

**Table 1. Field Screening Head Space Summary and Soil Boring Laboratory Analysis Status
Twin Cities Assembly Plant, St. Paul, Minnesota**

Boring Location	Interval (ft. - ft. bgs)	Sample Date	PID (ppm)	Lab Analysis
ASB-071	0-2	19-Sep-07	6.1	Hold
ASB-071	2-4	19-Sep-07	0.4	Analyzed
ASB-071	4-6	19-Sep-07	0.2	Hold
ASB-071	6-8	19-Sep-07	0.1	Hold
ASB-071	8-10	19-Sep-07	0.0	Hold
ASB-071	10-12	19-Sep-07	0.0	Analyzed
ASB-072	0-2	21-Sep-07	0.2	Hold
ASB-072	2-4	21-Sep-07	0.4	Analyzed
ASB-072	4-6	21-Sep-07	0.4	Hold
ASB-072	6-8	21-Sep-07	0.6	Analyzed
ASB-073	0-2	21-Sep-07	0.3	Hold
ASB-073	2-4	21-Sep-07	0.4	Analyzed
ASB-073	4-6	21-Sep-07	0.4	Hold
ASB-073	6-8	21-Sep-07	0.6	Hold
ASB-073	8-10	21-Sep-07	0.6	Hold
ASB-073	10-12	21-Sep-07	0.7	Analyzed
ASB-074	0-2	21-Sep-07	0.3	Hold
ASB-074	2-4	21-Sep-07	0.3	Analyzed
ASB-074	4-6	21-Sep-07	0.4	Hold
ASB-074	6-8	21-Sep-07	0.6	Analyzed
ASB-074	8-10	21-Sep-07	0.8	Hold
ASB-074	10-12	21-Sep-07	0.4	Analyzed
ASB-075	0-2	19-Sep-07	0.0	Hold
ASB-075	2-4	19-Sep-07	0.1	Analyzed
ASB-075	4-6	19-Sep-07	0.0	Hold
ASB-075	6-8	19-Sep-07	0.0	Hold
ASB-075	8-10	19-Sep-07	0.0	Analyzed
ASB-075	10-12	19-Sep-07	0.0	Hold
ASB-075	12-14	19-Sep-07	0.1	Hold
ASB-075	14-16	19-Sep-07	0.1	Analyzed
ASB-076	0-2	19-Sep-07	14.4	Hold
ASB-076	2-4	19-Sep-07	13.0	Analyzed
ASB-076	4-6	19-Sep-07	9.0	Hold
ASB-076	6-8	19-Sep-07	20.9	Hold
ASB-076	8-10	19-Sep-07	1.5	Analyzed
ASB-076	10-12	19-Sep-07	0.3	Hold
ASB-076	12-14	19-Sep-07	0.2	Hold
ASB-076	14-16	19-Sep-07	0.2	Analyzed

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Boring Location	Interval (ft. - ft. bgs)	Sample Date	PID (ppm)	Lab Analysis
ASB-077	0-2	21-Sep-07	0.2	Hold
ASB-077	2-4	21-Sep-07	0.2	Analyzed
ASB-077	4-6	21-Sep-07	0.3	Analyzed
ASB-077	6-8	21-Sep-07	0.5	Analyzed
ASB-078	0-2	21-Sep-07	0.2	Hold
ASB-078	4-6	21-Sep-07	0.2	Analyzed
ASB-078	6-8	21-Sep-07	0.3	Hold
ASB-078	8-10	21-Sep-07	0.3	Hold
ASB-078	10-12	21-Sep-07	0.3	Analyzed
ASB-079	0-2	20-Sep-07	1.5	Analyzed
ASB-079	2-4	20-Sep-07	1.8	Analyzed
ASB-079	4-6	20-Sep-07	1.8	Hold
ASB-079	6-8	20-Sep-07	1.9	Analyzed
ASB-079	8-10	20-Sep-07	0.9	Hold
ASB-079	10-12	20-Sep-07	0.7	Analyzed
ASB-080	0-2	20-Sep-07	0.9	Hold
ASB-080	2-4	20-Sep-07	1.1	Analyzed
ASB-080	4-6	20-Sep-07	1.2	Hold
ASB-080	6-8	20-Sep-07	0.9	Hold
ASB-080	8-10	20-Sep-07	0.1	Hold
ASB-080	10-12	20-Sep-07	0.6	Analyzed
ASB-081	0-2	20-Sep-07	0.5	Hold
ASB-081	2-4	20-Sep-07	0.6	Analyzed
ASB-081	4-6	20-Sep-07	0.9	Hold
ASB-081	6-8	20-Sep-07	1.1	Analyzed
ASB-082	0-2	20-Sep-07	0.5	Hold
ASB-082	2-4	20-Sep-07	0.6	Analyzed
ASB-082	4-6	20-Sep-07	0.8	Analyzed
ASB-083	0-2	21-Sep-07	0.2	Hold
ASB-083	2-4	21-Sep-07	0.2	Analyzed
ASB-083	4-6	21-Sep-07	0.3	Analyzed
ASB-083	6-8	21-Sep-07	0.3	Analyzed
ASB-084	0-2	21-Sep-07	0.2	Hold
ASB-084	2-4	21-Sep-07	0.2	Analyzed
ASB-084	4-6	21-Sep-07	0.2	Analyzed
ASB-084	6-8	21-Sep-07	0.2	Hold
ASB-084	10-12	21-Sep-07	0.2	Analyzed

**Table 1. Field Screening Head Space Summary and Soil Boring Laboratory Analysis Status
Twin Cities Assembly Plant, St. Paul, Minnesota**

Boring Location	Interval (ft. - ft. bgs)	Sample Date	PID (ppm)	Lab Analysis
ASB-085	0-2	21-Sep-07	0.2	Hold
ASB-085	2-4	21-Sep-07	0.3	Analyzed
ASB-085	4-6	21-Sep-07	0.3	Analyzed
ASB-085	6-8	21-Sep-07	0.4	Analyzed
ASB-086	0-2	20-Sep-07	1.8	Hold
ASB-086	2-4	20-Sep-07	2.7	Analyzed
ASB-086	4-6	20-Sep-07	2.4	Hold
ASB-086	6-8	20-Sep-07	0.9	Analyzed
ASB-087	0-2	20-Sep-07	1.7	Analyzed
ASB-087	4-6	20-Sep-07	0.8	Hold
ASB-087	6-8	20-Sep-07	1.0	Analyzed
ASB-088	0-2	21-Sep-07	0.6	Hold
ASB-088	2-4	21-Sep-07	10.2	Analyzed
ASB-088	4-6	21-Sep-07	8.5	Hold
ASB-088	6-8	21-Sep-07	6.3	Hold
ASB-088	8-10	21-Sep-07	3.4	Hold
ASB-088	10-12	21-Sep-07	4.6	Analyzed
ASB-089	0-2	21-Sep-07	0.1	Hold
ASB-089	2-4	21-Sep-07	0.1	Analyzed
ASB-089	4-6	21-Sep-07	0.5	Hold
ASB-089	6-8	21-Sep-07	0.9	Analyzed
ASB-090	0-2	20-Sep-07	2.8	Hold
ASB-090	2-4	20-Sep-07	4.4	Analyzed
ASB-090	4-6	20-Sep-07	5.9	Analyzed
ASB-091	0-2	21-Sep-07	1.1	Hold
ASB-091	2-4	21-Sep-07	1.0	Analyzed
ASB-091	4-6	21-Sep-07	1.5	Hold
ASB-091	6-8	21-Sep-07	1.0	Analyzed
ASB-092	0-2	21-Sep-07	0.3	Hold
ASB-092	2-4	21-Sep-07	0.4	Analyzed
ASB-092	4-6	21-Sep-07	0.6	Hold
ASB-092	6-8	21-Sep-07	0.3	Analyzed
ASB-093	0-2	21-Sep-07	1.6	Hold
ASB-093	2-4	21-Sep-07	1.2	Analyzed
ASB-093	4-6	21-Sep-07	---	Analyzed

**Table 1. Field Screening Head Space Summary and Soil Boring Laboratory Analysis Status
Twin Cities Assembly Plant, St. Paul, Minnesota**

Boring Location	Interval (ft. - ft. bgs)	Sample Date	PID (ppm)	Lab Analysis
ASB-094	0-2	21-Sep-07	1.5	Hold
ASB-094	2-4	21-Sep-07	2.0	Analyzed
ASB-094	4-6	21-Sep-07	1.1	Analyzed

Note:

Hold Sample analysis was placed on hold at the laboratory.
 Hold time is 6 months for metals from the time of collection.

Analyzed Sample analysis was completed by the laboratory.

ppm Parts per million.

ft Feet.

bgs Below ground surface.

ASB ARCADIS Soil Boring Location.

Table 2. Comparison of Constituents of Potential Concern in Surface Soils to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

		Residential SRV	Recreational SRV	Industrial SRV	Frequency of Detection	Minimum Detected	Maximum Detected	Median Detected	Arithmetic Mean	Maximum Exceeds Recreational SRV?	Location: Depth Interval (feet): Sample Date: Area:	AGM-SS-001 0 - 0.5 8/13/2007 Northeast	AGM-SS-002 0 - 0.5 8/13/2007 Northeast	AGM-SS-003 0 - 0.5 8/13/2007 Northeast	AGM-SS-004 0 - 0.5 9/17/2007 Northeast	
Units												Units				
Metals																
Arsenic	mg/kg	5	5	20	39 / 39	0.71J	16.4	2.4	3.3	Yes	Metals	mg/kg	16.4	5.0	4.8	2.0
Copper	mg/kg	11	11	9,000	39 / 39	3.1	19.4	6.8	9.3	Yes	Copper	mg/kg	19.4	14.7	13.8	5.0
Iron	mg/kg	9,000	12,000	75,000	39 / 39	3,950	18,100	10,600	10,740	Yes	Iron	mg/kg	12,900	16,200	13,300	10,900
Lead	mg/kg	300	300	700	39 / 39	2.0	59.8	8.7	19.7	No	Lead	mg/kg	43	22.7	44.2	4.2
Other																
Percent Solids	%	NS	NS	NS	NS	NS	NS	NS	NS	NS	Other	%	73.9	78.4	80.1	82.9

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Table 2. Comparison of Constituents of Potential Concern in Surface Soils to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Location:		AGM-SS-005	AGM-SS-006	AGM-SS-007	AGM-SS-008	AGM-SS-009	AGM-SS-010	AGM-SS-011	AGM-SS-012	AGM-SS-013	AGM-SS-014	AGM-SS-015	AGM-SS-016	AGM-SS-017	AGM-SS-018
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date:	Units	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007
Area:		Northeast	Northeast	Northeast	Northeast	Northeast	Northeast	Northwest	Northwest	Northwest	Northwest	Northwest	Northwest	Northwest	Northwest
Metals															
Arsenic	mg/kg	1.8	1.1	1.6	2.3	5.0	3.9	4.5	3.1	2.7	1.5	1.4	1.2	2.1	4.0
Copper	mg/kg	5.6	6.5	6.2	6.0	12.4	10.7	10.8	11.3	4.0	5.6	6.9	4.7	6.7	17.5
Iron	mg/kg	9,740	8,990	9,060	10,100	12,400	9,920	11,600	12,200	9,600	10,600	9,900	7,190	16,100	13,800
Lead	mg/kg	5.1	5.7	5.9	5.6	59.8	23.9	30.2	26	5.2	4.9	6.5	4.5	6.2	59.5
Other															
Percent Solids	%	90.6	97.0	90.3	90.8	86.5	91.1	85.6	93.1	86.8	90.4	93.4	87.6	91.3	79.8

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Table 2. Comparison of Constituents of Potential Concern in Surface Soils to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Location:		AGM-SS-019	AGM-SS-020	AGM-SS-021	AGM-SS-022	AGM-SS-023	AGM-SS-024	AGM-SS-025	AGM-SS-026	AGM-SS-027	AGM-SS-028	AGM-SS-029	AGM-SS-030	AGM-SS-031	AGM-SS-032
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date:	Units	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007
Area:		Northwest	Northwest	South	South	South	South	South	South	South	South	South	South	Public Areas	Public Areas
Metals															
Arsenic	mg/kg	2.6	4.9	3.1	2.4	1.2	4.6	1.5	1.2	6.7	3.4	2.8	2.2	1.6	5.5
Copper	mg/kg	14.1	17.3	14.1	4.5	3.7	19.2	4.5	3.1	14.5	15.8	10.9	6.8	6.3	12.2
Iron	mg/kg	12,900	18,100	12,700	10,600 J	7,120	14,200	11,300	7,000	9,480	11,400	7,820	11,100	9,090	12,100
Lead	mg/kg	29.5	32.4	24.2	4.6	3.1	50.2	3.9	3.3	49.1	44.1	43.4	8.2	8.7	17.8
Other															
Percent Solids	%	78.0	70.7	77.3	90.8	85.0	80.2	89.7	88.3	82.7	70.0	71.1	86.8	81.1	59.1

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Table 2. Comparison of Constituents of Potential Concern in Surface Soils to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Location:		AGM-SS-033	AGM-SS-034	AGM-SS-035	AGM-SS-036	AGM-SS-037	AGM-SS-038	AGM-SS-039	Equipment Blank		Field Blank	
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	EB-001	EB-002	FB-001	FB-002
Sample Date:	Units	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007
Area:		Public Areas	Public Areas	Public Areas	Public Areas	Public Areas	Public Areas	Public Areas				
Metals												
Arsenic	mg/kg	1.5	1.6	7.1	5.9	0.95 J	0.71 J	1.3	<10	<10	<10	<10
Copper	mg/kg	5.8	6.8	10.7	11.0	4.4	4.2	5.8	<25	9.9 J	<25	<25
Iron	mg/kg	5,200	8,200	13,200	14,500	6,010	3,950	8,380	<100	<100	<100	69.8 J
Lead	mg/kg	2.0	5.0	21.4	35.5	3.3	2.5	11.9	<3	<3	<3	<3
Other												
Percent Solids	%	89.1	89.1	69.3	74.0	82.4	90.5	83.9	NA	NA	NA	NA

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Table 2. Comparison of Constituents of Potential Concern in Surface Soils to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Notes:	
Results are reported in milligrams per kilogram (mg/kg) except for Equipment and Field Blank results, which are reported in micrograms per liter (µg/L).	
A Level 4 Validation was completed for Samples AGM-SS-004 through AGM-SS-021. A Level 2 Validation was completed on the remaining samples.	
Feature Number	Environmental Feature from Phase I Environmental Site Assessment report.
AGM-SS	ARCADIS Surface Soil Sampling Location.
feet	Feet from ground surface.
J	Estimated result.
NA	Not analyzed.
NS	No standard.
<u>Bold/Underline</u>	Value is above the Tier 1 Residential Soil Reference Value (SRV).
	Value is above the Tier 2 Recreational Soil Reference Value (SRV).
Shade	Value is above the Tier 2 Industrial Soil Reference Value (SRV).

Table 3. Comparison of Constituents of Potential Concern in Soil Borings to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Location: Depth Interval (feet): Sample Date:	Units	Residential SRV	Recreational SRV	Industrial SRV	Short-Term Worker SRV	Frequency of Detection	Minimum Detected	Maximum Detected	Median Detected	Arithmetic Mean	Maximum Exceeds Recreational SRV?	Location: Depth Interval (feet): Sample Date:	Units	ASB-049 4 - 6 7/5/2007	ASB-050 4 - 6 7/5/2007	ASB-051 2 - 4 7/5/2007
Metals												Metals				
Arsenic	mg/kg	5	5	20	70	62/63	0.86	18.9	4.2	4.9	Yes	Arsenic	mg/kg	6.6	1.6	5.3
Copper	mg/kg	11	11	9000	3000	63/63	2.2	79.6	8.6	10.7	Yes	Copper	mg/kg	18.8	9.5	5.3
Iron	mg/kg	9000	12000	75000	85000	63/63	3,610	28,000	14,317	14,988	Yes	Iron	mg/kg	17,100	16,600	13,600
Lead	mg/kg	300	300	700	700	63/63	1.2	44.2	3.4	4.7	No	Lead	mg/kg	3.0	5.3	2.6
Other												Other				
Percent Solids	%	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Percent Solids	%	96.1	85.6	75.0

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Table 3. Comparison of Constituents of Potential Concern in Soil Borings to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Location:		ASB-052	ASB-053	ASB-054	ASB-071	ASB-071	ASB-072	ASB-072	ASB-073	ASB-073	ASB-074	ASB-074	ASB-074	ASB-075	ASB-075	ASB-075	ASB-076
Depth Interval (feet):	Units	2 - 4	2 - 4	4 - 6	2 - 4	10 - 12	2 - 4	6 - 8	2 - 4	10 - 12	2 - 4	6 - 8	10 - 12	2 - 4	8 - 10	14 - 16	2 - 4
Sample Date:		7/5/2007	7/5/2007	7/5/2007	9/19/2007	9/19/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/19/2007	9/19/2007	9/19/2007	9/19/2007
Metals																	
Arsenic	mg/kg	2.1	7.2	3.1	4.4	3.3	3.1	9.4	4.5	3.3	4.6	4.2	2	5	6.7	1.2	3.9
Copper	mg/kg	35.3	13.2	9.1	7.5	12.3	6	7.5	12.5	11.3	13.5	13.9	6.3	9.5	79.6	9.2	6.7
Iron	mg/kg	20,600	18,700	9,970	14,900	19,800	13,200	17,900	14,300	7,990	15,900	22,000	8,010	22,500	14,600	8,850	15,200
Lead	mg/kg	2.6	6.8	2.2	5.4	3.7	4.1	5.4	11.0	1.8	5.1	3.6	2.6	21.2	7.3	1.8	2.4
Other																	
Percent Solids	%	91.6	63.2	89.5	79.7	80.3	73.1	75.1	64.4	95.7	82.6	95.1	82.4	79.1	87.2	92.8	96.1

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Table 3. Comparison of Constituents of Potential Concern in Soil Borings to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Location:		ASB-076	ASB-076	ASB-077	ASB-077	ASB-077	ASB-078	ASB-078	ASB-079	ASB-079	ASB-079	ASB-079	ASB-080	ASB-080	ASB-081	ASB-081	ASB-082
Depth Interval (feet):	Units	8 - 10	14 - 16	2 - 4	4 - 6	6 - 8	4 - 6	10 - 12	0 - 2	2 - 4	6 - 8	10 - 12	2 - 4	10 - 12	2 - 4	6 - 8	2 - 4
Sample Date:		9/19/2007	9/19/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/20/2007	9/20/2007	9/20/2007	9/20/2007	9/20/2007	9/20/2007	9/20/2007	9/20/2007	9/20/2007
Metals																	
Arsenic	mg/kg	0.86 J	< 1.1	2.1	7	6	3.7	4.5	3.8	5.3	6.7	0.99 J	1.8	2.2	4	3.8	4.5
Copper	mg/kg	3.2	2.2 J	5.6	13.2	6.1	10.4	9.5	9.9	13.6	11.7	5.7	4.4	8.1	4.9	8.6	14.2
Iron	mg/kg	4,670	3,610	11,800	25,100	21,400	14,500	17,000	10,400	19,600	20,300	6,510	7,280	11,600	12,500	13,800	17,000
Lead	mg/kg	1.3	1.2	3.4	4.5	3.8	5.1	3.6	44.2	4.8	3.3	1.9	2.3	2.0	3.2	2.2	2.6
Other																	
Percent Solids	%	95.9	87.4	81.4	73.1	69.2	77.2	80.0	79.3	95.5	96.0	96.8	88.2	84.9	78.6	76.1	79.4

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Table 3. Comparison of Constituents of Potential Concern in Soil Borings to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Location:		ASB-082	ASB-083	ASB-083	ASB-083	ASB-084	ASB-084	ASB-084	ASB-085	ASB-085	ASB-085	ASB-086	ASB-086	ASB-087	ASB-087	ASB-088	ASB-088
Depth Interval (feet):	Units	4 - 6	2 - 4	4 - 6	6 - 8	2 - 4	4 - 6	10 - 12	2 - 4	4 - 6	6 - 8	2 - 4	6 - 8	0 - 2	6 - 8	2 - 4	10 - 12
Sample Date:		9/20/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/20/2007	9/20/2007	9/20/2007	9/20/2007	9/21/2007	9/21/2007
Metals																	
Arsenic	mg/kg	1.6	2.9	2.5	3.2	4.5	3.5	1.5	1.1 J	3.2	6.8	4.6	11.7	2.2	12.9	5.9	5.6
Copper	mg/kg	6.6	7.3	5.9	5	13.1	8.4	2.7	3.4	6.6	8.3	16.2	10.3	18.5	9.4	12.8	23.2
Iron	mg/kg	7,000	17,300	9,400	9,350	18,800	13,900	5,720	4,390	8,260	15,400	19,800	22,700	14,900	26,600	20,300	15,100
Lead	mg/kg	3.3	2.8	3.1	2.6	4.4	2.6	2.3	2.0	3.3	3.5	8.8	3.4	6.1	5.0	6.2	3.1
Other																	
Percent Solids	%	77.8	71.6	89.5	97.5	78.8	90.6	91.1	80.5	94.0	84.3	77.7	82.5	80.7	80.0	86.8	73.8

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Table 3. Comparison of Constituents of Potential Concern in Soil Borings to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Location:		ASB-089	ASB-089	ASB-090	ASB-090	ASB-091	ASB-091	ASB-092	ASB-092	ASB-093	ASB-093	ASB-094	ASB-094
Depth Interval (feet):	Units	2 - 4	6 - 8	2 - 4	4 - 6	2 - 4	6 - 8	2 - 4	6 - 8	2 - 4	4 - 6	2 - 4	4 - 6
Sample Date:		9/21/2007	9/21/2007	9/20/2007	9/20/2007	9/21/2007	9/21/2007	9/21/2007	9/21/2007	9/20/2007	9/20/2007	9/21/2007	9/21/2007
Metals													
Arsenic	mg/kg	2	11.3	4.5	7.9	3.3	6	5.2	7.2	11.3	18.9	15.8	2.4
Copper	mg/kg	5	15.6	5.6	6.1	10	12.4	4.1	4.8	6.6	13.4	8.3	3.9
Iron	mg/kg	7,540	27,300	15,200	17,700	23,300	16,200	13,100	13,800	15,600	21,600	28,000	7,190
Lead	mg/kg	2.7	5.2	2.6	3.0	3.2	4.0	3.7	2.7	5.1	6.5	4.9	5.4
Other													
Percent Solids	%	88.5	79.4	76.2	81.4	84.8	81.4	77.2	69.8	71.4	73.3	67.1	78.7

Notes on page 7.

Table 3. Comparison of Constituents of Potential Concern in Soil Borings to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Location:		Field Blanks				
Depth Interval (feet):	Units	FB_003(20070919)	FB-004(20070919)	FB-006(20070920)	FIELD BLANK (FB-009)	FB-010 (20070921)
Sample Date:		9/19/2007	9/19/2007	9/20/2007	9/20/2007	9/21/2007
Metals						
Arsenic	µg/L	< 10	< 10	< 10	< 10	< 10
Copper	µg/L	< 25	< 25	11.5 J	< 25	< 25
Iron	µg/L	< 100	< 100	62.3 J	58.5 J	< 100
Lead	µg/L	< 3	< 3	< 3	< 3	< 3
Other						
Percent Solids	%	NA	NA	NA	NA	NA

Notes on page 7.

Table 3. Comparison of Constituents of Potential Concern in Soil Borings to Tier 1 and Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Notes:	
Results are reported in milligrams per kilogram (mg/kg) except for Equipment and Field Blank results, which are reported in micrograms per liter (µg/L).	
Level 2 Validation completed on all results and all results have been verified.	
ASB	ARCADIS Soil Boring Location.
SRV	Soil Reference Value.
feet	Feet from ground surface.
NA	Not analyzed.
NS	No standard.
J	Estimated result.
<u>Bold/Underline</u>	Value is above the Tier 1 Residential Soil Reference Value (SRV).
	Value is above the Tier 2 Recreational Soil Reference Value (SRV).

Table 4. Summary of Compounds Detected in Perched Groundwater
Twin Cities Assembly Plant, St. Paul, Minnesota

		MDH HRLs/ USEPA MCL	Sample Location: Sample Name: Sample Date:	ASB-076 ASB-076(20070919) 9/19/2007	ASB-076 DUP-01(20070919) 9/19/2007	ASB-087 ASB-087(20070920) 9/20/2007	ASB-087 DUP 002 9/20/2007	Field Blanks			Trip Blank
Units		Standards						FB-004(20070919) 9/19/2007	FIELD BLANK (FB-008) 9/20/2007	FIELD BLANK (FB-009) 9/20/2007	TRIP BLANK (9/20/2007) 9/20/2007
VOC			VOC								
1,2,4-Trimethylbenzene	µg/L		1,2,4-Trimethylbenzene	NA	NA	0.15 J	0.13 J	NA	< 1	NA	< 1
2-Butanone (MEK)	µg/L	4,000	2-Butanone (MEK)	NA	NA	1.1 J	1.3 J	NA	1 J	NA	< 10
Acetone	µg/L	700	Acetone	NA	NA	4.4 J	9.6 J	NA	8.4 J	NA	< 10
Benzene	µg/L	5	Benzene	NA	NA	2.4	2	NA	< 1	NA	< 1
Chloroform	µg/L	60	Chloroform	NA	NA	< 1	< 1	NA	< 1	NA	0.4 J
Ethylbenzene	µg/L	700	Ethylbenzene	NA	NA	0.55 J	0.48 J	NA	< 1	NA	< 1
Naphthalene	µg/L	300	Naphthalene	NA	NA	0.69 J	0.68 J	NA	< 1	NA	< 1
Toluene	µg/L	1,000	Toluene	NA	NA	3.4	3	NA	0.2 J	NA	< 1
Xylene, -m & p	µg/L	10,000 (I)	Xylene, -m & p	NA	NA	0.79 J	0.63 J	NA	< 2	NA	< 2
Xylene, -o	µg/L	10,000 (I)	Xylene, -o	NA	NA	0.39 J	0.29 J	NA	< 1	NA	< 1
Metals			Metals								
Arsenic	µg/L	10	Arsenic	290	171	284	NA	< 10	NA	< 10	NA
Copper	µg/L	1,300	Copper	1,850	1,150	903	NA	< 25	NA	< 25	NA
Iron	µg/L	NS	Iron	1,080,000	793,000	959,000	NA	< 100	NA	58.5 J	NA
Lead	µg/L	15	Lead	430	310	296	NA	< 3	NA	< 3	NA

Notes:
Results are reported in micrograms per liter (µg/L).
Notes: All results have been verified.
ASB ARCADIS Soil Boring Location.
NA Not analyzed.
I Isomers must be added together prior to comparison to criteria.
J Estimated result.
Value is above the Minnesota Department of Health (MDH) Health Risk Limits (HRLs) and U.S. Environmental Protection Agency (USEPA) Maximum Contaminant Levels (MCLs).
VOC Volatile organic compounds.

Table 5. Comparison of Detected Compounds in Soil (July and August 2007) to Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Constituent	Units	Tier 2 Residential SRV	Tier 2 Recreational SRV	Tier 2 Acute Child SRV	Maximum Detected	Maximum Exceeds Tier 2 SRV/COPC	Location ID: DepthInterval (feet): Sample Date:	AGM-SS-001 0 - 0.5 8/13/2007	AGM-SS-002 0 - 0.5 8/13/2007	AGM-SS-003 0 - 0.5 8/13/2007	ASB-049 4 - 6 7/5/2007	ASB-050 4 - 6 7/5/2007	ASB-051 2 - 4 7/5/2007	ASB-052 2 - 4 7/5/2007	ASB-053 2 - 4 7/5/2007	ASB-054 4 - 6 7/5/2007
VOC							VOC									
Methyl acetate	mg/kg	NS	NS	NS	ND	No	Methyl acetate	NA	NA	NA	< 0.52	< 0.58	0.1	< 0.55	< 0.79	< 0.56
SVOCs							SVOCs									
bis-2-Ethylhexyl phthalate	mg/kg	570	690	NS	0.07	No	bis-2-Ethylhexyl phthalate	NA	NA	NA	0.07	< 0.39	0.026	0.02	0.042	0.038
Fluoranthene	mg/kg	850	1,290	NS	0.024	No	Fluoranthene	NA	NA	NA	< 0.34	< 0.39	< 0.44	< 0.36	0.024	< 0.37
Pyrene	mg/kg	890	1,060	NS	0.025	No	Pyrene	NA	NA	NA	< 0.34	< 0.39	< 0.44	< 0.36	0.025	< 0.37
Metals							Metals									
Aluminum	mg/kg	30,000	40,000	NS	9,020	No	Aluminum	6,380	8,410	7,090	3,120	8,250	8,420	5,610	9,020	2,780
Antimony	mg/kg	12	16	600	1.2	No	Antimony	1.2	< 7.7	< 7.5	< 6.2	< 7	< 8	< 6.5	< 9.5	< 6.7
Arsenic	mg/kg	5	5	5	16.4	Yes	Arsenic	16.4	5.0	4.8	6.6	1.6	5.3	2.1	7.2	3.1
Barium	mg/kg	1200	1200	1,200	164	No	Barium	111	100	87.5	35.8	70.7	164	60.2	56.8	22.5
Beryllium	mg/kg	55	75	NS	0.75	No	Beryllium	0.17	0.35	0.29	0.3	0.49	0.75	0.26	0.5	0.27
Cadmium	mg/kg	25	35	55	0.54	No	Cadmium	0.54	0.32	0.33	< 0.52	< 0.58	< 0.67	< 0.55	< 0.79	< 0.56
Calcium	mg/kg	NS	NS	NS	72,900	No	Calcium	14,300	9,080	21,700	72,900	16,400	23,600	9,560	22,000	32,200
Chromium	mg/kg	87/44,000	120/60,000	NS	18.1	No	Chromium	13.1	15.3	12.3	8.7	15.3	14.5	8.8	18.1	8.4
Cobalt	mg/kg	600	800	NS	17.8	No	Cobalt	4.6	6	7.4	6.2	5.7	17.8	10.7	10.2	7.3
Copper	mg/kg	11	11	11	35.3	Yes	Copper	19.4	14.7	13.8	18.8	9.5	5.3	35.3	13.2	9.1
Iron	mg/kg	9,000	12,000	NS	20,600	Yes	Iron	12,900	16,200	13,300	17,100	16,600	13,600	20,600	18,700	9,970
Lead	mg/kg	300	300	2,000	44.2	No	Lead	43	22.7	44.2	3	5.3	2.6	2.6	6.8	2.2
Magnesium	mg/kg	NS	NS	NS	19,400	No	Magnesium	4,860	4,060	4,180	19,400	8,400	4,150	5,680	4,250	12,300
Manganese	mg/kg	3,600	5,000	NS	589	No	Manganese	495	449	545	563	230	589	279	563	309
Nickel	mg/kg	560	800	NS	30.8	No	Nickel	10.8	13.3	13.9	14.9	13.6	30.8	26.3	18.6	12.7
Potassium	mg/kg	NS	NS	NS	3,700	No	Potassium	1,370	972	2,460	560	722	3,700	496	3150	639
Sodium	mg/kg	NS	NS	NS	116	No	Sodium	< 676	< 638	< 624	< 520	< 584	< 666	116	< 792	< 559
Vanadium	mg/kg	30	40	NS	34.1	No	Vanadium	17.6	28.7	15.8	20.4	18.9	6.8	34.1	23.6	13.3
Zinc	mg/kg	8,700	12,000	NS	56.4	No	Zinc	56.4	36.4	46.3	16.1	32.1	23.8	30.2	46.6	16
Mercury	mg/kg	0.5	1.2	NS	0.11	No	Mercury	0.057	0.029	0.11	< 0.1	0.042	0.025	0.019	0.037	< 0.11
Other							Other									
pH	none	NS	NS	NS	9.0	No	pH	NA	NA	NA	8.4	8.6	8.7	8.6	7.8	9
Percent Solids	%	NS	NS	NS	96.1	No	Percent Solids	73.9	78.4	80.1	96.1	85.6	75	91.6	63.2	89.5

Notes:
Results are reported in milligrams per kilogram (mg/kg), unless noted.
SRV Soil Reference Value.
ASB ARCADIS Soil Boring Location.
AGM-SS ARCADIS Surface Soil Sampling Location.
feet Feet from ground surface.
NA Not analyzed.
NS No standard.
Bold/Underline Value is above the Tier 1 Residential Soil Reference Value (SRV).

Value is above the Tier 2 Recreational Soil Reference Value (SRV).

COPC Contaminants of Potential Concern.
VOC Volatile Organic Compound.
SVOC Semi-Volatile Organic Compound.

Table 6. Comparison of Constituents of Potential Concern in Surface Soils to Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Constituents	Units										Statistical Summary					Comparison to Criteria		
		Tier 2 Recreational SRV	Tier 2 Acute Child SRV		Tier 2 Short-Term Worker SRV		Tier 2 Chronic/ Longer-Term Recreational SRVs			Lowest Tier 2 SRV	Frequency of Detection	Minimum Detected	Maximum Detected	Arithmetic Mean	95% UCL of the Mean	Maximum Exceeds Lowest Tier 2 SRV?	Maximum Exceeds Tier 2 Acute Child Recreational SRV?	95% UCL Exceeds Tier 2 Chronic/ Longer-Term Recreational SRV?
Metals																		
Arsenic	mg/kg	5	5.0	a, b	70	a	11.4	d	14.8	f	5.0	39 / 39	0.71J	16.4	3.3	3.95 (G)	Yes	No
Copper	mg/kg	11	11	a,b	3000	a	1500	e	9600	g	11	39 / 39	3.1	19.4	9.3	12.7 (NP)	Yes	No
Iron	mg/kg	12000	66000	c	85000	a	12400	e	78000	g	12,000	39 / 39	3950	18100	10740	11,566 (N)	Yes	No
Lead	mg/kg	300	2000	a,b	700	a	NC		NC		300	39 / 39	2.0	59.8	19.7	NC	No	No
Other																		
Percent Solids	%	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes on page 5.

Table 6. Comparison of Constituents of Potential Concern in Surface Soils to Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Constituents																
Location:		AGM-SS-001	AGM-SS-002	AGM-SS-003	AGM-SS-004	AGM-SS-005	AGM-SS-006	AGM-SS-007	AGM-SS-008	AGM-SS-009	AGM-SS-010	AGM-SS-011	AGM-SS-012	AGM-SS-013	AGM-SS-014	AGM-SS-015
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date:		Units	8/13/2007	8/13/2007	8/13/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007
Area:			Northeast	Northeast	Northeast	Northeast	Northeast	Northeast	Northeast	Northeast	Northeast	Northeast	Northwest	Northwest	Northwest	Northwest
Metals																
Arsenic	mg/kg	16.4	5.0	4.8	2.0	1.8	1.1	1.6	2.3	5.0	3.9	4.5	3.1	2.7	1.5	1.4
Copper	mg/kg	19.4	14.7	13.8	5	5.6	6.5	6.2	6	12.4	10.7	10.8	11.3	4	5.6	6.9
Iron	mg/kg	12,900	16,200	13,300	10,900	9,740	8,990	9,060	10,100	12,400	9,920	11,600	12,200	9,600	10,600	9,900
Lead	mg/kg	43.0	22.7	44.2	4.2	5.1	5.7	5.9	5.6	59.8	23.9	30.2	26.0	5.2	4.9	6.5
Other																
Percent Solids	%	73.9	78.4	80.1	82.9	90.6	97.0	90.3	90.8	86.5	91.1	85.6	93.1	86.8	90.4	93.4

Notes on page 5.

Table 6. Comparison of Constituents of Potential Concern in Surface Soils to Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Constituents																
Location:		AGM-SS-016	AGM-SS-017	AGM-SS-018	AGM-SS-019	AGM-SS-020	AGM-SS-021	AGM-SS-022	AGM-SS-023	AGM-SS-024	AGM-SS-025	AGM-SS-026	AGM-SS-027	AGM-SS-028	AGM-SS-029	AGM-SS-030
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Sample Date:		9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007
Area:		Northwest	Northwest	Northwest	Northwest	Northwest	South	South	South	South	South	South	South	South	South	South
Metals																
Arsenic	mg/kg	1.2	2.1	4.0	2.6	4.9	3.1	2.4	1.2	4.6	1.5	1.2	6.7	3.4	2.8	2.2
Copper	mg/kg	4.7	6.7	17.5	14.1	17.3	14.1	4.5	3.7	19.2	4.5	3.1	14.5	15.8	10.9	6.8
Iron	mg/kg	7,190	16,100	13,800	12,900	18,100	12,700	10,600 J	7,120	14,200	11,300	7,000	9,480	11,400	7,820	11,100
Lead	mg/kg	4.5	6.2	59.5	29.5	32.4	24.2	4.6	3.1	50.2	3.9	3.3	49.1	44.1	43.4	8.2
Other																
Percent Solids	%	87.6	91.3	79.8	78.0	70.7	77.3	90.8	85.0	80.2	89.7	88.3	82.7	70.0	71.1	86.8

Notes on page 5.

Table 6. Comparison of Constituents of Potential Concern in Surface Soils to Tier 2 Soil Reference Values
Twin Cities Assembly Plant, St. Paul, Minnesota

Constituents														
Location:		AGM-SS-031	AGM-SS-032	AGM-SS-033	AGM-SS-034	AGM-SS-035	AGM-SS-036	AGM-SS-037	AGM-SS-038	AGM-SS-039	Equipment Blank		Field Blank	
Depth Interval (feet):		0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	EB-001	EB-002	FB-001	FB-002
Sample Date:	Units	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007	9/17/2007
Area:		Public Areas	Public Areas	Public Areas	Public Areas	Public Areas	Public Areas	Public Areas	Public Areas	Public Areas				
Metals														
Arsenic	mg/kg	1.6	5.5	1.5	1.6	7.1	5.9	0.95 J	0.71 J	1.3	<10	<10	<10	<10
Copper	mg/kg	6.3	12.2	5.8	6.8	10.7	11	4.4	4.2	5.8	<25	9.9 J	<25	<25
Iron	mg/kg	9,090	12,100	5,200	8,200	13,200	14,500	6,010	3,950	8,380	<100	<100	<100	69.8 J
Lead	mg/kg	8.7	17.8	2.0	5.0	21.4	35.5	3.3	2.5	11.9	<3	<3	<3	<3
Other														
Percent Solids	%	81.1	59.1	89.1	89.1	69.3	74.0	82.4	90.5	83.9	NA	NA	NA	NA

Notes on page 5.

Table 6. Comparison of Constituents of Potential Concern in Surface Soils to Tier 1 and Tier 2 SRVs
Twin Cities Assembly Plant, St. Paul, Minnesota

Notes:	
Results are reported in milligrams per kilogram (mg/kg) except for Equipment and Field Blank results which are reported in micrograms per liter (µg/l).	
A Level 4 Validation was completed for Samples AGM-SS-004 through 021. A Level 2 Verification was completed on the remaining samples.	
Feature Number	Environmental Feature from Phase I Environmental Site Assessment report.
AGM-SS	ARCADIS Surface Soil Sampling Location.
SRV	Soil Reference Value.
feet	Feet from ground surface.
NA	Not analyzed.
NC	Not calculated.
NS	No standard/SRV.
J	Estimated result.
95% UCL	95 percent upper confidence limit of the arithmetic mean.
MPCA	Minnesota Pollution Control Agency.
<u>Value is above the Tier 1 Residential Soil Reference Value (SRV).</u>	
<u>Value is above the MPCA's final Tier 2 Recreational Soil Reference Value (SRV).</u>	
a	MPCA generic SRV.
b	Based on protection of 1- to 2-year olds that ingest 10,000 mg of soil. Basis for MPCA's Acute Child SRV.
c	Calculated based on protection of 1- to 2-year olds that ingest 10,000 mg of soil. Basis for MPCA's Acute Child SRV.
d	Calculated. Based on generic MPCA approach. Value is lowest of noncancer effects (6-year exposure duration) and cancer effects (33-year exposure duration).
e	Calculated. Based on generic MPCA approach. Value is based on noncancer effects and a 6-year exposure duration.
f	Calculated. Based on lowest of protection of excess lifetime cancer risk of one-in-a-hundred-thousand and noncancer effects. Age-adjusted over a 33-year exposure duration.
g	Calculated. Based on noncancer effects and an age-adjusted 33-year exposure duration.
*	Calculated following the guidelines in the MPCA Guidance Document.
G	Follows Gamma Distribution.
NP	Non-parametric Distribution.
N	Follows a Normal Distribution.

Table 7. Summary of Available Background Data
Twin Cities Assembly Plant, St. Paul, Minnesota

Metals	Units	Eastern USA								Minnesota					
		Minimum	Maximum	A. mean	SD	G. mean	SD	N	Reference	Minimum	Maximum	A. Mean	SD	N	Reference
Arsenic	mg/kg	<1.0	73	7.4	--	4.8	2.56	527	1	0.5	15	5.5	4.6	37	3
Copper	mg/kg	<1.0	700	22	--	13	2.80	533	1	2.0	700	35	115	36	3
										16	50	26	9	16	54
										3.0	24	8.6	6.2	11	58 (histosols)
Iron	mg/kg	100	>100,000	25,000	--	14,000	2.87	540	1	500	50,000	19,527	--	37	3
Lead	mg/kg	<10	300	17	--	14	1.95	541	1	ND	20	13	4.5	37	3

References:

Data was obtained from "Elements in North American Soils," J. Dragn, A. Chiasson, December 1991.

1 Shacklette, H.T. and J.G Boerngen. 1984. "Element concentrations in soil and other surficial materials of the conterminous United States," U.S. Geological Survey Professional Paper 1270, Washington D.C.: U.S. Government Printing Office.

3 Boerngen, J.G. and H.T. Shacklette. 1981. "Chemical analyses of soils and other surficial materials of the conterminous United States," U.S. Geological Survey Open-File Report 81-197.

54 Pierce, F.J., R.H. Dowdy, and D.F. Grigal. 1982. "Concentrations of six trace metals in some major Minnesota soil series," *Journal of Envirnmmental Quality* , 11, 3, pp. 416-422.

58 Bloom, P.R., W.E. Elder, and J. Grava. 1983. "Chemistry and mineralogy of mineral elements in Minnesota histosols," *Papers Presented at the 26th Annual Manitoba Society of Soil Science Meeting* .

Notes:

- A. mean Arithmetic mean.
- G. mean Geometric mean.
- SD Standard Deviation.
- N Number of samples.
- Not given.
- ND Not detected.
- mg/kg Milligrams per kilogram.
- < Less than.
- > Greater than.
- USA United States of America.

Table 8. Summary Statistics of Metals in On-Site Surface Soils and Background Soils
Twin Cities Assembly Plant, St. Paul, Minnesota

Metal	Units	Data Set	Frequency of Detection	Minimum	Maximum	Median	Arithmetic		Geometric		CV	Distribution ¹	95% UCL ²		95% UPL ²		95/95 UTL ³		Potential Outliers ⁴
							Mean	SD	Mean	SD			Value	Method	Value	Method	Value	Method	
Arsenic	mg/kg	Site	39 / 39	0.71	16.4	2.4	3.3	2.8	2.6	2.0	0.85	Gamma	4.0	95% Approximate Gamma	NA		NA		16.4
		Background	36 / 36	0.5	15	3.9	5.0	3.6	3.9	2.2	0.72	Gamma, Lognormal	6.2	95% Approximate Gamma	13.3 14.5	Nonparametric ⁶ Lognormal	14.9 15.0 20.4	Gamma ⁵ Nonparametric ⁵ Lognormal ⁵	none
Copper	mg/kg	Site	39 / 39	3.1	19.4	6.8	9.3	4.8	8.2	1.7	0.52	Nonparametric	12.7	95% Chebyshev (Mean, SD)	NA		NA		none
		Background	36 / 36	2	700	15	35.0	115	13.7	2.7	3.3	Nonparametric	118	95% Chebyshev (Mean, SD)	165	Nonparametric ⁶	700	Nonparametric ⁶	50, 70 & 700
Iron	mg/kg	Site	39 / 39	3,950	18,100	10,600	10,700	3,060	10,300	1.4	0.29	Normal	11,600	95% Student's-t	NA		NA		none
		Background	37 / 37	500	50,000	20,000	19,500	10,200	16,500	2.1	0.52	Nonparametric	26,800	95% Chebyshev (Mean, SD)	50,000	Nonparametric ⁶	50,000	Nonparametric ⁶	50,000 & 50,000

Notes:
mg/kg Milligrams per kilogram.
CV Coefficient of variation.
SD Standard deviation.
95% UCL 95 percent upper confidence limit for the arithmetic mean.
95/95 UTL 95/95 upper tolerance limit, represents a 95 percent one-sided confidence limit for 95 percent coverage.
NA Not applicable.
USEPA U.S. Environmental Protection Agency.

¹ Distribution assessed by goodness-of-fit tests conducted using ProUCL 4.0 at a 95 percent confidence level ($\alpha = 0.05$).
Distributions:
Normal: data follow a normal distribution, according to the Shapiro-Wilk test.
Gamma: data follow a gamma distribution, according to the Kolmogorov-Smirnov test.
Log-normal: data follow a log-normal distribution, according to the Shapiro-Wilk test.
Nonparametric: data do not follow a discernable distribution.

² 95% UCLs and 95% UPLs were calculated for site and background data sets using 2007 USEPA ProUCL 4.0 and were chosen based on the results of goodness-of-fit testing according to the hierarchy of distributions listed above.

³ 95/95 UTLs were calculated for the background data set using 2007 USEAP ProUCL 4.0 or the gamma UTL method (see footnote 5) and were chosen based on the results of goodness-of-fit testing according to the hierarchy of distributions listed above.

⁴ Potential outliers identified in the background data sets of copper and iron and in the site dataset of arsenic. The presence of outliers was evaluated using ProUCL 4.0, which performs statistical tests (Dixon, Rosner, or Walsh's test) and generates quantile-quantile [Q-Q] plots.

⁵ USEPA guidance (USEPA, 2007b) suggests the gamma UTL is preferred over the lognormal UTL for data that fit both distributions. Results for both methods are presented for comparison. ProUCL 4 approximates the gamma UTL using a nonparametric method. Results using an alternate parametric gamma UTL method (Guenther, 1972) are also presented. The parametric and nonparametric methods yield approximately the same estimate (15 mg/kg) for the arsenic background data set.

⁶ If data do not fit a normal or lognormal distribution, 95/95 UTL (and 95% UPL) is based on a nonparametric estimate using Kaplan Meier-adjusted parameters (USEPA, 2007b). An alternate nonparametric approach is to estimate the 95/95 UTL from a rank-ordered statistic, which defaults to the maximum detect for sample sizes of $n < 92$ (Conover, 1999).

Table 9. Statistical Comparison of Metals in On-Site Surface Soils Versus Background Soils
Twin Cities Assembly Plant, St. Paul, Minnesota

Metal	Distribution ¹		t-Test ^{2,3} Results		WMW Test ^{2,4} Results	
	Background	Site	p-Value ⁵	Site Elevated?	p-Value ⁵	Site Elevated?
Arsenic ⁶ (1)	Lognormal	Lognormal	0.99	No	0.99	No
Arsenic ⁶ (2)	Lognormal	Lognormal	1.0	No	1.0	No
Copper	Nonparametric	Nonparametric	NA	NA	1.0	No
Iron	Nonparametric	(Log)-Normal	NA	NA	1.0	No

Notes:
NA Not applicable.
WMW Wilcoxon-Mann-Whitney.
USEPA U.S. Environmental Protection Agency.

¹ Distribution assessed by goodness-of-fit tests (the Shapiro-Wilk test) conducted using 2007 USEPA ProUCL 4.0 at a 95 percent confidence level (α = 0.05) to test for normality or lognormality of a data set.
Distributions:
Normal: data follow a normal distribution.
Lognormal: data follow a lognormal distribution.
(Log-)Normal: data follow both a normal and lognormal distribution.
Nonparametric: data do not follow either a normal or lognormal distribution.

² Statistical analyses conducted by 2007 USEPA ProUCL 4.0 using two-sample hypotheses testing approaches at a 95 percent confidence level (α = 0.05).

³ t-Test only conducted when data are normally or lognormally distributed in both background and site soils. Student's t-test conducted when background and site data sets have equal variance; Satterthwaite's t-test conducted when background and site datasets do not have equal variance.

⁴ WMW test conducted for full data sets that fit neither a normal nor lognormal distribution.

⁵ p-Value, as computed by ProUCL 4.0, is an approximate value only.

⁶ Potential outlier identified in the site data set for arsenic (16.4 mg/kg). Hypothesis tests were conducted (1) with and (2) without outlier.