ENVIRON

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January 13, 2004

Via Federal Express

Mr. Peter Mannino
USEPA, Region II
290 Broadway, 19th Floor
New York, NY 10007-1866

Re: Hamilton Industrial Park Site – Preliminary Risk-Based Assessment of Removal-Based Remedies for OU2 Soils

Dear Mr. Mannino:

In its technical presentation to the public on June 9, 2003, EPA identified a series of potential remedial alternatives to be considered as part of the Feasibility Study (FS) for Operable Unit 2 (OU2) soils at the Hamilton Industrial Park Site. As you are aware, in the letter to the National Remedy Review Board (NRRB) dated July 16, 2003, the Hamilton Industrial Park PRP Group ("HIPG") recommended a more cost-effective and appropriate remedial alternative for consideration in the FS involving the following elements:

- Excavation and off-site disposal of "principal threat" material (contaminated soil that poses a cumulative excess cancer risk higher than 10^{-2} or represents a HI higher than 100), including the material within the capacitor/debris disposal area which represents the primary source of principal threat material (both PCBs and VOCs).

- Redevelopment capping for all other soils using the hardscape and soil (vegetative) cover to be installed as part of the Site redevelopment, which includes complete renovation of the Site for retail, commercial/light industrial "flex" space and warehousing uses.

As summarized in the HIPG's letter to the NRRB, and consistent with EPA's guidance on principal threat material, contaminated soil that poses cumulative excess cancer risk lower than 10^{-2} or represents a HI lower than 100 may be considered as low-level threat material for which containment would be appropriate. Properly applying EPA guidance, the volumes of principal threat materials will be substantially less than what is currently projected by EPA for OU2 soils and, hence, can be more efficiently handled through targeted excavation as proposed by the HIPG than through the remedial alternatives identified by EPA.

On behalf of Dana Corporation, ENVIRON has conducted a comparative analysis which supports the conclusion that the remedial alternative described above will meet the risk reduction

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goals intended by the NCP, at a significantly lower cost than the alternatives put forth by EPA in June 2003; i.e., a waste management strategy that reduces Site risks to within an EPA-accepted risk range (excess cancer risk range of 10^{-6} to 10^{-4} (See OSWER Directive 9355.0-30).

ENVIRON has studied the effect of excavating increasingly larger areas of contaminated soil on the (1) concentrations of total VOCs and PCBs that would remain on-site following the designated soil excavation, (2) hypothetical residual human health risks associated with the remaining site soils, and (3) associated construction costs for each category of excavation area. Using remedial alternatives proposed by EPA as part of the OU2 FS, and the remedial alternative recommended by the HIPG for consideration by the NRRB, the following combinations of excavation areas were evaluated:

Alternative 1: Excavating the capacitor disposal area (CDA) as defined by EPA.

Alternative 2 (proposed by HIPG): Excavating "principal threat" material (i.e. soils with contaminant concentrations that result in a cumulative cancer risk level greater than 10^{-2} and/or a noncancer hazard index greater 100), in addition to the CDA, as recommended by the HIPG.

Alternative 3: Excavating soils where VOC concentrations exceed NJDEP impact to groundwater soil cleanup criteria (IGWSCC), in addition to the CDA and principal threat material.

Alternative 4: Excavating soils where PCB concentrations exceed 500 mg/kg, in addition to the CDA, principal threat material, and soils having VOC concentrations exceeding the IGWSCC.

Alternative 5: Excavating the metal debris area (as defined based on the geophysical survey), in addition to the CDA, principal threat material, soils having VOC concentrations exceeding IGWSCC, and soils having PCB concentrations exceeding 500 mg/kg.

Table 1 (enclosed) provides the following information for each alternative excavation scenario:

1. The estimated total volume for each category of excavation area.

2. The estimated incremental volume for each category of excavation area (i.e., the soil volume that is in addition to soils already designated for excavation for the categories above it on Table 1).

3. The estimated total volume of soil associated with the combination of areas designated for excavation.

4. The mean and maximum PCB concentration in soils that would remain after excavation, the sample location where the residual maximum concentration is located, and the total

number of samples associated with the remaining soils that have a PCB concentration greater than 500 mg/kg.

5. The mean and maximum total detected VOC concentration in soils that would remain after the excavation, and the sample location where the residual maximum total VOC concentration is located.

6. The approximate hypothetical cumulative human health cancer risk and noncancer hazard index based on routine worker exposure factors and estimated exposure concentrations[1] based on contaminant concentrations remaining in site soils after remediation. These risk estimates are based on the assumption that the majority of the cancer risks and noncancer HIs under the future use scenario are associated with occupational exposure to contaminants in soil via incidental ingestion, dermal contact, vapor inhalation and particulate inhalation. These risk estimates are also based on an assumption that a routine worker would be in contact with the soils for 8 hours each day, 250 days per year, which is unlikely under the current site redevelopment plan; i.e., these estimates do not account for the placement of a cap over the site which will further reduce potential exposure to remaining soils, and thereby, lower the estimated residual risks.

7. The approximate human health cumulative cancer risk and noncancer hazard index for the inhalation pathway alone based on routine worker exposure factors and exposure concentrations based on contaminant concentrations remaining in site soils after remediation. These risk estimates for the inhalation pathway were evaluated separately to approximate the risk reduction associated with capping the site following soil removal; i.e., it is reasonable to expect that capping or construction of large area of hardscape (pavement and buildings) will eliminate the ingestion and dermal contact pathways for routine exposure to contaminated soils, and as a consequence, the only potentially significant routine exposure route under the future use scenario would be exposure to vapors migrating through the cap.

In addition to the post-remedy risk reduction associated with each excavation, ENVIRON considered the relative construction costs associated with each scenario, including the following direct and indirect costs:

a. Excavation, transportation and disposal costs for the total soil volume,
b. Backfilling the excavated area,
c. Capping the site with an asphalt cover (i.e., a "development cap"), and
d. Design and management costs.

Note that this cost evaluation did not include long-term O&M costs or EPA oversight costs.

The results for each alternative are summarized for comparison on Figures 1 and 2 which are attached to this letter. Figure 1 provides a comparison of the incremental increase in costs

[1] Exposure concentrations are represented by either the maximum remaining concentration or the 95% upper confidence limits (UCL) on the mean contaminant concentrations remaining in site soils for those contaminants identified as potentially contributing significantly to the calculated risk.

relative to Alternative 1 (excavation of CDA) for each alternative and the associated cancer risk reduction for all exposure routes (i.e., ingestion, dermal contact and inhalation) as well as for inhalation alone. Figure 2 provides a comparison of the incremental increase in costs for each alternative and the associated reduction in the noncancer hazard index for all exposure routes and for inhalation alone. The incremental increase in costs for implementing EPA's proposed remedial alternative S-2 (excavation and off-site disposal of soils with PCBs at concentrations greater than 10 mg/kg, or contaminants exceeding IGWSCC and NJDEP nonresidential direct contact soil cleanup criteria) are also presented on Figures 1 and 2 for comparison purposes (identified as remedial Alternative 6 on these figures).

As indicated on the attached Figures 1 and 2, the approach proposed by HIPG (i.e., Alternative 2) achieves the *greatest degree of risk reduction* (both cancer and non-cancer) by excavating the principal threat material in addition to the CDA. Any marginal risk reductions achieved by more extensive excavation remedies (i.e., Alternatives 3, 4, and 5 as shown on Figures 1 and 2) are offset by disproportionately large increases in the costs of remediation. To be more precise, Alternatives 3, 4, and 5 achieve no additional reduction in cumulative cancer risks and only a low to moderate additional reduction in noncancer hazard indices, while imposing an extremely large (62% to 88%) increase in costs as compared to Alternative 2 proposed by the HIPG. The HIPG proposal, Alternative 2, provides a substantial reduction in risk relative to Alternative 1 at a significantly lower cost than the other alternatives.

In addition, as indicated by the risk estimates for the inhalation route only, placement of a cover layer over the residual soil contamination will likely reduce residual risks to below 10^{-4} for all of the alternatives evaluated (i.e., capping effectively mitigates the residual risks associated with potential direct contact and ingestion exposure pathways).

Following excavation of the CDA and the principal threat material (Alternative 2), the mean PCB concentration remaining on-site is estimated at 52 mg/kg, a reduction in concentration of approximately 95% in comparison with the mean concentration remaining after excavation of the CDA alone (1,285 mg/kg). Following removal of soils in the remaining excavation categories (i.e., Alternative 5 on Table 1), a reduction in mean residual PCB concentration of 98% is achieved, thus indicating that only a marginal reduction in the mean PCB concentration is achieved with excavation alternatives that extend beyond the CDA and principal threat material.

In addition, the average total VOC concentration remaining on-site after excavation of the CDA is 2.3 mg/kg. Following excavation of the CDA and the principal threat material, the average total VOC concentration remaining on-site is 0.7 mg/kg, a reduction in concentration of approximately 70%. By additionally excavating soils where VOC concentrations exceed the IGWSCC, a reduction in VOC concentration of approximately 95% is achieved. No significant reduction in VOC concentrations remaining in soils is achieved with subsequent excavation alternatives.

In summary, this comparative evaluation indicates that Alternative 2 represents by far the most cost effective scenario for maximizing risk reduction for future on-site receptors. In fact, the estimated residual risk and HI associated with Alternative 2 for the inhalation pathway are well within the risk level of 10^{-4} and the HI of 1 that EPA generally uses to identify the need for

remedial action (61 FR 19432, May 1, 1996; EPA 1996; EPA 1991b). In addition, the mean PCB concentrations remaining after removal of soils defined under Alternative 2 is 52 mg/kg, much lower than the 500 mg/kg concentration that EPA has indicated is NJDEP's upper limit. It is noted that Alternative 2 does not address all soils having VOC concentrations above the IGWSCC; however, the potential significance of these residual concentrations should be further evaluated in consideration of (1) the overall groundwater remedy, and/or (2) a site-specific criteria for assessing the potential leaching of VOCs to groundwater.

Please call us if you should have any questions or comments regarding this preliminary evaluation of risk-reduction associated with alternative soil remedies for the Hamilton Industrial Park site.

Sincerely,

On behalf of Dana Corporation

J. Mark Nielsen, P.E.
Consulting Engineer

Michael P. Scott
Principal

cc: Sarah Flanagan, Esquire
Michael P. Last, Esquire

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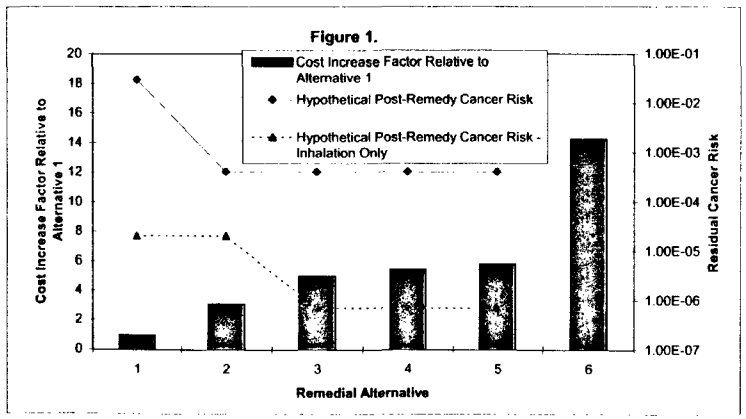
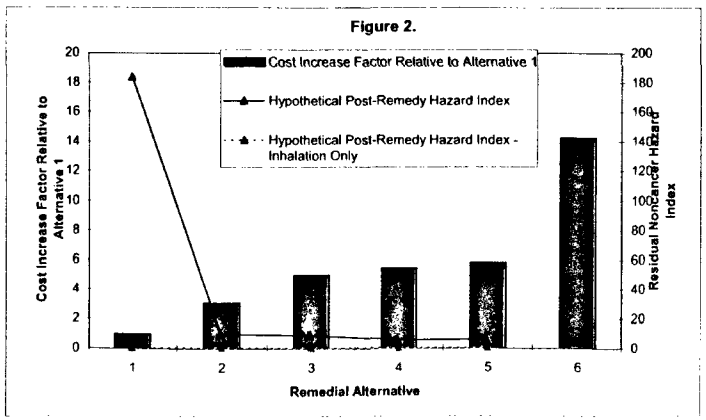
Enclosure

Hamilton Industrial Park
Preliminary Evaluation of OU2 Soil Excavation Alternatives

Alternative	Excavation Zone	Incremental Volume (cy)	Total (non-incremental) Volume (cy)	Cumulative Total Volume (cy)	Comments on Volume Estimates	Mean PCB conc remaining on site (mg/kg) (see Note 3)	Max detected PCB conc remaining on site (mg/kg)	Location with Max PCBs	No. of soil samples remaining with PCBs>500	Mean Total VOC conc remaining on site (mg/kg) (see Note 3)	Max detected Total VOCs conc remaining on site (mg/kg)	Location with Max TVOCs	Approximate Residual Risks Based on Residual Exposure Concentrations (see Note 1)		Approximate Residual Risks Based on Residual Exposure Concentrations - Inhalation Pathway Only	
													Cumulative Cancer Risk	Hazard Index	Cumulative Cancer Risk	Hazard Index
1	EPA's capacitor disposal area (CDA)	7,500	7,500	7,500	EPA's estimated area for the CDA is 51259 sq ft Therefore, depth of excavation would be 4 ft	1284.71	133150	MW09 (6ft)	36	2.27	92.94	TP10-01 (2ft)	3 E-02	184	2 E-05	0.5
2	Principal Threat material	40,091	45,191	47,591	Based on cumulative risk target (sample-by-sample) of 10e-2 and HI of 100	52.28	1061.5	BS802 (1.5ft)	6	0.67	43.23	TP04 (3ft)	4 E-04	10	2 E-05	0.5
3	VOC > IGWSCC	35,434	54,741	83,025		48.88	1061.5	BS802 (1.5ft)	5	0.13	10.45	SS09 (0.5ft)	4 E-04	9	7 E-07	0.4
4	PCB > 500 ppm	8,601	43,832	91,626	Assumes excavation is to bedrock.	29.10	410	S3--09/11/1986 (0-1 ft)	0	0.14	10.45	SS09 (0.5ft)	4 E-04	6	7 E-07	0.4
5	Other Debris Area	7,100	10,650	98,726	Assumed that one-third of debris is "true" metal debris, depth of excavation = 2 ft, one-third of debris is removed as part of prior excavations	27.96	410	S3--09/11/1986 (0-1ft)	0	0.14	10.45	SS09 (0.5ft)	4 E-04	6	7 E-07	0.4

Notes:

1. Exposure concentration calculated using the 95% upper confidence limit on the mean concentration. Risk estimates do not reflect the placement of a cap, which will reduce potential exposures to remaining soils.

2. For CDA excavation, assumed 25% is incinerated and 75% is disposed off as TSCA waste. For all other excavations, assumed 100% is disposed as TSCA waste. Cost includes installation of asphalt cap over entire site. Costs do not include oversight costs or post-remediation O&M costs.

3. For debris area, remaining concentrations were calculated for all samples outside any excavation area, or only within the metal debris area but at or below a depth of 2ft.