Revised Addendum to the
Post-Remediation Human Health Risk Assessment
Koppers Inc. Facility
Superior, Wisconsin

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Revised Addendum to the Post-Remediation Human Health Risk Assessment
Koppers Inc. Facility, Superior, Wisconsin

Beazer East, Inc. (Beazer) is performing a Resource Conservation and Recovery Act (RCRA) Corrective Action for the Koppers Inc. (KI) facility in Superior, Wisconsin (the Site)[1]. This activity is being performed pursuant to the Hazardous and Solid Waste Amendments and RCRA portions of the permit for the facility, WID 006 179 493.

In July 2007, Beazer prepared and submitted to the Wisconsin Department of Natural Resources (WDNR) a Focused Corrective Measures Study (FCMS) (ARCADIS BBL, 2007a), which contained a Post-Remediation Human Health Risk Assessment (HHRA) that was consistent with the approach developed and negotiated between Beazer and WDNR during numerous meetings, teleconferences, letters, documents, and presentations over a period of several years. The July 2007 HHRA presented a detailed history of these documents and communications. WDNR provided comments on the July 2007 HHRA in letters to Beazer dated August 31 and September 20, 2007 (WDNR, 2007a; 2007b) related to the use of absorption adjustment factors (AAFs) and dermal permeability constants (K_ps) that differed from U.S. EPA default/recommended dermal absorption factors (AFs) and K_ps.

In January 2008, Beazer prepared and submitted to the WDNR an Addendum to the July 2007 HHRA (HHRA Addendum) (AMEC, 2008) that contained an evaluation of potential risks using the framework in the July 2007 HHRA, but incorporating U.S. EPA default AFs and K_p values instead of the dermal AAFs and K_ps used in the July 2007 HHRA. The consequent changes to the list of soil sample locations requiring corrective action were also discussed in the January 2008 HHRA Addendum.

In August 2008, additional soil samples were collected as part of a pre-design investigation (PDI). This Revised HHRA Addendum provides a revised evaluation of the potential health risks associated with potential exposures to surface soil, incorporating the August 2008 PDI results with the surface soil dataset previously evaluated. In doing so, this Revised HHRA Addendum uses the framework in the July 2007 HHRA, incorporates U.S. EPA default AFs and K_p values, as requested by WDNR in comments to the July 2007 Post Remediation HHRA, and is otherwise consistent with the values used in the January 2008 HHRA Addendum.

Consistent with the July 2007 HHRA and January 2008 HHRA Addendum, the purpose of this Revised HHRA Addendum is to quantify potential health risks under post-remediation Site conditions to demonstrate that the specific corrective measures discussed in the FCMS will achieve corrective action objectives for the Site. The Site-specific corrective action objectives for soil are to:

1) Mitigate direct contact by potential receptors to surface soil containing constituents at concentrations that may affect human health; and

[1] Note that "the Site" is divided into "on-property" and "off-property" areas. The Post-Remediation Human Health Risk Assessment to which this Addendum applies addresses only the on-property portion of the Site, which consists of the KI facility (Figure 1). A more detailed description of the on- and off-property portions of the Site is provided in the *Focused Corrective Measures Study* (ARCADIS BBL, 2007a).

2) Minimize the potential for off-Site migration of constituents through dissolved phase transport (groundwater) or erosion (surface water).

Achieving the objective of mitigating direct contact is demonstrated by estimating potential risks associated with exposure to post-remediation conditions in surface soil at the Site. The objective of minimizing off-Site migration via erosion is demonstrated by estimating potential post-remediation risks associated with exposure to surface water receiving runoff from soil under post-remediation conditions. Each of these demonstrations is further discussed below. With respect to minimizing the potential for off-Site migration of constituents via dissolved phase transport, Beazer has proposed a natural attenuation-based approach for groundwater at the Site, thus achieving the objective of minimizing off-Site migration via groundwater transport.

Mitigation of Direct Contact with Surface Soil

The goal of this evaluation is to demonstrate that potential risks associated with post-remediation conditions in surface soil achieve target risks for the Site. As stated above, the technical approach used in this evaluation is consistent with the framework of the July 2007 HHRA, with modification based on WDNR's comments on that document. Potential risks have been estimated in the following areas of the Site (see Figure 1):

- Area A (Former Unlined Landfill/Landfarm);
- Area B (Former Treatment Area);
- Area C (Closed Surface Impoundments);
- Area F (Drip Track Area);
- Area G (Straw Bales Area);
- Area H (Lead Track Landfill); and
- Area S (Former Sprayfield).

It is noted that the August 2008 PDI was conducted in Area A, Area B, Area H, and Area S. The additional surface soil data collected during that investigation has been incorporated into the data set previously evaluated in the January 2008 HHRA Addendum to evaluate potential soil exposures. Based on previous risk assessment work and agreements with WDNR, three constituents or groups of constituents are considered Constituents of Potential Concern (COPCs) in the evaluation of potential risks associated with exposure to soil:

- Polycyclic aromatic hydrocarbons (PAHs), including
  - Potentially carcinogenic PAHs, evaluated as benzo(a)pyrene toxic equivalents (BaP-TE);
  - Noncarcinogenic PAHs are evaluated individually;
- Pentachlorophenol; and
- Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDDs/PCDFs), evaluated as 2,3,7,8-tetrachlorodibenzo-p-dioxin toxic equivalents (TCDD-TEQ).

Other detected constituents in soil at the Site (referred to as non-COPCs) have also been evaluated in this risk assessment. With the exception of arsenic, potential risks have been

estimated for all non-COPCs. Arsenic was not evaluated in the July 2007 HHRA and is not evaluated in this Revised HHRA Addendum because the maximum detected concentration was below background levels. Tables showing the analytical data used to estimate potential exposures to COPCs and non-COPCs can be found in reports referenced in the FCMS report. Tables 1a through 1i show the summary statistics for COPCs and maximum detected concentrations of non-COPCs in surface (0-1 ft below ground surface (bgs)) and subsurface soil (0-5 ft bgs) in each area evaluated in the assessment in this Revised HHRA Addendum. Concentrations of BaP-TE and TCDD-TEQ were estimated using the toxic equivalent factors (TEFs) shown in Table 2 (for BaP-TE) and Table 3 (for TCDD-TEQ).

The toxicity information used in the July 2007 HHRA has also been used in this Revised HHRA Addendum, and is summarized in Table 4.

Absorption adjustment factors (AAFs) were used in the FCMS HHRA to evaluate dermal exposures to soil. These factors are necessary because the efficiency of constituent absorption via a particular route of exposure and from a particular environmental matrix may differ from the absorption efficiency for the exposure route and matrix used in the experimental study that provides the basis of the toxicity factor. In accordance with agreements with WDNR, oral AAFs for soil exposure are set as default values of 1.0. As mentioned above, WDNR has commented on the AAFs used to evaluate potential dermal exposures to PAH and pentachlorophenol in soil and has recommended using default dermal AFs developed by U.S. EPA for PAH and pentachlorophenol. The potential risks presented in this Revised HHRA Addendum were estimated using dermal AFs recommended by WDNR for PAH and pentachlorophenol (U.S. EPA, 2004a) and dermal AAFs presented in the July 2007 HHRA for other constituents. The AAFs and AFs used in this Revised HHRA Addendum are shown in Table 5.

Potential human receptors, routes of exposure, equations used to estimate potential doses of COPCs and non-COPCs, and exposure parameter values are identical to the approach used in the July 2007 HHRA, with the exception of the U.S. EPA default AFs recommended in WDNR's comment letters.

Potential post-remediation risks associated with exposure to soil have been estimated at:

- Each of the seven investigation areas identified above;
- Site-wide; and
- The combined Areas B and F (Treatment Area and Drip Track Area).

Consistent with the July 2007 HHRA, potential receptors associated with current Site use include local residents who may trespass at the Site (Trespassers) and workers at the Facility (KI Site Workers), who may contact surface soil (0-1 ft bgs). Because institutional controls will be put into place to control potential access to soil deeper than 1 ft bgs, risk-based corrective action objectives have not been developed for soil deeper than 1 foot bgs. Nevertheless, potential risks associated with hypothetical exposures of Utility Workers and Construction Workers to subsurface soil (0-5 ft bgs) were evaluated in the July 2007 HHRA and have been evaluated in this Revised HHRA Addendum for informational purposes and to be consistent with previous risk assessments conducted for the Site. All receptors were assumed to be exposed

to soil via incidental ingestion, dermal contact, inhalation of volatiles from soil, and inhalation of soil-derived dust in air.

Exposure point concentrations (EPCs) for constituents in soil were estimated using the soil analytical data from all field investigations conducted at the Site, including the August 2008 PDI sampling event. EPCs were developed to represent post-remediation conditions, assuming that COPC concentrations at certain surface soil sample locations were no longer available for contact by receptors. Post-remediation EPCs were estimated by removing from the project database COPC concentrations reported at those surface soil locations that were targeted for corrective action (that is, those surface sample locations within the defined CAA boundaries). Figure 1 shows the revised areas identified for corrective action. In this Revised HHRA Addendum, the EPCs used to estimate potential risks were developed using the methodologies described in the following paragraphs.

To estimate EPCs for **PAH and pentachlorophenol in surface soil,** all reported surface soil concentrations inside the CAA boundaries were removed from the dataset of each exposure area and assumed to be replaced by lower post-remediation concentrations (equal to minimum detected concentrations observed in non-remediated soil samples), and the upper 95% UCL on the arithmetic mean concentration from the resulting dataset was used as the EPC. This approach simulates the fact that a formerly exposed surface soil sample within the CAA boundaries will, under post-remediation conditions, be replaced by clean fill materials due to excavation and replacement of those soils or placement of a soil cover.

EPCs for **PAH and pentachlorophenol in subsurface soil** were estimated by first calculating a representative concentration at each sample location where samples were collected from more than one depth interval, and then estimating the upper 95% UCL on the arithmetic mean concentration from the resulting dataset. Representative concentrations at a sample location where samples were collected from multiple depths were estimated as the arithmetic mean of the available sample concentrations. In the case of sample locations inside corrective action areas, conditions in 1-5 ft bgs soil will not change, while concentrations in 0-1 ft bgs soil will be replaced by post-remediation concentrations. The representative concentrations at subsurface soil sample locations inside corrective action areas were calculated as the arithmetic mean of concentrations measured in samples from 1-5 ft bgs soil and the post-remediation concentration in 0-1 ft bgs soil.

For **TCDD-TEQ in both surface and subsurface soil**, the EPCs were calculated by assuming that the highest concentrations of TCDD-TEQ (including all concentrations greater than 1 µg/kg) are remediated and that post-remediation concentrations are estimated using the remaining sample data only (that is, remediated samples are removed from the dataset and are not replaced with lower concentrations). Consistent with the July 2007 HHRA and the January 2008 HHRA Addendum, this approach was used (rather than the “replacement” approach used for PAH and pentachlorophenol) because the process of replacing remediated samples with post-remediation concentrations of TCDD-TEQ results in high variability in these small datasets, which renders the datasets unsuitable for the parametric statistical techniques used to estimate EPCs. The process of removing remediated sample locations from the dataset and estimating EPCs from the remaining samples produces a dataset more suitable to these statistical techniques. This approach does, however, result in an overestimate of actual EPCs of TCDD-

TEQ because it does not account for the portion of the exposure area where the concentration of TCDD-TEQ has been reduced or eliminated as a result of remediation.

For **non-COPCs**, EPCs were assumed to be the maximum concentration detected in remaining surface or subsurface soil at the Site (outside the horizontal (Figure 1) and vertical (0-1 ft bgs) limits of the CAA boundaries). Although certain to overestimate potential exposures to these constituents, this approach was used because these constituents were expected to contribute only minimally to overall potential risks. However, for dibenzofuran in subsurface soil, the maximum detected concentration (1,540 ppm at AB-5 (1.5-3 bgs)) was substantially higher than other concentrations detected across the Site. The use of this dibenzofuran result as the EPC would substantially overestimated post-remediation conditions because this sample is located below the CAA boundaries where surface soil remediation will occur. Therefore, a more refined approach was used to estimate a more realistic yet still very conservative EPC for dibenzofuran in each exposure area. The following refined approaches were used to estimate EPCs for dibenzofuran:

- To more accurately represent potential exposure in Area A, the subsurface dibenzofuran concentration detected at AB-5 was first averaged with the assumed post-remediation surface soil concentration. The maximum dibenzofuran concentration from the adjusted dataset was then selected as the dibenzofuran EPC for Area A.
- EPCs for dibenzofuran in subsurface soil in other areas (B, C, F, G, H, S, and B/F) were assumed to equal the maximum detected concentration of dibenzofuran in these areas;
- The EPC for dibenzofuran in Site-wide subsurface soil was assumed to equal the highest area-specific EPC among Areas A, B, C, F, G, H, S, and B/F.

This refined approach still yields a very conservative EPC for dibenzofuran in subsurface soil in Area A and Sitewide. This constituent was not detected in 19 of 29 samples, and was detected at concentrations less than 1 mg/kg in an additional 4 samples. Therefore, the EPC used in this Revised HHRA Addendum for dibenzofuran subsurface soil in Area A and Sitewide undoubtedly overestimates the average conditions in soil.

EPCs for COPCs and non-COPCs in all areas evaluated in this Revised HHRA Addendum are shown in Table 6.

Potential exposure doses for each receptor were calculated using standard equations presented by the U.S. EPA (1989) and described fully in the July 2007 HHRA. Table 7 presents the potential exposure assumptions used to evaluate each receptor, and Table 8 shows the calculation of receptor-specific soil adherence factors used to estimate potential exposure via dermal contact with soil. Potential noncarcinogenic and carcinogenic risks were estimated using the approach presented in the July 2007 HHRA. Potential risks were then compared to the following target risk goals developed for the Site:

- Total excess lifetime cancer risk (ELCR) in each area and Site-wide </= $1x10^{-5}$;
- ELCR associated with BaP-TE in each area and Site-wide </= $7x10^{-6}$;
- ELCR associated with pentachlorophenol in each area and Site-wide </= $1x10^{-6}$;

- ELCR associated with TCDD-TEQ in each area and Site-wide </=1x10^{-5};
- TCDD-TEQ concentration in each sample </= 1 ppb; and
- Total Hazard Index (HI) in each area and Site-wide </=1.

Table 9 shows the potential HIs for each receptor and area combination. Table 10 shows the potential ELCRs for each receptor and area combination. As shown in these Tables, all potential risks associated with potential exposure to surface soil achieve the target risk goals developed for the Site. Therefore, conducting corrective action activities in the revised areas (Figure 1) achieves the corrective action objective of mitigation of direct contact with surface soil containing constituents that may affect human health.

Note that the estimated total HI calculated for Construction Workers potentially exposed to subsurface soil (0-5 feet deep) exceeds 1 in Area A (Table 9); however, potential risks associated with exposure to subsurface soil that exceed target risk levels could be addressed by institutional controls and do not affect the scope of "active" remediation described in the FCMS.

Minimize the Potential for Off-Site Migration via Erosion/Surface Water

Consistent with the July 2007 HHRA, concentrations of COPCs in off-Site surface water as a result of runoff and erosion from the Site were estimated using an approach developed by U.S. EPA (2005) for predicting concentrations of constituents in environmental media as a result of RCRA incineration facility emissions. Information about the physical characteristics of Crawford Creek and the tributary to Crawford Creek[2] can be found in the July 2007 HHRA. The equations used to estimate these concentrations in water are shown in Table 11. Table 12 shows the constituent-specific values used to estimate COPC concentrations in runoff from the Site, including concentrations in soil, soil-water partition coefficients, Henry's Law constants, and diffusivities in water. Site-wide EPCs under post-remediation conditions were used to estimate potential concentrations in surface water in the tributary and in Crawford Creek. These estimated surface water concentrations were compared to available water quality criteria.

Table 13 shows the estimated COPC concentrations off-Site resulting from erosion and runoff from the Site. Estimated constituent concentrations in water were compared to Wisconsin's Surface Water Quality Criteria (NR 105) and U.S. EPA's Ambient Water Quality Criteria (AWQC; U.S. EPA, 2009b) – Freshwater chronic and acute values. As shown in Table 14, concentrations of pentachlorophenol in the tributary to Crawford Creek predicted using 95% UCL soil concentrations (8.41 µg/L total and 8.38 µg/L dissolved) do not exceed either the Federal acute and chronic AWQC (58.9 µg/L and 45.2 µg/L, respectively) or the Wisconsin surface water quality acute and chronic standards (53.2 and 48.7 µg/L, respectively). These standards are based on pH values that were measured in the tributary and Crawford Creek surface water (personal communication, ARCADIS BBL, 2007b). Table 14 also compares the estimated COPC concentrations to COPC concentrations measured in Outfall 001 stormwater during routine stormwater monitoring events. As shown, the estimated concentrations in the

[2] The entire length of the channel from the Site to Crawford Creek is referred to in previous documents as "the Outfall 001 drainage ditch;" the portion of this feature downstream of Hammond Avenue is now referred to as the "tributary to Crawford Creek" at the request of the WDNR.

tributary are higher than the concentrations measured in stormwater. This indicates that the modeling approach is conservative relative to the use of measured values (i.e., suggests a higher concentration than actually exists under current conditions).

In addition, EPCs developed in the July 2007 HHRA for COPCs in surface water in the tributary to Crawford Creek and Crawford Creek were evaluated to determine whether they posed a potential risk to human health resulting from direct contact exposure to COPCs during recreational activity by potential trespassers or local residents, using the framework and input parameters from the July 2007 HHRA, and substituting U.S. EPA's default K_ps recommended by WDNR for the K_ps used in the July 2007 HHRA. Tables 15 and 16 show the equations and input values used to assess potential surface water exposure. As shown in Tables 15 and 16, potential excess lifetime cancer risks associated with potential exposure to surface water in both Crawford Creek and the tributary (under post-remediation conditions) fall within or are less than U.S. EPA's acceptable risk range of 10^{-4} to 10^{-6} and are below Wisconsin's target risk of 10^{-5}, using the 95% UCL concentrations. Potential HIs associated with exposure to surface water (under post-remediation conditions) are below the target HI of one. Therefore, potential risks associated with exposure to constituents in off-Site water bodies resulting from erosion and runoff from the Site achieve target risk levels.

Therefore, conducting corrective action activities in the areas specified in Figure 1 as defined in the FCMS achieves the objective of minimizing potential off-site migration via erosion.

Conclusion

As part of PDI, Beazer collected additional surface soil data and has modified/refined the limits of the CAA boundaries (Figure 1). The evaluation in this Revised HHRA Addendum reveals that conducting corrective action activities in the modified CAA boundaries achieves the corrective action objective of mitigation of direct contact with surface soil containing constituents that may affect human health and of minimizing potential off-site migration via erosion. The K_p values recommended in WDNR's comment letters were used to assess the potential post-remediation risks presented in this Revised HHRA Addendum.

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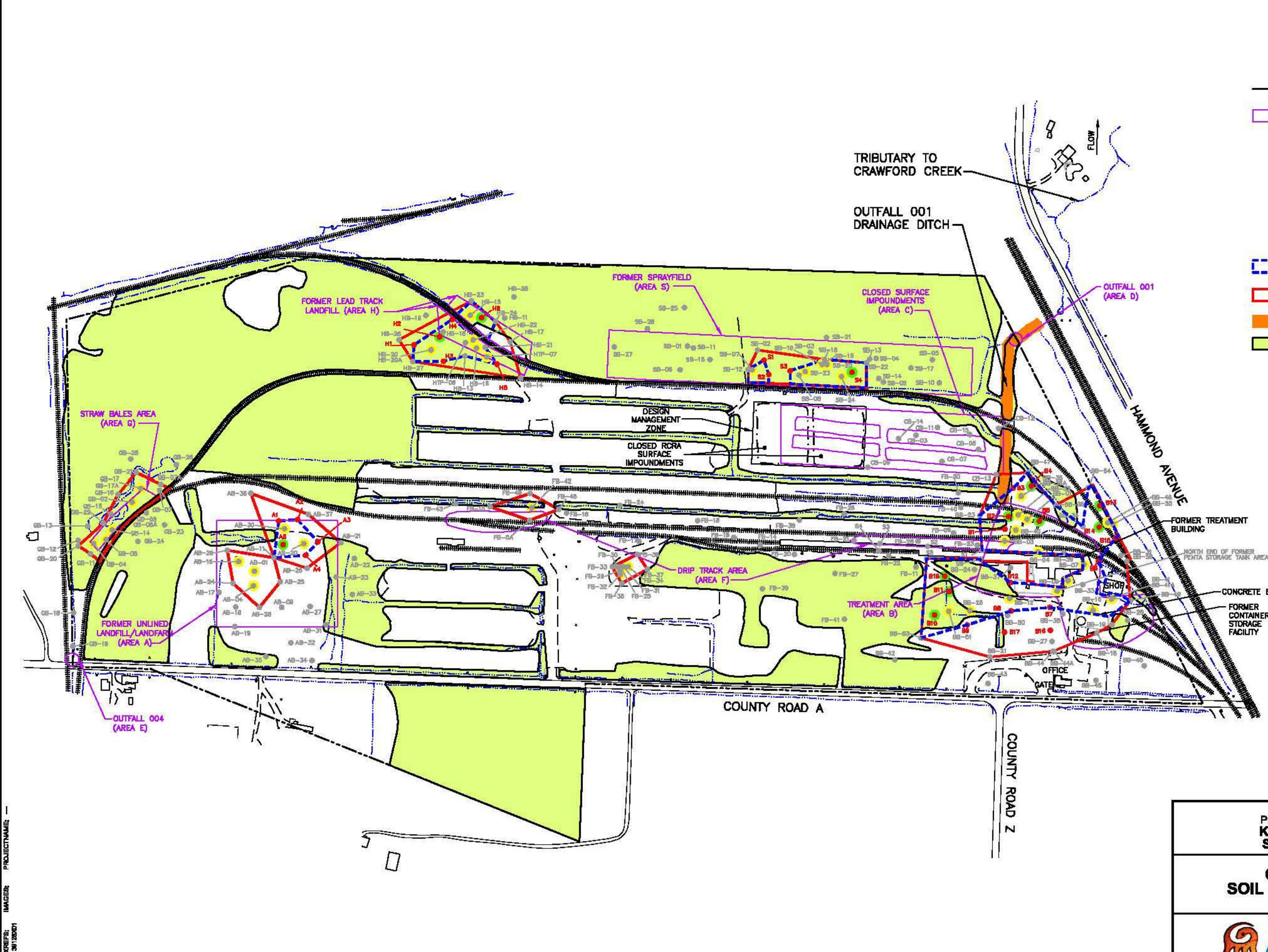
WDNR. 2007b. Letter to Ms. Jane Patarcity, Beazer East, Inc. from Mr. James Hosch. September 20, 2007.

Figure



LEGEND:

- KOPPERS INC. FACILITY PROPERTY BOUNDARY
- SOLID WASTE MANAGEMENT UNITS (SWMUs) (SEE NOTE 3)
- 1988–2006 SOIL SAMPLE LOCATION (SURFICIAL SAMPLES ONLY)
- 2008 PDI SOIL SAMPLE LOCATION
- SOIL SAMPLE LOCATION REQUIRING CORRECTIVE ACTION BASED ON POST–REMEDIATION HHRA (SEE NOTE 4)
- POSSIBLE PDI SOIL SAMPLE LOCATION REQUIRING CORRECTIVE ACTION (SEE NOTE 6)
- POSSIBLE REVISED TARGETED ON–PROPERTY SOIL CORRECTIVE ACTION AREA
- TARGETED ON–PROPERTY SOIL CORRECTIVE ACTION AREA (SEE NOTE 4)
- TARGETED OUTFALL 001 DRAINAGE DITCH CORRECTIVE ACTION AREA
- WETLAND AREA (SEE NOTE 5)

NOTES:

1. BASE MAP AND TOPOGRAPHY OBTAINED FROM PHOTOGRAMMETRY PERFORMED BY LOCKWOOD MAPPING COMPANY OF ROCHESTER, NY (12/28/01).
2. ALL LOCATIONS ARE APPROXIMATE.
3. SWMU LIMITS DEFINED DURING THE RCRA FACILITY ASSESSMENT/INVESTIGATION.
4. THE EXTENT OF ON–PROPERTY SOILS TARGETED FOR CORRECTIVE ACTION ENCOMPASSES SOIL SAMPLES DETERMINED TO REQUIRE CORRECTIVE ACTION BASED ON THE RESULTS OF THE POST–REMEDIATION HUMAN HEALTH RISK ASSESSMENT (HHRA) AND ASSOCIATED ADDENDUM. IN GENERAL, THE CORRECTIVE ACTION BOUNDARIES WERE FORMED BY CONNECTING "CLEAN" SAMPLE POINTS THAT SURROUND SAMPLES REQUIRING CORRECTIVE ACTION BASED ON THE HHRA. WHERE APPROPRIATE, SITE FEATURES WERE ALSO USED TO ESTABLISH BOUNDARIES. THE ACTUAL CORRECTIVE ACTION LIMITS WILL BE DETERMINED DURING DESIGN.
5. APPROXIMATE WETLAND LOCATIONS BASED ON WETLAND DELINEATION PERFORMED BY ENVIRONMENTAL TROUBLESHOOTERS, INC. OF DULUTH, MN IN 2002 (AND SUBSEQUENT SURVEY BY L.W. SURVEY ENGINEERING & DESIGN COMPANY OF DULUTH, MN), WETLAND DELINEATION PERFORMED BY ENVIRONMENTAL TROUBLESHOOTERS, INC. OF DULUTH, MN IN 2004, AND WETLAND DELINEATION PERFORMED BY ARCADIS BBL IN 2007.
6. PDI SAMPLES THAT EXCEEDED 7 mg/kg BaP–TE, 58 mg/kg PENTA, AND/OR 1 ug/kg TCDD–TEQ ASSUMED TO REQUIRE CORRECTIVE ACTION. ACTUAL PDI SAMPLES REQUIRING CORRECTIVE ACTION TO BE DETERMINED BASED ON REVISED HHRA CALCULATIONS.

0 150' 300'
GRAPHIC SCALE

BEAZER EAST, INC.
PITTSBURGH, PENNSYLVANIA
KOPPERS INC. FACILITY
SUPERIOR, WISCONSIN

ON-PROPERTY PDI SOIL SAMPLING LOCATIONS

ARCADIS

FIGURE
1

Tables

Table 1a
Summary of Soil Data - Site-Wide (Post-Remediation)
KI Facility
Superior, WI

Area / Depth Interval	Site-Wide																	
	0-1 foot									0-5 feet								
Constituent	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)
Acenaphthene	133	172	9.0E-03	1.0E+02	1.4E+00	8.2E+00	1.6E+00	2.4E+00	2.4E+00	158	210	9.0E-03	1.2E+03	1.3E+01	9.8E+01	1.6E+00	2.4E+01	2.4E+01
Acenaphthylene	129	172	4.0E-02	1.0E+02	1.3E+00	7.8E+00	1.6E+00	2.3E+00	2.3E+00	153	210	4.0E-02	3.0E+02	5.4E+00	3.2E+01	1.6E+00	9.0E+00	9.0E+00
Anthracene	143	172	2.3E-03	5.5E+01	2.2E+00	6.8E+00	1.6E+00	3.0E+00	3.0E+00	170	210	2.4E-03	7.0E+02	7.9E+00	5.3E+01	1.6E+00	1.4E+01	1.4E+01
BaP-TEQ (a,b)	165	172	1.2E-03	1.7E+01	2.1E+00	3.4E+00	1.6E+00	2.5E+00	2.5E+00	202	210	1.2E-03	2.9E+02	5.6E+00	2.4E+01	1.6E+00	8.3E+00	8.3E+00
Benzo(a)anthracene	151	172	4.7E-04	1.5E+01	7.8E-01	1.7E+00	1.6E+00	9.9E-01	9.9E-01	183	210	4.7E-04	1.8E+02	2.5E+00	1.4E+01	1.6E+00	4.0E+00	4.0E+00
Benzo(a)pyrene	164	172	4.7E-04	7.8E+00	8.3E-01	1.4E+00	1.6E+00	1.0E+00	1.0E+00	199	210	4.8E-04	1.2E+02	2.2E+00	1.0E+01	1.6E+00	3.4E+00	3.4E+00
Benzo(b)fluoranthene	165	172	4.7E-04	1.3E+01	1.4E+00	2.4E+00	1.6E+00	1.7E+00	1.7E+00	200	210	4.8E-04	1.3E+02	2.6E+00	1.1E+01	1.6E+00	3.9E+00	3.9E+00
Benzo(g,h,i)perylene	159	172	1.1E-03	1.0E+01	1.2E+00	1.9E+00	1.6E+00	1.4E+00	1.4E+00	192	210	1.2E-03	8.4E+01	2.2E+00	7.5E+00	1.6E+00	3.1E+00	3.1E+00
Benzo(k)fluoranthene	149	172	4.7E-04	6.1E+00	4.7E-01	8.7E-01	1.6E+00	5.8E-01	5.8E-01	183	210	4.8E-04	4.9E+01	9.1E-01	3.9E+00	1.6E+00	1.3E+00	1.3E+00
Chrysene	149	172	2.5E-03	3.9E+01	1.9E+00	4.6E+00	1.6E+00	2.5E+00	2.5E+00	185	210	2.5E-03	3.3E+02	5.5E+00	2.7E+01	1.6E+00	8.5E+00	8.5E+00
Dibenzo(a,h)anthracene	151	172	5.0E-04	1.3E+01	9.3E-01	2.2E+00	1.6E+00	1.2E+00	1.2E+00	185	210	5.0E-04	1.3E+02	2.7E+00	1.2E+01	1.6E+00	4.0E+00	4.0E+00
Fluoranthene	152	172	4.7E-03	6.7E+01	2.3E+00	7.3E+00	1.6E+00	3.2E+00	3.2E+00	181	210	4.7E-03	1.9E+03	1.9E+01	1.4E+02	1.6E+00	3.5E+01	3.5E+01
Fluorene	130	172	4.7E-03	2.2E+01	6.7E-01	2.3E+00	1.6E+00	9.6E-01	9.6E-01	161	210	4.7E-03	1.0E+03	9.5E+00	8.0E+01	1.6E+00	1.9E+01	1.9E+01
Indeno(1,2,3-cd)pyrene	161	172	1.0E-03	9.7E+00	9.8E-01	1.6E+00	1.6E+00	1.2E+00	1.2E+00	195	210	1.0E-03	1.9E+01	1.1E+00	2.2E+00	1.6E+00	1.3E+00	1.3E+00
1-Methylnaphthalene	16	44	1.2E-02	1.0E+02	4.0E+00	1.5E+01	1.7E+00	7.9E+00	7.9E+00	32	69	1.2E-02	1.0E+02	3.4E+00	1.2E+01	1.7E+00	5.9E+00	5.9E+00
2-Methylnaphthalene	8	37	2.3E-02	1.0E+02	4.5E+00	1.7E+01	1.7E+00	9.1E+00	9.1E+00	24	59	5.0E-04	1.0E+02	3.2E+00	1.4E+01	1.7E+00	6.1E+00	6.1E+00
Naphthalene	140	179	2.5E-03	1.0E+02	1.3E+00	7.8E+00	1.6E+00	2.3E+00	2.3E+00	168	214	3.5E-03	1.1E+03	1.0E+01	8.4E+01	1.6E+00	2.0E+01	2.0E+01
Phenanthrene	140	172	1.1E-02	6.6E+01	1.5E+00	6.6E+00	1.6E+00	2.3E+00	2.3E+00	170	210	1.2E-02	3.0E+03	2.6E+01	2.3E+02	1.6E+00	5.3E+01	5.3E+01
Pyrene	151	172	4.7E-03	5.0E+01	2.1E+00	6.0E+00	1.6E+00	2.9E+00	2.9E+00	181	210	4.7E-03	8.5E+02	1.4E+01	8.4E+01	1.6E+00	2.4E+01	2.4E+01
1,2,3,4,6,7,8-HpCDD	42	42	2.5E-05	9.1E+00	8.4E-01	2.3E+00	1.7E+00	1.5E+00	1.5E+00	42	42	2.5E-05	9.1E+00	8.4E-01	2.3E+00	1.7E+00	1.5E+00	1.5E+00
1,2,3,4,6,7,8-HpCDF	42	42	6.9E-06	3.7E+00	2.7E-01	8.0E-01	1.7E+00	4.8E-01	4.8E-01	42	42	6.9E-06	3.7E+00	2.7E-01	8.0E-01	1.7E+00	4.8E-01	4.8E-01
1,2,3,4,7,8,9-HpCDF	40	42	2.2E-07	3.3E-01	2.6E-02	7.7E-02	1.7E+00	4.6E-02	4.6E-02	40	42	2.2E-07	3.3E-01	2.6E-02	7.7E-02	1.7E+00	4.6E-02	4.6E-02
1,2,3,4,7,8-HxCDD	40	42	3.7E-07	4.5E-02	3.9E-03	1.1E-02	1.7E+00	6.8E-03	6.8E-03	40	42	3.7E-07	4.5E-02	3.9E-03	1.1E-02	1.7E+00	6.8E-03	6.8E-03
1,2,3,4,7,8-HxCDF	40	42	4.6E-07	4.2E-01	3.2E-02	9.5E-02	1.7E+00	5.6E-02	5.6E-02	40	42	4.6E-07	4.2E-01	3.2E-02	9.5E-02	1.7E+00	5.6E-02	5.6E-02
1,2,3,6,7,8-HxCDD	42	42	1.0E-06	3.6E-01	3.0E-02	8.5E-02	1.7E+00	5.2E-02	5.2E-02	42	42	1.0E-06	3.6E-01	3.0E-02	8.5E-02	1.7E+00	5.2E-02	5.2E-02
1,2,3,6,7,8-HxCDF	37	42	1.3E-07	8.4E-02	7.0E-03	2.0E-02	1.7E+00	1.2E-02	1.2E-02	37	42	1.3E-07	8.4E-02	7.0E-03	2.0E-02	1.7E+00	1.2E-02	1.2E-02
1,2,3,7,8,9-HxCDD	40	42	5.5E-07	8.0E-02	7.0E-03	2.0E-02	1.7E+00	1.2E-02	1.2E-02	40	42	5.5E-07	8.0E-02	7.0E-03	2.0E-02	1.7E+00	1.2E-02	1.2E-02
1,2,3,7,8,9-HxCDF	36	42	6.5E-08	1.2E-01	8.3E-03	2.5E-02	1.7E+00	1.5E-02	1.5E-02	36	42	6.5E-08	1.2E-01	8.3E-03	2.5E-02	1.7E+00	1.5E-02	1.5E-02
1,2,3,7,8-PeCDD	31	42	1.6E-07	1.4E-02	1.3E-03	3.7E-03	1.7E+00	2.3E-03	2.3E-03	31	42	1.6E-07	1.4E-02	1.3E-03	3.7E-03	1.7E+00	2.3E-03	2.3E-03
1,2,3,7,8-PeCDF	35	42	9.0E-08	4.5E-02	2.6E-03	8.3E-03	1.7E+00	4.8E-03	4.8E-03	35	42	9.0E-08	4.5E-02	2.6E-03	8.3E-03	1.7E+00	4.8E-03	4.8E-03
2,3,4,6,7,8-HxCDF	38	42	3.4E-07	1.6E-01	1.2E-02	3.7E-02	1.7E+00	2.2E-02	2.2E-02	38	42	3.4E-07	1.6E-01	1.2E-02	3.7E-02	1.7E+00	2.2E-02	2.2E-02
2,3,4,7,8-PeCDF	37	42	6.5E-08	1.1E-01	7.1E-03	2.2E-02	1.7E+00	1.3E-02	1.3E-02	37	42	6.5E-08	1.1E-01	7.1E-03	2.2E-02	1.7E+00	1.3E-02	1.3E-02
2,3,7,8-TCDD	9	42	5.5E-08	1.9E-03	1.4E-04	4.0E-04	1.7E+00	2.4E-04	2.4E-04	9	42	5.5E-08	1.9E-03	1.4E-04	4.0E-04	1.7E+00	2.4E-04	2.4E-04
2,3,7,8-TCDF	22	42	6.0E-08	7.8E-03	4.0E-04	1.4E-03	1.7E+00	7.6E-04	7.6E-04	22	42	6.0E-08	7.8E-03	4.0E-04	1.4E-03	1.7E+00	7.6E-04	7.6E-04
OCDD	42	42	3.0E-04	1.3E+02	1.0E+01	3.0E+01	1.7E+00	1.8E+01	1.8E+01	42	42	3.0E-04	1.3E+02	1.0E+01	3.0E+01	1.7E+00	1.8E+01	1.8E+01
OCDF	42	42	1.7E-05	1.2E+01	9.2E-01	2.6E+00	1.7E+00	1.6E+00	1.6E+00	42	42	1.7E-05	1.2E+01	9.2E-01	2.6E+00	1.7E+00	1.6E+00	1.6E+00
2,3,7,8-TCDD TEQ with 2005 TEF (a,c)	42	42	1.1E-06	9.5E-04	2.1E-04	2.1E-04	1.7E+00	2.7E-04	2.7E-04	42	42	1.1E-06	9.5E-04	2.1E-04	2.1E-04	1.7E+00	2.7E-04	2.7E-04
Pentachlorophenol	92	141	6.0E-03	7.9E+01	3.2E+00	1.0E+01	1.6E+00	4.6E+00	4.6E+00	120	175	6.0E-03	1.4E+02	4.5E+00	1.5E+01	1.6E+00	6.4E+00	6.4E+00
Aldrin				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Barium				3.0E+02					3.0E+02				3.0E+02					3.0E+02
delta-BHC				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Chlorobenzene				ND					ND				3.0E-03					3.0E-03
Chloromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
4-Chloro-3-methylphenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Chromium				6.8E+01					6.8E+01				6.8E+01					6.8E+01
4,4'-DDD				3.6E-02					3.6E-02				3.6E-02					3.6E-02
4,4'-DDE				8.0E-03					8.0E-03				8.0E-03					8.0E-03
4,4'-DDT				1.9E-02					1.9E-02				1.9E-02					1.9E-02
Dibenzofuran				1.9E+00					1.9E+00				1.5E+03					9.1E+02
1,2-Dichlorobenzene				2.0E-03					2.0E-03				2.0E-03					2.0E-03
1,4-Dichlorobenzene				ND					ND				2.0E-03					2.0E-03
4,6-Dinitro-2-methylphenol				1.5E+00					1.5E+00				1.5E+00					1.5E+00
2,4-Dinitrophenol				6.3E-01					6.3E-01				6.3E-01					6.3E-01
Endosulfan II				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endosulfan sulfate				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endrin				3.6E-02					3.6E-02				3.6E-02					3.6E-02
Endrin aldehyde				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Ethylbenzene				2.1E+00					2.1E+00				2.1E+00					2.1E+00
Isopropylbenzene				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Manganese				8.5E+02					8.5E+02				8.5E+02					8.5E+02
Methylene chloride				7.4E-02					7.4E-02				7.4E-02					7.4E-02
4-Nitrophenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Phenol				1.2E-02					1.2E-02				1.2E-02					1.2E-02
Tetrachloroethene				8.0E-03					8.0E-03				8.0E-03					8.0E-03
2,3,4,6 & 2,3,5,6-Tetrachlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
Toluene				2.8E-02					2.8E-02				2.8E-02					2.8E-02
1,2,4-Trichlorobenzene				1.0E-03					1.0E-03				1.0E-03					1.0E-03
1,1,1-Trichloroethane				5.0E-03					5.0E-03				5.0E-03					5.0E-03
Trichlorofluoromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
2,4,5-Trichlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
2,4,6-Trichlorophenol				3.5E-01					3.5E-01				3.5E-01					3.5E-01
1,2,4-Trimethylbenzene				4.4E-02					4.4E-02				4.4E-02					4.4E-02
Total Xylenes				2.0E-03					2.0E-03				2.0E-03					2.0E-03

Notes:
(a) Assumes constituents reported as not detected in a sample were present at one-half the detection limit.
(b) BaP-TEQ calculated using toxic equivalent factors from U.S. EPA (1993); see Table 2.
(c) TCDD-TEQ calculated using toxic equivalent factors from Van den Berg et al. (2005-2006); see Table 3.
ND - Not detected.

Table 1b
Summary of Soil Data - Area A (Post-Remediation)
KI Facility
Superior, WI

Area	Area A (Former Unlined Landfill/Landfarm)																	
Depth Interval	0-1 foot									0-5 feet								
Constituent	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)
Acenaphthene	25	31	9.0E-03	7.8E+00	6.8E-01	1.5E+00	1.7E+00	1.1E+00	1.1E+00	30	39	9.0E-03	1.2E+03	5.7E+01	2.2E+02	1.7E+00	1.2E+02	1.2E+02
Acenaphthylene	25	31	4.0E-02	3.2E+00	7.8E-01	9.0E-01	1.7E+00	1.1E+00	1.1E+00	29	39	4.0E-02	3.0E+02	2.1E+01	7.0E+01	1.7E+00	4.0E+01	4.0E+01
Anthracene	27	31	2.4E-03	3.9E+01	2.7E+00	7.4E+00	1.7E+00	5.0E+00	5.0E+00	34	39	2.4E-03	7.0E+02	3.2E+01	1.2E+02	1.7E+00	6.5E+01	6.5E+01
BaP-TEQ (a,b)	31	31	3.1E-03	1.1E+01	2.5E+00	3.1E+00	1.7E+00	3.4E+00	3.4E+00	39	39	3.1E-03	2.9E+02	1.7E+01	5.4E+01	1.7E+00	3.2E+01	3.2E+01
Benzo(a)anthracene	28	31	4.7E-04	3.4E+00	6.9E-01	9.6E-01	1.7E+00	9.8E-01	9.8E-01	36	39	4.7E-04	1.8E+02	8.7E+00	3.1E+01	1.7E+00	1.7E+01	1.7E+01
Benzo(a)pyrene	31	31	1.8E-03	6.2E+00	1.1E+00	1.5E+00	1.7E+00	1.6E+00	1.6E+00	39	39	1.8E-03	1.2E+02	7.2E+00	2.3E+01	1.7E+00	1.3E+01	1.3E+01
Benzo(b)fluoranthene	31	31	2.6E-03	9.8E+00	1.8E+00	2.5E+00	1.7E+00	2.6E+00	2.6E+00	39	39	2.6E-03	1.3E+02	8.1E+00	2.4E+01	1.7E+00	1.5E+01	1.5E+01
Benzo(g,h,i)perylene	30	31	4.6E-03	1.0E+01	1.8E+00	2.5E+00	1.7E+00	2.5E+00	2.5E+00	38	39	4.6E-03	8.4E+01	6.3E+00	1.6E+01	1.7E+00	1.1E+01	1.1E+01
Benzo(k)fluoranthene	23	31	4.9E-04	1.8E+00	3.4E-01	5.1E-01	1.7E+00	5.0E-01	5.0E-01	31	39	7.9E-04	4.9E+01	2.6E+00	8.7E+00	1.7E+00	5.0E+00	5.0E+00
Chrysene	26	31	3.4E-03	3.9E+01	3.2E+00	7.5E+00	1.7E+00	5.5E+00	5.5E+00	34	39	3.4E-03	3.3E+02	1.9E+01	6.0E+01	1.7E+00	3.5E+01	3.5E+01
Dibenzo(a,h)anthracene	29	31	7.0E-04	9.4E+00	9.3E-01	1.8E+00	1.7E+00	1.5E+00	1.5E+00	37	39	9.6E-03	1.3E+02	8.0E+00	2.5E+01	1.7E+00	1.5E+01	1.5E+01
Fluoranthene	27	31	4.7E-03	1.0E+01	1.4E+00	2.3E+00	1.7E+00	2.1E+00	2.1E+00	34	39	4.7E-03	1.9E+03	8.4E+01	3.3E+02	1.7E+00	1.7E+02	1.7E+02
Fluorene	24	31	4.7E-03	3.5E+00	3.7E-01	7.2E-01	1.7E+00	5.9E-01	5.9E-01	32	39	4.7E-03	1.0E+03	4.5E+01	1.8E+02	1.7E+00	9.4E+01	9.4E+01
Indeno(1,2,3-cd)pyrene	31	31	2.9E-03	7.5E+00	1.4E+00	1.9E+00	1.7E+00	2.0E+00	2.0E+00	39	39	2.9E-03	1.9E+01	2.2E+00	3.9E+00	1.7E+00	3.2E+00	3.2E+00
1-Methylnaphthalene	2	8	1.2E-02	4.1E+00	1.3E+00	1.7E+00	1.9E+00	2.4E+00	2.4E+00	5	11	1.2E-02	2.4E+01	2.7E+00	7.0E+00	1.8E+00	6.6E+00	6.6E+00
2-Methylnaphthalene	2	8	2.3E-02	4.1E+00	1.3E+00	1.7E+00	1.9E+00	2.4E+00	2.4E+00	5	11	2.3E-02	2.4E+01	2.7E+00	7.0E+00	1.8E+00	6.6E+00	6.6E+00
Naphthalene	27	31	1.1E-02	6.3E+00	7.4E-01	1.2E+00	1.7E+00	1.1E+00	1.1E+00	32	39	1.1E-02	1.1E+03	4.6E+01	1.9E+02	1.7E+00	9.8E+01	9.8E+01
Phenanthrene	25	31	1.2E-02	7.2E+00	7.8E-01	1.5E+00	1.7E+00	1.2E+00	1.2E+00	32	39	1.2E-02	3.0E+03	1.3E+02	5.3E+02	1.7E+00	2.7E+02	2.7E+02
Pyrene	26	31	4.7E-03	6.5E+00	1.3E+00	1.8E+00	1.7E+00	1.9E+00	1.9E+00	34	39	4.7E-03	8.5E+02	4.3E+01	1.5E+02	1.7E+00	8.4E+01	8.4E+01
1,2,3,4,6,7,8-HpCDD	1	1	7.1E-03	7.1E-03	7.1E-03	NA	NA	NA	7.1E-03	1	1	7.1E-03	7.1E-03	7.1E-03	NA	NA	NA	7.1E-03
1,2,3,4,6,7,8-HpCDF	1	1	1.1E-03	1.1E-03	1.1E-03	NA	NA	NA	1.1E-03	1	1	1.1E-03	1.1E-03	1.1E-03	NA	NA	NA	1.1E-03
1,2,3,4,7,8,9-HpCDF	1	1	1.0E-04	1.0E-04	1.0E-04	NA	NA	NA	1.0E-04	1	1	1.0E-04	1.0E-04	1.0E-04	NA	NA	NA	1.0E-04
1,2,3,4,7,8-HxCDD	1	1	2.9E-05	2.9E-05	2.9E-05	NA	NA	NA	2.9E-05	1	1	2.9E-05	2.9E-05	2.9E-05	NA	NA	NA	2.9E-05
1,2,3,4,7,8-HxCDF	1	1	9.9E-05	9.9E-05	9.9E-05	NA	NA	NA	9.9E-05	1	1	9.9E-05	9.9E-05	9.9E-05	NA	NA	NA	9.9E-05
1,2,3,6,7,8-HxCDD	1	1	2.1E-04	2.1E-04	2.1E-04	NA	NA	NA	2.1E-04	1	1	2.1E-04	2.1E-04	2.1E-04	NA	NA	NA	2.1E-04
1,2,3,6,7,8-HxCDF	1	1	1.6E-05	1.6E-05	1.6E-05	NA	NA	NA	1.6E-05	1	1	1.6E-05	1.6E-05	1.6E-05	NA	NA	NA	1.6E-05
1,2,3,7,8,9-HxCDD	1	1	2.4E-05	2.4E-05	2.4E-05	NA	NA	NA	2.4E-05	1	1	2.4E-05	2.4E-05	2.4E-05	NA	NA	NA	2.4E-05
1,2,3,7,8,9-HxCDF	1	1	3.4E-06	3.4E-06	3.4E-06	NA	NA	NA	3.4E-06	1	1	3.4E-06	3.4E-06	3.4E-06	NA	NA	NA	3.4E-06
1,2,3,7,8-PeCDD	1	1	3.1E-06	3.1E-06	3.1E-06	NA	NA	NA	3.1E-06	1	1	3.1E-06	3.1E-06	3.1E-06	NA	NA	NA	3.1E-06
1,2,3,7,8-PeCDF	1	1	9.3E-06	9.3E-06	9.3E-06	NA	NA	NA	9.3E-06	1	1	9.3E-06	9.3E-06	9.3E-06	NA	NA	NA	9.3E-06
2,3,4,6,7,8-HxCDF	1	1	1.3E-05	1.3E-05	1.3E-05	NA	NA	NA	1.3E-05	1	1	1.3E-05	1.3E-05	1.3E-05	NA	NA	NA	1.3E-05
2,3,4,7,8-PeCDF	1	1	9.1E-06	9.1E-06	9.1E-06	NA	NA	NA	9.1E-06	1	1	9.1E-06	9.1E-06	9.1E-06	NA	NA	NA	9.1E-06
2,3,7,8-TCDD	0	1	3.6E-07	3.6E-07	3.6E-07	NA	NA	NA	3.6E-07	0	1	3.6E-07	3.6E-07	3.6E-07	NA	NA	NA	3.6E-07
2,3,7,8-TCDF	1	1	8.8E-07	8.8E-07	8.8E-07	NA	NA	NA	8.8E-07	1	1	8.8E-07	8.8E-07	8.8E-07	NA	NA	NA	8.8E-07
OCDD	1	1	7.5E-02	7.5E-02	7.5E-02	NA	NA	NA	7.5E-02	1	1	7.5E-02	7.5E-02	7.5E-02	NA	NA	NA	7.5E-02
OCDF	1	1	4.5E-03	4.5E-03	4.5E-03	NA	NA	NA	4.5E-03	1	1	4.5E-03	4.5E-03	4.5E-03	NA	NA	NA	4.5E-03
2,3,7,8-TCDD TEQ with 2005 TEF (a,c)	1	1	1.5E-04	1.5E-04	1.5E-04	NA	NA	NA	1.5E-04	1	1	1.5E-04	1.5E-04	1.5E-04	NA	NA	NA	1.5E-04
Pentachlorophenol	8	18	6.0E-03	4.1E+00	8.8E-01	1.5E+00	1.7E+00	1.5E+00	1.5E+00	16	28	6.0E-03	5.9E+00	9.3E-01	1.6E+00	1.7E+00	1.4E+00	1.4E+00
Aldrin				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Barium				3.0E+02					3.0E+02				3.0E+02					3.0E+02
delta-BHC				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Chlorobenzene				ND					ND				3.0E-03					3.0E-03
Chloromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
4-Chloro-3-methylphenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Chromium				6.8E+01					6.8E+01				6.8E+01					6.8E+01
4,4'-DDD				3.6E-02					3.6E-02				3.6E-02					3.6E-02
4,4'-DDE				8.0E-03					8.0E-03				8.0E-03					8.0E-03
Dibenzofuran				1.9E+00					1.9E+00				1.5E+03					9.1E+02
1,2-Dichlorobenzene				2.0E-03					2.0E-03				2.0E-03					2.0E-03
1,4-Dichlorobenzene				ND					ND				2.0E-03					2.0E-03
4,6-Dinitro-2-methylphenol				1.5E+00					1.5E+00				1.5E+00					1.5E+00
2,4-Dinitrophenol				6.3E-01					6.3E-01				6.3E-01					6.3E-01
Endosulfan II				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endosulfan sulfate				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endrin aldehyde				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Ethylbenzene				2.1E+00					2.1E+00				2.1E+00					2.1E+00
Isopropylbenzene				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Manganese				8.5E+02					8.5E+02				8.5E+02					8.5E+02
Methylene chloride				7.4E-02					7.4E-02				7.4E-02					7.4E-02
4-Nitrophenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Phenol				1.2E-02					1.2E-02				1.2E-02					1.2E-02
Tetrachloroethene				8.0E-03					8.0E-03				8.0E-03					8.0E-03
2,3,4,6 & 2,3,5,6-Tetrachlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
Toluene				2.8E-02					2.8E-02				2.8E-02					2.8E-02
1,2,4-Trichlorobenzene				1.0E-03					1.0E-03				1.0E-03					1.0E-03
1,1,1-Trichloroethane				5.0E-03					5.0E-03				5.0E-03					5.0E-03
Trichlorofluoromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
2,4,5-Trichlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
2,4,6-Trichlorophenol				3.5E-01					3.5E-01				3.5E-01					3.5E-01
1,2,4-Trimethylbenzene				4.4E-02					4.4E-02				4.4E-02					4.4E-02
Total Xylenes				2.0E-03					2.0E-03				2.0E-03					2.0E-03

Notes:
(a) Assumes constituents reported as not detected in a sample were present at one-half the detection limit.
(b) BaP-TE calculated using toxic equivalent factors from U.S. EPA (1993); see Table 2.
(c) TCDD-TEQ calculated using toxic equivalent factors from Van den Berg et al. (2006); see Table 3.
ND - Not detected.
NA - Not Applicable

Table 1c
Summary of Soil Data - Area B (Post-Remediation)
KI Facility
Superior, WI

Area	Area B (Former Treatment Area)																	
Depth Inverval	0-1 foot									0-5 feet								
Constituent	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)
Acenaphthene	51	53	9.0E-03	3.1E+01	1.0E+00	4.4E+00	1.7E+00	2.0E+00	2.0E+00	61	68	9.0E-03	5.5E+01	2.9E+00	9.8E+00	1.7E+00	4.9E+00	4.9E+00
Acenaphthylene	49	53	4.0E-02	6.0E+00	7.0E-01	1.3E+00	1.7E+00	9.9E-01	9.9E-01	58	68	4.0E-02	3.2E+01	1.6E+00	4.9E+00	1.7E+00	2.6E+00	2.6E+00
Anthracene	49	53	2.5E-02	2.8E+01	1.2E+00	4.0E+00	1.7E+00	2.1E+00	2.1E+00	59	68	2.4E-03	2.8E+01	2.0E+00	5.2E+00	1.7E+00	3.1E+00	3.1E+00
BaP-TEQ (a,b)	53	53	3.1E-03	1.7E+01	2.4E+00	4.1E+00	1.7E+00	3.4E+00	3.4E+00	67	68	1.4E-03	5.3E+01	4.3E+00	9.6E+00	1.7E+00	6.2E+00	6.2E+00
Benzo(a)anthracene	49	53	4.8E-03	1.5E+01	7.6E-01	2.1E+00	1.7E+00	1.2E+00	1.2E+00	60	68	4.8E-04	1.5E+01	1.1E+00	2.4E+00	1.7E+00	1.6E+00	1.6E+00
Benzo(a)pyrene	53	53	1.8E-03	6.7E+00	8.8E-01	1.4E+00	1.7E+00	1.2E+00	1.2E+00	66	68	4.8E-04	3.7E+01	1.7E+00	4.8E+00	1.7E+00	2.6E+00	2.6E+00
Benzo(b)fluoranthene	53	53	2.6E-03	1.3E+01	1.5E+00	2.6E+00	1.7E+00	2.1E+00	2.1E+00	66	68	4.8E-04	1.3E+01	1.6E+00	2.6E+00	1.7E+00	2.1E+00	2.1E+00
Benzo(g,h,i)perylene	53	53	4.6E-03	8.9E+00	1.3E+00	2.0E+00	1.7E+00	1.7E+00	1.7E+00	65	68	1.2E-03	2.3E+01	1.9E+00	3.7E+00	1.7E+00	2.6E+00	2.6E+00
Benzo(k)fluoranthene	51	53	1.1E-03	4.1E+00	4.5E-01	8.1E-01	1.7E+00	6.4E-01	6.4E-01	64	68	4.8E-04	4.1E+00	4.9E-01	8.1E-01	1.7E+00	6.5E-01	6.5E-01
Chrysene	50	53	1.9E-02	1.6E+01	1.2E+00	2.5E+00	1.7E+00	1.8E+00	1.8E+00	64	68	3.4E-03	2.9E+01	2.6E+00	6.0E+00	1.7E+00	3.8E+00	3.8E+00
Dibenzo(a,h)anthracene	53	53	9.6E-03	1.3E+01	1.2E+00	3.0E+00	1.7E+00	1.9E+00	1.9E+00	66	68	7.0E-04	4.1E+01	2.3E+00	6.0E+00	1.7E+00	3.5E+00	3.5E+00
Fluoranthene	50	53	1.6E-02	6.7E+01	2.2E+00	9.2E+00	1.7E+00	4.3E+00	4.3E+00	60	68	4.8E-03	6.7E+01	4.3E+00	1.2E+01	1.7E+00	6.8E+00	6.8E+00
Fluorene	50	53	2.0E-02	2.2E+01	7.2E-01	3.0E+00	1.7E+00	1.4E+00	1.4E+00	61	68	4.8E-03	2.8E+01	1.8E+00	5.8E+00	1.7E+00	3.0E+00	3.0E+00
Indeno(1,2,3-cd)pyrene	53	53	2.9E-03	8.3E+00	1.1E+00	1.8E+00	1.7E+00	1.5E+00	1.5E+00	66	68	1.2E-03	8.3E+00	1.1E+00	1.7E+00	1.7E+00	1.4E+00	1.4E+00
1-Methylnaphthalene	6	12	1.2E-02	6.0E+00	2.6E+00	2.6E+00	1.8E+00	3.9E+00	3.9E+00	13	26	1.2E-02	6.0E+00	2.1E+00	2.1E+00	1.7E+00	2.8E+00	2.8E+00
2-Methylnaphthalene	1	5	2.3E-02	6.0E+00	3.2E+00	2.8E+00	2.1E+00	5.9E+00	5.9E+00	8	16	2.3E-02	6.0E+00	7.5E-01	1.6E+00	1.8E+00	1.5E+00	1.5E+00
Naphthalene	52	55	2.5E-03	1.8E+01	8.3E-01	2.6E+00	1.7E+00	1.4E+00	1.4E+00	63	68	1.1E-02	8.0E+01	3.8E+00	1.3E+01	1.7E+00	6.3E+00	6.3E+00
Phenanthrene	50	53	2.5E-02	6.6E+01	1.6E+00	9.0E+00	1.7E+00	3.7E+00	3.7E+00	61	68	1.2E-02	6.6E+01	3.5E+00	1.2E+01	1.7E+00	6.0E+00	6.0E+00
Pyrene	49	53	2.3E-02	5.0E+01	1.7E+00	6.8E+00	1.7E+00	3.2E+00	3.2E+00	60	68	4.8E-03	7.4E+02	1.5E+01	9.0E+01	1.7E+00	3.3E+01	3.3E+01
1,2,3,4,6,7,8-HpCDD	6	6	3.8E-03	7.1E+00	1.2E+00	2.9E+00	2.0E+00	3.6E+00	3.6E+00	6	6	3.8E-03	7.1E+00	1.2E+00	2.9E+00	2.0E+00	3.6E+00	3.6E+00
1,2,3,4,6,7,8-HpCDF	6	6	7.3E-04	2.4E+00	4.0E-01	9.7E-01	2.0E+00	1.2E+00	1.2E+00	6	6	7.3E-04	2.4E+00	4.0E-01	9.7E-01	2.0E+00	1.2E+00	1.2E+00
1,2,3,4,7,8,9-HpCDF	6	6	6.1E-05	2.8E-01	4.7E-02	1.1E-01	2.0E+00	1.4E-01	1.4E-01	6	6	6.1E-05	2.8E-01	4.7E-02	1.1E-01	2.0E+00	1.4E-01	1.4E-01
1,2,3,4,7,8-HxCDD	6	6	2.3E-05	3.7E-02	6.3E-03	1.5E-02	2.0E+00	1.8E-02	1.8E-02	6	6	2.3E-05	3.7E-02	6.3E-03	1.5E-02	2.0E+00	1.8E-02	1.8E-02
1,2,3,4,7,8-HxCDF	6	6	6.1E-05	3.5E-01	5.9E-02	1.4E-01	2.0E+00	1.8E-01	1.8E-01	6	6	6.1E-05	3.5E-01	5.9E-02	1.4E-01	2.0E+00	1.8E-01	1.8E-01
1,2,3,6,7,8-HxCDD	6	6	8.9E-05	2.4E-01	4.1E-02	9.8E-02	2.0E+00	1.2E-01	1.2E-01	6	6	8.9E-05	2.4E-01	4.1E-02	9.8E-02	2.0E+00	1.2E-01	1.2E-01
1,2,3,6,7,8-HxCDF	5	6	1.6E-05	7.2E-02	1.2E-02	2.9E-02	2.0E+00	3.6E-02	3.6E-02	5	6	1.6E-05	7.2E-02	1.2E-02	2.9E-02	2.0E+00	3.6E-02	3.6E-02
1,2,3,7,8,9-HxCDD	6	6	1.9E-05	6.5E-02	1.1E-02	2.6E-02	2.0E+00	3.3E-02	3.3E-02	6	6	1.9E-05	6.5E-02	1.1E-02	2.6E-02	2.0E+00	3.3E-02	3.3E-02
1,2,3,7,8,9-HxCDF	6	6	4.5E-06	6.5E-02	1.1E-02	2.6E-02	2.0E+00	3.3E-02	3.3E-02	6	6	4.5E-06	6.5E-02	1.1E-02	2.6E-02	2.0E+00	3.3E-02	3.3E-02
1,2,3,7,8-PeCDD	5	6	4.5E-06	1.4E-02	2.4E-03	5.7E-03	2.0E+00	7.1E-03	7.1E-03	5	6	4.5E-06	1.4E-02	2.4E-03	5.7E-03	2.0E+00	7.1E-03	7.1E-03
1,2,3,7,8-PeCDF	5	6	5.3E-06	1.4E-02	2.4E-03	5.9E-03	2.0E+00	7.3E-03	7.3E-03	5	6	5.3E-06	1.4E-02	2.4E-03	5.9E-03	2.0E+00	7.3E-03	7.3E-03
2,3,4,6,7,8-HxCDF	5	6	1.2E-05	1.2E-01	2.1E-02	5.1E-02	2.0E+00	6.2E-02	6.2E-02	5	6	1.2E-05	1.2E-01	2.1E-02	5.1E-02	2.0E+00	6.2E-02	6.2E-02
2,3,4,7,8-PeCDF	6	6	1.1E-05	5.2E-02	8.7E-03	2.1E-02	2.0E+00	2.6E-02	2.6E-02	6	6	1.1E-05	5.2E-02	8.7E-03	2.1E-02	2.0E+00	2.6E-02	2.6E-02
2,3,7,8-TCDD	1	6	6.0E-07	1.6E-03	3.1E-04	6.4E-04	2.0E+00	8.4E-04	8.4E-04	1	6	6.0E-07	1.6E-03	3.1E-04	6.4E-04	2.0E+00	8.4E-04	8.4E-04
2,3,7,8-TCDF	4	6	1.0E-06	1.6E-03	3.1E-04	6.4E-04	2.0E+00	8.4E-04	8.4E-04	4	6	1.0E-06	1.6E-03	3.1E-04	6.4E-04	2.0E+00	8.4E-04	8.4E-04
OCDD	6	6	3.5E-02	1.3E+02	2.2E+01	5.4E+01	2.0E+00	6.7E+01	6.7E+01	6	6	3.5E-02	1.3E+02	2.2E+01	5.4E+01	2.0E+00	6.7E+01	6.7E+01
OCDF	6	6	2.6E-03	7.2E+00	1.2E+00	2.9E+00	2.0E+00	3.6E+00	3.6E+00	6	6	2.6E-03	7.2E+00	1.2E+00	2.9E+00	2.0E+00	3.6E+00	3.6E+00
2,3,7,8-TCDD TEQ with 2005 TEF	6	6	3.0E-06	3.8E-04	1.7E-04	1.4E-04	2.0E+00	2.8E-04	2.8E-04	6	6	3.0E-06	3.8E-04	1.7E-04	1.4E-04	2.0E+00	2.8E-04	2.8E-04
Pentachlorophenol	21	33	7.0E-03	2.7E+01	1.6E+00	4.7E+00	1.7E+00	3.0E+00	3.0E+00	30	44	6.7E-03	2.7E+01	1.6E+00	4.4E+00	1.7E+00	2.8E+00	2.8E+00
Aldrin				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Barium				3.0E+02					3.0E+02				3.0E+02					3.0E+02
delta-BHC				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Chlorobenzene				ND					ND				3.0E-03					3.0E-03
Chloromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
4-Chloro-3-methylphenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Chromium				6.8E+01					6.8E+01				6.8E+01					6.8E+01
4,4'-DDD				3.6E-02					3.6E-02				3.6E-02					3.6E-02
4,4'-DDE				8.0E-03					8.0E-03				8.0E-03					8.0E-03
Dibenzofuran				1.9E+00					1.9E+00				4.1E+02					4.1E+02
1,2-Dichlorobenzene				2.0E-03					2.0E-03				2.0E-03					2.0E-03
1,4-Dichlorobenzene				ND					ND				2.0E-03					2.0E-03
4,6-Dinitro-2-methylphenol				1.5E+00					1.5E+00				1.5E+00					1.5E+00
2,4-Dinitrophenol				6.3E-01					6.3E-01				6.3E-01					6.3E-01
Endosulfan II				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endosulfan sulfate				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endrin aldehyde				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Ethylbenzene				2.1E+00					2.1E+00				2.1E+00					2.1E+00
Isopropylbenzene				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Manganese				8.5E+02					8.5E+02				8.5E+02					8.5E+02
Methylene chloride				7.4E-02					7.4E-02				7.4E-02					7.4E-02
4-Nitrophenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Phenol				1.2E-02					1.2E-02				1.2E-02					1.2E-02
Tetrachloroethene				8.0E-03					8.0E-03				8.0E-03					8.0E-03
2,3,4,6 & 2,3,5,6-Tetrachlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
Toluene				2.8E-02					2.8E-02				2.8E-02					2.8E-02
1,2,4-Trichlorobenzene				1.0E-03					1.0E-03				1.0E-03					1.0E-03
1,1,1-Trichloroethane				5.0E-03					5.0E-03				5.0E-03					5.0E-03
Trichlorofluoromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
2,4,5-Trichlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
2,4,6-Trichlorophenol				3.5E-01					3.5E-01				3.5E-01					3.5E-01
1,2,4-Trimethylbenzene				4.4E-02					4.4E-02				4.4E-02					4.4E-02
Total Xylenes				2.0E-03					2.0E-03				2.0E-03					2.0E-03

Notes:
(a) Assumes constituents reported as not detected in a sample were present at one-half the detection limit.
(b) BaP-TE calculated using toxic equivalent factors from U.S. EPA (1993); see Table 2.
(c) TCDD-TEQ calculated using toxic equivalent factors from Van den Berg et al. (2006); see Table 3.
ND - Not detected.

Table 1d
Summary of Soil Data - Area C (Post-Remediation)
KI Facility
Superior, WI

Area	Area C (Closed Surface Impoundments)																	
Depth Interval	0-1 foot									0-5 feet								
Constituent	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)
Acenaphthene	0	9	4.8E-02	4.6E+00	6.0E-01	1.5E+00	1.9E+00	1.5E+00	ND	2	11	4.8E-02	5.3E+00	1.0E+00	2.0E+00	1.8E+00	2.1E+00	2.1E+00
Acenaphthylene	0	9	4.8E-02	4.6E+00	6.0E-01	1.5E+00	1.9E+00	1.5E+00	ND	2	11	4.8E-02	4.6E+00	6.8E-01	1.4E+00	1.8E+00	1.4E+00	1.4E+00
Anthracene	0	9	2.4E-03	2.3E-01	8.5E-02	1.1E-01	1.9E+00	1.5E-01	ND	2	11	2.4E-03	2.0E+00	3.9E-01	6.9E-01	1.8E+00	7.6E-01	7.6E-01
BaP-TEQ (a,b)	6	9	1.2E-03	5.1E-01	1.6E-01	2.0E-01	1.9E+00	2.8E-01	2.8E-01	2	11	1.2E-03	1.2E+00	3.9E-01	4.3E-01	1.8E+00	6.2E-01	6.2E-01
Benzo(a)anthracene	3	9	4.8E-04	2.2E-01	4.7E-02	7.9E-02	1.9E+00	9.6E-02	9.6E-02	2	11	4.8E-04	9.1E-01	1.9E-01	3.1E-01	1.8E+00	3.6E-01	3.6E-01
Benzo(a)pyrene	6	9	5.0E-04	2.2E-01	6.2E-02	8.9E-02	1.9E+00	1.2E-01	1.2E-01	2	11	5.0E-04	3.1E-01	1.2E-01	1.2E-01	1.8E+00	1.9E-01	1.9E-01
Benzo(b)fluoranthene	6	9	5.0E-04	3.4E-01	8.6E-02	1.3E-01	1.9E+00	1.6E-01	1.6E-01	2	11	5.0E-04	5.0E-01	1.9E-01	2.0E-01	1.8E+00	2.9E-01	2.9E-01
Benzo(g,h,i)perylene	4	9	1.2E-03	2.8E-01	8.9E-02	1.2E-01	1.9E+00	1.6E-01	1.6E-01	2	11	1.2E-03	3.9E-01	1.6E-01	1.5E-01	1.8E+00	2.4E-01	2.4E-01
Benzo(k)fluoranthene	5	9	5.0E-04	2.2E-01	5.1E-02	8.0E-02	1.9E+00	1.0E-01	1.0E-01	2	11	5.0E-04	2.2E-01	8.1E-02	8.6E-02	1.8E+00	1.3E-01	1.3E-01
Chrysene	1	9	2.5E-03	3.3E-01	9.3E-02	1.3E-01	1.9E+00	1.7E-01	1.7E-01	2	11	2.5E-03	1.6E+00	3.7E-01	5.9E-01	1.8E+00	6.9E-01	6.9E-01
Dibenzo(a,h)anthracene	3	9	5.0E-04	2.3E-01	7.5E-02	9.1E-02	1.9E+00	1.3E-01	1.3E-01	2	11	5.0E-04	7.9E-01	2.2E-01	2.7E-01	1.8E+00	3.7E-01	3.7E-01
Fluoranthene	2	9	4.8E-03	4.6E-01	1.2E-01	1.6E-01	1.9E+00	2.2E-01	2.2E-01	2	11	4.8E-03	7.4E+00	1.4E+00	2.9E+00	1.8E+00	3.0E+00	3.0E+00
Fluorene	0	9	4.8E-03	4.6E-01	1.1E-01	1.6E-01	1.9E+00	2.1E-01	ND	2	11	4.8E-03	4.4E+00	8.0E-01	1.6E+00	1.8E+00	1.6E+00	1.6E+00
Indeno(1,2,3-cd)pyrene	4	9	1.0E-03	3.0E-01	8.7E-02	1.3E-01	1.9E+00	1.6E-01	1.6E-01	2	11	1.0E-03	3.0E-01	8.9E-02	1.1E-01	1.8E+00	1.5E-01	1.5E-01
1-Methylnaphthalene	2	5	5.0E-02	4.9E+00	2.0E+00	2.5E+00	2.1E+00	4.4E+00	4.4E+00	2	6	5.0E-02	4.9E+00	2.4E+00	2.5E+00	2.0E+00	4.5E+00	4.5E+00
2-Methylnaphthalene	0	5	4.8E-02	4.9E+00	1.9E+00	2.6E+00	2.1E+00	4.4E+00	ND	2	6	5.0E-04	4.9E+00	1.6E+00	2.4E+00	2.0E+00	3.6E+00	ND
Naphthalene	1	10	3.5E-03	2.7E+00	3.5E-01	8.3E-01	1.8E+00	8.3E-01	8.3E-01	2	12	3.5E-03	4.1E+00	6.8E-01	1.3E+00	1.8E+00	1.4E+00	1.4E+00
Phenanthrene	0	9	1.2E-02	1.1E+00	2.1E-01	3.5E-01	1.9E+00	4.3E-01	ND	2	11	1.2E-02	1.3E+01	2.3E+00	4.7E+00	1.8E+00	4.8E+00	4.8E+00
Pyrene	3	9	4.8E-03	4.6E-01	1.0E-01	1.5E-01	1.9E+00	2.0E-01	2.0E-01	2	11	4.8E-03	5.0E+00	8.5E-01	1.7E+00	1.8E+00	1.8E+00	1.8E+00
1,2,3,4,6,7,8-HpCDD	2	2	2.7E-04	5.4E-04	4.1E-04	1.9E-04	6.3E+00	1.3E-03	5.4E-04	2	2	2.7E-04	5.4E-04	4.1E-04	1.9E-04	6.3E+00	1.3E-03	5.4E-04
1,2,3,4,6,7,8-HpCDF	2	2	5.7E-05	2.8E-04	1.7E-04	1.6E-04	6.3E+00	8.7E-04	2.8E-04	2	2	5.7E-05	2.8E-04	1.7E-04	1.6E-04	6.3E+00	8.7E-04	2.8E-04
1,2,3,4,7,8,9-HpCDF	2	2	3.7E-06	1.9E-05	1.1E-05	1.1E-05	6.3E+00	6.0E-05	1.9E-05	2	2	3.7E-06	1.9E-05	1.1E-05	1.1E-05	6.3E+00	6.0E-05	1.9E-05
1,2,3,4,7,8-HxCDD	2	2	1.5E-06	2.5E-06	2.0E-06	7.1E-07	6.3E+00	5.2E-06	2.5E-06	2	2	1.5E-06	2.5E-06	2.0E-06	7.1E-07	6.3E+00	5.2E-06	2.5E-06
1,2,3,4,7,8-HxCDF	2	2	4.4E-06	2.6E-05	1.5E-05	1.5E-05	6.3E+00	8.3E-05	2.6E-05	2	2	4.4E-06	2.6E-05	1.5E-05	1.5E-05	6.3E+00	8.3E-05	2.6E-05
1,2,3,6,7,8-HxCDD	2	2	9.4E-06	2.0E-05	1.5E-05	7.5E-06	6.3E+00	4.8E-05	2.0E-05	2	2	9.4E-06	2.0E-05	1.5E-05	7.5E-06	6.3E+00	4.8E-05	2.0E-05
1,2,3,6,7,8-HxCDF	2	2	7.6E-07	4.1E-06	2.4E-06	2.4E-06	6.3E+00	1.3E-05	4.1E-06	2	2	7.6E-07	4.1E-06	2.4E-06	2.4E-06	6.3E+00	1.3E-05	4.1E-06
1,2,3,7,8,9-HxCDD	1	2	1.4E-06	2.2E-06	1.8E-06	5.3E-07	6.3E+00	4.1E-06	2.2E-06	1	2	1.4E-06	2.2E-06	1.8E-06	5.3E-07	6.3E+00	4.1E-06	2.2E-06
1,2,3,7,8,9-HxCDF	2	2	1.4E-06	5.9E-06	3.7E-06	3.2E-06	6.3E+00	1.8E-05	5.9E-06	2	2	1.4E-06	5.9E-06	3.7E-06	3.2E-06	6.3E+00	1.8E-05	5.9E-06
1,2,3,7,8-PeCDD	0	2	1.6E-07	7.5E-07	4.5E-07	4.2E-07	6.3E+00	2.3E-06	7.5E-07	0	2	1.6E-07	7.5E-07	4.5E-07	4.2E-07	6.3E+00	2.3E-06	7.5E-07
1,2,3,7,8-PeCDF	2	2	4.8E-07	1.8E-06	1.1E-06	9.3E-07	6.3E+00	5.3E-06	1.8E-06	2	2	4.8E-07	1.8E-06	1.1E-06	9.3E-07	6.3E+00	5.3E-06	1.8E-06
2,3,4,6,7,8-HxCDF	1	2	1.9E-06	2.0E-06	2.0E-06	7.1E-08	6.3E+00	2.3E-06	2.0E-06	1	2	1.9E-06	2.0E-06	2.0E-06	7.1E-08	6.3E+00	2.3E-06	2.0E-06
2,3,4,7,8-PeCDF	2	2	9.3E-07	2.1E-06	1.5E-06	8.3E-07	6.3E+00	5.2E-06	2.1E-06	2	2	9.3E-07	2.1E-06	1.5E-06	8.3E-07	6.3E+00	5.2E-06	2.1E-06
2,3,7,8-TCDD	0	2	2.1E-07	5.5E-07	3.8E-07	2.4E-07	6.3E+00	1.5E-06	5.5E-07	0	2	2.1E-07	5.5E-07	3.8E-07	2.4E-07	6.3E+00	1.5E-06	5.5E-07
2,3,7,8-TCDF	0	2	1.0E-07	4.5E-07	2.8E-07	2.5E-07	6.3E+00	1.4E-06	4.5E-07	0	2	1.0E-07	4.5E-07	2.8E-07	2.5E-07	6.3E+00	1.4E-06	4.5E-07
OCDD	2	2	2.6E-03	7.3E-03	5.0E-03	3.3E-03	6.3E+00	2.0E-02	7.3E-03	2	2	2.6E-03	7.3E-03	5.0E-03	3.3E-03	6.3E+00	2.0E-02	7.3E-03
OCDF	2	2	1.7E-04	7.9E-04	4.8E-04	4.4E-04	6.3E+00	2.4E-03	7.9E-04	2	2	1.7E-04	7.9E-04	4.8E-04	4.4E-04	6.3E+00	2.4E-03	7.9E-04
2,3,7,8-TCDD TEQ with 2005 TEF (a,c)	2	2	6.9E-06	1.9E-05	1.3E-05	8.6E-06	6.3E+00	5.2E-05	1.9E-05	2	2	6.9E-06	1.9E-05	1.3E-05	8.6E-06	6.3E+00	5.2E-05	1.9E-05
Pentachlorophenol	4	9	6.8E-03	1.9E+00	6.2E-01	7.5E-01	1.9E+00	1.1E+00	1.1E+00	2	11	6.8E-03	1.9E+00	6.1E-01	6.7E-01	1.8E+00	9.7E-01	9.7E-01
Aldrin				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Barium				3.0E+02					3.0E+02				3.0E+02					3.0E+02
delta-BHC				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Chlorobenzene				ND					ND				3.0E-03					3.0E-03
Chloromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
4-Chloro-3-methylphenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Chromium				6.8E+01					6.8E+01				6.8E+01					6.8E+01
4,4'-DDD				3.6E-02					3.6E-02				3.6E-02					3.6E-02
4,4'-DDE				8.0E-03					8.0E-03				8.0E-03					8.0E-03
Dibenzofuran				1.9E+00					1.9E+00				8.4E-01					8.4E-01
1,2-Dichlorobenzene				2.0E-03					2.0E-03				2.0E-03					2.0E-03
1,4-Dichlorobenzene				ND					ND				2.0E-03					2.0E-03
4,6-Dinitro-2-methylphenol				1.5E+00					1.5E+00				1.5E+00					1.5E+00
2,4-Dinitrophenol				6.3E-01					6.3E-01				6.3E-01					6.3E-01
Endosulfan II				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endosulfan sulfate				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endrin aldehyde				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Ethylbenzene				2.1E+00					2.1E+00				2.1E+00					2.1E+00
Isopropylbenzene				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Manganese				8.5E+02					8.5E+02				8.5E+02					8.5E+02
Methylene chloride				7.4E-02					7.4E-02				7.4E-02					7.4E-02
4-Nitrophenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Phenol				1.2E-02					1.2E-02				1.2E-02					1.2E-02
Tetrachloroethene				8.0E-03					8.0E-03				8.0E-03					8.0E-03
2,3,4,6 & 2,3,5,6-Tetrachlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
Toluene				2.8E-02					2.8E-02				2.8E-02					2.8E-02
1,2,4-Trichlorobenzene				1.0E-03					1.0E-03				1.0E-03					1.0E-03
1,1,1-Trichloroethane				5.0E-03					5.0E-03				5.0E-03					5.0E-03
Trichlorofluoromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
2,4,5-Trichlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
2,4,6-Trichlorophenol				3.5E-01					3.5E-01				3.5E-01					3.5E-01
1,2,4-Trimethylbenzene				4.4E-02					4.4E-02				4.4E-02					4.4E-02
Total Xylenes				2.0E-03					2.0E-03				2.0E-03					2.0E-03

Notes:
(a) Assumes constituents reported as not detected in a sample were present at one-half the detection limit.
(b) BaP-TE calculated using toxic equivalent factors from U.S. EPA (1993); see Table 2.
(c) TCDD-TEQ calculated using toxic equivalent factors from Van den Berg et al. (2006); see Table 3.
ND - Not detected.

Table 1e
Summary of Soil Data - Area F (Post-Remediation)
KI Facility
Superior, WI

Area	Area F (Drip Track Area)																	
Depth Interval	0-1 foot									0-5 feet								
Constituent	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)
Acenaphthene	33	36	9.0E-03	1.0E+02	3.6E+00	1.7E+01	1.7E+00	8.4E+00	8.4E+00	35	41	9.0E-03	1.0E+02	4.4E+00	1.7E+01	1.7E+00	8.8E+00	8.8E+00
Acenaphthylene	33	36	4.0E-02	1.0E+02	4.1E+00	1.7E+01	1.7E+00	8.8E+00	8.8E+00	35	41	4.0E-02	1.0E+02	4.0E+00	1.6E+01	1.7E+00	8.2E+00	8.2E+00
Anthracene	36	36	2.5E-02	5.5E+01	3.8E+00	9.8E+00	1.7E+00	6.5E+00	6.5E+00	38	41	2.5E-02	5.5E+01	4.1E+00	9.7E+00	1.7E+00	6.7E+00	6.7E+00
BaP-TEQ (a,b)	36	36	3.1E-03	1.4E+01	2.5E+00	3.7E+00	1.7E+00	3.6E+00	3.6E+00	41	41	3.1E-03	2.0E+01	3.2E+00	5.1E+00	1.7E+00	4.6E+00	4.6E+00
Benzo(a)anthracene	35	36	4.8E-03	7.0E+00	1.1E+00	1.7E+00	1.7E+00	1.6E+00	1.6E+00	39	41	1.3E-03	1.1E+01	1.5E+00	2.5E+00	1.7E+00	2.2E+00	2.2E+00
Benzo(a)pyrene	36	36	1.8E-03	7.8E+00	1.2E+00	1.8E+00	1.7E+00	1.7E+00	1.7E+00	41	41	1.8E-03	7.8E+00	1.3E+00	1.9E+00	1.7E+00	1.8E+00	1.8E+00
Benzo(b)fluoranthene	36	36	2.6E-03	1.3E+01	2.2E+00	3.0E+00	1.7E+00	3.1E+00	3.1E+00	40	41	1.0E-03	1.3E+01	2.3E+00	3.1E+00	1.7E+00	3.2E+00	3.2E+00
Benzo(g,h,i)perylene	35	36	4.6E-03	9.4E+00	1.5E+00	2.0E+00	1.7E+00	2.0E+00	2.0E+00	39	41	3.2E-03	9.4E+00	1.5E+00	2.0E+00	1.7E+00	2.0E+00	2.0E+00
Benzo(k)fluoranthene	36	36	1.1E-03	6.1E+00	9.4E-01	1.3E+00	1.7E+00	1.3E+00	1.3E+00	40	41	1.0E-03	6.1E+00	9.8E-01	1.3E+00	1.7E+00	1.3E+00	1.3E+00
Chrysene	35	36	1.9E-02	1.6E+01	2.3E+00	3.7E+00	1.7E+00	3.4E+00	3.4E+00	39	41	7.5E-03	2.5E+01	3.5E+00	6.3E+00	1.7E+00	5.1E+00	5.1E+00
Dibenzo(a,h)anthracene	32	36	9.6E-03	9.8E+00	8.5E-01	1.8E+00	1.7E+00	1.4E+00	1.4E+00	36	41	1.9E-03	1.2E+01	1.4E+00	3.0E+00	1.7E+00	2.1E+00	2.1E+00
Fluoranthene	35	36	1.6E-02	3.6E+01	3.4E+00	6.9E+00	1.7E+00	5.4E+00	5.4E+00	39	41	1.0E-02	6.2E+01	5.5E+00	1.2E+01	1.7E+00	8.8E+00	8.8E+00
Fluorene	32	36	2.0E-02	1.0E+01	7.8E-01	1.8E+00	1.7E+00	1.3E+00	1.3E+00	34	41	1.0E-02	2.7E+01	1.4E+00	4.5E+00	1.7E+00	2.6E+00	2.6E+00
Indeno(1,2,3-cd)pyrene	36	36	2.9E-03	9.7E+00	1.4E+00	2.0E+00	1.7E+00	1.9E+00	1.9E+00	40	41	2.9E-03	9.7E+00	1.3E+00	1.9E+00	1.7E+00	1.8E+00	1.8E+00
1-Methylnaphthalene	5	9	1.2E-02	1.0E+02	1.3E+01	3.3E+01	1.9E+00	3.4E+01	3.4E+01	6	10	1.2E-02	1.0E+02	1.3E+01	3.1E+01	1.8E+00	3.1E+01	3.1E+01
2-Methylnaphthalene	4	9	2.3E-02	1.0E+02	1.4E+01	3.3E+01	1.9E+00	3.4E+01	3.4E+01	5	10	2.3E-02	1.0E+02	1.3E+01	3.1E+01	1.8E+00	3.1E+01	3.1E+01
Naphthalene	34	38	1.1E-02	1.0E+02	3.6E+00	1.6E+01	1.7E+00	8.1E+00	8.1E+00	38	43	1.1E-02	5.0E+01	2.7E+00	8.4E+00	1.7E+00	4.8E+00	4.8E+00
Phenanthrene	35	36	4.2E-02	1.8E+01	1.7E+00	3.4E+00	1.7E+00	2.7E+00	2.7E+00	37	41	2.5E-02	7.6E+01	3.5E+00	1.2E+01	1.7E+00	6.7E+00	6.7E+00
Pyrene	35	36	2.3E-02	3.7E+01	4.2E+00	7.8E+00	1.7E+00	6.4E+00	6.4E+00	37	41	1.3E-02	3.7E+01	5.3E+00	9.6E+00	1.7E+00	7.9E+00	7.9E+00
1,2,3,4,6,7,8-HpCDD	10	10	5.2E-05	2.0E-02	7.5E-03	6.5E-03	1.8E+00	1.1E-02	1.1E-02	10	10	5.2E-05	2.0E-02	7.5E-03	6.5E-03	1.8E+00	1.1E-02	1.1E-02
1,2,3,4,6,7,8-HpCDF	10	10	7.1E-06	3.6E-03	1.3E-03	1.2E-03	1.8E+00	2.0E-03	2.0E-03	10	10	7.1E-06	3.6E-03	1.3E-03	1.2E-03	1.8E+00	2.0E-03	2.0E-03
1,2,3,4,7,8,9-HpCDF	9	10	2.2E-07	2.2E-04	8.9E-05	7.7E-05	1.8E+00	1.3E-04	1.3E-04	9	10	2.2E-07	2.2E-04	8.9E-05	7.7E-05	1.8E+00	1.3E-04	1.3E-04
1,2,3,4,7,8-HxCDD	10	10	9.0E-07	2.5E-04	8.6E-05	8.3E-05	1.8E+00	1.3E-04	1.3E-04	10	10	9.0E-07	2.5E-04	8.6E-05	8.3E-05	1.8E+00	1.3E-04	1.3E-04
1,2,3,4,7,8-HxCDF	9	10	4.6E-07	1.8E-04	6.8E-05	6.1E-05	1.8E+00	1.0E-04	1.0E-04	9	10	4.6E-07	1.8E-04	6.8E-05	6.1E-05	1.8E+00	1.0E-04	1.0E-04
1,2,3,6,7,8-HxCDD	10	10	1.9E-06	7.4E-04	2.9E-04	2.7E-04	1.8E+00	4.5E-04	4.5E-04	10	10	1.9E-06	7.4E-04	2.9E-04	2.7E-04	1.8E+00	4.5E-04	4.5E-04
1,2,3,6,7,8-HxCDF	8	10	1.3E-07	7.5E-05	3.6E-05	3.0E-05	1.8E+00	5.4E-05	5.4E-05	8	10	1.3E-07	7.5E-05	3.6E-05	3.0E-05	1.8E+00	5.4E-05	5.4E-05
1,2,3,7,8,9-HxCDD	10	10	1.4E-06	3.8E-04	1.4E-04	1.3E-04	1.8E+00	2.1E-04	2.1E-04	10	10	1.4E-06	3.8E-04	1.4E-04	1.3E-04	1.8E+00	2.1E-04	2.1E-04
1,2,3,7,8,9-HxCDF	8	10	6.5E-08	4.4E-05	1.9E-05	1.6E-05	1.8E+00	2.9E-05	2.9E-05	8	10	6.5E-08	4.4E-05	1.9E-05	1.6E-05	1.8E+00	2.9E-05	2.9E-05
1,2,3,7,8-PeCDD	7	10	1.9E-07	7.0E-05	2.8E-05	2.6E-05	1.8E+00	4.3E-05	4.3E-05	7	10	1.9E-07	7.0E-05	2.8E-05	2.6E-05	1.8E+00	4.3E-05	4.3E-05
1,2,3,7,8-PeCDF	7	10	9.0E-08	2.2E-05	7.5E-06	7.3E-06	1.8E+00	1.2E-05	1.2E-05	7	10	9.0E-08	2.2E-05	7.5E-06	7.3E-06	1.8E+00	1.2E-05	1.2E-05
2,3,4,6,7,8-HxCDF	9	10	3.4E-07	1.4E-04	4.7E-05	4.9E-05	1.8E+00	7.6E-05	7.6E-05	9	10	3.4E-07	1.4E-04	4.7E-05	4.9E-05	1.8E+00	7.6E-05	7.6E-05
2,3,4,7,8-PeCDF	7	10	6.5E-08	3.3E-05	1.3E-05	1.1E-05	1.8E+00	1.9E-05	1.9E-05	7	10	6.5E-08	3.3E-05	1.3E-05	1.1E-05	1.8E+00	1.9E-05	1.9E-05
2,3,7,8-TCDD	3	10	9.0E-08	6.6E-06	2.1E-06	2.1E-06	1.8E+00	3.4E-06	3.4E-06	3	10	9.0E-08	6.6E-06	2.1E-06	2.1E-06	1.8E+00	3.4E-06	3.4E-06
2,3,7,8-TCDF	4	10	6.0E-08	4.1E-06	1.5E-06	1.4E-06	1.8E+00	2.4E-06	2.4E-06	4	10	6.0E-08	4.1E-06	1.5E-06	1.4E-06	1.8E+00	2.4E-06	2.4E-06
OCDD	10	10	4.2E-04	1.7E-01	6.0E-02	5.3E-02	1.8E+00	9.0E-02	9.0E-02	10	10	4.2E-04	1.7E-01	6.0E-02	5.3E-02	1.8E+00	9.0E-02	9.0E-02
OCDF	10	10	2.3E-05	1.4E-02	4.5E-03	4.4E-03	1.8E+00	7.1E-03	7.1E-03	10	10	2.3E-05	1.4E-02	4.5E-03	4.4E-03	1.8E+00	7.1E-03	7.1E-03
2,3,7,8-TCDD TEQ with 2005 TEF (a,c)	10	10	1.6E-06	5.2E-04	2.1E-04	1.9E-04	1.8E+00	3.2E-04	3.2E-04	10	10	1.6E-06	5.2E-04	2.1E-04	1.9E-04	1.8E+00	3.2E-04	3.2E-04
Pentachlorophenol	15	32	1.4E-02	3.5E+01	2.8E+00	6.5E+00	1.7E+00	4.8E+00	4.8E+00	18	36	6.3E-03	3.5E+01	2.8E+00	6.4E+00	1.7E+00	4.7E+00	4.7E+00
Aldrin				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Barium				3.0E+02					3.0E+02				3.0E+02					3.0E+02
delta-BHC				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Chlorobenzene				ND					ND				3.0E-03					3.0E-03
Chloromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
4-Chloro-3-methylphenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Chromium				6.8E+01					6.8E+01				6.8E+01					6.8E+01
4,4'-DDD				3.6E-02					3.6E-02				3.6E-02					3.6E-02
4,4'-DDE				8.0E-03					8.0E-03				8.0E-03					8.0E-03
Dibenzofuran				1.9E+00					1.9E+00				2.3E+01					2.3E+01
1,2-Dichlorobenzene				2.0E-03					2.0E-03				2.0E-03					2.0E-03
1,4-Dichlorobenzene				ND					ND				2.0E-03					2.0E-03
4,6-Dinitro-2-methylphenol				1.5E+00					1.5E+00				1.5E+00					1.5E+00
2,4-Dinitrophenol				6.3E-01					6.3E-01				6.3E-01					6.3E-01
Endosulfan II				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endosulfan sulfate				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endrin aldehyde				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Ethylbenzene				2.1E+00					2.1E+00				2.1E+00					2.1E+00
Isopropylbenzene				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Manganese				8.5E+02					8.5E+02				8.5E+02					8.5E+02
Methylene chloride				7.4E-02					7.4E-02				7.4E-02					7.4E-02
4-Nitrophenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Phenol				1.2E-02					1.2E-02				1.2E-02					1.2E-02
Tetrachloroethene				8.0E-03					8.0E-03				8.0E-03					8.0E-03
2,3,4,6 & 2,3,5,6-Tetrachlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
Toluene				2.8E-02					2.8E-02				2.8E-02					2.8E-02
1,2,4-Trichlorobenzene				1.0E-03					1.0E-03				1.0E-03					1.0E-03
1,1,1-Trichloroethane				5.0E-03					5.0E-03				5.0E-03					5.0E-03
Trichlorofluoromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
2,4,5-Trichlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
2,4,6-Trichlorophenol				3.5E-01					3.5E-01				3.5E-01					3.5E-01
1,2,4-Trimethylbenzene				4.4E-02					4.4E-02				4.4E-02					4.4E-02
Total Xylenes				2.0E-03					2.0E-03				2.0E-03					2.0E-03

Notes:
(a) Assumes constituents reported as not detected in a sample were present at one-half the detection limit.
(b) BaP-TEQ calculated using toxic equivalent factors from U.S. EPA (1993); see Table 2.
(c) TCDD-TEQ calculated using toxic equivalent factors from Van den Berg et al. (2006); see Table 3.
ND - Not detected.

Table 1f
Summary of Soil Data - Area G (Post-Remediation)
KI Facility
Superior, WI

Area	Area G (Straw Bales Area)																	
Depth Interval	0-1 foot									0-5 feet								
Constituent	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)
Acenaphthene	8	14	9.0E-03	4.7E-01	1.5E-01	1.8E-01	1.8E+00	2.3E-01	2.3E-01	10	17	9.0E-03	1.8E+01	1.3E+00	4.3E+00	1.7E+00	3.1E+00	3.1E+00
Acenaphthylene	8	14	4.0E-02	4.7E-01	1.7E-01	1.6E-01	1.8E+00	2.4E-01	2.4E-01	10	17	4.0E-02	7.8E+00	6.5E-01	1.8E+00	1.7E+00	1.4E+00	1.4E+00
Anthracene	10	14	2.3E-02	2.6E-01	7.7E-02	8.9E-02	1.8E+00	1.2E-01	1.2E-01	12	17	2.4E-03	4.8E+00	4.1E-01	1.2E+00	1.7E+00	9.0E-01	9.0E-01
BaP-TEQ (a,b)	12	14	3.1E-03	1.7E+00	3.5E-01	4.8E-01	1.8E+00	5.8E-01	5.8E-01	15	17	3.1E-03	6.2E+00	6.6E-01	1.5E+00	1.7E+00	1.3E+00	1.3E+00
Benzo(a)anthracene	10	14	4.6E-03	2.6E-01	6.1E-02	9.3E-02	1.8E+00	1.0E-01	1.0E-01	13	17	1.9E-03	4.0E+00	3.2E-01	9.5E-01	1.7E+00	7.2E-01	7.2E-01
Benzo(a)pyrene	11	14	1.8E-03	2.6E-01	6.5E-02	9.3E-02	1.8E+00	1.1E-01	1.1E-01	14	17	1.8E-03	1.6E+00	1.6E-01	3.7E-01	1.7E+00	3.1E-01	3.1E-01
Benzo(b)fluoranthene	12	14	2.6E-03	4.7E-01	1.1E-01	1.4E-01	1.8E+00	1.8E-01	1.8E-01	15	17	2.6E-03	1.9E+00	2.0E-01	4.4E-01	1.7E+00	3.9E-01	3.9E-01
Benzo(g,h,i)perylene	11	14	4.6E-03	4.5E-01	1.2E-01	1.5E-01	1.8E+00	1.9E-01	1.9E-01	14	17	4.6E-03	2.7E+00	2.7E-01	6.3E-01	1.7E+00	5.3E-01	5.3E-01
Benzo(k)fluoranthene	8	14	1.1E-03	3.2E-01	9.6E-02	1.3E-01	1.8E+00	1.6E-01	1.6E-01	11	17	1.1E-03	7.3E-01	1.3E-01	1.9E-01	1.7E+00	2.1E-01	2.1E-01
Chrysene	11	14	1.9E-02	4.7E-01	1.1E-01	1.3E-01	1.8E+00	1.7E-01	1.7E-01	14	17	1.1E-02	1.5E+01	1.1E+00	3.6E+00	1.7E+00	2.6E+00	2.6E+00
Dibenzo(a,h)anthracene	9	14	9.6E-03	1.6E+00	2.6E-01	4.3E-01	1.8E+00	4.7E-01	4.7E-01	12	17	9.6E-03	4.0E+00	4.4E-01	9.5E-01	1.7E+00	8.4E-01	8.4E-01
Fluoranthene	11	14	1.6E-02	2.6E-01	9.3E-02	1.0E-01	1.8E+00	1.4E-01	1.4E-01	13	17	4.8E-03	1.3E+01	1.1E+00	3.2E+00	1.7E+00	2.4E+00	2.4E+00
Fluorene	7	14	2.0E-02	3.2E-01	1.1E-01	1.2E-01	1.8E+00	1.6E-01	1.6E-01	9	17	4.8E-03	5.2E+00	6.8E-01	1.6E+00	1.7E+00	1.4E+00	1.4E+00
Indeno(1,2,3-cd)pyrene	11	14	2.9E-03	5.2E-01	1.3E-01	1.6E-01	1.8E+00	2.0E-01	2.0E-01	14	17	2.7E-03	5.9E-01	1.3E-01	1.7E-01	1.7E+00	2.0E-01	2.0E-01
1-Methylnaphthalene	1	3	1.2E-02	4.7E-01	3.1E-01	2.6E-01	2.9E+00	7.5E-01	4.7E-01	3	6	1.2E-02	4.6E-01	1.4E-01	1.8E-01	2.0E+00	2.9E-01	2.9E-01
2-Methylnaphthalene	1	3	2.3E-02	4.7E-01	3.1E-01	2.5E-01	2.9E+00	7.4E-01	4.7E-01	3	6	2.3E-02	4.6E-01	1.4E-01	1.8E-01	2.0E+00	2.9E-01	2.9E-01
Naphthalene	9	16	4.0E-03	4.7E-01	1.4E-01	1.7E-01	1.8E+00	2.1E-01	2.1E-01	11	18	1.1E-02	3.9E+00	3.8E-01	9.0E-01	1.7E+00	7.5E-01	7.5E-01
Phenanthrene	10	14	4.2E-02	2.6E-01	9.5E-02	7.5E-02	1.8E+00	1.3E-01	1.3E-01	13	17	3.5E-02	7.2E+00	7.2E-01	1.8E+00	1.7E+00	1.5E+00	1.5E+00
Pyrene	11	14	2.3E-02	5.7E-01	1.2E-01	1.6E-01	1.8E+00	1.9E-01	1.9E-01	13	17	5.0E-03	2.9E+00	3.7E-01	7.6E-01	1.7E+00	6.9E-01	6.9E-01
1,2,3,4,6,7,8-HpCDD	10	10	2.5E-05	5.1E-02	1.4E-02	1.6E-02	1.8E+00	2.4E-02	2.4E-02	10	10	2.5E-05	5.1E-02	1.4E-02	1.6E-02	1.8E+00	2.4E-02	2.4E-02
1,2,3,4,6,7,8-HpCDF	10	10	6.9E-06	6.9E-03	2.5E-03	2.3E-03	1.8E+00	3.9E-03	3.9E-03	10	10	6.9E-06	6.9E-03	2.5E-03	2.3E-03	1.8E+00	3.9E-03	3.9E-03
1,2,3,4,7,8,9-HpCDF	10	10	6.7E-07	4.7E-04	2.2E-04	1.9E-04	1.8E+00	3.3E-04	3.3E-04	10	10	6.7E-07	4.7E-04	2.2E-04	1.9E-04	1.8E+00	3.3E-04	3.3E-04
1,2,3,4,7,8-HxCDD	9	10	3.7E-07	1.1E-04	4.6E-05	3.9E-05	1.8E+00	6.8E-05	6.8E-05	9	10	3.7E-07	1.1E-04	4.6E-05	3.9E-05	1.8E+00	6.8E-05	6.8E-05
1,2,3,4,7,8-HxCDF	9	10	9.5E-07	4.6E-04	1.9E-04	1.7E-04	1.8E+00	2.9E-04	2.9E-04	9	10	9.5E-07	4.6E-04	1.9E-04	1.7E-04	1.8E+00	2.9E-04	2.9E-04
1,2,3,6,7,8-HxCDD	10	10	1.0E-06	1.1E-03	3.9E-04	3.7E-04	1.8E+00	6.0E-04	6.0E-04	10	10	1.0E-06	1.1E-03	3.9E-04	3.7E-04	1.8E+00	6.0E-04	6.0E-04
1,2,3,6,7,8-HxCDF	9	10	4.6E-07	1.5E-04	5.8E-05	5.4E-05	1.8E+00	9.0E-05	9.0E-05	9	10	4.6E-07	1.5E-04	5.8E-05	5.4E-05	1.8E+00	9.0E-05	9.0E-05
1,2,3,7,8,9-HxCDD	10	10	5.5E-07	2.4E-04	8.8E-05	8.5E-05	1.8E+00	1.4E-04	1.4E-04	10	10	5.5E-07	2.4E-04	8.8E-05	8.5E-05	1.8E+00	1.4E-04	1.4E-04
1,2,3,7,8,9-HxCDF	8	10	1.3E-07	1.9E-04	7.4E-05	6.7E-05	1.8E+00	1.1E-04	1.1E-04	8	10	1.3E-07	1.9E-04	7.4E-05	6.7E-05	1.8E+00	1.1E-04	1.1E-04
1,2,3,7,8-PeCDD	7	10	1.8E-07	2.6E-05	1.1E-05	9.8E-06	1.8E+00	1.7E-05	1.7E-05	7	10	1.8E-07	2.6E-05	1.1E-05	9.8E-06	1.8E+00	1.7E-05	1.7E-05
1,2,3,7,8-PeCDF	9	10	2.1E-07	5.4E-05	2.0E-05	1.8E-05	1.8E+00	3.0E-05	3.0E-05	9	10	2.1E-07	5.4E-05	2.0E-05	1.8E-05	1.8E+00	3.0E-05	3.0E-05
2,3,4,6,7,8-HxCDF	10	10	4.3E-07	2.3E-04	9.1E-05	7.9E-05	1.8E+00	1.4E-04	1.4E-04	10	10	4.3E-07	2.3E-04	9.1E-05	7.9E-05	1.8E+00	1.4E-04	1.4E-04
2,3,4,7,8-PeCDF	9	10	2.1E-07	1.1E-04	3.9E-05	3.5E-05	1.8E+00	5.9E-05	5.9E-05	9	10	2.1E-07	1.1E-04	3.9E-05	3.5E-05	1.8E+00	5.9E-05	5.9E-05
2,3,7,8-TCDD	2	10	5.5E-08	3.4E-06	1.8E-06	1.3E-06	1.8E+00	2.6E-06	2.6E-06	2	10	5.5E-08	3.4E-06	1.8E-06	1.3E-06	1.8E+00	2.6E-06	2.6E-06
2,3,7,8-TCDF	5	10	8.0E-08	6.2E-06	2.5E-06	1.8E-06	1.8E+00	3.6E-06	3.6E-06	5	10	8.0E-08	6.2E-06	2.5E-06	1.8E-06	1.8E+00	3.6E-06	3.6E-06
OCDD	10	10	3.0E-04	4.2E-01	1.2E-01	1.4E-01	1.8E+00	2.0E-01	2.0E-01	10	10	3.0E-04	4.2E-01	1.2E-01	1.4E-01	1.8E+00	2.0E-01	2.0E-01
OCDF	10	10	1.7E-05	4.1E-02	1.1E-02	1.3E-02	1.8E+00	1.8E-02	1.8E-02	10	10	1.7E-05	4.1E-02	1.1E-02	1.3E-02	1.8E+00	1.8E-02	1.8E-02
2,3,7,8-TCDD TEQ with 2005 TEF (a,c)	10	10	1.1E-06	9.5E-04	3.3E-04	3.1E-04	1.8E+00	5.1E-04	5.1E-04	10	10	1.1E-06	9.5E-04	3.3E-04	3.1E-04	1.8E+00	5.1E-04	5.1E-04
Pentachlorophenol	11	14	1.4E-02	3.6E+00	7.5E-01	1.1E+00	1.8E+00	1.3E+00	1.3E+00	13	17	7.0E-03	6.5E+01	6.0E+00	1.6E+01	1.7E+00	1.3E+01	1.3E+01
Aldrin				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Barium				3.0E+02					3.0E+02				3.0E+02					3.0E+02
delta-BHC				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Chlorobenzene				ND					ND				3.0E-03					3.0E-03
Chloromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
4-Chloro-3-methylphenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Chromium				6.8E+01					6.8E+01				6.8E+01					6.8E+01
4,4'-DDD				3.6E-02					3.6E-02				3.6E-02					3.6E-02
4,4'-DDE				8.0E-03					8.0E-03				8.0E-03					8.0E-03
Dibenzofuran				1.9E+00					1.9E+00				2.5E+01					2.5E+01
1,2-Dichlorobenzene				2.0E-03					2.0E-03				2.0E-03					2.0E-03
1,4-Dichlorobenzene				ND					ND				2.0E-03					2.0E-03
4,6-Dinitro-2-methylphenol				1.5E+00					1.5E+00				1.5E+00					1.5E+00
2,4-Dinitrophenol				6.3E-01					6.3E-01				6.3E-01					6.3E-01
Endosulfan II				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endosulfan sulfate				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endrin aldehyde				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Ethylbenzene				2.1E+00					2.1E+00				2.1E+00					2.1E+00
Isopropylbenzene				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Manganese				8.5E+02					8.5E+02				8.5E+02					8.5E+02
Methylene chloride				7.4E-02					7.4E-02				7.4E-02					7.4E-02
4-Nitrophenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Phenol				1.2E-02					1.2E-02				1.2E-02					1.2E-02
Tetrachloroethene				8.0E-03					8.0E-03				8.0E-03					8.0E-03
2,3,4,6 & 2,3,5,6-Tetrachlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
Toluene				2.8E-02					2.8E-02				2.8E-02					2.8E-02
1,2,4-Trichlorobenzene				1.0E-03					1.0E-03				1.0E-03					1.0E-03
1,1,1-Trichloroethane				5.0E-03					5.0E-03				5.0E-03					5.0E-03
Trichlorofluoromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
2,4,5-Trichlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
2,4,6-Trichlorophenol				3.5E-01					3.5E-01				3.5E-01					3.5E-01
1,2,4-Trimethylbenzene				4.4E-02					4.4E-02				4.4E-02					4.4E-02
Total Xylenes				2.0E-03					2.0E-03				2.0E-03					2.0E-03

Notes:
(a) Assumes constituents reported as not detected in a sample were present at one-half the detection limit.
(b) BaP-TEQ calculated using toxic equivalent factors from U.S. EPA (1993); see Table 2.
(c) TCDD-TEQ calculated using toxic equivalent factors from Van den Berg et al. (2006); see Table 3.
ND - Not detected.

Table 1g
Summary of Soil Data - Area H (Post-Remediation)
KI Facility
Superior, WI

Area	Area H (Lead Track Landfill)																
Depth Interval	0-1 foot									0-5 feet							
Constituent	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)
Acenaphthene	8	12	9.0E-03	1.6E+01	1.6E+00	4.6E+00	1.8E+00	4.0E+00	4.0E+00	12	17	9.0E-03	1.6E+01	1.6E+00	4.0E+00	1.7E+00	3.3E+00	3.3E+00
Acenaphthylene	8	12	4.0E-02	1.3E+00	2.9E-01	3.9E-01	1.8E+00	4.9E-01	4.9E-01	13	17	4.0E-02	5.5E+00	6.4E-01	1.3E+00	1.7E+00	1.2E+00	1.2E+00
Anthracene	9	12	2.5E-03	1.5E+01	2.1E+00	4.8E+00	1.8E+00	4.6E+00	4.6E+00	13	17	2.5E-03	1.6E+01	2.7E+00	5.4E+00	1.7E+00	5.0E+00	5.0E+00
BaP-TEQ (a,b)	11	12	1.4E-03	6.0E+00	8.9E-01	1.7E+00	1.8E+00	1.8E+00	1.8E+00	16	17	1.4E-03	8.5E+00	1.6E+00	2.7E+00	1.7E+00	2.7E+00	2.7E+00
Benzo(a)anthracene	10	12	5.0E-04	7.8E+00	1.0E+00	2.4E+00	1.8E+00	2.3E+00	2.3E+00	14	17	5.0E-04	7.8E+00	1.1E+00	2.1E+00	1.7E+00	2.0E+00	2.0E+00
Benzo(a)pyrene	11	12	5.0E-04	3.6E+00	4.0E-01	1.0E+00	1.8E+00	9.3E-01	9.3E-01	15	17	5.0E-04	3.6E+00	5.7E-01	1.1E+00	1.7E+00	1.0E+00	1.0E+00
Benzo(b)fluoranthene	11	12	5.0E-04	7.5E+00	7.9E-01	2.1E+00	1.8E+00	1.9E+00	1.9E+00	16	17	5.0E-04	7.5E+00	6.2E-01	1.8E+00	1.7E+00	1.4E+00	1.4E+00
Benzo(g,h,i)perylene	10	12	1.2E-03	1.7E+00	3.0E-01	5.3E-01	1.8E+00	5.7E-01	5.7E-01	14	17	1.2E-03	2.7E+00	4.9E-01	8.0E-01	1.7E+00	8.3E-01	8.3E-01
Benzo(k)fluoranthene	10	12	5.0E-04	2.5E+00	2.9E-01	7.1E-01	1.8E+00	6.6E-01	6.6E-01	14	17	5.0E-04	2.5E+00	3.5E-01	6.6E-01	1.7E+00	6.3E-01	6.3E-01
Chrysene	10	12	3.6E-03	1.1E+01	1.7E+00	3.7E+00	1.8E+00	3.6E+00	3.6E+00	14	17	3.6E-03	1.5E+01	2.8E+00	4.9E+00	1.7E+00	4.9E+00	4.9E+00
Dibenzo(a,h)anthracene	10	12	7.0E-04	1.1E+00	2.8E-01	4.1E-01	1.8E+00	4.9E-01	4.9E-01	14	17	7.0E-04	5.2E+00	8.1E-01	1.5E+00	1.7E+00	1.5E+00	1.5E+00
Fluoranthene	11	12	5.0E-03	4.1E+01	4.4E+00	1.2E+01	1.8E+00	1.1E+01	1.1E+01	15	17	5.0E-03	4.1E+01	4.3E+00	1.0E+01	1.7E+00	8.6E+00	8.6E+00
Fluorene	8	12	5.0E-03	1.5E+01	1.9E+00	4.5E+00	1.8E+00	4.2E+00	4.2E+00	13	17	5.0E-03	1.5E+01	1.7E+00	4.0E+00	1.7E+00	3.4E+00	3.4E+00
Indeno(1,2,3-cd)pyrene	10	12	1.2E-03	1.8E+00	2.6E-01	5.4E-01	1.8E+00	5.4E-01	5.4E-01	14	17	1.2E-03	1.8E+00	3.0E-01	5.1E-01	1.7E+00	5.2E-01	5.2E-01
1-Methylnaphthalene	0	3	5.0E-02	4.0E-01	1.7E-01	2.0E-01	2.9E+00	5.1E-01	ND	3	6	1.2E-02	4.0E-01	8.9E-02	1.5E-01	2.0E+00	2.2E-01	2.2E-01
2-Methylnaphthalene	0	3	5.0E-02	4.0E-01	1.7E-01	2.0E-01	2.9E+00	5.1E-01	ND	3	6	2.3E-02	4.0E-01	9.5E-02	1.5E-01	2.0E+00	2.2E-01	2.2E-01
Naphthalene	8	12	1.1E-02	1.3E+01	1.3E+00	3.7E+00	1.8E+00	3.2E+00	3.2E+00	12	17	1.1E-02	1.3E+01	1.9E+00	3.7E+00	1.7E+00	3.5E+00	3.5E+00
Phenanthrene	8	12	1.2E-02	5.2E+01	5.3E+00	1.5E+01	1.8E+00	1.3E+01	1.3E+01	13	17	1.2E-02	5.2E+01	4.9E+00	1.3E+01	1.7E+00	1.0E+01	1.0E+01
Pyrene	11	12	5.0E-03	2.9E+01	3.1E+00	8.4E+00	1.8E+00	7.5E+00	7.5E+00	16	17	5.0E-03	2.9E+01	3.0E+00	7.1E+00	1.7E+00	6.0E+00	6.0E+00
1,2,3,4,6,7,8-HpCDD	9	9	1.8E-04	7.4E+00	2.1E+00	3.2E+00	1.9E+00	4.1E+00	4.1E+00	9	9	1.8E-04	7.4E+00	2.1E+00	3.2E+00	1.9E+00	4.1E+00	4.1E+00
1,2,3,4,6,7,8-HpCDF	9	9	3.0E-05	2.1E+00	6.0E-01	9.2E-01	1.9E+00	1.2E+00	1.2E+00	9	9	3.0E-05	2.1E+00	6.0E-01	9.2E-01	1.9E+00	1.2E+00	1.2E+00
1,2,3,4,7,8,9-HpCDF	8	9	2.5E-06	2.0E-01	5.5E-02	8.5E-02	1.9E+00	1.1E-01	1.1E-01	8	9	2.5E-06	2.0E-01	5.5E-02	8.5E-02	1.9E+00	1.1E-01	1.1E-01
1,2,3,4,7,8-HxCDD	8	9	1.7E-06	3.8E-02	8.8E-03	1.4E-02	1.9E+00	1.8E-02	1.8E-02	8	9	1.7E-06	3.8E-02	8.8E-03	1.4E-02	1.9E+00	1.8E-02	1.8E-02
1,2,3,4,7,8-HxCDF	9	9	2.6E-06	2.3E-01	6.2E-02	9.6E-02	1.9E+00	1.2E-01	1.2E-01	9	9	2.6E-06	2.3E-01	6.2E-02	9.6E-02	1.9E+00	1.2E-01	1.2E-01
1,2,3,6,7,8-HxCDD	9	9	6.0E-06	2.6E-01	7.2E-02	1.1E-01	1.9E+00	1.4E-01	1.4E-01	9	9	6.0E-06	2.6E-01	7.2E-02	1.1E-01	1.9E+00	1.4E-01	1.4E-01
1,2,3,6,7,8-HxCDF	8	9	9.7E-07	6.3E-02	1.5E-02	2.4E-02	1.9E+00	3.1E-02	3.1E-02	8	9	9.7E-07	6.3E-02	1.5E-02	2.4E-02	1.9E+00	3.1E-02	3.1E-02
1,2,3,7,8,9-HxCDD	8	9	2.3E-06	6.5E-02	1.6E-02	2.5E-02	1.9E+00	3.2E-02	3.2E-02	8	9	2.3E-06	6.5E-02	1.6E-02	2.5E-02	1.9E+00	3.2E-02	3.2E-02
1,2,3,7,8,9-HxCDF	7	9	4.0E-07	1.2E-01	2.2E-02	4.0E-02	1.9E+00	4.7E-02	4.7E-02	7	9	4.0E-07	1.2E-01	2.2E-02	4.0E-02	1.9E+00	4.7E-02	4.7E-02
1,2,3,7,8-PeCDD	8	9	7.0E-07	1.3E-02	3.1E-03	4.9E-03	1.9E+00	6.1E-03	6.1E-03	8	9	7.0E-07	1.3E-02	3.1E-03	4.9E-03	1.9E+00	6.1E-03	6.1E-03
1,2,3,7,8-PeCDF	7	9	2.3E-07	4.5E-02	7.9E-03	1.5E-02	1.9E+00	1.7E-02	1.7E-02	7	9	2.3E-07	4.5E-02	7.9E-03	1.5E-02	1.9E+00	1.7E-02	1.7E-02
2,3,4,6,7,8-HxCDF	8	9	1.4E-06	1.1E-01	2.6E-02	4.1E-02	1.9E+00	5.1E-02	5.1E-02	8	9	1.4E-06	1.1E-01	2.6E-02	4.1E-02	1.9E+00	5.1E-02	5.1E-02
2,3,4,7,8-PeCDF	8	9	8.0E-07	1.1E-01	1.9E-02	3.6E-02	1.9E+00	4.1E-02	4.1E-02	8	9	8.0E-07	1.1E-01	1.9E-02	3.6E-02	1.9E+00	4.1E-02	4.1E-02
2,3,7,8-TCDD	3	9	1.8E-07	1.9E-03	3.5E-04	6.4E-04	1.9E+00	7.4E-04	7.4E-04	3	9	1.8E-07	1.9E-03	3.5E-04	6.4E-04	1.9E+00	7.4E-04	7.4E-04
2,3,7,8-TCDF	6	9	2.1E-07	7.8E-03	1.3E-03	2.6E-03	1.9E+00	2.9E-03	2.9E-03	6	9	2.1E-07	7.8E-03	1.3E-03	2.6E-03	1.9E+00	2.9E-03	2.9E-03
OCDD	9	9	1.5E-03	8.3E+01	2.0E+01	3.2E+01	1.9E+00	4.0E+01	4.0E+01	9	9	1.5E-03	8.3E+01	2.0E+01	3.2E+01	1.9E+00	4.0E+01	4.0E+01
OCDF	9	9	1.4E-04	8.3E+00	2.2E+00	3.4E+00	1.9E+00	4.2E+00	4.2E+00	9	9	1.4E-04	8.3E+00	2.2E+00	3.4E+00	1.9E+00	4.2E+00	4.2E+00
2,3,7,8-TCDD TEQ with 2005 TEF (a,c)	9	9	5.4E-06	5.4E-04	1.9E-04	1.9E-04	1.9E+00	3.1E-04	3.1E-04	9	9	5.4E-06	5.4E-04	1.9E-04	1.9E-04	1.9E+00	3.1E-04	3.1E-04
Pentachlorophenol	13	13	1.4E-02	5.0E+01	5.0E+00	1.4E+01	1.8E+00	1.2E+01	1.2E+01	17	17	1.4E-02	1.4E+02	1.6E+01	3.7E+01	1.7E+00	3.2E+01	3.2E+01
Aldrin				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Barium				3.0E+02					3.0E+02				3.0E+02					3.0E+02
delta-BHC				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Chlorobenzene				ND					ND				3.0E-03					3.0E-03
Chloromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
4-Chloro-3-methylphenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Chromium				6.8E+01					6.8E+01				6.8E+01					6.8E+01
4,4'-DDD				3.6E-02					3.6E-02				3.6E-02					3.6E-02
4,4'-DDE				8.0E-03					8.0E-03				8.0E-03					8.0E-03
Dibenzofuran				1.9E+00					1.9E+00				2.7E+01					2.7E+01
1,2-Dichlorobenzene				2.0E-03					2.0E-03				2.0E-03					2.0E-03
1,4-Dichlorobenzene				ND					ND				2.0E-03					2.0E-03
4,6-Dinitro-2-methylphenol				1.5E+00					1.5E+00				1.5E+00					1.5E+00
2,4-Dinitrophenol				6.3E-01					6.3E-01				6.3E-01					6.3E-01
Endosulfan II				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endosulfan sulfate				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endrin aldehyde				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Ethylbenzene				2.1E+00					2.1E+00				2.1E+00					2.1E+00
Isopropylbenzene				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Manganese				8.5E+02					8.5E+02				8.5E+02					8.5E+02
Methylene chloride				7.4E-02					7.4E-02				7.4E-02					7.4E-02
4-Nitrophenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Phenol				1.2E-02					1.2E-02				1.2E-02					1.2E-02
Tetrachloroethene				8.0E-03					8.0E-03				8.0E-03					8.0E-03
2,3,4,6 & 2,3,5,6-Tetrachlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
Toluene				2.8E-02					2.8E-02				2.8E-02					2.8E-02
1,2,4-Trichlorobenzene				1.0E-03					1.0E-03				1.0E-03					1.0E-03
1,1,1-Trichloroethane				5.0E-03					5.0E-03				5.0E-03					5.0E-03
Trichlorofluoromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
2,4,5-Trichlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
2,4,6-Trichlorophenol				3.5E-01					3.5E-01				3.5E-01					3.5E-01
1,2,4-Trimethylbenzene				4.4E-02					4.4E-02				4.4E-02					4.4E-02
Total Xylenes				2.0E-03					2.0E-03				2.0E-03					2.0E-03

Notes:
(a) Assumes constituents reported as not detected in a sample were present at one-half the detection limit.
(b) BaP-TEQ calculated using toxic equivalent factors from U.S. EPA (1993); see Table 2.
(c) TCDD-TEQ calculated using toxic equivalent factors from Van den Berg et al. (2006); see Table 3.
ND - Not detected.

Table 1h
Summary of Soil Data - Area S (Post-Remediation)
KI Facility
Superior, WI

Area	Area S (Former Sprayfield)																	
Depth Interval	0-1 foot									0-5 feet								
Constituent	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)
Acenaphthene	8	17	9.0E-03	5.0E+00	6.3E-01	1.3E+00	1.7E+00	1.2E+00	1.2E+00	8	17	9.0E-03	5.0E+00	5.3E-01	1.2E+00	1.7E+00	1.0E+00	1.0E+00
Acenaphthylene	6	17	4.0E-02	2.4E+00	2.8E-01	5.6E-01	1.7E+00	5.1E-01	5.1E-01	6	17	4.0E-02	1.2E+00	1.8E-01	2.9E-01	1.7E+00	3.1E-01	3.1E-01
Anthracene	12	17	2.3E-03	2.6E+01	1.7E+00	6.3E+00	1.7E+00	4.4E+00	4.4E+00	12	17	2.4E-03	2.6E+01	1.7E+00	6.3E+00	1.7E+00	4.4E+00	4.4E+00
BaP-TEQ (a,b)	16	17	1.3E-03	1.1E+01	2.0E+00	2.9E+00	1.7E+00	3.2E+00	3.2E+00	16	17	1.4E-03	1.1E+01	1.9E+00	3.0E+00	1.7E+00	3.1E+00	3.1E+00
Benzo(a)anthracene	16	17	4.7E-04	6.4E+00	7.9E-01	1.6E+00	1.7E+00	1.5E+00	1.5E+00	16	17	4.8E-04	6.4E+00	7.7E-01	1.6E+00	1.7E+00	1.4E+00	1.4E+00
Benzo(a)pyrene	16	17	4.7E-04	2.4E+00	4.6E-01	6.6E-01	1.7E+00	7.4E-01	7.4E-01	16	17	4.8E-04	2.4E+00	4.5E-01	6.7E-01	1.7E+00	7.3E-01	7.3E-01
Benzo(b)fluoranthene	16	17	4.7E-04	5.4E+00	1.0E+00	1.5E+00	1.7E+00	1.6E+00	1.6E+00	16	17	4.8E-04	5.4E+00	9.9E-01	1.5E+00	1.7E+00	1.6E+00	1.6E+00
Benzo(g,h,i)perylene	16	17	1.1E-03	4.6E+00	7.8E-01	1.2E+00	1.7E+00	1.3E+00	1.3E+00	16	17	1.2E-03	4.6E+00	7.6E-01	1.2E+00	1.7E+00	1.3E+00	1.3E+00
Benzo(k)fluoranthene	16	17	4.7E-04	2.0E+00	3.4E-01	5.1E-01	1.7E+00	5.6E-01	5.6E-01	16	17	4.8E-04	2.0E+00	3.3E-01	5.2E-01	1.7E+00	5.5E-01	5.5E-01
Chrysene	16	17	3.3E-03	8.8E+00	1.3E+00	2.2E+00	1.7E+00	2.2E+00	2.2E+00	16	17	3.5E-03	8.8E+00	1.2E+00	2.2E+00	1.7E+00	2.2E+00	2.2E+00
Dibenzo(a,h)anthracene	15	17	6.5E-04	6.9E+00	1.3E+00	1.9E+00	1.7E+00	2.1E+00	2.1E+00	15	17	7.0E-04	6.9E+00	1.2E+00	1.9E+00	1.7E+00	2.0E+00	2.0E+00
Fluoranthene	16	17	4.7E-03	3.3E+01	2.6E+00	7.9E+00	1.7E+00	6.0E+00	6.0E+00	16	17	4.8E-03	3.3E+01	2.6E+00	7.9E+00	1.7E+00	5.9E+00	5.9E+00
Fluorene	9	17	4.7E-03	7.4E+00	7.8E-01	2.0E+00	1.7E+00	1.6E+00	1.6E+00	10	17	8.3E-03	7.4E+00	7.7E-01	2.0E+00	1.7E+00	1.6E+00	1.6E+00
Indeno(1,2,3-cd)pyrene	16	17	1.1E-03	3.2E+00	5.4E-01	8.3E-01	1.7E+00	8.9E-01	8.9E-01	16	17	1.2E-03	3.2E+00	5.2E-01	8.4E-01	1.7E+00	8.8E-01	8.8E-01
1-Methylnaphthalene	0	4	4.7E-02	2.4E+00	8.4E-01	1.0E+00	2.4E+00	2.1E+00	ND	0	4	4.8E-02	1.2E+00	4.5E-01	5.1E-01	2.4E+00	1.0E+00	ND
2-Methylnaphthalene	0	4	4.7E-02	2.4E+00	8.4E-01	1.0E+00	2.4E+00	2.1E+00	ND	0	4	4.8E-02	1.2E+00	4.5E-01	5.1E-01	2.4E+00	1.0E+00	ND
Naphthalene	9	17	1.1E-02	1.5E+00	2.7E-01	4.3E-01	1.7E+00	4.5E-01	4.5E-01	9	17	1.1E-02	1.2E+00	1.9E-01	3.0E-01	1.7E+00	3.1E-01	3.1E-01
Phenanthrene	12	17	1.1E-02	1.2E+01	8.3E-01	2.8E+00	1.7E+00	2.0E+00	2.0E+00	12	17	1.2E-02	1.2E+01	8.2E-01	2.8E+00	1.7E+00	2.0E+00	2.0E+00
Pyrene	16	17	4.7E-03	2.3E+01	2.1E+00	5.4E+00	1.7E+00	4.4E+00	4.4E+00	16	17	4.8E-03	2.3E+01	2.1E+00	5.4E+00	1.7E+00	4.4E+00	4.4E+00
1,2,3,4,6,7,8-HpCDD	4	4	7.0E-04	9.1E+00	2.3E+00	4.6E+00	2.4E+00	7.7E+00	7.7E+00	4	4	7.0E-04	9.1E+00	2.3E+00	4.6E+00	2.4E+00	7.7E+00	7.7E+00
1,2,3,4,6,7,8-HpCDF	4	4	2.3E-04	3.7E+00	9.2E-01	1.8E+00	2.4E+00	3.1E+00	3.1E+00	4	4	2.3E-04	3.7E+00	9.2E-01	1.8E+00	2.4E+00	3.1E+00	3.1E+00
1,2,3,4,7,8,9-HpCDF	4	4	2.3E-05	3.3E-01	8.3E-02	1.7E-01	2.4E+00	2.8E-01	2.8E-01	4	4	2.3E-05	3.3E-01	8.3E-02	1.7E-01	2.4E+00	2.8E-01	2.8E-01
1,2,3,4,7,8-HxCDD	4	4	3.9E-06	4.5E-02	1.1E-02	2.2E-02	2.4E+00	3.8E-02	3.8E-02	4	4	3.9E-06	4.5E-02	1.1E-02	2.2E-02	2.4E+00	3.8E-02	3.8E-02
1,2,3,4,7,8-HxCDF	4	4	2.4E-05	4.2E-01	1.1E-01	2.1E-01	2.4E+00	3.5E-01	3.5E-01	4	4	2.4E-05	4.2E-01	1.1E-01	2.1E-01	2.4E+00	3.5E-01	3.5E-01
1,2,3,6,7,8-HxCDD	4	4	2.5E-05	3.6E-01	9.0E-02	1.8E-01	2.4E+00	3.0E-01	3.0E-01	4	4	2.5E-05	3.6E-01	9.0E-02	1.8E-01	2.4E+00	3.0E-01	3.0E-01
1,2,3,6,7,8-HxCDF	4	4	5.3E-06	8.4E-02	2.1E-02	4.2E-02	2.4E+00	7.0E-02	7.0E-02	4	4	5.3E-06	8.4E-02	2.1E-02	4.2E-02	2.4E+00	7.0E-02	7.0E-02
1,2,3,7,8,9-HxCDD	4	4	5.8E-06	8.0E-02	2.0E-02	4.0E-02	2.4E+00	6.7E-02	6.7E-02	4	4	5.8E-06	8.0E-02	2.0E-02	4.0E-02	2.4E+00	6.7E-02	6.7E-02
1,2,3,7,8,9-HxCDF	4	4	6.1E-06	8.5E-02	2.1E-02	4.2E-02	2.4E+00	7.1E-02	7.1E-02	4	4	6.1E-06	8.5E-02	2.1E-02	4.2E-02	2.4E+00	7.1E-02	7.1E-02
1,2,3,7,8-PeCDD	3	4	6.3E-07	1.3E-02	3.2E-03	6.3E-03	2.4E+00	1.1E-02	1.1E-02	3	4	6.3E-07	1.3E-02	3.2E-03	6.3E-03	2.4E+00	1.1E-02	1.1E-02
1,2,3,7,8-PeCDF	4	4	2.0E-06	2.3E-02	5.7E-03	1.1E-02	2.4E+00	1.9E-02	1.9E-02	4	4	2.0E-06	2.3E-02	5.7E-03	1.1E-02	2.4E+00	1.9E-02	1.9E-02
2,3,4,6,7,8-HxCDF	4	4	8.2E-06	1.6E-01	4.1E-02	8.1E-02	2.4E+00	1.4E-01	1.4E-01	4	4	8.2E-06	1.6E-01	4.1E-02	8.1E-02	2.4E+00	1.4E-01	1.4E-01
2,3,4,7,8-PeCDF	4	4	5.1E-06	7.3E-02	1.8E-02	3.7E-02	2.4E+00	6.2E-02	6.2E-02	4	4	5.1E-06	7.3E-02	1.8E-02	3.7E-02	2.4E+00	6.2E-02	6.2E-02
2,3,7,8-TCDD	0	4	2.5E-07	6.7E-04	1.7E-04	3.3E-04	2.4E+00	5.6E-04	5.6E-04	0	4	2.5E-07	6.7E-04	1.7E-04	3.3E-04	2.4E+00	5.6E-04	5.6E-04
2,3,7,8-TCDF	2	4	5.7E-07	3.2E-03	8.1E-04	1.6E-03	2.4E+00	2.7E-03	2.7E-03	2	4	5.7E-07	3.2E-03	8.1E-04	1.6E-03	2.4E+00	2.7E-03	2.7E-03
OCDD	4	4	7.7E-03	1.1E+02	2.6E+01	5.2E+01	2.4E+00	8.8E+01	8.8E+01	4	4	7.7E-03	1.1E+02	2.6E+01	5.2E+01	2.4E+00	8.8E+01	8.8E+01
OCDF	4	4	8.7E-04	1.2E+01	2.9E+00	5.8E+00	2.4E+00	9.7E+00	9.7E+00	4	4	8.7E-04	1.2E+01	2.9E+00	5.8E+00	2.4E+00	9.7E+00	9.7E+00
2,3,7,8-TCDD TEQ with 2005 TEF (a,c)	4	4	2.7E-05	3.3E-04	1.5E-04	1.4E-04	2.4E+00	3.1E-04	3.1E-04	4	4	2.7E-05	3.3E-04	1.5E-04	1.4E-04	2.4E+00	3.1E-04	3.1E-04
Pentachlorophenol	20	22	6.5E-03	7.9E+01	9.4E+00	2.0E+01	1.7E+00	1.7E+01	1.7E+01	20	22	7.0E-03	7.9E+01	9.3E+00	2.0E+01	1.7E+00	1.7E+01	1.7E+01
Aldrin				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Barium				3.0E+02					3.0E+02				3.0E+02					3.0E+02
delta-BHC				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Chlorobenzene				ND					ND				3.0E-03					3.0E-03
Chloromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
4-Chloro-3-methylphenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Chromium				6.8E+01					6.8E+01				6.8E+01					6.8E+01
4,4'-DDD				3.6E-02					3.6E-02				3.6E-02					3.6E-02
4,4'-DDE				8.0E-03					8.0E-03				8.0E-03					8.0E-03
Dibenzofuran				1.9E+00					1.9E+00				1.9E+00					1.9E+00
1,2-Dichlorobenzene				2.0E-03					2.0E-03				2.0E-03					2.0E-03
1,4-Dichlorobenzene				ND					ND				2.0E-03					2.0E-03
4,6-Dinitro-2-methylphenol				1.5E+00					1.5E+00				1.5E+00					1.5E+00
2,4-Dinitrophenol				6.3E-01					6.3E-01				6.3E-01					6.3E-01
Endosulfan II				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endosulfan sulfate				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endrin aldehyde				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Ethylbenzene				2.1E+00					2.1E+00				2.1E+00					2.1E+00
Isopropylbenzene				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Manganese				8.5E+02					8.5E+02				8.5E+02					8.5E+02
Methylene chloride				7.4E-02					7.4E-02				7.4E-02					7.4E-02
4-Nitrophenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Phenol				1.2E-02					1.2E-02				1.2E-02					1.2E-02
Tetrachloroethene				8.0E-03					8.0E-03				8.0E-03					8.0E-03
2,3,4,6 & 2,3,5,6-Tetrachlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
Toluene				2.8E-02					2.8E-02				2.8E-02					2.8E-02
1,2,4-Trichlorobenzene				1.0E-03					1.0E-03				1.0E-03					1.0E-03
1,1,1-Trichloroethane				5.0E-03					5.0E-03				5.0E-03					5.0E-03
Trichlorofluoromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
2,4,5-Trichlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
2,4,6-Trichlorophenol				3.5E-01					3.5E-01				3.5E-01					3.5E-01
1,2,4-Trimethylbenzene				4.4E-02					4.4E-02				4.4E-02					4.4E-02
Total Xylenes				2.00E-03					2.00E-03				2.0E-03					2.0E-03

Notes:
(a) Assumes constituents reported as not detected in a sample were present at one-half the detection limit.
(b) BaP-TEQ calculated using toxic equivalent factors from U.S. EPA (1993); see Table 2.
(c) TCDD-TEQ calculated using toxic equivalent factors from Van den Berg et al. (2006); see Table 3.
ND - Not detected.

Table 1i
Summary of Soil Data - Area B/F (Post-Remediation)
KI Facility
Superior, WI

Area / Depth Interval	Area B/F (Former Treatment Area and Drip Track Area)																	
	0-1 foot									0-5 feet								
Constituent	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)	Detects	Samples	Minimum (mg/kg) (a)	Maximum (mg/kg) (a)	Mean (mg/kg) (a)	Standard Deviation	t statistic	UCL (mg/kg)	EPC (mg/kg)
Acenaphthene	84	89	9.0E-03	1.0E+02	2.1E+00	1.1E+01	1.7E+00	4.0E+00	4.0E+00	96	109	9.0E-03	1.0E+02	3.5E+00	1.3E+01	1.6E+00	5.5E+00	5.5E+00
Acenaphthylene	82	89	4.0E-02	1.0E+02	2.1E+00	1.1E+01	1.7E+00	4.0E+00	4.0E+00	93	109	4.0E-02	1.0E+02	2.5E+00	1.0E+01	1.6E+00	4.2E+00	4.2E+00
Anthracene	85	89	2.5E-02	5.5E+01	2.3E+00	7.0E+00	1.7E+00	3.5E+00	3.5E+00	97	109	2.4E-03	5.5E+01	2.8E+00	7.2E+00	1.6E+00	4.0E+00	4.0E+00
BaP-TEQ (a,b)	89	89	3.1E-03	1.7E+01	2.5E+00	3.9E+00	1.7E+00	3.1E+00	3.1E+00	108	109	1.4E-03	5.3E+01	3.9E+00	8.2E+00	1.6E+00	5.2E+00	5.2E+00
Benzo(a)anthracene	84	89	4.8E-03	1.5E+01	9.1E-01	1.9E+00	1.7E+00	1.3E+00	1.3E+00	99	109	4.8E-04	1.5E+01	1.3E+00	2.5E+00	1.6E+00	1.7E+00	1.7E+00
Benzo(a)pyrene	89	89	1.8E-03	7.8E+00	1.0E+00	1.6E+00	1.7E+00	1.3E+00	1.3E+00	107	109	4.8E-04	3.7E+01	1.5E+00	3.9E+00	1.6E+00	2.2E+00	2.2E+00
Benzo(b)fluoranthene	89	89	2.6E-03	1.3E+01	1.8E+00	2.8E+00	1.7E+00	2.3E+00	2.3E+00	106	109	4.8E-04	1.3E+01	1.9E+00	2.8E+00	1.6E+00	2.3E+00	2.3E+00
Benzo(g,h,i)perylene	88	89	4.6E-03	9.4E+00	1.4E+00	2.0E+00	1.7E+00	1.7E+00	1.7E+00	104	109	1.2E-03	2.3E+01	1.7E+00	3.1E+00	1.6E+00	2.2E+00	2.2E+00
Benzo(k)fluoranthene	87	89	1.1E-03	6.1E+00	6.5E-01	1.1E+00	1.7E+00	8.4E-01	8.4E-01	104	109	4.8E-04	6.1E+00	6.7E-01	1.1E+00	1.6E+00	8.4E-01	8.4E-01
Chrysene	85	89	1.9E-02	1.6E+01	1.7E+00	3.0E+00	1.7E+00	2.2E+00	2.2E+00	103	109	3.4E-03	2.9E+01	2.9E+00	6.1E+00	1.6E+00	3.9E+00	3.9E+00
Dibenzo(a,h)anthracene	85	89	9.6E-03	1.3E+01	1.0E+00	2.6E+00	1.7E+00	1.5E+00	1.5E+00	102	109	7.0E-04	4.1E+01	1.9E+00	5.1E+00	1.6E+00	2.7E+00	2.7E+00
Fluoranthene	85	89	1.6E-02	6.7E+01	2.7E+00	8.3E+00	1.7E+00	4.1E+00	4.1E+00	99	109	4.8E-03	6.7E+01	4.8E+00	1.2E+01	1.6E+00	6.7E+00	6.7E+00
Fluorene	82	89	2.0E-02	2.2E+01	7.4E-01	2.6E+00	1.7E+00	1.2E+00	1.2E+00	95	109	4.8E-03	2.8E+01	1.7E+00	5.3E+00	1.6E+00	2.5E+00	2.5E+00
Indeno(1,2,3-cd)pyrene	89	89	2.9E-03	9.7E+00	1.2E+00	1.9E+00	1.7E+00	1.5E+00	1.5E+00	106	109	1.2E-03	9.7E+00	1.2E+00	1.8E+00	1.6E+00	1.4E+00	1.4E+00
1-Methylnaphthalene	11	21	1.2E-02	1.0E+02	7.2E+00	2.2E+01	1.7E+00	1.5E+01	1.5E+01	19	36	1.2E-02	1.0E+02	5.2E+00	1.7E+01	1.7E+00	9.9E+00	9.9E+00
2-Methylnaphthalene	5	14	2.3E-02	1.0E+02	1.0E+01	2.6E+01	1.8E+00	2.3E+01	2.3E+01	13	26	2.3E-02	1.0E+02	5.6E+00	2.0E+01	1.7E+00	1.2E+01	1.2E+01
Naphthalene	86	93	2.5E-03	1.0E+02	2.0E+00	1.1E+01	1.7E+00	3.8E+00	3.8E+00	101	111	1.1E-02	8.0E+01	3.3E+00	1.1E+01	1.6E+00	5.1E+00	5.1E+00
Phenanthrene	85	89	2.5E-02	6.6E+01	1.7E+00	7.2E+00	1.7E+00	2.9E+00	2.9E+00	98	109	1.2E-02	7.6E+01	3.5E+00	1.2E+01	1.6E+00	5.4E+00	5.4E+00
Pyrene	84	89	2.3E-02	5.0E+01	2.7E+00	7.3E+00	1.7E+00	4.0E+00	4.0E+00	97	109	4.8E-03	7.4E+02	1.1E+01	7.1E+01	1.6E+00	2.3E+01	2.3E+01
1,2,3,4,6,7,8-HpCDD	16	16	5.2E-05	7.1E+00	4.6E-01	1.8E+00	1.8E+00	1.2E+00	1.2E+00	16	16	5.2E-05	7.1E+00	4.6E-01	1.8E+00	1.8E+00	1.2E+00	1.2E+00
1,2,3,4,6,7,8-HpCDF	16	16	7.1E-06	2.4E+00	1.5E-01	5.9E-01	1.8E+00	4.1E-01	4.1E-01	16	16	7.1E-06	2.4E+00	1.5E-01	5.9E-01	1.8E+00	4.1E-01	4.1E-01
1,2,3,4,7,8,9-HpCDF	15	16	2.2E-07	2.8E-01	1.8E-02	7.0E-02	1.8E+00	4.8E-02	4.8E-02	15	16	2.2E-07	2.8E-01	1.8E-02	7.0E-02	1.8E+00	4.8E-02	4.8E-02
1,2,3,4,7,8-HxCDD	16	16	9.0E-07	3.7E-02	2.4E-03	9.1E-03	1.8E+00	6.4E-03	6.4E-03	16	16	9.0E-07	3.7E-02	2.4E-03	9.1E-03	1.8E+00	6.4E-03	6.4E-03
1,2,3,4,7,8-HxCDF	15	16	4.6E-07	3.5E-01	2.2E-02	8.8E-02	1.8E+00	6.1E-02	6.1E-02	15	16	4.6E-07	3.5E-01	2.2E-02	8.8E-02	1.8E+00	6.1E-02	6.1E-02
1,2,3,6,7,8-HxCDD	16	16	1.9E-06	2.4E-01	1.5E-02	6.0E-02	1.8E+00	4.2E-02	4.2E-02	16	16	1.9E-06	2.4E-01	1.5E-02	6.0E-02	1.8E+00	4.2E-02	4.2E-02
1,2,3,6,7,8-HxCDF	13	16	1.3E-07	7.2E-02	4.6E-03	1.8E-02	1.8E+00	1.2E-02	1.2E-02	13	16	1.3E-07	7.2E-02	4.6E-03	1.8E-02	1.8E+00	1.2E-02	1.2E-02
1,2,3,7,8,9-HxCDD	16	16	1.4E-06	6.5E-02	4.3E-03	1.6E-02	1.8E+00	1.1E-02	1.1E-02	16	16	1.4E-06	6.5E-02	4.3E-03	1.6E-02	1.8E+00	1.1E-02	1.1E-02
1,2,3,7,8,9-HxCDF	14	16	6.5E-08	6.5E-02	4.1E-03	1.6E-02	1.8E+00	1.1E-02	1.1E-02	14	16	6.5E-08	6.5E-02	4.1E-03	1.6E-02	1.8E+00	1.1E-02	1.1E-02
1,2,3,7,8-PeCDD	12	16	1.9E-07	1.4E-02	9.3E-04	3.5E-03	1.8E+00	2.5E-03	2.5E-03	12	16	1.9E-07	1.4E-02	9.3E-04	3.5E-03	1.8E+00	2.5E-03	2.5E-03
1,2,3,7,8-PeCDF	12	16	9.0E-08	1.4E-02	9.2E-04	3.6E-03	1.8E+00	2.5E-03	2.5E-03	12	16	9.0E-08	1.4E-02	9.2E-04	3.6E-03	1.8E+00	2.5E-03	2.5E-03
2,3,4,6,7,8-HxCDF	14	16	3.4E-07	1.2E-01	7.8E-03	3.1E-02	1.8E+00	2.1E-02	2.1E-02	14	16	3.4E-07	1.2E-01	7.8E-03	3.1E-02	1.8E+00	2.1E-02	2.1E-02
2,3,4,7,8-PeCDF	13	16	6.5E-08	5.2E-02	3.3E-03	1.3E-02	1.8E+00	8.9E-03	8.9E-03	13	16	6.5E-08	5.2E-02	3.3E-03	1.3E-02	1.8E+00	8.9E-03	8.9E-03
2,3,7,8-TCDD	4	16	9.0E-08	1.6E-03	1.2E-04	4.0E-04	1.8E+00	2.9E-04	2.9E-04	4	16	9.0E-08	1.6E-03	1.2E-04	4.0E-04	1.8E+00	2.9E-04	2.9E-04
2,3,7,8-TCDF	8	16	6.0E-08	1.6E-03	1.2E-04	4.0E-04	1.8E+00	2.9E-04	2.9E-04	8	16	6.0E-08	1.6E-03	1.2E-04	4.0E-04	1.8E+00	2.9E-04	2.9E-04
OCDD	16	16	4.2E-04	1.3E+02	8.4E+00	3.3E+01	1.8E+00	2.3E+01	2.3E+01	16	16	4.2E-04	1.3E+02	8.4E+00	3.3E+01	1.8E+00	2.3E+01	2.3E+01
OCDF	16	16	2.3E-05	7.2E+00	4.6E-01	1.8E+00	1.8E+00	1.2E+00	1.2E+00	16	16	2.3E-05	7.2E+00	4.6E-01	1.8E+00	1.8E+00	1.2E+00	1.2E+00
2,3,7,8-TCDD TEQ with 2005 TEF (a,c)	16	16	1.6E-06	5.2E-04	1.9E-04	1.7E-04	1.8E+00	2.7E-04	2.7E-04	16	16	1.6E-06	5.2E-04	1.9E-04	1.7E-04	1.8E+00	2.7E-04	2.7E-04
Pentachlorophenol	36	65	7.0E-03	3.5E+01	2.2E+00	5.7E+00	1.7E+00	3.4E+00	3.4E+00	48	80	6.3E-03	3.5E+01	2.2E+00	5.4E+00	1.7E+00	3.2E+00	3.2E+00
Aldrin				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Barium				3.0E+02					3.0E+02				3.0E+02					3.0E+02
delta-BHC				3.0E-03					3.0E-03				3.0E-03					3.0E-03
Chlorobenzene													3.0E-03					3.0E-03
Chloromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
4-Chloro-3-methylphenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Chromium				6.8E+01					6.8E+01				6.8E+01					6.8E+01
4,4'-DDD				3.6E-02					3.6E-02				3.6E-02					3.6E-02
4,4'-DDE				8.0E-03					8.0E-03				8.0E-03					8.0E-03
Dibenzofuran				1.9E+00					1.9E+00				4.1E+02					4.1E+02
1,2-Dichlorobenzene				2.0E-03					2.0E-03				2.0E-03					2.0E-03
1,4-Dichlorobenzene				0.0E+00					0.0E+00				2.0E-03					2.0E-03
1,2-Dichloropropane																		
4,6-Dinitro-2-methylphenol				1.5E+00					1.5E+00				1.5E+00					1.5E+00
2,4-Dinitrophenol				6.3E-01					6.3E-01				6.3E-01					6.3E-01
Endosulfan II				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endosulfan sulfate				1.4E-02					1.4E-02				1.4E-02					1.4E-02
Endrin aldehyde				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Ethylbenzene				2.1E+00					2.1E+00				2.1E+00					2.1E+00
Isopropylbenzene				3.3E-02					3.3E-02				3.3E-02					3.3E-02
Manganese				8.5E+02					8.5E+02				8.5E+02					8.5E+02
Methylene chloride				7.4E-02					7.4E-02				7.4E-02					7.4E-02
4-Nitrophenol				2.5E-01					2.5E-01				2.5E-01					2.5E-01
Phenol				1.2E-02					1.2E-02				1.2E-02					1.2E-02
Tetrachloroethene				8.0E-03					8.0E-03				8.0E-03					8.0E-03
2,3,4,6 & 2,3,5,6-Tetrachlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
Toluene				2.8E-02					2.8E-02				2.8E-02					2.8E-02
1,2,4-Trichlorobenzene				1.0E-03					1.0E-03				1.0E-03					1.0E-03
1,1,1-Trichloroethane				5.0E-03					5.0E-03				5.0E-03					5.0E-03
Trichlorofluoromethane				2.0E-03					2.0E-03				2.0E-03					2.0E-03
2,4,5-Trichlorophenol				1.6E-01					1.6E-01				1.6E-01					1.6E-01
2,4,6-Trichlorophenol				3.5E-01					3.5E-01				3.5E-01					3.5E-01
1,2,4-Trimethylbenzene				4.4E-02					4.4E-02				4.4E-02					4.4E-02
Total Xylenes				2.0E-03					2.0E-03				2.0E-03					2.0E-03

Notes:
(a) Assumes constituents reported as not detected in a sample were present at one-half the detection limit.
(b) BaP-TEQ calculated using toxic equivalent factors from U.S. EPA (1993); see Table 2.
(c) TCDD-TEQ calculated using toxic equivalent factors from Van den Berg et al. (2006); see Table 3.
ND - Not detected.

Table 2
Toxic Equivalent Factors for Potentially Carcinogenic PAHs
KI Facility
Superior, WI

Constituent	TEF
Benzo(a)anthracene	0.1
Benzo(k)fluoranthene	0.01
Benzo(a)pyrene	1
Benzo(b)fluoranthene	0.1
Chrysene	0.001
Dibenzo(a,h)anthracene	1
Indeno(1,2,3-cd)pyrene	0.1

Source: U.S. EPA, 1993.

Table 3
Toxic Equivalent Factors for PCDDs/PCDFs
KI Facility
Superior, WI

Constituent	WHO 2005 TEF
Chlorinated Dibenzo-p-dioxins	
1,2,3,7,8-PeCDD	1
1,2,3,4,7,8-HxCDD	0.1
1,2,3,6,7,8-HxCDD	0.1
1,2,3,7,8,9-HxCDD	0.1
1,2,3,4,6,7,8-HpCDD	0.01
OCDD	0.0003
Chlorinated Dibenzofurans	
2,3,7,8-TCDF	0.1
1,2,3,7,8-PeCDF	0.03
2,3,4,7,8-PeCDF	0.3
1,2,3,4,7,8-HxCDF	0.1
1,2,3,6,7,8-HxCDF	0.1
1,2,3,7,8,9-HxCDF	0.1
2,3,4,6,7,8-HxCDF	0.1
1,2,3,4,6,7,8-HpCDF	0.01
1,2,3,4,7,8,9-HpCDF	0.01
OCDF	0.0003

Source: Van den Berg et al., 2006.

Table 4
Noncarcinogenic and Carcinogenic Dose-Response Information
KI Facility
Superior, WI

Constituent	Subchronic Oral RfD (mg/kg-d)	Source	Chronic Oral RfD (mg/kg-d)	Source	Oral CSF 1/(mg/kg-d)	Source	Chronic Inh RfD (mg/kg-d)	Source	Inhalation CSF 1/(mg/kg-d)	Source	Subchronic Inh. RfD (mg/kg-d)	Source
Acenaphthene	6.0E-01	HEAST	6.0E-02	IRIS	NA		6.0E-02	(c)	NA		6.0E-01	(c)
Acenaphthylene	2.0E-01	(l)	2.0E-02	(l)	NA		3.0E-02	(q)	NA		8.6E-04	(l)
Aldrin	3.0E-05	HEAST	3.0E-05	IRIS	1.7E+01	IRIS	3.0E-05	(c)	1.7E+01	IRIS	3.0E-05	(c)
Anthracene	3.0E+00	HEAST	3.0E-01	IRIS	NA		3.0E-01	(c)	NA		3.0E+00	(c)
Barium	7.0E-02	HEAST	2.0E-01	IRIS	NA		2.0E-01	(c)	NA		2.0E-01	(a)
Benzo(a)anthracene	2.0E-01	(l)	2.0E-02	(l)	7.3E-01	(m)	3.0E-02	(q)	3.1E-01	(m)	3.0E-02	(a)
Benzo(a)pyrene	2.0E-01	(l)	2.0E-02	(l)	7.3E+00	IRIS	3.0E-02	(q)	3.1E+00	NCEA Reg III	3.0E-02	(a)
Benzo(b)fluoranthene	2.0E-01	(l)	2.0E-02	(l)	7.3E-01	(m)	3.0E-02	(q)	3.1E-01	(m)	3.0E-02	(a)
Benzo(g,h,i)perylene	2.0E-01	(l)	2.0E-02	(l)	NA		3.0E-02	(q)	NA		8.6E-04	(l)
Benzo(k)fluoranthene	2.0E-01	(l)	2.0E-02	(l)	7.3E-02	(m)	3.0E-02	(q)	3.1E-02	(m)	3.0E-02	(a)
delta-BHC	3.0E-03	HEAST (b)	3.0E-04	IRIS (b)	1.3E+00	HEAST (b)	3.0E-04	(c)	NA		3.0E-04	(a)
Chlorobenzene	2.0E-02	(a)	2.0E-02	IRIS	NA		1.4E-02	PPTRV Reg III	NA		2.0E-02	(c)
Chloromethane	2.6E-02	(a)	2.6E-02	(e)	NA		2.6E-02	IRIS	NA		2.6E-02	(a)
4-Chloro-3-methylphenol	5.0E-02	(a)	5.0E-02	(g)	NA		5.0E-02	(c)	NA		5.0E-02	(c)
Chromium	2.0E-02	HEAST	3.0E-03	IRIS	NA		2.9E-05	(h)	4.2E+01	(i)	2.9E-04	(h)
Chrysene	2.0E-01	(l)	2.0E-02	(l)	7.3E-03	(m)	3.0E-02	(q)	3.1E-03	(m)	3.0E-02	(a)
4,4'-DDD	NA		NA		2.4E-01	IRIS	NA		2.4E-01	(c)	NA	
4,4'-DDE	NA		NA		3.4E-01	IRIS	NA		3.4E-01	(c)	NA	
Dibenz(a,h)anthracene	2.0E-01	(l)	2.0E-02	(l)	7.3E+00	(m)	3.0E-02	(q)	3.1E+00	(m)	3.0E-02	(a)
Dibenzofuran	2.0E-03	(a)	2.0E-03	NCEA Reg IX	NA		2.0E-03	(c)	NA		2.0E-03	(c)
1,2-Dichlorobenzene	9.0E-02	(a)	9.0E-02	IRIS	NA		6.9E-03	NCEA Reg VI	NA		6.9E-03	(a)
1,4-Dichlorobenzene	3.0E-02	(a)	3.0E-02	NCEA Reg III	2.4E-02	HEAST	2.3E-01	IRIS	2.4E-02	NCEA Reg VI	2.3E-01	(a)
4,6-Dinitro-2-methylphenol	1.0E-03	(a)	1.0E-04	PPTRV Reg IX	NA		1.0E-04	(c)	NA		1.0E-03	(c)
2,4-Dinitrophenol	2.0E-03	HEAST	2.0E-03	IRIS	NA		2.0E-03	(c)	NA		2.0E-03	(c)
Endosulfan II	6.0E-03	(a)	6.0E-03	IRIS (n)	NA		6.0E-03	(c)	NA		6.0E-03	(a)
Endosulfan sulfate	6.0E-03	(a)	6.0E-03	IRIS (n)	NA		6.0E-03	(c)	NA		6.0E-03	(a)
Endrin aldehyde	3.0E-04	(a)	3.0E-04	(o)	NA		3.0E-04	(c)	NA		3.0E-04	(c)
Ethylbenzene	1.0E-01	(a)	1.0E-01	IRIS	NA		2.9E-01	IRIS	NA		2.9E-01	(a)
Fluoranthene	4.0E-01	HEAST	4.0E-02	IRIS	NA		4.0E-02	(c)	NA		4.0E-01	(c)
Fluorene	4.0E-01	HEAST	4.0E-02	IRIS	NA		4.0E-02	(c)	NA		4.0E-01	(c)
Indeno(1,2,3-cd)pyrene	2.0E-01	(l)	2.0E-02	(l)	7.3E-01	(m)	3.0E-02	(q)	3.1E-01	(m)	3.0E-02	(a)
Isopropylbenzene	1.0E-01	(a)	1.0E-01	IRIS	NA		1.0E-01	(h)	NA		1.0E-01	(a)
Manganese	1.4E-01	HEAST	1.4E-01	IRIS	NA		1.4E-05	IRIS	NA		1.4E-05	(a)
Methylene chloride	6.0E-02	HEAST	6.0E-02	IRIS	7.5E-03	IRIS	8.6E-01	HEAST	1.6E-03	(i)	8.6E-01	(a)
1-Methylnaphthalene	2.0E-01	(l)	2.0E-02	(l)	NA		8.6E-04	(l)	NA		8.6E-04	(l)
2-Methylnaphthalene	2.0E-01	(l)	2.0E-02	(l)	NA		8.6E-04	(l)	NA		8.6E-04	(l)
Naphthalene	2.0E-01	(j)	2.0E-02	IRIS	NA		8.6E-04	IRIS	NA		8.6E-04	(a)
4-Nitrophenol	8.0E-03	(a)	8.0E-03	NCEA Reg VI	NA		8.0E-03	(c)	NA		8.0E-03	(c)
Pentachlorophenol	3.0E-02	HEAST	3.0E-02	IRIS	1.2E-01	IRIS	3.0E-02	(c)	NA		3.0E-02	(c)
Phenanthrene	2.0E-01	(l)	2.0E-02	(l)	NA		8.6E-04	(l)	NA		8.6E-04	(l)
Phenol	3.0E-01	(a)	3.0E-01	IRIS	NA		3.0E-01	(c)	NA		3.0E-01	(a)
Pyrene	3.0E-01	HEAST	3.0E-02	IRIS	NA		3.0E-02	(c)	NA		3.0E-01	(c)
Tetrachloroethene	1.0E-01	HEAST	1.0E-02	IRIS	5.4E-01	Reg III	1.1E-01	NCEA Reg VI	2.1E-02	Region VI	1.1E-01	(a)
2,3,7,8-TCDD	NA		NA		1.5E+05	HEAST	NA		1.5E+05	HEAST	NA	
2,3,4,6 & 2,3,5,6-Tetrachlorophenol	3.0E-01	HEAST	3.0E-02	IRIS	NA		3.0E-02	(c)	NA		3.0E-01	(c)
Toluene	2.0E+00	HEAST	8.0E-02	IRIS	NA		1.4E+00	IRIS	NA		1.4E+00	(a)
1,2,4-Trichlorobenzene	1.0E-02	HEAST	1.0E-02	IRIS	NA		1.1E-03	PPRTV Reg VI	NA		1.1E-03	(a)
1,1,1-Trichloroethane	2.8E-01	(j)	2.8E-02	NCEA Reg VI	NA		6.3E-01	PPRTV Reg VI	NA		6.3E-01	(a)
Trichlorofluoromethane	7.0E-01	HEAST	3.0E-01	IRIS	NA		2.0E-01	HEAST	NA		2.0E-01	(a)
2,4,5-Trichlorophenol	1.0E+00	HEAST	1.0E-01	IRIS	NA		1.0E-01	(c)	NA		1.0E-01	(a)
2,4,6-Trichlorophenol	1.0E+00	(k)	1.0E-04	NCEA Reg IX	1.1E-02	IRIS	1.0E-04	(c)	1.1E-02	IRIS	1.0E+00	(k)
1,2,4-Trimethylbenzene	5.0E-02	(a)	5.0E-02	PPTRV Reg IX	NA		1.7E-03	PPTRV Reg IX	NA		1.7E-03	(a)
Total Xylenes	2.0E+00	(a)	2.0E+00	IRIS	NA		2.9E-02	(h)	NA		2.9E-02	(a)

Sources:
IRIS: U.S. EPA's Integrated Risk Information System. On-Line Database. 2007. (U.S. EPA, 2007a).
Region III, 2009. Risk-Based Concentrations (RBC) Table, April 6, 2007. (U.S. EPA, 2009c).
Region VI, 2007. Region 6 Human Health Medium-Specific Screening Levels 2007. (U.S. EPA, 2007d).
Region IX, 2004. Preliminary Remediation Goal (PRG) Table. (U.S. EPA, 2004b).
HEAST: U.S. EPA's Health Effects Assessment Summary Tables. Fiscal Year 1997. (U.S. EPA, 1997a).
NA: Not available

Notes:
(a) Use chronic value as surrogate
(b) Use gamma-BHC as surrogate
(c) Use oral value as surrogate
(d) Converted from RfDi
(e) Use inhalation value as surrogate
(f) Converted from CSFi
(g) Use 3-methylphenol as surrogate
(h) Converted from RfC
(i) Converted from URF
(j) Chronic value adjusted by 10 to account for subchronic study duration
(k) Use 2,4,5-Trichlorophenol as surrogate
(l) Use naphthalene as a surrogate
(m) Potential carcinogenic risk evaluated as BAP-TE by applying TEF from USEPA (1993)
to the carcinogenic dose-response value for benzo(a)pyrene
(n) Use endosulfan as surrogate
(o) Use endrin as surrogate
(p) Use phenol as a surrogate
(q) Use pyrene as a surrogate

Table 5
Absorption Adjustment Factors and Absorption Factors
KI Facility
Superior, WI

Constituent	Oral Soil / Sediment[1]		Dermal Soil / Sediment[2]		Inhalation	
	Cancer	Noncancer Chronic	Cancer	Noncancer Chronic	Cancer	Noncancer Chronic
Acenaphthene	NA	1	NA	0.13 (a)	NA	1
Acenaphthylene	NA	1	NA	0.13 (a)	NA	1
Aldrin	1	1	0.25	0.25	1	1
Anthracene	NA	1	NA	0.13 (a)	NA	1
Barium	NA	1	NA	0.001	NA	1
Benzo(a)anthracene	1	1	0.13 (a)	0.13 (a)	1	1
Benzo(a)pyrene	1	1	0.13 (a)	0.13 (a)	1	1
Benzo(b)fluoranthene	1	1	0.13 (a)	0.13 (a)	1	1
Benzo(g,h,i)perylene	NA	1	NA	0.13 (a)	NA	1
Benzo(k)fluoranthene	1	1	0.13 (a)	0.13 (a)	1	1
delta-BHC	1	1	0.25	0.25	1	1
Chlorobenzene	NA	1	0	0	NA	1
Chloromethane	NA	1	0	0	NA	1
4-Chloro-3-methylphenol	NA	1	NA	0.03	NA	1
Chromium	NA	1	NA	0.04	1	1
Chrysene	1	1	0.13 (a)	0.13 (a)	1	1
4,4'-DDD	1	NA	0.2	NA	1	NA
4,4'-DDE	1	NA	0.2	NA	1	NA
delta-BHC	1	1	0.25	0.25	1	1
Dibenz(a,h)anthracene	1	1	0.13 (a)	0.13 (a)	1	1
Dibenzofuran	NA	1	NA	0.1	NA	1
1,2-Dichlorobenzene	NA	1	0	0	NA	1
1,4-Dichlorobenzene	1	1	0	0	1	1
4,6-Dinitro-2-methylphenol	NA	1	NA	0.03	NA	1
2,4-Dinitrophenol	NA	1	NA	0.03	NA	1
Endosulfan II	NA	1	NA	0.2	NA	1
Endosulfan sulfate	NA	1	NA	0.2	NA	1
Endrin aldehyde	NA	1	NA	0.25	NA	1
Ethylbenzene	NA	1	0	0	NA	1
Fluoranthene	NA	1	NA	0.13 (a)	NA	1
Fluorene	NA	1	NA	0.13 (a)	NA	1
Indeno(1,2,3-cd)pyrene	1	1	0.13 (a)	0.13 (a)	1	1
Isopropylbenzene	NA	1	0	0	NA	1
Manganese	NA	1	NA	0.05	NA	1
Methylene chloride	1	1	0.1	0.1	1	1
1-Methylnaphthalene	NA	1	NA	0.13 (a)	NA	1
2-Methylnaphthalene	NA	1	NA	0.13 (a)	NA	1
Naphthalene	NA	1	NA	0.13 (a)	NA	1
4-Nitrophenol	NA	1	NA	0.03	NA	1
Pentachlorophenol	1	1	0.25 (a)	0.25 (a)	NA	1
Phenanthrene	NA	1	NA	0.13 (a)	NA	1
Phenol	NA	1	NA	0.1	NA	1
Pyrene	NA	1	NA	0.13 (a)	NA	1
Tetrachloroethene	1	1	0.1	0.1	1	1
1,2,4-Trichlorobenzene	NA	1	0	0	NA	1
2,3,7,8-TCDD	1	NA	0.04 (b)	NA	1	NA
2,3,4,6 & 2,3,5,6-Tetrachlorophenol	NA	1	NA	0.03	NA	1
Toluene	NA	1	NA	0.04	NA	1
1,2,4-Trichlorobenzene	NA	1	NA	0.08	NA	1
1,1,1-Trichloroethane	NA	1	NA	0.1	NA	1
Trichlorofluoromethane	NA	1	NA	0.1	NA	1
2,4,5-Trichlorophenol	NA	1	NA	0.03	NA	1
2,4,6-Trichlorophenol	1	1	0.03	0.03	1	1
1,2,4-Trimethylbenzene	NA	1	NA	0.1	NA	1
Xylenes	NA	1	NA	0.04	NA	1

1 = Literature-derived AAFs were replaced by default values of 1.0
2 = Dermal risk assessment not required by WDNR, but was included. AAFs shown were derived from the scientific literature
(a) Dermal absorption factors for PAH and pentachlorophenol obtained from U.S. EPA (2004a), as recommended by WDNR (2007a,b).
(b) Value based on dermal absorption efficiency of 3% presented in EPA (2002), adjusted by estimated oral absorption of 70%.
NA - Not applicable.

Table 6
Post - Remediation Exposure Point Concentrations[1]
KI Facility
Superior, WI

	Surface Soil									SubSurface Soil								
	Site-wide EPC	Area A EPC	Area B EPC	Area C EPC	Area F EPC	Area G EPC	Area H EPC	Area S EPC	Area B/F EPC	Site-wide EPC	Area A EPC	Area B EPC	Area C EPC	Area F EPC	Area G EPC	Area H EPC	Area S EPC	Area B/F EPC
Analyte	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-5	0-5	0-5	0-5	0-5	0-5	0-5	0-5	0-5
Acenaphthene	2.5E+00	1.1E+00	2.0E+00	ND	8.4E+00	2.3E-01	4.0E+00	1.2E+00	4.0E+00	2.4E+01	1.2E+02	4.9E+00	2.1E+00	8.8E+00	3.4E+00	3.3E+00	1.0E+00	5.5E+00
Acenaphthylene	2.8E+00	1.1E+00	9.9E-01	ND	8.8E+00	2.4E-01	4.9E-01	5.1E-01	4.0E+00	9.1E+00	4.0E+01	2.6E+00	1.4E+00	8.2E+00	5.5E+00	1.2E+00	3.1E-01	4.2E+00
Aldrin	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03
Anthracene	3.0E+00	5.0E+00	2.1E+00	ND	6.5E+00	1.2E-01	4.6E+00	4.4E+00	3.5E+00	1.4E+01	6.5E+01	3.1E+00	7.6E-01	6.7E+00	1.0E+00	5.0E+00	4.4E+00	4.0E+00
BAP-TEQ	3.2E+00	3.4E+00	3.4E+00	2.8E-01	3.6E+00	5.8E-01	1.8E+00	3.2E+00	3.1E+00	8.5E+00	3.2E+01	6.2E+00	6.2E-01	4.6E+00	6.0E+00	2.7E+00	3.1E+00	5.2E+00
Barium	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02
Benzo(a)anthracene	1.1E+00	9.8E-01	1.2E+00	9.6E-02	1.6E+00	1.0E-01	2.3E+00	1.5E+00	1.3E+00	4.0E+00	1.7E+01	1.6E+00	3.6E-01	2.2E+00	1.7E+00	2.0E+00	1.4E+00	1.7E+00
Benzo(a)pyrene	1.0E+00	1.6E+00	1.2E+00	1.2E-01	1.7E+00	1.1E-01	9.3E-01	7.4E-01	1.3E+00	3.4E+00	1.3E+01	2.6E+00	1.9E-01	1.8E+00	4.8E-01	1.0E+00	7.3E-01	2.2E+00
Benzo(b)fluoranthene	1.8E+00	2.6E+00	2.1E+00	1.6E-01	3.1E+00	1.8E-01	1.9E+00	1.6E+00	2.3E+00	3.9E+00	1.5E+01	2.1E+00	2.9E-01	3.2E+00	1.3E+00	1.4E+00	1.6E+00	2.3E+00
Benzo(g,h,i)perylene	2.1E+00	2.5E+00	1.7E+00	1.6E-01	2.0E+00	1.9E-01	5.7E-01	1.3E+00	1.7E+00	3.2E+00	1.1E+01	2.6E+00	2.4E-01	2.0E+00	5.1E+00	8.3E-01	1.3E+00	2.2E+00
Benzo(k)fluoranthene	6.1E-01	5.0E-01	6.4E-01	1.0E-01	1.3E+00	1.6E-01	6.6E-01	5.6E-01	8.4E-01	1.4E+00	5.0E+00	6.5E-01	1.3E-01	1.3E+00	4.5E-01	6.3E-01	5.5E-01	8.4E-01
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03
4-Chloro-3-methylphenol	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01
Chloromethane	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03
Chromium	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01	6.8E+01
Chrysene	2.6E+00	5.5E+00	1.8E+00	1.7E-01	3.4E+00	1.7E-01	3.6E+00	2.2E+00	2.2E+00	8.6E+00	3.5E+01	3.8E+00	6.9E-01	5.1E+00	3.4E+00	4.9E+00	2.2E+00	3.9E+00
4,4'-DDD	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02
4,4'-DDE	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03
4,4'-DDT	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02	1.9E-02
delta-BHC	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03
Dibenzo(a,h)anthracene	1.9E+00	1.5E+00	1.9E+00	1.3E-01	1.4E+00	4.7E-01	4.9E-01	2.1E+00	1.5E+00	4.2E+00	1.5E+01	3.5E+00	3.7E-01	2.1E+00	5.3E+00	1.5E+00	2.0E+00	2.7E+00
Dibenzofuran	1.9E+00	1.9E+00	1.9E+00	1.9E+00	1.9E+00	1.9E+00	1.9E+00	1.9E+00	1.9E+00	9.1E+02	9.1E+02	4.1E+02	8.4E-01	2.3E+01	2.5E+01	2.7E+01	1.9E+00	4.1E+02
1,2-Dichlorobenzene	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03
2,4-Dinitrophenol	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01	6.3E-01
4,6-Dinitro-2-methylphenol	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00
Endosulfan II	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02
Endosulfan Sulfate	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02	1.4E-02
Endrin	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02	3.6E-02
Endrin Aldehyde	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02
Ethylbenzene	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00	2.1E+00
Fluoranthene	4.3E+00	2.1E+00	4.3E+00	2.2E-01	5.4E+00	1.4E-01	1.1E+01	6.0E+00	4.1E+00	3.6E+01	1.7E+02	6.8E+00	3.0E+00	8.8E+00	1.0E+01	8.6E+00	5.9E+00	6.7E+00
Fluorene	1.7E+00	5.9E-01	1.4E+00	ND	1.3E+00	1.6E-01	4.2E+00	1.6E+00	1.2E+00	1.9E+01	9.4E+01	3.0E+00	1.6E+00	2.6E+00	5.5E+00	3.4E+00	1.6E+00	2.5E+00
Indeno(1,2,3-cd)pyrene	1.2E+00	2.0E+00	1.5E+00	1.6E-01	1.9E+00	2.0E-01	5.4E-01	8.9E-01	1.5E+00	1.4E+00	3.2E+00	1.4E+00	1.5E-01	1.8E+00	3.4E-01	5.2E-01	8.8E-01	1.4E+00
Isopropylbenzene	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02	3.3E-02
Manganese	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02	8.5E+02
Methylene Chloride	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02	7.4E-02
1-Methylnaphthalene	7.9E+00	2.4E+00	3.9E+00	4.4E+00	3.4E+01	4.7E-01	ND	ND	1.5E+01	5.9E+00	6.6E+00	2.8E+00	4.5E+00	3.1E+01	2.9E-01	2.2E-01	ND	9.9E+00
2-Methylnaphthalene	9.1E+00	2.4E+00	5.9E+00	ND	3.4E+01	4.7E-01	ND	ND	2.3E+01	6.1E+00	6.6E+00	1.5E+00	ND	3.1E+01	2.9E-01	2.2E-01	ND	1.2E+01
Naphthalene	2.4E+00	1.1E+00	1.4E+00	8.3E-01	8.1E+00	2.1E-01	3.2E+00	4.5E-01	3.8E+00	2.0E+01	9.8E+01	6.3E+00	1.4E+00	4.8E+00	1.6E+00	3.5E+00	3.1E-01	5.1E+00
4-Nitrophenol	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01	2.5E-01
Pentachlorophenol	1.5E+01	1.5E+00	3.0E+00	1.1E+00	4.8E+00	1.3E+00	1.2E+01	1.7E+01	3.4E+00	9.9E+00	1.4E+00	2.8E+00	9.7E-01	4.7E+00	5.9E+01	3.2E+01	1.7E+01	3.2E+00
Phenanthrene	2.4E+00	1.2E+00	3.7E+00	ND	2.7E+00	1.3E-01	1.3E+01	2.0E+00	2.9E+00	5.3E+01	2.7E+02	6.0E+00	4.8E+00	6.7E+00	1.6E+00	1.0E+01	2.0E+00	5.4E+00
Phenol	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02	1.2E-02
Pyrene	3.5E+00	1.9E+00	3.2E+00	2.0E-01	6.4E+00	1.9E-01	7.5E+00	4.4E+00	4.0E+00	2.4E+01	8.4E+01	3.3E+01	1.8E+00	7.9E+00	6.0E+00	6.0E+00	4.4E+00	2.3E+01
Tetrachloroethene	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03
2,3,4,6 & 2,3,5,6-Tetrachlorophenol	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01
2,3,7,8-TCDD TEQ with 2005 TEF	2.7E-04	1.5E-04	2.8E-04	1.9E-05	3.2E-04	5.1E-04	3.1E-04	3.1E-04	2.7E-04	2.7E-04	1.5E-04	2.8E-04	1.9E-05	3.2E-04	5.1E-04	3.1E-04	3.1E-04	2.7E-04
1,1,1-Trichloroethane	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03
1,2,4-Trichlorobenzene	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03
2,4,5-Trichlorophenol	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01	1.6E-01
2,4,6-Trichlorophenol	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01	3.5E-01
1,2,4-Trimethylbenzene	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02	4.4E-02
Toluene	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02	2.8E-02
Total Xylenes	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03
Trichlorofluoromethane	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03	2.0E-03

Concentrations presented in mg/kg (ppm)
ND indicates Not Detected in Exposure Area
1 = For COPCs, EPCs represent 95% UCL under post-remediation conditions. For non-COPCs, EPCs represent maximum detected concentrations under post-remediation conditions. See text for explanation.

Table 7
Summary of Potential Exposure Assumptions
KI Facility
Superior, WI

Receptor	Parameter (units)	Soil			Air/Dust	Surface Water
		Excavation	Surface	Trench		
Construction Worker	Exposure Time (hr/d)	NA	NA	NA	8	NA
	Exposure Frequency (d/y)	130	NA	NA	130	NA
	Exposure Duration (y)	1	NA	NA	1	NA
	Body Weight (kg)	71.8	NA	NA	71.8	NA
	Averaging Time - Lifetime (d)	25550	NA	NA	25550	NA
	Averaging Time - Subchronic Noncancer (d)	365	NA	NA	365	NA
	Contact Rate (mg/d) or (m^3/hr)	118	NA	NA	2.5	NA
	Fraction from Site (unitless)	1	NA	NA	1	NA
	Surface Area Exposed (cm^2/d)	2478	NA	NA	NA	NA
	Soil-to-Skin Adherence Factor (mg/cm^2)	0.139	NA	NA	NA	NA
Utility Worker	Exposure Time (hr/d)	NA	NA	NA	8	NA
	Exposure Frequency (d/y)	NA	NA	5	5	NA
	Exposure Duration (y)	NA	NA	25	25	NA
	Body Weight (kg)	NA	NA	71.8	71.8	NA
	Averaging Time - Lifetime (d)	NA	NA	25550	25550	NA
	Averaging Time - Chronic Noncancer (d)	NA	NA	9125	9125	NA
	Contact Rate (mg/d) or (m^3/hr)	NA	NA	330	2.5	NA
	Fraction from Site (unitless)	NA	NA	1	1	NA
	Surface Area Exposed (cm^2/d)	NA	NA	2478	NA	NA
	Soil-to-Skin Adherence Factor (mg/cm^2)	NA	NA	0.242	NA	NA
Trespasser	Exposure Time (hr/d)	NA	NA	NA	2	2
	Exposure Frequency (d/y)	NA	20	NA	20	40
	Exposure Duration (y)	NA	7	NA	7	7
	Body Weight (kg)	NA	56	NA	56	56
	Averaging Time - Lifetime (d)	NA	25550	NA	25550	25550
	Averaging Time - Chronic Noncancer (d)	NA	2555	NA	2555	2555
	Contact Rate (mg/day) or (m^3/hr) or (L/hr)	NA	50	NA	1.6	0.005
	Fraction from Site (unitless)	NA	1	NA	1	1
	Surface Area Exposed (cm^2/d)	NA	5651	NA	NA	5651
	Soil-to-Skin Adherence Factor (mg/cm^2)	NA	0.158	NA	NA	NA
KI Site Worker	Exposure Time (hr/d)	NA	NA	NA	8	NA
	Exposure Frequency (d/y)	NA	180	NA	180	NA
	Exposure Duration (y)	NA	25	NA	25	NA
	Body Weight (kg)	NA	71.8	NA	71.8	NA
	Averaging Time - Lifetime (d)	NA	25550	NA	25550	NA
	Averaging Time - Noncancer (d)	NA	9125	NA	9125	NA
	Contact Rate (mg/day) or (m^3/hr)	NA	50	NA	3	NA
	Fraction from Site (unitless)	NA	1	NA	1	NA
	Surface Area Exposed (cm^2/d)	NA	2087	NA	NA	NA
	Soil-to-Skin Adherence Factor (mg/cm^2)	NA	0.2	NA	NA	NA

NA - Not applicable

Table 8
Calculation of Weighted Average Soil Adherence Factors
KI Facility
Superior, WI

Receptor Body Part	50th %ile Surface Area (cm^2) (a)			Construction Worker		Utility Worker	
				AF (b)	Wt. AF	AF (b)	Wt. AF
	M	F	Avg				
Hands	990	817	904	0.24	0.0875	0.295	0.1076
Forearms	1310	1035	1173	0.098	0.0464	0.25	0.1183
Face (1/3 Head)	433	370	402	0.029	0.0047	0.1	0.0162
		Total =	2478		0.139		0.242

Receptor Body Part	Fraction of Total SA (a)	50th %ile Surface Area (cm^2) (a)			Trespasser (15-16 years old) (d)	
		M	F	Avg	AF	Wt. AF
		17000	15700			
Hands	0.0568	965.6	892	928.68	0.3854	0.0633
Forearms	0.059	1003	926	964.65	0.0147	0.0025
Feet	0.0693	1178.1	1088	1133.055	0.3854	0.0773
Lower Legs	0.134	2278	2104	2190.9	0.0372	0.0144
Face (1/3 Head)	0.0265	450.5	416	433.275	0.0042	0.0003
			Total =	5650.56		0.158

KI Site Worker Body Part	50th %ile Surface Area (cm^2) (a)			Construction Worker		Utility Worker		KI Worker (c)	
				AF	Wt. AF	AF	Wt. AF	AF	Wt. AF
	M	F	Avg						
Hands	990	817	904	0.24	0.0875	0.295	0.1076	0.2675	0.1158
Forearms	1310	1035	1173	0.098	0.0464	0.25	0.1183	0.174	0.0978
Face (1/3 Head)	433	370	402	0.029	0.0047	0.1	0.0162	0.0645	0.0124
		Total =	2087						0.226

(a) U.S. EPA 2004a.
(b) U.E. EPA (2004a), Geometric Mean values.
(c) Average of Construction Worker and Utility Worker values
(d) AF values from U.S. EPA (2004a), Geometric Mean of values for Children Playing (dry soil) and Children Playing (wet soil).
Soil adherence to feet assumed to equal soil adherence to hands.

Table 9
Summary of Potential Noncarcinogenic Hazard Indices Under Post-Remediation Conditions
KI Facility
Superior, WI
Revised Feb 2009

	Site-Wide				Area A				Area B			
Receptor	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**
KI Site Worker (0-1' Soil)	1E-01	9E-05	NA	2E-04	8E-02	1E-04	NA	5E-05	1E-01	1E-04	NA	1E-04
Trespasser (0-1' Soil)	8E-03	2E-05	NA	4E-05	6E-03	3E-05	NA	1E-05	7E-03	3E-05	NA	3E-05
Utility Worker (0-5' Soil)	4E-02	3E-05	NA	2E-05	6E-02	1E-04	NA	4E-06	2E-02	2E-05	NA	8E-06
Construction Worker (0-5' Soil)	1E+00	2E-04	NA	2E-04	2E+00	9E-04	NA	5E-05	4E-01	2E-04	NA	1E-04

	Area C				Area F				Area G			
Receptor	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**
KI Site Worker (0-1' Soil)	8E-02	1E-05	NA	4E-05	3E-01	1E-04	NA	2E-04	7E-02	2E-05	NA	5E-05
Trespasser (0-1' Soil)	6E-03	2E-06	NA	1E-05	1E-02	3E-05	NA	4E-05	6E-03	5E-06	NA	1E-05
Utility Worker (0-5' Soil)	5E-03	2E-06	NA	3E-06	1E-02	2E-05	NA	1E-05	5E-03	5E-06	NA	4E-05
Construction Worker (0-5' Soil)	1E-01	2E-05	NA	4E-05	6E-01	1E-04	NA	2E-04	7E-02	4E-05	NA	5E-04

	Area H				Area S				Area B/F			
Receptor	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**
KI Site Worker (0-1' Soil)	8E-02	6E-05	NA	4E-04	7E-02	1E-04	NA	6E-04	2E-01	1E-04	NA	1E-04
Trespasser (0-1' Soil)	6E-03	1E-05	NA	1E-04	6E-03	3E-05	NA	2E-04	1E-02	3E-05	NA	3E-05
Utility Worker (0-5' Soil)	6E-03	1E-05	NA	1E-04	5E-03	1E-05	NA	5E-05	2E-02	2E-05	NA	1E-05
Construction Worker (0-5' Soil)	1E-01	8E-05	NA	1E-03	4E-02	9E-05	NA	6E-04	6E-01	1E-04	NA	1E-04

Note:
Risk estimates represent post-remediation Site conditions
1 = Total potential hazard indices are the sum of potenital hazard indices for COPCs and non-COPCs
NA - Not applicable

Table 10
Summary of Potential Excess Limetime Cancer Risks Under Post-Remediation Conditions
KI Facility
Superior, WI
Revised Feb. 2009

	Site-Wide				Area A				Area B			
Receptor	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**
KI Site Worker (0-1' Soil)	1E-05	5E-06	7E-06	2E-07	1E-05	6E-06	4E-06	7E-08	1E-05	6E-06	7E-06	1E-07
Trespasser (0-1' Soil)	7E-07	3E-07	3E-07	1E-08	6E-07	4E-07	2E-07	5E-09	8E-07	4E-07	4E-07	9E-09
Utility Worker (0-5' Soil)	3E-06	2E-06	1E-06	3E-08	7E-06	6E-06	6E-07	6E-09	2E-06	1E-06	1E-06	1E-08
Construction Worker (0-5' Soil)	1E-06	7E-07	4E-07	1E-08	3E-06	3E-06	2E-07	2E-09	9E-07	5E-07	4E-07	5E-09

	Area C				Area F				Area G			
Receptor	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**
KI Site Worker (0-1' Soil)	1E-06	5E-07	5E-07	5E-08	1E-05	7E-06	8E-06	2E-07	1E-05	1E-06	1E-05	6E-08
Trespasser (0-1' Soil)	6E-08	3E-08	2E-08	3E-09	8E-07	4E-07	4E-07	2E-08	7E-07	7E-08	6E-07	4E-09
Utility Worker (0-5' Soil)	2E-07	1E-07	7E-08	4E-09	2E-06	9E-07	1E-06	2E-08	2E-06	3E-07	2E-06	5E-08
Construction Worker (0-5' Soil)	9E-08	5E-08	3E-08	2E-09	9E-07	4E-07	5E-07	8E-09	9E-07	1E-07	7E-07	2E-08

	Area H				Area S				Area B/F			
Receptor	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**	**Total[1]**	**BaP-TE**	**TCDD-TEQ**	**Penta-chlorophenol**
KI Site Worker (0-1' Soil)	1E-05	3E-06	8E-06	5E-07	1E-05	6E-06	8E-06	8E-07	1E-05	6E-06	7E-06	2E-07
Trespasser (0-1' Soil)	6E-07	2E-07	4E-07	4E-08	8E-07	4E-07	4E-07	5E-08	7E-07	4E-07	3E-07	1E-08
Utility Worker (0-5' Soil)	2E-06	6E-07	1E-06	1E-07	2E-06	6E-07	1E-06	7E-08	2E-06	1E-06	1E-06	1E-08
Construction Worker (0-5' Soil)	7E-07	2E-07	4E-07	5E-08	8E-07	3E-07	5E-07	3E-08	8E-07	4E-07	4E-07	6E-09

Note:
Risk estimates represent post-remediation Site conditions
1 = Total Risks are the sum of potential estimated excess lifetime cancer risks for COPCs and non-COPCs

Table 11
Equations Used to Estimate Surface Water Concentrations from Soil Runoff
KI Facility
Superior, WI

Source: U.S. EPA (2005)

$$C_{wctot} = f_{wc} \times C_{wtot} \times \frac{d_{wc} + d_{bs}}{d_{wc}}$$

$$C_{wtot} = \frac{L_T}{Vf_x \times f_{wc} \times k_{wt} \times A_w \times (d_{wc} + d_{bs})}$$

$$f_{wc} = \frac{(1 + Kd_{sw} \times TSS \times 1e-6) \times \frac{d_{wc}}{d_z}}{(1 + Kd_{sw} \times TSS \times 1e-6) \times \frac{d_{wc}}{d_z} + (\theta_{bs} + Kd_{bs} \times C_{BS}) \times \frac{d_{bs}}{d_z}}$$

$$f_{bs} = 1 - f_{wc}$$

$$L_T = L_{DEP} + L_{dif} + L_{RI} + L_R + L_E$$

$$L_R = RO \times (A_L - A_I) \times \frac{C_s \times BD}{\theta_{sw} + Kd_s \times BD} \times 0.01$$

$$L_E = X_e \times (A_L - A_I) \times SD \times ER \times \frac{Cs \times Kd_s \times BS}{\theta_{sw} + Kd_s \times BS} \times 0.001$$

$$k_{wt} = f_{wc} \times k_v + f_{bs} \times k_b$$

$$k_v = \frac{K_v}{d_z \times (1 + Kd_{sw} \times TSS \times 1e-6)}$$

$$K_v = \left[K_L^{-1} + \left(K_G \times \frac{H}{R \times T_{wk}} \right)^{-1} \right]^{-1} \times \theta^{(T_{wk} - 293)}$$

$$K_L = \sqrt{\frac{(1e-4) \times D_w \times u}{d_z}} 3.1536e+7$$

$$X_e = RF \times K \times LS \times C \times PF \times \frac{907.18}{4047}$$

$$SD = a \times \left(A_L^{-b} \right)$$

$$k_b = \left(\frac{X_e \times A_L \times SD \times 1000 - Vf_x \times TSS}{A_w \times TSS} \right) \times \left(\frac{TSS \times 1e-6}{C_{BS} \times d_{bs}} \right)$$

Table 11
Equations Used to Estimate Surface Water Concentrations from Soil Runoff
KI Facility
Superior, WI

where:
C_{wctot} = Total compound concentration in water column (mg/L)
C_{wtot} = Total compound concentration in water body (mg/L)
L_{DEP} = Total deposition to water body (g/yr) (assumed to be 0)
L_{dif} = Vapor phase diffusion load to water body (g/yr) (assumed to be 0)
L_{RI} = Runoff load from impervious surfaces (g/yr) (assumed to be 0)
L_R = Runoff load from pervious surfaces (g/yr) (calculated)
L_E = Soil erosion load (g/yr) (calculated)
X_e = Unit soil loss (kg/m2-yr) (calculated)
SD = Sediment delivery ratio (unitless) (calculated)
f_{wc} = Fraction of total water body concentration that is in water column (unitless) (calculated)
k_{wt} = Overall total water body dissipation rate constant (yr^{-1}) (calculated)
f_{bs} = Fraction of total water body concentration that is in benthic sediment (unitless) (calculated)
d_z = Total water body depth (m) (calculated)
k_v = Water column volatilization rate constant (yr^{-1}) (calculated)
k_b = Benthic burial rate constant (yr^{-1}) (calculated)
K_v = Overall compound transfer rate coefficient (m/yr) (calculated)
K_L = Liquid phase transfer coefficient (m/yr) (calculated)
BD = Soil bulk density (g/cm^3) (assumed to be 1.5 g/cm^3)
θ_{sw} = Soil volumetric water content (mL/cm^3) (assumed to be 0.2 mL/cm^3)
ER = Soil enrichment ratio (unitless) (assumed to be 3 for organics and 1 for inorganics)
d_{bs} = Depth of benthic sediment layer (m) (assumed to be 0.03 m)
TSS = Total suspended solids (mg/L) (assumed to be 10 mg/L)
C_{BS} = Bed sediment bulk density (g/cm^3) (assumed to be 1 g/cm^3)
θ_{bs} = Bed sediment porosity (Lwater / Lsediment) (assumed to be 0.6 L/L)
a = Empirical intercept coefficient (unitless) (assumed to be 0.1, corresponding to a watershed area of 0.1 square miles)
b = Empirical slope coefficient (unitless) (assumed to be 0.125)
K_G = Gas phase transfer coefficient (m/yr) (assumed to be 36500 m/yr)
R = Universal gas constant (atm-m^3/mol-K) (8.21 e-5 atm-m^3/mol-K)
T_{wk} = Water body temperature (K) (assumed to be 298 K)
θ = Temperature correction factor (unitless) (assumed to be 0.026)
0.01 = Unit conversion factor (kg-cm^2/mg-m^2)
0.001 = Unit conversion factor (kg-cm^2/mg-m^2)
907.18 = Unit conversion factor (kg/ton)
4047 = Unit conversion factor (m^2/acre)
1e-6 = Unit conversion factor (kg/mg)
3.1536e+7 = Unit conversion factor (s/yr)
Vf_x = Volumetric flow rate through water body (m^3/yr) (assumed to be 1.34e7 m^3/yr for Crawford Creek corresponding to the mean flow rate measured in Crawford Creek between the drainage ditch and the railroad bridge; assumed to be 1.34e6 m^3/yr for the drai
A_w = Water body surface area (m^2) (assumed to be 36,000 m^2 for Crawford Creek corresponding to the area of Crawford Creek from the drainage ditch to the railroad bridge; assumed to be 873 m^2 for the drainage ditch based on the 2000 streambed investigation
Dwc = Depth of water column (m) (assumed to be 0.54 m for Crawford Creek corresponding to the mean staff gauge measurement in Crawford Creek between the drainage ditch and the railroad bridge; assumed to be 0.15 m for the drainage ditch based on baseflow
u = Current velocity (m/s) (assumed to be 0.12 m/s for Crawford Creek corresponding to the mean velocity measured in Crawford Creek between the drainage ditch and the railroad bridge; assumed to be 0.15 m/s for the drainage ditch from Hammond Avenue to Cr

Table 11
Equations Used to Estimate Surface Water Concentrations from Soil Runoff
KI Facility
Superior, WI

RO = Average annual surface runoff from pervious surfaces (cm/yr) (Site-specific value of 50 cm/yr, derived by subtracting the minimum default evapotranspiration value from the Site-specific precipitation value)

AL = Total watershed area (m^2) (assumed to be 120,342 m^2, corresponding to the area of the Site that drains to the northwest to outfall 1)

AI = Impervious watershed area (m^2) (assumed to be 12,034.2 m^2, corresponding to 10 % of the area in the region of the Site that drains to the northwest to outfall 1)

RF = USLE rainfall factor (yr^{-1}) (assumed to be100 yr^{-1}, based on information provided at http://danpatch.ecn.purdue.edu/~wepphtml/wepp/wepptut/jhtml/imagedir/usa.gif)

K = USLE erodibility factor (ton/acre) (assumed to be default value of 0.39 ton/acre)

LS = USLE length-slope factor (unitless) (assumed to be default value of 1.5)

C = USLE cover management factor (unitless) (assumed to be 1, corresponding to bare soil)

PF = USLE supporting practice factor (unitless) (assumed to be 1, corresponding to the absence of erosion control measures)

Cs = Compound concentration in soil (mg/kg) (see Table 13)

Kd = Soil-water partition coefficient (cm^3/g) (see Table 13)

H = Henry's Law constant (atm-m^3/mol) (see Table 13)

D_w = Diffusivity of compound in water (cm^2/s) (see Table 13)

Note:

All values obtained from the following EPA guidance documents:

U.S. EPA. 1998. Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities. EPA530-D-98-001A-C. July, 1998.

U.S. EPA. 1999. Corrections to the publication "Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities" From Barnes Johnson to Waste Management Division Directors. Errata- August 2, 1999.

U.S. EPA. 2005. Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities. EPA530-R-05-006. Final. September, 2005

Table 12
Compound-Specific Parameters Used to Estimate Concentrations in Off-Site Surface Water
(Based on 95%UCL under Post-Remediation Conditions)
KI Facility
Superior, WI

Constituent	95% UCL Post-Remediation Concentration in Site-Wide Surface Soil (mg/kg)	Henry's Law Constant (dimensionless)	Soil-Water Partition Coefficient[1] (cm^3/g)	Diffusivity in Water[1] (cm^2/sec)
Acenaphthene	2.5E+00	6.4E-03	7.1E+01	7.7E-06
Acenaphthylene	2.8E+00	4.7E-03	6.9E+01	7.1E-06
Anthracene	3.0E+00	2.7E-03	3.0E+02	7.7E-06
Benzo(a)anthracene	1.1E+00	1.4E-04	4.0E+03	9.0E-06
Benzo(a)pyrene	1.0E+00	4.6E-05	1.0E+04	9.0E-06
Benzo(b)fluoranthene	1.8E+00	4.6E-03	1.2E+04	5.6E-06
Benzo(g,h,i)perylene	2.1E+00	5.8E-06	1.6E+04	5.7E-05
Benzo(k)fluoranthene	6.1E-01	3.4E-05	1.2E+04	5.6E-06
Chrysene	2.6E+00	3.9E-03	4.0E+03	6.2E-06
Dibenzo(a,h)anthracene	1.9E+00	6.0E-07	3.8E+04	5.2E-06
Fluoranthene	4.3E+00	6.6E-04	1.1E+03	6.4E-06
Fluorene	1.7E+00	2.6E-03	1.4E+02	7.9E-06
Indeno(1,2,3-cd)pyrene	1.2E+00	6.6E-05	3.5E+04	5.7E-06
1-Methylnaphthalene	7.9E+00	1.6E-02	2.3E+01	7.1E-06
2-Methylnaphthalene	9.1E+00	1.9E-02	4.3E+01	7.2E-06
Naphthalene	2.4E+00	2.0E-02	2.0E+01	7.5E-06
Pentachlorophenol	1.5E+01	1.0E-06	2.0E+02	6.1E-06
Phenanthrene	2.4E+00	5.4E-03	1.4E+02	7.5E-06
Pyrene	3.5E+00	4.5E-04	1.0E+03	7.2E-06
2,3,7,8-TCDD TEQ with 2005 TEF	2.7E-04	1.5E-03	1.4E+05	8.0E-06

1: Compound-specific data from TCEQ (2007) Regulations and U.S. EPA (1996) Soil Screening Guidance.

Table 13
Estimated Concentrations in Off-Site Surface Water
(Based on 95%UCL Surface Soil Concentrations - Post Remediation)
KI Facility
Superior, WI

Constituent	Estimated Concentration in Surface Water from the Tributary to Crawford Creek (µg/L)		Estimated Concentration in Crawford Creek Surface Water (µg/L)		Concentration Measured in Stormwater Monitoring at Outfall 001 (µg/L) [a]		AWQC (µg/L)	
	Total	Dissolved	Total	Dissolved	08/08/96	11/10/98	Acute	Chronic
Acenaphthene	5.25	5.24	0.376	0.375	1.7	0.34		
Acenaphthylene	5.08	5.07	0.377	0.376				
Anthracene	4.84	4.82	0.429	0.427	0.4	0.31		
Benzo(a)anthracene	0.51	0.48	0.135	0.125	0.4	0.24		
Benzo(a)pyrene	0.26	0.22	0.112	0.094	0.14	< 0.07		
Benzo(b)fluoranthene	0.38	0.31	0.154	0.126	0.28	< 0.1		
Benzo(g,h,i)perylene	0.25	0.20	0.136	0.105				
Benzo(k)fluoranthene	0.13	0.10	0.061	0.050	0.11	0.089		
Chrysene	1.25	1.16	0.270	0.252	0.9	< 0.14		
Dibenzo(a,h)anthracene	0.11	0.07	0.083	0.049				
Fluoranthene	3.55	3.48	0.484	0.474	6	1.6		
Fluorene	1.84	1.84	0.151	0.150	1.2	< 0.14		
Indeno(1,2,3-cd)pyrene	0.12	0.07	0.085	0.052				
1-Methylnaphthalene	24.56	24.55	1.593	1.593	0.4	< 0.047		
2-Methylnaphthalene	20.76	20.75	1.352	1.351	1	< 0.063		
Naphthalene	7.47	7.47	0.478	0.477	0.9	0.21		
Pentachlorophenol	8.41	8.38	0.832	0.829			53.2[b]	48.7[b] (pH=8.8)
							58.9[c,d]	45.2[c,d]
Phenanthrene	4.24	4.23	0.321	0.320	2.3	0.69		
Pyrene	3.19	3.13	0.438	0.429	3.1	2.1		
2,3,7,8-TCDD TEQ with 2005 TEF	0.000012	0.000003	0.000011	0.000003				

[a] Blank cells indicate that the sample was not analyzed for this compound.
[b] Source: NR 105.06 at pH=8.8, hardness 100 ppm
[c] Source: U.S. EPA 2007c
[d] Values based on pH = 8.9, average pH for Ditch and Crawford Creek surface water (personal communication, BBL, 2007)
AWQC - Ambient Water Quality Criterion

Table 14
Potential Excess Lifetime Cancer Risks and Hazard Indices Associated with Estimated Concentrations in Crawford Creek Surface Water from Runoff and Erosion (Based on 95%UCL Surface Soil Concentrations - Post Remediation)
KI Facility
Superior, WI

Receptor: Trespasser
Medium: Estimated Surface Water from Runoff
Exposure Pathway: Incidental Surface Water Ingestion & Dermal Contact

ADD ingestion (mg/kg-day) = $\frac{CW \times IR \times FI \times AAF \times ET \times EF \times ED}{BW \times AT}$

ADD dermal (mg/kg-day) = $\frac{CW \times CF \times SA \times Kp \times AAF \times ET \times EF \times ED}{BW \times AT}$

Hazard Quotient (HQ) = ADD (mg/kg-day) / RfD (mg/kg-d)
Cancer Risk (ELCR) = ADD (mg/kg-day) * CSF [1/(mg/kg-day)]

Parameter (units)	Value
ADD: Average Daily Dose (mg/kg-day)	See Below
CW: Chemical Concentration in Water (mg/L)	Chemical-Specific
IR: Ingestion Rate (L/hr)	0.005
AAF: Absorption Adjustment Factor (Oral-Water) (unitless)	Chemical-Specific
FI: Fraction Ingested from Site (unitless)	1
SA: Skin Surface Area (cm^2)	5651
PC Permeability Constant (cm/hr)	Chemical-Specific
AAF: Absorption Adjustment Factor (Dermal-Water) (unitless)	Chemical-Specific
FA: Fraction Absorbed from Site (unitless)	1
ET: Exposure Time (hr/day)	2
EF: Exposure Frequency (days/year)	40
ED: Exposure Duration (years)	7
BW: Body Weight (kg)	56
AT: Averaging Time (days) (ED x 365 days/yr, noncancer)	2555
AT: Averaging Time (days) (75 yr. x 365 days/yr, cancer)	25550
RfD: Reference Dose (mg/kg-day)	Chemical-Specific
CSF: Cancer Slope Factor [1/(mg/kg-day)]	Chemical-Specific
CF: Conversion factor	0.001

		Oral Noncancer				Oral Cancer				Dermal Contact Noncancer				Dermal Contact Cancer			Total	
Constituent	Water Concentration (mg/L)	Oral-Water RAF (noncancer) Subchronic	ADD (noncancer) (mg/kg-day)	Chronic RfD (mg/kg-day)	Oral HQ	Oral-Water AAF (cancer)	ADD (cancer) (mg/kg-	CSF [1/(mg/kg-day)]	Oral Risk	Kp (cm/hr)	Dermal-Water RAF (noncancer) Subchronic	ADD (noncancer) (mg/kg-day)	Dermal HQ	Dermal-Water AAF (cancer)	ADD (cancer) (mg/kg-day)	Dermal Risk	Risk (SW)	HI (SW)
Acenaphthene	3.8E-04	1	7.35E-09	6.00E-02	1.23E-07	1	NA	NA	NA	7.00E-01	1	5.82E-06	9.70E-05	1	NA	NA	NA	9.71E-05
Acenaphthylene	3.8E-04	1	7.37E-09	2.00E-02	3.68E-07	1	NA	NA	NA	7.00E-01	1	5.83E-06	2.91E-04	1	NA	NA	NA	2.92E-04
Anthracene	4.3E-04	1	8.40E-09	3.00E-01	2.80E-08	1	NA	NA	NA	7.00E-01	1	6.64E-06	2.21E-05	1	NA	NA	NA	2.22E-05
Benzo(a)anthracene	1.3E-04	1	2.64E-09	2.00E-02	1.32E-07	1	NA	NA	NA	7.00E-01	1	2.09E-06	1.04E-04	1	NA	NA	NA	1.04E-04
Benzo(a)pyrene	1.1E-04	1	2.19E-09	2.00E-02	1.10E-07	1	2.19E-10	7.30E+00	1.60E-09	7.00E-01	1	1.73E-06	8.67E-05	1	1.73E-07	1.27E-06	1.27E-06	8.68E-05
Benzo(b)fluoranthene	1.5E-04	1	3.02E-09	2.00E-02	1.51E-07	1	NA	NA	NA	7.00E-01	1	2.39E-06	1.19E-04	1	NA	NA	NA	1.20E-04
Benzo(g,h,i)perylene	1.4E-04	1	2.66E-09	2.00E-02	1.33E-07	1	NA	NA	NA	7.00E-01	1	2.10E-06	1.05E-04	1	NA	NA	NA	1.05E-04
Benzo(k)fluoranthene	6.1E-05	1	1.20E-09	2.00E-02	6.01E-08	1	NA	NA	NA	7.00E-01	1	9.51E-07	4.76E-05	1	NA	NA	NA	4.76E-05
Chrysene	2.7E-04	1	5.29E-09	2.00E-02	2.65E-07	1	NA	NA	NA	7.00E-01	1	4.19E-06	2.09E-04	1	NA	NA	NA	2.10E-04
Dibenzo(a,h)anthracene	8.3E-05	1	1.62E-09	2.00E-02	8.10E-08	1	NA	NA	NA	7.00E-01	1	1.28E-06	6.41E-05	1	NA	NA	NA	6.42E-05
Fluoranthene	4.8E-04	1	9.46E-09	4.00E-02	2.37E-07	1	NA	NA	NA	7.00E-01	1	7.49E-06	1.87E-04	1	NA	NA	NA	1.87E-04
Fluorene	1.5E-04	1	2.95E-09	4.00E-02	7.38E-08	1	NA	NA	NA	7.00E-01	1	2.34E-06	5.84E-05	1	NA	NA	NA	5.85E-05
Indeno(1,2,3-cd)pyrene	8.5E-05	1	1.65E-09	2.00E-02	8.27E-08	1	NA	NA	NA	7.00E-01	1	1.31E-06	6.55E-05	1	NA	NA	NA	6.55E-05
1-Methylnaphthalene	1.6E-03	1	3.12E-08	2.00E-02	1.56E-06	1	NA	NA	NA	7.00E-01	1	2.47E-05	1.23E-03	1	NA	NA	NA	1.23E-03
2-Methylnaphthalene	1.4E-03	1	2.65E-08	2.00E-02	1.32E-06	1	NA	NA	NA	7.00E-01	1	2.09E-05	1.05E-03	1	NA	NA	NA	1.05E-03
Naphthalene	4.8E-04	1	9.34E-09	2.00E-02	4.67E-07	1	NA	NA	NA	7.00E-01	1	7.39E-06	3.70E-04	1	NA	NA	NA	3.70E-04
Phenanthrene	3.2E-04	1	6.29E-09	2.00E-02	3.14E-07	1	NA	NA	NA	7.00E-01	1	4.97E-06	2.49E-04	1	NA	NA	NA	2.49E-04
Pyrene	4.4E-04	1	8.56E-09	3.00E-02	2.85E-07	1	NA	NA	NA	7.00E-01	1	6.78E-06	2.26E-04	1	NA	NA	NA	2.26E-04
Pentachlorophenol	8.3E-04	1	1.63E-08	3.00E-02	5.43E-07	1	1.63E-09	1.20E-01	1.95E-10	6.50E-01	1	1.20E-05	3.99E-04	1	1.20E-06	1.44E-07	1.44E-07	3.99E-04
2,3,7,8-TCDD TEQ with 2005 TEF	1.1E-08	1	NA	NA	NA	1	2.14E-14	1.50E+05	3.20E-09	4.00E-04	1	NA	NA	1	9.65E-15	1.45E-09	4.65E-09	NA
																Total:	1E-06	0.005

Table 15
Potential Excess Lifetime Cancer Risks and Hazard Indices Associated with Estimated Concentrations in Surface Water from the Tributary to Crawford Creek from Runoff and Erosion (Based on 95%UCL Surface Soil Concentrations - Post Remediation)
KI Facility
Superior, WI

Receptor: Trespasser
Medium: Estimated Surface Water from Runoff
Exposure Pathway: Incidental Surface Water Ingestion & Dermal Contact

ADD ingestion (mg/kg-day) = $\frac{CW \times IR \times FI \times AAF \times ET \times EF \times ED}{BW \times AT}$

ADD dermal (mg/kg-day) = $\frac{CW \times CF \times SA \times Kp \times AAF \times ET \times EF \times ED}{BW \times AT}$

Hazard Quotient (HQ) = ADD (mg/kg-day) / RfD (mg/kg-d)
Cancer Risk (ELCR) = ADD (mg/kg-day) * CSF [1/(mg/kg-day)]

Parameter (units)	Value
ADD: Average Daily Dose (mg/kg-day)	See Below
CW: Chemical Concentration in Water (mg/L)	Chemical-Specific
IR: Ingestion Rate (L/hr)	0.005
AAF: Absorption Adjustment Factor (Oral-Water) (unitless)	Chemical-Specific
FI: Fraction Ingested from Site (unitless)	1
SA: Skin Surface Area (cm^2)	5651
PC Permeability Constant (cm/hr)	Chemical-Specific
AAF: Absorption Adjustment Factor (Dermal-Water) (unitless)	Chemical-Specific
FA: Fraction Absorbed from Site (unitless)	1
ET: Exposure Time (hr/day)	2
EF: Exposure Frequency (days/year)	40
ED: Exposure Duration (years)	7
BW: Body Weight (kg)	56
AT: Averaging Time (days) (ED x 365 days/yr, noncancer)	2555
AT: Averaging Time (days) (75 yr. x 365 days/yr, cancer)	25550
RfD: Reference Dose (mg/kg-day)	Chemical-Specific
CSF: Cancer Slope Factor [1/(mg/kg-day)]	Chemical-Specific
CF: Conversion factor	0.001

		Oral Noncancer				Oral Cancer				Dermal Contact Noncancer				Dermal Contact Cancer			Total	
Compound	Water Concentration (mg/L)	Oral-Water RAF (noncancer) Subchronic	ADD (noncancer) (mg/kg-day)	Chronic RfD (mg/kg-day)	Oral HQ	Oral-Water AAF (cancer)	ADD (cancer) (mg/kg-	CSF [1/(mg/kg-day)]	Oral Risk	Kp (cm/hr)	Dermal-Water RAF (noncancer) Subchronic	ADD (noncancer) (mg/kg-day)	Dermal HQ	Dermal-Water AAF (cancer)	ADD (cancer) (mg/kg-day)	Dermal Risk	Risk (SW)	HI (SW)
Acenaphthene	5.25E-03	1	1.03E-07	6.00E-02	1.71E-06	1	NA	NA	NA	7.00E-01	1.00E+00	8.13E-05	1.36E-03	1	NA	NA	NA	1.36E-03
Acenaphthylene	5.08E-03	1	9.93E-08	2.00E-02	4.97E-06	1	NA	NA	NA	7.00E-01	1.00E+00	7.86E-05	3.93E-03	1	NA	NA	NA	3.93E-03
Anthracene	4.84E-03	1	9.48E-08	3.00E-01	3.16E-07	1	NA	NA	NA	7.00E-01	1.00E+00	7.50E-05	2.50E-04	1	NA	NA	NA	2.50E-04
Benzo(a)anthracene	5.14E-04	1	1.01E-08	2.00E-02	5.03E-07	1	NA	NA	NA	7.00E-01	1.00E+00	7.96E-06	3.98E-04	1	NA	NA	NA	3.98E-04
Benzo(a)pyrene	2.57E-04	1	5.03E-09	2.00E-02	2.51E-07	1	5.03E-10	7.30E+00	3.67E-09	7.00E-01	1.00E+00	3.98E-06	1.99E-04	1	3.98E-07	2.90E-06	2.91E-06	1.99E-04
Benzo(b)fluoranthene	3.82E-04	1	7.48E-09	2.00E-02	3.74E-07	1	NA	NA	NA	7.00E-01	1.00E+00	5.92E-06	2.96E-04	1	NA	NA	NA	2.96E-04
Benzo(g,h,i)perylene	2.54E-04	1	4.96E-09	2.00E-02	2.48E-07	1	NA	NA	NA	7.00E-01	1.00E+00	3.93E-06	1.96E-04	1	NA	NA	NA	1.97E-04
Benzo(k)fluoranthene	1.29E-04	1	2.52E-09	2.00E-02	1.26E-07	1	NA	NA	NA	7.00E-01	1.00E+00	1.99E-06	9.97E-05	1	NA	NA	NA	9.99E-05
Chrysene	1.25E-03	1	2.44E-08	2.00E-02	1.22E-06	1	NA	NA	NA	7.00E-01	1.00E+00	1.93E-05	9.66E-04	1	NA	NA	NA	9.67E-04
Dibenzo(a,h)anthracene	1.14E-04	1	2.23E-09	2.00E-02	1.12E-07	1	NA	NA	NA	7.00E-01	1.00E+00	1.77E-06	8.83E-05	1	NA	NA	NA	8.84E-05
Fluoranthene	3.55E-03	1	6.95E-08	4.00E-02	1.74E-06	1	NA	NA	NA	7.00E-01	1.00E+00	5.50E-05	1.38E-03	1	NA	NA	NA	1.38E-03
Fluorene	1.84E-03	1	3.60E-08	4.00E-02	9.00E-07	1	NA	NA	NA	7.00E-01	1.00E+00	2.85E-05	7.12E-04	1	NA	NA	NA	7.13E-04
Indeno(1,2,3-cd)pyrene	1.20E-04	1	2.34E-09	2.00E-02	1.17E-07	1	NA	NA	NA	7.00E-01	1.00E+00	1.85E-06	9.26E-05	1	NA	NA	NA	9.28E-05
1-Methylnaphthalene	2.46E-02	1	4.81E-07	2.00E-02	2.40E-05	1	NA	NA	NA	7.00E-01	1.00E+00	3.80E-04	1.90E-02	1	NA	NA	NA	1.90E-02
2-Methylnaphthalene	2.08E-02	1	4.06E-07	2.00E-02	2.03E-05	1	NA	NA	NA	7.00E-01	1.00E+00	3.21E-04	1.61E-02	1	NA	NA	NA	1.61E-02
Naphthalene	7.47E-03	1	1.46E-07	2.00E-02	7.31E-06	1	NA	NA	NA	7.00E-01	1.00E+00	1.16E-04	5.78E-03	1	NA	NA	NA	5.79E-03
Phenanthrene	4.24E-03	1	8.29E-08	2.00E-02	4.15E-06	1	NA	NA	NA	7.00E-01	1.00E+00	6.56E-05	3.28E-03	1	NA	NA	NA	3.29E-03
Pyrene	3.19E-03	1	6.25E-08	3.00E-02	2.08E-06	1	NA	NA	NA	7.00E-01	1.00E+00	4.94E-05	1.65E-03	1	NA	NA	NA	1.65E-03
Pentachlorophenol	8.41E-03	1	1.65E-07	3.00E-02	5.49E-06	1	1.65E-08	1.20E-01	1.98E-09	6.50E-01	1.00E+00	1.21E-04	4.03E-03	1	1.21E-05	1.45E-06	1.45E-06	4.04E-03
2,3,7,8-TCDD TEQ with 2005 TEF	1.22E-08	1	NA	NA	NA	1	2.38E-14	1.50E+05	3.58E-09	4.00E-04	1.00E+00	NA	NA	1	1.08E-14	1.62E-09	5.19E-09	NA
																Total:	4E-06	0.06