N_N	N_N	4.4	3.9	12.048	4.4	3.9				
S3W06-12	S3W06	3_SW	750	2	N_N	N_N	9.7	8.6	12.022	8.6	9.7				
N5W11-06	N5W11	1_NW	1500	2	Y_Y	N_N	54.7	48.5	12.016	54.7	48.5				
S5E03-25	S5E03	4_S	1250	2	N_N	N_N	5.3	4.7	12	4.7	5.3				
S1W10-09	S1W10	2_W	1000	2	N_Y	N_N	11.05	9.8	11.99	9.8	11.05				
S7E03-12	S7E03	4_S	1500	2	N_N	N_N	6.2	5.5	11.966	6.2	5.5				
N3W13-01	N3W13	1_NW	1500	2	N_N	N_N	7.1	6.3	11.94	7.1	6.3				
S1W13-07	S1W13	2_W	1250	2	N_N	N_N	7.1	6.3	11.94	6.3	7.1				
N2W04-05	N2W04	1_NW	500	2	Y_Y	N_N	12	10.65	11.921	12	10.65				
N6E02-10	N6E02	5_N	1250	2	N_N	N_N	5.4	4.8	11.765	5.4	4.8				
S1W10-23	S1W10	2_W	1000	2	N_N	N_N	2.7	2.4	11.765	2.7	2.4				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S4W10-19	S4W10	3_SW	1250	2	N_N	N_N	6.3	5.6	11.765	6.3	5.6				
N4E06-05	N4E06	6_NE	1250	2	N_N	N_N	4.5	4	11.765	4	4.5				
N4W10-13	N4W10	1_NW	1250	2	N_N	N_N	4.5	4	11.765	4	4.5				
N5E04-18	N5E04	6_NE	1000	2	N_N	N_N	4.5	4	11.765	4.5	4				
N6E04-17	N6E04	5_N	1250	2	N_N	N_N	4.5	4	11.765	4	4.5				
S3W12-12	S3W12	3_SW	1500	2	N_N	N_N	4.5	4	11.765	4.5	4				
S4E02-08	S4E02	4_S	750	2	N_N	N_N	4.5	4	11.765	4	4.5				
S5E03-01	S5E03	4_S	1000	2	N_N	N_N	4.5	4	11.765	4	4.5				
N3W10-01	N3W10	1_NW	1250	2	N_N	N_N	3.6	3.2	11.765		3.2			3.6	
N4E09-07	N4E09	6_NE	1500	2	N_N	N_N	3.6	3.2	11.765	3.6	3.2				
N4W11-22	N4W11	1_NW	1500	2	N_N	N_N	3.6	3.2	11.765	3.6	3.2				
S2W06-04	S2W06	3_SW	750	2	N_N	N_N	9.9	8.8	11.765	9.9	8.8				
S5W01-19	S5W01	4_S	1000	2	N_N	N_N	9.9	8.8	11.765	9.9	8.8				
S5W06-21	S5W06	3_SW	1250	2	Y_Y	N_N	20.9	18.6	11.646	18.6	20.9				
N1W05-17	N1W05	2_W	500	2	N_N	N_N	10	8.9	11.64	8.9	10				
N2W11-26	N2W11	2_W	1250	2	N_N	N_N	8.2	7.3	11.613	8.2	7.3				
N5E01-13	N5E01	5_N	1000	2	N_N	N_N	6.4	5.7	11.57	5.7				6.4	
S1E10-14	S1E10	7_E	1250	2	N_N	N_N	6.4	5.7	11.57	5.7	6.4				
S1W10-15	S1W10	2_W	1000	2	N_N	N_N	5.5	4.9	11.538	5.5	4.9				
S1W10-24	S1W10	2_W	1000	2	N_N	N_N	5.5	4.9	11.538	5.5	4.9				
S4W10-27	S4W10	3_SW	1250	2	N_N	N_N	5.5	4.9	11.538	5.5	4.9				
N2W12-17	N2W12	2_W	1250	2	N_N	N_N	4.6	4.1	11.494	4.1	4.6				
S2E10-04	S2E10	7_E	1250	2	N_N	N_N	9.2	8.2	11.494	9.2	8.2				
N2W11-16	N2W11	2_W	1250	2	N_N	N_N	3.7	3.3	11.429	3.7	3.3				
N4E03-06	N4E03	6_NE	1000	2	N_N	N_N	3.7	3.3	11.429	3.3	3.7				
S4E09-10	S4E09	8_SE	1500	2	N_N	N_N	7.4	6.6	11.429	7.4	6.6				
N2W09-19	N2W09	2_W	1000	2	N_N	N_N	6.5	5.8	11.382	6.5	5.8				
S1W12-06	S1W12	2_W	1250	2	N_N	N_N	6.5	5.8	11.382	5.8	6.5				
S4W04-16	S4W04	3_SW	1000	2	N_N	N_N	6.5	5.8	11.382	6.5	5.8				
S4W04-17	S4W04	3_SW	1000	2	N_N	N_N	6.5	5.8	11.382	5.8	6.5				
S3E10-15	S3E10	8_SE	1250	3	N_N	N_N	5.6	5	11.321	5	5.6			5.1	
N1W06-14	N1W06	2_W	750	2	N_N	N_N	7.39	6.6	11.294	6.6					7.39
N1W13-02	N1W13	2_W	1250	2	N_N	N_N	4.7	4.2	11.236	4.7	4.2				
N3W06-05	N3W06	1_NW	750	2	N_N	N_N	4.7	4.2	11.236	4.2	4.7				
N4E05-13	N4E05	6_NE	1000	2	N_N	N_N	4.7	4.2	11.236	4.7	4.2				
N5E03-24	N5E03	5_N	1000	2	N_N	N_N	4.7	4.2	11.236	4.7				4.2	
S1E07-06	S1E07	7_E	1000	2	N_N	N_N	4.7	4.2	11.236	4.7	4.2				
S4E01-10	S4E01	4_S	750	2	N_N	N_N	4.7	4.2	11.236	4.2	4.7				
S7E04-09	S7E04	4_S	1500	2	N_N	N_N	6.6	5.9	11.2	6.6	5.9				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1W05-03	S1W05	2_W	500	2	N_N	N_N	6.82	6.1	11.146	6.1	6.82				
N2W04-09	N2W04	1_NW	500	2	N_N	N_N	5.7	5.1	11.111	5.7	5.1				
N2W12-08	N2W12	2_W	1250	2	N_N	N_N	5.7	5.1	11.111	5.1	5.7				
N4W10-06	N4W10	1_NW	1250	2	N_N	N_N	5.7	5.1	11.111	5.1	5.7				
S2W07-23	S2W07	2_W	750	2	N_N	N_N	5.7	5.1	11.111	5.1	5.7				
S3W08-12	S3W08	3_SW	1000	2	N_N	N_N	5.7	5.1	11.111	5.7	5.1				
N2W03-09	N2W03	1_NW	500	2	N_N	N_N	9.5	8.5	11.111	9.5	8.5				
N1W11-04	N1W11	2_W	1250	2	N_N	N_N	1.9	1.7	11.111	1.9	1.7				
N4E05-08	N4E05	6_NE	1000	2	N_N	N_N	3.8	3.4	11.111	3.8	3.4				
N5W11-03	N5W11	1_NW	1500	2	N_N	N_N	1.9	1.7	11.111		1.7			1.9	
N5W12-22	N5W12	1_NW	1500	2	N_N	N_N	1.9	1.7	11.111	1.7	1.9				
S4W03-01	S4W03	3_SW	750	2	N_N	N_N	4.8	4.3	10.989	4.3	4.8				
S4W05-16	S4W05	3_SW	1000	2	N_N	N_N	4.8	4.3	10.989	4.3	4.8				
N4W07-29	N4W07	1_NW	1000	3	N_N	N_N	3.46	3.1	10.976	3.2	3.1				3.46
S2W12-18	S2W12	2_W	1250	2	Y_Y	N_N	11.6	10.4	10.909	10.4	11.6				
N3W06-11	N3W06	1_NW	750	2	N_N	N_N	5.8	5.2	10.909	5.2	5.8				
N4W12-20	N4W12	1_NW	1500	2	N_N	N_N	2.9	2.6	10.909	2.9	2.6				
N6E02-34	N6E02	5_N	1250	2	N_N	N_N	2.9	2.6	10.909	2.9	2.6				
N1W08-24	N1W08	2_W	1000	2	N_N	N_N	6.8	6.1	10.853	6.1	6.8				
S3E09-18	S3E09	8_SE	1250	2	N_Y	N_N	10.7	9.6	10.837	10.7	9.6				
N3W13-03	N3W13	1_NW	1500	2	N_N	N_N	3.9	3.5	10.811	3.9	3.5				
S4W05-07	S4W05	3_SW	1000	2	N_N	N_N	3.9	3.5	10.811	3.5	3.9				
S7W01-29	S7W01	4_S	1250	2	N_N	N_N	3.9	3.5	10.811	3.9	3.5				
N3W11-07	N3W11	1_NW	1250	2	N_N	N_N	4.9	4.4	10.753	4.4	4.9				
S4W06-12	S4W06	3_SW	1000	2	N_N	N_N	5.9	5.3	10.714	5.3	5.9				
S5W04-05	S5W04	4_S	1000	2	Y_Y	N_N	26.6	23.9	10.693	23.9	26.6				
S7E04-14	S7E04	4_S	1500	2	N_N	N_N	6.9	6.2	10.687	6.2	6.9				
S2W05-16	S2W05	3_SW	750	2	N_N	N_N	7.9	7.1	10.667	7.1	7.9				
N2W07-16	N2W07	2_W	750	2	N_N	N_N	3.7	3.33	10.526	3.7					3.33
N3W12-31	N3W12	1_NW	1500	2	N_N	N_N	5	4.5	10.526	5	4.5				
N3W14-19	N3W14	2_W	1500	2	N_N	N_N	5	4.5	10.526	5	4.5				
S1W06-22	S1W06	2_W	750	2	N_N	N_N	10	9	10.526	10	9				
S4W05-08	S4W05	3_SW	1000	2	N_N	N_N	5	4.5	10.526	4.5	5				
S7W01-13	S7W01	4_S	1500	2	N_N	N_N	5	4.5	10.526	5	4.5				
S7W03-26	S7W03	4_S	1500	2	N_N	N_N	5	4.5	10.526		5			4.5	
N3W10-24	N3W10	1_NW	1250	2	N_N	N_N	2	1.8	10.526	1.8	2				
N5W12-10	N5W12	1_NW	1500	2	N_N	N_N	2	1.8	10.526	2	1.8				
N6E02-37	N6E02	5_N	1250	2	N_N	N_N	4	3.6	10.526	3.6	4				
S3W10-15	S3W10	3_SW	1250	2	N_N	N_N	4	3.6	10.526	4	3.6				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S5W07-11	S5W07	3_SW	1250	2	N_N	N_N	4	3.6	10.526	3.6	4				
N1W12-17	N1W12	2_W	1250	2	N_N	N_N	6	5.4	10.526	6	5.4				
S3E06-19	S3E06	8_SE	1000	2	N_N	N_N	6	5.4	10.526	6	5.4				
S3W07-09	S3W07	3_SW	1000	2	N_N	N_N	6	5.4	10.526	5.4	6				
S1W09-17	S1W09	2_W	1000	2	N_N	N_N	8.1	7.3	10.39	7.3	8.1				
S1E10-26	S1E10	7_E	1250	2	N_N	N_N	7.1	6.4	10.37	6.4	7.1				
S4E07-15	S4E07	8_SE	1250	2	N_N	N_N	7.1	6.4	10.37	6.4	7.1				
S6W04-05	S6W04	4_S	1250	2	N_N	N_N	6.1	5.5	10.345	5.5	6.1				
N4W09-19	N4W09	1_NW	1250	3	N_N	N_N	5.1	4.6	10.309	5.1	4.8			4.6	
N6E05-22	N6E05	6_NE	1250	2	N_N	N_N	5.1	4.6	10.309	5.1	4.6				
S4W03-21	S4W03	4_S	1000	2	N_N	N_N	5.1	4.6	10.309	4.6	5.1				
S5W07-13	S5W07	3_SW	1250	2	N_N	N_N	5.1	4.6	10.309	4.6	5.1				
S7E03-15	S7E03	4_S	1500	2	N_N	N_N	5.1	4.6	10.309		4.6			5.1	
S2E08-04	S2E08	7_E	1000	3	Y_Y	N_N	31.7	28.6	10.282	28.6	29.9			31.7	
S5W06-05	S5W06	3_SW	1250	2	N_N	N_N	8.2	7.4	10.256	8.2	7.4				
S7E03-21	S7E03	4_S	1500	2	N_N	N_N	4.1	3.7	10.256		3.7			4.1	
N3W13-09	N3W13	2_W	1500	2	N_N	N_N	6.2	5.6	10.169	5.6	6.2				
N5W12-01	N5W12	1_NW	1750	2	N_N	N_N	3.1	2.8	10.169	2.8	3.1				
N3W04-01	N3W04	1_NW	750	2	Y_Y	N_N	93	84	10.169	93	84				
S4W05-15	S4W05	3_SW	1000	2	Y_Y	N_N	47.7	43.1	10.132		47.7			43.1	
S3W08-11	S3W08	3_SW	1000	2	N_N	N_N	8.3	7.5	10.127	8.3	7.5				
N2W06-01	N2W06	1_NW	750	2	N_N	N_N	5.2	4.7	10.101	5.2	4.7				
N2W06-21	N2W06	1_NW	750	2	N_N	N_N	5.2	4.7	10.101	5.2	4.7				
N2W09-09	N2W09	2_W	1000	2	N_N	N_N	5.2	4.7	10.101	4.7	5.2				
N3W07-22	N3W07	1_NW	1000	2	N_N	N_N	5.2	4.7	10.101	5.2	4.7				
S5W07-04	S5W07	3_SW	1250	2	N_N	N_N	5.2	4.7	10.101	4.7	5.2				
S7W03-20	S7W03	4_S	1500	2	N_N	N_N	5.2	4.7	10.101	5.2	4.7				
N4W09-23	N4W09	1_NW	1250	2	N_N	N_N	4.2	3.8	10	3.8	4.2				
S3E02-01	S3E02	4_S	500	2	N_N	N_N	2.1	1.9	10	2.1	1.9				
S4W07-14	S4W07	3_SW	1000	2	N_N	N_N	4.2	3.8	10	3.8	4.2				
S5W06-08	S5W06	3_SW	1250	2	Y_Y	N_N	46.4	42	9.9548	46.4	42				
N3W06-12	N3W06	1_NW	750	2	N_N	N_N	5.3	4.8	9.901	5.3	4.8				
N6E06-23	N6E06	6_NE	1500	2	Y_Y	N_N	48.9	44.3	9.8712	44.3	48.9				
N4W12-08	N4W12	1_NW	1500	2	N_N	N_N	6.4	5.8	9.8361	5.8	6.4				
N4W12-09	N4W12	1_NW	1500	2	N_N	N_N	6.4	5.8	9.8361	5.8	6.4				
S6E03-07	S6E03	4_S	1250	2	N_N	N_N	6.4	5.8	9.8361	5.8	6.4				
S3W06-10	S3W06	3_SW	750	2	N_N	N_N	7.5	6.8	9.7902	6.8	7.5				
N1W09-14	N1W09	2_W	1000	2	N_N	N_N	5.9	5.35	9.7778		5.35			5.9	
N1W07-13	N1W07	2_W	750	2	N_N	N_N	4.3	3.9	9.7561	4.3	3.9				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N4E06-07	N4E06	6_NE	1250	2	N_N	N_N	4.3	3.9	9.7561		4.3			3.9	
N5E05-10	N5E05	6_NE	1250	2	N_N	N_N	4.3	3.9	9.7561	4.3	3.9				
S2W11-14	S2W11	2_W	1250	2	N_N	N_N	4.3	3.9	9.7561	3.9	4.3				
S7E02-26	S7E02	4_S	1500	3	N_N	N_N	5.4	4.9	9.7087	5.1	4.9			5.4	
S6W05-19	S6W05	3_SW	1250	2	N_N	N_N	5.4	4.9	9.7087	4.9	5.4				
S7W03-17	S7W03	4_S	1500	2	Y_Y	N_N	62.7	56.9	9.699	62.7	56.9				
N2W10-19	N2W10	2_W	1000	2	N_N	N_N	6.5	5.9	9.6774	5.9	6.5				
S1W06-18	S1W06	2_W	750	2	N_N	N_N	6.5	5.9	9.6774	5.9	6.5				
S4E09-15	S4E09	8_SE	1500	3	N_N	N_N	7.6	6.9	9.6552	7.6	7.2			6.9	
S4E01-27	S4E01	4_S	750	2	N_N	N_N	9.8	8.9	9.6257	8.9	9.8				
N2W11-06	N2W11	2_W	1250	2	N_N	N_N	4.4	4	9.5238	4.4	4				
N5E07-09	N5E07	6_NE	1250	2	N_N	N_N	4.4	4	9.5238	4.4	4				
N5W13-04	N5W13	1_NW	1750	2	N_N	N_N	2.2	2	9.5238	2	2.2				
S4E01-04	S4E01	4_S	750	2	N_N	N_N	2.2	2	9.5238	2.2	2				
S5W07-22	S5W07	3_SW	1250	2	N_N	N_N	4.4	4	9.5238	4.4	4				
S1E10-25	S1E10	7_E	1250	2	N_N	N_N	7.7	7	9.5238	7	7.7				
S2E09-19	S2E09	7_E	1250	2	N_N	N_N	7.7	7	9.5238	7	7.7				
S4E01-22	S4E01	4_S	750	2	N_N	N_N	7.7	7	9.5238	7	7.7				
S4E07-14	S4E07	8_SE	1250	2	N_N	N_N	7.7	7	9.5238	7.7	7				
S2W09-01	S2W09	2_W	1000	2	N_N	N_N	5.5	5	9.5238	5.5	5				
N5W09-02	N5W09	1_NW	1500	2	N_N	N_N	3.3	3	9.5238	3	3.3				
S4E09-22	S4E09	8_SE	1250	2	N_N	N_N	7.8	7.1	9.396	7.1	7.8				
N6E03-22	N6E03	5_N	1250	2	N_N	N_N	6.7	6.1	9.375	6.7	6.1				
S2W07-05	S2W07	3_SW	750	2	N_N	N_N	6.7	6.1	9.375	6.1	6.7				
S1W10-29	S1W10	2_W	1000	2	N_N	N_N	5.6	5.1	9.3458	5.6	5.1				
N3E09-09	N3E09	6_NE	1250	2	N_N	N_N	4.5	4.1	9.3023	4.1				4.5	
N5E08-02	N5E08	6_NE	1500	2	N_N	N_N	4.5	4.1	9.3023	4.5	4.1				
S3W10-06	S3W10	3_SW	1250	2	N_N	N_N	4.5	4.1	9.3023	4.1	4.5				
S6W03-03	S6W03	4_S	1250	2	N_N	N_N	4.5	4.1	9.3023	4.5	4.1				
S4E09-18	S4E09	8_SE	1250	2	N_N	N_N	7.9	7.2	9.2715	7.2	7.9				
N2W05-20	N2W05	1_NW	750	2	N_N	N_N	5.6	5.105	9.248	5.6					5.105
N1W06-13	N1W06	2_W	750	2	N_N	N_N	6.8	6.2	9.2308	6.2	6.8				
N1W13-04	N1W13	2_W	1250	2	N_N	N_N	6.8	6.2	9.2308	6.2	6.8				
N6W12-07	N6W12	1_NW	1750	2	N_N	N_N	3.4	3.1	9.2308				3.1	3.4	
N8W03-15	N8W03	5_N	1750	2	N_N	N_N	3.4	3.1	9.2308	3.4	3.1				
S2W12-15	S2W12	2_W	1250	2	N_N	N_N	6.8	6.2	9.2308	6.8	6.2				
S3W04-23	S3W04	3_SW	750	2	N_N	N_N	6.8	6.2	9.2308	6.8	6.2				
S3W10-21	S3W10	3_SW	1250	2	N_N	N_N	9.1	8.3	9.1954	8.3	9.1				
N2W14-01	N2W14	2_W	1500	2	N_N	N_N	2.96	2.7	9.1873				2.96	2.7	

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1W13-12	S1W13	2_W	1250	2	N_N	N_N	5.7	5.2	9.1743	5.2	5.7				
N1W04-02	N1W04	1_NW	500	2	N_N	N_N	6.3	5.75	9.1286	6.3					5.75
N3W13-16	N3W13	2_W	1500	2	N_N	N_N	6.9	6.3	9.0909	6.9	6.3				
S4E08-17	S4E08	8_SE	1250	2	N_N	N_N	6.9	6.3	9.0909	6.9	6.3				
N1E10-11	N1E10	7_E	1250	2	N_N	N_N	4.6	4.2	9.0909	4.6	4.2				
N4W11-14	N4W11	1_NW	1250	2	N_N	N_N	2.3	2.1	9.0909	2.1	2.3				
S4E01-01	S4E01	4_S	750	2	N_N	N_N	2.3	2.1	9.0909		2.3			2.1	
S5W04-04	S5W04	4_S	1000	2	N_N	N_N	4.6	4.2	9.0909	4.2	4.6				
N5E07-10	N5E07	6_NE	1250	2	N_N	N_N	5.8	5.3	9.009	5.3	5.8				
S3W07-08	S3W07	3_SW	1000	2	N_N	N_N	5.8	5.3	9.009	5.8	5.3				
N2W05-06	N2W05	1_NW	750	2	N_N	N_N	3.5	3.2	8.9552	3.5	3.2				
N3E08-09	N3E08	6_NE	1250	2	N_N	N_N	7	6.4	8.9552	6.4	7				
N3W09-25	N3W09	1_NW	1000	2	N_N	N_N	3.5	3.2	8.9552	3.5	3.2				
N4W08-34	N4W08	1_NW	1250	2	N_N	N_N	3.5	3.2	8.9552	3.2	3.5				
S4E01-26	S4E01	4_S	750	2	N_N	N_N	7	6.4	8.9552	6.4	7				
S5E08-06	S5E08	8_SE	1500	2	N_N	N_N	8.2	7.5	8.9172	8.2	7.5				
S2W07-21	S2W07	2_W	750	2	N_N	N_N	5.9	5.4	8.8496	5.9	5.4				
S3W06-11	S3W06	3_SW	750	2	N_N	N_N	5.9	5.4	8.8496	5.9	5.4				
S1E07-16	S1E07	7_E	1000	2	N_N	N_N	9.5	8.7	8.7912	9.5	8.7				
N3E09-15	N3E09	6_NE	1250	2	Y_Y	N_N	14.3	13.1	8.7591	13.1	14.3				
S4W07-26	S4W07	3_SW	1000	2	N_N	N_N	3.6	3.3	8.6957	3.3	3.6				
S5E09-08	S5E09	8_SE	1500	2	N_N	N_N	3.6	3.3	8.6957	3.3	3.6				
S3W01-06	S3W01	4_S	500	2	Y_Y	N_N	12	11	8.6957	11	12				
N6E07-08	N6E07	6_NE	1500	2	N_N	N_N	6	5.5	8.6957	5.5	6				
S7W02-20	S7W02	4_S	1500	2	N_N	N_N	6	5.5	8.6957	5.5	6				
S4W07-07	S4W07	3_SW	1000	2	N_N	N_N	2.4	2.2	8.6957	2.4	2.2				
N2W10-16	N2W10	2_W	1000	2	N_N	N_N	6.1	5.6	8.547	6.1	5.6				
S2W06-12	S2W06	3_SW	750	2	N_N	N_N	6.1	5.6	8.547	6.1	5.6				
S5E09-21	S5E09	8_SE	1500	2	Y_Y	N_N	11	10.1	8.5308	11	10.1				
S7W02-12	S7W02	4_S	1500	3	N_N	N_N	4.9	4.5	8.5106	4.5	4.9			4.9	
N6E05-25	N6E05	6_NE	1250	2	N_N	N_N	4.9	4.5	8.5106	4.9	4.5				
S7E01-13	S7E01	4_S	1500	2	N_N	N_N	4.9	4.5	8.5106	4.9	4.5				
N1W06-24	N1W06	2_W	750	2	N_N	N_N	5.9	5.42	8.4806	5.42	5.9				
S3E10-16	S3E10	8_SE	1250	2	Y_Y	N_N	61.6	56.6	8.4602	56.6	61.6				
S3W06-28	S3W06	3_SW	1000	2	N_N	N_N	7.4	6.8	8.4507	7.4	6.8				
N2W05-19	N2W05	1_NW	750	2	N_N	N_N	6.2	5.7	8.4034	6.2	5.7				
S4E07-07	S4E07	8_SE	1250	2	N_N	N_N	6.2	5.7	8.4034	6.2	5.7				
S1E10-20	S1E10	7_E	1250	2	N_N	N_N	8.7	8	8.3832	8.7	8				
S4E08-27	S4E08	8_SE	1250	2	N_N	N_N	8.7	8	8.3832	8	8.7				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1E07-04	S1E07	7_E	1000	3	N_N	N_N	5	4.6	8.3333	4.6	4.8			5	
N3W11-02	N3W11	1_NW	1250	2	N_N	N_N	2.5	2.3	8.3333	2.5	2.3				
N3W12-02	N3W12	1_NW	1500	2	N_N	N_N	2.5	2.3	8.3333	2.3	2.5				
N5W13-12	N5W13	1_NW	1750	2	N_N	N_N	2.5	2.3	8.3333	2.3	2.5				
S7E03-14	S7E03	4_S	1500	2	N_N	N_N	5	4.6	8.3333	4.6	5				
S7W03-19	S7W03	4_S	1500	2	N_N	N_N	5	4.6	8.3333	4.6	5				
S1E08-24	S1E08	7_E	1000	2	Y_Y	N_N	11.3	10.4	8.2949	11.3	10.4				
N5E02-33	N5E02	5_N	1000	2	N_N	N_N	8.8	8.1	8.284	8.1	8.8				
N2W06-04	N2W06	1_NW	750	2	N_N	N_N	6.3	5.8	8.2645	5.8	6.3				
N4W12-06	N4W12	1_NW	1500	2	N_N	N_N	6.3	5.8	8.2645	5.8	6.3				
S6E03-04	S6E03	4_S	1250	2	N_N	N_N	6.3	5.8	8.2645	6.3	5.8				
N6E05-06	N6E05	6_NE	1250	2	N_N	N_N	3.8	3.5	8.2192	3.5	3.8				
N4W10-09	N4W10	1_NW	1250	2	N_N	N_N	4	3.685	8.1978	4	3.685				
N3W06-24	N3W06	1_NW	1000	2	Y_Y	N_N	51	47	8.1633	51	47				
N1W08-18	N1W08	2_W	1000	2	N_N	N_N	5.1	4.7	8.1633	5.1	4.7				
N6E04-18	N6E04	5_N	1250	2	N_N	N_N	5.1	4.7	8.1633	4.7	5.1				
S3W05-20	S3W05	3_SW	750	2	N_N	N_N	7.7	7.1	8.1081	7.7	7.1				
N3E08-10	N3E08	6_NE	1250	2	N_N	N_N	5.2	4.8	8	5.2	4.8				
N5W10-07	N5W10	1_NW	1500	2	N_N	N_N	2.6	2.4	8	2.6	2.4				
S3W06-24	S3W06	3_SW	1000	2	N_N	N_N	5.2	4.8	8	5.2	4.8				
S5W07-08	S5W07	3_SW	1250	2	N_N	N_N	5.2	4.8	8	4.8	5.2				
S2E08-11	S2E08	7_E	1000	2	N_N	N_N	6.5	6	8	6.5	6				
S3W06-32	S3W06	3_SW	750	2	N_N	N_N	6.5	6	8	6.5	6				
S5W05-19	S5W05	3_SW	1250	2	N_N	N_N	6.5	6	8	6	6.5				
N4W10-21	N4W10	1_NW	1250	3	N_N	N_N	3.9	3.6	8	3.6	3.9			3.8	
N2W06-23	N2W06	1_NW	750	2	N_N	N_N	3.9	3.6	8	3.9	3.6				
N3W10-07	N3W10	1_NW	1250	2	N_N	N_N	3.9	3.6	8	3.6	3.9				
N4E03-17	N4E03	5_N	1000	2	N_N	N_N	3.9	3.6	8	3.6	3.9				
N4E09-27	N4E09	6_NE	1250	2	N_N	N_N	3.9	3.6	8	3.9	3.6				
S4W05-10	S4W05	3_SW	1000	2	N_N	N_N	3.9	3.6	8	3.9	3.6				
S3W02-04	S3W02	4_S	500	2	N_N	N_N	9.1	8.4	8	8.4	9.1				
N2W05-18	N2W05	1_NW	750	2	N_N	N_N	8.1	7.48	7.9589	8.1	7.48				
N2W06-20	N2W06	1_NW	750	2	N_N	N_N	7.9	7.3	7.8947	7.9	7.3				
N3W05-06	N3W05	1_NW	750	2	N_N	N_N	6.6	6.1	7.874	6.1	6.6				
S5E02-12	S5E02	4_S	1000	2	N_N	N_N	6.6	6.1	7.874	6.6	6.1				
S3W07-20	S3W07	3_SW	1000	2	N_N	N_N	5.3	4.9	7.8431	4.9	5.3				
S4W04-19	S4W04	3_SW	1000	2	N_N	N_N	5.3	4.9	7.8431		4.9			5.3	
N3W08-09	N3W08	1_NW	1000	3	N_N	N_N	4	3.7	7.7922	3.7	4				3.77
N3W04-06	N3W04	1_NW	750	2	N_N	N_N	8	7.4	7.7922	8	7.4				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N3W11-09	N3W11	1_NW	1250	2	N_N	N_N	4	3.7	7.7922	3.7	4				
N5E06-17	N5E06	6_NE	1250	2	N_N	N_N	4	3.7	7.7922	4	3.7				
N6E05-09	N6E05	6_NE	1250	2	N_N	N_N	4	3.7	7.7922	4	3.7				
N6W11-04	N6W11	1_NW	1500	2	N_N	N_N	4	3.7	7.7922		4			3.7	
N7W08-01	N7W08	1_NW	1500	2	N_N	N_N	4	3.7	7.7922				4	3.7	
N4W08-19	N4W08	1_NW	1000	2	N_N	N_N	2.81	2.6	7.7634		2.6				2.81
S2E09-07	S2E09	7_E	1250	3	N_N	N_N	6.7	6.2	7.7519	6.2	6.6			6.7	
N1E10-14	N1E10	7_E	1250	2	N_N	N_N	6.7	6.2	7.7519	6.2	6.7				
N1W11-06	N1W11	2_W	1250	2	N_N	N_N	6.7	6.2	7.7519	6.7	6.2				
S4W10-18	S4W10	3_SW	1250	2	N_N	N_N	6.7	6.2	7.7519	6.2	6.7				
S4W09-16	S4W09	3_SW	1250	2	Y_Y	N_N	33.6	31.1	7.728	33.6	31.1				
N6E02-44	N6E02	5_N	1250	2	N_N	N_N	5.4	5	7.6923	5.4	5				
S4W04-15	S4W04	3_SW	1000	2	N_N	N_N	6.8	6.3	7.6336	6.3	6.8				
S6W04-15	S6W04	4_S	1250	2	N_N	N_N	6.8	6.3	7.6336	6.8	6.3				
S1E10-05	S1E10	7_E	1250	2	Y_Y	N_N	24.5	22.7	7.6271	22.7	24.5				
N1W11-26	N1W11	2_W	1250	2	N_N	N_N	4.1	3.8	7.5949	4.1	3.8				
N3W03-11	N3W03	1_NW	750	2	N_N	N_N	4.1	3.8	7.5949	4.1	3.8				
S3W09-18	S3W09	3_SW	1250	2	N_N	N_N	4.1	3.8	7.5949	4.1	3.8				
S7E02-31	S7E02	4_S	1500	2	N_N	N_N	4.1	3.8	7.5949	4.1	3.8				
S7W01-05	S7W01	4_S	1250	2	N_N	N_N	4.1	3.8	7.5949	4.1	3.8				
N2W07-11	N2W07	1_NW	750	2	N_N	N_N	5.2	4.82	7.5848	5.2	4.82				
S3W06-08	S3W06	3_SW	750	2	N_N	N_N	6.9	6.4	7.5188	6.9	6.4				
S5W07-24	S5W07	3_SW	1250	2	N_N	N_N	6.9	6.4	7.5188	6.4	6.9				
N5E05-05	N5E05	6_NE	1250	2	Y_Y	N_N	16.6	15.4	7.5	16.6	15.4				
S6E04-04	S6E04	8_SE	1250	2	N_N	N_N	8.3	7.7	7.5	7.7	8.3				
S6E02-06	S6E02	4_S	1250	2	Y_Y	N_N	54.5	50.6	7.4215	54.5	50.6				
N2W07-14	N2W07	2_W	750	2	N_N	N_N	6.57	6.1	7.4191	6.1					6.57
N4W12-12	N4W12	1_NW	1500	2	N_N	N_N	4.2	3.9	7.4074	3.9	4.2				
N7E04-20	N7E04	5_N	1500	2	N_N	N_N	4.2	3.9	7.4074	4.2	3.9				
S5E09-14	S5E09	8_SE	1500	2	Y_Y	N_N	18.2	16.9	7.4074	16.9	18.2				
S7W01-25	S7W01	4_S	1500	2	N_N	N_N	7	6.5	7.4074	6.5	7				
N2W11-28	N2W11	2_W	1250	2	N_N	N_N	2.8	2.6	7.4074	2.8	2.6				
N4W12-23	N4W12	1_NW	1500	2	N_N	N_N	2.8	2.6	7.4074	2.8	2.6				
S1E08-20	S1E08	7_E	1000	2	N_N	N_N	2.8	2.6	7.4074	2.6	2.8				
S3W07-17	S3W07	3_SW	1000	2	N_N	N_N	5.6	5.2	7.4074	5.6	5.2				
S5W06-13	S5W06	3_SW	1250	2	N_N	N_N	5.6	5.2	7.4074	5.2	5.6				
N2W04-08	N2W04	1_NW	500	2	N_N	N_N	6.35	5.9	7.3469	5.9					6.35
S4E08-13	S4E08	8_SE	1250	2	N_N	N_N	9.9	9.2	7.3298	9.2	9.9				
S4W08-09	S4W08	3_SW	1250	2	N_N	N_N	7.1	6.6	7.2993	7.1	6.6				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N1W07-31	N1W07	2_W	750	2	N_N	N_N	5.7	5.3	7.2727	5.3	5.7				
N3W13-18	N3W13	2_W	1500	2	N_N	N_N	5.7	5.3	7.2727	5.3	5.7				
N5E01-14	N5E01	5_N	1000	2	N_N	N_N	5.7	5.3	7.2727	5.3	5.7				
S3W05-26	S3W05	3_SW	750	2	N_N	N_N	5.7	5.3	7.2727	5.7	5.3				
N3W06-19	N3W06	1_NW	750	2	Y_Y	N_N	59	54.86	7.2721	59					54.86
N5E06-22	N5E06	6_NE	1250	3	N_N	N_N	4.3	4	7.2289	4.2	4.3			4	
S4W04-05	S4W04	3_SW	750	2	N_N	N_N	4.3	4	7.2289	4.3	4				
S5W04-14	S5W04	4_S	1250	2	N_N	N_N	4.3	4	7.2289	4	4.3				
S7W02-15	S7W02	4_S	1500	2	N_N	N_N	4.3	4	7.2289		4.3			4	
S1W08-02	S1W08	2_W	750	2	N_N	N_N	5.1	4.745	7.2118	5.1	4.745				
S1W04-05	S1W04	2_W	500	2	N_N	N_N	7.2	6.7	7.1942	6.7	7.2				
S3W03-23	S3W03	3_SW	750	2	N_N	N_N	7.2	6.7	7.1942	6.7	7.2				
N4W09-13	N4W09	1_NW	1250	2	N_N	N_N	5.8	5.4	7.1429	5.4	5.8				
N5E07-04	N5E07	6_NE	1500	2	N_N	N_N	2.9	2.7	7.1429	2.7	2.9				
S4W08-25	S4W08	3_SW	1250	2	N_N	N_N	5.8	5.4	7.1429	5.4	5.8				
S5W06-15	S5W06	3_SW	1250	2	N_N	N_N	5.8	5.4	7.1429	5.8	5.4				
N2W10-15	N2W10	2_W	1000	2	N_N	N_N	5.6	5.215	7.1197		5.215			5.6	
S1W06-06	S1W06	2_W	750	2	N_N	N_N	7.3	6.8	7.0922	6.8	7.3				
N4E03-05	N4E03	5_N	1000	2	N_N	N_N	4.4	4.1	7.0588		4.1			4.4	
N6E02-21	N6E02	5_N	1250	2	N_N	N_N	4.4	4.1	7.0588	4.4	4.1				
S5W04-03	S5W04	4_S	1000	2	N_N	N_N	4.4	4.1	7.0588		4.4			4.1	
S1W11-09	S1W11	2_W	1250	2	Y_Y	N_N	32.4	30.2	7.0288	30.2	32.4				
N4W09-18	N4W09	1_NW	1250	2	N_N	N_N	5.9	5.5	7.0175	5.5	5.9				
S5W03-22	S5W03	4_S	1000	2	N_N	N_N	5.9	5.5	7.0175	5.9	5.5				
S1E08-13	S1E08	7_E	1000	2	N_N	N_N	7.4	6.9	6.993	7.4	6.9				
N6E08-07	N6E08	6_NE	1500	2	Y_Y	N_N	19.3	18	6.9705	18	19.3				
S2W13-10	S2W13	2_W	1500	2	Y_Y	N_N	35.7	33.3	6.9565	33.3	35.7				
N1W07-17	N1W07	2_W	750	2	N_N	N_N	3	2.8	6.8966	3	2.8				
N1W09-06	N1W09	2_W	1000	2	N_N	N_N	3	2.8	6.8966	3	2.8				
N3W10-06	N3W10	1_NW	1250	2	N_N	N_N	3	2.8	6.8966	3	2.8				
N4E05-06	N4E05	6_NE	1000	2	N_N	N_N	3	2.8	6.8966	2.8	3				
S2W11-11	S2W11	2_W	1250	2	N_N	N_N	6	5.6	6.8966	5.6	6				
N2W05-13	N2W05	1_NW	750	2	N_N	N_N	7.5	7	6.8966	7	7.5				
N3W13-24	N3W13	1_NW	1500	2	N_N	N_N	4.5	4.2	6.8966	4.5	4.2				
S5W06-20	S5W06	3_SW	1250	2	N_N	N_N	7.6	7.1	6.8027	7.6	7.1				
N2W12-18	N2W12	2_W	1250	2	N_N	N_N	6.1	5.7	6.7797	6.1	5.7				
N6E02-00	N6E02	5_N	1250	2	N_N	N_N	3.05	2.85	6.7797				2.85	3.05	
S5W03-21	S5W03	4_S	1000	2	N_N	N_N	6.1	5.7	6.7797	5.7	6.1				
N5E04-17	N5E04	6_NE	1000	2	N_N	N_N	4.6	4.3	6.7416	4.6	4.3				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S2W06-01	S2W06	2_W	750	2	N_N	N_N	4.6	4.3	6.7416	4.3	4.6				
S4E02-13	S4E02	4_S	1000	2	N_N	N_N	4.6	4.3	6.7416	4.6	4.3				
S5W07-10	S5W07	3_SW	1250	2	N_N	N_N	4.6	4.3	6.7416	4.6	4.3				
S1E07-17	S1E07	7_E	1000	2	N_N	N_N	9.3	8.7	6.6667		9.3			8.7	
S1W07-14	S1W07	2_W	750	2	N_N	N_N	6.2	5.8	6.6667	6.2	5.8				
S1W10-21	S1W10	2_W	1000	2	N_N	N_N	3.1	2.9	6.6667	3.1	2.9				
S1E10-22	S1E10	7_E	1250	2	N_N	N_N	7.8	7.3	6.6225	7.8	7.3				
S4E01-25	S4E01	4_S	750	2	N_N	N_N	7.8	7.3	6.6225	7.3	7.8				
N3W12-32	N3W12	1_NW	1500	2	N_N	N_N	4.7	4.4	6.5934	4.4	4.7				
S3W03-21	S3W03	3_SW	750	2	N_N	N_N	4.7	4.4	6.5934	4.7	4.4				
S4W06-15	S4W06	3_SW	1000	2	N_N	N_N	6.3	5.9	6.5574	5.9	6.3				
S1E09-16	S1E09	7_E	1250	2	N_N	N_N	9.5	8.9	6.5217	9.5	8.9				
S7E04-25	S7E04	4_S	1500	2	Y_Y	N_N	88.8	83.2	6.5116	88.8	83.2				
N1W12-18	N1W12	2_W	1250	2	N_N	N_N	3.2	3	6.4516	3.2	3				
N5E03-19	N5E03	5_N	1000	2	N_N	N_N	3.2	3	6.4516	3	3.2				
N5W10-06	N5W10	1_NW	1500	2	N_N	N_N	3.2	3	6.4516	3	3.2				
N6E04-27	N6E04	5_N	1250	2	N_N	N_N	3.2	3	6.4516	3.2	3				
S1W07-10	S1W07	2_W	750	2	N_N	N_N	6.4	6	6.4516	6	6.4				
S2W12-05	S2W12	2_W	1250	2	N_N	N_N	6.4	6	6.4516	6	6.4				
S5E01-03	S5E01	4_S	1000	2	N_N	N_N	3.2	3	6.4516		3			3.2	
S1W06-08	S1W06	2_W	750	2	N_N	N_N	8	7.5	6.4516	7.5	8				
N3W03-06	N3W03	1_NW	750	2	N_N	N_N	9.6	9	6.4516	9.6				9	
S5W05-05	S5W05	3_SW	1000	2	N_N	N_N	4.8	4.5	6.4516	4.5	4.8				
S7E02-07	S7E02	4_S	1250	2	N_N	N_N	4.8	4.5	6.4516	4.8	4.5				
N1W12-14	N1W12	2_W	1250	2	N_N	N_N	6.5	6.1	6.3492		6.1			6.5	
N3W07-07	N3W07	1_NW	1000	2	N_N	N_N	4.9	4.6	6.3158	4.9	4.6				
N3W13-26	N3W13	1_NW	1500	2	N_N	N_N	4.9	4.6	6.3158	4.6	4.9				
N4E05-03	N4E05	6_NE	1000	2	N_N	N_N	4.9	4.6	6.3158	4.6	4.9				
S2W12-04	S2W12	2_W	1250	2	N_N	N_N	4.9	4.6	6.3158	4.9	4.6				
S4W09-19	S4W09	3_SW	1250	2	N_N	N_N	4.9	4.6	6.3158	4.9	4.6				
S4E08-15	S4E08	8_SE	1250	2	N_N	N_N	8.2	7.7	6.2893	8.2	7.7				
N5E02-22	N5E02	5_N	1000	2	N_N	N_N	3.3	3.1	6.25	3.1	3.3				
N5W13-17	N5W13	1_NW	1750	2	N_N	N_N	3.3	3.1	6.25	3.3	3.1				
N8W03-02	N8W03	5_N	1750	2	N_N	N_N	6.6	6.2	6.25	6.2	6.6				
S1E10-21	S1E10	7_E	1250	2	N_N	N_N	8.3	7.8	6.2112	7.8	8.3				
N4W09-21	N4W09	1_NW	1250	2	N_N	N_N	5	4.7	6.1856	4.7	5				
N3W06-07	N3W06	1_NW	750	2	N_N	N_N	4.68	4.4	6.1674	4.4	4.68				
S4W06-23	S4W06	3_SW	1000	2	N_N	N_N	6.7	6.3	6.1538	6.7	6.3				
S7W02-02	S7W02	4_S	1250	2	N_N	N_N	6.7	6.3	6.1538		6.3			6.7	

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N2W09-04	N2W09	2_W	1000	3	N_N	N_N	5.1	4.8	6.0606	4.9	4.8			5.1	
S5W03-24	S5W03	4_S	1000	2	N_N	N_N	5.1	4.8	6.0606	4.8	5.1				
N3W09-26	N3W09	1_NW	1000	2	N_N	N_N	3.4	3.2	6.0606	3.4	3.2				
N4W10-14	N4W10	1_NW	1250	2	N_N	N_N	3.4	3.2	6.0606	3.4	3.2				
N6E07-13	N6E07	6_NE	1500	2	N_N	N_N	6.8	6.4	6.0606	6.8	6.4				
S3W10-14	S3W10	3_SW	1250	2	N_N	N_N	3.4	3.2	6.0606	3.4	3.2				
N3W08-05	N3W08	1_NW	1000	2	N_N	N_N	4.9	4.615	5.9905	4.9	4.615				
S3W06-17	S3W06	3_SW	1000	2	N_N	N_N	8.6	8.1	5.988	8.6	8.1				
N3W13-10	N3W13	2_W	1500	2	N_N	N_N	6.9	6.5	5.9701	6.9	6.5				
N4E06-15	N4E06	6_NE	1000	2	N_N	N_N	2.0167	1.9	5.9574	1.9	2.0167				
N2E09-02	N2E09	7_E	1250	2	N_N	N_N	5.2	4.9	5.9406	5.2	4.9				
S3W05-23	S3W05	3_SW	750	2	N_N	N_N	5.2	4.9	5.9406	5.2	4.9				
S6E02-20	S6E02	4_S	1250	2	N_N	N_N	5.2	4.9	5.9406	5.2	4.9				
S7E04-10	S7E04	4_S	1500	2	N_N	N_N	5.2	4.9	5.9406	5.2	4.9				
N2W12-24	N2W12	2_W	1250	2	N_N	N_N	3.5	3.3	5.8824	3.3	3.5				
N3W14-13	N3W14	2_W	1500	2	N_N	N_N	3.5	3.3	5.8824		3.3			3.5	
N4E06-06	N4E06	6_NE	1250	2	N_N	N_N	3.5	3.3	5.8824	3.5	3.3				
S1W10-03	S1W10	2_W	1000	2	N_N	N_N	7	6.6	5.8824	6.6	7				
S3W05-22	S3W05	3_SW	750	2	N_N	N_N	7	6.6	5.8824	7	6.6				
S4W09-10	S4W09	3_SW	1250	2	N_N	N_N	3.5	3.3	5.8824	3.3	3.5				
S2E09-02	S2E09	7_E	1250	2	N_N	N_N	8.8	8.3	5.848	8.3	8.8				
S5E01-05	S5E01	4_S	1000	2	N_N	N_N	5.3	5	5.8252	5.3	5				
N6E07-09	N6E07	6_NE	1500	2	N_N	N_N	7.1	6.7	5.7971	7.1	6.7				
S3W03-06	S3W03	3_SW	750	2	N_N	N_N	7.1	6.7	5.7971	7.1	6.7				
S4W06-22	S4W06	3_SW	1000	2	N_N	N_N	7.1	6.7	5.7971	6.7	7.1				
S4W09-06	S4W09	3_SW	1250	2	N_N	N_N	5.4	5.1	5.7143	5.4	5.1				
N3W09-31	N3W09	1_NW	1250	2	N_N	N_N	3.6	3.4	5.7143	3.6				3.4	
N3W11-04	N3W11	1_NW	1250	2	N_N	N_N	3.6	3.4	5.7143	3.4	3.6				
N5E01-24	N5E01	5_N	1000	2	N_N	N_N	3.6	3.4	5.7143	3.6	3.4				
N5E05-09	N5E05	6_NE	1250	2	N_N	N_N	3.6	3.4	5.7143	3.4	3.6				
S1E10-23	S1E10	7_E	1250	2	N_N	N_N	7.3	6.9	5.6338	6.9	7.3				
S4E09-17	S4E09	8_SE	1250	2	N_N	N_N	5.5	5.2	5.6075	5.2	5.5				
S5W05-25	S5W05	3_SW	1000	2	N_N	N_N	5.5	5.2	5.6075	5.5	5.2				
S6W04-09	S6W04	4_S	1250	2	N_N	N_N	5.5	5.2	5.6075		5.5			5.2	
N5E05-04	N5E05	6_NE	1250	2	N_N	N_N	3.7	3.5	5.5556	3.7	3.5				
S7W03-02	S7W03	4_S	1250	2	N_N	N_N	3.7	3.5	5.5556	3.7	3.5				
S4W05-17	S4W05	3_SW	1000	2	N_N	N_N	5.6	5.3	5.5046	5.3	5.6				
N3W03-15	N3W03	1_NW	750	2	N_N	N_N	9.5	9	5.4054	9	9.5				
S4W03-14	S4W03	4_S	1000	2	N_N	N_N	5.7	5.4	5.4054	5.7	5.4				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S7W02-05	S7W02	4_S	1250	2	N_N	N_N	5.7	5.4	5.4054	5.7	5.4				
S1W07-04	S1W07	2_W	750	2	N_N	N_N	7.6	7.2	5.4054	7.2	7.6				
N3W03-08	N3W03	1_NW	750	2	N_N	N_N	5.91	5.6	5.3866	5.6					5.91
S4E08-16	S4E08	8_SE	1250	2	N_N	N_N	7.7	7.3	5.3333	7.3	7.7				
S5E03-10	S5E03	8_SE	1000	2	Y_Y	N_N	46.4	44	5.3097	44	46.4				
S5E04-01	S5E04	8_SE	1000	2	N_N	N_N	5.8	5.5	5.3097	5.5	5.8				
N5E07-05	N5E07	6_NE	1500	2	Y_Y	N_N	71.7	68	5.2971	68	71.7				
N2W04-06	N2W04	1_NW	500	2	Y_Y	N_N	40	37.94	5.2861	40	37.94				
S4W10-24	S4W10	3_SW	1250	2	Y_Y	N_N	13.6	12.9	5.283	13.6	12.9				
N4W14-25	N4W14	1_NW	1750	2	N_N	N_N	3.9	3.7	5.2632	3.7	3.9				
N8W03-04	N8W03	5_N	1750	2	N_N	N_N	5.9	5.6	5.2174	5.9	5.6				
S4W06-14	S4W06	3_SW	1000	2	N_N	N_N	7.9	7.5	5.1948	7.5	7.9				
N6E05-11	N6E05	6_NE	1250	2	N_N	N_N	4	3.8	5.1282		4			3.8	
S5W03-17	S5W03	4_S	1250	2	N_N	N_N	8	7.6	5.1282	7.6	8				
N8W03-05	N8W03	5_N	1750	3	N_N	N_N	6	5.7	5.1282	6	5.7			5.8	
N1W10-24	N1W10	2_W	1000	2	N_N	N_N	6	5.7	5.1282	6	5.7				
N5E01-07	N5E01	5_N	1000	2	N_N	N_N	6	5.7	5.1282		5.7			6	
N6W08-11	N6W08	1_NW	1500	2	N_N	N_N	6	5.7	5.1282	6	5.7				
S1W04-06	S1W04	2_W	500	2	N_N	N_N	6	5.7	5.1282	6	5.7				
S1W10-08	S1W10	2_W	1000	2	N_N	N_N	6	5.7	5.1282	6	5.7				
S5E02-04	S5E02	4_S	1000	2	N_N	N_N	6	5.7	5.1282	5.7	6				
S6W05-21	S6W05	3_SW	1250	2	N_N	N_N	6	5.7	5.1282	6	5.7				
S7E03-13	S7E03	4_S	1500	2	N_N	N_N	6	5.7	5.1282	5.7	6				
N3W14-05	N3W14	2_W	1500	2	N_N	N_N	6.1	5.8	5.042	6.1	5.8				
S5E03-33	S5E03	4_S	1000	2	N_N	N_N	6.1	5.8	5.042	6.1	5.8				
S7W03-06	S7W03	4_S	1500	2	N_N	N_N	6.1	5.8	5.042	5.8	6.1				
S1W13-22	S1W13	2_W	1500	2	Y_Y	N_N	81.8	77.8	5.0125	81.8	77.8				
N6E02-43	N6E02	5_N	1250	2	N_N	N_N	4.1	3.9	5	3.9	4.1				
S5E04-04	S5E04	8_SE	1250	2	N_N	N_N	4.1	3.9	5	4.1	3.9				
S1W06-17	S1W06	2_W	750	2	N_N	N_N	6.2	5.9	4.9587	5.9	6.2				
S5W04-16	S5W04	4_S	1250	2	N_N	N_N	6.2	5.9	4.9587		6.2			5.9	
S7E04-29	S7E04	4_S	1500	2	N_N	N_N	6.2	5.9	4.9587	5.9	6.2				
S5W03-20	S5W03	4_S	1000	2	N_Y	N_N	10.4	9.9	4.9261	10.4	9.9				
S1W11-11	S1W11	2_W	1250	2	Y_Y	N_N	12.5	11.9	4.918		12.5			11.9	
N5W08-13	N5W08	1_NW	1250	2	N_N	N_N	4.2	4	4.878	4.2	4				
S3W02-10	S3W02	4_S	500	2	N_N	N_N	4.2	4	4.878	4.2	4				
N1W11-01	N1W11	2_W	1250	2	N_N	N_N	6.3	6	4.878	6.3	6				
N2E08-09	N2E08	7_E	1000	2	N_N	N_N	6.3	6	4.878	6				6.3	
S5W05-24	S5W05	3_SW	1000	2	N_N	N_N	6.3	6	4.878	6	6.3				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N1W05-14	N1W05	2_W	500	2	N_N	N_N	6.4	6.1	4.8	6.4	6.1				
S1W06-01	S1W06	2_W	750	2	N_N	N_N	6.4	6.1	4.8	6.1	6.4				
S1W08-22	S1W08	2_W	1000	2	N_N	N_N	6.4	6.1	4.8	6.1	6.4				
S3W06-18	S3W06	3_SW	1000	2	N_N	N_N	6.4	6.1	4.8	6.1	6.4				
S5E01-23	S5E01	4_S	1000	2	N_N	N_N	6.4	6.1	4.8	6.1	6.4				
N3W06-10	N3W06	1_NW	750	2	N_N	N_N	4.3	4.1	4.7619	4.3	4.1				
N6E08-06	N6E08	6_NE	1500	2	N_N	N_N	4.3	4.1	4.7619	4.1	4.3				
S1E07-21	S1E07	7_E	1000	2	N_N	N_N	8.6	8.2	4.7619	8.2	8.6				
N3W08-04	N3W08	1_NW	1000	2	N_N	N_N	5.4	5.15	4.7393	5.4	5.15				
S6E04-10	S6E04	4_S	1250	2	N_N	N_N	6.5	6.2	4.7244	6.2	6.5				
N6E08-05	N6E08	6_NE	1500	2	N_N	N_N	4.4	4.2	4.6512	4.2	4.4				
S4W09-17	S4W09	3_SW	1250	2	N_N	N_N	4.4	4.2	4.6512	4.4	4.2				
S5E02-26	S5E02	4_S	1000	2	N_N	N_N	4.4	4.2	4.6512	4.4	4.2				
S5E03-21	S5E03	4_S	1250	2	N_N	N_N	4.4	4.2	4.6512	4.2	4.4				
S7E01-20	S7E01	4_S	1500	2	N_N	N_N	6.6	6.3	4.6512	6.6	6.3				
N1W04-19	N1W04	2_W	500	2	N_N	N_N	4.2	4.01	4.6285	4.2					4.01
N1W05-05	N1W05	2_W	500	2	N_N	N_N	6.5	6.21	4.5633	6.5					6.21
N3W07-19	N3W07	1_NW	1000	2	N_N	N_N	4.5	4.3	4.5455	4.5	4.3				
N6E03-09	N6E03	5_N	1250	2	N_N	N_N	4.5	4.3	4.5455	4.3	4.5				
S5E05-01	S5E05	8_SE	1250	2	N_N	N_N	4.5	4.3	4.5455	4.5	4.3				
S3W10-24	S3W10	3_SW	1250	2	Y_Y	N_N	42.9	41	4.5292	42.9	41				
S4E01-28	S4E01	4_S	750	2	N_N	N_N	6.8	6.5	4.5113	6.8	6.5				
S5W05-21	S5W05	3_SW	1250	2	N_N	N_N	6.8	6.5	4.5113	6.8	6.5				
N1W04-17	N1W04	2_W	500	2	N_N	N_N	6.9	6.6	4.4444	6.6	6.9				
S4E07-09	S4E07	8_SE	1250	2	N_N	N_N	6.9	6.6	4.4444	6.6	6.9				
N3W09-32	N3W09	1_NW	1250	2	N_N	N_N	4.6	4.4	4.4444	4.6	4.4				
N4W12-28	N4W12	1_NW	1500	2	N_N	N_N	4.6	4.4	4.4444	4.4	4.6				
S5W05-09	S5W05	3_SW	1250	2	N_N	N_N	4.6	4.4	4.4444	4.4	4.6				
S7W03-03	S7W03	4_S	1250	2	N_N	N_N	4.7	4.5	4.3478	4.7	4.5				
N2W11-31	N2W11	2_W	1250	2	N_N	N_N	4.8	4.6	4.2553	4.8	4.6				
N3E07-07	N3E07	6_NE	1000	2	N_N	N_N	4.8	4.6	4.2553	4.8	4.6				
N4W07-23	N4W07	1_NW	1000	2	N_N	N_N	2.4	2.3	4.2553	2.3	2.4				
S2E10-09	S2E10	7_E	1250	2	N_N	N_N	4.8	4.6	4.2553	4.6	4.8				
S4W05-05	S4W05	3_SW	1000	2	N_N	N_N	4.8	4.6	4.2553	4.6	4.8				
S4W05-22	S4W05	3_SW	1000	2	N_N	N_N	4.8	4.6	4.2553	4.8	4.6				
S6W03-22	S6W03	4_S	1250	2	N_N	N_N	4.8	4.6	4.2553	4.6	4.8				
S7W02-01	S7W02	4_S	1250	2	N_N	N_N	4.8	4.6	4.2553		4.6			4.8	
N2W09-17	N2W09	2_W	1000	2	Y_Y	N_N	24	23	4.2553	23	24				
N1W04-03	N1W04	1_NW	500	2	N_N	N_N	6.78	6.5	4.2169	6.5					6.78

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N1W10-03	N1W10	2_W	1000	2	N_N	N_N	4.9	4.7	4.1667	4.7	4.9				
S4E07-12	S4E07	8_SE	1250	2	N_N	N_N	4.9	4.7	4.1667	4.9	4.7				
S5E08-04	S5E08	8_SE	1500	2	N_N	N_N	4.9	4.7	4.1667		4.9			4.7	
S6W05-08	S6W05	4_S	1250	2	N_N	N_N	4.9	4.7	4.1667	4.9	4.7				
N5E05-06	N5E05	6_NE	1250	2	N_N	N_N	2.5	2.4	4.0816	2.4	2.5				
N5W13-24	N5W13	1_NW	1750	2	N_N	N_N	2.5	2.4	4.0816	2.4	2.5				
N6E02-09	N6E02	5_N	1250	2	N_N	N_N	5	4.8	4.0816		4.8			5	
S4W06-18	S4W06	3_SW	1000	2	N_N	N_N	5	4.8	4.0816	5	4.8				
S5E07-07	S5E07	8_SE	1250	2	N_Y	N_N	10.1	9.7	4.0404	10.1	9.7				
N1W07-23	N1W07	2_W	750	2	N_N	N_N	3.8	3.65	4.0268		3.8				3.65
N4E05-12	N4E05	6_NE	1000	2	N_N	N_N	5.1	4.9	4	5.1	4.9				
N5E03-18	N5E03	5_N	1000	2	N_N	N_N	5.1	4.9	4	4.9				5.1	
S5E09-17	S5E09	8_SE	1500	2	N_N	N_N	5.1	4.9	4	4.9	5.1				
N4E06-08	N4E06	6_NE	1250	2	N_N	N_N	2.6	2.5	3.9216	2.5	2.6				
S5E08-08	S5E08	8_SE	1500	2	N_N	N_N	5.2	5	3.9216	5.2	5				
S7E04-05	S7E04	4_S	1500	2	N_N	N_N	5.2	5	3.9216	5.2	5				
N1W07-10	N1W07	2_W	750	2	N_N	N_N	4.68	4.5	3.9216	4.5	4.68				
S5E07-05	S5E07	8_SE	1250	2	Y_Y	N_N	15.8	15.2	3.871	15.2	15.8				
N3E07-05	N3E07	6_NE	1250	2	N_N	N_N	5.3	5.1	3.8462	5.3	5.1				
N6E08-15	N6E08	6_NE	1500	2	N_N	N_N	5.3	5.1	3.8462	5.3	5.1				
S1E10-13	S1E10	7_E	1250	2	N_N	N_N	5.3	5.1	3.8462	5.1	5.3				
S4W06-04	S4W06	3_SW	1000	2	N_N	N_N	5.3	5.1	3.8462	5.1				5.3	
S5E02-07	S5E02	4_S	1000	2	N_N	N_N	5.3	5.1	3.8462	5.1	5.3				
S5E02-09	S5E02	4_S	1000	2	N_N	N_N	5.3	5.1	3.8462	5.3	5.1				
S6E01-01	S6E01	4_S	1250	2	N_N	N_N	5.3	5.1	3.8462	5.3	5.1				
S6E02-11	S6E02	4_S	1250	2	N_N	N_N	5.3	5.1	3.8462	5.3	5.1				
S5E08-15	S5E08	8_SE	1500	2	N_N	N_N	8	7.7	3.8217		7.7			8	
N2W06-03	N2W06	1_NW	750	2	N_N	N_N	5.4	5.2	3.7736	5.2	5.4				
S5E02-03	S5E02	4_S	1000	2	N_N	N_N	5.4	5.2	3.7736	5.2	5.4				
S5W06-11	S5W06	3_SW	1250	2	N_N	N_N	5.4	5.2	3.7736	5.2	5.4				
S4E08-20	S4E08	8_SE	1250	2	N_N	N_N	8.1	7.8	3.7736	7.8	8.1				
S4W07-27	S4W07	3_SW	1000	2	N_N	N_N	8.1	7.8	3.7736	7.8	8.1				
S1E07-12	S1E07	7_E	1000	2	N_N	N_N	5.5	5.3	3.7037	5.3	5.5				
S2W10-06	S2W10	2_W	1000	2	N_N	N_N	5.5	5.3	3.7037	5.5	5.3				
S5E04-06	S5E04	8_SE	1250	2	N_N	N_N	5.5	5.3	3.7037	5.3	5.5				
S5E08-02	S5E08	8_SE	1250	2	N_N	N_N	8.4	8.1	3.6364	8.1	8.4				
N3E09-08	N3E09	6_NE	1250	2	N_N	N_N	5.6	5.4	3.6364	5.6	5.4				
N6E02-42	N6E02	5_N	1250	2	N_N	N_N	2.8	2.7	3.6364	2.7	2.8				
N6E06-05	N6E06	6_NE	1500	2	N_N	N_N	2.8	2.7	3.6364	2.8	2.7				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S1W11-02	S1W11	2_W	1250	2	N_N	N_N	5.6	5.4	3.6364	5.6	5.4				
S4W10-25	S4W10	3_SW	1250	2	N_N	N_N	5.6	5.4	3.6364	5.4	5.6				
S5E02-06	S5E02	4_S	1000	2	N_N	N_N	5.6	5.4	3.6364	5.4	5.6				
S3W07-18	S3W07	3_SW	1000	2	N_N	N_N	8.5	8.2	3.5928	8.2	8.5				
S1W11-04	S1W11	2_W	1250	2	N_N	N_N	5.7	5.5	3.5714		5.7			5.5	
S4W06-26	S4W06	3_SW	1000	2	N_N	N_N	5.7	5.5	3.5714	5.7	5.5				
S5E01-07	S5E01	4_S	1000	2	N_N	N_N	5.7	5.5	3.5714	5.5	5.7				
S7E01-32	S7E01	4_S	1500	2	Y_Y	N_N	28.9	27.9	3.5211	27.9	28.9				
N4W08-23	N4W08	1_NW	1000	2	N_N	N_N	5.8	5.6	3.5088	5.8	5.6				
S2W06-07	S2W06	3_SW	750	2	N_N	N_N	5.8	5.6	3.5088	5.6	5.8				
S5E01-17	S5E01	4_S	1000	2	N_N	N_N	8.7	8.4	3.5088	8.4	8.7				
S1E10-17	S1E10	7_E	1250	2	N_N	N_N	8.8	8.5	3.4682	8.8	8.5				
S4E01-18	S4E01	4_S	1000	2	N_N	N_N	5.9	5.7	3.4483	5.7	5.9				
N5W13-33	N5W13	1_NW	1750	2	N_N	N_N	3	2.9	3.3898	3	2.9				
N6E02-15	N6E02	5_N	1250	2	N_N	N_N	3	2.9	3.3898	3	2.9				
N6E02-33	N6E02	5_N	1250	2	N_N	N_N	3	2.9	3.3898	3	2.9				
S3W04-08	S3W04	3_SW	750	2	N_N	N_N	6	5.8	3.3898	5.8	6				
S7W01-28	S7W01	4_S	1250	2	N_N	N_N	3	2.9	3.3898	3	2.9				
S7W02-25	S7W02	4_S	1250	2	N_N	N_N	6	5.8	3.3898	5.8	6				
S4E09-24	S4E09	8_SE	1250	2	N_N	N_N	9.1	8.8	3.352	9.1	8.8				
N5E01-19	N5E01	5_N	1000	2	N_N	N_N	6.1	5.9	3.3333	6.1	5.9				
N6E08-04	N6E08	6_NE	1500	2	N_N	N_N	6.1	5.9	3.3333	5.9	6.1				
S7W02-11	S7W02	4_S	1500	2	N_N	N_N	6.1	5.9	3.3333	5.9	6.1				
N1W12-03	N1W12	2_W	1250	2	N_N	N_N	6.2	6	3.2787	6.2	6				
S5E01-10	S5E01	4_S	1000	2	N_N	N_N	6.2	6	3.2787	6.2	6				
S5E08-07	S5E08	8_SE	1500	2	N_N	N_N	6.2	6	3.2787	6	6.2				
N1W05-09	N1W05	2_W	500	2	N_N	N_N	6.3	6.1	3.2258	6.1	6.3				
S1W13-24	S1W13	2_W	1500	2	N_N	N_N	6.3	6.1	3.2258	6.3	6.1				
N2W12-16	N2W12	2_W	1250	2	N_N	N_N	3.2	3.1	3.1746	3.2	3.1				
N3W13-17	N3W13	2_W	1500	2	N_N	N_N	6.4	6.2	3.1746		6.2			6.4	
N4W14-17	N4W14	1_NW	1500	2	N_N	N_N	3.2	3.1	3.1746	3.1	3.2				
N5E05-12	N5E05	6_NE	1250	2	N_N	N_N	3.2	3.1	3.1746	3.2	3.1				
S4E03-07	S4E03	4_S	1000	2	N_N	N_N	6.4	6.2	3.1746	6.4	6.2				
S7W01-07	S7W01	4_S	1500	2	N_N	N_N	3.2	3.1	3.1746	3.2	3.1				
N1W07-26	N1W07	2_W	750	2	N_N	N_N	6.5	6.3	3.125	6.5	6.3				
N5E04-05	N5E04	6_NE	1250	2	N_N	N_N	6.5	6.3	3.125	6.3	6.5				
N3W07-09	N3W07	1_NW	1000	2	Y_Y	N_N	33	32	3.0769	33	32				
N2W10-11	N2W10	2_W	1000	2	N_N	N_N	6.6	6.4	3.0769	6.4	6.6				
N4E02-05	N4E02	5_N	1000	2	N_N	N_N	3.3	3.2	3.0769	3.3				3.2	

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N5W13-13	N5W13	1_NW	1750	2	N_N	N_N	3.3	3.2	3.0769	3.3	3.2				
S1W07-21	S1W07	2_W	750	2	N_N	N_N	6.6	6.4	3.0769	6.4	6.6				
S4E02-10	S4E02	4_S	1000	2	N_N	N_N	3.3	3.2	3.0769	3.2	3.3				
S4E09-12	S4E09	8_SE	1500	2	N_N	N_N	6.6	6.4	3.0769	6.4	6.6				
N1E10-07	N1E10	7_E	1250	2	N_N	N_N	6.8	6.6	2.9851	6.8	6.6				
N1W09-18	N1W09	2_W	1000	2	N_N	N_N	6.8	6.6	2.9851	6.8	6.6				
N2W11-12	N2W11	2_W	1250	2	N_N	N_N	3.4	3.3	2.9851	3.4	3.3				
S2W05-11	S2W05	3_SW	750	2	N_N	N_N	6.8	6.6	2.9851	6.8	6.6				
S2W10-25	S2W10	2_W	1250	2	N_N	N_N	6.8	6.6	2.9851	6.8	6.6				
S3E09-13	S3E09	8_SE	1250	2	N_Y	N_N	10.2	9.9	2.9851	10.2	9.9				
N5W10-03	N5W10	1_NW	1250	2	N_N	N_N	3.965	3.85	2.9431		3.965			3.85	
N3W10-16	N3W10	1_NW	1250	2	N_N	N_N	3.5	3.4	2.8986	3.5	3.4				
N6W11-10	N6W11	1_NW	1500	2	N_N	N_N	3.5	3.4	2.8986	3.4	3.5				
S1E09-08	S1E09	7_E	1250	2	N_N	N_N	7	6.8	2.8986	6.8	7				
S1W07-07	S1W07	2_W	750	2	N_N	N_N	7	6.8	2.8986	7	6.8				
S5W05-04	S5W05	3_SW	1000	2	N_N	N_N	3.5	3.4	2.8986	3.5	3.4				
S5W05-08	S5W05	3_SW	1250	2	N_N	N_N	3.5	3.4	2.8986	3.4	3.5				
S5W05-17	S5W05	3_SW	1250	2	N_N	N_N	7	6.8	2.8986	6.8	7				
N1E09-05	N1E09	7_E	1250	2	N_N	N_N	3.6	3.5	2.8169	3.5	3.6				
N3E08-05	N3E08	6_NE	1250	2	N_N	N_N	3.6	3.5	2.8169	3.6	3.5				
N3W11-17	N3W11	2_W	1250	2	N_N	N_N	3.6	3.5	2.8169	3.5	3.6				
S4E03-01	S4E03	8_SE	1000	2	N_N	N_N	3.6	3.5	2.8169	3.5	3.6				
S1W11-12	S1W11	2_W	1250	2	N_N	N_N	5.45	5.3	2.7907	5.45	5.3				
S5E08-11	S5E08	8_SE	1500	2	N_N	N_N	7.3	7.1	2.7778		7.3			7.1	
S5E02-08	S5E02	4_S	1000	2	Y_Y	N_N	25.7	25	2.7613	25	25.7				
S3W05-25	S3W05	3_SW	750	2	N_N	N_N	3.7	3.6	2.7397	3.6	3.7				
S3W12-08	S3W12	3_SW	1500	2	Y_Y	N_N	33.3	32.4	2.7397	33.3	32.4				
N5E07-18	N5E07	6_NE	1250	2	Y_Y	N_N	11.3	11	2.6906	11.3	11				
N5W10-04	N5W10	1_NW	1250	2	N_N	N_N	3.8	3.7	2.6667	3.7	3.8				
S7E02-29	S7E02	4_S	1500	2	Y_Y	N_N	26.7	26	2.6565	26.7	26				
N2W06-18	N2W06	1_NW	750	2	N_N	N_N	5	4.87	2.6342	5					4.87
N1W11-25	N1W11	2_W	1250	2	N_N	N_N	3.9	3.8	2.5974		3.9			3.8	
N2W11-01	N2W11	2_W	1250	2	N_N	N_N	3.9	3.8	2.5974	3.8	3.9				
N3E09-17	N3E09	7_E	1250	2	N_N	N_N	3.9	3.8	2.5974	3.9	3.8				
S5W01-23	S5W01	4_S	1000	2	N_N	N_N	3.9	3.8	2.5974	3.9	3.8				
S6E01-02	S6E01	4_S	1250	2	N_N	N_N	3.9	3.8	2.5974	3.9	3.8				
S6E01-13	S6E01	4_S	1250	2	N_N	N_N	7.8	7.6	2.5974	7.8	7.6				
S1W07-06	S1W07	2_W	750	2	N_N	N_N	7.9	7.7	2.5641	7.9	7.7				
S2W10-24	S2W10	2_W	1250	2	Y_Y	N_N	11.9	11.6	2.5532	11.6	11.9				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N6E06-10	N6E06	6_NE	1500	2	N_N	N_N	4	3.9	2.5316	4	3.9				
S1E09-05	S1E09	7_E	1250	2	N_N	N_N	8	7.8	2.5316	8	7.8				
S4E01-03	S4E01	4_S	750	2	N_N	N_N	4	3.9	2.5316		3.9			4	
S5E09-10	S5E09	8_SE	1500	2	N_N	N_N	4	3.9	2.5316	4	3.9				
S4E09-19	S4E09	8_SE	1250	2	N_N	N_N	8.1	7.9	2.5	8.1	7.9				
N3W11-12	N3W11	1_NW	1250	2	N_N	N_N	4.1	4	2.4691	4	4.1				
N4W13-26	N4W13	1_NW	1500	2	N_N	N_N	4.1	4	2.4691	4.1	4				
S1W11-01	S1W11	2_W	1250	2	N_N	N_N	4.1	4	2.4691		4.1			4	
S6W05-11	S6W05	4_S	1250	2	N_N	N_N	4.1	4	2.4691		4			4.1	
N2W06-24	N2W06	1_NW	750	2	N_N	N_N	4.2	4.1	2.4096	4.2	4.1				
N5E02-04	N5E02	5_N	1000	2	N_N	N_N	4.2	4.1	2.4096	4.2	4.1				
N6E03-20	N6E03	5_N	1250	2	N_N	N_N	4.2	4.1	2.4096	4.2	4.1				
S2W13-19	S2W13	2_W	1500	2	N_N	N_N	4.2	4.1	2.4096	4.1	4.2				
N4W12-27	N4W12	1_NW	1500	2	N_N	N_N	4.3	4.2	2.3529	4.2	4.3				
N5E03-17	N5E03	5_N	1000	2	N_N	N_N	4.3	4.2	2.3529	4.2	4.3				
S5E09-09	S5E09	8_SE	1500	2	N_N	N_N	4.3	4.2	2.3529	4.2	4.3				
S5W01-17	S5W01	4_S	1000	2	Y_Y	N_N	47.3	46.2	2.3529	47.3	46.2				
S5E07-06	S5E07	8_SE	1250	2	N_N	N_N	8.7	8.5	2.3256	8.7	8.5				
N6E06-22	N6E06	6_NE	1500	2	N_N	N_N	4.4	4.3	2.2989	4.3	4.4				
S3E02-03	S3E02	4_S	750	2	N_N	N_N	4.4	4.3	2.2989	4.4	4.3				
S5W07-21	S5W07	3_SW	1250	2	N_N	N_N	4.4	4.3	2.2989	4.4	4.3				
S6W03-01	S6W03	4_S	1250	2	N_N	N_N	4.4	4.3	2.2989	4.4	4.3				
N3W08-13	N3W08	1_NW	1000	2	N_N	N_N	4.5	4.4	2.2472	4.5	4.4				
N4E02-02	N4E02	5_N	1000	2	N_N	N_N	4.5	4.4	2.2472	4.5	4.4				
S2E08-06	S2E08	7_E	1000	2	N_N	N_N	9.1	8.9	2.2222	9.1	8.9				
N3E09-04	N3E09	6_NE	1250	2	N_N	N_N	4.6	4.5	2.1978	4.6	4.5				
N3W08-10	N3W08	1_NW	1000	2	N_N	N_N	4.6	4.5	2.1978	4.6	4.5				
N3W13-05	N3W13	1_NW	1500	2	N_N	N_N	4.6	4.5	2.1978	4.6	4.5				
S4W07-23	S4W07	3_SW	1000	2	N_N	N_N	4.6	4.5	2.1978	4.6	4.5				
S6W05-06	S6W05	4_S	1250	2	N_N	N_N	4.7	4.6	2.1505	4.7	4.6				
S1W12-07	S1W12	2_W	1250	2	N_N	N_N	7.05	6.9	2.1505	6.9	7.05				
N1W06-21	N1W06	2_W	750	2	N_N	N_N	6.6	6.46	2.144	6.46	6.6				
S3E08-06	S3E08	8_SE	1250	2	N_N	N_N	9.5	9.3	2.1277	9.5	9.3				
N4W13-18	N4W13	1_NW	1500	2	N_N	N_N	4.8	4.7	2.1053	4.7	4.8				
N5E03-14	N5E03	5_N	1000	2	N_N	N_N	4.8	4.7	2.1053	4.7	4.8				
N6W02-05	N6W02	5_N	1250	2	N_N	N_N	4.8	4.7	2.1053	4.7	4.8				
S7W01-17	S7W01	4_S	1500	2	N_N	N_N	4.8	4.7	2.1053	4.7	4.8				
S6E01-19	S6E01	4_S	1250	2	N_N	N_N	9.8	9.6	2.0619	9.6	9.8				
S7E02-22	S7E02	4_S	1500	2	N_N	N_N	4.9	4.8	2.0619	4.8	4.9				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S5E09-28	S5E09	8_SE	1500	2	N_N	N_N	9.9	9.7	2.0408	9.9	9.7				
S1W06-05	S1W06	2_W	750	2	N_N	N_N	10	9.8	2.0202	9.8	10				
S3W03-12	S3W03	4_S	750	2	N_N	N_N	10	9.8	2.0202	9.8	10				
S3W07-21	S3W07	3_SW	1000	2	N_N	N_N	5	4.9	2.0202	5	4.9				
S6E03-05	S6E03	4_S	1250	2	N_N	N_N	5.1	5	1.9802	5	5.1				
S2E09-20	S2E09	7_E	1250	2	Y_Y	N_N	10.3	10.1	1.9608	10.1	10.3				
S4W10-23	S4W10	3_SW	1250	2	N_N	N_N	5.2	5.1	1.9417	5.1	5.2				
N2W06-06	N2W06	1_NW	750	2	N_N	N_N	4.69	4.6	1.9376	4.6					4.69
N3W06-15	N3W06	1_NW	750	2	N_N	N_N	5.3	5.2	1.9048	5.2	5.3				
S1W13-10	S1W13	2_W	1250	2	N_N	N_N	5.3	5.2	1.9048	5.3	5.2				
S2W05-07	S2W05	3_SW	750	2	N_N	N_N	5.3	5.2	1.9048	5.2	5.3				
S4W06-07	S4W06	3_SW	1000	2	N_N	N_N	5.4	5.3	1.8692	5.4	5.3				
S4W08-22	S4W08	3_SW	1250	2	N_N	N_N	5.4	5.3	1.8692	5.4	5.3				
S4W09-02	S4W09	3_SW	1250	2	N_N	N_N	5.4	5.3	1.8692		5.3			5.4	
S6W03-18	S6W03	4_S	1250	2	N_N	N_N	5.4	5.3	1.8692	5.4	5.3				
N1E10-12	N1E10	7_E	1250	2	N_N	N_N	5.5	5.4	1.8349	5.5	5.4				
S6W01-10	S6W01	4_S	1250	2	N_N	N_N	5.5	5.4	1.8349	5.4	5.5				
N2W04-11	N2W04	1_NW	500	2	Y_Y	N_N	73.32	72	1.8167	72				73.32	
S1W11-06	S1W11	2_W	1250	2	N_N	N_N	5.6	5.5	1.8018	5.5	5.6				
S1W12-08	S1W12	2_W	1250	2	N_N	N_N	5.6	5.5	1.8018	5.5	5.6				
N1W05-02	N1W05	2_W	500	2	N_N	N_N	5.7	5.6	1.7699	5.6	5.7				
N1W08-17	N1W08	2_W	1000	2	N_N	N_N	5.7	5.6	1.7699	5.7	5.6				
N2E09-12	N2E09	7_E	1250	2	N_N	N_N	5.7	5.6	1.7699	5.7	5.6				
S7E02-06	S7E02	4_S	1250	2	N_N	N_N	5.7	5.6	1.7699	5.6	5.7				
N1W07-20	N1W07	2_W	750	2	N_N	N_N	4	3.93	1.7654		4				3.93
N1W04-21	N1W04	2_W	500	2	N_N	N_N	5.8	5.7	1.7391	5.8	5.7				
N5E01-01	N5E01	5_N	1000	2	N_N	N_N	5.8	5.7	1.7391	5.7	5.8				
S1E08-19	S1E08	7_E	1000	2	N_N	N_N	5.8	5.7	1.7391	5.7	5.8				
S6E01-06	S6E01	4_S	1250	2	N_N	N_N	5.8	5.7	1.7391	5.7	5.8				
S6E03-10	S6E03	4_S	1250	2	N_N	N_N	5.8	5.7	1.7391	5.8	5.7				
S6E05-10	S6E05	8_SE	1250	2	N_N	N_N	5.8	5.7	1.7391	5.7	5.8				
N1W06-04	N1W06	2_W	750	2	N_N	N_N	7.63	7.5	1.7184	7.5					7.63
N2W08-07	N2W08	2_W	1000	2	N_N	N_N	5.9	5.8	1.7094	5.9	5.8				
S5E03-30	S5E03	4_S	1000	2	N_N	N_N	5.9	5.8	1.7094	5.9	5.8				
S3W03-19	S3W03	3_SW	750	2	N_N	N_N	6	5.9	1.6807	6	5.9				
S7E03-29	S7E03	4_S	1500	2	N_N	N_N	6	5.9	1.6807	6	5.9				
S1W10-14	S1W10	2_W	1000	2	N_N	N_N	6.1	6	1.6529	6	6.1				
S4W04-04	S4W04	3_SW	750	2	N_N	N_N	6.2	6.1	1.626	6.2	6.1				
N2W08-04	N2W08	1_NW	1000	2	N_N	N_N	6.3	6.2	1.6	6.2	6.3				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N3W05-05	N3W05	1_NW	750	2	N_N	N_N	6.3	6.2	1.6	6.3	6.2				
S4W08-08	S4W08	3_SW	1250	2	N_N	N_N	6.4	6.3	1.5748	6.3	6.4				
N3W03-14	N3W03	1_NW	750	2	N_N	N_N	6.5	6.4	1.5504	6.4					6.5
S2W10-02	S2W10	2_W	1000	2	N_N	N_N	6.5	6.4	1.5504	6.5	6.4				
S3W03-04	S3W03	3_SW	750	2	N_N	N_N	6.5	6.4	1.5504	6.4	6.5				
S5E08-21	S5E08	8_SE	1500	2	N_N	N_N	6.5	6.4	1.5504	6.4	6.5				
S3W01-05	S3W01	4_S	500	2	N_N	N_N	6.6	6.5	1.5267	6.6	6.5				
N1W07-11	N1W07	2_W	750	2	N_N	N_N	4	3.94	1.5113	4					3.94
S1E06-19	S1E06	7_E	750	2	N_N	N_N	6.7	6.6	1.5038	6.7	6.6				
S5E08-17	S5E08	8_SE	1500	2	N_N	N_N	6.7	6.6	1.5038	6.7	6.6				
S7W02-21	S7W02	4_S	1500	2	N_N	N_N	6.7	6.6	1.5038	6.7	6.6				
S2W10-22	S2W10	2_W	1250	2	N_N	N_N	6.8	6.7	1.4815	6.8	6.7				
S1E07-15	S1E07	7_E	1000	2	N_N	N_N	6.9	6.8	1.4599		6.9			6.8	
S2W10-26	S2W10	2_W	1250	2	N_N	N_N	6.9	6.8	1.4599	6.9	6.8				
S3W06-15	S3W06	3_SW	1000	2	N_N	N_N	6.9	6.8	1.4599	6.8	6.9				
N6W12-10	N6W12	1_NW	1750	2	N_N	N_N	3.5	3.45	1.4388	3.45	3.5				
S1E09-06	S1E09	7_E	1250	2	N_N	N_N	7	6.9	1.4388	6.9	7				
S6E02-07	S6E02	4_S	1250	2	N_N	N_N	7	6.9	1.4388	7	6.9				
N3W07-25	N3W07	1_NW	1000	2	N_N	N_N	7.1	7	1.4184	7.1	7				
N5W08-03	N5W08	1_NW	1250	2	N_N	N_N	7.1	7	1.4184	7	7.1				
S4E07-17	S4E07	8_SE	1250	2	N_N	N_N	7.1	7	1.4184	7.1	7				
S1W05-01	S1W05	2_W	500	2	N_N	N_N	7.3	7.2	1.3793	7.2	7.3				
S3E09-12	S3E09	8_SE	1250	2	N_N	N_N	7.6	7.5	1.3245	7.6	7.5				
S4E08-21	S4E08	8_SE	1250	2	N_N	N_N	7.7	7.6	1.3072	7.6	7.7				
S6E02-21	S6E02	4_S	1250	2	N_N	N_N	8.2	8.1	1.227	8.2	8.1				
N4W11-07	N4W11	1_NW	1250	2	N_N	N_N	4.2	4.15	1.1976	4.2	4.15				
S6E04-07	S6E04	8_SE	1250	2	N_N	N_N	9.2	9.1	1.0929	9.2	9.1				
S5W07-03	S5W07	3_SW	1250	2	N_N	N_N	4.7	4.65	1.0695		4.7			4.65	
S4E08-19	S4E08	8_SE	1250	2	N_N	N_N	9.9	9.8	1.0152	9.9	9.8				
N1W06-20	N1W06	2_W	750	2	N_N	N_N	7.3	7.23	0.9635	7.23	7.3				
S4W06-11	S4W06	3_SW	1000	2	Y_Y	N_N	10.9	10.8	0.9217	10.8	10.9				
S7W03-24	S7W03	4_S	1500	2	Y_Y	N_N	11.9	11.8	0.8439	11.9	11.8				
N1W06-10	N1W06	2_W	750	2	N_N	N_N	6.2	6.16	0.6472	6.2					6.16
S5W06-16	S5W06	3_SW	1250	2	Y_Y	N_N	59.1	58.8	0.5089		59.1			58.8	
N1W04-07	N1W04	2_W	500	2	N_N	N_N	8.1	8.0667	0.4124	8.1					8.0667
S6W01-07	S6W01	4_S	1250	2	Y_Y	N_N	44	43.9	0.2275	44	43.9				
N2W05-14	N2W05	1_NW	750	2	Y_Y	N_N	74.01	74	0.0135	74					74.01
N3W07-08	N3W07	1_NW	1000	2	Y_Y	N_N	11	11	0	11	11				
S2W05-12	S2W05	3_SW	750	2	Y_Y	N_N	13	13	0	13	13				

TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

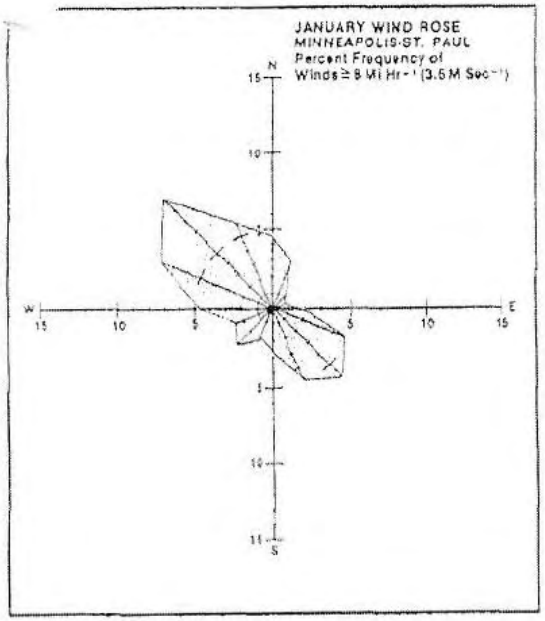
					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
S6W04-12	S6W04	4_S	1250	2	Y_Y	N_N	37	37	0	37	37				
N7E04-15	N7E04	5_N	1500	3	N_N	N_N	2.3	2.3	0	2.3	2.3			2.3	
N1W05-04	N1W05	2_W	500	2	N_N	N_N	6.6	6.6	0	6.6	6.6				
N1W05-08	N1W05	2_W	500	2	N_N	N_N	4.3	4.3	0	4.3	4.3				
N1W06-08	N1W06	2_W	750	2	N_N	N_N	7.2	7.2	0	7.2	7.2				
N1W07-14	N1W07	2_W	750	2	N_N	N_N	3.5	3.5	0	3.5	3.5				
N1W08-06	N1W08	2_W	750	2	N_N	N_N	4.7	4.7	0	4.7	4.7				
N1W09-07	N1W09	2_W	1000	2	N_N	N_N	3.3	3.3	0	3.3	3.3				
N1W11-20	N1W11	2_W	1250	2	N_N	N_N	2.9	2.9	0	2.9	2.9				
N1W12-01	N1W12	2_W	1250	2	N_N	N_N	2	2	0		2			2	
N1W12-04	N1W12	2_W	1250	2	N_N	N_N	2.9	2.9	0	2.9	2.9				
N1W13-06	N1W13	2_W	1250	2	N_N	N_N	3.5	3.5	0	3.5	3.5				
N2W10-12	N2W10	2_W	1000	2	N_N	N_N	5.3	5.3	0	5.3	5.3				
N2W12-03	N2W12	2_W	1250	2	N_N	N_N	2.8	2.8	0	2.8	2.8				
N2W12-21	N2W12	2_W	1250	2	N_N	N_N	4.3	4.3	0	4.3	4.3				
N3W07-21	N3W07	1_NW	1000	2	N_N	N_N	3.7	3.7	0	3.7	3.7				
N3W10-13	N3W10	1_NW	1250	2	N_N	N_N	3.6	3.6	0	3.6	3.6				
N4W06-03	N4W06	1_NW	1000	2	N_N	N_N	3.3	3.3	0	3.3	3.3				
N4W08-30	N4W08	1_NW	1250	2	N_N	N_N	3.5	3.5	0	3.5	3.5				
N4W09-01	N4W09	1_NW	1250	2	N_N	N_N	2.9	2.9	0	2.9	2.9				
N4W10-17	N4W10	1_NW	1250	2	N_N	N_N	3.2	3.2	0	3.2	3.2				
N4W13-19	N4W13	1_NW	1500	2	N_N	N_N	6.6	6.6	0	6.6	6.6				
N4W13-28	N4W13	1_NW	1500	2	N_N	N_N	4	4	0	4	4				
N5E02-21	N5E02	5_N	1000	2	N_N	N_N	3.9	3.9	0	3.9	3.9				
N5E03-05	N5E03	5_N	1250	2	N_N	N_N	4.1	4.1	0	4.1	4.1				
N5E05-15	N5E05	6_NE	1250	2	N_N	N_N	3.8	3.8	0	3.8	3.8				
N5E06-07	N5E06	6_NE	1250	2	N_N	N_N	3.5	3.5	0		3.5			3.5	
N5E06-18	N5E06	6_NE	1250	2	N_N	N_N	2.6	2.6	0	2.6	2.6				
N5E06-21	N5E06	6_NE	1250	2	N_N	N_N	4.7	4.7	0	4.7	4.7				
N5W09-12	N5W09	1_NW	1250	2	N_N	N_N	2.3	2.3	0	2.3	2.3				
N5W12-07	N5W12	1_NW	1500	2	N_N	N_N	1.9	1.9	0	1.9	1.9				
N5W12-14	N5W12	1_NW	1500	2	N_N	N_N	1.9	1.9	0	1.9	1.9				
N6E01-09	N6E01	5_N	1250	2	N_N	N_N	4.4	4.4	0		4.4			4.4	
N6E02-11	N6E02	5_N	1250	2	N_N	N_N	4.3	4.3	0	4.3	4.3				
N6E05-07	N6E05	6_NE	1250	2	N_N	N_N	3.9	3.9	0	3.9	3.9				
N6E05-20	N6E05	6_NE	1250	2	N_N	N_N	5	5	0	5	5				
N6E08-16	N6E08	6_NE	1500	2	N_N	N_N	3.5	3.5	0	3.5	3.5				
N6W08-17	N6W08	1_NW	1500	2	N_N	N_N	2.2	2.2	0	2.2	2.2				
N6W12-01	N6W12	1_NW	1750	2	N_N	N_N	3.5	3.5	0	3.5	3.5				

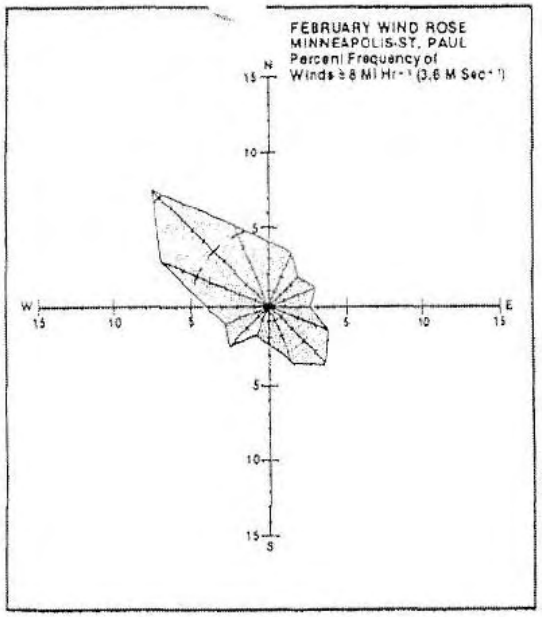
TABLE 9
Evaluation of Yard Specific Variability
South Minneapolis Soil Arsenic Evaluation

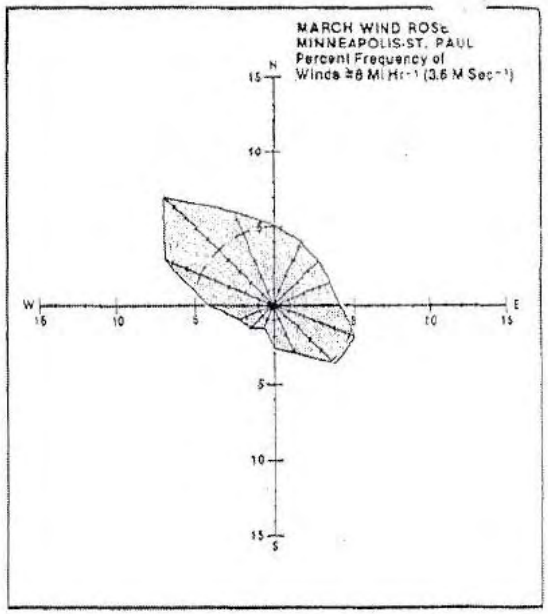
					Exceeds		Arsenic Concentration			Sample Concentration within the Property					
Parcel_ID	Block_ID	OCTNT	Distance Class	No. of Samples per Parcel	10 mg/kg Background	95 mg/kg Removal	MAX	MIN	RPD	Back	Front	Garden	Other	Side	Unknown
N7W01-02	N7W01	5_N	1250	2	N_N	N_N	3.2	3.2	0	3.2	3.2				
N7W09-01	N7W09	1_NW	1750	2	N_N	N_N	7.6	7.6	0		7.6			7.6	
N8W02-07	N8W02	5_N	1750	2	N_N	N_N	4.7	4.7	0	4.7	4.7				
N8W03-12	N8W03	5_N	1750	2	N_N	N_N	5.4	5.4	0	5.4	5.4				
S1E07-05	S1E07	7_E	1000	2	N_N	N_N	5.3	5.3	0	5.3	5.3				
S1E08-02	S1E08	7_E	1000	2	N_N	N_N	4	4	0		4			4	
S1E08-12	S1E08	7_E	1000	2	N_N	N_N	5.5	5.5	0	5.5	5.5				
S1W07-09	S1W07	2_W	750	2	N_N	N_N	7.8	7.8	0	7.8	7.8				
S1W13-03	S1W13	2_W	1500	2	N_N	N_N	4.5	4.5	0	4.5	4.5				
S2E07-02	S2E07	7_E	1000	2	N_N	N_N	7.4	7.4	0	7.4				7.4	
S2E10-14	S2E10	7_E	1250	2	N_N	N_N	3.9	3.9	0	3.9	3.9				
S2W06-03	S2W06	3_SW	750	2	N_N	N_N	6.5	6.5	0	6.5	6.5				
S2W06-19	S2W06	3_SW	750	2	N_N	N_N	5.1	5.1	0	5.1	5.1				
S3E10-08	S3E10	8_SE	1500	2	N_N	N_N	8.4	8.4	0	8.4	8.4				
S3W03-16	S3W03	3_SW	750	2	N_N	N_N	6.7	6.7	0	6.7	6.7				
S3W12-11	S3W12	3_SW	1500	2	N_N	N_N	5.1	5.1	0	5.1	5.1				
S4E08-24	S4E08	8_SE	1250	2	N_N	N_N	9.4	9.4	0	9.4	9.4				
S4E09-21	S4E09	8_SE	1250	2	N_N	N_N	7.5	7.5	0	7.5	7.5				
S4W03-13	S4W03	4_S	1000	2	N_N	N_N	6.4	6.4	0	6.4	6.4				
S4W06-29	S4W06	3_SW	1000	2	N_N	N_N	5.5	5.5	0	5.5	5.5				
S4W08-21	S4W08	3_SW	1250	2	N_N	N_N	5.3	5.3	0	5.3	5.3				
S4W09-03	S4W09	3_SW	1250	2	N_N	N_N	5.3	5.3	0	5.3	5.3				
S4W09-22	S4W09	3_SW	1250	2	N_N	N_N	5	5	0	5	5				
S5E02-20	S5E02	4_S	1000	2	N_N	N_N	6.7	6.7	0	6.7	6.7				
S5E08-12	S5E08	8_SE	1500	2	N_N	N_N	5.3	5.3	0	5.3	5.3				
S5E09-04	S5E09	8_SE	1500	2	N_N	N_N	4.4	4.4	0	4.4	4.4				
S5W03-05	S5W03	4_S	1000	2	N_N	N_N	4.1	4.1	0	4.1	4.1				
S5W03-26	S5W03	4_S	1000	2	N_N	N_N	5.8	5.8	0	5.8	5.8				
S5W07-09	S5W07	3_SW	1250	2	N_N	N_N	5.6	5.6	0	5.6	5.6				
S6E03-06	S6E03	4_S	1250	2	N_N	N_N	5	5	0	5	5				
S7E01-22	S7E01	4_S	1500	2	N_N	N_N	6.6	6.6	0	6.6	6.6				
S7E01-25	S7E01	4_S	1500	2	N_N	N_N	9.4	9.4	0	9.4	9.4				
S7E03-17	S7E03	4_S	1500	2	N_N	N_N	4.5	4.5	0	4.5	4.5				

Attachment 1

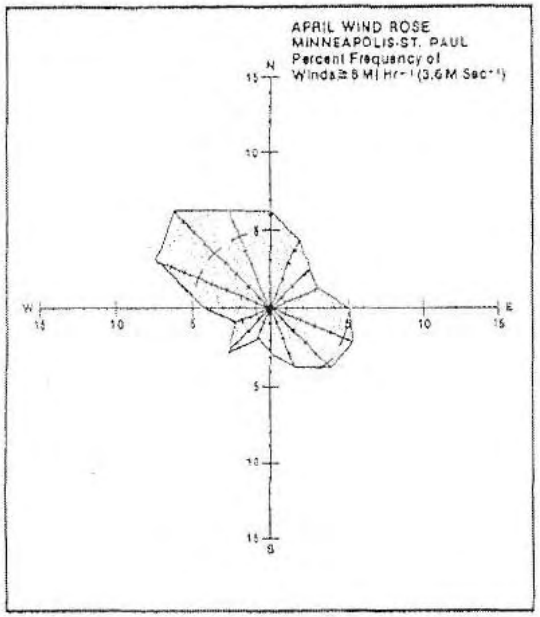
Wind Rose Diagrams

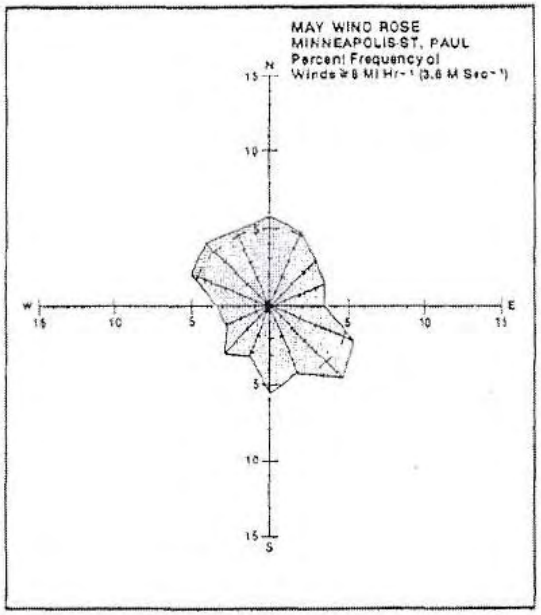


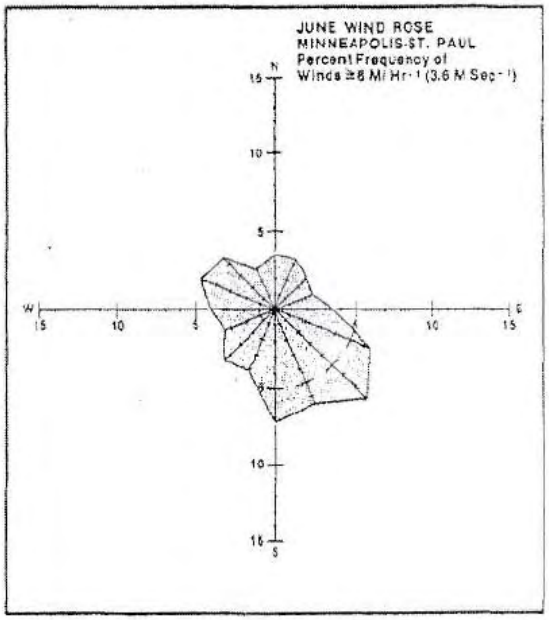




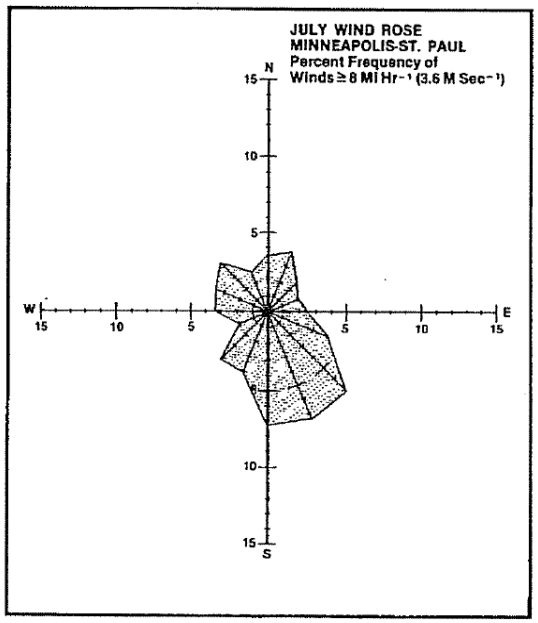
Wind rose diagrams from "*Climate Of Minnesota, Part XIV-Wind Climatology And Wind Power", AD-TB1955 Technical Bulletin, University Of Minnesota, 1983*

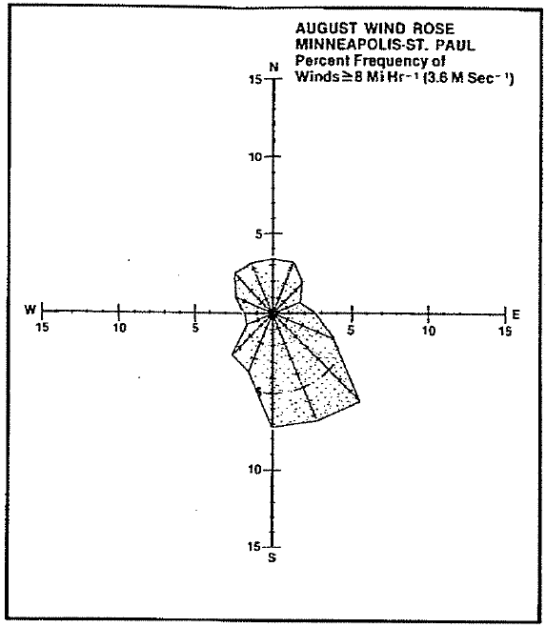


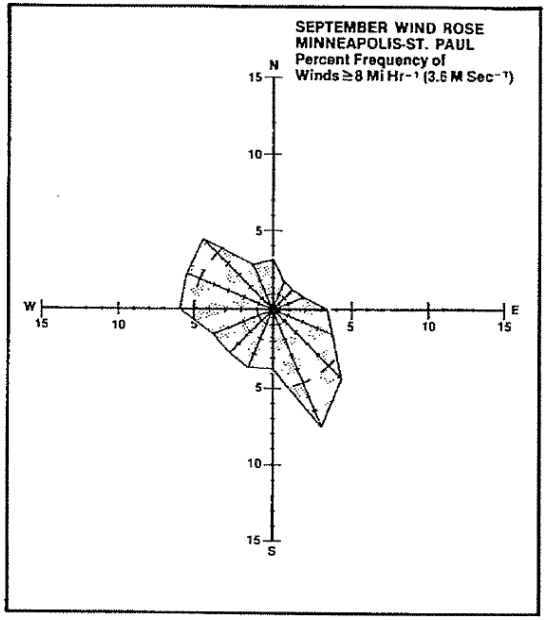




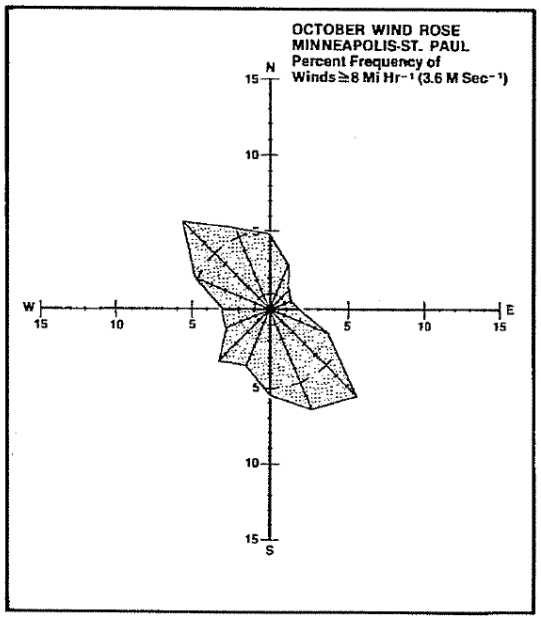
Wind rose diagrams from "*Climate Of Minnesota, Part XIV-Wind Climatology And Wind Power", AD-TB1955 Technical Bulletin, University Of Minnesota, 1983*

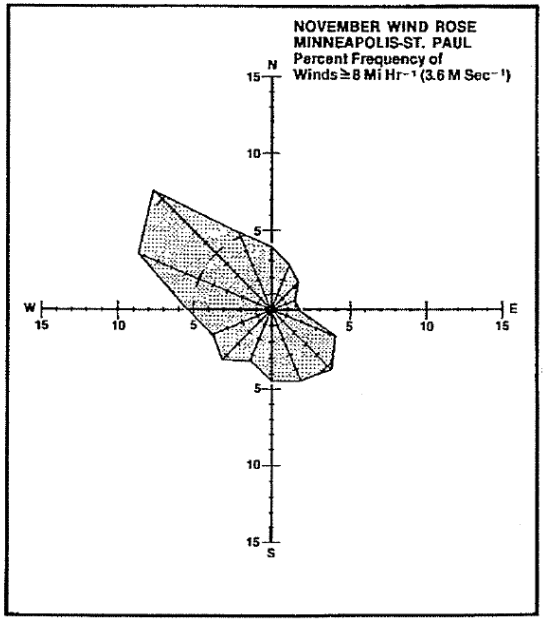


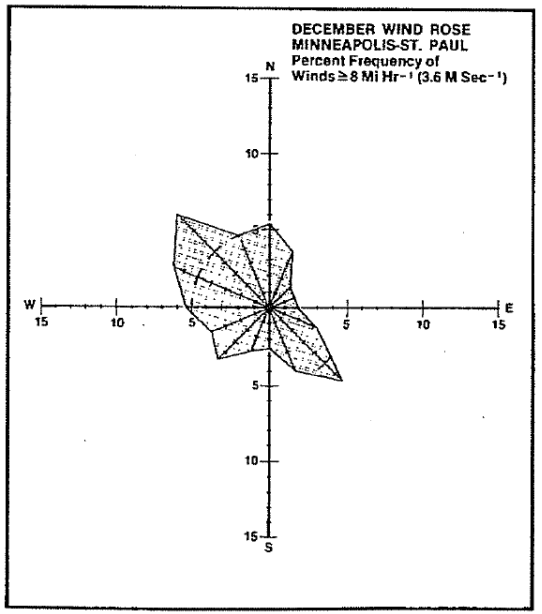




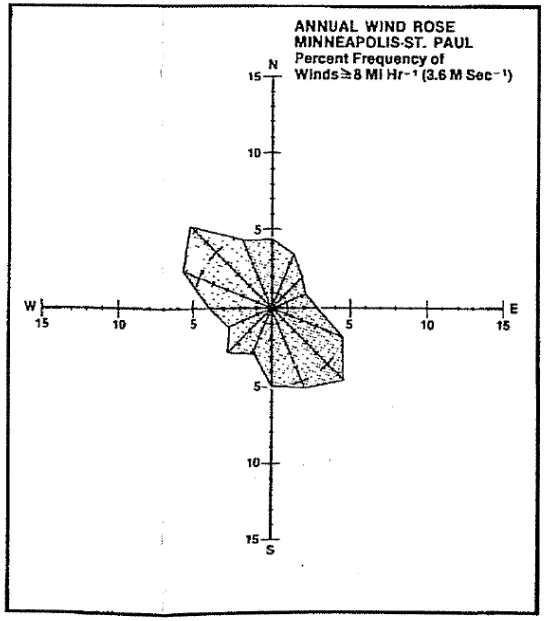
Wind rose diagrams from "*Climate Of Minnesota, Part XIV-Wind Climatology And Wind Power", AD-TB1955 Technical Bulletin, University Of Minnesota, 1983*







Wind rose diagrams from "*Climate Of Minnesota, Part XIV-Wind Climatology And Wind Power", AD-TB1955 Technical Bulletin, University Of Minnesota, 1983*



Wind rose diagrams from "*Climate Of Minnesota, Part XIV-Wind Climatology And Wind Power", AD-TB1955 Technical Bulletin, University Of Minnesota, 1983*

Appendix A-6

FIELDS Air Dispersion Model

Methodology

Air Model

- Consistent with previous work conducted at CMC (Geomega, Inc. 2004), the Industrial Source Complex Model ("ISC3"; EPA 1995) was utilized to model the dispersion of Arsenic from the CMC source location.
- ISC3 is a Gaussian plume, steady-state model capable of estimating close-distance impacts from industrial sources (EPA 2002). This model can accommodate simple point source emission rates from stacks, as well as emission rates from piles, vents, and conveyor belts. Input parameters include meteorological data (wind speed, direction, etc.) as well as input parameters of the contaminant.
- ISC3 can predict period average concentrations as a function of distance from the source.

Source information

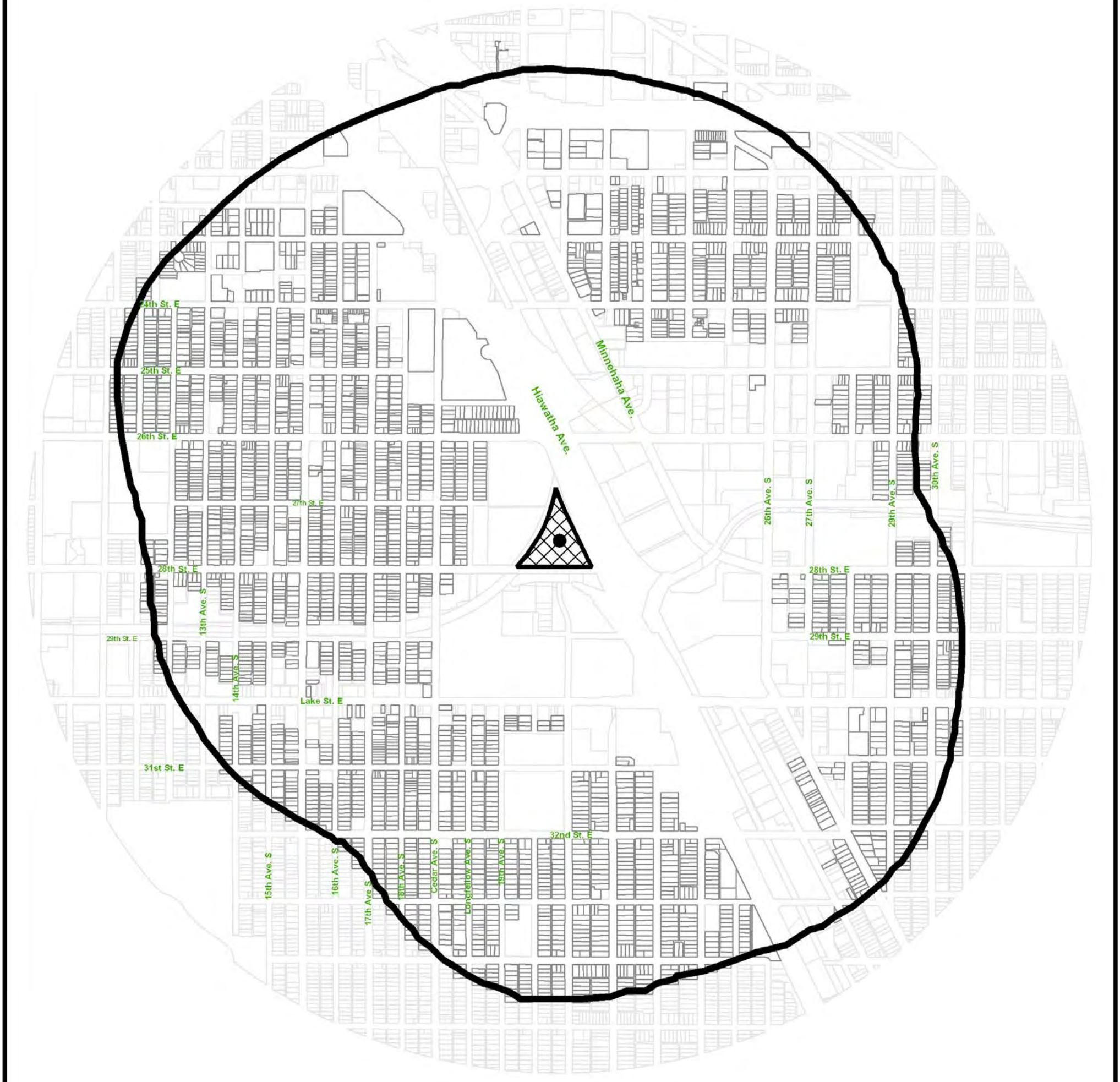
- Data collected by Geomega, Inc. (2004) indicates that the primary mechanism of Arsenic contamination was via railcar switching and handling that occurred during the "*Reade Era*" between the years 1948 and 1963 (25 years).
- During this period, an estimated 40,000 kg of As was presumably released via railcar switching, at an emission rate of 1.91 x 10^{-4} g/sec/m^2 . The area in which the railcar switching and handling occurred was estimated to be approximately 17 m x 150 m (Geomega, Inc. 2004).
- Other fugitive mechanisms of contamination during this era include: conveyor belt operation (240 kg As) and vehicle traffic (0.77 kg As) (Geomega, Inc. 2004). However, these mechanisms were unlikely to have had an impact on present-day contamination levels (Geomega, Inc. 2004); therefore, only information about railcar switching and handling (which accounted for over 99% of the contamination during this time period) was used in the model.

Meteorological Data

- Meteorological data required by ISC3 are hourly values of wind speed and direction, ambient temperature, stability class, and rural and urban mixing heights (EPA 1995).
- For the CMC site, the nearest weather station is the Minneapolis/St. Paul International Airport.
- Data from this weather station are available on the EPA Support Center for Regulatory Air Models (SCRAM) website [http://www.epa.gov/scram001/] for a limited number of years between 1984 and 1990.
- EPA recommends the use of 5 years of consecutive, representative meteorological data when using air models to estimate dispersion concentrations (EPA 2003); therefore, the entire 7 years of meteorological data was used and configured for direct input into ISC3 using the meteorological preprocessing application PCRAMMET (EPA 2004).
- ISC3 will calculate the period average dispersion of Arsenic for the entire 7 year period. From the model output, average annual dispersal concentrations can be calculated. The average annual dispersal concentration will then be used to estimate the dispersion of Arsenic over the 25-year "Reade Era" period.

Input file

- A runstream-input file must be created to import into ISC3. This input file specifies model control options (period averages), describes source parameters, specifies number of receptors and their locations, specifies meteorological input data, and specifies output options.



Minneapolis, MN

- CMC Facility
- Area of Interest
- Residential Properties
- Total Properties

Figure 1. Locations of the 3385 residential properties within the area of interest (5,500,000 sq. meters) surrounding the CMC facility. The area of interest was determined based upon air model (ISCST3) predictions of As dispersion, where As concentrations are predicted to be above 10 ppm. Residential properties included apartments, townhomes, single-family residences, and residential lots.

Meters

0 250 500

N

FIELDS
Field Environmental Decision Support

Minneapolis, MN

CMC Facility

Total Properties

Original Model Predictions
Predicted Area > 10 ppm: 5,500,000 sq. meters

Increased Sub-Units (3)
Predicted Area > 10 ppm: 5,250,000 sq. meters

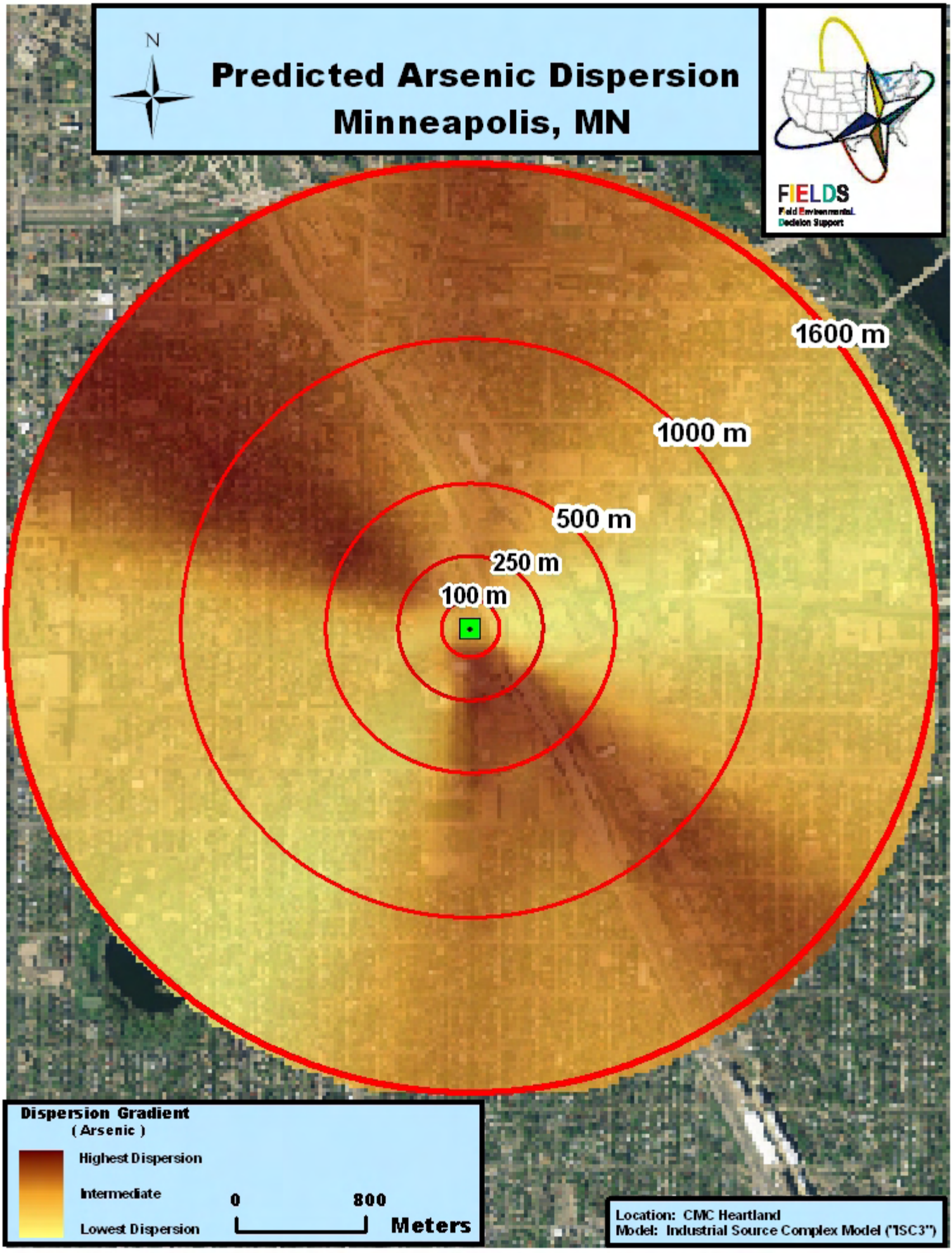
Double Emission Rate
Predicted Area > 10 ppm: 6,700,000 sq. meters

Both Parameters Modified
(Emission Rate and Sub-Units)
Predicted Area > 10 ppm: 6,750,000 sq. meters

Meters
0 500 1,000

N

FIELDS
Field Environmental Decision Support


N
Predicted Arsenic Dispersion
Minneapolis, MN
FIELDS
Field Environmental Decision Support
1600 m
1000 m
500 m
250 m
100 m
Dispersion Gradient
(Arsenic)
Highest Dispersion
Intermediate
Lowest Dispersion
0
800
Meters
Location: CMC Heartland
Model: Industrial Source Complex Model ("ISC3")

N

Predicted Arsenic Dispersion
Minneapolis, MN

1600 m

1000 m

500 m

250 m

100 m

Model Correct Predictions

- < 10 ppm
- 10 - 25 ppm
- 25 - 50 ppm
- > 50 ppm

Location: CMC Heartland
Model: Industrial Source Complex Model ("ISC3")

0 — 1,000 Meters

Appendix A-7

Results of Heavy Mineral Separation, Sequential Extraction, and Petrography on Arsenic-Contaminated Soil: Interim Report

Results of Heavy Mineral Separation, Sequential Extraction, and Petrography on Arsenic-Contaminated Soil: Interim Report on Sample "2609 12th Front"

Submitted to:

Lockheed Martin/REAC
Edison, NJ

as part of **Purchase Order Number 7100018636**

By:

Michael N. Spilde
Institute of Meteoritics/Department of Earth and Planetary Sciences
University of New Mexico
Albuquerque, NM

January 31, 2007

INTRODUCTION

The University of New Mexico (UNM) was awarded a contract from Lockheed Martin to conduct experimental processes on 5 arsenic-contaminated soil samples in an effort to determine the type of arsenic contamination present in the soil. These procedures included heavy mineral separates, petrography and electron microprobe analysis on the separates, and solution extractions for heavy metals, in particular arsenic, on the raw soil. The most contaminated sample would be the first to be processed in order to determine that the procedures yielded useful information. Four samples were received on 8 December 2006 from Stephen Dyment, EPA HQ, Arlington, VA. On 14 December 2006, John Johnson of Lockheed Martin REAC provided instructions on which of the four samples should be the first to be processed. The UNM Department of Earth and Planetary Science, where the analyses were to take place, was closed for business from 18 December to 22 December 2006 for building electrical upgrades and from 21 December 2006 to 3 January 2007 for Winter Break. Thus, work on the samples began in earnest on 3 January 2007. The purpose of this report is to describe the methods and results of processing the first of those samples, sample #1, labeled "2609 12th front" with the highest arsenic concentrations and the only sample considered in this report.

METHOD

Sample Designations

For clarity during analyses, the 4 samples were designated as follows, each according to what was marked on the received sample bag:

Sample #1 2609 12th Front
Sample #2 2518 15th Front
Sample #3 2518 15th Back
Sample #4 S3W06 3016 18th Archive

Initial Preparation

Sample #1 was split into halves using a gravity sample splitter (Humbolt Mfg). Since it was unknown how much heavy material may be present, a large volume of sample was prepared for heavy mineral separation; thus, one half of the sample (426.7 g) was designated for heavy separation and the other half (apx. 450 g) was archived in the original container for further analyses. The designated half was spread out on a tray and air-dried for two weeks while the University was closed for winter break.

Heavy Mineral Separation

Very small particles, such as clay-sized or smaller (<2 μm) are not appropriate for heavy mineral separation, and must be removed, usually by wet sieving or other means. This is especially important for separation by sodium polytungstate (SPT) solution since the solution is somewhat viscous and clay-sized particles will remain suspended indefinitely in the solution (Krukowski 1987). In addition, the sample should be rinsed with distilled water to remove free Ca^{++} that will react with the SPT solution (Torresan 1987).

The sample was mixed with de-ionized (DI) water and ultrasonicated for 15 minutes to disaggregate the soil. The wet slurry was then washed through a 710 μm sieve to remove large particles of sand and organic material. All wash water was saved for future analysis for dissolved As. Initially, the sample was wet-sieved in multiple steps to 88 μm. However, due to the large amount of clay and silt-sized particles present in the sample, this procedure was abandoned and the sample was centrifuged to remove only the clay-sized fraction. Centrifuge procedures are spelled out in Whitting and Allardice, 1986. Clay separation was accomplished by mixing approximately 50 g of sample with DI water in a 250 ml bottle. Bottles were agitated for a few minutes to suspend all material and then centrifuged for 3 minutes at 750 RPM in a Damon/IEC centrifuge (Model CU5000); this process leaves the clay fraction suspended and larger particles (>apx 2 μm) at the bottom of the bottle. This was repeated 5 times with fresh water until the wash water was mostly clear. After centrifugation, the >2 μm fraction was filtered and air-dried for 2 days while the water with suspended clay was stored in a bottle. A total of 4 liters of water was used for rinsing, and a 25 ml sample was drawn for analysis. After standing for 1 week, much of the clay fraction had settled and was filtered, dried and weighed. A sample of the clay fraction was taken for total arsenic (As_t) analysis.

The dried >2 μm fraction was subjected to the heavy mineral separation process. In this procedure, a heavy liquid is used to float lighter particles while material with a density greater than the fluid density will settle to the bottom of a separatory funnel to be drawn off. The use of bromated heavy liquids such as bromoform is no longer allowed at UNM for heavy mineral separation due to the dangers of handling the toxic halogenated hydrocarbon. However, a process using solutions of non-toxic sodium polytungstate solution (SPT) in water has supplanted bromated liquids. Procedures are outlined in USGS Open-File Reports 92-386 (Skipp and Brownfield 1992) and 87-590 (Torresan 1987). Between 30 – 50 g of dried sand/silt was weighed and placed into the separatory funnel, into a SPT solution with a density of 2.7-2.75 g/cm^3. This density will separate quartz sand (Specific Gravity= 2.65) and clays from heavier iron-oxides and arsenic trioxide (S.G 3.74), while retaining a reasonable viscosity; high densities of SPT become significantly more viscous, which slows settling of particles. Solution density was checked by weighing a 10 ml volumetric flask of the solution. The soil and SPT solution was stirred at 10 minute intervals, and after 1 hour, the settled heavy contents were drawn off into a filter. Likewise, the lighter upper fraction was removed into a separate funnel and filter. Both heavy and light fractions were rinsed thoroughly, dried and weighed. Samples of each were taken for EMP sample preparation and for ICP analysis of As_t.

Optical and Scanning Electron Microscopy

After drying, portions of the heavy fraction were checked for the presence of various minerals, such as sulfides, oxides, and arsenic trioxide. Small amounts of sample were placed in a glass petri dish for observation under the stereo microscope at less than 10X or placed on a glass slide in optical index oil for observation under a petrographic microscope. Digital photos of one specimen of arsenic trioxide were taken with a Nikon Cool-Pix camera attached to a Zeiss Photopol binocular microscope.

Initially, a few specific minerals were hand picked under the binocular scope and mounted on double-side Scotch tape for identification in the scanning electron microscope (SEM). The SEM with Energy Dispersive X-ray Spectroscopy (EDS) is used as a quick and efficient method of identification of mineral grains. The SEM is a JEOL JSM5800LV, a "low

pressure" microscope that can operate at both high and low vacuum. The low vacuum mode allows imaging and analysis of samples that do not have to be coated with conductive metals or carbon before imaging. This is particularly useful for quick mounting and identification of samples such as this. An Oxford Analytical ultrathin-window EDS with an Oxford Isis 300 X-ray analyzer are attached to the microscope and are capable of detecting elements from boron and above. When none of the mounted grains were found to contain arsenic, larger portions of the heavy fraction were spread out on dry filter paper for examination in the SEM. With this method, a large volume of the sample could be searched using backscattered electron (BSE) imaging, a mode in which high-atomic-number particles such as arsenic trioxide will appear bright while lower atomic number silicates minerals will be dark

Electron Microprobe Analysis

The electron microprobe (EMP) is used to locate and analyze to high precision, specific minerals in polished sections. Two polished samples were prepared for EMP analysis: approximately 0.5 g each of the heavy mineral fraction (labeled "1 Heavy") and the light fraction after separation ("1 Light") were embedded in epoxy and polished with diamond and alumina abrasives to a 0.05 μm polish. The surface of each polished sample was evaporated with 15 nm of carbon to make it conductive under the electron beam. The polished sections were analyzed using a JEOL 8200 electron microprobe at the UNM Department of Earth and Planetary Science/Institute of Meteoritics. The EMP is equipped with 5 wavelength dispersive x-ray spectrometers (WDS) and an ultrathin-window energy dispersive spectrometer (EDS). X-ray maps are used to search for concentrations of particular elements, in this case As; the specific particles can then be quantitatively analyzed. Point analyses and X-Ray maps were conducted at 15 kV and 25 nA. Standards for quantitative analysis, counting times and resulting detection limits are given in Table 1. X-ray maps for Si, Fe, As, and Pb were collected over individual map areas of 3.074 x 3.074 mm, using 256x256 pixels with 12 μm steps between pixels and 25 msec dwell/pixel. Quantitative point analysis data was reduced with the ZAF matrix routine provided with the JEOL software; quantitative procedures and matrix corrections can be found in Goldstein et al. 2005.

Wet Chemical Procedures

The archived sample (apx 450 g) was split to approximately 60 g for sequential As extraction and for preparation for total As analysis. All solutions were analyzed at UNM Department of Earth and Planetary Science Analytical Chemistry Laboratory, and 15 mL splits of the solutions were sent to REAC for verification. Analysis at UNM were conducted on a Perkin-Elmer ICP-OES.

Digestion for Total As Analysis. Solid samples are digested using procedures described by Husler and Connolly, 1991. For all solid samples, 0.1000g ± 0.0003g of sample was weighed into 50mL Teflon tubes and 5 mL of HNO_3 was added. The mixture was heated to no higher than 90°C and dried down to 0.5mL. To this, 5 mL of Aqua Regia was added and dried down to 1 mL. The final volume was brought to 25mL with 0.1N HNO_3 and filtered to remove any residual solids before analysis.

As Sequential Extraction Procedure. The sequential extraction procedure of Zeien and Brummer (1989) as described by Wilke (2000) and Wenzel et al. (2001) was used to characterize the arsenic concentration associated with various soil components. This procedure utilizes several different solutions at decreasing pH to release the various species of arsenic that may be present in a sample soil. This type of analysis does not provide direct arsenic speciation but does provide information on where the arsenic is found. As such, it provides quantitative data on the fraction of As that is water soluble, the fraction sorbed to minerals (pH 6), the fraction bound to organic matter (pH 4.6), the fraction incorporated into crystalline and amorphous oxides (pH 3.25) and any residual fraction (pH<2) (Wilke 2000). The procedure is detailed below:

1) Fraction: Water extractable:
   2 g air-dried soil (<2 mm) are weighed into 50mL polypropylene copolymer centrifuge tubes.
   Extraction solution: 25mL 18 M_ DI Water
   Extraction time: Shaken for one hour at 20°C
   Centrifuge 25 minutes at 20°C and 15,000 rpm.
   Filter solution into 25mL vials.

2) Fraction: Mobile Heavy Metals (soluble in water and unspecifically adsorbed metals as well as easily soluble metalorganic complexes):
   Filters from extraction 1 are rinsed back into the appropriate centrifuge tubes with extraction solution #2.
   Extraction solution: 25mL 1M NH_4NO_3 to the resting soil in the centrifuge tube
   Extraction time: Shaken for one hour at 20°C
   Centrifuge 25 minutes at 20°C and 15,000 rpm.
   Filter solution into 25mL vials.

3) Fraction: Easily Available Heavy Metals (specific adsorbed, superficially occluded, bound to carbonates, and metal organic complexes of low binding strength).
   Filters from extraction 2 are rinsed back into the appropriate centrifuge tubes with extraction solution #3.
   Extraction solution: 25mL 1M NH_4OAc (ph 6.0) to the resting soil in the centrifuge tube.
   Extraction time: Shaken for one hour at 20°C
   Centrifuge 25 minutes at 20°C and 15,000 rpm.
   Filter solution into 25mL vials.

4) Fraction: Heavy Metals Bound to Mn-Oxides
   Filters from extraction 3 are rinsed back into the appropriate centrifuge tubes with extraction solution #4.
   Extraction solution: 25mL 0.1M NH_2OH-HCl + 1M NH_4OAc (ph 6.0) to the resting soil in the centrifuge tube.
   Extraction time: Shaken for one hour at 20°C
   Centrifuge 25 minutes at 20°C and 15,000 rpm.
   Filter solution into 25mL vials.

5) Fraction: Heavy Metals Bound to Organic Matter
   Filters from extraction 4 are rinsed back into the appropriate centrifuge tubes with extraction solution #5.

Extraction solution: 25mL 0.025M NH_4-EDTA (pH 4.6) to the resting soil in the centrifuge tube.
Extraction time: Shaken for one hour at 20°C
Centrifuge 25 minutes at 20°C and 15,000 rpm.
Filter solution into 25mL vials.

6) Fraction: Heavy Metals Bound to Amorphous Fe-Oxides
Filters from extraction 5 are rinsed back into the appropriate centrifuge tubes with extraction solution #6.
Extraction solution: 25mL 0.2M NH_4-Oxalate (pH 3.25) to the resting soil in the centrifuge tube.
Extraction time: Shaken for one hour at 20°C
Centrifuge 25 minutes at 20°C and 15,000 rpm.
Filter solution into 25mL vials.

7) Fraction: Heavy Metals Bound to Crystalline Fe-Oxides
Filters from extraction 6 are rinsed back into the appropriate centrifuge tubes with extraction solution #7.
Extraction solution: 25mL 0.1M Ascorbic Acid + 0.2M NH_4-Oxalate (pH 3.25) to the resting soil in the centrifuge tube.
Extraction time: Shaken for one hour at 20°C
Centrifuge 25 minutes at 20°C and 15,000 rpm.
Filter solution into 25mL vials.

8) Fraction: Residual
Filters from extraction 7 are rinsed back into 50mL Teflon tube with no more than 15 mL of HNO_3.
Heat no higher than 90°C and then dry down to 0.5mL.
Add 5 mL of Aqua Regia.
Heat no higher than 90°C and then dry down to1mL.
Bring to a final volume of 25mL with 0.1N HNO_3.
Filter out any residual solids into 25mL vials.

RESULTS

Heavy Mineral Separates

The 426.7 g of soil processed provided more than enough heavy material for digestion for ICP and for an epoxy mount for EMP analysis. For the remaining samples, the amount processed through the heavy mineral separation can be greatly reduced to save time; processing around 200 g of soil should provide sufficient heavy minerals for our purposes.

Although certified ICP analysis will be conducted at REAC, analyses were also conducted at UNM to guide the experimental process for both heavy mineral separates and the sequential extractions. The results of total arsenic analyses is provided in Table 2. The contract as stated, requires only digestion of the heavy and light fractions. However, at least for the first sample, both the rinse water and the clay fraction were also analyzed to document loss of arsenic in either of those portions.

The weight of each sample fraction is provided in Table 2. The heavy mineral fraction contains the highest concentration of arsenic at 4610 mg/kg, over 10 times the bulk soil (403 mg/kg). The light fraction, that is, the portion from which the heavy material has been removed, has significantly lower As at 243 mg/kg, about half of the bulk soil. The clay fraction, however, contains significant As (742 mg/kg) that may be bound to clays and may also be present as very small, micrometer-sized particles of arsenic oxide. Only a trace of As was lost to the rinse water (0.9 mg/L).

Petrography

Preliminary examination of the heavy fraction in the binocular microscope indicated that a diversity of mineral types was present. A hand magnet was used to crudely separate magnetic material from nonmagnetic. A significant portion, approximately 25% of the heavy fraction, is magnetic, most of which is magnetite, although some particles are fragments of iron, including small round metallic spheres, possibly welding spatter. Minerals identified optically and with the SEM/EDX include amphibole, apatite, biotite, epidote, garnet, hematite, ilmenite, magnetite, monazite, pyroxene, quartz, rutile, and zircon. Although quartz is lower density than the SPT solution, some lighter grains end up being included in the heavy fraction. One arsenic oxide grain, positively identified in the SEM, was photographed in the optical microscope (Fig. 1 and 2). However, the optical properties of the arsenic oxide is similar to other transparent minerals in the sample and does not provide a definitive identification. On the other hand, the SEM/EDS provided quick petrographic identification of arsenic minerals in the heavy fraction.

Examination in the SEM using BSE imaging identified the presence of an abundant arsenic oxide in the heavy fraction (Fig. 3). Figure 4 shows a close up of several grains, along with the X-ray spectrum (Fig. 5) containing strong peaks for As and O, which identifies the grain as an arsenic oxide. Most arsenic-oxide grains observed in the SEM were less than 50 μm in diameter and many had highly textured surfaces.

Arsenic oxide was readily located in the heavy fraction polished sample using BSE imaging in the EMP, due to the abundance and high atomic number of the oxide. Examples of arsenic oxide grains are provided in Figures 6 – 9. The arsenic oxide grains found in the polished sample were up to several hundred micrometers across, such as the particle in Fig. 6. The arsenic oxide grains were often strongly embayed (Figs. 6 and 7), possibly indicating partial dissolution. Numbers on the polished sample micrographs (Figs. 6-12) indicate the locations of EMP analyses in Table 3. All analyses of arsenic oxide except one (#7) were close to shoichiometric arsenic trioxide. Analysis #7 appears to be part way between As(III)- and As(V)-oxide and may have a variable oxidation state.

An abundance of iron-oxides are present in the polished sample, shown in Figures 10 – 12. Varying concentrations of As are present in the iron oxides. The abundant magnetite appears to have only trace levels whereas some of the other, less well formed oxides, such as the spongy –looking grains of iron-oxide (for example Fig. 10) contain 1 wt% or more of As. The cation to oxygen ratios of these iron oxides indicate that they may be either hematite and goethite. Analyses #2, 9, 12, 14, and 18 tend toward hematite and #15, 17, 19,20, and 21 are more like goethite. In addition to iron oxides and arsenic oxides, lead oxide grains were also observed in both the SEM and the EMP (Figs. 10 and 12) to contain As in concentrations up to 2.5 wt%. Figure 13 is an X-ray map for As, Fe and Pb over approximately 10 mm^2. indicating that As is present in discrete arsenic oxide grains, in low concentrations in some iron oxides,

particularly the porous and layered iron oxide minerals, and in association with lead and iron oxide grains.

The polished sample of the light fraction was examined in the EMP to characterize the remaining material and to look for any concentrations of arsenic that may not have been removed by the heavy mineral separation. The larger particles in the sample are dominated by quartz and feldspar with a few, rare iron oxides (Fig. 14). This fraction contains a much more diverse range of particles from hundreds to a few micrometers across, shown in Figure 15. The smaller particles tend to be more mineralogically diverse, containing quartz, feldspars, clays, micas, and heavier oxides, such as iron and titanium oxides. Several X-ray maps were done to look for arsenic that might be present. Figure 16 illustrates one of the maps, with the BSE image of the map area in Figure 17. The map shows that some small particles (<10 μm) of arsenic oxide are escaping the heavy mineral separation.

Sequential As Extraction

Preliminary ICP analysis of the various extraction solutions was done at UNM to compare with the heavy mineral separations. Final ICP analyses will be done by REAC. The extraction results for sample #1 are shown in Table 4. Due to the high concentration of organic material, the final extraction or residue sample tended to react vigorously during digestion and foam was lost on the first step of the final digestion. Thus, small amounts of acid must be added over the period of several days, and the final digest has not been completed at this writing. However, a good estimate of the arsenic concentration can be made by subtracting the sum of arsenic in the extractions from the total arsenic content of the bulk soil. The total As in the extractions is 213.18 mg/kg and the bulk soil is 403-413 mg/kg. Therefore, the concentration in the residue should be 403-213=190 mg/kg, barring an losses. Thus, the residue has the highest concentration of arsenic. The next highest concentration is 97.1 mg/kg As bound to amorphous iron oxides and 32.5 mg/kg bound to crystalline iron oxides. A small amount is bound to manganese oxides, although no specific manganese minerals were observed in the SEM or EMP; the lead oxides observed in the EMP may account for this fraction of the arsenic. A large fraction (48.4 mg/kg) is apparently bound to organic material, which there is a large amount of in the bulk soil. Small amounts of arsenic are sorbed to clays (3.6 mg/kg) and even smaller amounts (1.17 mg/kg) are non-specifically sorbed. A significant portion, 21.8 mg/kg, is water extractable.

DISCUSSION

It is not unexpected for smaller particles to fail to be separated during heavy mineraal separation. Separation is most effective on well sized grains (Cady et al. 1986). Smaller dense particles, such as the small arsenic oxide in Fig. 16 & 17 may not be separated by the SPT solution due to the slower settling rate of these small particles in the higher viscosity SPT solution. Observation of the heavy fraction in the SEM, however, shows that many small particles are being caught, such as the 4-5 μm arsenic oxide particles in Figure 3. Examination of the Sample 1 Light indicates that larger arsenic oxides in the separated light fraction are rare and that the separation is doing a good job, at least down to particles around 10 μm.

Based on the ICP analyses, a mass balance for the individual soil fractions can be calculated to determine the success of the separation process. 100 g of soil would contain 0.0403 g As. The heavy fraction contains, by far, the highest concentration of As but makes up 1% of

the bulk sample, so in 100 g soil, 0.005 g would be in the heavy separate (.01 x .4610). This represents 12% of the total As (0.005/0.0403*100). The light or separated material makes up the bulk of weight and in 100 g soil, 0.018 g As would be present in the light fraction, or 45%. The clay-sized material would contain 0.01 g or 25%. Thus 82% of the As has been accounted for, resulting in 18% loss. A small portion was lost to the wash water, but most of the loss was either to As bound to the abundant organic material or in the oversize (>710 mm) fraction. Loss as individual grains in the oversize is unlikely, but the sequential extraction verifies that there is a significant amount of arsenic bound to the organic material, so this would account for most of the loss.

The sequential extraction compares favorably with the EMP results, since the EMP analyses showed low to moderate concentrations of arsenic present in many of the iron oxide minerals. The water extractable portion is not surprising. This would explain the embayed and dissolved appearance of the large arsenic oxide grains. Even during polishing of the heavy sample, some of the large grains were being etched, no doubt by the water carrier media of the grinding and polishing powders. Future samples should be prepared under kerosene or alcohol.

References

Cady, JG, Wilding, LP and Drees, LR (1986) Petrographic microscope techniques (Chapter 8), In A. Klute, ed. *Methods of Soil Analysis: Part 1 Physical and Mineralogical Methods, 2nd Edition*, Madison, Wis. : Soil Science Society of America, 185-218.

Goldstein, J, Newbury, D, Joy, D, Lyman, C, Echlin, P, Lifshin, E, Sawyer, L and Michael, J (2003) Scanning elctron microscopy and X-Ray Microanalysis 3rd Edition. Plenum Publishers: New York, 688p.

Husler, J and Connolly, J (1991) *Procedures for Laboratory Sample Bulk Chemical Determination.* Sandia National Laboratory Tech Procedures Report **61.** Albuquerque, NM: Sandia National Laboratory, 98p.

Krukowski, S.T. 1988. Sodium metatungstate: A new heavy-mineral separation method for the extraction of conodonts from insoluble residues. *Journal of Paleontology*: Vol. 62, No. 2, p. 314-316.

McGuire, AV; Francis, CA; Dyar, MD (1992) Mineral standards for electron microprobe analysis of oxygen. *American Mineralogist*, 77(9-10), 1087-1091.

Skipp, GL and Brownfield, I. (1992) Improved density gradient separation techniques using sodium polytungstate and a comparison to the use of other heavy liquids. USGS Open-File Report 92-386, 17p.

Torresan, M (1987) The use of sodium polytungstate in heavy mineral separations. USGS Open-File Report 87-590, 15p.

Wenzel, WW, Kirchbaumer, N, Prohaska, T, Stingeder, G, Lombi, E, and Adriano, DC (2001) Arsenic fractionation in soils using an improved sequential extraction procedure. *Analytica Chimica Acta*. 436, 309-323.

Whittig, LD and Allardice, WR (1986) X-Ray diffraction techniques (Chapter 12), In A. Klute, ed. *Methods of Soil Analysis: Part 1 Physical and Mineralogical Methods, 2nd Edition*, Madison, Wis. : Soil Science Society of America, 331-362.

Wilke, W (2000) Small-scale variability of metal concentrations in soil leachates. *Soil Science Society of America Jour.* 64, 138-143.

Zeien, H and Brummer, GW (1989) Chemische extraktion zur bestimmung von schwermetallbindungsformen in boden. (In German) *Metteilgn. Dtsch. Bodenkundl. Gesellsch.* 59, 505-510.

Tables

Table 1. Elements analyzed by EMP, with standards used and analytical detection limits for each element.

Element	Analytical X-ray Line	Standard	Peak/background Counting Time (sec)	Calculated 3σ Detection Limit (ppm)
O	Kα	hematite	40/20	600
Mg	Kα	diopside	20/10	210
Al	Kα	orthoclase	20/10	240
Si	Kα	diopside	20/10	360
S	Kα	chalcopyrite	40/20	69
Ca	Kα	diopside	20/10	110
Ti	Kα	rutile	20/10	350
Mn	Kα	spessartine	30/15	216
Fe	Kα	hematite	20/10	450
As	Lα	InAs	40/20	480
Sb	Lα	Sb2Te3	40/20	240
Pb	Mα	Galena	40/20	480

Notes: All standards except hematite are from C.M. Taylor Corp; hematite is from Harvard Mineralogical Museum (#92649), McGuire et al. 1992.

Table 2. Weight of each soil fraction and concentration of As_t in each fraction of sample #1.

Fraction	Size (μm)	Content	Wt (g) or Volume (L)	% of Total	As Conc. mg/kg
Dry soil	unsized	all fractions	426.7	100.0	403
Coarse	> 710	coarse sand, large organics, junk	38.6	9.0	nd
Clay-size	< 2	clay, light organics	58.4	13.7	742
Middle	2< x <710	sand, silt	319.6	74.9	
light		quartz, feldspars	256.2		243
heavy		oxides, heavy minerals	4.3	1.0	4610
Loss	<< 2	clay suspended in wash water/filters	10.1	2.4	na
Wash water			4.1		0.886

Notes: 59.1 g of the middle fraction was washed but not separated;
nd, not determined; wash water value in mg/L.

Table 3. EMP quantitative analysis on selected spots on Sample 1 Heavy.

							Weight Percent							
Point #	Label	Mg	Al	Si	S	Ca	Ti	Mn	Fe	As	Sb	Pb	O	Total
1	Large As-oxide grain	-	-	-	-	-	-	-	-	74.994	0.883	-	25.22	101.10
2	Cubic Fe-oxide	-	0.475	0.384	0.016	0.048	0.076	0.422	70.13	-	-	-	30.16	101.75
3	Pb+Fe-oxide	-	0.341	0.107	0.147	0.587	-	0.302	63.68	1.648	-	3.312	23.79	93.94
4	Another large As-ox	-	-	-	-	-	-	-	-	77.432	-	-	24.29	101.72
5	As-ox below #4	-	-	-	-	-	-	-	-	76.460	0.484	-	24.67	101.61
6	Small As-ox	-	-	-	-	-	-	-	-	75.630	0.196	-	24.47	100.30
7	As-ox below #6	-	-	-	-	-	-	-	-	67.389	-	-	30.08	97.47
8	Another As-oxide	-	-	-	-	-	-	-	-	76.392	0.049	-	24.59	101.03
9	Zoned Fe-ox w/ metal	-	-	-	0.240	0.043	-	0.419	70.46	-	-	-	31.59	102.82
10	Zoned Fe-ox w/ Pb	-	0.160	0.081	0.084	0.071	-	0.116	68.97	0.432	-	2.534	26.15	98.63
11	Same grain as #10	-	0.267	0.094	0.192	2.451	-	0.226	19.93	2.480	-	42.212	14.39	82.24
12	Spongy Fe-oxide	0.342	1.839	3.589	0.093	0.967	0.154	0.050	49.92	1.189	-	1.361	27.60	87.11
13	"Oolitic" Fe-ox	-	0.287	0.176	0.034	0.028	-	-	57.55	0.093	-	-	17.99	76.18
14	Layered Fe-ox	0.026	-	-	0.139	0.043	-	0.243	70.71	0.060	-	-	30.37	102.67
15	Massive Fe-ox	0.242	1.294	4.202	0.023	0.571	-	0.252	57.71	0.062	-	-	36.87	101.26
16	Magnetite	0.604	1.841	-	-	-	3.944	0.132	64.44	0.048	-	-	27.84	97.85
17	Concentric Fe-ox rim	0.394	0.596	1.521	0.011	0.611	0.044	0.201	63.31	0.730	-	0.330	34.84	102.59
18	Concentric Fe-ox core	0.261	1.689	2.291	0.028	0.548	0.053	2.268	58.77	0.835	-	0.274	32.97	99.98
19	Layered Fe-ox rim	0.149	0.129	0.405	0.082	0.295	-	0.641	61.97	0.879	-	0.157	36.55	101.27
20	Layered Fe-ox core	0.084	-	0.179	0.090	0.215	-	0.073	64.43	0.503	-	0.112	36.66	102.36
21	Patchy As in Fe-ox	0.278	0.606	2.956	0.020	0.573	-	0.283	59.67	1.842	-	0.161	36.01	102.41
							Atomic Percent							
		Mg	Al	Si	S	Ca	Ti	Mn	Fe	As	Sb	Pb	O	Total
1	Large As-oxide grain	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.387	0.003	0.000	0.610	1.000
2	Cubic Fe-oxide	0.000	0.006	0.004	0.000	0.000	0.000	0.002	0.394	0.000	0.000	0.000	0.592	1.000
3	Pb+Fe-oxide	0.000	0.005	0.001	0.002	0.005	0.000	0.002	0.421	0.008	0.000	0.006	0.549	1.000
4	Another large As-ox	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.405	0.000	0.000	0.595	1.000
5	As-ox below #4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.398	0.002	0.000	0.601	1.000
6	Small As-ox	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.397	0.001	0.000	0.602	1.000
7	As-ox below #6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.324	0.000	0.000	0.676	1.000
8	Another As-oxide	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.399	0.000	0.000	0.601	1.000
9	Zoned Fe-ox w/ metal	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.388	0.000	0.000	0.000	0.607	1.000
10	Zoned Fe-ox w/ Pb	0.000	0.002	0.001	0.001	0.001	0.000	0.001	0.425	0.002	0.000	0.004	0.563	1.000
11	Same grain as #10	0.000	0.006	0.002	0.004	0.039	0.000	0.003	0.226	0.021	0.000	0.129	0.570	1.000
12	Spongy Fe-oxide	0.005	0.024	0.044	0.001	0.008	0.001	0.000	0.310	0.006	0.000	0.002	0.598	1.000
13	"Oolitic" Fe-ox	0.000	0.005	0.003	0.000	0.000	0.000	0.000	0.474	0.001	0.000	0.000	0.517	1.000
14	Layered Fe-ox	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.391	0.000	0.000	0.000	0.605	1.000
15	Massive Fe-ox	0.003	0.013	0.042	0.000	0.004	0.000	0.001	0.290	0.000	0.000	0.000	0.646	1.000
16	Magnetite	0.008	0.023	0.000	0.000	0.000	0.027	0.001	0.383	0.000	0.000	0.000	0.557	1.000
17	Concentric Fe-ox rim	0.005	0.006	0.016	0.000	0.004	0.000	0.001	0.330	0.003	0.000	0.000	0.634	1.000
18	Concentric Fe-ox core	0.003	0.019	0.024	0.000	0.004	0.000	0.012	0.315	0.003	0.000	0.000	0.617	1.000
19	Layered Fe-ox rim	0.002	0.001	0.004	0.001	0.002	0.000	0.003	0.321	0.003	0.000	0.000	0.661	1.000
20	Layered Fe-ox core	0.001	0.000	0.002	0.001	0.002	0.000	0.000	0.332	0.002	0.000	0.000	0.660	1.000
21	Patchy As in Fe-ox	0.003	0.006	0.030	0.000	0.004	0.000	0.001	0.305	0.007	0.000	0.000	0.642	1.000

Notes: - indicates not measured or below detection limit.

Table 4. ICP results for Sample #1.

Extraction Solution	Reported Conc (mg/L)	Conc. (mg/kg)	% RSD	SD
H2O	1.75	21.8	0.930	0.0162
1M NH4NO3	0.094	1.17	135.0	0.1268
1M NH4OAc	0.289	3.61	5.75	0.0166
0.1M NH2OH HCl	0.688	8.60	5.66	0.0389
0.025M NH4-EDTA	3.88	48.4	2.62	0.1014
0.2M NH4-OXALATE	7.77	97.1	4.76	0.3698
0.1M ASCORBIC ACID	2.60	32.5	1.73	0.0449

Note: Weight of sample = 2.0003 and final volume of solution = 25 mL; %RSD= Percent Relative Standard Deviation

Figures

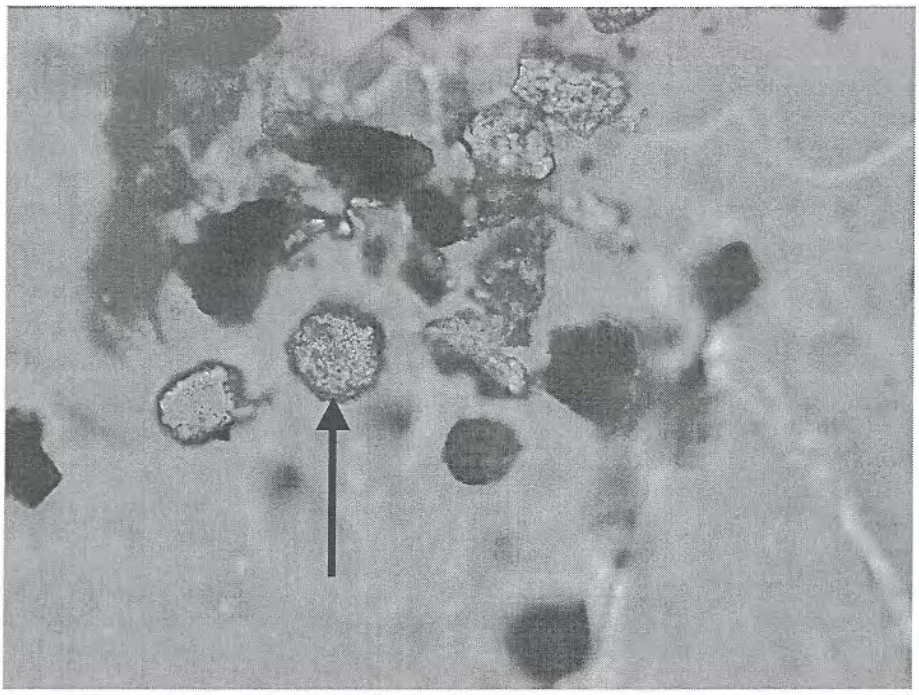


Figure 1. Sample 1, heavy fraction. Photomicrograph of a few particles. Arrow points to a 28 μm dia. arsenic-oxide grain. Magnification = 650x.

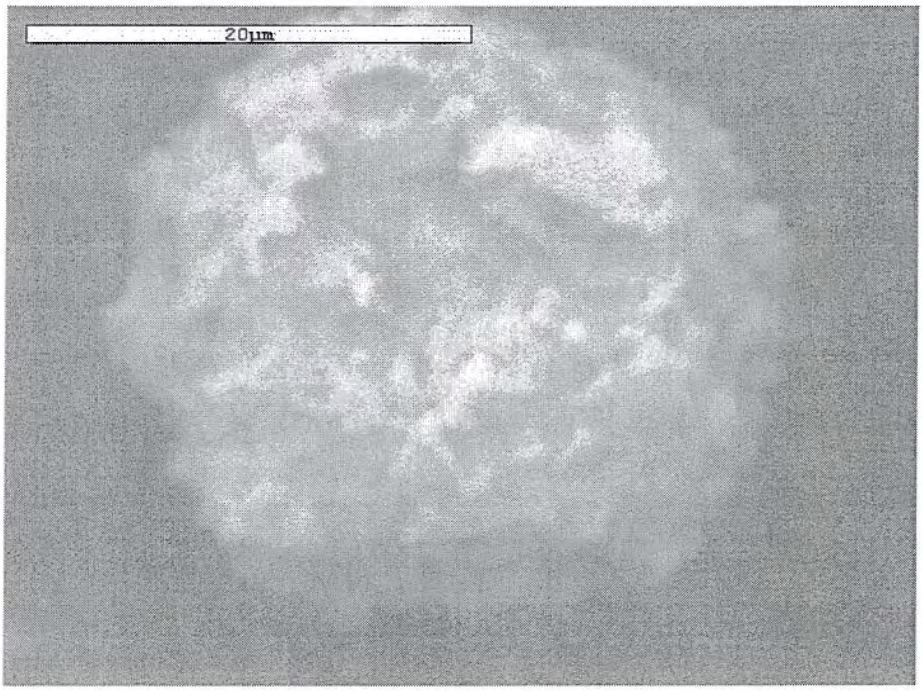


Figure 2. Sample 1, heavy fraction. Electron micrograph of the grain in Fig. 1. Note highly textured surface.

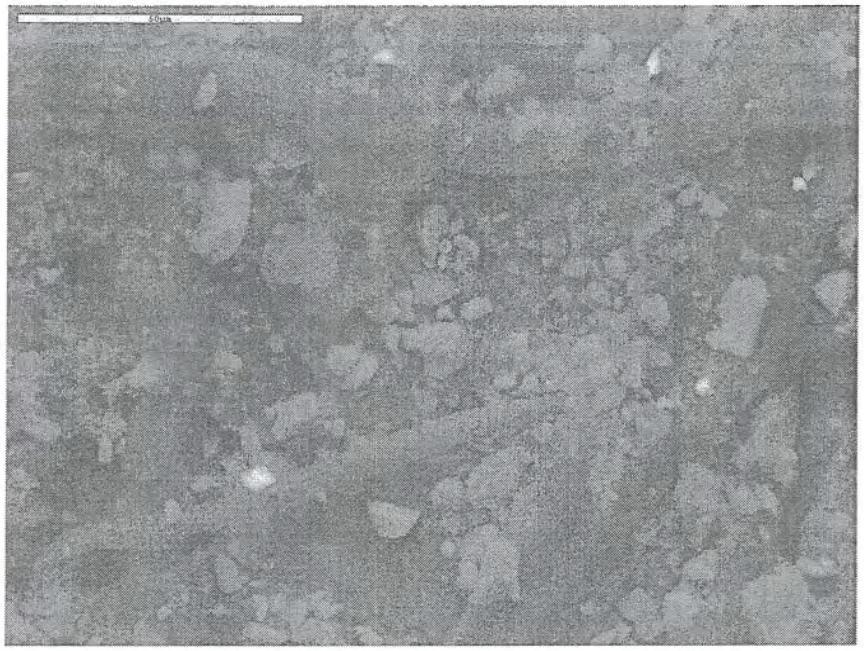


Figure 3. Sample 1, heavy fraction. SEM image (BSE) of minerals on filter paper after heavy mineral separation; high atomic numbers are brighter in the BSE image. All the brightest particles are high in arsenic except the one at right center, which contains lead. Scale bar = 50 μm.

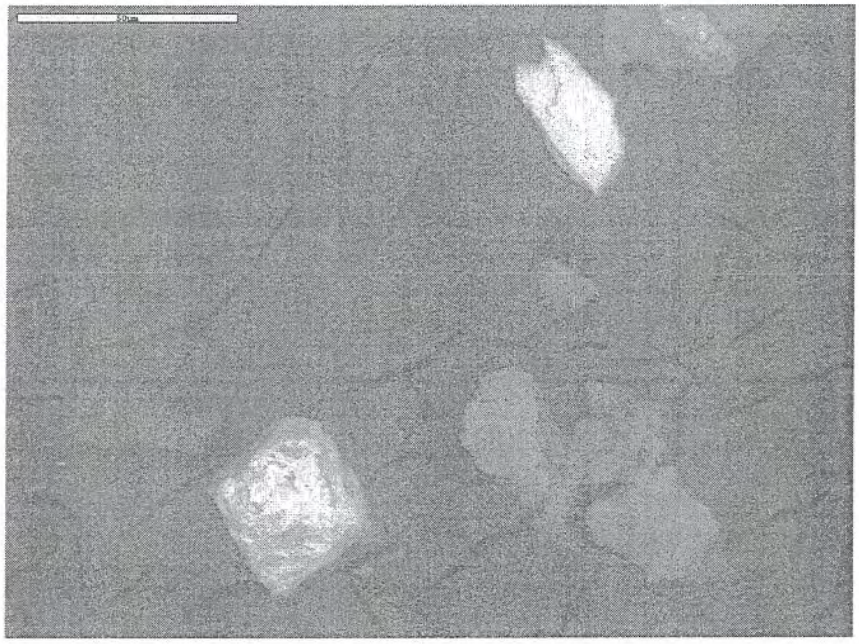


Figure 4. Sample 1, heavy fraction. BSE image of two arsenic oxide particles. One grain has a textured surface and appears to be a crystalline grain, while the other may be a fragment of a broken grain. Scale bar = 50 μm.

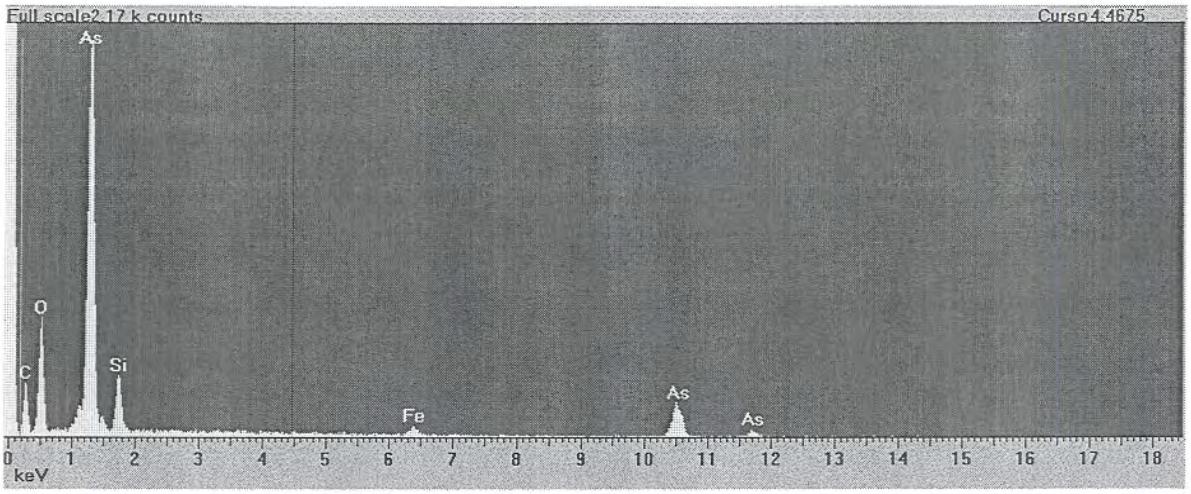


Figure 5. Sample 1, heavy fraction. EDS X-ray spectrum of the larger grain in Fig. 4. Note that the predominant X-ray peaks are As and O. The C X-ray peak is due to electron scattering from the mounting media in the low vacuum mode.

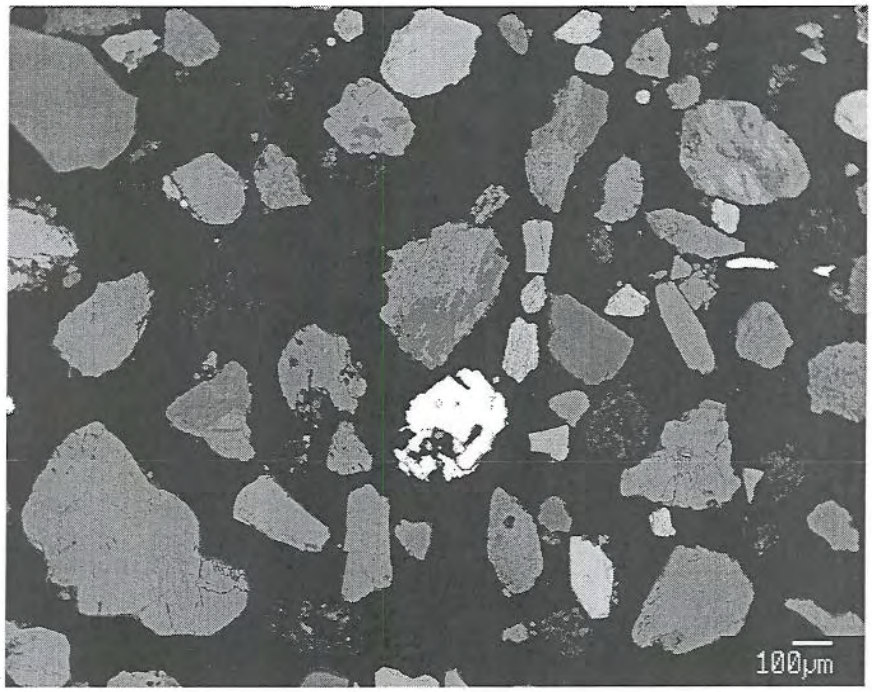


Figure 6. Sample 1 Heavy. BSE image of polished section imaged in the EMP. Bright grain near center is a large (293x204 µm) arsenic oxide. Table 3, analysis #1 lists the EMP analysis of this grain.

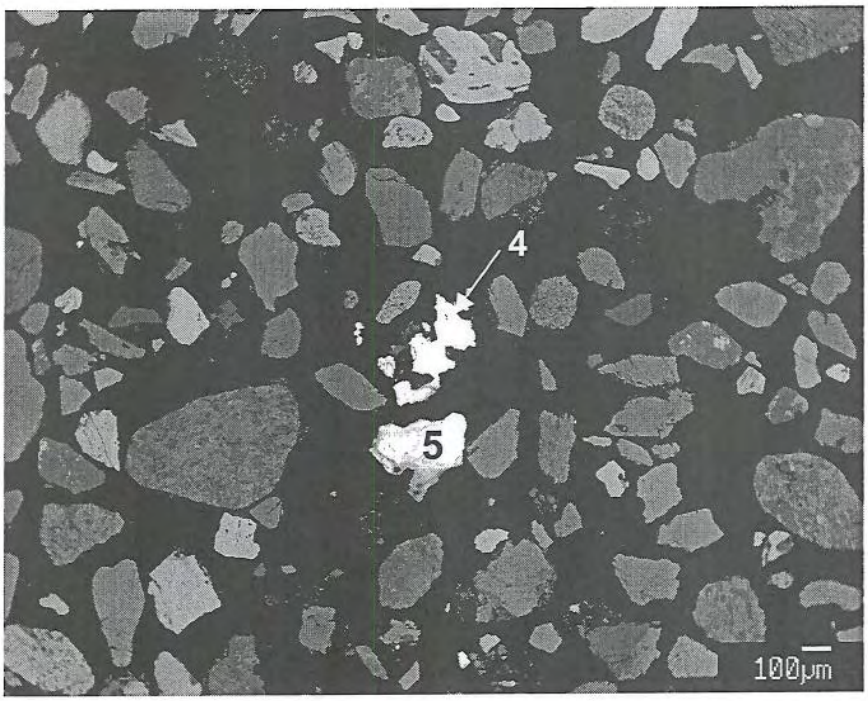


Figure 7. Sample 1 Heavy. BSE image of polished section. Bright grains at center are arsenic oxide. Numbers correspond to analyses in Table 3. Upper grain appears to be partially dissolved.

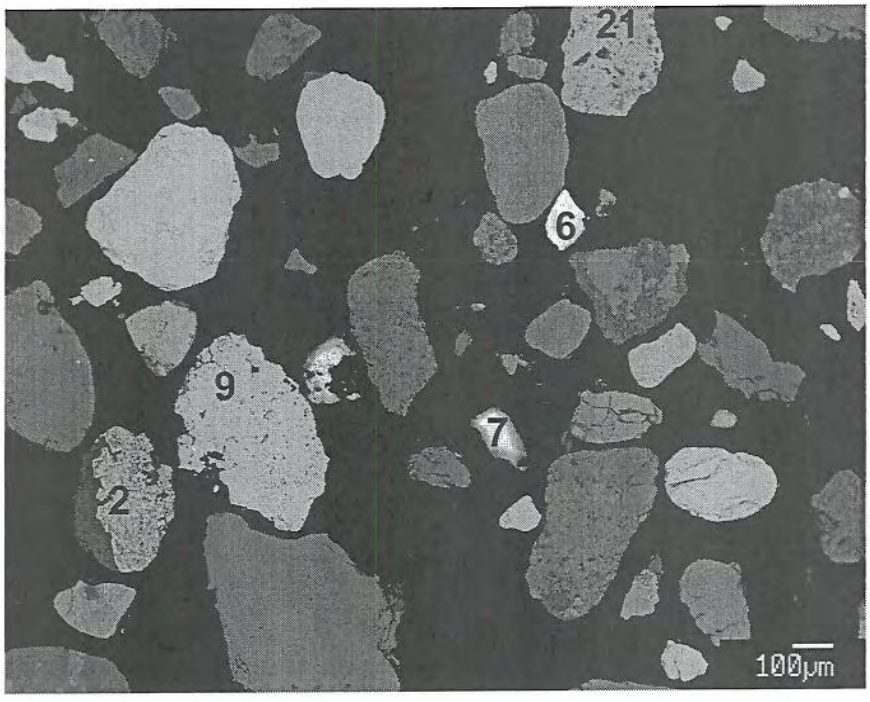


Figure 8. Sample 1 Heavy. BSE image of polished section. Bright grains are arsenic oxide; medium gray, iron oxide; and dark gray, silicates. Numbers correspond to analyses in Table 3, and center of number corresponds to position of the analysis on the sample.

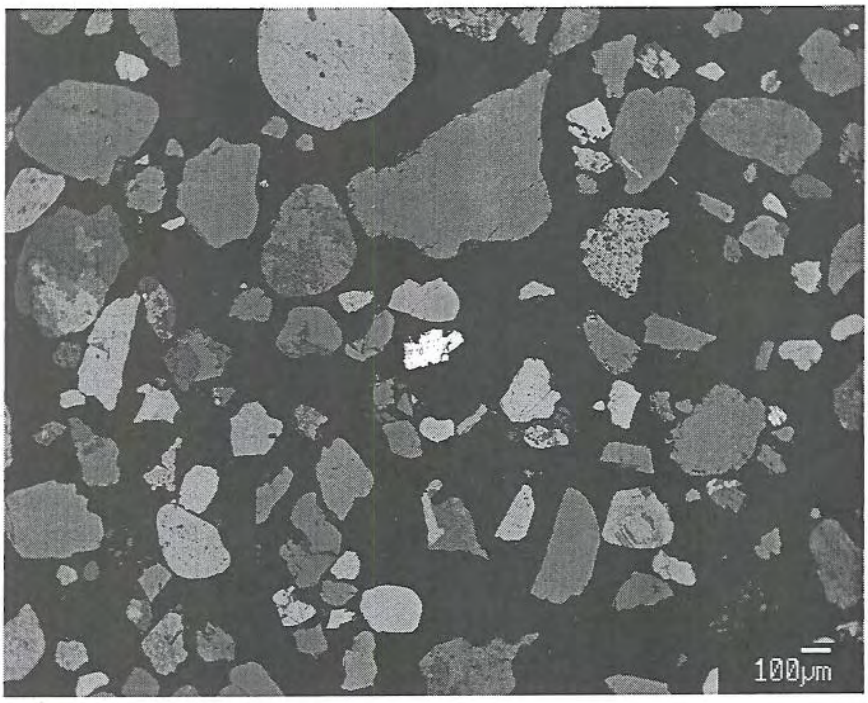


Figure 9. Sample 1 Heavy. BSE image of polished section. Bright particle near center is arsenic oxide (Table 3, analysis #8).

Figure 10. Sample 1 Heavy. Grain at center is an arsenic-bearing iron and lead oxide. Bright particle below it is a zircon and to the right is a spongy, arsenic-bearing iron oxide, likely goethite.

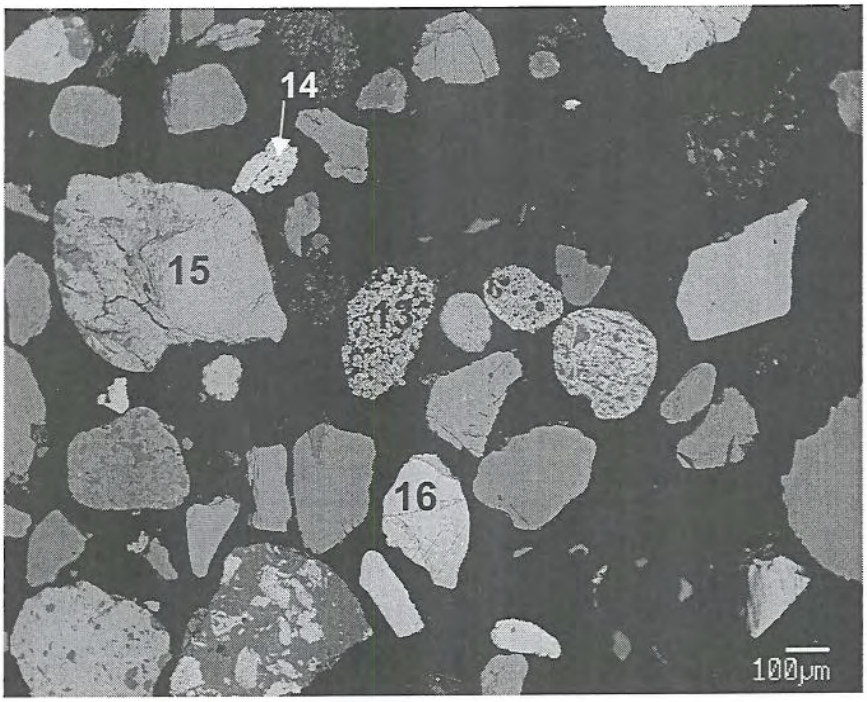


Figure 11. Sample 1 Heavy. Examples of different types of iron-oxides containing only trace levels arsenic (see corresponding numbers in Table 3).

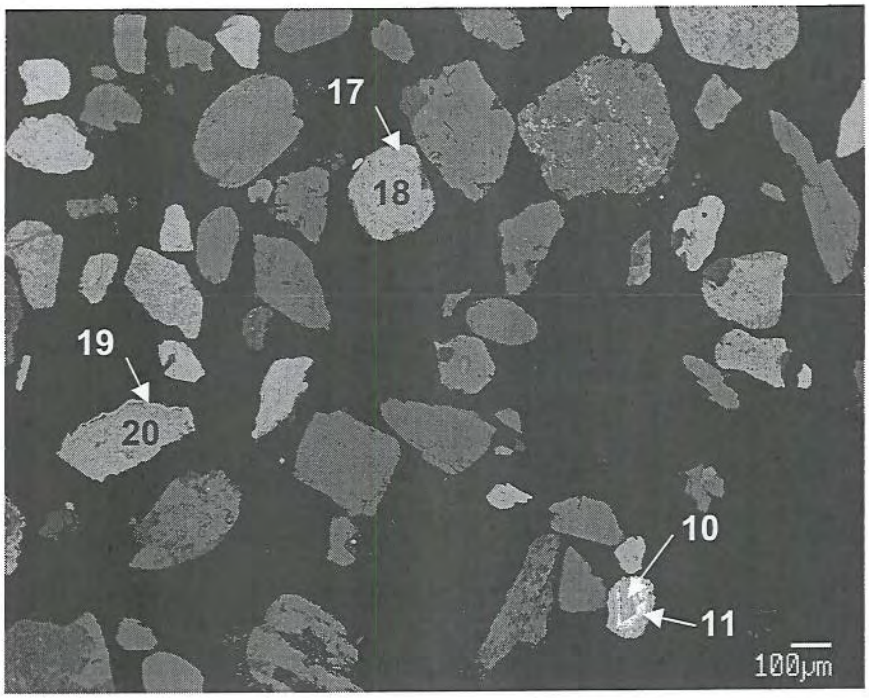


Figure 12. Sample 1 Heavy. Further examples of iron-oxides; analyses 17-20 contain at least 0.5 wt% As (Table 3). Grain in lower right is a lead and iron oxide containing arsenic.

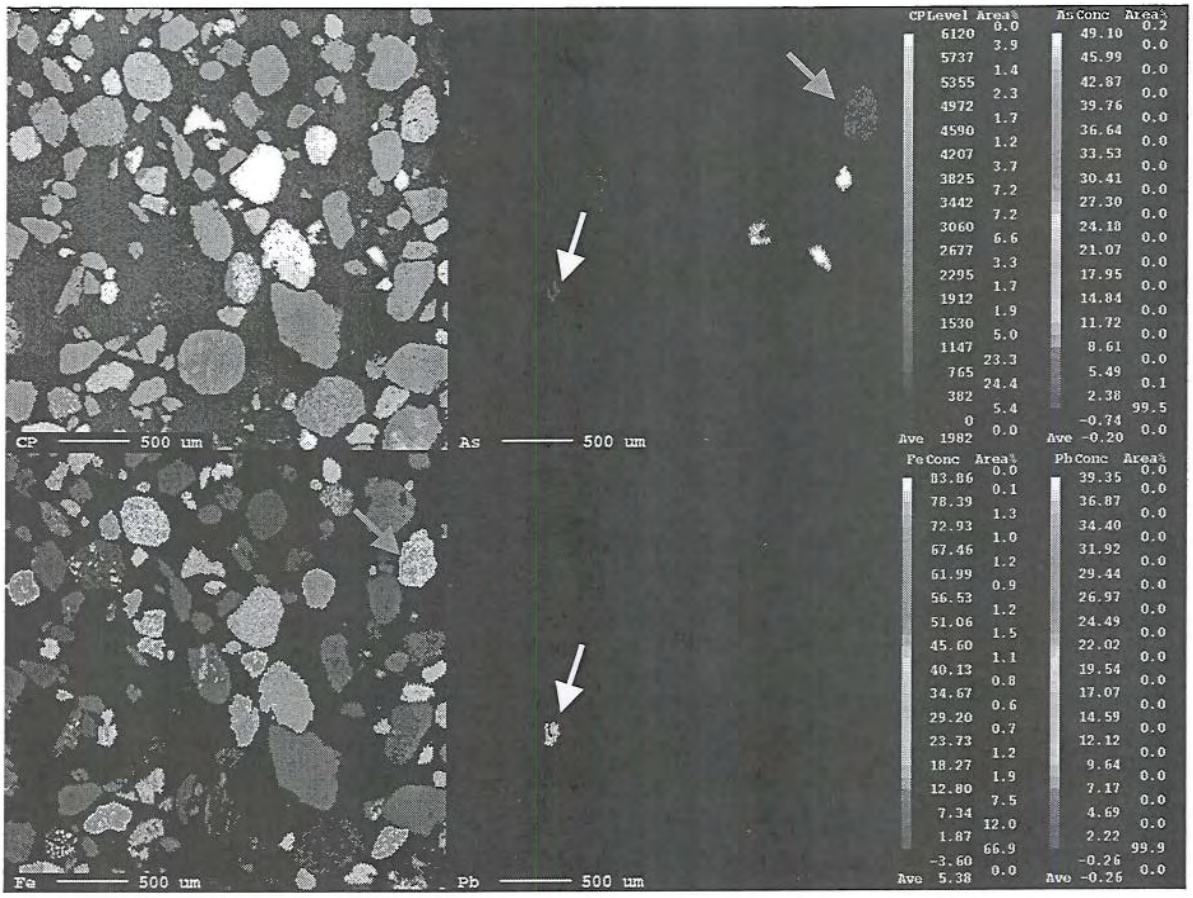


Figure 13. Sample 1 Heavy. Quantitative X-ray maps for arsenic, iron and lead. Colors in maps correspond to elemental wt% provided in scales at right. Note that arsenic is present as discrete particles of arsenic oxide and is also associated with lead oxide (white arrow) and some iron oxides (red arrow). Lead-oxide grain (white arrow) is the same one in Fig 12.

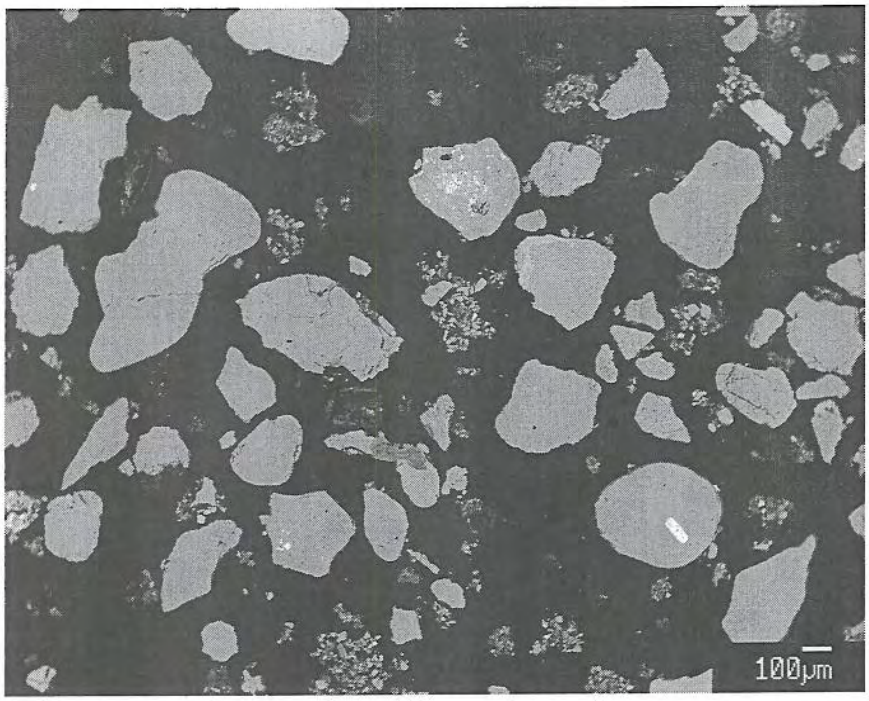


Figure 14. Sample 1 Light. Representative BSE image of polished section showing typical particles; particles are quartz except an ilmenite (Fe-Ti oxide) in upper right.

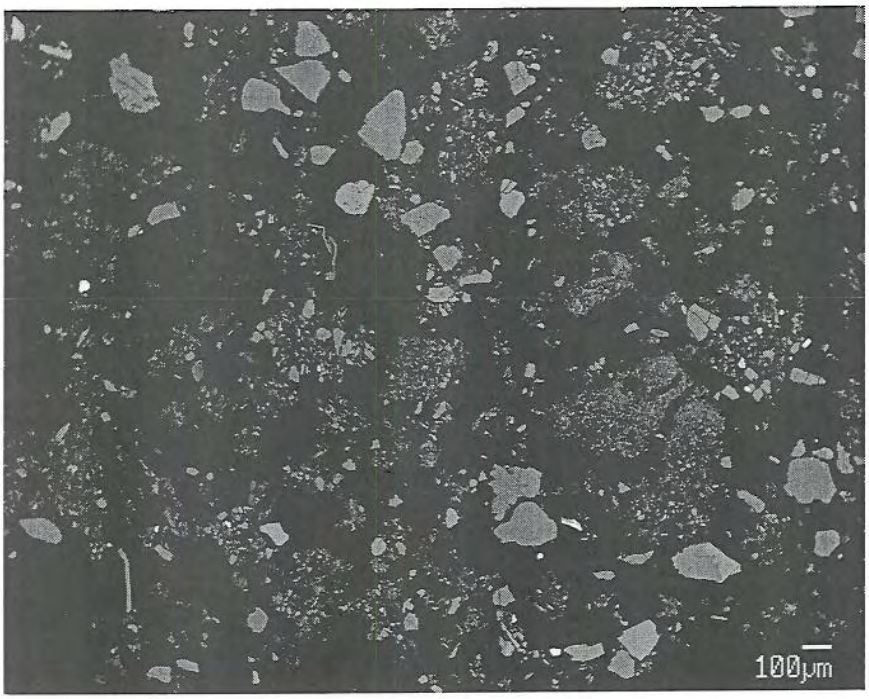


Figure 15. Sample 1 Light. BSE image of polished section showing greater particle size diversity. All bright particles are Fe- or Fe-Ti oxides that have not been caught by the heavy mineral separation.

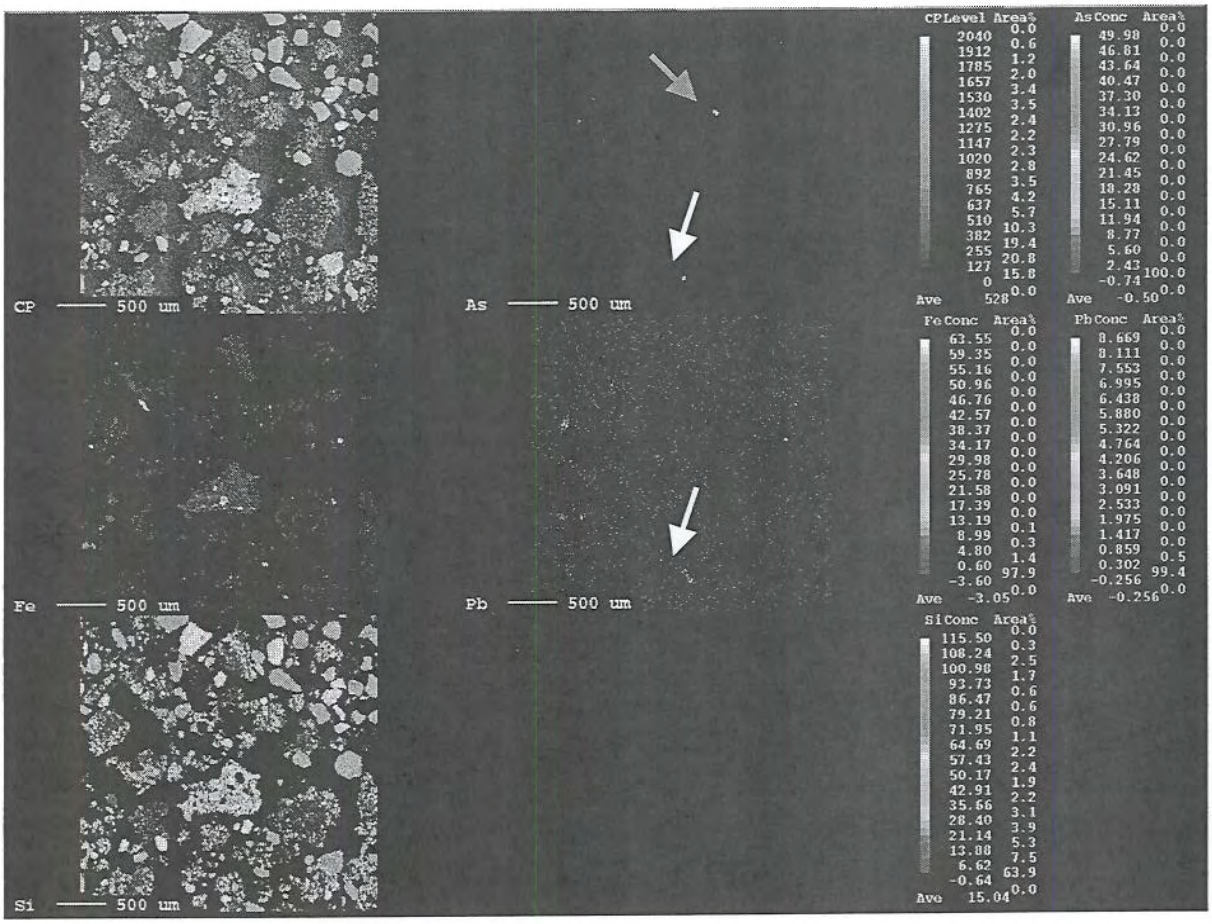


Figure 16. Sample 1 Light. Quantitative X-ray maps for arsenic, iron, lead, and silicon. One small arsenic grain is present, and arsenic is also associated with a lead grain in the lower center.

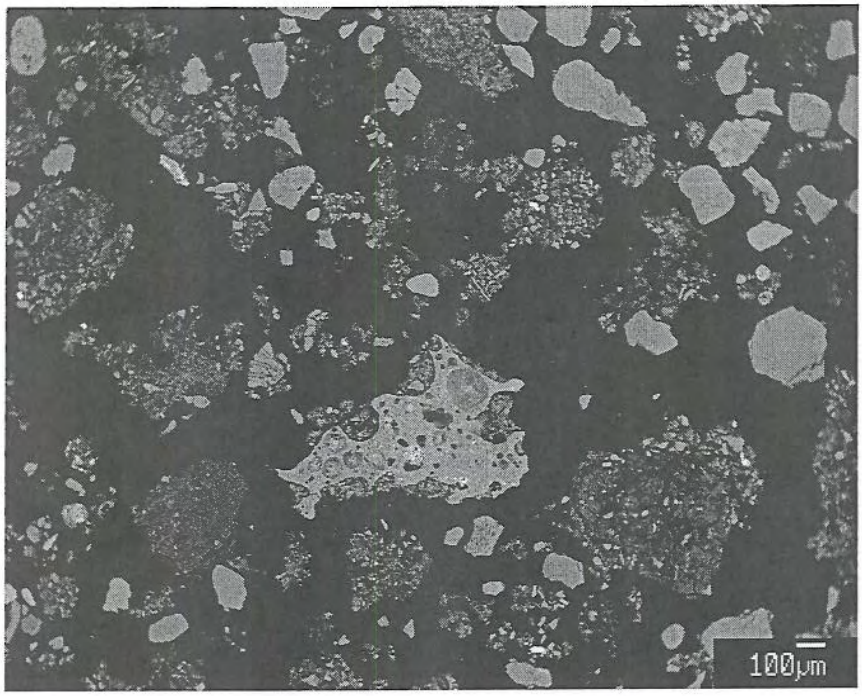


Figure 17. Sample 1 Light. BSE image of map area in Fig. 16. Large particle in center is slag, high in Si and Fe, but lower density than the SPT solution. Smaller dense particles, may not be separated by

Appendix

Table A1. ICP results on sequential extractions of all 4 samples.

Lab Sample ID With Extraction Solution	Client Sample ID With Extraction Solution	Weight (gm)	Final Volume (mL)	Reported Conc (mg/L)	Conc. (mg/kg)	% RSD	SD
1 H2O	#1 H2O	2.0003	25	1.75	21.8	0.930	0.0162
2 H2O	#1 Replicate H2O	2.0000	25	1.75	21.8	3.97	0.0693
3 H2O	#2 H2O	1.9996	25	0.489	6.11	6.34	0.0310
4 H2O	#3 H2O	2.0002	25	0.245	3.06	7.79	0.0191
5 H2O	#4 H2O	1.9998	25	0.651	8.14	6.15	0.0401
6 H2O	#4 Replicate H2O	2.0002	25	0.510	6.37	51.0	0.2602
1 1M NH4NO3	#1 1M NH4NO3	2.0003	25	0.094	1.17	135.0	0.1268
2 1M NH4NO3	#1 Replicate 1M NH4NO3	2.0000	25	0.132	1.65	117.2	0.1549
3 1M NH4NO3	#2 1M NH4NO3	1.9996	25	0.051	0.638	119.6	0.0611
4 1M NH4NO3	#3 1M NH4NO3	2.0002	25	0.061	0.762	69.5	0.0421
5 1M NH4NO3	#4 1M NH4NO3	1.9998	25	0.150	1.88	4.98	0.0075
6 1M NH4NO3	#4 Replicate 1M NH4NO3	2.0002	25	0.138	1.72	4.15	0.0057
1 1M NH4OAc	#1 1M NH4OAc	2.0003	25	0.289	3.61	5.75	0.0166
2 1M NH4OAc	#1 Replicate 1M NH4OAc	2.0000	25	0.285	3.56	7.21	0.0206
3 1M NH4OAc	#2 1M NH4OAc	1.9996	25	0.151	1.89	6.32	0.0096
4 1M NH4OAc	#3 1M NH4OAc	2.0002	25	0.056	0.700	13.50	0.0076
5 1M NH4OAc	#4 1M NH4OAc	1.9998	25	0.165	2.06	17.8	0.0293
6 1M NH4OAc	#4 Replicate 1M NH4OAc	2.0002	25	0.152	1.90	19.8	0.0302
1 0.1M NH2OH HCl	#1 0.1M NH2OH HCl	2.0003	25	0.688	8.60	5.66	0.0389
2 0.1M NH2OH HCl	#1 Replicate 0.1M NH2OH HCl	2.0000	25	0.681	8.51	7.39	0.0503
3 0.1M NH2OH HCl	#2 0.1M NH2OH HCl	1.9996	25	0.436	5.45	5.74	0.0250
4 0.1M NH2OH HCl	#3 0.1M NH2OH HCl	2.0002	25	0.306	3.82	4.34	0.0133
5 0.1M NH2OH HCl	#4 0.1M NH2OH HCl	1.9998	25	0.534	6.68	6.46	0.0345
6 0.1M NH2OH HCl	#4 Replicate 0.1M NH2OH HCl	2.0002	25	0.484	6.05	3.76	0.0182
1 0.025M NH4-EDTA	#1 0.025M NH4-EDTA	2.0003	25	3.88	48.4	2.62	0.1014
2 0.025M NH4-EDTA	#1 Replicate 0.025M NH4-EDTA	2.0000	25	3.97	49.6	2.75	0.1090
3 0.025M NH4-EDTA	#2 0.025M NH4-EDTA	1.9996	25	2.91	36.4	0.540	0.0158
4 0.025M NH4-EDTA	#3 0.025M NH4-EDTA	2.0002	25	1.95	24.4	0.910	0.0178
5 0.025M NH4-EDTA	#4 0.025M NH4-EDTA	1.9998	25	2.04	25.4	0.370	0.0075
6 0.025M NH4-EDTA	#4 Replicate 0.025M NH4-EDTA	2.0002	25	1.94	24.2	0.800	0.0154
1 0.2M NH4-OXALATE	#1 0.2M NH4-OXALATE	2.0003	25	7.77	97.1	4.76	0.3698
2 0.2M NH4-OXALATE	#1 Replicate 0.2M NH4-OXALATE	2.0000	25	8.05	101	4.10	0.3295
3 0.2M NH4-OXALATE	#2 0.2M NH4-OXALATE	1.9996	25	5.42	67.8	1.99	0.1080
4 0.2M NH4-OXALATE	#3 0.2M NH4-OXALATE	2.0002	25	3.16	39.5	2.38	0.0752
5 0.2M NH4-OXALATE	#4 0.2M NH4-OXALATE	1.9998	25	4.23	52.9	2.44	0.1030
6 0.2M NH4-OXALATE	#4 Replicate 0.2M NH4-OXALATE	2.0002	25	4.33	54.2	1.94	0.0839
1 0.1M ASCORBIC ACID	#1 0.1M ASCORBIC ACID	2.0003	25	2.60	32.5	1.73	0.0449
2 0.1M ASCORBIC ACID	#1 Replicate 0.1M ASCORBIC ACID	2.0000	25	2.96	37.0	0.680	0.0202
3 0.1M ASCORBIC ACID	#2 0.1M ASCORBIC ACID	1.9996	25	1.64	20.5	1.28	0.0210
4 0.1M ASCORBIC ACID	#3 0.1M ASCORBIC ACID	2.0002	25	1.01	12.6	0.650	1.0120
5 0.1M ASCORBIC ACID	#4 0.1M ASCORBIC ACID	1.9998	25	1.68	21.0	1.10	0.0184
6 0.1M ASCORBIC ACID	#4 Replicate 0.1M ASCORBIC ACID	2.0002	25	1.88	23.4	1.26	0.0236

Appendix A-8

FIELDS Statistical Evaluation Report: South Minneapolis Soil Contamination Superfund Site

FIELDS Statistical Evaluation Report: South Minneapolis Soil Contamination Superfund Site

Minneapolis, Minnesota

Prepared For

Mr. Tim Prendiville, Remedial Project Manager, US EPA, Region V

Prepared By

Lee Walston, FIELDS Group, US EPA, Region V
John Bing-Canar, FIELDS Group, US EPA, Region V

22 JANUARY 2007

TABLE OF CONTENTS

LIST OF FIGURES

Introduction

The South Minneapolis Soil Contamination Superfund Site, located in Minneapolis, Minnesota, contains elevated concentrations of Arsenic in the surface soils. From the 1930s through the 1960s, the CMC Heartland Light Yard facility (CMC) produced Arsenic-containing pesticides at a site in South Minneapolis. At this site Arsenic was transported via railcars, conveyor belts, and vehicular traffic. It is also believed that, during site activity, Arsenic may have been stored outdoors in large piles (Geomega, 2004). Collectively, these activities may have resulted in air dispersion of Arsenic into the neighboring residential and commercial properties. In the 1990s, Arsenic was detected in soil at the CMC site at concentrations up to 3,000 times greater than background levels. The state of Minnesota recognized the impacts that the elevated Arsenic concentrations posed to human health and the environment and began sampling surface soils at nearby residential properties for Arsenic concentrations. The Minnesota Department of Agriculture (MDA) remediated the CMC property in 2004 by excavating and disposing of Arsenic-impacted soils. Following the remediation of the CMC property, state and federal (U.S. EPA) agencies continued sampling for Arsenic concentrations in the residential surface soils surrounding the CMC site in order to identify the source and extent of Arsenic contamination.

Surface soil samples discussed in this report were collected between 2001 and 2006 by the State of Minnesota and the U.S. EPA. During this time, a total of 8,076 samples were analyzed from 3,575 properties within a 1 mile radius of the CMC site (Figure 1). Samples were analyzed using EPA method SW-846-6020 for Arsenic concentrations. As of December 2006, a total of 196 properties were identified that contained Arsenic concentrations greater than 95 ppm in surface soils. Removal actions at these properties commenced in October 2004 and were continuing at the time of this report.

Between August 2005 and December 2006, the U.S. EPA FIELDS Group assisted in determining if elevated residential Arsenic soil concentrations were attributable to the CMC site. In conjunction with previously reported statistical evaluations of the South Minneapolis Soil Contamination Superfund Site (CH2MHill, 2006), the FIELDS Group presents results of statistical evaluations of the residential soil samples surrounding the CMC site. These evaluations include the application of an air dispersion model, geostatistical analyses in the forms of semivariogram analyses and kriging, spatial cluster analyses and measures of localized variability, and correlations between residential Arsenic concentrations and property age. All analyses were performed at one of two spatial scales: either at a small scale using total observed soil sample analytical results (N = 8,076; Figure 1) or at the yard-scale using the maximum Arsenic concentration within each residential property (N = 3,313; Figure 2). Unless otherwise noted, all concentrations are in mg/kg (ppm).

Methods

Air Dispersion Modeling

The objective of the air dispersion model was to determine the primary directions in which air-dispersed Arsenic may have been transported from the CMC site to the surrounding residential properties. To model the dispersion of Arsenic from the CMC site, the FIELDS Group used the EPA Industrial Source Complex Model (ISC3). ISC3 is a Gaussian plume

steady-state model, capable of estimating close-distance impacts from industrial sources (US EPA, 1995). This model can accommodate simple point source emission rates from stacks, as well as emission rates from piles, vents, and conveyor belts. Input parameters include meteorological data (wind speed, direction, etc.) as well as source and contaminant input parameters. ISC3 can predict period average concentrations as a function of distance from the source.

Following EPA recommendations, the meteorological data used in the modeling process were gathered over a 7-year period (1984 – 1990) for the Minneapolis/St. Paul International Airport (US EPA, 1995). The meteorological data were configured for direct input into ISC3 using the meteorological preprocessing application PCRAMMET (US EPA, 1999). A run-stream input file was created to be imported into ISC3, which specifies model control options, describes the source parameters, specifies the number of receptors and their locations, and identifies the meteorological data used. A receptor grid of 180 radial samples was determined at a 10-degree flow vector around the CMC site at 100 m, 250 m, 500 m, 1000 m, and 1600 m radial distances. Source inputs for the model included the estimated emission rate and the size (area) of the source. During the time of site activity, previous reports have estimated Arsenic emissions from the CMC site at a rate of 1.91×10^{-4} g/sec/m^2 within a 17 x 150 m area where railcar switching and handling occurred (Geomega, 2004). The source and meteorological data were used as input to the ISC3 model. The ISC3 model was programmed to calculate a single period average for Arsenic dispersion. A geographic information system (GIS) was then used to display the predicted Arsenic dispersion along the receptor grid network. At each radial distance, the model output was rank-transformed and a natural neighbor interpolation was performed on the ranks to visualize predominant dispersion patterns. The interpolation was performed using the FIELDS Tools for ArcView 3.x (FIELDS, 2007).

Geostatistical Analyses

The objectives of the geostatistical methods included: 1) To determine if spatial relationships existed among the soil sample results, 2) To determine if directionality (anisotropy) existed within the soil sample results and if directionality was consistent with the predicted dispersion directions from the air-dispersion model, and 3) To estimate the amount of uncertainty at different locations by investigating ordinary kriging errors. The semivariogram is a geostatistical method to determine the spatial autocorrelation among data (EPA, 2004). As a preliminary step in the kriging process, one useful tool in conducting semivariogram analysis is to determine if anisotropy, or directionality, exists in the dataset. Anisotropy exists if spatial relationships differ in varying directions. Anisotropy in soil contamination can be caused by underlying physical processes that operate differently in space, such as prevailing winds, resulting in differential spatial relationships among data points at different directions (Goovaerts, 1997; Myers, 1997). Therefore, the FIELDS Group investigated the anisotropic effects on the semivariogram and compared these results to the output of the air dispersion model.

Another geostatistical method, ordinary kriging, was employed to estimate the amount of variability in sample results at different locations. Kriging is a stochastic modeling procedure, advantageous over other contemporary deterministic procedures because kriging not only models the sample predictions, but also allows the user to model the error variances for the predictions (i.e., kriging errors; Goovaerts, 1997; Myers, 1997). As such, kriging is often recommended by the U.S. EPA to characterize contaminated soils (US EPA, 1992, 2004). The FIELDS Group used ordinary kriging to calculate and display the kriged errors (prediction error) for each location analyzed around the CMC site. This procedure was used to illustrate areas of greatest

uncertainty in predicted surface soil Arsenic concentrations surrounding the CMC site. For these geostatistical analyses, soil sample analytical results were $\log_{10}$-transformed and a spherical model was selected in each semivariogram. An isotropic model (no directionality) was used for the ordinary kriging procedure. These geostatistical models were created using the Geostatistical Analyst extension for ArcGIS 9.1 (ESRI, 2005a).

Cluster Analyses and Variability Measures

A geographic information system (GIS) was used to apply spatial cluster analyses and determine measures of local variability for the soil sample analytical Arsenic concentrations. Specifically, three metrics were calculated and displayed: the Moran's I statistic, the Gettis-Ord General G statistic ("Hot Spot Analysis"), and the Anselin Local Moran's I statistic. The Moran's I statistic is a standardized measure of the global spatial autotcorrelation between neighboring features and indicates whether a feature is clustered, dispersed, or random. Negative values indicate a negative spatial autocorrelation, values near zero indicate no spatial relationship, and positive values indicate positive spatial autocorrelation. The Hot Spot Analysis shows areas where higher (or lower) than average values tend to be found near each other. The Anselin Local Moran's I statistic is a cluster analysis showing the small-scale (local) variability in the features. Using this statistic, negative values indicate that the feature is dissimilar to its neighbors, positive values indicate that the feature is similar to its neighbors, and values near zero indicates no similarity / dissimilarity between that feature and its neighbors (ESRI, 2005b). Each metric was calculated at the yard-scale using the maximum Arsenic concentration (N = 3,313). These metrics were calculated using the Spatial Analyst tools for ArcGIS 9.1 (ESRI, 2005a). All analyses were calculated within a 100 m distance band.

Correlations with Housing Age

Because pesticide formulation activities ceased at the CMC site in the 1960's, the creation of homes since that time may have affected the Arsenic concentrations in the surface soils on those constructed properties. Therefore, residential property age may be an indication of surface soil Arsenic concentrations, where older residential properties that existed during the time of site activity may have greater surface soil Arsenic concentrations than residential properties that have been constructed in the last 40 years.

Property age and spatial data were obtained from a Hennepin County parcel map, current through August 2005. For the purposes of this report, residential properties were considered as all apartments, condominiums, duplexes, townhouses, and single family residences. The age of sampled residential properties was analyzed aspatially and spatially. Aspatial analyses included correlations between Arsenic concentrations and property age and graphical evaluations of the relationship between Arsenic concentrations and house age. The maximum Arsenic concentration per residential property was used (N = 3,313). Statistical correlations (Pearson and Spearman) were calculated to determine the relationship between Arsenic concentrations and house age. Binary logistic regression was then used to determine if the probability of Arsenic concentrations exceeding 95 ppm was independent of house age. In the logistic regression procedure, house age was categorized into two predictor variables: older homes existing during site activity (> 45 yr. old) and homes created after site activity ($\leq$ 45 yr. old). The dependent variable for this analysis was the binary Arsenic concentration (i.e., < 95 ppm or $\geq$ 95 ppm).

Spatial analyses for the age of sampled residential properties included the calculation of the global Moran's I statistic to determine the spatial autocorrelation among homes. Graphical representations were also used to evaluate the spatial relationships in housing age.

Results

Air Dispersion Modeling

Results of the ISC model were rank-transformed at each radial distance from the CMC facility to visualize predominant dispersion patterns (Figure 2A). The natural neighbor interpolation of the rank-transformed data indicates a clear dispersion pattern, with predominant northwest-southeast directionality (Figure 2B). This dispersion pattern supports the results of Geomega (2004), which presented windrose plots to illustrate that the predominant dispersion direction was to the northwest of the CMC site. Therefore, if the primary mechanism for Arsenic transport from the CMC site were air-dispersion, then greater soil Arsenic concentrations are expected to occur in the properties to the northwest and southeast of the site.

Geostatistical Analyses

Semivariograms of the soil sample analytical results are shown in Figure 4. Anisotropy was evaluated in the semivariogram for 4 directions: northeast (45-degrees), southeast (135-degrees), southwest (225-degrees), and northwest (315-degrees), where 0-degrees corresponds to true north. In each semivariogram, the nugget is greater than 50% of the sill and the range is very small (Figure 4). The nugget, equivalent to the Y-intercept in the semivariogram, represents unexplained variability in the model. Therefore, a greater nugget increases the error in model predictions (Goovaerts, 1997; Myers, 1997). The range, evident by the asymptote in the semivariogram, indicates the distance at which samples are correlated. A short range in each semivariogram indicates that the soil samples are correlated at only small distances.

In the isotropic semivariogram, the sample results exhibit a small degree of spatial correlation, with a nugget approaching 60% of the sill (Figure 4A). A similar correlation structure is observed in the 135-degree (southeast) and 315-degree (northwest) anisotropic semivariograms (Figure 4C, E). In these semivariograms, nearly 40% of the variability in Arsenic concentrations can be explained by the spatial arrangement of the samples. However, the 45-degree (northeast) and 225-degree (southwest) anisotropic semivariograms contain greater unexplained variability, as the nuggets in these models approach 80% (Figure 4B, D). In these semivariograms, only 20% of the variability in Arsenic concentrations can be explained by the spatial arrangement of the samples. While the samples are only correlated at small scales, the strongest anisotropic effects appear to occur in the 135-degree (southeast) and 315-degree (northwest) directions.

Standard errors of the kriged estimated Arsenic concentrations are shown in Figure 5. Areas with greater amounts of error are usually large unsampled areas or indicate areas of higher local variability (Goovaerts, 1997; Myers, 1997). A few noticeable large areas have high standard errors that are likely the result of sample paucity. These areas include the large area immediately to the east and southeast of the CMC site, the large area at the southwestern-most extent of the map, and two moderately size areas at the eastern-most extent of the map (Figure 5). Closer examination of the sample distribution reveals that very few samples were collected from these locations (Figure 1). Other noticeable areas of high standard errors occur in isolated islands or clusters where errors are great at very short distances. This phenomenon is often

termed the "Swiss-Cheese Effect", and represents areas with greater local variability (Myers, 1997). Most obviously, this pattern is located near the southern extent of the map, with less noticeable areas located to the west and northwest of the CMC facility (Figure 5).

Cluster Analyses and Variability Measures

The Moran's I analysis, which determined the pattern of the Arsenic concentrations at the yard-scale (N = 3,313), resulted in a positive index value of I = 0.04. Although this value is close to zero, this result is statistically significant (Z = 12.6; $P < 0.01$), suggesting a clustered distribution of surface soil Arsenic concentrations. However, the low index value (I = 0.04) indicates that this spatial relationship is weak. Small-scale variability in Arsenic concentrations is the most likely cause of the low index value.

The Hot Spot Analysis, which determined where higher (or lower) than average Arsenic concentrations tended to be located together, resulted in a positive value of G = 0.02. Although this value is close to zero, the observation is statistically significant (Z = 6.1; P < 0.01), suggesting that higher-than-average Arsenic concentrations are found closer together. The spatial distribution of the G-value indicates that higher Arsenic concentrations tended to be clustered south of the CMC site (Figure 6). Due to the low statistic (G = 0.02), however, this is a weak spatial pattern and the spatial distribution of the G-value (Figure 6) should not be interpreted without considering the small-scale variability located throughout the map.

The Anselin Local Moran's I analysis, which identifies areas of local variability, revealed the strongest areas of similarity and dissimilarity in Arsenic concentrations among residential properties. Overall, Arsenic concentrations were neither similar nor dissimilar to neighboring properties (Figure 7). Properties with Arsenic concentrations most similar to neighboring properties occurred more frequently to the south of the CMC site, interspersed by constant and dissimilar properties (Figure 7). It is in this area – south of the CMC site – where the greatest local variability occurs.

Correlations with Housing Age

A scatter-plot of maximum Arsenic concentration versus home age indicates a gradual increase in Arsenic concentrations with an increase in the age of the property (Figure 8). Furthermore, there is a weak, yet significant, positive correlation between concentrations and housing age (Pearson Correlation, r = 0.05, $P = 0.004$; Spearman Correlation, r = 0.06, $P = 0.0002$). Further investigation of this relationship indicated that proportionally more older homes (> 45 yr. old) contain Arsenic concentrations above 95 ppm than newly created homes (< 45 yr. old) (Figure 8). A binary logistic regression was performed to determine if the probability of Arsenic concentrations exceeding 95 ppm was equal between older and newer homes. The results of this analysis indicated that older homes had a higher probability of containing surface soil Arsenic concentrations exceeding 95 ppm than newer homes ($X^2 = 15.07$; P < 0.001). Furthermore, an odds ratio estimate of 15.9 indicated that older homes were nearly 16-times more likely than newer homes to contain surface soil Arsenic concentrations above 95 ppm (Figure 9).

The distribution of house ages among residential properties sampled is shown in Figure 10. Of the 3,313 residential properties sampled, fewer than 20% of the homes are less than 50 years old, whereas nearly 60% of the homes are greater than 100 years old. This distribution shows that most of the house construction in the neighborhoods surrounding the CMC site occurred during a 30-yr period between 110 and 80 years ago (Figure 10). The Moran's Index,

calculated to determine if the age of houses were spatially autocorrelated, revealed that house ages were clustered (I = 0.05; Z = 39.1; $P < 0.01$). Due to the low index value, however, this relationship is rendered a weak pattern. Inspection of the spatial distribution of house ages among residential properties sampled reveals that, for the most part, the ages of homes are randomly distributed throughout the study area (Figure 11). There appears to be slight clustering of older homes (> 100 yr) in the residential properties northwest of the CMC site, while homes of intermediate age (46 – 99 yr) appear to be aggregated south of the CMC site. Newer homes (< 46 yr) appear to be randomly distributed throughout the study area (Figure 11).

Conclusion

Results of the air-dispersion model indicate that wind directions were oriented towards the northwest-southeast within the study area surrounding the CMC site (Figure 3). Therefore, if wind dispersion were a primary transport mechanism for releasing Arsenic into to surface soils surrounding the CMC facility then it is likely that anisotropy, or directionality, would be present within the residential soil samples collected for Arsenic concentrations. Results of the semivariogram analyses indicate that the spatial correlation of Arsenic samples is stronger in the southeast (135-degrees) and northwest (315-degrees) semivariogram models than in the northeast (45-degrees) and southwest (225-degrees) models (Figure 4 B-E). However, all inspected semivariogram models showed very weak spatial correlations, as less than 50% of all variability in Arsenic concentrations was explained by the spatial relationships of the samples. Furthermore, the isotropic (non-directional) semivariogram appeared to show the greatest spatial correlation among the soil sample data (Figure 4 A). Therefore, although there is weak directionality among the soil samples, this pattern does not best explain the variability in Arsenic concentrations.

To quantify small-scale spatial variability in Arsenic concentrations, the FIELDS Group 1) investigated the standard errors of kriged Arsenic concentrations, and 2) calculated the Anselin Local Moran's I value for each residential property sampled. Areas greatly impacted with Arsenic concentrations may contain more variable concentrations than areas with background concentrations. Therefore, variability measures may provide a means to distinguish between impacted and non-impacted locations. The standard errors of the kriged Arsenic concentrations reveal that the greatest variability in Arsenic concentrations occurs in large un-sampled areas near the CMC site and near the extents of the study area (Figure 5). The other noticeable areas of high standard errors are isolated islands of high variability within very short distances, located south and northwest of the CMC site (Figure 5). This pattern is consistent with small-scale sample variability. Another measure of small-scale variability, the Anselin Local Moran's I, assigned an index value to each residential property sampled. Properties with Arsenic concentrations that are similar to the concentrations at neighboring properties receive a positive index value, whereas negative index values indicate that Arsenic concentrations at one property are more dissimilar than concentrations as neighboring properties. According to this metric, the area with the greatest local variability was south of the CMC site, where frequent similar Arsenic concentrations were interspersed with constant and dissimilar Arsenic concentrations (Figure 7). Collectively, these results indicate that small-scale variability in Arsenic concentrations is prevalent in the areas south and northwest of the CMC site. These areas could be considered impacted from anthropogenic Arsenic sources, including the CMC site. However, this small-scale variability is not negatively related to distance from the CMC site (Figure 7), as would be expected if air-dispersion were a primary transport mechanism.

Therefore, these areas of small-scale variability may be indicators of alternate anthropogenic sources of Arsenic (e.g., pesticide application).

Spatial cluster analyses were conducted to determine if spatial patterning of the Arsenic concentrations exists. The Moran's index and the Getis-Ord General G statistic ("Hot Spot Analysis") were both statistically significant for residential properties sampled. The Moran's index indicated that Arsenic concentrations were weakly clustered together, as evident by a slightly positive index value (I = 0.04). The Hot Spot Analysis further indicated that higher Arsenic concentrations south of the CMC site tended to be clustered together, although this relationship is very weak (G = 0.02; Figure 6). Furthermore, the higher Arsenic concentrations tend to be clustered at the southern-most extent of the study area – rather than in closer proximity to the CMC site – which would be expected assuming air-dispersion as the primary transport mechanism.

To investigate whether human land-use practices may have influenced the soil chemistry, and resulting surface soil Arsenic concentrations, the FIELDS Group correlated Arsenic concentrations with housing age at residential properties sampled and attempted to illustrate any spatial patterns in house age. Nearly 60% of all homes were greater than 100 years old and less than 20% of all homes were under 50 years old (Figure 10). Overall, there were very weak positive correlations between surface soil Arsenic concentrations and housing age (Figure 8). Furthermore, logistic regression analysis indicated that older homes that existed during site activity had a greater probability than newer homes of containing high Arsenic concentrations (Figure 9). Despite this relationship between Arsenic concentration and housing age, there appears to be little spatial clustering of homes throughout the study area (Figure 11), which confounds attempts to attribute Arsenic-house age relationships to the CMC site.

References

CH2MHill. 2006. Draft Surface Soil Statistical Evaluation, South Minneapolis Soil Contamination Site, Minneapolis, MN. WA No. 016-RICO-B5BY. Contract No. EP-S506-01. December 2006.

ESRI. 2005a. ArcMap. v. 9.1. Environmental Systems Research Institute. Redlands, CA.

ESRI. 2005b. Spatial Statistics for Commercial Applications. Environmental Systems Research Institute, White Paper. Redlands, CA. 17 p.

Geomega, Inc. 2004. Sourcing Arsenic from the Lite yard Site. Prepared for U.S. Borax, Inc. December 2004.

Goovaerts, P. 1997. Geostatistics for Natural Resources Evaluation. Oxford University Press. New York, NY. 483 p.

Myers, J.C. 1997. Geostatistical Error Management: Quantifying Uncertainty for Environmental Sampling and Mapping. International Thomson Publishing Company. 571 p.

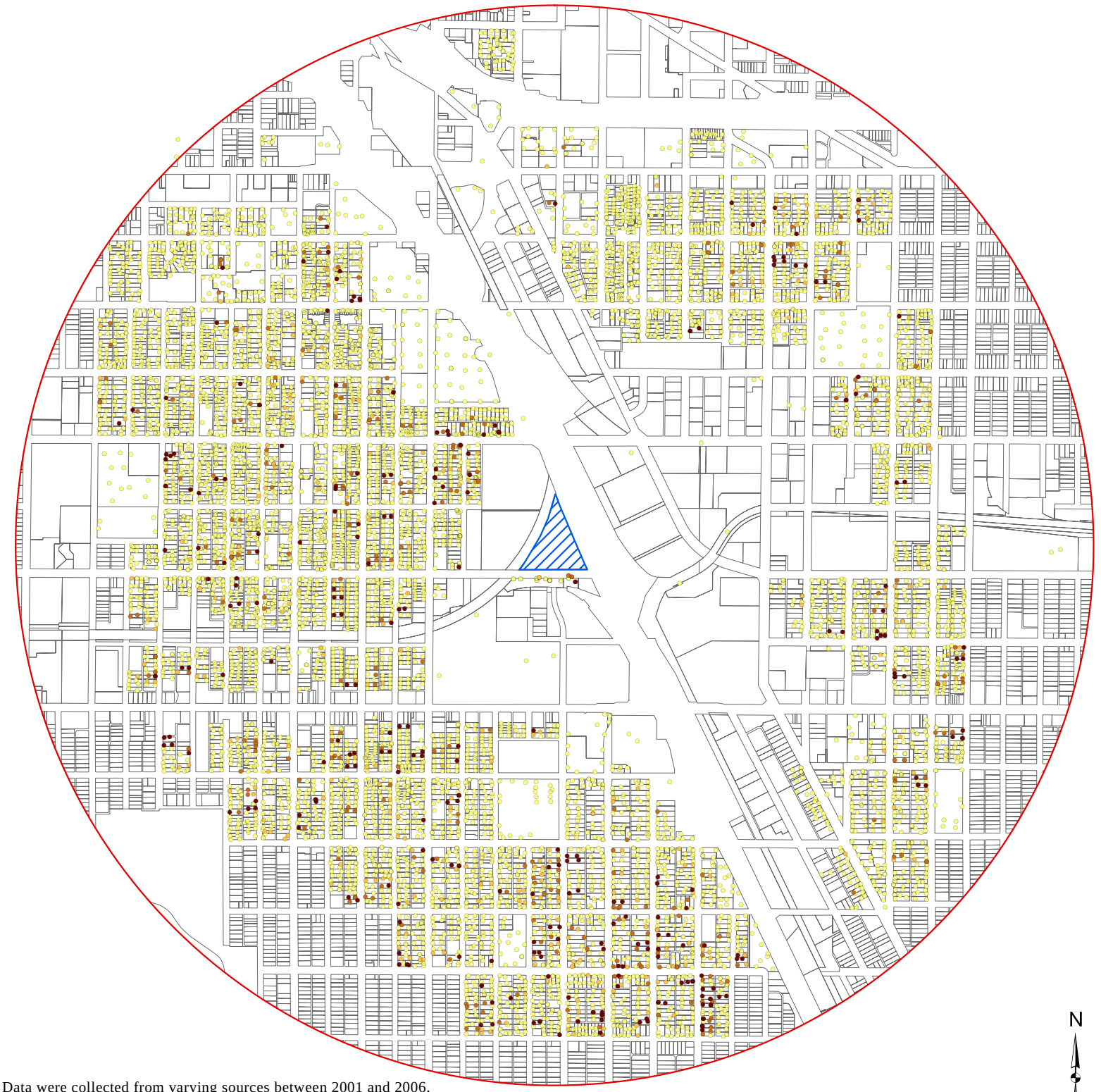
U.S. EPA. 1992. Preparation of Soil Sampling Protocols: Sampling Techniques and Strategies. U.S. Environmental Protection Agency, Environmental Monitoring Systems Laboratory, Office of Research and Development. EPA/600/R-92/128. July 1992.

U.S. EPA. 1995. User's Guide for the Industrial Source Complex Dispersion Models, Volumes I and II. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, NC. EPA-454/B-95-003a,b. September 1995.

U.S. EPA. 1999. PCRAMMET User's Guide. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, NC. EPA-454/B-96-001. June 1999.

U.S. EPA. 2004. Developing Spatially Interpolated Surfaces and Estimating Uncertainty. U.S. Environmental Protection Agency, Office of Air and Radiation. Research Triangle Park, NC. EPA-454/R-04-004. November 2004.

FIGURES



Data were collected from varying sources between 2001 and 2006.
Hennepin County parcel map current through August 2005.
D:\GIS\Projects\CMC_Site\MAPS_FIGURES\FIG1_SAMPLES.pdf

SOUTH MINNEAPOLIS SOIL CONTAMINATION SITE

Minneapolis, Minnesota

Spatial distribution of surface soil samples in properties within 1 mile of the CMC site.

Surface Soil Samples

Arsenic Concentration (ppm)

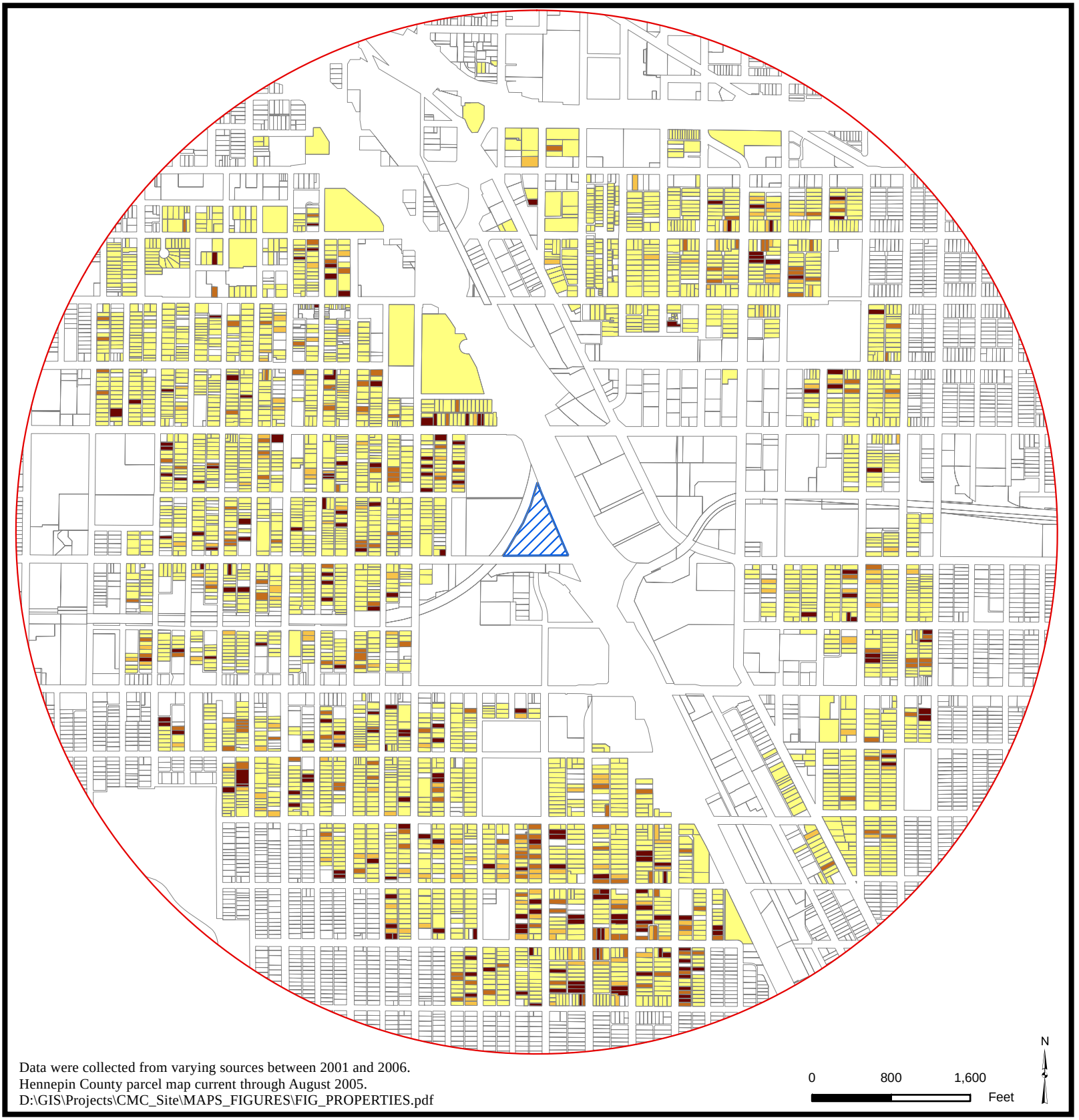
- 0 - 29.9
- 30 - 49.9
- 50 - 94.9
- > 94.9

1 Mile Radius

CMC Site

Hennepin County Properties

Figure Number: 1



SOUTH MINNEAPOLIS SOIL CONTAMINATION SITE

Minneapolis, Minnesota

Sampled Residential Properties (N = 3,313).

MAXIMUM ARSENIC CONCENTRATION (PPM)

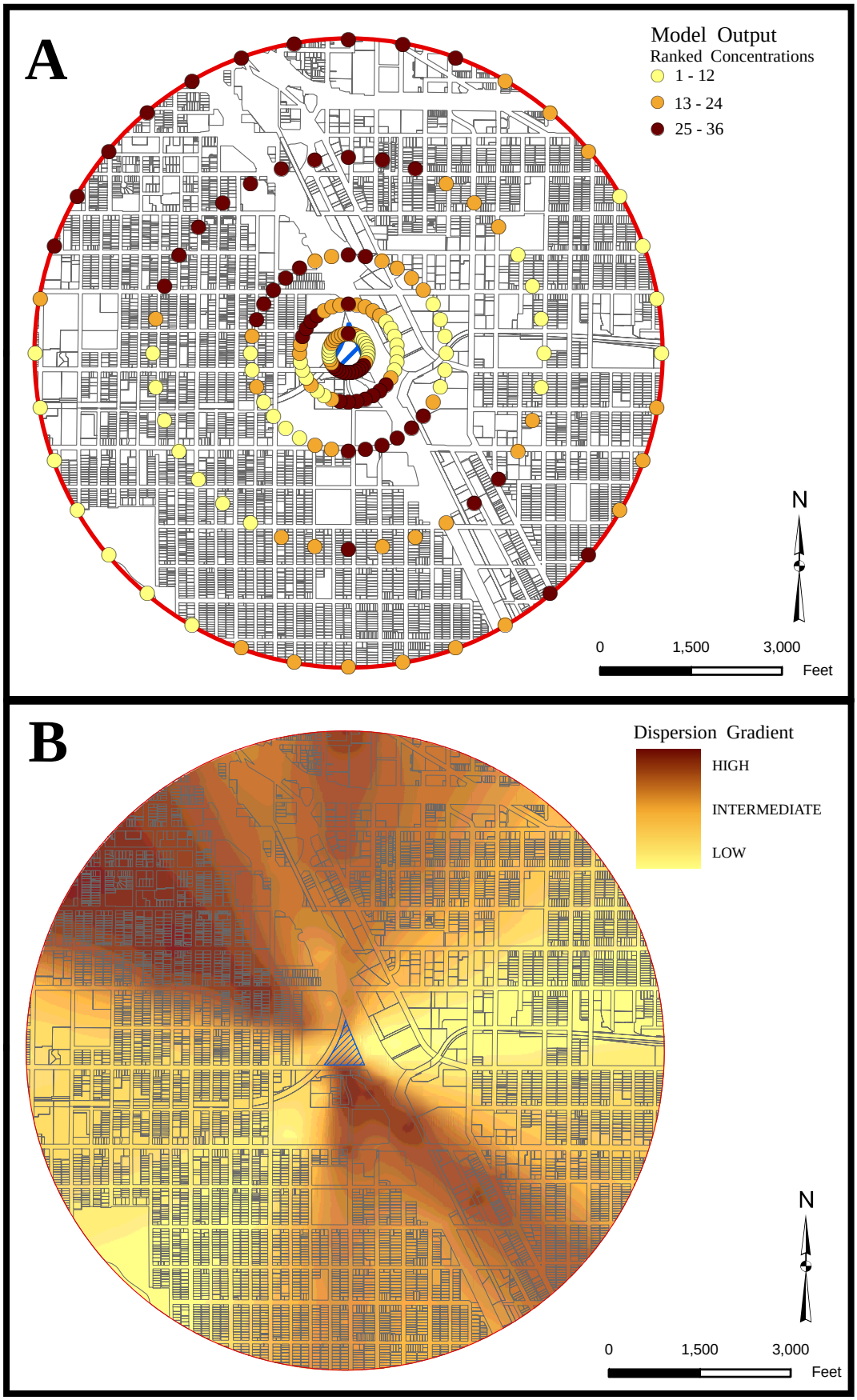
- 0 - 29.9 PPM
- 30 - 49.9 PPM
- 50 - 94.9 PPM
- > 95 PPM

1 Mile Radius

CMC Site

Hennepin County Properties

Figure Number: 2



Model: EPA Industrial Source Complex.
Input parameters collected from various sources.
Hennepin County parcel map current through August 2005.
D:\GIS\Projects\CMC_Site\MAPS_FIGURES\FIG_MODEL.pdf

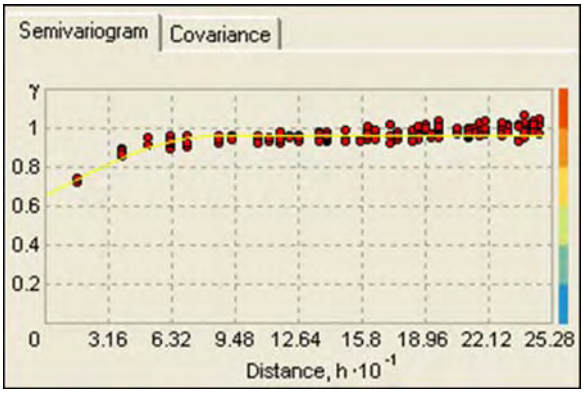
SOUTH MINNEAPOLIS SOIL CONTAMINATION SITE

Minneapolis, Minnesota

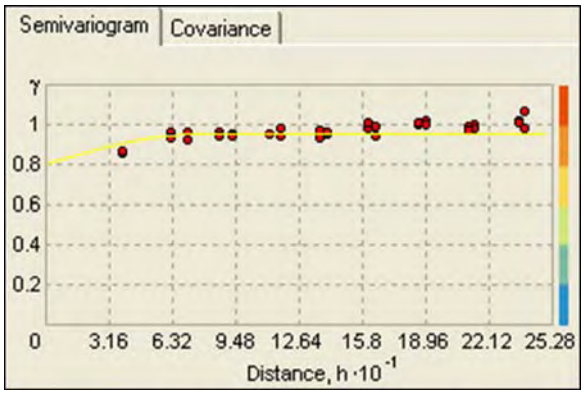
A) Rank-transformed model output concentrations at each radial distance.
B) Natural neighbor interpolation of rank-transformed arsenic concentrations.

1 Mile Radius
CMC Site
Hennepin County Properties

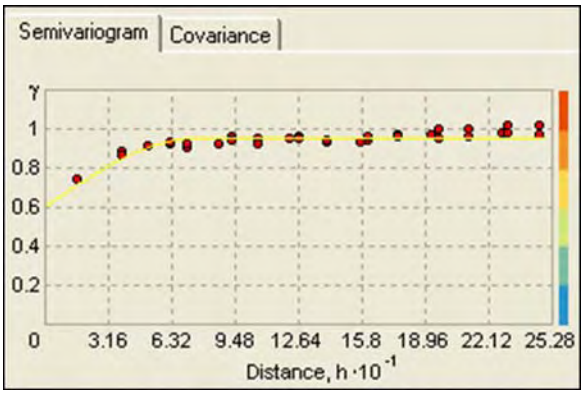
Figure Number: 3



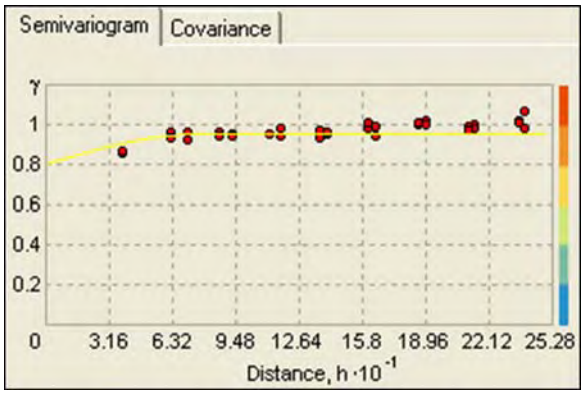
(A)



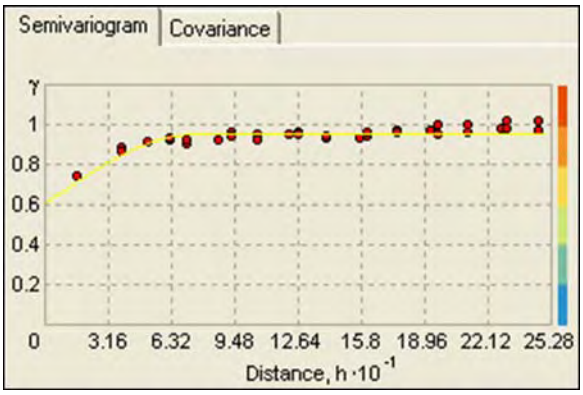
(B)



(C)

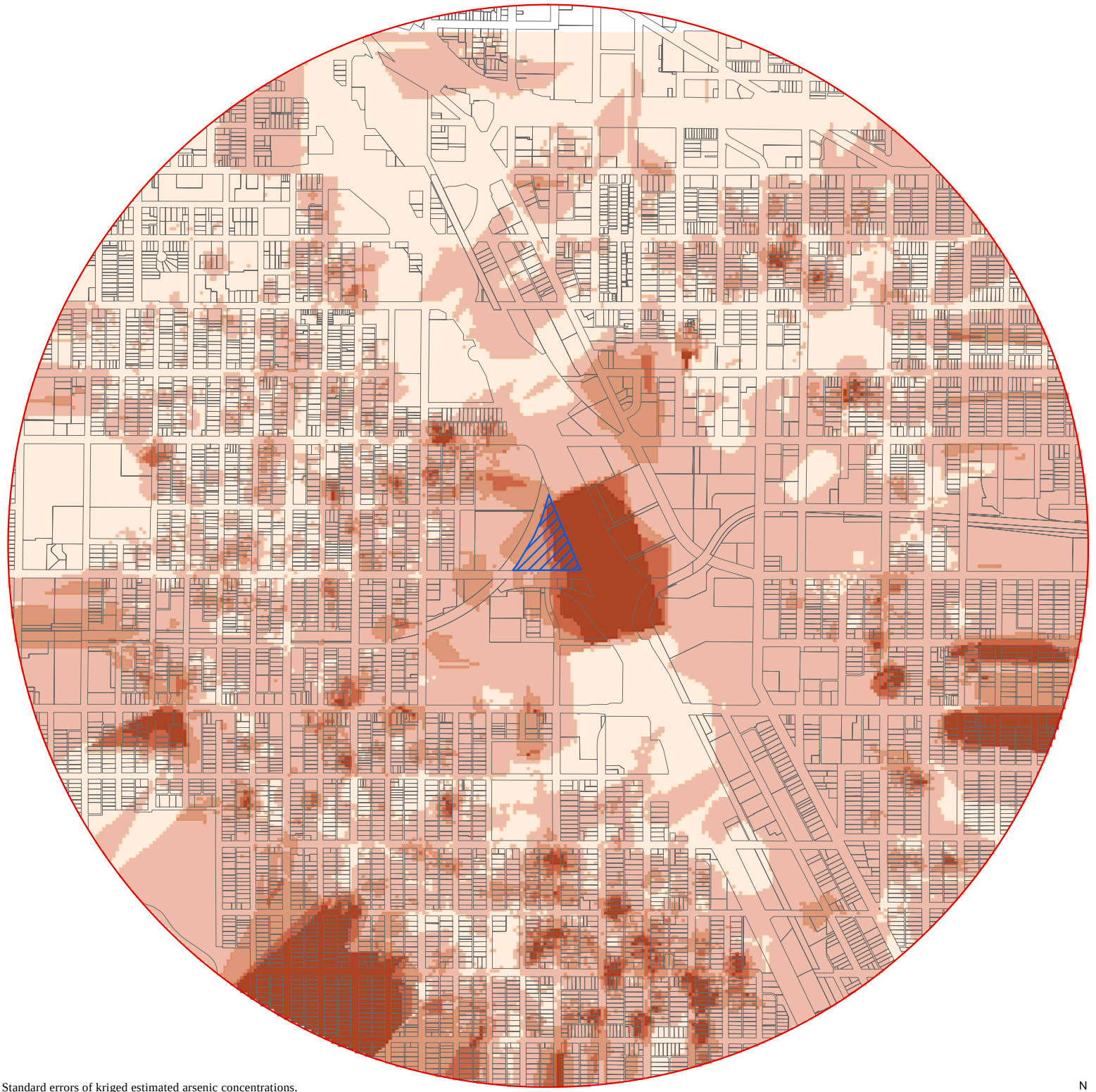


(D)



(E)

Figure 4. Semivariograms for the soil sample analytical results. A) Isotropic model. B) Northeast (45-degree) anisotropy. C) Southeast (135-degree) anisotropy. D) Southwest (225-degree) anisotropy. E) Northwest (315-degree) anisotropy. In all models, 0-degrees corresponds to true north.



Standard errors of kriged estimated arsenic concentrations.
Spherical model. Log-transformed arsenic concentrations.
Isotropic model. Nugget: 55%.
Hennepin County parcel map current through August 2005.
D:\GIS\Projects\CMC_Site\MAPS_FIGURES\FIG_KRIG_SE.pdf

0 800 1,600
Feet

N

SOUTH MINNEAPOLIS SOIL CONTAMINATION SITE

Minneapolis, Minnesota

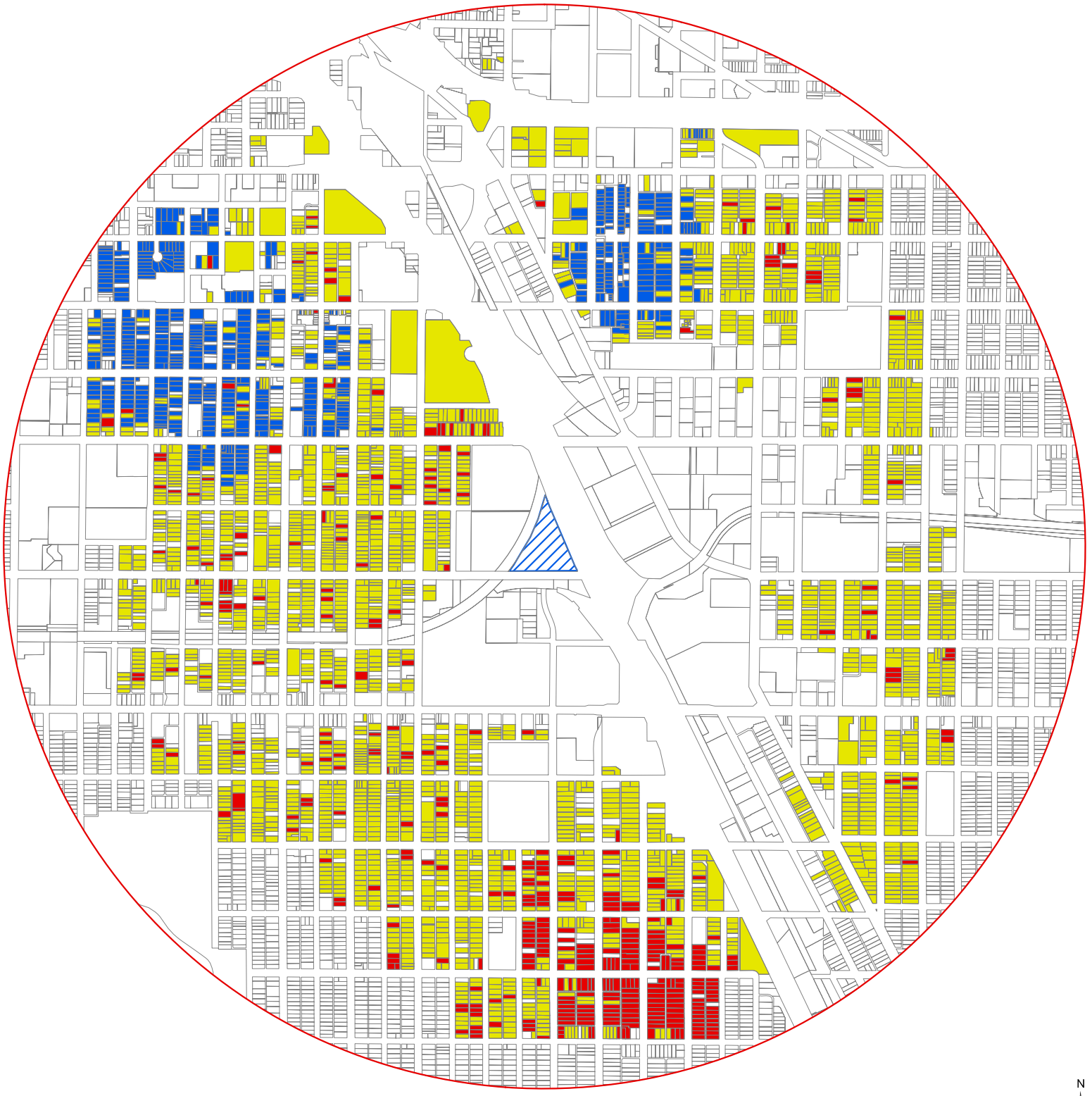
Ordinary Kriging
Standard Error (SE)

- 0 - 9.9
- 10 - 24.9
- 25 - 49.9
- 50 - 74.9
- > 75

Standard errors of kriged arsenic concentrations in residential surface soil samples.

CMC Block Grid
CMC Site
Hennepin County Properties

Figure Number: 5



Hot Spot Analysis (G-values); 100 m distance band.
Hennepin County parcel map current through August 2005.
D:\GIS\Projects\CMC_Site\MAPS_FIGURES\FIG_GETIS_ORD.pdf

0 800 1,600
Feet

N

SOUTH MINNEAPOLIS SOIL CONTAMINATION SITE

Minneapolis, Minnesota

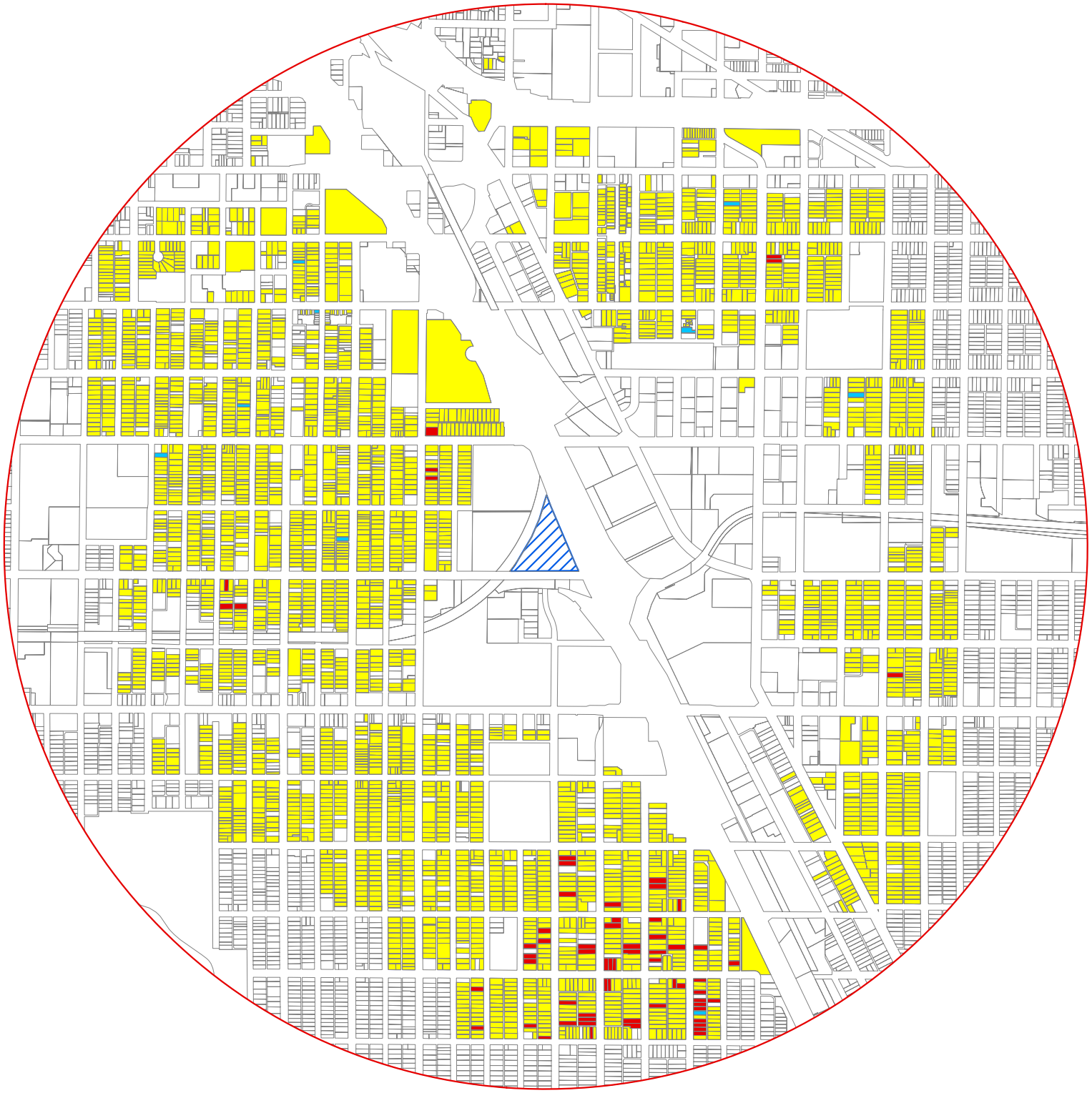
Getis-Ord G-Values for residential properties sampled (N = 3,313).

Residential Properties Sampled
Getis-Ord General G-Values

- < -2.5 (Low value clustering)
- -1.0 - 1.0 (No clustering)
- > 2.5 (High value clustering)

- 1 Mile Radius
- CMC Site
- Hennepin County Properties

Figure Number: 6



SOUTH MINNEAPOLIS SOIL CONTAMINATION SITE

Minneapolis, Minnesota

Anselin Local Moran's Index values for residential properties sampled (N = 3,313).

Residential Properties Sampled

Anselin Local Moran's Index Value

- < -0.5 (Dissimilar)
- -0.5 - 0.5 (Neither Similar nor Dissimilar)
- > 0.5 (Similar)

- 1 Mile Radius
- CMC Site
- Hennepin County Properties

Figure Number: 7

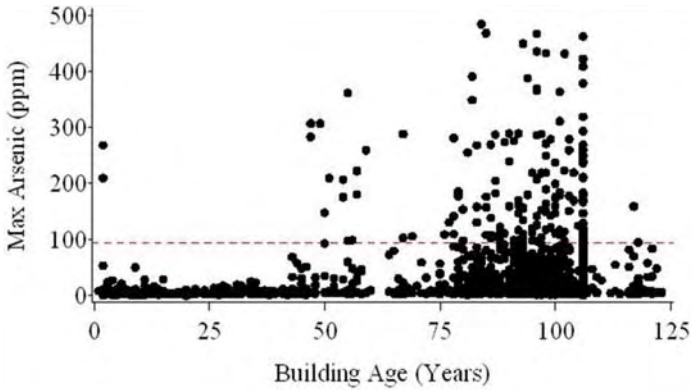


Figure 8. Scatter-plot of Arsenic concentrations versus housing age at residential properties sampled (N = 3,313). Only the maximum Arsenic concentration was used. The dashed reference line indicates the 95 ppm residential action level.

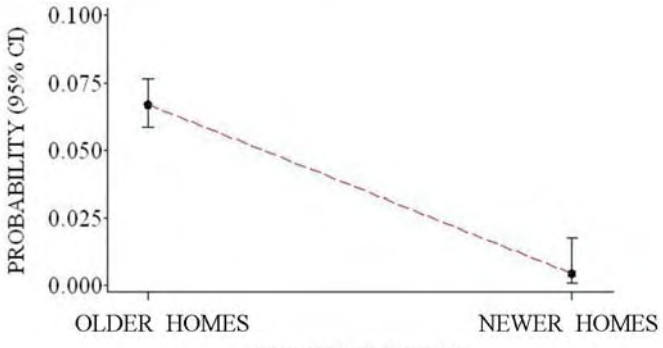


Figure 9. Probability of Arsenic samples exceeding 95 ppm in older and newer homes. Error bars represent 95% confidence limits. Newer homes are those built since 1960 (≤ 45 years old), whereas older homes are those built prior to 1960 (> 45 years old).

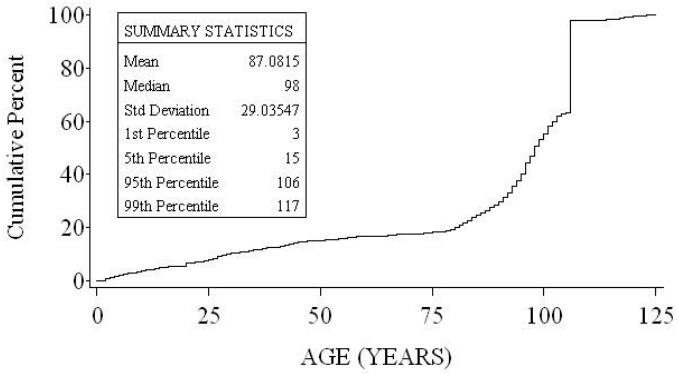
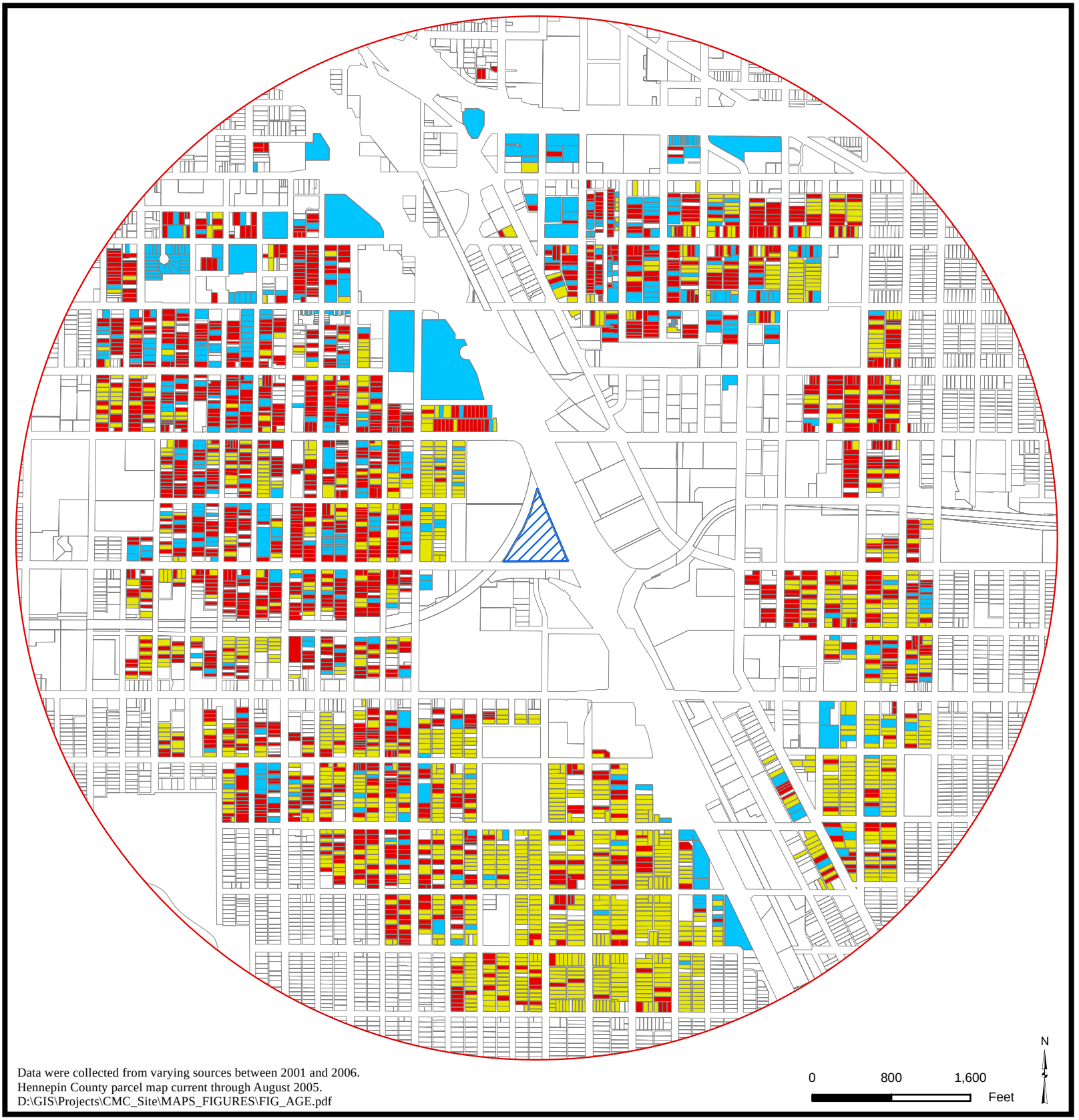


Figure 10. Cumulative Distribution Function (CDF) for housing ages in the residential properties sampled surrounding the CMC site (N = 3,313).



SOUTH MINNEAPOLIS SOIL CONTAMINATION SITE

Minneapolis, Minnesota

Sampled Residential Properties (N = 3,313).

HOUSING AGE (YEARS)

- 0 - 45 yr.
- 46 - 99 yr.
- > 100 yr.

- 1 Mile Radius
- CMC Site
- Hennepin County Properties

Figure Number: 11

Appendix B

Risk Assessment Technical Memorandum

Baseline Human Health Risk Assessment

South Minneapolis Soil Contamination Site, Minneapolis, MN
WA No. 016-RICO-B5BY, Contract No. EP-S5-06-01

PREPARED FOR: Tim Prendiville/USEPA

PREPARED BY: CH2M HILL

DATE: November 7, 2007

Executive Summary

This Technical Memorandum (TM) presents the approach, assumptions, and results of the baseline human health risk assessment (HHRA) for soils at the South Minneapolis Site ("the Site"). The proposed approach and assumptions for the HHRA were presented in the *Interim Deliverable for the Human Health Risk Assessment – RAGS Part D Tables – South Minneapolis Site* (CH2M HILL, 2006) and were posted on EPA's website in October 2006 for a 30-day public comment period. No public comments were received on the Interim Deliverable, and therefore the assumptions and approach presented in that document were used in the baseline HHRA. Additional realistic exposure assumptions were also incorporated into the HHRA. Public comments made during the September 2006 public meeting were taken into consideration and resulted in changes to the residential and construction worker reasonable maximum exposure (RME) and central tendency exposure (CTE) variables.

This HHRA includes quantitative risk estimates for potential soil, outdoor air, and garden vegetable exposures. Although indoor dust samples were planned as identified in the Interim Deliverable, no samples were collected after the evaluation of the surface soil sample results. Indoor dust concentrations are represented in the HHRA by outdoor soil concentrations since residents may ingest indoor dust potentially impacted through fugitive dust emissions from impacted soil or from tracking indoors. Health-protective preliminary remediation goals (PRGs) were calculated for residents with and without vegetable gardens and construction workers; site-specific background concentrations are also discussed. The tables prepared for the HHRA are provided in EPA RAGS Part D (EPA, 2001) format in **Appendix A**. The overall conceptual site model (CSM) is presented in **Table 1** of **Appendix A** and is described in the following sections.

Exposure parameters used in this HHRA are identified in Tables 4.1 through 4.5 of **Appendix A**. A few of the key parameters used in the HHRA are listed below:

- Adult and infant/child residents and construction workers were evaluated as potential receptors in the area;

- Residents were assumed to be exposed to arsenic in soil or dust via incidental ingestion for 350 days/year; construction workers were assumed to be exposed to soil for 90 days/year.
- Residents were assumed to be exposed to arsenic adhered to soil particulates in ambient air and to dermally contact soil for 185 days/year (the number of days where the soil is not snow-covered and it is not raining in Minneapolis).
- Residents were assumed to grow vegetables in their home gardens. The homegrown garden vegetables were categorized into two groups: above-ground vegetables (e.g., eggplants, tomatoes, and leafy vegetables) and below-ground vegetables (e.g., carrots and potatoes). Over an assumed 4-month growing period during the year, residents are assumed to consume above-ground vegetables for 90 days and below-ground vegetables for 60 days.
- Residents were assumed to be exposed to arsenic in soil/dust for 50 years (to evaluate a high-end exposure) and 15 years (to evaluate an average exposure); construction workers were assumed to be exposed to arsenic in soil for 10 years (to evaluate a high-end exposure) and 1 year (to evaluate an average exposure).

Potential exposures to four arsenic concentrations were evaluated in the HHRA:

- 16 mg/kg (representing background concentrations);
- 95 mg/kg (the interim removal action level);
- 500 mg/kg (a value close to the mean concentration in residential yards currently above the removal action level); and
- 1,500 mg/kg (the approximate maximum detected concentration at homes that have not yet been remediated)

The Excess Lifetime Cancer Risk (ELCR) and hazard calculations indicate potential risks above the upper end of EPA's typical target risk range from arsenic exposures at concentrations of 95 mg/kg, 500 mg/kg, and 1,500 mg/kg for residents and at concentrations of 500 mg/kg and 1,500 mg/kg for construction workers. Most of the estimated risk is from incidental ingestion of soil and dust (approximately 70%) and eating garden vegetables (approximately 25%). A small proportion of estimated risk (approximately 4%) is from dermal contact with soil, and a very small relative proportion of estimated risk (<0.05%) is from inhalation of dusts. Risk-based PRGs were calculated for residents with and without vegetable gardens and construction workers; calculations indicate that arsenic concentrations of 25 mg/kg (or less) are protective of persons residing in the area for up to 50 years with vegetable gardens; arsenic concentrations of 261 mg/kg (or less) are protective of constructions workers. The final cleanup levels for the site will be determined after taking into consideration the uncertainties in the risk assessment.

1. Data Used in the HHRA

The source of arsenic in South Minneapolis Neighborhood soil may be partially attributable to airborne deposition of arsenic herbicides and pesticides that were blended, stored, and distributed at the CMC Heartland Lite Yard Site from 1938 to 1963. The arsenic cycle in soils

is a complex process involving many biotic and abiotic processes that control its overall fate and environmental impact. Arsenic can be present in soil in various oxidation states and chemical species depending on the soil pH and oxidation-reduction potential (**ATDSR, 2005**). The specific form of arsenic currently present at the Site has not been determined.

Soil samples were collected during the Phase 1 and Phase 2 RI, and during post-excavation sampling at remediated properties. For each property sampled, a five-point composite soil sample was collected from the yard from depth intervals within 0-18 inches. If more than one sizable yard was present on a property (e.g., front yard, side yard, and/or backyard), one five-point composite sample was collected from each yard. The available dataset consists of 7,521 soil samples that were collected through the end of 2006 (including original samples and post-remediation samples) for arsenic analysis. All data were validated in accordance with EPA's Quality Assurance/Quality Control (QA/QC) process. The soil samples were collected by various companies or organizations from the general areas identified below:

- **Residential yards not remediated as of 2007** - 0 to 3 inch interval; collected by the EPA; EPA's Fully Integrated Environmental Location Decision Support (FIELDS) group; a contractor under the EPA Response Engineering and Analytical Contract ("REAC"); Minnesota Department of Agriculture (MDA); and Minnesota Department of Health (MDH) from June 2001 through November 2005.
- **Remediated residential properties –** 12 to 18 inch interval; post-excavation samples collected by REAC and EPA from October 2004 through Fall 2006.
- **School properties sampled in Summer 2006 –** 0 to 3 inch interval; collected by the EPA in 2006.
- **Right-of-Way areas along streets** - 0 to 3 inch interval; collected by the MDH, FIELDS, and EPA from June 2001 through October 2005.
- **Vacant land** - 0 to 3 inch interval; collected by FIELDS in August 2005.

2. Potential Receptors

The Site is situated in a densely populated residential area with scattered industrial/commercial properties. Due to the higher exposure frequency and duration for residents compared to workers and schoolchildren, the HHRA focuses on residential exposure scenarios. Industrial and commercial workers are exposed to the same soil depth interval, but at a lower exposure frequency and shorter exposure duration than adult residents. Likewise, schoolchildren are exposed to the same soil depth interval, but at a lower exposure frequency and shorter exposure duration, than residential children. In addition, industrial/commercial workers would likely not eat vegetables grown at the workplace. Therefore, the risks estimated for adult residents and child residents conservatively represent the potential risks to industrial/commercial workers and schoolchildren, respectively, from soil exposures.

The following receptors were identified at the Site and were evaluated in the HHRA:

- **Residents –** child and adult residents at residential properties; and

- **Construction Workers** – workers engaged in short-term remodeling or construction activities at residential properties to soil depths of 5 feet.

The human health CSM presents potential exposure media, exposure points, receptors (current and future), and exposure routes, and is provided in **Table 1** of **Appendix A**.

3. Data Evaluation

The background range of arsenic in surface soil (up to 16 mg/kg) was estimated for the site based on samples collected in the South Minneapolis neighborhood (**CH2M HILL, 2007**). Concentrations up to 10 mg/kg were identified as clearly background at the site. Concentrations between 10 mg/kg and 16 mg/kg were identified as potentially impacted and indistinguishable from either background or impacted soils, while concentrations above 16 mg/kg were concluded to be clearly impacted. A concentration of 16 mg/kg was used to calculate potential risks to receptors exposed to background concentrations of arsenic. Since the risk estimate is proportional to the soil exposure point concentration (EPC), three additional (higher) arsenic EPCs were evaluated in the Risk Characterization Section of the HHRA (see Section 7).

4. Exposure Pathways Quantified in the HHRA

Various potential exposure pathways were quantified in the HHRA. For both adult and child residents, potential accidental ingestion (via hand-to-mouth activities), dermal contact (through the skin), and inhalation (outdoor air) exposures of arsenic in soil and outdoor air were quantified. In addition, potential intakes were quantified for ingestion of homegrown garden vegetables based on modeled concentrations in vegetables grown in impacted soil.

5. Exposure Factors

To assess potential exposures to arsenic in soil, potential intakes were quantified. A soil EPC based on background (16 mg/kg) was first evaluated. Potential risks associated with three additional soil EPCs were quantified:

- 95 mg/kg (the interim removal action level);
- 500 mg/kg (a value close to the mean concentration of residential yards currently above the removal action level); and
- 1,500 mg/kg (the approximate maximum detected concentration at homes that have not yet been remediated).

Multiple soil EPCs are not presented in the risk calculation tables since risk estimates are directly proportional to EPCs, and when risk estimates are calculated for one soil EPC, the estimated risks associated with other EPCs can be calculated by applying the ratio of the original EPC to the associated risk estimate.

RME and CTE scenarios were estimated for residents and construction workers. The term "RME" refers to a type of high-end exposure estimated by using default values, and is typically used as the basis for action at a Superfund site. The term "CTE" refers to an average exposure that is more likely to occur at a site. The exposure factors used in the RME intake calculations are presented in **Tables 4.1 RME** through **4.5 RME** of **Appendix A,** while

the exposure factors used in the CTE intake calculations are presented in **Tables 4.1 CTE** through **4.5 CTE** of **Appendix A.** The majority of the RME and CTE exposure factors are standard default exposure factors presented in EPA guidance **(EPA, 1991; EPA, 1997; EPA, 2004b)**, while others are site- or region- specific parameters determined based on best professional and scientific judgment, as appropriate. A brief summary of absorption factors and non-standard, site-specific exposure factors is presented below. Additional (standard) exposure factors are provided in **Tables 4.1** through **4.5** of **Appendix A**.

Soil Exposure Frequencies for Residents

A regional-specific soil exposure frequency was used in the intake calculations for dermal and inhalation exposures to soil. The soil exposure frequency was identified based on consideration of local climate conditions – specifically, the number of days when the soil is not snow-covered (and the ground is not frozen) and it is not raining.

Based on climate data from October 1959 to May 1979, the average number of days with snow cover of one inch or more in Minneapolis is 100. The average date of the first 1-inch snow cover is November 22 and the average date of the last 1-inch snowfall is April 2 (**University of Minnesota, 1982**). These data indicate that the snow cover is not continuous for the entire period from November 22 through April 2. Therefore, continuous snow cover was assumed for the months of December, January, and February (i.e., no snowfall for 275 days per year).

Based on data available on the Internet at www.weatherbase.com, the average number of days with rainfall in Minneapolis during the months of March through November is 90. Subtracting 90 days (i.e., days with rainfall) from 275 days (i.e., days without snow) yields 185 days where there is no snow cover and no precipitation. Therefore, a soil exposure frequency of 185 days/year was used in the HHRA for dermal and inhalation exposures. However, an exposure frequency of 350 days/year was used for the soil ingestion exposure pathway to account for indoor dust exposure.

Age-Adjusted Intake Rate for Residents

The EPA nationwide default adult and child resident intake rates for soil ingestion, soil dermal contact, and soil inhalation were age-adjusted to account for multiple intake rates, soil-to-skin adherence factors, skin surface areas, inhalation rates, and body weights over an extended time-period (for use in ELCR estimates). Calculations are presented in **Table 4.1 Supplement of Appendix A**. In addition, the EPA nationwide default child resident intake rates for soil ingestion, soil dermal contact, and particulate inhalation were age-adjusted to account for multiple intake rates, soil-to-skin adherence factors, skin surface areas, and body weights over a 7-year period (ages 1 to 8 for use in infant/child hazard estimates). Calculations are presented in **Table 4.3 Supplement of Appendix A.**

Vegetable Intake Rates

A homegrown vegetable ingestion rate of 0.464 kg/day was identified for a RME scenario for an adult in the Midwest (including Minnesota) in EPA's Exposure Factors Handbook (**EPA, 1997**): this ingestion rate roughly equates to vegetable consumption of 1 pound/day for an adult and 0.4 pounds/day for a child. It was assumed that 70% and 30% of their ingestion rates are of above-ground vegetables and below-ground vegetables, respectively,

and 50% of the vegetables are grown in impacted soil in a resident's yard and the remaining vegetables are obtained from another source (or grown in unimpacted soil). Over an assumed 4-month growing period during the year, residents are assumed to consume above-ground vegetables for 90 days and below-ground vegetables for 60 days.

The RME garden vegetable intake rates for a child resident ages 1-8 were calculated using age-specific intake rates presented in the Exposure Factors Handbook (**EPA, 1997**). Calculations are provided in **Table 4.3 Supplement of Appendix A**.

Ingestion of homegrown garden vegetables was not evaluated under the CTE scenario. Most people do not grow vegetables in their own gardens but rather use one of various community gardens available in the area or purchase their vegetables from the grocery store.

Exposure Durations

A duration of exposure (expressed as years) to arsenic is used when estimating intakes for all exposure scenarios. Based on feedback received at the September 26, 2006 public meeting, 50 years was used for the RME scenario and 15 years was used for the CTE scenario for residents. In addition, since construction workers may work in the site vicinity over multiple years, exposure durations of 10 years (RME) and one year (CTE) were used based on feedback received at the September 26, 2006 public meeting. For the aggregate 50-year exposure duration (RME scenario), it was assumed that 6 years of the exposure were spent as a child and 44 years were spent as an adult. For the aggregate 15-year exposure duration (CTE scenario), it was assumed that 6 years of the exposure were spent as a child and 9 years were spent as an adult.

Relative Bioavailability of Arsenic in Soil

The fraction of an ingested dose that is available for distribution to internal tissues and organs (termed "bioavailability") was conservatively assumed to be 90% due to the lack of site-specific bioavailability information. The actual bioavailability is dependent on the physical and chemical form of arsenic present in the soil, and the physical and chemical characteristics of the association between the metal and soil particles. In a study conducted by Sarkar and Dalta (as presented in ATSDR, 2005), arsenic bioavailability was measured in two soils after spiking with sodium arsenate for 4 months: 1) Immokalee (a sandy soil) from Florida, which is likely to have minimal arsenic retention capacity, and 2) Orelia (a sandy clay soil) from Texas, that likely has high arsenic retention capacity. Initially after pesticide application, 100% of the arsenic was bioavailable; after 4 months, the bioavailable fraction decreased to 88 and 69% in the Immokalee and Orelia soils, respectively (ATSDR, 2005). Because the suspected source area was used to manufacture arsenic-based pesticides over 60 years ago, an assumed bioavailability of 90% is expected to be conservative.

Dermal Absorption

A dermal absorption factor is used when evaluating potential dermal exposures to arsenic in soil. The arsenic dermal absorption factor of 0.03 was obtained from EPA dermal guidance (**Wester, et al., 1993 as cited in EPA, 2004**). Although absorption of arsenic by the dermal route has not been well-characterized for humans, reviews of animal studies indicate

that absorption through skin is expected be low compared to other exposure routes (**ATSDR, 2005**).

6. Toxicity Assessment

The specific form of arsenic present at the Site is unknown, and the form of arsenic present in soil or plants is related to its toxicity. Therefore, toxicity information for inorganic arsenic (the most toxic form) was used in the HHRA. The following hierarchy of sources was used to obtain toxicity data for arsenic:

- Integrated Risk Information System (IRIS) **(EPA, 2007)**;
- Provisional Peer-Reviewed Toxicity Values (PPRTVs); and
- Health Effects Assessment Summary Tables (HEAST; **EPA, 1997**).

IRIS provides a database of human health effects that may result from exposure to arsenic. Arsenic is a human carcinogen that can be inhaled, ingested, or absorbed. Studies have shown that arsenic intake can be associated with certain types of cancer such as lung, liver, kidney, bladder, and skin. The RfD is an estimate of a daily exposure to people that will not cause appreciable risks during a lifetime. The RfD for arsenic is based on human chronic oral exposure studies and a safety factor of 3. The RfD is based on the Lowest Observed Adverse Effect Level (LOAEL) and the critical health effects are hyperpigmentation, keratosis and possible vascular complications.

Non-cancer toxicity values used in the HHRA are presented in **Tables 5.1** and **5.2** of **Appendix A**; non-cancer inhalation toxicity values could not be located for arsenic. Cancer toxicity values for arsenic are provided in **Tables 6.1** and **6.2** of **Appendix A.**

Toxicity values provided by EPA typically reflect doses to study subjects via ingestion or inhalation exposures. However, dermal exposures are expressed as absorbed doses. Therefore, the absorbed-dose intakes for dermal exposure must be used with absorbed-dose toxicity values. The absorbed-dose toxicity values were calculated by applying oral absorption factors to administered-dose toxicity values. The EPA's recommended arsenic oral absorption factor is 95%(**Bettley, 1975 as cited in EPA, 2004b**). This value is consistent with findings in several studies in humans that indicate that arsenates and arsenites are well-absorbed across the gastrointestinal tract (**ATSDR, 2005**). In accordance with EPA dermal guidance (**EPA, 2004b**), oral toxicity values were used as dermal toxicity values without adjustment in the HHRA because the recommended oral absorption factor is greater than 50%.

7. Risk Characterization

Risk characterization involves estimating the magnitude of potential adverse health effects from exposure to arsenic. This step of the HHRA combines the estimated intakes (exposure levels) and toxicity values to provide numerical estimates of potential carcinogenic health risks and semi-quantitative estimates of non-carcinogenic health risks. Risk characterization also considers the nature and weight of evidence supporting these estimates, and the magnitude of uncertainty surrounding the estimates.

The risk estimates are intended to provide the basis for management decisions and do not predict actual health outcomes. The estimates are based on conservative (health-protective) assumptions, and therefore actual site-related risks are likely to be less than these estimates.

7.1 Approach for Assessing Potential Cancer Risks

To characterize potential carcinogenic effects, statistical probabilities are estimated from calculated intakes and toxicity values that a hypothetical receptor group will develop cancer over a lifetime as a result of the assumed exposures.

Using the cancer slope factors (CSFs), estimated daily intakes averaged over a lifetime of exposure were converted to incremental risks of a hypothetical receptor group developing cancer. The following formula was used to estimate potential ELCR from site exposure:

$$ELCR = Intake \times CSF$$

EPA's target range for carcinogenic risk associated with Comprehensive Environmental Response Compensation, and Liability Act (CERCLA) sites is 1 in 10,000 (1×10^{-4}) to 1 in 1 million (1×10^{-6}). The potential risk associated with the site should not exceed this target range.

7.2 Approach for Assessing Potential Non-carcinogenic Health Effects

Potential non-carcinogenic health risks were estimated by calculating a hazard quotient (HQ) for arsenic for each exposure route. The HQ was calculated as the ratio of the estimated intake to the reference dose (RfD) as follows:

$$HQ = \frac{Intake}{RfD}$$

If the estimated daily intake for arsenic exceeds its RfD, the HQ will exceed 1. An HQ above 1 indicates a potential for adverse health effects associated with arsenic exposure, but does not indicate the actual probability of the adverse health effects.

A hazard index (HI) approach was used to evaluate potential non-carcinogenic health risks for a receptor group posed by more than one exposure route. The HI approach assumes that simultaneous subthreshold exposures by several exposure routes are additive. The HI is equal to the sum of the HQs and was calculated as follows:

$$HI = \frac{I_1}{RfD_1} + \frac{I_2}{RfD_2} \cdots \frac{I_i}{RfD_i}$$

Where:

I = intake level (mg/kg-day)
RfD = chronic reference dose (mg/kg-day)
I_i = intake level (intake) for the ith pathway
RfD_i = reference dose for the ith pathway

A cumulative HI above 1.0 indicates the potential for adverse health effects. The cumulative HI is defined as the sum of the HQs for all media and all pathways of exposure for a particular receptor.

It is EPA's policy to use the chronic RfD when the exposure duration exceeds 10% of a lifetime or 7 years (EPA, 1989). The most at-risk persons are infants and children. The calculation for the infant/child receptor scenario yields the most conservative hazard estimate (i.e., the HI value is highest). Therefore, an exposure from age 1 to age 8 was used to calculate hazard estimates for the residential scenario.

7.3 Results

Potential ELCRs and HIs were calculated for residents with and without vegetable gardens and construction workers for the exposure pathways identified in **Section 4**. Potential intakes and risks for the RME scenarios are presented in **Tables 7.1.RME** through **7.3.RME** of **Appendix A**, while the potential intakes and risks for the CTE scenarios are presented in **Tables 7.1.CTE** through **7.3.CTE** of **Appendix A**. Intake and risk estimates are summarized in **Tables 9.1.RME** through **9.3.RME** and **Tables 9.1.CTE** through **9.3.CTE** of **Appendix A**. Risk estimates greater than 10^{-6} and HIs greater than 1.0 are presented in **Tables 10.1.RME** through **10.3.RME** and **Tables 10.1.CTE** through **10.3.CTE** of **Appendix A**.

Most of the estimated risk is from incidental ingestion of soil and dust (approximately 70%) and eating garden vegetables (approximately 25%). A small proportion of estimated risk (approximately 4%) is from dermal contact with soil, and a very small relative proportion of potential risk (<0.05%) is from inhalation of dusts.

7.3.1 Aggregate Infant/Child Resident (Non-carcinogenic Hazard)

Ingestion and dermal contact exposures to surface soil and inhalation of ambient air were estimated for an aggregate infant/child resident. **Table 9.1.RME** of **Appendix A** summarizes the HI for the infant/child resident based on the background concentration of arsenic in soil (16 mg/kg). The RME HIs (0.6 for both with and without consumption of homegrown garden vegetables) and CTE HI (0.3; **Table 9.1.CTE** of **Appendix A**) are below EPA's target HI of 1.0.

7.3.2 Aggregate Child/Adult Resident (Carcinogenic Risk)

Ingestion and dermal contact exposures to surface soil and inhalation of ambient air were estimated for an aggregate child/adult resident exposed to the background concentration of arsenic in soil (16 mg/kg). The RME ELCR (6×10^{-5} and 5×10^{-5} with and without consumption of homegrown garden vegetables, respectively; **Table 9.2.RME** of **Appendix A)** is within EPA's acceptable target risk range of 10^{-6} to 10^{-4}. The CTE ELCR (1×10^{-5}; **Table 9.2.CTE of Appendix A**) is also within EPA's target risk range of 10^{-6} to 10^{-4}.

7.3.3 Construction Worker

Ingestion and dermal contact exposures to soil (0–5 ft) and inhalation of ambient air were estimated for a construction worker based on the background concentration of arsenic (16 mg/kg). The RME ELCR (4×10^{-6}; **Table 9.3.RME** of **Appendix A)** and CTE ELCR (2×10^{-7}; **Table 9.3.CTE** of **Appendix A**) are within EPA's target risk range. The RME HI (0.06) and CTE HI (0.1) are below EPA's target HI of 1.0.

7.4 Risk Estimates for Other Arsenic Concentrations

The estimated HIs for infant/child residents and construction workers associated with other EPCs (95 mg/kg, 500 mg/kg, and 1,500 mg/kg) were calculated by applying the ratio of the original EPC to its associated HI. The HIs for these additional EPCs are provided in **Table**

11.1a.RME and **Table 11.1b.CTE** of **Appendix A**. The HI estimates for these additional EPCs under the RME scenario are summarized in **Table 7-1**. The estimated HIs exceeding EPA's target HI (1.0) are indicated with highlighting.

The estimated ELCRs for aggregate child/adult residents and construction workers associated with other EPCs (95 mg/kg, 500 mg/kg, and 1,500 mg/kg) were calculated by applying the ratio of the original EPC to its associated ELCR. The ELCRs for these additional EPCs are provided in **Table 11.1a.RME** and **Table 11.1b.CTE** of **Appendix A.** The ELCR estimates for these additional EPCs under the RME scenario are summarized in **Table 7-1** below, and those exceeding EPA's target risk range are indicated with highlighting:

Table 7-1. RME Scenario Risk Estimates for Various Arsenic Concentrations

Excess Lifetime Cancer Risk Estimates	**Arsenic Concentration (mg/kg)**			
	16	**95**	**500**	**1,500**
Aggregate Child/Adult Resident (with garden vegetable consumption)	$6x10^{-5}$	**$4x10^{-4}$**	**$2x10^{-3}$**	**$6x10^{-3}$**
Aggregate Child/Adult Resident (without garden vegetable consumption)	$5x10^{-5}$	**$3x10^{-4}$**	**$1x10^{-3}$**	**$4x10^{-3}$**
Construction Worker	$4x10^{-6}$	$2x10^{-5}$	$1x10^{-4}$	**$4x10^{-4}$**

Hazard Index Estimates	**Arsenic Concentration (mg/kg)**			
	16	**95**	**500**	**1,500**
Infant/Child Resident (with garden vegetable consumption)	0.6	**4**	**20**	**60**
Infant/Child Resident (without garden vegetable consumption)	0.6	**3**	**17**	**52**
Construction Worker	0.06	0.4	**2**	**6**

Notes:

ELCRs were calculated for aggregate adult/child residents since ELCRs are averaged over a lifetime.

HIs were calculated for aggregate infant/child residents only since HIs calculated for this receptor are more conservative than the HI for an adult resident.

7.5 Uncertainty Analysis

All HHRAs involve assumptions, professional judgments, and imperfect data to varying degrees; these, in turn, result in uncertainty in the final estimates of risk. Risk assessment in general is a highly conservative process and often is based on extremely conservative assumptions and scenarios. The major sources of uncertainty associated with each of the four major steps of the HHRA process are discussed below.

7.5.1 Uncertainty Associated with the Data Evaluation

Soil samples were collected from each yard (front, side, and back) present at a residential property. Subsamples were collected on a five-point grid from each yard (e.g., backyard)

and merged into one sample for analysis. Therefore, the average EPC in each yard is expected to be characterized.

Arsenic soil concentrations were measured in terms of "total arsenic" instead of identifying the specific form of arsenic as organic or inorganic. Inorganic arsenic is considered more toxic than organic arsenic (see additional discussion of arsenic toxicity in Section 7.5.3). Organic arsenic converts to inorganic arsenic over time, so the Arsenic Committee of the Technical Review Workgroup for Metals and Asbestos (TRW) does not recommend speciating arsenic in soil. In surface soil, inorganic arsenic almost always predominates. Therefore, as a conservative approach, the Arsenic Committee of the TRW recommends that all arsenic be treated as inorganic. Consequently, not speciating the form of arsenic currently present in soil is not expected to add significant uncertainty to estimated ELCRs for the incidental ingestion of soil pathway.

Similarly, for the evaluation of ELCR associated with consumption of homegrown garden vegetables, 100 % of arsenic modeled in the vegetables was assumed to be in the carcinogenic form. Studies indicate that the proportion of the inorganic form of arsenic present in produce varies widely among vegetables: there is a high proportion of inorganic arsenic in leafy vegetables (approximately 100%) and a relatively low proportion of inorganic arsenic in tomatoes, green beans, carrots, onions, and cucumbers (less than 60%) (Yost, et. al., 2004). Therefore, the assuming that 100 % of arsenic modeled in the vegetables is present in carcinogenic form may over-estimate the ELCR associated with consumption of homegrown garden vegetables.

Two point-estimate plant uptake factors for above-ground and below-ground plants, obtained from EPA's Human Health Risk Assessment Protocol (EPA, 2005), were used to predict arsenic concentrations in homegrown garden vegetables. The application of these point estimate plant uptake factors assumes that the arsenic concentration in plants linearly increases with an increase of arsenic concentration in soil. Conversely, a literature-based regression model suggests that accumulation of metals in plants decreases as the concentration of arsenic in soil increases (ORNL, 1998). Additionally, exposures to high levels of arsenic limits the growth of vegetable plants, preventing arsenic concentration in plants from reaching levels that would cause adverse health effects to humans (Lepp, 1981). Therefore, estimated ELCRs and HIs associated with consumption of garden vegetables based on the assumed high arsenic EPCs were likely overestimated.

Unsieved soil samples were analyzed for total arsenic although arsenic concentrations may vary by particle size. If higher arsenic concentrations are associated with smaller grain size (e.g., the particle size [<250 microns] that adheres to people's hands and is ingested), then actual EPCs for receptors will be higher than the concentrations measured for unsieved soil samples. Consequently, the use of unsieved soil samples may result in an underestimate of exposure.

Although decreasing concentration trends are observed in several directions relative to the original source area, statistical analyses of arsenic concentrations in soil do not indicate a predominant pattern of decreasing concentrations away from the former source area consistent with air dispersion. Therefore, the soil EPCs addressed in this HHRA may not be wholly related to the former pesticide facility.

7.5.2 Uncertainty Associated with the Exposure Assessment

The exposure pathways analyzed are assumed to occur and most of the exposure factors used to estimate intakes are conservative and reflect worst-case or upper-bound assumptions about exposure. Some of the EPA default exposure factor values (e.g., exposure duration) were increased based on input received during the September 26, 2006 public meeting.

The relative bioavailability of arsenic in soil was conservatively assumed to be 90% due to the lack of site-specific bioavailability information. However, it is likely that the actual bioavailability of arsenic in soil is much lower than this estimated value. In fact, various studies using animal models (including rodents, swine, and monkeys) indicate that bioavailability of arsenic in soils is generally much lower, ranging from 0 to 50% (Roberts et al., 2002; Ruby et al., 1999). Other relevant studies can also be found in ATSDR's Toxicological Profile for Arsenic (ATSDR, 2005). In a recent study that Robert and his colleagues conducted, bioavailability of arsenic in soils from a variety of contaminated sites and soil types was measured in cynomolgus monkeys. They reported measured bioavailability of arsenic ranged from 5% to 31%, with most values in the 10 to 20% range (Robert et. al., 2007). Therefore, using an assumption of 90% bioavailability likely overestimates potential exposure and risk.

7.5.3 Uncertainty Associated with the Toxicity Assessment

Carcinogenic slope factors developed by EPA represent upper-bound estimates. The ELCRs generated in this HHRA should be regarded as upper-bound estimates on the potential ELCRs rather than an accurate representation of potential ELCRs. The true ELCRs are likely to be less than the predicted values.

The toxicity of arsenic varies based on the specific form of arsenic (As III or As V) present. The toxicity values used in the HHRA were for the inorganic form of arsenic, although some of the arsenic present at the properties may be in an organic (non-carcinogenic) form. Inorganic arsenic is more toxic than organic arsenic; therefore, the use of toxicity values for inorganic arsenic is expected to result in an overestimate of exposure.

7.5.4 Uncertainty in the Risk Characterization

The uncertainties identified within each major step of the HHRA ultimately contribute to uncertainty in the overall risk characterization. The addition of risks and HIs across pathways contributes to uncertainty since it is assumed that the same receptor group is exposed to arsenic via multiple exposure pathways.

8. Preliminary Remediation Goals

The ELCR and HI estimates presented in **Section 7** indicate risks above the upper end of EPA's typical target risk range ($1x10^{-4}$) and target HI (1.0) from arsenic at concentrations of 95 mg/kg, 500 mg/kg, and 1,500 mg/kg for residents. In addition, risk estimates at concentrations of 500 mg/kg and 1,500 mg/kg for construction workers exceed the upper end of EPA's typical target risk range or HI. Target concentrations (PRGs) that are protective for persons residing in South Minneapolis Neighborhood based on various possible exposure scenarios were estimated. PRGs were estimated based on target cancer risk levels of $1x10^{-4}$, $1x10^{-5}$, and $1x10^{-6}$ and an HI of 1and are provided in **Tables 12.1** through **12.3** of **Appendix A**.

8.1 PRGs Based on Reasonable Maximum Exposures

The PRGs that were calculated based on RME scenarios are summarized in **Table 8-1** below. The PRGs in Table 8-1 were calculated assuming 90% relative bioavailability of arsenic in soil, which is a very conservative assumption.

Table 8-1. Risk-Based Cleanup Levels (Reasonable Maximum Exposure)

Receptor	ELCR = $1x10^{-4}$	ELCR = $1x10^{-5}$	ELCR = $1x10^{-6}$	HI = 1
PRG (mg/kg) for Direct Contact with Soil Only				
Infant/Child Resident	--	--	--	29
Child/Adult Resident	34	3	0.3	--
Construction Worker	405	41	4	261
PRG (mg/kg) for Ingestion of Garden Vegetables and Direct Contact with Soil				
Infant/Child Resident	--	--	--	25
Child/Adult Resident	25	2.5	0.3	--

Notes:

ELCRs were calculated for aggregate adult/child residents since ELCRs are averaged over a lifetime.

An HI was calculated for an aggregate infant/child resident since the HI for this receptor is more conservative than the HI for an adult resident.

Calculations are based on reasonable maximum exposures and an exposure duration of 50 years (i.e., 44 years as an adult and 6 years as a child).

As shown in **Table 8-1** above, based on a target ELCR of $1x10^{-4}$ and target HI of 1, arsenic concentrations of 29 mg/kg or less in soil are protective of residents without vegetable gardens, concentrations of 25 mg/kg or less in soil are protective of residents with vegetable gardens, and concentrations of 261 mg/kg or less are protective of construction workers based on RME values.

8.2 PRGs Based on Central Tendency Exposures

The PRGs that were calculated based on CTE scenarios are summarized in **Table 8-2** below.

Table 8-2. Risk-Based Cleanup Levels (Central Tendency Exposure)

Receptor	ELCR = $1x10^{-4}$	ELCR = $1x10^{-5}$	ELCR = $1x10^{-6}$	HI = 1
PRG (mg/kg) for Direct Contact				
Infant/Child Resident	--	--	--	59
Child/Adult Resident	119	12	1	--
Construction Worker	7245	725	72	115

Notes:

ELCRs were calculated for aggregate adult/child residents since ELCRs are averaged over a lifetime.

An HI was calculated for an aggregate infant/child resident since the HI for this receptor is more conservative than the HI for an adult resident.

Calculations are based on central tendency exposures and an exposure duration of 15 years (i.e., 9 years as an adult and 6 years as a child).

As shown in **Table 8-2** above, based on a target ELCR of $1x10^{-4}$ and target HI of 1, arsenic concentrations of 59 mg/kg or less in soil are protective of residents and concentrations of 115 mg/kg or less are protective of construction workers based on CTE values.

9. Human Health Risk Summary

The HHRA was conducted to evaluate potential human health risks associated with arsenic concentrations in soil at the South Minneapolis Site. Results of the risk estimates for the four arsenic concentrations in soil that were evaluated in the HHRA are summarized below for residential exposures and are presented on **Figure 1 (RME-**ELCR**), Figure 2 (RME- HI), Figure 3 (CTE-**ELCR**),** and **Figure 4 (CTE-HI)**:

- 16 mg/kg (Background) - Estimated ELCRs and HIs associated with the RME and CTE scenarios are within EPA's target risk range and HI.
- 95 mg/kg (Interim Action Level) – The estimated ELCR associated with a RME scenario exceeds EPA's target risk range. For the CTE scenario, the estimated ELCR is within EPA's target range. For the RME and CTE scenarios, the estimated HI for an aggregate infant/child exceeds EPA's target level.
- 500 mg/kg (Approximate Average Concentration at Residences Above the Remedial Action Level) - Estimated ELCRs and HIs associated with RME and CTE scenarios exceed EPA's target risk range and HI.
- 1,500 mg/kg (Approximate Maximum Concentration At Residences) - Estimated ELCRs and HIs associated with RME and CTE scenarios exceed EPA's target risk range and HI.

Figure 1

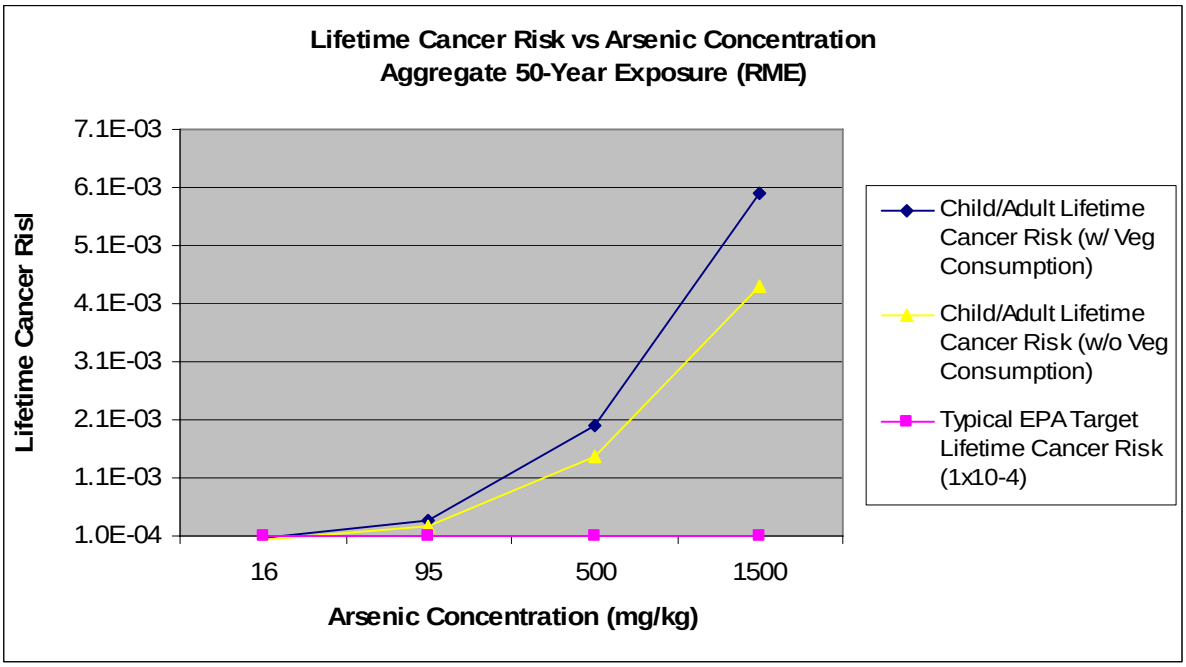


Figure 2

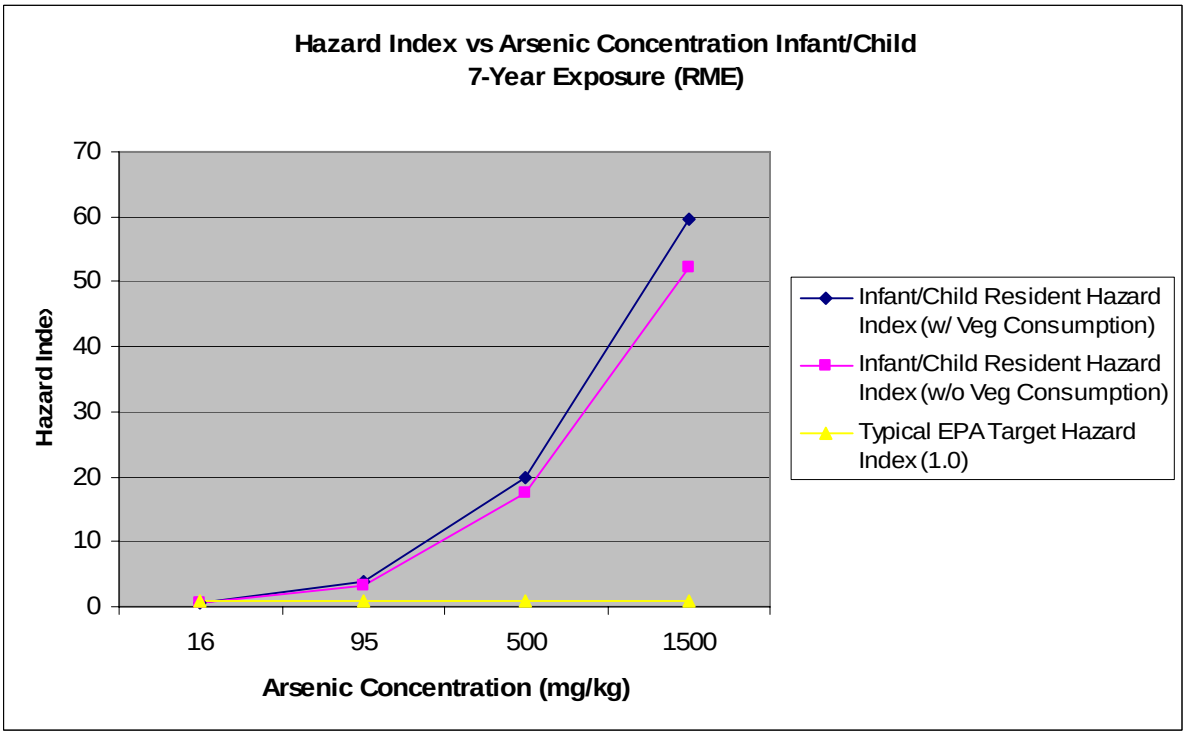


Figure 3

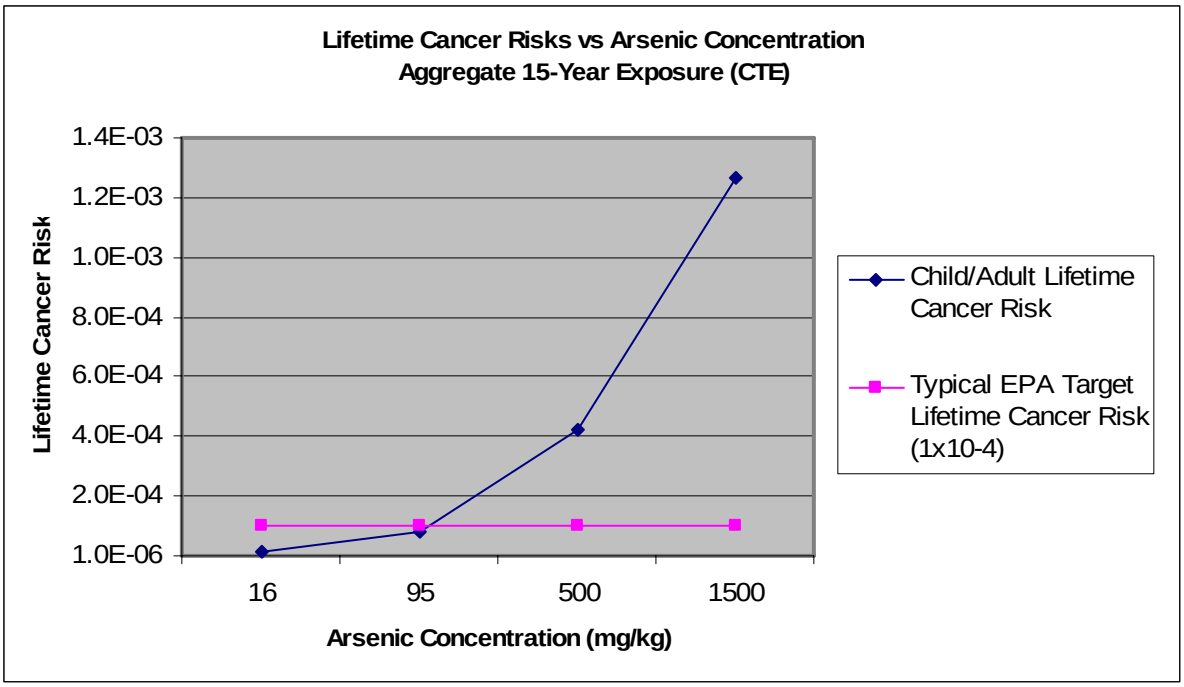
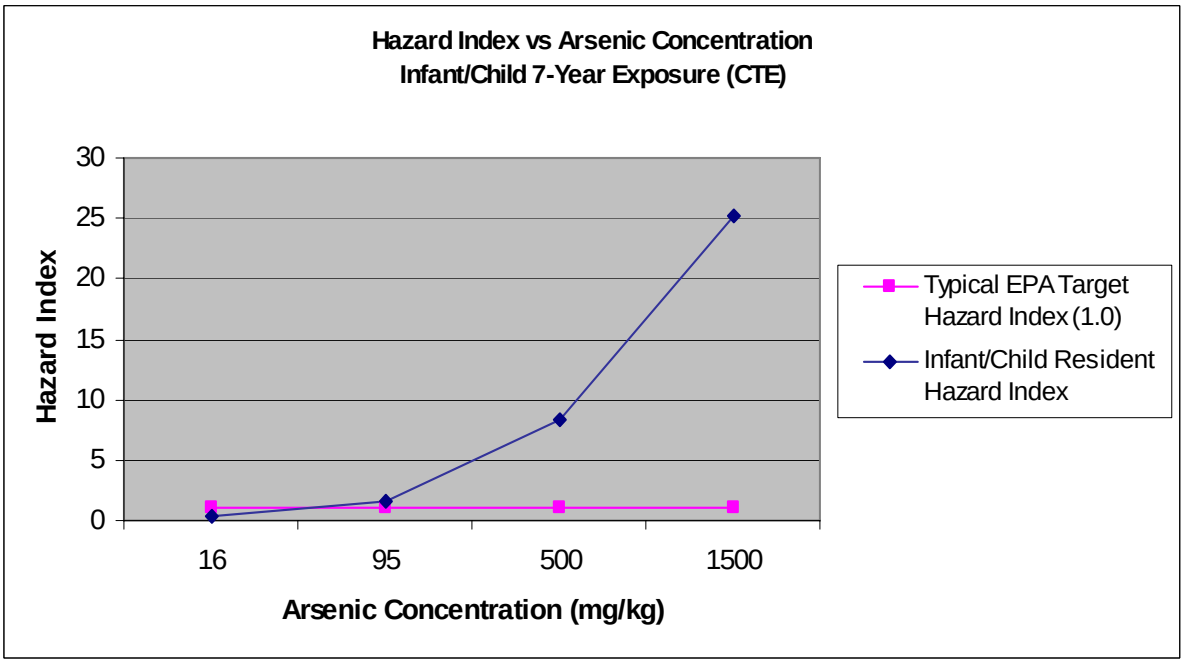


Figure 4



Results of the construction worker risk estimates for the four arsenic concentrations in soil are summarized below:

- 16 mg/kg (Background) - Estimated ELCRs and HIs associated with the RME and CTE scenarios are within EPA's target risk range and HI.
- 95 mg/kg (Interim Action Level) - Estimated ELCRs and HIs associated with RME and CTE scenarios are within EPA's target risk range and HI.
- 500 mg/kg (Approximate Average Concentration at Residences Above the Remedial Action Level) – For the RME and CTE scenarios, the estimated ELCRs are within EPA's target risk range. For the RME and CTE scenarios, the estimated HIs exceed EPA's target HI.
- 1,500 mg/kg (Approximate Maximum Concentration At Residences) – The estimated ELCR and HI associated with an RME scenario exceeds EPA's target risk range and HI. For the CTE scenario, the estimated ELCR is within EPA's target risk range, while the estimated HI exceeds EPA's target HI.

The ELCR and HI estimates indicate that potential risks from arsenic exceed the upper end of EPA's typical target risk range ($1x10^{-4}$) and target HI at concentrations of 95 mg/kg, 500 mg/kg, and 1,500 mg/kg for residents assuming RME scenarios. Estimated risks exceed the upper end of EPA's typical target risk range or target HI at concentrations of 500 mg/kg and 1,500 mg/kg for construction workers assuming RME scenarios. Based on a target ELCR of $1x10^{-4}$ and target HI of 1, an arsenic concentration of 25 mg/kg (or less) for a 50-year exposure duration is protective of residents (including those with vegetable gardens), while concentrations of 261 mg/kg or less are protective of constructions workers. It should be noted that these PRGs are based on the assumption of 90% bioavailability of arsenic from soils and 100% inorganic arsenic in soil and homegrown vegetables, which is a very conservative assumption. Factors affecting uncertainties in the risk assessment will play a role when final cleanup levels for the site are selected.

10. References

Agency for Toxic Substances and Disease Registry (ATSDR). 2005. *Toxicological Profile for Arsenic Draft for Public Comment.* September, 2005. Available on-line: <http://www.atsdr.cdc.gov/toxprofiles/tp2.html>

Bettley, F.R. and O'Shea, J. A. 1995. The Absorption of Arsenic and its Relation to Carcinoma. *Birt. J. Dermatol*. 92: 563-568. (as cited in EPA, 2004b).

CH2M HILL. 2005. Statement of Work for Remedial Investigation/Feasibility Study. South Minneapolis Neighborhood Residential Soil Contamination Site. Minneapolis, MN. WA#250-RICO-B58Y. November 14.

CH2M HILL. 2006. *Interim Deliverable for the Human Health Risk Assessment – RAGS Part D Tables – South Minneapolis Site.* October 10.

CH2M HILL. 2007. *Surface Soil Statistical Evaluation.* January 10.

University of Minnesota. 1982. *Climate of Minnesota, Part XIII – Duration and Depth of Snow Cover, Technical Bulletin 333-1982*. Agricultural Experiment Station.

U.S. Environmental Protection Agency (EPA). 1989. *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A)*. Office of Emergency and Remedial Response. EPA/540/1-89/002.

EPA. 1991. *Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors*. Interim Final. OSWER Directive 9285.6-03.

EPA. 1992a. *Supplemental Guidance to RAGS: Calculating the Concentration Term*. Office of Solid Waste and Emergency Response, Washington, D.C. OSWER Directive 9285.7-081.

EPA. 1992b. *Guidance for Data Usability in Risk Assessment*. Office of Emergency and Remedial Response, Washington, D.C.

EPA. 1997. *Exposure Factors Handbook. Volume II. Food Ingestion Factors*. Office of Research and Development. EPA/600/P-95/002Fb. August.

EPA. 1997. *Health Effects Assessment Summary Tables, Annual Update (HEAST)*. EPA, Environmental Criterion Assessment Office, Office of Research and Development, Cincinnati, OH.

EPA. 2001. *Risk Assessment Guidance for Superfund: Volume I. Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments)*. Final. Office of Emergency and Remedial Response. 9285.7-47. December.

EPA. 2002. *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites*. Office of Solid Waste and Emergency Response. OSWER 9355.4-24.

EPA. 2004. *Risk Assessment Guidance for Superfund, Volume I: HHEM (Part E, Supplemental Guidance for Dermal Risk Assessment)*. Final. ***EPA/540/R-99/005.***

EPA, 2005. *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities*. Office of Solid Waste and Emergency Response. EPA530-R-05-006. September.

EPA. 2007. *Integrated Risk Information System (IRIS) Database*. [Online]. Available: http://www.epa.gov/iris/index.html

Lepp. N.W. *Effect of Heavy Metal Pollution on Plants. Volume 1. Effects of Trace Metal on Plant Function*; Applied Science Publishers: London, U.K., 1981.

ORNL, 1998. *Empirical Models for the Uptake of Inorganic Chemicals from Soil by Plants*. BJC/OR-133. September, 1998.

Roberts, S. M., Munson, J.M., Lowney, Y.W., Ruby, M.V. (2007). *Relative Oral Bioavailability of Arsenic from Contaminated Soils Measured in the Cynomolgus Monkey*. Toxcol. Sci. 95(1), 281-288.

Roberts, S. M., Weimer, W. R., Vinson, J. R. T., Munson, J. W., and Bergeron, R. J. (2002). *Measurement of arsenic bioavailability in soil using a primate model*. Toxicol. Sci. 67, 303–310.

Ruby,M. V., Schoof, R., Brattin,W., Goldade,M., Post, G., Harnois, M.,Mosby, D. E., Casteel, S. W., Berti, W., Carpenter, M., et al. (1999). *Advances in evaluating the oral bioavailability of inorganics in soil for use in human health risk assessment*. Environ. Sci. Technol. 33, 3697–3705.

Wester, R.C., Maibach, H.I., Sedik, L., Melendres, J., and Wade, M. 1993. In-vivo and In-vitro Percutaneous Absorption and Skin Decontamination of Arsenic from Water and Soil. *Fund. Appl. Toxicol.* 20: 336-340. (as cited in EPA, 2004b).

Yost, L.J., Taso, S.H,. Egan, S.K., et. al., 2004. *Estimation of Dietary Intake of Inorganic Arsenic in U.S. Children*. Hum. Ecol. Risk Assess. 10 (3): 473-483.

Appendix A

EPA RAGS Part D Tables

The following RAGS PART D Tables are not included in the document because they are not applicable to the HHRA prepared for this site:

Table 2 – Occurrence, Distribution and Selection of Chemicals of Potential Concern
Table 3 – Medium-Specific Exposure Point Concentration Summary
Table 8 – Calculation of Radiation Cancer Risks

TABLE 1

SELECTION OF EXPOSURE PATHWAYS

South Minneapolis Site

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Soil	Surface Soil	Surface Soil	Resident	Infant/Child, Adult/Child	Ingestion, Dermal Contact	Quant	Residents may contact arsenic in impacted soil.
		Ambient Air	Emissions from Surface Soil			Inhalation	Quant	Residents may inhale ambient air potentially impacted through fugitive dust emissions from impacted soil.
		Indoor Dust	Indoor Dust			Ingestion	Quant	Residents may ingest indoor dust potentially impacted through fugitive dust emissions from impacted soil or from tracking indoors. Indoor dust concentrations are represented by outdoor soil.
		Garden Vegetables[1]	Garden Vegetables[1]			Ingestion	Quant[1]	Residents may consume garden vegetables grown on impacted soil.
		Soil	Soil (0-5 ft)	Construction Worker	Adult	Ingestion, Dermal Contact	Quant	Construction workers may contact arsenic in impacted soil.
		Ambient Air	Emissions from Soil			Inhalation	Quant	Construction workers may inhale ambient air potentially impacted through fugitive dust emissions from impacted soil.
	Groundwater	--	--	--	--	--	--	No private potable wells are located within the area. The neighborhood over the plume is served by City of Minneapolis water. Municipal wells are not impacted.
	Surface Water, Sediment	--	--	--	--	--	--	No ponds or streams are located within the investigation area. A lake is present to the southwest outside the investigation area.

Type of Analysis:

Quant - Quantitative Analysis

[1] Quantitative analysis is performed for the RME scenario only, since most people would not grow vegetables in their own gardens but would use one of various community gardens available in the area or purchase vegetables from the grocery store.

TABLE 4.1.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Infant/Child	Surface Soil	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				IR-S-Adj	Ingestion Rate of Soil, Age-adjusted	80	mg-year/kg-day	Calculated	CS x IR-S-Adj x RBAF x EF x CF1 x 1/AT
				RBAF	Relative Bioavailability Factor	0.90	--	(6)	IR-S-Adj (mg-year/kd-day) =
				EF	Exposure Frequency	350	days/year	(1)	(ED-C x IR-S-C / BW-C) + (ED-A x IR-S-A / BW-A)
				ED-C/E	Exposure Duration, Infant/Child	7	years	(5)	
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	EPA, 1989	
		Child/Adult	Surface Soil	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				IR-S-Adj	Ingestion Rate of Soil, Age-adjusted	149	mg-year/kg-day	Calculated	CS x IR-S-Adj x RBAF x EF x CF1 x 1/AT
				RBAF	Relative Bioavailability Factor	0.90	--	(6)	IR-S-Adj (mg-year/kd-day) =
				ED-A	Exposure Duration, Adult	44	years	(4)	(ED-C x IR-S-C / BW-C) + (ED-A x IR-S-A / BW-A)
				ED-C	Exposure Duration, Child	6	years	EPA, 1991	
				EF	Exposure Frequency	350	days/year	(1)	
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
Dermal	Resident	Infant/Child	Surface Soil	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				DA-Adj	Dermal Absorption, Age-adjusted	236	mg-year/kg-day	Calculated	CS x DA-Adj x DABS x CF1 x EF x 1/AT
				DABS	Dermal Absorption Factor Solids	0.03	--	EPA, 2004	DA-Adj (mg-year/kg-day) =
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	(ED-C x SA-C x SSAF-C / BW-C) +
				ED-C/E	Exposure Duration, Infant/Child	7	years	(5)	(ED-A x SA-A x SSAF-A / BW-A)
				EF	Exposure Frequency	185	days/year	(1)	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	EPA, 1989	
		Child/Adult	Surface Soil	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				DA-Adj	Dermal Absorption, Age-adjusted	515	mg-year/kg-day	Calculated (2,3)	CS x DA-Adj x DABS x CF1 x EF x 1/AT
				DABS	Dermal Absorption Factor Solids	0.03	--	EPA, 2004	DA-Adj (mg-year/kg-day) =
				ED-A	Exposure Duration, Adult	44	years	(4)	(ED-C x SA-C x SSAF-C / BW-C) +
				ED-C	Exposure Duration, Child	6	years	EPA, 1991	(ED-A x SA-A x SSAF-A / BW-A)
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	
				EF	Exposure Frequency	185	days/year	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 2004: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. EPA/540/R/99/005.

Notes:

(1) Days where there is no snow on the ground, the ground is not frozen, and it is not raining

(2) Adult SA includes head, hands, forearms, and lower legs.

(3) Child SA includes head, hands, forearms, lower legs, and feet.

(4) Based on community input provided during the September 26, 2006 public meeting.

(5) Infant/child (1 to 8 yrs).

(6) Professional Judgment

TABLE 4.2.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Infant/Child	Ambient Air	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN-Adj x EF x 1/AT
				PEF	Particulate Emission Factor	1.36E+09	m^3/kg	EPA, 2002	CA (mg/m^3) = CS / PEF
				IN-Adj	Inhalation Rate, Age-adjusted	3.4	m^3/day	calculated	
				ED-C/E	Exposure Duration, Infant/Child	7	years	(3)	IN-Adj (m^3-year/kg-day) =
				EF	Exposure Frequency	185	days/year	(1)	(ED-C x IN-C / BW-C) + (ED-A x IN-A / BW-A)
				AT-N	Averaging Time (Non-Cancer)	2,555	days	EPA, 1989	
		Child/Adult	Ambient Air	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN-Adj x EF x 1/AT
				PEF	Particulate Emission Factor	1.36E+09	m^3/kg	EPA, 2002	CA (mg/m^3) = CS / PEF
				IN-Adj	Inhalation Rate, Age-adjusted	12.7	m^3/day	calculated	
				ED-A	Exposure Duration, Adult	44	years	(2)	IN-Adj (m^3-year/kg-day) =
				ED-C	Exposure Duration, Child	6	years	EPA, 1991	(ED-C x IN-C / BW-C) + (ED-A x IN-A / BW-A)
				EF	Exposure Frequency	185	days/year	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

Notes:

(1) Days where there is no snow on the ground, the ground is not frozen, and it is not raining

(2) Based on community input provided during the September 26, 2006 public meeting.

(3) Infant/child (1 to 8 yrs).

TABLE 4.3.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Garden Vegetables

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Infant/Child	Garden Vegetables	CS	Chemical Concentration in Soil	16	mg/kg	background	
				FI	Fraction of Vegetables Consumed	50%	unitless	(10)	
				ABSgi	Bioavailability Factor (GI Absorption)	100%	unitless	(10)	
				ED-C/E	Exposure Duration, Infant/Child	7	years	(10)	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	EPA, 1989	
			(Above-ground Vegetable)	Cveg_ag	Chemical Concentration in Above-ground Vegetables	calculated	mg/kg	calculated	CDI (mg/kg-day) =
				Br_ag	Plant-Soil Bioconcentration Factor (above-ground)	0.00633	unitless	EPA, 2005 (2)	Cveg_ag x FI x ABSgi x IR-Veg x EF x ED x CF1 x 1/AT
				IR-Veg-ag	Ingestion Rate of Vegetables (above-ground)	0.007	kg/kg-day	Calculated	Cveg_ag = CS x Br_ag
				CF1	Moisture Content (above-ground)	17.4%	kg (dry)/ kg (wet)	ATSDR, 2003	
				EF	Exposure Frequency (above-ground)	90	days/year	(9)	
			(Below-ground Vegetable)	Cveg_bg	Chemical Concentration in Below-ground Vegetables	calculated	mg/kg	calculated	CDI (mg/kg-day) =
				Br_bg	Plant-Soil Bioconcentration Factor (below-ground)	0.008	unitless	EPA, 2005 (3)	Cveg_bg x FI x ABSgi x IR-Veg x EF x ED x CF2 x 1/AT
				IR-Veg-bg	Ingestion Rate of Vegetables (below-ground)	0.003	kg/kg-day	Calculated	Cveg_bg = CS x Br_bg
				CF2	Moisture Content (below-ground)	22.2%	kg (dry)/ kg (wet)	ATSDR, 2003	
				EF	Exposure Frequency (below-ground)	60	days/year	(9)	
		Child/Adult	Garden Vegetables	CS	Chemical Concentration in Soil	16	mg/kg	background	
				FI	Fraction of Vegetables Consumed	50%	unitless	(10)	
				ABSgi	Bioavailability Factor (GI Absorption)	100%	unitless	(10)	
				ED-A	Exposure Duration, Adult	44	years	(1)	
				BW-A	Body Weight , Adult	70	kg	EPA, 1991	
				ED-C	Exposure Duration, Child	6	years	EPA, 1991	
				BW-C	Body Weight , Child	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
			(Above-ground Vegetable)	Cveg_ag	Chemical Concentration in Above-ground Vegetables	calculated	mg/kg	calculated	CDI (mg/kg-day) =
				Br_ag	Plant-Soil Bioconcentration Factor (above-ground)	0.00633	unitless	EPA, 2005 (2)	Cveg_ag x FI x ABSgi x IR-Veg-Adj x EF x CF1 x 1/AT
				CF1	Moisture Content (above-ground)	17.4%	kg (dry)/ kg (wet)	ATSDR, 2003	Cveg_ag = CS x Br_ag
				IR-Veg-A_ag	Ingestion Rate of Garden Vegetables, Adult (above-ground)	0.325	kg/day	EPA, 1997 (4,6,7,8)	
				IR-Veg-C_ag	Ingestion Rate of Garden Vegetables, Child (above-ground)	0.121	kg/day	EPA, 1997 (5,6,7,8)	IR-Veg-Adj (kg-year/kd-day) =
				IR-Veg-Adj	Ingestion Rate of Vegetables, Age-adjusted	0.253	kg-year/kg-day	Calculated	(ED-C x IR-Veg-C / BW-C) + (ED-A x IR-Veg-A / BW-A)
				EF	Exposure Frequency	90	days/year	(9)	
			(Below-ground Vegetable)	Cveg_bg	Chemical Concentration in Below-ground Vegetables	calculated	mg/kg	calculated	CDI (mg/kg-day) =
				Br_bg	Plant-Soil Bioconcentration Factor (below-ground)	0.008	unitless	EPA, 2005 (3)	Cveg_bg x FI x ABSgi x IR-Veg-Adj x EF x CF2 x 1/AT
				CF2	Moisture Content (below-ground)	22.2%	kg (dry)/ kg (wet)	ATSDR, 2003	Cveg_bg = CS x Br_bg
				IR-Veg-A_bg	Ingestion Rate of Garden Vegetables, Adult (below-ground)	0.139	kg/day	EPA, 1997 (4,6,7,8)	
				IR-Veg-C_bg	Ingestion Rate of Garden Vegetables, Child (below-ground)	0.052	kg/day	EPA, 1997 (5,6,7,8)	IR-Veg-Adj (kg-year/kd-day) =
				IR-Veg-Adj	Ingestion Rate of Vegetables, Age-adjusted	0.108	kg-year/kg-day	Calculated	(ED-C x IR-Veg-C / BW-C) + (ED-A x IR-Veg-A / BW-A)
				EF	Exposure Frequency	60	days/year	(9)	

Sources:

ATSDR, 2003: Health Consultation Arsenic Soil Clean-up Levels El Paso County Metal Survey.

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002F.

EPA, 2005: Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities. EPA530-R-05-006.

TABLE 4.3.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Garden Vegetables

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name

Notes:

(1) Based on community input provided during the September 26, 2006 public meeting.

(2) Plant-soil bioconcentration factor for arsenic for above-ground produce.

(3) Plant-soil bioconcentration factor for arsenic for below-ground produce. $VG_{rootveg}$ value of 1.0 is used.

(4) Intake rate of homegrown vegetables (for Midwest region) was obtained from Table 13-15. Units were converted to kg/day using an assumed body weight of 60 kg.

(5) Intake rate of homegrown vegetables (1-5 year old children) was obtained from Table 13-13. Units were converted to kg/day using an average body weight of boys and girls (see Table 4.3 Supplement).

(6) Assumed that 30% of their consumption rate is of below-ground vegs and 70% is above-ground vegetables.

(7) Approximately equivalent to 1.02 lbs/day (adult) and 0.39 lbs/day (child).

(8) 95th percentile was used for the RME scenario.

(9) Assumed that vegetables are grown for a 4-month period and above-ground vegetables are eaten for only 3 months and below-ground vegs are eaten for only 2 months.

(10) Best professional judgment.

TABLE 4.3.Supplement
VALUES USED FOR INTAKE OF HOMEGROWN VEGETABLES
South Minneapolis Site

Body Weight (kg)[1]				Body Weight (kg)[2]		Intake of Homegrown Vegetables (g/kg-day)[3]	Intake of Homegrown Vegetables (g/day)[4]
Age	Boys Mean	Girls Mean	Boys and Girls Mean	Age	Boys and Girls Mean	95th percentile	95th percentile
1 year	11.8	10.8	11.3	1 - 2 years	12.3	19.6	241
2 years	13.6	13	13.3				
3 years	15.7	14.9	15.3	3 -5 years	17.5	7.74	135
4 years	17.8	17	17.4				
5 years	19.8	19.6	19.7				
6 years	23	22.1	22.6	6 - 7 years	23.75	6.16	146
7 years	25.1	24.7	24.9				
					Average[5] =	10.68	169

Sources:

EPA, 1997: Exposure Factors Handbook (EFH). EPA/600/P-95/002F.

Notes:

(1) Body weights were obtained from Table 7-3 of the EFH (EPA, 1997).

(2) Mean Body weights calculated for three infant/child age groups (1-2 yrs, 3-5 yrs, and 6-7 yrs).

(3) Intakes for homegrown vegetables were obtained from Table 13-13 of the EFH (EPA, 1997).

(4) Intakes for homegrown vegetables were calculated by multiplying body weight by intake.

(5) Average intake for homegrown vegetables.

TABLE 4.4.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	Soil (0-5 ft)	CS	Chemical Concentration in Soil	16	mg/kg	background	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	330	mg/day	EPA, 2002	CS x IR-S x RBAF x EF x ED x CF1 x 1/BW x 1/AT
				RBAF	Relative Bioavailability Factor	0.90	--	(4)	
				EF	Exposure Frequency	90	days/year	(2)	
				ED	Exposure Duration	10	years	(3)	
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3650	days	(3)	
Dermal	Construction Worker	Adult	Soil (0-5 ft)	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2004 (1)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.3	mg/cm^2-day	EPA, 2002	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	0.03	--	EPA, 2004	
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	
				EF	Exposure Frequency	90	days/year	(2)	
				ED	Exposure Duration	10	years	(3)	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,650	days	(3)	

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

EPA, 2004: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. EPA/540/R/99/005.

Notes:

(1) SA includes head, hands, and forearms.

(2) Best Professional Judgment

(3) Based on community input provided during the September 26, 2006 public meeting.

(4) Professional Judgment

TABLE 4.5.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Ambient Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Worker	Adult	Ambient Air	CS	Chemical Concentration in Soil	16	mg/kg	background	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.36E+09	m^3/kg	EPA, 2002	
				VF	Volatilization Factor for volatile constituents	NA	m^3/kg	--	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	20	m^3/day	EPA, 2002	
				EF	Exposure Frequency	90	days/year	(1)	
				ED	Exposure Duration	10	years	(2)	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,650	days	(2)	

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1996: Soil Screening Guidance: User's Guide. EPA/540/F-95/041.

EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

Notes:

(1) Best Professional Judgment

(2) Based on community input provided during the September 26, 2006 public meeting.

TABLE 4.1.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Infant/Child	Surface Soil	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				IR-S-Adj	Ingestion Rate of Soil, Age-adjusted	40	mg-year/kg-day	Calculated	CS x IR-S-Adj x RBAF x EF x CF1 x 1/AT
				RBAF	Relative Bioavailability Factor	0.90	--	(5)	IR-S-Adj (mg-year/kd-day) =
				EF	Exposure Frequency	350	days/year	(1)	(ED-C x IR-S-C / BW-C) + (ED-A x IR-S-A / BW-A)
				ED-C/E	Exposure Duration, Infant/Child	7	years	(4)	
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	EPA, 1989	
		Child/Adult	Surface Soil	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				IR-S-Adj	Ingestion Rate of Soil, Age-adjusted	45	mg-year/kg-day	Calculated	CS x IR-S-Adj x RBAF x EF x CF1 x 1/AT
				RBAF	Relative Bioavailability Factor	0.90	--		IR-S-Adj (mg-year/kd-day) =
				EF	Exposure Frequency	350	days/year	(1)	(ED-C x IR-S-C / BW-C) + (ED-A x IR-S-A / BW-A)
				ED-A	Exposure Duration, Adult	9	years	EPA, 1997	
				ED-C	Exposure Duration, Child	6	years	EPA, 1991	
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
Dermal	Resident	Infant/Child	Surface Soil	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				DA-Adj	Dermal Absorption, Age-adjusted	46	mg-year/kg-day	Calculated	CS x DA-Adj x DABS x CF1 x EF x 1/AT
				DABS	Dermal Absorption Factor Solids	0.03	--	EPA, 2004	DA-Adj (mg-year/kg-day) =
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	(ED-C x SA-C x SSAF-C / BW-C) +
				ED-C/E	Exposure Duration, Infant/Child	7	years	(4)	(ED-A x SA-A x SSAF-A / BW-A)
				EF	Exposure Frequency	185	days/year	(1)	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	EPA, 1989	
		Child/Adult	Surface Soil	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				DA-Adj	Dermal Absorption, Age-adjusted	52	mg-year/kg-day	Calculated (2,3)	CS x DA-Adj x DABS x CF1 x EF x 1/AT
				DABS	Dermal Absorption Factor Solids	0.03	--	EPA, 2004	DA-Adj (mg-year/kg-day) =
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	(ED-C x SA-C x SSAF-C / BW-C) +
				ED-A	Exposure Duration, Adult	9	years	EPA, 1997	(ED-A x SA-A x SSAF-A / BW-A)
				ED-C	Exposure Duration, Child	6	years	EPA, 1991	
				EF	Exposure Frequency	185	days/year	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002F.

EPA, 2004: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. EPA/540/R/99/005.

Notes:

(1) Days where there is no snow on the ground, the ground is not frozen, and it is not raining

(2) Adult SA includes head, hands, forearms, and lower legs.

(3) Child SA includes head, hands, forearms, lower legs, and feet.

(4) Infant/child (1 to 8 yrs)

(5) Professional Judgment

TABLE 4.2.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Infant/Child	Ambient Air	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN-Adj x EF x 1/AT
				PEF	Particulate Emission Factor	1.36E+09	m^3/kg	EPA, 2002	CA (mg/m^3) = CS / PEF
				IN-Adj	Inhalation Rate, Age-adjusted	3.4	m^3/day	calculated	IN-Adj (m^3-year/kg-day) =
				ED-C/E	Exposure Duration, Infant/Child	7	years	(2)	(ED-C x IN-C / BW-C) + (ED-A x IN-A / BW-A)
				EF	Exposure Frequency	185	days/year	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
		Child/Adult	Ambient Air	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN-Adj x EF x 1/AT
				PEF	Particulate Emission Factor	1.36E+09	m^3/kg	EPA, 2002	CA (mg/m^3) = CS / PEF
				IN-Adj	Inhalation Rate, Age-adjusted	4.7	m^3/day	calculated	
				ED-A	Exposure Duration, Adult	9	years	EPA, 1997	IN-Adj (m^3-year/kg-day) =
				ED-C	Exposure Duration, Child	6	years	EPA, 1991	(ED-C x IN-C / BW-C) + (ED-A x IN-A / BW-A)
				EF	Exposure Frequency	185	days/year	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002F.

EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

Notes:

(1) Days where there is no snow on the ground, the ground is not frozen, and it is not raining

(4) Infant/child (1 to 8 yrs).

TABLE 4.4.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Worker	Adult	Soil (0-5 ft)	CS	Chemical Concentration in Soil	16	mg/kg	background	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	170	mg/day	(1)	CS x IR-S x RBAF x EF x ED x CF1 x 1/BW x 1/AT
				RBAF	Relative Bioavailability Factor	0.90	--	(4)	
				EF	Exposure Frequency	90	days/year	(2)	
				ED	Exposure Duration	1	years	EPA, 2002	
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	90	days	(2)	
Dermal	Construction Worker	Adult	Soil (0-5 ft)	CS	Chemical Concentration in Soil	16	mg/kg	background	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2004 (3)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.3	mg/cm^2-day	EPA, 2002	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	0.03	--	EPA, 2004	
				CF1	Conversion Factor 1	1.0E-06	kg/mg	- -	
				EF	Exposure Frequency	90	days/year	(2)	
				ED	Exposure Duration	1	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	90	days	(2)	

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

EPA, 2004: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. EPA/540/R/99/005.

TABLE 4.5.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current/Future

Medium: Soil

Exposure Medium: Ambient Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Worker	Adult	Ambient Air	CS	Chemical Concentration in Soil	16	mg/kg	background	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.36E+09	m^3/kg	EPA, 2002	
				VF	Volatilization Factor for volatile constituents	NA	m^3/kg	--	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	20	m^3/day	EPA, 2002	
				EF	Exposure Frequency	90	days/year	(1)	
				ED	Exposure Duration	1	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	90	days	(1)	

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1996: Soil Screening Guidance: User's Guide. EPA/540/F-95/041.

EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

Notes:

(1) Best Professional Judgment

TABLE 4.1. Supplement
CALCULATION OF AGE-ADJUSTED INTAKE RATES
REASONABLE MAXIMUM EXPOSURE / CENTRAL TENDENCY EXPOSURE
South Minneapolis Site

Age	Mean BW[2] (kg)	Ingestion						Dermal							Inhalation				
		IR-S		ED		IR-S-Adj (IR * ED) / BW		SSAF[3]		SA[3,4,5]	ED		DA-Adj (SSAF*SA*ED)/BW		IN[2]	ED		IN-Adj (IN*ED)/BW	
		RME[1]	CTE[2]	RME	CTE	RME	CTE	RME	CTE		RME	CTE	RME	CTE	RME/CTE	RME	CTE	RME	CTE
1 year	11.3	200	100	1	1	17.7	8.8	0.2	0.04	2571	1	1	45.50	9.10	6.8	1	1	0.60	0.60
2 years	13.3	200	100	1	1	15.0	7.5	0.2	0.04	2434	1	1	36.60	7.32	6.8	1	1	0.51	0.51
3 years	15.3	200	100	1	1	13.1	6.5	0.2	0.04	2893	1	1	37.81	7.56	8.3	1	1	0.54	0.54
4 years	17.4	200	100	1	1	11.5	5.7	0.2	0.04	3175	1	1	36.49	7.30	8.3	1	1	0.48	0.48
5 years	19.7	200	100	1	1	10.2	5.1	0.2	0.04	3255	1	1	33.04	6.61	8.3	1	1	0.42	0.42
6 years	22.6	200	100	1	1	8.9	4.4	0.2	0.04	3538	1	1	31.38	6.28	10.0	1	1	0.44	0.44
7 years	24.9	100	50	1	1	4.0	2.0	0.1	0.01	3884	1	1	15.60	1.56	10.0	1	1	0.40	0.40
		Total =		7	7	80	40			**Total =**	7	7	236	46	**Total =**	7	7	3.40	3.40

Footnotes:

[1] EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

[2] EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002F.

[3] EPA, 2004: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. EPA/540/R/99/005.

[4] SA for adult includes head, hands, forearms, and lower legs; SA for child includes head, hands, forearms, lower legs, and feet.

[5] SA was calculated for child using Exhibit C-1 of RAGS Part E.

[6] Age-adjusted intake factors using EPA's default values.

BW - body weight (kg)
DA - Adj - adjusted dermal absorption (mg-year/kg-day)
ED - exposure duration (years)
IN - inhalation rate (m^3/day)
IN-Adj - adjusted inhalation rate (m^3/day)
IR-S - soil ingestion rate (mg/day)
IR-S-Adj - adjusted soil ingestion rate (mg-year/kg-day)
SA - skin surface area (cm^2)
SSAF - soil-to-skin adherence factor (mg/cm^2-day)

TABLE 4.2. Supplement
CALCULATION OF AGE-ADJUSTED INTAKE RATES
REASONABLE MAXIMUM EXPOSURE / CENTRAL TENDENCY EXPOSURE
South Minneapolis Site

Age	Mean BW[2] (kg)	Ingestion						Dermal							Inhalation				
		IR-S		ED		IR-S-Adj (IR * ED) / BW		SSAF[3]		SA[3,4,5]	ED		DA-Adj (SSAF*SA*ED)/BW		IN[2]	ED		IN-Adj (IN*ED)/BW	
		RME[1]	CTE[2]	RME	CTE	RME	CTE	RME	CTE		RME	CTE	RME	CTE	RME/CTE	RME	CTE	RME	CTE
1 year	11.3	200	100	1	1	17.7	8.8	0.2	0.04	2571	1	1	45.50	9.10	6.8	1	1	0.60	0.60
2 years	13.3	200	100	1	1	15.0	7.5	0.2	0.04	2434	1	1	36.60	7.32	6.8	1	1	0.51	0.51
3 years	15.3	200	100	1	1	13.1	6.5	0.2	0.04	2893	1	1	37.81	7.56	8.3	1	1	0.54	0.54
4 years	17.4	200	100	1	1	11.5	5.7	0.2	0.04	3175	1	1	36.49	7.30	8.3	1	1	0.48	0.48
5 years	19.7	200	100	1	1	10.2	5.1	0.2	0.04	3255	1	1	33.04	6.61	8.3	1	1	0.42	0.42
6 years	22.6	200	100	1	1	8.9	4.4	0.2	0.04	3538	1	1	31.38	6.28	10.0	1	1	0.44	0.44
7 years	24.9	100	50	1	NA	4.0	NA	NA	NA	NA	NA	NA	NA	NA	10.0	1	NA	0.40	NA
8 years	28.1	100	50	1	NA	3.6	NA	NA	NA	NA	NA	NA	NA	NA	10.0	1	NA	0.36	NA
9 years	31.5	100	50	1	NA	3.2	NA	NA	NA	NA	NA	NA	NA	NA	13.5	1	NA	0.43	NA
10 years	36.3	100	50	1	NA	2.8	NA	NA	NA	NA	NA	NA	NA	NA	13.5	1	NA	0.37	NA
11 years	41.1	100	50	1	NA	2.4	NA	NA	NA	NA	NA	NA	NA	NA	13.5	1	NA	0.33	NA
12 years	45.3	100	50	1	NA	2.2	NA	NA	NA	NA	NA	NA	NA	NA	13.5	1	NA	0.30	NA
13 years	50.4	100	50	1	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	13.5	1	NA	0.27	NA
14 years	56.0	100	50	1	NA	1.8	NA	NA	NA	NA	NA	NA	NA	NA	13.5	1	NA	0.24	NA
15 years	58.1	100	50	1	NA	1.7	NA	NA	NA	NA	NA	NA	NA	NA	14.5	1	NA	0.25	NA
16 years	67.1	100	50	1	NA	1.5	NA	NA	NA	NA	NA	NA	NA	NA	14.5	1	NA	0.22	NA
17 years	63.2	100	50	1	NA	1.6	NA	NA	NA	NA	NA	NA	NA	NA	14.5	1	NA	0.23	NA
18 < 25 years	67.2	100	50	7	5	10.4	3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25 < 35 years	71.5	100	50	10	4	14.0	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
35 < 45 years	74.0	100	50	10	NA	13.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
45 < 55 years	74.5	100	50	6	NA	8.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<7 to <18	45.6	NA	NA	NA	NA	NA	NA	0.1	0.01	5800	12	NA	106.82	NA	NA	NA	NA	NA	NA
Adult (>18)	69.3	NA	NA	NA	NA	NA	NA	0.1	0.01	5800	32	9	187.41	7.53	13.25	33	9	6.31	1.72
			Total =	50	15	149	45			**Total =**	50	15	515	52	**Total =**	50	15	12.7	4.72

Footnotes:

[1] EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

[2] EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002F.

[3] EPA, 2004: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final. EPA/540/R/99/005.

[4] SA for adult includes head, hands, forearms, and lower legs; SA for child includes head, hands, forearms, lower legs, and feet.

[5] SA was calculated for child using Exhibit C-1 of RAGS Part E.

[6] Age-adjusted intake factors using EPA's default values.

BW - body weight (kg)
DA - Adj - adjusted dermal absorption (mg-year/kg-day)
ED - exposure duration (years)
IN - inhalation rate (m^3/day)
IN-Adj - adjusted inhalation rate (m^3/day)
IR-S - soil ingestion rate (mg/day)
IR-S-Adj - adjusted soil ingestion rate (mg-year/kg-day)
SA - skin surface area (cm^2)
SSAF - soil-to-skin adherence factor (mg/cm^2-day)

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

South Minneapolis Site

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Uncertainty Factor	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Arsenic	Chronic	3.0E-04	mg/kg-day	0.95	3.0E-04	mg/kg-day	skin	3	IRIS	04/07/2006

Note:

(1) Source: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. Section 4.2 and Exhibit 4-1.

(2) EPA recommends that the oral RfD not be adjusted to estimate the absorbed dose when the absorption efficiency is greater than 50%; therefore, the Oral RfD was used as Absorbed RfD for demal exposure for arsenic.

Definitions: IRIS = Integrated Risk Information System

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

South Minneapolis Site

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD		Primary Target Organ(s)	Uncertainty Factor	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Arsenic	Chronic	NA	NA	NA	NA	NA	NA	NA	NA

Definitions: NA = Not Available

TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

South Minneapolis Site

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal		Weight of Evidence/ Cancer Guideline Description	Oral Cancer Slope Factor	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Arsenic	1.5E+00	$(mg/kg\text{-}day)^{-1}$	95%	1.5E+00	$(mg/kg\text{-}day)^{-1}$	A	IRIS	04/07/2006

(1) Source: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. Section 4.2 and Exhibit 4-1.

(2) EPA recommends that the oral cancer slope factor not be adjusted to estimate the absorbed dose when the absorption efficiency is greater than 50%; therefore, Oral Cancer Slope Factor is used as Absorbed Cancer Slope Factor for demal exposure for arsenic.

Definitions: IRIS = Integrated Risk Information System

Weight of Evidence definitions:

Group A chemicals (known human carcinogens) are agents for which there is sufficient evidence to support the causal association between exposure to the agents in humans and cancer.

TABLE 6.2

CANCER TOXICITY DATA -- INHALATION

South Minneapolis Site

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	1.5E+01	$(mg/kg\text{-}day)^{-1}$	A	IRIS	04/07/2006

Definitions: IRIS = Integrated Risk Information System

Weight of Evidence definitions:

Group A chemicals (known human carcinogens) are agents for which there is sufficient evidence to support the causal association between exposure to the agents in humans and cancer.

TABLE 7.1.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Infant/Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Minneapolis Surface Soil	Ingestion	Arsenic	1.6E+01	mg/kg	NA	NA	NA	NA	NA	1.6E-04	mg/kg/day	3.0E-04	mg/kg/day	5.3E-01
			Exp. Route Total								NA					5.3E-01
			Dermal	Arsenic	1.6E+01	mg/kg	NA	NA	NA	NA	NA	8.2E-06	mg/kg/day	3.0E-04	mg/kg/day	2.7E-02
			Exp. Route Total								NA					2.7E-02
		Exposure Point Total									NA					5.6E-01
	Exposure Medium Total										NA					5.6E-01
	Ambient Air	South Minneapolis Emissions from Surface Soil	Inhalation	Arsenic	1.2E-08	mg/m^3	NA	NA	NA	NA	NA	2.9E-09	mg/kg/day	NA	NA	NA
			Exp. Route Total								NA					0.0E+00
		Exposure Point Total									NA					0.0E+00
	Exposure Medium Total										NA					0.0E+00
	Garden Vegetables	South Minneapolis Garden Vegetables (aboveground)	Ingestion	Arsenic	1.0E-01	mg/kg	NA	NA	NA	NA	NA	1.6E-05	mg/kg/day	3.0E-04	mg/kg/day	5.4E-02
		(belowground)	Ingestion	Arsenic	1.3E-01	mg/kg	NA	NA	NA	NA	NA	7.5E-06	mg/kg/day	3.0E-04	mg/kg/day	2.5E-02
			Exp. Route Total								NA					7.9E-02
		Exposure Point Total									NA					7.9E-02
	Exposure Medium Total										NA					7.9E-02
Surface Soil Total											NA					6.3E-01
Receptor Total (with vegetable consumption)											NA					6.3E-01
Receptor Total (without vegetable consumption)											NA					5.6E-01

EPC = Exposure point concentration based on background level in soil (16 mg/kg).

TABLE 7.2.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Aggregate Adult/Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern[1]	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Minneapolis Surface Soil	Ingestion	Arsenic	1.6E+01	mg/kg	2.9E-05	mg/kg/day	1.5E+00	1/(mg/kg/day)	4.4E-05	NA	NA	NA	NA	NA
			Exp. Route Total								4.4E-05					NA
			Dermal	Arsenic	1.6E+01	mg/kg	1.8E-06	mg/kg/day	1.5E+00	1/(mg/kg/day)	2.7E-06	NA	NA	NA	NA	NA
			Exp. Route Total								2.7E-06					NA
		Exposure Point Total									4.7E-05					NA
	Exposure Medium Total										4.7E-05					NA
	Ambient Air	South Minneapolis Emissions from Surface Soil	Inhalation	Arsenic	1.2E-08	mg/m^3	1.1E-09	mg/kg/day	1.5E+01	1/(mg/kg/day)	1.6E-08	NA	NA	NA	NA	NA
			Exp. Route Total								1.6E-08					NA
		Exposure Point Total									1.6E-08					NA
	Exposure Medium Total										1.6E-08					NA
	Garden Vegetables	South Minneapolis Garden Vegetables (aboveground)	Ingestion	Arsenic	1.0E-01	mg/kg	7.8E-06	mg/kg/day	1.5E+00	1/(mg/kg/day)	1.2E-05	NA	NA	NA	NA	NA
		(belowground)	Ingestion	Arsenic	1.3E-01	mg/kg	3.6E-06	mg/kg/day	1.5E+00	1/(mg/kg/day)	5.4E-06	NA	NA	NA	NA	NA
			Exp. Route Total								1.7E-05					NA
		Exposure Point Total									1.7E-05					NA
	Exposure Medium Total										1.7E-05					NA
Surface Soil Total											6.4E-05					NA
Receptor Total (with vegetable consumption)											6.4E-05					NA
Receptor Total (without vegetable consumption)											4.7E-05					NA

EPC = Exposure point concentration based on background level in soil (16 mg/kg).

TABLE 7.3.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	South Minneapolis Soil (0 - 5 ft)	Ingestion	Arsenic	1.60E+01	mg/kg	2.4E-06	mg/kg/day	1.5E+00	1/(mg/kg/day)	3.6E-06	1.7E-05	mg/kg/day	3.0E-04	mg/kg/day	5.6E-02
			Exp. Route Total								3.6E-06					5.6E-02
			Dermal	Arsenic	1.6E+01	mg/kg	2.4E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	3.6E-07	1.7E-06	mg/kg/day	3.0E-04	mg/kg/day	5.6E-03
			Exp. Route Total								3.6E-07					5.6E-03
		Exposure Point Total									3.9E-06					6.1E-02
	Exposure Medium Total										3.9E-06					6.1E-02
	Ambient Air	South Minneapolis Soil (0 - 5 ft)	Inhalation	Arsenic	1.2E-08	mg/m^3	1.2E-10	mg/kg/day	1.5E+01	1/(mg/kg/day)	1.8E-09	8.3E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								1.8E-09					0.0E+00
		Exposure Point Total									1.8E-09					0.0E+00
	Exposure Medium Total										1.8E-09					0.0E+00
Soil Total											3.9E-06					6.1E-02
Receptor Total											3.9E-06					6.1E-02

EPC = Exposure point concentration based on background level in soil (16 mg/kg).

TABLE 7.1.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Infant/Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Minneapolis Surface Soil	Ingestion	Arsenic	1.6E+01	mg/kg	NA	NA	NA	NA	NA	7.9E-05	mg/kg/day	3.0E-04	mg/kg/day	2.6E-01
			Exp. Route Total								NA					2.6E-01
			Dermal	Arsenic	1.6E+01	mg/kg	NA	NA	NA	NA	NA	1.6E-06	mg/kg/day	3.0E-04	mg/kg/day	5.3E-03
			Exp. Route Total								NA					5.3E-03
		Exposure Point Total									NA					2.7E-01
	Exposure Medium Total										NA					2.7E-01
	Ambient Air	South Minneapolis Emissions from Surface Soil	Inhalation	Arsenic	1.2E-08	mg/m^3	NA	NA	NA	NA	NA	2.9E-09	mg/kg/day	NA	NA	NA
			Exp. Route Total								NA					0.0E+00
		Exposure Point Total									NA					0.0E+00
	Exposure Medium Total										NA					0.0E+00
Soil Total											NA					2.7E-01
Receptor Total											NA					2.7E-01

EPC = Exposure point concentration based on background level in soil (16 mg/kg).

TABLE 7.2.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

South Minneapolis Site

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Aggregate Adult/Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern[1]	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Minneapolis Surface Soil	Ingestion	Arsenic	1.6E+01	mg/kg	8.8E-06	mg/kg/day	1.5E+00	1/(mg/kg/day)	1.3E-05	NA	NA	NA	NA	NA
			Exp. Route Total								1.3E-05					NA
			Dermal	Arsenic	1.6E+01	mg/kg	1.8E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	2.7E-07	NA	NA	NA	NA	NA
			Exp. Route Total								2.7E-07					NA
		Exposure Point Total									1.3E-05					NA
	Exposure Medium Total										1.3E-05					NA
	Ambient Air	South Minneapolis Emissions from Surface Soil	Inhalation	Arsenic	1.2E-08	mg/m^3	4.0E-10	mg/kg/day	1.5E+01	1/(mg/kg/day)	6.0E-09	NA	NA	NA	NA	NA
			Exp. Route Total								6.0E-09					NA
		Exposure Point Total									6.0E-09					NA
	Exposure Medium Total										6.0E-09					NA
Soil Total											1.3E-05					NA
Receptor Total											1.3E-05					NA

TABLE 7.3.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

South Minneapolis Site

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil (0 - 5 ft)	Soil (0 - 5 ft)	South Minneapolis Soil (0 - 5 ft)	Ingestion	Arsenic	1.60E+01	mg/kg	1.2E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	1.8E-07	3.5E-05	mg/kg/day	3.0E-04	mg/kg/day	1.2E-01
			Exp. Route Total								1.8E-07					1.2E-01
			Dermal	Arsenic	1.6E+01	mg/kg	2.4E-08	mg/kg/day	1.5E+00	1/(mg/kg/day)	3.6E-08	6.8E-06	mg/kg/day	3.0E-04	mg/kg/day	2.3E-02
			Exp. Route Total								3.6E-08					2.3E-02
		Exposure Point Total									2.2E-07					1.4E-01
	Exposure Medium Total										2.2E-07					1.4E-01
	Ambient Air	South Minneapolis Emissions from Soil	Inhalation	Arsenic	1.2E-08	mg/m^3	1.2E-11	mg/kg/day	1.5E+01	1/(mg/kg/day)	1.8E-10	3.4E-09	mg/kg/day	NA	NA	NA
			Exp. Route Total								1.8E-10					0.0E+00
		Exposure Point Total									1.8E-10					0.0E+00
	Exposure Medium Total										1.8E-10					0.0E+00
Soil Total											2.2E-07					1.4E-01
Receptor Total											2.2E-07					1.4E-01

EPC = Exposure point concentration based on background level in soil (16 mg/kg).

NA = Not applicable.

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Infant/Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Minneapolis	Arsenic	NA	NA	NA	NA	skin, vascular	5.E-01	NA	3.E-02	6.E-01
			Chemical Total	NA	NA	NA	NA		5.E-01	NA	3.E-02	6.E-01
		Exposure Point Total					NA					6.E-01
	Exposure Medium Total						NA					6.E-01
	Ambient Air	South Minneapolis Emissions from Soil	Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Chemical Total	NA	NA	NA	NA		NA	NA	NA	NA
		Exposure Point Total					NA					NA
	Exposure Medium Total						NA					NA
	Garden Vegetables (aboveground)	South Minneapolis	Arsenic	NA	NA	NA	NA	skin, vascular	5.E-02	NA	NA	5.E-02
	(belowground)		Arsenic	NA	NA	NA	NA	skin, vascular	2.E-02	NA	NA	2.E-02
			Chemical Total	NA	NA	NA	NA		8.E-02	NA	NA	8.E-02
		Exposure Point Total					NA					8.E-02
	Exposure Medium Total						NA					8.E-02
Surface Soil Total							NA					6.E-01
Receptor Total (with vegetable consumption)							NA				Receptor HI Total	6.E-01
Receptor Total (without vegetable consumption)							NA				Receptor HI Total	6.E-01

Notes:
EPC = Exposure point concentration based on background level in soil (16 mg/kg).
NA = Not applicable.

With Vegetable Consumption	Total Skin HI Across All Media =	6.E-01
	Total Vascular HI Across All Media =	6.E-01
Without Vegetable Consumption	Total Skin HI Across All Media =	6.E-01
	Total Vascular HI Across All Media =	6.E-01

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Aggregate Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Minneapolis	Arsenic	4.E-05	NA	3.E-06	5.E-05	skin, vascular	NA	NA	NA	NA
			Chemical Total	4.E-05	NA	3.E-06	5.E-05		NA	NA	NA	NA
		Exposure Point Total					5.E-05					NA
	Exposure Medium Total						5.E-05					NA
	Ambient Air	South Minneapolis Emissions from Soil	Arsenic	NA	2.E-08	NA	2.E-08	NA	NA	NA	NA	NA
			Chemical Total	NA	2.E-08	NA	2.E-08		NA	NA	NA	NA
		Exposure Point Total					2.E-08					NA
	Exposure Medium Total						2.E-08					NA
	Garden Vegetables (aboveground)	South Minneapolis	Arsenic	1.E-05	NA	NA	1.E-05	skin, vascular	NA	NA	NA	NA
	(belowground)		Arsenic	5.E-06	NA	NA	5.E-06	skin, vascular	NA	NA	NA	NA
			Chemical Total	2.E-05	NA	NA	2.E-05		NA	NA	NA	NA
		Exposure Point Total					2.E-05					NA
	Exposure Medium Total						2.E-05					NA
Surface Soil Total							6.E-05					NA
Receptor Total (with vegetable consumption)							6.E-05				Receptor HI Total	NA
Receptor Total (without vegetable consumption)							5.E-05				Receptor HI Total	NA

Notes:
EPC = Exposure point concentration based on background level in soil (16 mg/kg).
NA = Not applicable.

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
South Minneapolis Site

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil (0 - 5 ft)	Soil (0 - 5 ft)	South Minneapolis	Arsenic	4.E-06	NA	4.E-07	4.E-06	skin, vascular	6.E-02	NA	6.E-03	6.E-02
			Chemical Total	4.E-06	NA	4.E-07	4.E-06		6.E-02	NA	6.E-03	6.E-02
		Exposure Point Total					4.E-06					6.E-02
	Exposure Medium Total						4.E-06					6.E-02
	Ambient Air	South Minneapolis Emissions from Soil	Arsenic	NA	2.E-09	NA	2.E-09	NA	NA	NA	NA	NA
			Chemical Total	NA	2.E-09	NA	2.E-09		NA	NA	NA	NA
		Exposure Point Total					2.E-09					NA
	Exposure Medium Total						2.E-09					NA
Surface Soil Total							4.E-06					6.E-02
Receptor Total							4.E-06				Receptor HI Total	6.E-02

Notes:
EPC = Exposure point concentration based on background level in soil (16 mg/kg).
NA = Not applicable.

Total Skin HI Across All Media =	6.E-02
Total Vascular HI Across All Media =	6.E-02

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Infant/Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Minneapolis	Arsenic	NA	NA	NA	NA	skin, vascular	3.E-01	NA	5.E-03	3.E-01
			Chemical Total	NA	NA	NA	NA		3.E-01	NA	5.E-03	3.E-01
		Exposure Point Total					NA					3.E-01
	Exposure Medium Total						NA					3.E-01
	Ambient Air	South Minneapolis Emissions from Soil	Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Chemical Total	NA	NA	NA	NA		NA	NA	NA	NA
		Exposure Point Total					NA					NA
	Exposure Medium Total						NA					NA
Surface Soil Total							NA					3.E-01
Receptor Total							NA				Receptor HI Total	3.E-01

Notes:
EPC = Exposure point concentration based on background level in soil (16 mg/kg).
NA = Not applicable.

Total Skin HI Across All Media =	3.E-01
Total Vascular HI Across All Media =	3.E-01

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Minneapolis	Arsenic	1.E-05	NA	3.E-07	1.E-05	skin, vascular	NA	NA	NA	NA
			Chemical Total	1.E-05	NA	3.E-07	1.E-05		NA	NA	NA	NA
		Exposure Point Total					1.E-05					NA
	Exposure Medium Total						1.E-05					NA
	Ambient Air	South Minneapolis Emissions from Soil	Arsenic	NA	6.E-09	NA	6.E-09	NA	NA	NA	NA	NA
			Chemical Total	NA	6.E-09	NA	6.E-09		NA	NA	NA	NA
		Exposure Point Total					6.E-09					NA
	Exposure Medium Total						6.E-09					NA
Surface Soil Total							1.E-05					NA
Receptor Total							1.E-05				Receptor HI Total	NA

Notes:

EPC = Exposure point concentration based on background level in soil (16 mg/kg).

NA = Not applicable.

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
South Minneapolis Site

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil (0 - 5 ft)	Soil (0 - 5 ft)	South Minneapolis	Arsenic	2.E-07	NA	4.E-08	2.E-07	skin, vascular	1.E-01	NA	2.E-02	1.E-01
			Chemical Total	2.E-07	NA	4.E-08	2.E-07		1.E-01	NA	2.E-02	1.E-01
		Exposure Point Total					2.E-07					1.E-01
	Exposure Medium Total						2.E-07					1.E-01
	Ambient Air	South Minneapolis Emissions from Soil	Arsenic	NA	2.E-10	NA	2.E-10	NA	NA	NA	NA	NA
			Chemical Total	NA	2.E-10	NA	2.E-10		NA	NA	NA	NA
		Exposure Point Total					2.E-10					NA
	Exposure Medium Total						2.E-10					NA
Surface Soil Total							2.E-07					1.E-01
Receptor Total							2.E-07				Receptor HI Total	1.E-01

Notes:
EPC = Exposure point concentration based on background level in soil (16 mg/kg).
NA = Not applicable.

Total Skin HI Across All Media =	1.E-01
Total Vascular HI Across All Media =	1.E-01

TABLE 10.1.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Infant/Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Minneapolis										
			Chemical Total									<1
		Exposure Point Total										<1
	Exposure Medium Total											<1
	Ambient Air	South Minneapolis Emissions from Soil										
			Chemical Total									<1
		Exposure Point Total										<1
	Exposure Medium Total											<1
	Garden Vegetables (aboveground) (belowground)	South Minneapolis										
												<1
		Exposure Point Total										<1
	Exposure Medium Total											<1
Surface Soil Total												<1
Receptor Total (with vegetable consumption)								Receptor HI Total				<1
Receptor Total (without vegetable consumption)								Receptor HI Total				<1

Notes:
NA = Not applicable

TABLE 10.2.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Minneapolis	Arsenic	4.E-05	NA	3.E-06	5.E-05					
			Chemical Total	4.E-05	NA	3.E-06	5.E-05					
		Exposure Point Total					5.E-05					
	Exposure Medium Total						5.E-05					
	Ambient Air	South Minneapolis Emissions from Soil										
			Chemical Total				<1E-06					
		Exposure Point Total					<1E-06					
	Exposure Medium Total						<1E-06					
	Garden Vegetables (aboveground)	South Minneapolis	Arsenic	1.E-05	NA	NA	1.E-05					
	(belowground)		Arsenic	5.E-06	NA	NA	5.E-06					
			Chemical Total	2.E-05	NA	NA	2.E-05					
		Exposure Point Total					2.E-05					
	Exposure Medium Total						2.E-05					
Surface Soil Total							6.E-05					
Receptor Total (with vegetable consumption)							6.E-05	Receptor HI Total				
Receptor Total (without vegetable consumption)							5.E-05	Receptor HI Total				

Notes:
NA = Not applicable

TABLE 10.3.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
South Minneapolis Site

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil (0 - 5 ft)	Soil (0 - 5 ft)	South Minneapolis	Arsenic	4.E-06	NA	4.E-07	4.E-06					
			Chemical Total	4.E-06	NA	4.E-07	4.E-06					<1
		Exposure Point Total					4.E-06					<1
	Exposure Medium Total						4.E-06					<1
	Ambient Air	South Minneapolis Emissions from Soil										
			Chemical Total				<1E-06					<1
		Exposure Point Total					<1E-06					<1
	Exposure Medium Total						<1E-06					<1
Surface Soil Total							4.E-06					<1
Receptor Total							4.E-06					<1

Notes:
NA = Not applicable

TABLE 10.1.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Minneapolis										
			Chemical Total									<1
		Exposure Point Total										<1
	Exposure Medium Total											<1
	Ambient Air	South Minneapolis Emissions from Soil										
			Chemical Total									<1
		Exposure Point Total										<1
	Exposure Medium Total											<1
Surface Soil Total												<1
Receptor Total								Receptor HI Total				<1

Notes:
NA = Not applicable

TABLE 10.2.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Minneapolis	Arsenic	1.E-05	NA	3.E-07	1.E-05					
			Chemical Total	1.E-05	NA	3.E-07	1.E-05					
		Exposure Point Total					1.E-05					
	Exposure Medium Total						1.E-05					
	Ambient Air	South Minneapolis Emissions from Soil										
			Chemical Total				<1E-06					
		Exposure Point Total					<1E-06					
	Exposure Medium Total						<1E-06					
Surface Soil Total							1.E-05					
Receptor Total							1.E-05	Receptor HI Total				

Notes:
NA = Not applicable

TABLE 10.3.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
South Minneapolis Site

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Minneapolis										
			Chemical Total				<1E-06					<1
		Exposure Point Total					<1E-06					<1
	Exposure Medium Total						<1E-06					<1
	Ambient Air	South Minneapolis Emissions from Soil										
			Chemical Total				<1E-06					<1
		Exposure Point Total					<1E-06					<1
	Exposure Medium Total						<1E-06					<1
Surface Soil Total							<1E-06					<1
Receptor Total							<1E-06					<1

Notes:
NA = Not applicable

TABLE 11.1.RME

CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

South Minneapolis Site

Excess Lifetime Cancer Risk Estimates for Various Arsenic Concentrations:

Receptor	Arsenic Concentration (mg/kg)			
	16	95	500	1500
Aggregate Child/Adult Resident (w/ Veg)	6E-05	4E-04	2E-03	6E-03
Aggregate Child/Adult Resident (w/o Veg)	5E-05	3E-04	1E-03	4E-03
Construction Worker	4E-06	2E-05	1E-04	4E-04

Hazard Index Estimates for Various Arsenic Concentrations:

Receptor	Arsenic Concentration (mg/kg)			
	16	95	500	1500
Aggregate Child/Adult Resident (w/ Veg)	0.6	4	20	60
Aggregate Child/Adult Resident (w/o Veg)	0.6	3	17	52
Construction Worker	0.06	0.4	2	6

Notes:

Excess lifetime cancer risks are calculated for an aggregate adult/child resident since lifetime cancer risks are averaged over a lifetime.

Hazard Index is calculated for an aggregate infant/child resident since HIs are calculated for the duration of exposure (not a lifetime average).

TABLE 11.1b.CTE

CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

South Minneapolis Site

Excess Lifetime Cancer Risk Estimates for Various Arsenic Concentrations:

Receptor	Arsenic Concentration (mg/kg)			
	16	**95**	**500**	**1500**
Aggregate Child/Adult Resident	1E-05	8E-05	4E-04	1E-03
Construction Worker	2E-07	1E-06	7E-06	2E-05

Hazard Index Estimates for Various Arsenic Concentrations:

Receptor	Arsenic Concentration (mg/kg)			
	16	**95**	**500**	**1500**
Aggregate Infant/Child Resident	0.3	2	8	25
Construction Worker	0.1	0.8	4	13

TABLE 12.1.RME

CALCULATION OF SOIL PRELIMINARY REMEDIATION GOALS

South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Infant/Child

Chemical	Target Risk	Target Hazard Quotient	Soil Preliminary Remediation Goals											
			Protection of Direct Contact with Soil								Protection of Garden Vegetables		Protection of Direct Contact with Soil and Consumption of Garden Vegetables	
			Calculated PRG for Each Exposure Pathway - Carcinogenic Effects				Calculated PRG For Each Exposure Pathway - Non-Carcinogenic Effects				Carcinogenic Effects	Non-carcinogenic Effects		
			Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	Ingestion Only	Ingestion Only	Carcinogenic Effects	Non-carcinogenic Effects
Arsenic	--	1	--	--	--	--	30	NA	584	**29**	--	**202**	--	**25**

Notes:
NA - Toxicity value not available to calculate a PRG based on this pathway.
The final PRG for infant/children based on non-carcinogenic effects is the calculated soil PRG for 1) ingestion, inhalation, and dermal exposures combined or 2) including all 3 soil pathways and ingestion of vegetables.

TABLE 12.2.RME

CALCULATION OF SOIL PRELIMINARY REMEDIATION GOALS

South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Aggregate Child/Adult

			Soil Preliminary Remediation Goals											
			Protection of Direct Contact with Soil								Protection of Garden Vegetables		Protection of Direct Contact with Soil and Consumption of Garden Vegetables	
			Calculated PRG for Each Exposure Pathway - Carcinogenic Effects				Calculated PRG For Each Exposure Pathway - Non-Carcinogenic Effects				Carcinogenic Effects	Non-carcinogenic Effects		
Chemical	Target Risk	Target Hazard Quotient	Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	Ingestion Only	Ingestion Only	Carcinogenic Effects	Non-carcinogenic Effects
Arsenic	1.0E-06	--	0.4	983	6.0	**0.34**	--	--	--	--	**0.93**	--	**0.25**	--
	1.0E-05	--	3.6	9,831	60	**3.4**	--	--	--	--	**9.3**	--	**2.5**	--
	1.0E-04	--	36	98,307	596	**34**	--	--	--	--	**93**	--	**25**	--

Notes:
The final PRG for an aggregate (adult/child) resident based on carcinogenic effects is the calculated soil PRG for 1) ingestion, inhalation, and dermal exposures combined or 2) including all 3 soil pathways and ingestion of vegetables.

TABLE 12.3.RME

CALCULATION OF SOIL PRELIMINARY REMEDIATION GOALS

South Minneapolis Site

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Chemical	Target Risk	Target Hazard Quotient	Soil Preliminary Remediation Goals								
			Calculated PRG for Each Exposure Pathway - Carcinogenic Effects				Calculated PRG For Each Exposure Pathway - Non-Carcinogenic Effects				Final PRG (mg/kg)
			Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	
Arsenic	1.0E-06	1	4.5	8,979	44.6	**4**	287	NA	2,868	**261**	**4**
	1.0E-05		44.6	89,788	446.1	**41**					**41**
	1.0E-04		446	897,881	4,461	**405**					**261**

Notes:
NA - Toxicity value not available to calculate a PRG based on this pathway.
The final PRG for construction workers is the lower of the calculated soil PRG for ingestion, inhalation, and dermal exposures combined for 1) carcinogenic effects and 2) non-carcinogenic effects.

TABLE 12.1.CTE

CALCULATION OF SOIL PRELIMINARY REMEDIATION GOALS

South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Infant/Child

Chemical	Target Risk	Target Hazard Quotient	Soil Preliminary Remediation Goals								
			Protection of Direct Contact with Soil								Final PRG (mg/kg)
			Calculated PRG for Each Exposure Pathway - Carcinogenic Effects				Calculated PRG For Each Exposure Pathway - Non-Carcinogenic Effects				
			Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	
Arsenic	--	1	--	--	--	--	61	NA	3,020	**59**	**59**

Notes:
NA - Toxicity value not available to calculate a PRG based on this pathway.
The final PRG for infant/children is based on non-carcinogenic effects for all 3 soil pathways combined (ingestion, inhalation, and dermal exposures).

TABLE 12.2.CTE

CALCULATION OF SOIL PRELIMINARY REMEDIATION GOALS

South Minneapolis Site

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Aggregate Child/Adult

Chemical	Target Risk	Target Hazard Quotient	Soil Preliminary Remediation Goals								
			Protection of Direct Contact with Soil								
			Calculated PRG for Each Exposure Pathway - Carcinogenic Effects				Calculated PRG For Each Exposure Pathway - Non-Carcinogenic Effects				Final PRG (mg/kg)
			Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	
Arsenic	1.0E-06	--	1.2	2,646	59	**1.2**	--	--	--	--	**1.2**
	1.0E-05	--	12	26,455	594	**12**	--	--	--	--	**12**
	1.0E-04	--	121	264,552	5,937	**119**	--	--	--	--	**119**

Notes:
The final PRG for an aggregate (adult/child) resident is based on carcinogenic effects for all 3 soil pathways combined (ingestion, inhalation, and dermal exposures).

TABLE 12.3.CTE

CALCULATION OF SOIL PRELIMINARY REMEDIATION GOALS

South Minneapolis Site

Scenario Timeframe: Current/Future
Receptor Population: Construction Worker
Receptor Age: Adult

Chemical	Target Risk	Target Hazard Quotient	Soil Preliminary Remediation Goals								
			Calculated PRG for Each Exposure Pathway - Carcinogenic Effects				Calculated PRG For Each Exposure Pathway - Non-Carcinogenic Effects				
			Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	Ingestion Only	Inhalation Only	Dermal Only	Including all 3 Pathways	Final PRG (mg/kg)
Arsenic	1.0E-06	1	87	89,788	446	**72**	137	NA	707	**115**	**72**
	1.0E-05		866	897,881	4,461	**725**					**115**
	1.0E-04		8,659	8,978,811	44,607	**7,245**					**115**

Notes:
NA - Toxicity value not available to calculate a PRG based on this pathway.
The final PRG for construction workers is the lower of the calculated soil PRG for ingestion, inhalation, and dermal exposures combined for 1) carcinogenic effects and 2) non-carcinogenic effects.