

US EPA ARCHIVE DOCUMENT

**Current Human Exposures Under Control**  
**Environmental Indicator (EI) RCRIS code (CA725)**  
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**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**

Interim Final 2/5/99

**RCRA Corrective Action**  
**Environmental Indicator (EI) RCRIS code (CA725)**

**Current Human Exposures Under Control**

**Facility Name:** Flexible Products Company  
**Facility Address:** 2050 North Broadway Street, Crest Hill, Illinois  
**Facility EPA ID#:** ILD 043912922/LPC 1970455016

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

X  If yes – check here and continue with #2 below.

   If no – re-evaluate existing data, or

   If data are not available skip to #6 and enter “IN” (more information needed) status code.

**BACKGROUND**

**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

**Definition of “Current Human Exposures Under Control” EI**

A positive “Current Human Exposures Under Control” EI determination (“YE” status code) indicates that there are no “unacceptable” human exposures to “contamination” (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all “contamination” subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

**Relationship of EI to Final Remedies**

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The “Current Human Exposures Under Control” EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program’s overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

**Duration / Applicability of EI Determinations**

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be “contaminated”<sup>1</sup> above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale/Key Contaminants</u>
Groundwater	<u>  X  </u>	_____	_____	<i>Metals, PCBs, VOCs and SVOCs exceed generic cleanup screening criteria; see Rationale and Reference Section below.</i>
Air (Indoors) <sup>2</sup>	_____	<u>  X  </u>	_____	<i>See Rationale and Reference Section below.</i>
Surface Soil (e.g., <2 ft)	<u>  X  </u>	_____	_____	<i>Arsenic and SVOCs exceed generic cleanup criteria; see Rationale and Reference Section below.</i>
Surface Water	_____	<u>  X  </u>	_____	<i>See Rationale and Reference Section below.</i>
Sediment	<u>  X  </u>	_____	_____	<i>Arsenic and benzopyrene exceed generic industrial screening criteria; see Rationale and Reference Section below.</i>
Subsurf. Soil (e.g., >2 ft)	<u>  X  </u>	_____	_____	<i>Arsenic and SVOCs exceed cleanup criteria; see Rationale and Reference Section below.</i>
Air (outdoors)	_____	<u>  X  </u>	_____	<i>See Rationale and Reference Section below.</i>

\_\_\_\_\_ If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

  X   If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

\_\_\_\_\_ If unknown (for any media) - skip to #6 and enter “IN” status code.

**Rationale and References for Contaminated Media:**

***Site Investigations and References***

*The environmental conditions at the Crest Hill site have been studied over the past 20 years through various site investigation activities by the previous and current owners. These studies include five previous environmental facility investigations that were completed between 1988 and 2002, two geotechnical investigations completed in 1981 and 1995/1996, and a soil vapor investigation in 2008. Groundwater at the site has been sampled since the 1980s, but the most recent data (primarily from 2008) are used in this evaluation because of the temporal nature of groundwater. Key references that summarize these data include a facility investigation report by O’Brien & Gere (2003) that consolidated existing data and documented additional investigations, and the comprehensive current conditions report by CH2M HILL (2008). The current conditions report (CCR) summarizes historical information provided in the O’Brien & Gere report; evaluates soil, groundwater, sediment, and surface water data against screening criteria; defines the nature and extent of soil and groundwater contamination at the site; and provides current (2008) groundwater sampling results. These reports were previously submitted to the U.S. Environmental Protection Agency (USEPA). Figure 1 provides the facility features. The most recent bedrock groundwater investigation results from 2009 are also reflected in this EI (Table 1). Table 1 shows potential constituent of interest (PCOI) for groundwater at the site based on the combined CCR and 2009 groundwater investigation data. Tables 2,*

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*3 and 4 reflect existing data for the specified constituents of interest (COI) for surface soil, subsurface soil, and sediment that were selected in the COI screening process described in the CCR (CH2M HILL 2008).*

***Rationale/Key Constituents***

**Groundwater**

*Groundwater concentrations were compared against the most restrictive of the USEPA regional screening levels for tap water and maximum contaminant levels (MCLs; USEPA 2008) for human exposures. The most recent groundwater sample for each well analyzed for each analyte were screened in the evaluation. The results of this comparison are shown in Table 1 and Figure 1.*

**TABLE 1**  
Potential Constituents of Interest (PCOI) in Groundwater that Exceed USEPA Regional Screening Levels

Analyte	Frequency		Screening Level Exceedences	Screening Level			Units	Groundwater Maximum Detected Concentration
	Number of Samples <sup>1</sup>	Number of Detections		Tap Water	MCL	Applied Screening Level*		
<b>Total METALS</b>								
Aluminum	1	1	1	37	NA	37	mg/L	41.1 J
Arsenic	25	13	13	0.000045	0.01	0.000045	mg/L	0.0895 J
Cadmium	22	7	1	0.018	0.005	0.005	mg/L	0.0164 J
Iron	8	8	1	26	NA	26	mg/L	171 J
Lead	26	13	3	NA	0.015	0.015	mg/L	6.5 J
Manganese	20	20	5	0.88	NA	0.88	mg/L	6.3
Mercury	25	1	1	0.00063	0.002	0.00063	mg/L	0.0018
Thallium	1	1	1	0.0024	0.002	0.002	mg/L	0.0058 J
<b>PCBs</b>								
Aroclor-1242	20	1	1	0.034	NA	0.034	µg/L	0.08 J
Aroclor-1254	20	1	1	0.034	NA	0.034	µg/L	0.07 J
<b>SVOCs</b>								
Benzo (a) anthracene	26	2	2	0.029	NA	0.029	µg/L	0.263
Benzo (b) fluoranthene	26	2	2	0.029	NA	0.029	µg/L	0.382
Carbazole	2	2	1	3.4	NA	3.4	µg/L	6.4 J
Dibenzo (a,h) anthracene	26	1	1	0.0029	NA	0.0029	µg/L	0.381
Indeno (1,2,3-c,d) pyrene	26	3	3	0.029	NA	0.029	µg/L	0.296
Naphthalene	26	2	2	6.2	NA	6.2	µg/L	24
<b>VOCs</b>								
1,1-Dichloroethane	26	1	1	2.4	NA	2.4	µg/L	2.98 J
1,2,4-Trimethylbenzene	19	2	1	15	NA	15	µg/L	17
Benzene	26	2	1	0.41	5	0.41	µg/L	2.81 J
Chloroform	26	1	1	0.19	NA	0.19	µg/L	1.18 J
Chloromethane	26	1	1	1.8	NA	1.8	µg/L	1.83 J
Ethylbenzene	26	2	1	1.5	NA	1.5	µg/L	2.7

<sup>1</sup> Analytical data are available for 28 onsite wells (some of which are now abandoned or modified), and the City of Crest Hill. This table summarizes data from Tables 4-1 and Table C-4 (Appendix C) of the Crest Hill CCR and Table 4 from the bedrock and groundwater investigation report (CH2M HILL 2009) Samples have been collected from 1988 to 2009, with five newly-installed bedrock wells sampled in 2009. Analytical suites have varied during this time. Since groundwater concentrations vary over time, only the most current sample was used for the EI screening evaluation; however, if an analytical suite was not present in the most recent sample, then the missing analytical suite from the next most recent sample was used for the screening evaluation.

<sup>2</sup> The lower (more stringent) of the USEPA maximum contaminant level and USEPA residential screening level tap water risk-based concentration was used to evaluate facility groundwater data to human health. In cases where both values exist, the lower value was

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used for the screening. Data are from: <http://epa-prgs.ornl.gov/chemicals/index.shtml>.

J = Result is estimated

NA = not applicable or data not available

\* Applied Screening Level = The most conservative screening criteria of the MCL and Tap Water was used for analytical data screening.

**Air Indoors**

*Indoor air samples were collected in October 2008 in the three existing buildings at the site and analyzed for volatile organic compounds (VOCs) and compared to screening levels for indoor air based on the USEPA regional screening levels for industrial air (USEPA 2008). An attenuation factor of 0.1 was then applied to the indoor air screening levels for subslab vapor samples and shallow soil vapor samples obtained from 5 feet or less below ground surface. An attenuation factor of 0.01 was applied to the indoor air screening levels for deep soil gas samples obtained from greater than 5 feet below ground surface. The attenuation factors were applied in accordance with the draft guidance for evaluating the vapor intrusion to indoor air pathway from groundwater and soils ("Subsurface Vapor Intrusion Guidance" [USEPA 2002a]).*

*USEPA's draft vapor intrusion guidance (USEPA 2002a) provides screening levels for indoor air and soil gas based on a range of target risk levels (that is, tables of screening levels are provided for 10<sup>-4</sup>, 10<sup>-5</sup>, and 10<sup>-6</sup> target risk levels). According to the 2002 guidance document, USEPA generally recommends using the 10<sup>-5</sup> values for the purpose of making Current Human Exposures Under Control Environmental Indicator (EI) determinations with respect to vapor intrusion. There were no exceedances of screening levels considering 10<sup>-5</sup> target risk levels for carcinogens and a hazard quotient of 1 for noncarcinogens. The results of this comparison are shown in Appendix A.*

**Surface Soil**

*Surface soil, as defined from ground surface to 2 feet below ground surface, were compared against screening levels for industrial soil (USEPA 2008). The results of this comparison are shown below in Table 2. These constituents were found within the former quarry at the site that was used as a landfill and in the former manufacturing area along the perimeter of the landfill area.*

**TABLE 2**  
Constituents of Interest in Surface Soil (0-2 ft bgs) that Exceed USEPA Regional Screening Levels for Industrial Soil\*

Analyte	Frequency		Screening Level Exceedance	Screening Level	Units	Surface Soil Maximum Detected Concentration
	Number of Samples	Number of Detections				
<b>METALS</b>						
Arsenic	21	21	21	1.6	mg/kg	18
Benzo (a) anthracene	21	12	1	2.1	mg/kg	4.1
Benzo (a) pyrene	21	11	7	0.21	mg/kg	4.9
Benzo (b) fluoranthene	21	12	1	2.1	mg/kg	8.4
Dibenzo (a,h) anthracene	21	3	1	0.21	mg/kg	0.98
Indeno (1,2,3-c,d) pyrene	21	8	1	2.1	mg/kg	4.2

\* This table summarizes COI data from Table 4-1 and Table C-1 (Appendix C) of the Crest Hill CCR.

**Surface Water**

*The only surface water at the site is the stormwater retention basin. A single sample was collected from the basin in 1988 prior to demolition of the facilities and closure of the site operations. The sample was analyzed for metals, polychlorinated biphenyls (PCBs), semivolatile organic compounds (SVOCs), and VOCs. All constituents were below MCLs and/or tap water criteria. Although surface water is not used as a drinking water source, the drinking water criteria are considered to be conservative for this EI evaluation.*

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**Sediment**

Three sediment samples were collected from the stormwater retention basin (Figure 1) in 1988 (one) and 2002 (two). Since screening levels for human health have not been published for sediment, the results were compared to screening levels for industrial soil. Although the exposure scenarios are not the same for sediment and soil the comparison is adequate for an initial human health-related screening. The results of this comparison are shown in Tables 3.

**TABLE 3**  
**Constituents of Interest in Sediment that Exceed USEPA Regional Screening Levels for Industrial Soil**

Analyte	Frequency			Screening Level	Units	Maximum Detected Sediment Concentration
	Number of Samples	Number of Detections	Screening Level Exceedance			
<b>METALS</b>						
Arsenic	3	3	3	1.6	mg/kg	22
Benzo (a) pyrene	3	2	1	0.21	mg/kg	0.87

\* This table summarizes COI data from Table 4-1 and Table C-5 (Appendix C) of the Crest Hill CCR screened against industrial soil criteria.

**Subsurface Soil**

Subsurface soil, defined as soil greater than 2 feet below the ground surface, were compared against screening levels for industrial soil (USEPA 2008). The results of this comparison are presented in Table 4.

**TABLE 4**  
**Constituents of Interest in Subsurface Soil (>2 ft bgs) that Exceed USEPA Regional Screening Levels for Industrial Soil**

Analyte	Frequency			Screening Level	Units	Subsurface Soil Maximum Detected Concentration
	Number of Samples	Number of Detections	Screening Level Exceedance			
<b>METALS</b>						
Arsenic	22	19	9	1.6	mg/kg	9.2
3,3'-Dichlorobenzidine	25	1	1	3.8	mg/kg	4.3
Benzo (a) anthracene	25	12	6	2.1	mg/kg	390
Benzo (a) pyrene	25	11	10	0.21	mg/kg	260
Benzo (b) fluoranthene	25	11	6	2.1	mg/kg	270
Benzo(k)fluoranthene	25	9	1	21	mg/kg	200
Chrysene	25	12	1	210	mg/kg	340
Dibenzo (a,h) anthracene	25	7	6	0.21	mg/kg	92
Indeno (1,2,3-c,d) pyrene	25	9	3	2.1	mg/kg	240

\* This table summarizes COI data from Table 4-1 and Table C-1 (Appendix C) of the Crest Hill CCR.

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**Outdoor Air**

*Outdoor air samples were collected in October 2008 at three locations around the site and analyzed for VOCs and compared to screening levels for outdoor air based on the USEPA regional screening levels for industrial air (USEPA 2008). USEPA's draft vapor intrusion guidance (USEPA 2002a) provides screening levels for indoor air based on a range of target risk levels (that is, tables of screening levels are provided for  $10^{-4}$ ,  $10^{-5}$ , and  $10^{-6}$  target risk levels). According to the 2002 guidance document, USEPA generally recommends using the  $10^{-5}$  values for the purpose of making Current Human Exposures Under Control Environmental Indicator (EI) determinations. There were no exceedances of screening levels considering  $10^{-3}$  target risk levels for carcinogens and a hazard quotient of 1 for noncarcinogens.*

*Attachment A contains the results of the air sampling event.*

**References**

*O'Brien & Gere. 2003. Site Investigation Report, Crest Hill, Illinois. January.*

*CH2M HILL. 2008. Current Conditions Report, Crest Hill Facility, Crest Hill, Illinois. September.*

*USEPA. 1989. Risk Assessment Guidance for Superfund (RAGS) Volume I Human Health Evaluation Manual, Part A (Interim Final). EPA/540/1-89/002. December.*

*USEPA. 2002a. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). November 29.*

*USEPA. 2002b. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. December.*

*CH2M HILL. 2009b. (FINAL) Bedrock and Groundwater Investigation Results, FPC Crest Hill Facility, Crest Hill, Illinois. Prepared for The Dow Chemical Company. September.*

*USEPA. 2008. Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites. Available online at <http://epa-prgs.ornl.gov/chemicals/index.shtml>. May.*

**Footnotes:**

<sup>1</sup> "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

<sup>2</sup> Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table 5

<u>Contaminated Media</u>	<u>Potential Human Receptors (Under Current Conditions)</u>						
	<u>Residents</u>	<u>Workers</u>	<u>Day-Care</u>	<u>Construction</u>	<u>Trespassers</u>	<u>Recreation</u>	<u>Food<sup>3</sup></u>
Groundwater	<u>No<sup>a</sup></u>	<u>No<sup>e</sup></u>	<u>No<sup>a</sup></u>	<u>Yes<sup>b,c</sup></u>	___	___	___
<del>Air (indoors)</del>	___	___	___	___	___	___	___
Soil (surface, e.g., <2 ft)	<u>No</u>	<u>No<sup>d</sup></u>	<u>No</u>	<u>Yes<sup>d</sup></u>	<u>Yes<sup>e</sup></u>	___	___
<del>Surface Water</del>	___	___	___	___	___	___	___
Sediment	<u>No</u>	<u>No<sup>d</sup></u>	___	<u>No<sup>d</sup></u>	<u>Yes</u>	___	___
Soil (subsurface e.g., >2 ft)	___	___	___	<u>Yes<sup>d</sup></u>	___	___	___
<del>Air (outdoors)</del>	___	___	___	___	___	___	___

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not “contaminated”) as identified in #2 above.

2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“\_\_\_”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

\_\_\_ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

X If yes (pathways are complete for any “Contaminated” Media - Human Receptor combination) - continue after providing supporting explanation.

\_\_\_ If unknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code

Footnotes:

<sup>3</sup>Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

**Rationale and Reference(s):**

*The facility is zoned General Manufacturing and is presently not in use. A 6-foot-high chain-link fence surrounds the site and limits access to the facility. A security firm provides twice daily surveillance of the property (seven days a week), including a check of the fence-line and building security to prevent unauthorized access. The site is not used for habitation, has no full time residents, and does not house any recreational, healthcare, day-care, or playground facilities. No recreational areas are located within the facility boundary, and no growth of crops, grazing of livestock, or harvesting of fish occurs on the property.*

*Rationale for the potential human exposure pathways as identified in the summary table above are divided in subsections below by potential human receptors.*

**Groundwater Pathways**

**Offsite Residential and Day Care Groundwater Pathway**

*<sup>a</sup> Potential exposure pathways to an offsite residential worker and day care from constituents in groundwater are not complete based on the following:*

- *Existing data indicate that groundwater contamination related to the facility is confined to the site.*
- *A Crest Hill Municipal supply well is located approximately 0.5 mile west of the site; however, the municipal well is up gradient of the site, and the site is outside of the wellhead protection area of the municipal well. A review of site groundwater elevations over a 30 day period, as well as municipal pumping information are detailed in the Bedrock and Groundwater Investigation Results (CH2M HILL 2009). This report concludes that site groundwater flow directions are consistently to the east (away from the municipal well), and that water levels at the site are not affected by pumping from the municipal well.*
- *The City of Crest Hill provides potable water to the adjacent residences.*

**Offsite Construction Worker Groundwater Pathway**

*<sup>b</sup> Potential exposure pathways are not complete because groundwater contamination does not extend offsite at concentrations exceeding risk-based criteria.*

**Onsite Facility Worker and Construction Worker Groundwater Exposure Pathway**

*<sup>c</sup> Potential exposure pathways to an onsite facility worker or construction worker from constituents in groundwater are not complete based on the following:*

- *Groundwater is not used at the facility. The City of Crest Hill provides potable water to the facility.*
- *Currently not a complete pathway. Groundwater contact is controlled through safe work permitting processes by the owner, The Dow Chemical Company. These processes require identifying hazards and applying health and safety precautions for activities performed at the site including, but not limited to, excavation and construction activities.*

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**Surface Soil, Subsurface Soil**

**Onsite Facility and Construction Worker Surface Soil, Subsurface Soil, and Sediment Exposure Pathways**

<sup>d</sup> *Exposure pathways to onsite subsurface soil are not complete because pathways are controlled through safe work permitting processes that require identifying hazards and applying health and safety precautions for activities performed at the site including, but not limited to, excavation and construction activities.*

*Although screening levels are exceeded for several polynuclear aromatic hydrocarbons (PAHs) in surface soil and sediment, the concentrations are only slightly higher than the screening levels. Unacceptable exposures to surface soil and sediment are not present for the following reasons.*

- *Industrial activities at the site have ceased, and there are no onsite activities other than security checks.*
- *The majority of the site is paved or covered in clean gravel that limits potential exposures to surface soil.*

**Sediment**

**Trespassers Exposure Pathways**

<sup>e</sup> *A potential exposure pathway to surface soil and sediment is present for trespassers.*

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4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be “significant”<sup>4</sup> (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

  X   If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

       If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

       If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

**Rationale and Reference(s):**

*Arsenic and Benzopyrene in the sediment exceeded the screening criteria for industrial workers. The site is currently inactive. However, the potential for adolescent trespassers to be exposed to the sediment exist. Per the following table, a risk assessment of the trespasser scenario proved to be of acceptable risk.*

**Screening-Level Human Health Risk assessment – Trespasser Scenario for Sediment**

Analyte	Maximum detected Sediment Concentration	Industrial RSL - cancer <sup>1</sup>	Industrial RSL - noncancer <sup>1</sup>	Trespasser Screening Level - cancer <sup>2</sup>	Trespasser Screening Level - noncancer <sup>2</sup>	Excess Lifetime Cancer Risk - Trespasser Scenario <sup>3</sup>	Hazard Quotient Trespasser Scenario <sup>4</sup>
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)		
Arsenic	22	1.6	260	40	6423	5.6E-07	0.003
Benzo (a) pyrene	0.87	0.21	NA	5		1.7E -07	NA
<b>TOTAL</b>						<b>7. E-07</b>	<b>0.003</b>

1 = USEPA Industrial Soil Regional Screening Levels (RSLs); May 2009.  
 2 = Trespasser Screening Levels were derived from USEPA Industrial Soil RSLs as follows:  
 Exposure Assumptions for Trespasser Scenario  
 Exposure frequen 42 days/year  
 Exposure duratio 5 years (ages 12 to 17)  
 Body weight 58.1 kg  
 Body weight is mean body weight for boys and girls (15 years of age) from Table 7-3 of the Exposure Factors Handbook (USEPA, National Center for Environmental Assessment, 1997)  
 All other exposure assumptions are the same as those used for the USEPA Industrial Soil RSLs.  
 Trespasser Screening Level = USEPA Industrial Soil RSL x ((250 days/yr)/42 days/yr) x (25 yrs/5 yrs) x (58.1 kg/70 kg)  
 Trespasser Screening Level (cancer) based on target risk of 1E-06; Trespasser Screening Level (noncancer) based on Target Hazard Quotient of 1.  
 3 = Excess lifetime cancer risk (ELCR) calculated as follows:  
 ELCR = Maximum Sediment Concentration/Trespasser Screening Level (cancer) x 1E-06  
 4 = Hazard Quotient (HQ) calculated as follows:  
 HQ = Maximum Sediment Concentration/Trespasser Screening Level (noncancer)

**Footnotes:**

<sup>4</sup> If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

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5. Can the “significant” exposures (identified in #4) be shown to be within acceptable limits? (Not applicable).

\_\_\_ If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

\_\_\_ If no (there are current exposures that can be reasonably expected to be “unacceptable”)- continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

\_\_\_ If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

**Rationale and Reference(s):**

**Current Human Exposures Under Control  
Environmental Indicator (EI) RCRIS code (CA725)**

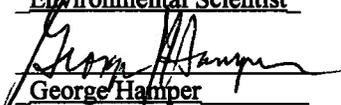
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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

**YE** - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at *Flexible Products facility, ILD 043912922/LPC 1970455016, located at 2050 North Broadway Street, Crest Hill, Illinois* under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

**NO** - "Current Human Exposures" are NOT "Under Control."

**IN** - More information is needed to make a determination.

Completed by	(signature) 	Date <u>1-29-2010</u>
	(print) <u>Jennifer Dodds</u>	
	(title) <u>Environmental Scientist</u>	
Supervisor	(signature) 	Date <u>1-29-2010</u>
	(print) <u>George Hamper</u>	
	(title) <u>Chief, CAS2</u>	
	(EPA Region or State) <u>Region 5</u>	

Locations where References may be found:

Crest Hill Public Library  
1298 Theodore Street  
Crest Hill, Illinois 60403

US EPA Region 5 Records Center  
77 West Jackson Blvd. 7<sup>th</sup> Floor  
Chicago, Illinois 60604

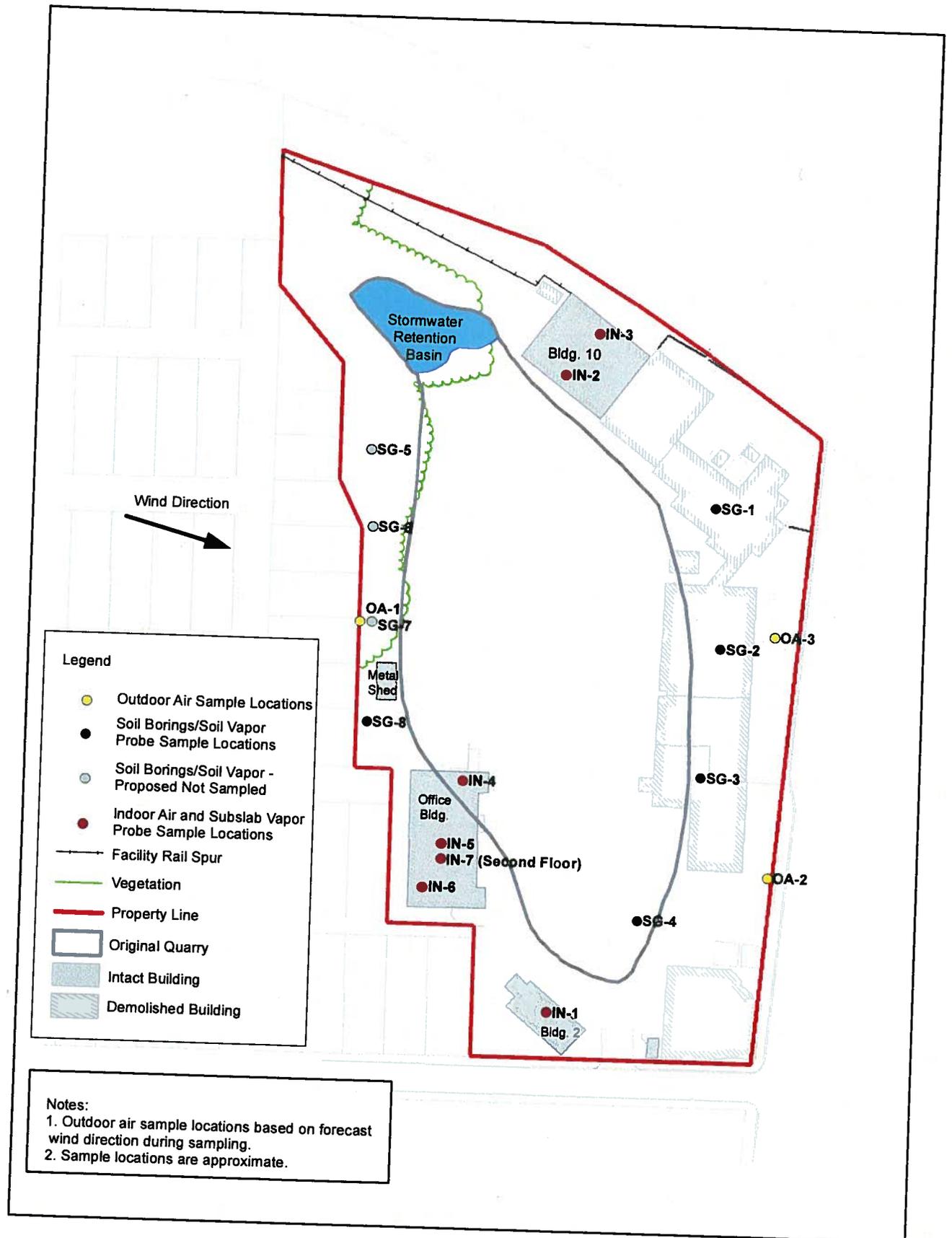
Contact telephone and e-mail numbers

(name) Jennifer Dodds  
(phone #) 312-886-1484  
(e-mail) dodds.jennifer@epa.gov

**FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.**

**Attachment A**  
**Summary of Indoor Air Results at FPC Crest Hill Facility**





**Figure 1**  
 Sample Locations  
 Soil Gas, Subslab, and Air Sampling  
 Flexible Products Company  
 Crest Hill, Illinois

