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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:	C&D Technologies, Inc
Facility Address:	200 West Main Street, Attica, IN 47918
Facility EPA ID #:	IND 000 810 754

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 enterAIN@ (more information needed) status code.

BACKGROUND

C&D Technologies' Facility in Attica, Indiana (the Site or Facility) is located within the Middle Wabash River Valley in west central Indiana. The Site is located along the eastern bank of the Wabash River and is within the Attica Wellhead Protection Area located southwest of the Site along the Wabash River.

The Site is bounded on the southeast by Third Street; on the southwest by Main Street; on the northwest by the Wabash River; and is located in a mixed area of industrial, commercial, and residential use. The Facility is partially surrounded by chain-link fencing and occupies approximately 12.5 acres in which there are approximately 295,000 square feet of interconnected buildings. Building walls form entry barriers elsewhere.

The site has been used as an industrial Facility since the late 1800s. The earliest available historical record (1886 fire insurance map) identified the subject property as the Jas Martin & Company Grain Elevator, residential properties, a vacant foundry and a lumber yard. The current site use as a battery manufacturing operation began in 1955. Information regarding current and previous industrial use at the Site is presented in Section 2.2 of the RCRA Facility Investigation Work Plan (URS, 2007) ("RFI Work Plan").

The RFI efforts for the Site consist of collecting environmental samples from 13 Solid Waste Management Units (SWMUs) and two Areas of Concern (AOCs), identified based on current and historical site usage, as presented in the Current Conditions Report (Clayton, 2007) ("CCR").

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 ACurrent Human Exposures Under Control@ EI

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A positive ACurrent Human Exposures Under Control@ EI determination (AYE@ status code) indicates that there are no Aunacceptable@ human exposures to Acontamination@ (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 Acontamination@ 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 ACurrent 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).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be "**contaminated"**[1] 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)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			*In the December 2007-January 2008 groundwater sampling event, lead and volatile organic compounds (VOCs) were not detected in site shallow groundwater monitoring wells (MW-1S, -2S, -3S, -4S, -5S, -6S, -7S, and -8S) at concentrations equal to or greater than the drinking water maximum contaminant level. TCE exceeded the screening criteria in two deep monitoring wells. Lead exceeded the screening criteria in a shallow monitoring well.*
Air (indoors) [2]		X		*Most of the Site is covered with structures, pavement, and concrete. Area 5 is covered in gravel. Buildings on site do not have basements and all building slabs are 4 to 6 inches thick. The depth to the water table in the shallow hydrostratigraphic unit is approximately 30 feet below ground surface (bgs) within coarse-grained sand and gravel deposits (RFI Work*

[1] AContamination@ and Acontaminated@ 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 Alevels@ (for the media, that identify risks within the acceptable risk range).

[2] 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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			Plan, Section 2.1.2), which suggests that the soil is fairly permeable and may allow volatilization of VOCs, if present, from groundwater or soils to indoor air. Indoor air is not expected to be impacted because: • *VOCs were detected in groundwater at levels below the target groundwater screening levels provided in the USEPA document entitled "Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils" (USEPA, 2002).* • *Although screening levels for VOCs in soil are currently unavailable, volatilization of VOCs from soil to indoor air is expected to be insignificant from a risk perspective because VOCs were only detected at trace levels in soil.*
Surface Soil (e.g., <2 ft)	X		*Metals (lead and arsenic at Area 3, lead at Area 5, lead at Area 11, arsenic at Area 15, arsenic, lead and cadmium in Riverbank soil, and lead in off-site soil) were present in individual samples at concentrations greater than the IDEM RISC Industrial Soil Default Closure Level (DCL).* • ***Area 3*** *--Average concentration of lead (836 mg/kg) is below the IDEM RISC Industrial Soil DCL of 970 mg/kg. Detected concentrations of arsenic exceeded its IDEM RISC Industrial DCL of 20 mg/kg at one location (31.7 mg/kg at CD-SB-14). This location is under concrete.* • ***Area 5*** *– Detected concentrations of lead exceeded the Soil Industrial DCL of 970 mg/kg at one location (7,840 mg/kg at CD-SB-22).* • ***Areas 11 and 15*** *– Lead was detected at levels exceeding the IDEM RISC Industrial Soil DCL of 970 mg/kg at one location each at Area 11 (2,930 mg/kg at CD-SB-36) and Area 15 (1,140 mg/kg at CD-SB-50). The presence of lead at these locations is not expected to pose any adverse impacts to human health because both areas are under pavement.*
Surface Water		X	*Except for arsenic and lead, concentrations of chemicals in surface water samples collected from the Wabash River adjacent to the Site were below IDEM's SWQS (outside of mixing zone) or federal Ambient Water Quality Criteria for the protection of human health. A SWQS for lead based on protection of human health outside of a mixing zone is unavailable. However, lead was detected in all three surface water samples from the Wabash River at levels (ranging from 2.5µ g/L to 2.6µ g/L), below its SWQS of 50 µ g/L at point of water intake. Therefore, surface water quality is not impacted by lead. Although arsenic was also detected in river water samples at levels (2.6µ g/L at CD-SW-*

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			01 and 2.7 µ g/L at CD-SW-02 and CD-SW-03) exceeding its SWQS of 0.175µ g/L, these concentrations were essentially the same as the concentration detected in an up gradient (background) surface water sample (2.6µ g/L at CD-SWBKG). Therefore, surface water is not contaminated.
Sediment	X		*The maximum Concentrations of chemicals in sediment samples collected from the Wabash River adjacent to the Site were below IDEM's DCLs for industrial soil except for arsenic. The IDEM DCL's were selected as conservative screening criteria for evaluating potential risks to recreational receptors due to the lack of risk-based screening criteria for recreational exposure to sediments.*
Subsurface soil (e.g., >t)	X		*Lead at Areas 3, 8, and 15, and arsenic at Areas 7 and 8, was present at concentrations greater than the IDEM RISC Industrial Soil DCLs in individual samples.*
Air (outdoors)		X	*Most of the Site is covered with structures, pavement, and concrete which acts as an engineered barrier that prevents emission of chemicals (as vapor or particulates) from soil and groundwater. There are grass/gravel covered areas adjacent to Area 1, but, with the exception of trichloroethylene (TCE) at SB-21 (0 – 1 ft bgs) and SB-21B (0-1 ft) in Area 4, no VOCs have been detected in soil at concentrations greater than RISC Industrial Soil DCLs for the direct contact exposure scenario (ingestion, dermal contact, and inhalation). Samples for SB-21 and SB-21B were collected outside of the plant building under concrete. Therefore, the pathway for volatilization of TCE from soil to outdoor air is incomplete due to the presence of a concrete barrier.*

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

___ If yes (for any media) - continue after identifying key contaminants in ach "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 Reference(s):

IDEM, 2006. RISC Technical Guide. Indiana Department of Environmental Management.
URS, 2007a. RCRA Facility Investigation Work Plan. C&D Technologies. September 2007.
URS, 2007b. Addendum to RCRA Facility Investigation Work Plan. C&D Technologies. December 2007.

Soil

Soil samples were collected from each of the 14 areas evaluated for the Site as well as two off-site residential areas. The northernmost residential area is located due east of Area 5 in an area bounded by West Columbia and West Yount Streets. The southernmost residential area is located east of the trailer storage area on North Perry Street and is bounded by West Yount to the northeast, North Fifth Street to the southeast and North Perry Street to the northwest.

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Off-site soil data were compared to the IDEM RISC Residential Soil DCLs for Direct Contact (IDEM, 2006). Onsite soil data were compared with the lower of IDEM RISC Industrial Soil DCLs for Direct Contact, Construction or Soil Contact (IDEM, 2006). For background determination soil was collected from locations approximately 2 miles northeast of the facility from an undeveloped area that is used for agriculture; the general soil type (Battleground silt loam) and geology (riverbank/floodplain) are similar to that encountered at the site.

Groundwater
Site-specific groundwater data are available for the Site. Wells MW-3 and MW-3S are considered as background groundwater data for the deeper and shallower intervals, respectively. Existing data indicate no chemicals were detected in shallow groundwater monitoring wells at concentrations greater than the MCL or IDEM Residential Groundwater DCLs (IDEM, 2006). Detections of TCE exceeding the screening criteria occurred in deeper groundwater monitoring wells CD-MW-1 (located southwest of Area 10), and CD-MW-2 (located off-site where West Main Street terminates at the railroad tracks).

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

Potential **Human Receptors** (Under Current Conditions)

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	Yes	Yes	No	No	No	No	No
~~Air (indoors)~~							
Soil (surface, e.g., <2 ft)	Yes	Yes	No	Yes	No	Yes	No
~~Surface Water~~							
Sediment	No	No	No	No	No	Yes	No
Soil (subsurface e.g., >2 ft)	No	No	No	Yes	No	No	No
~~Air (outdoors)~~							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors= spaces for Media which are not Acontaminated@ as identified in #2 above.

2. enter Ayes@ or Ano@ for potential Acompleteness@ under each AContaminated@ Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential AContaminated@ Media - Human Receptor combinations (Pathways) do not have check spaces (A___@). 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

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

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major pathways).

x If yes (pathways are complete for any AContaminated@ Media - Human Receptor combination) - continue after providing supporting explanation.

___ If unknown (for any AContaminated@ Media - Human Receptor combination) - skip to #6 and enter AIN@ status code.

Rationale and Reference(s):

Residential - Groundwater
Results from groundwater samples collected in December 2007 and January 2008 indicate that TCE is not present in shallow groundwater wells at concentrations greater than the Primary Drinking Water Standard (i.e., MCL)(USEPA, 2003) and the IDEM Residential Groundwater DCL (IDEM, 2006). The detections of TCE exceeding the DCLs were in deeper monitoring wells CD-MW-1D (located southwest of Area 10), and CD-MW-2D (located off-site where West Main Street terminates at the railroad tracks). These deeper groundwater TCE detections are related to the local off-site TCE plume in the City of Attica, currently being investigated by US Environmental Protection Agency (USEPA) Region 5, and are not associated with releases attributable to C&D Attica.

The city of Attica's municipal drinking water well field is located approximately 0.25 miles southwest of the Site. Of the two wells in the Attica municpal well field, one well showed a non detect and the other showed a TCE concentration of 4.38 µg/L. In the past, occasional exceedance of MCL with respect to TCE has been observed in one of the wells. Detections of contaminants in groundwater wells at the C&D Technologies site have been isolated but consistent. The only wells where TCE has been detected above MCLs are MW-l, and -2. Therefore, the exceedance of MCL for TCE in the above wells and occasionally in the drinking water may likely be unrelated to the C&D facility given the Corrective Action characterization of an up gradient source.

Residential - Soil
In the past, contaminant such as lead from the battery manufacturing processes may have been discharged through the air and also through surface runoff in to the offsite residential soils. The direct contact pathway for residents to come into contact with contaminated soil is potentially complete.

Workers - Groundwater
Water for all operational use is obtained from the city of Attica. VOCs have been detected in the municipal drinking water wells. Samples collected from newly installed shallow groundwater monitoring wells in December 2007 and January 2008 indicate that TCE was not detected in groundwater at concentrations greater than the MCL (USEPA, 2003) and the IDEM Industrial Groundwater DCL (IDEM, 2006). The detections of TCE exceeding the DCLs were in deeper monitoring wells CD-MW-1D (located southwest of Area 10), and CD-MW-2D (located off-site where West Main Street terminates at the railroad tracks). The shallow groundwater data indicate that the Site is not the source of these VOCs.

Workers - Soil
The pathway for industrial worker exposure to surface soil at the Site is only potentially complete at Area 5 (gravel covered). The majority of the site is covered with buildings or pavement. There is also one gravel parking area located northeast of the Site but the area is limited in extent and covers any soils that may have been exposed historically. The pathway for industrial worker exposure to chemicals in subsurface soil is incomplete because industrial workers are not expected to come into direct contact with subsurface soil while performing daily activities.

Day-Care and Sensitive Receptors - Groundwater

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This pathway is incomplete based on the land use for the Site vicinity because no day care facilities or sensitive receptors have been identified within a 2,500-foot radius of the Site.

Day-Care and Sensitive Receptors - Soil
This pathway is incomplete based on the land use for the Site vicinity because no day care facilities or sensitive receptors have been identified within a 2,500-foot radius of the Site.

Construction Workers - Groundwater
Construction workers are inclusive of workers who might be involved with excavation of subsurface soil for construction, maintenance or utilities repair. Based on the RFI Work Plan (URS, 2007), utilities may be present at depths up to 20 feet bgs, primarily due to storm water piping in the central to northeastern section of the facility. Since the shallow groundwater depth was measured at 25 to 36 feet bgs at wells MW-1 through -5 (near the building) for the VOC Investigation Report (Clayton, 2006), and consistently deeper than 20 feet bgs at well MW-3S (on the northeast corner of the building) during three groundwater measurement events in 2008, exposure to chemicals in groundwater via dermal contact is incomplete.

Construction Workers - Soil
The pathway for construction worker exposure to chemicals in surface and subsurface soil is potentially complete based on the potential for subsurface utilities repair/maintenance or construction.

Trespassers - Groundwater
Trespassers are defined as unauthorized persons within the fenced Site boundaries. Current data indicate depth to groundwater is about 25 to 30 ft. There is no complete pathway for trespasser exposure to groundwater.

Trespassers - Soil
The pathway for trespasser exposure to surface soil at the Site is incomplete because the majority of the Site (>95% based on a review of the aerial photograph, **Figure 1**) is covered with buildings or pavement. There is one gravel parking area located northeast of the Site but the area is limited in extent and covers any soils that may have been exposed historically.

Recreational Users - Groundwater
Recreational users are defined as persons outside the fenced Site boundaries. The pathway for recreational users exposed to groundwater is incomplete because (1) recreational users are not anticipated to excavate soils to depths at which groundwater may be encountered (between 15 and 20 ft bgs at wells nearest the river); and (2) no groundwater seeps are known to be present.

Recreational Users - Soil
The Site property inside the fence line is used for industrial purposes and has no recreational value. In addition, the majority of soil onsite is covered by buildings or pavement. The pathway for recreational exposure to soil is only potentially complete for the area along the riverbank.

Recreational Users – Sediment
The Wabash River is used for recreational purposes. The pathway for exposure to exposed sediments on sand and gravel bars of the Wabash River adjacent to the Site is potentially complete. Three sediment samples were collected along the Wabash River adjacent to the Site (CD-SED-01 through CD-SED-03). In addition, sediment samples were collected from up- and down-stream locations. Arsenic was detected at levels exceeding the IDEM RISC Residential Soil DCLs. Exposure to sediment is incomplete for receptors such as residents, industrial workers, construction workers and trespassers because the sediment is in the river bed and not on the residential, commercial or industrial property. Food for human consumption is not grown close to the river bed.

Food – Soil
Food grown onsite represents an incomplete pathway. However, this is a potentially complete pathway for consumption of food items that could be grown in gardens within residential areas adjacent to the Site. However,

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this pathway is considered insignificant from a risk perspective because the average concentrations of lead detected in soil samples collected from the off-site residential area (180.43 mg/kg) are below the IDEM Default Residential Soil DCL of 400 mg/kg, which was established for the protection of the most sensitive population (i.e., young children) by considering potential exposures to lead in multiple media in a residential setting.

Food - Groundwater
This pathway is incomplete because the vegetable gardens if any in the residential area would be irrigated with city water rather than individual water supply wells for each residence.

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **Asignificant@**[4] (i.e., potentially Aunacceptable@ 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 Alevels@ (used to identify the Acontamination@); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable Alevels@) could result in greater than acceptable risks)?

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

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

___ If unknown (for any complete pathway) - skip to #6 and enter AIN@ status code

Rationale and Reference(s):

Groundwater
Residents and Water Department Worker Exposure: Monitoring well data are available for the groundwater at and down gradient of the Site. Data presented in the VOC Investigation Report (Clayton, 2006), and analytical results for groundwater samples collected from shallow wells MW-1S through MW-8S representing groundwater immediately beneath the Site in December 2007, January 2008, and June 2008 indicate that TCE is not present at concentrations greater than the MCL (USEPA, 2003) and the IDEM Groundwater Residential and Industrial DCLs (IDEM, 2006). These data indicate that the Site is not a source of the VOCs detected in the municipal wells.

Surface Soil
Offsite Residential Exposure: Composite soil samples (from 0 to 1 ft bgs) were collected in January 2008 from off-site locations adjacent to the residential areas (CD-SB-60 through CD-SB-66). Concentrations of lead detected in these samples ranged from 5.7 mg/kg to 777 mg/kg. To delineate the extent of lead in the residential area, additional composite surface soil samples were collected in March 2008 from residential yards east of the site in the area bounded by West Yount and West Columbia Streets. The range of detected concentrations in nine samples collected from these areas was 117.5 to 280 mg/kg. Composite surface soil samples (0-1 ft bgs) were also collected from the

[4] If there is any question on whether the identified exposures are Asignificant@ (i.e., potentially Aunacceptable@) consult a human health Risk Assessment specialist with appropriate education, training and experience.

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residential area east of the site in the area bounded by North Fifth and North Perry Streets. The range of detected concentrations for these samples is 129.25 to 203 mg/kg. The average concentration of all of the detected concentrations was 180.43 mg/kg, below the IDEM Residential Soil DCL for Direct Contact (400 mg/kg).

Onsite Industrial Worker Exposure: Lead concentration in the surface soil of Area 5 exceeded the Soil Industrial DCL of 970 mg/kg at one location (7,840 mg/kg at CD-SB-22). Additional soil samples were collected in the vicinity of CD-SB-22. The results of this investigation indicated that the elevated level of lead detected in the sample collected at CD-SB-22 was extremely localized. An average concentration (including 7,840 mg/kg at CD-SB-22) of 913.6 mg/kg was calculated for lead in all surface soil samples, which was below the IDEM RISC Industrial Soil DCL of 970 mg/kg for construction workers and 1300 mg/kg for industrial workers.

Offsite Recreational Receptor Exposure: Riverbank soil data indicate three metals (arsenic, cadmium and lead) detected at levels exceeding IDEM Residential Soil DCLs (IDEM 2006).

- Arsenic was detected at levels exceeding its Residential DCL in twelve of fourteen samples. However, except for the concentration reported in the sample collected from CD-SB-59 (21 mg/kg), concentrations detected in other samples (4.8 mg/kg to 7 mg/kg) were within the range reported in samples collected from background locations (5 to 10.5 mg/kg).
- Cadmium at CD-SB-59 (14.4 mg/kg) slightly exceeded its IDEM RISC Residential DCL of 12 mg/kg. Cadmium in all other samples was detected at levels below its RISC Residential DCL.
- Lead was detected at levels exceeding its IDEM RISC Residential DCL of 400 mg/kg in two surface soil samples (CD-SB-55: 1,050 mg/kg; CD-SB-59: 6,260 mg/kg). Risks potentially associated with recreational receptor exposure to lead in riverbank soil were evaluated based on the mean concentration of lead in surface soil along the riverbank (558 mg/kg) and receptors visiting the site once and twice per week. as described below:

  For adults, the Adult Lead Model (ALM) (USEPA, 2005) was used to estimate blood lead concentrations. This represents a conservative approach because the ALM was designed to evaluate risks for adult females of child bearing age in a non-residential setting based on the protection of the most sensitive receptors (i.e., developing fetuses). Blood lead concentrations estimated based on an exposure frequency of one visit per week (1.7 µg/dL,) and two visits per week (1.9 µg/dL) are below the target blood lead level of concern (i.e., 10µg/dL).

  For children, the Integrated Exposure Uptake Biokinetic Model (IEUBK (USEPA, 2002) was used to estimate blood lead concentrations. A time-weighted approach, as described in "Assessing Intermittent or Variable Exposures at Lead Sites" (USEPA, 2003), was used to estimate concentrations of lead in soil. Based on the assumed exposure frequency of one visit per week or two visits per week, the lead in sediment is estimated to be 234 and 288 mg/g respectively. Per the IEUBK model, the calculated blood lead level for a child receptor of 6-7 yrs is 2.7 µg/dL and 3.0 µg/dL respectively for one visit per week and two visits per week.

Subsurface Soil

Onsite Construction Worker Exposure: Lead at Areas 3, 8, and 15, and arsenic at Areas 7 and 8, was present at concentrations greater than the IDEM RISC Industrial Soil DCLs in individual samples. These areas are under concrete or asphalt. Therefore, for construction workers, this pathway is considered insignificant.

Sediment

Recreational receptor Exposure: Arsenic at a maximum concentration of 5.2 ppm exceeded the IDEM RISC direct contact screening concentration of 3.9 mg/kg in the sediment exceeded the IDEM DCL screening criteria. However, this pathway for direct contact to recreational receptor is insignificant from a risk perspective because:

- The use of the Residential Soil DCL in the evaluation of sediment data represents a conservative approach.

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- The magnitude and extent of exposure associated with the recreational receptor contact with site-related chemicals in sediments while wading is expected to be significantly less than that associated with the residential exposure to chemicals in soil.
- Concentrations detected in sediment samples collected from locations adjacent to the Site were similar to concentrations detected in the up -stream background and downstream (CD-SED-03 and CD-SED-04) locations.
- The average concentration of arsenic from 5 sediment sample locations is calculated to be 3.6 mg/kg which is below the screening criteria.

5. Can the Asignificant@ **exposures** (identified in #4) be shown to be within **acceptable** limits?

___ If yes (all Asignificant@ exposures have been shown to be within acceptable limits) - continue and enter AYE@ after summarizing and referencing documentation justifying why all Asignificant@ exposures to Acontamination@ 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 Aunacceptable@)- continue and enter ANO@ status code after providing a description of each potentially Aunacceptable@ exposure.

___ If unknown (for any potentially Aunacceptable@ exposure) - continue and enter AIN@ status code

Rationale and Reference(s):

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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):

X 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 the C&D Technologies, Inc facility, EPA ID # IND 000 810 754, located at 200 West Main St, Attica, IN 47918 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 _____

(print) Bhooma Sundar

(title) Project Manager

Supervisor (signature) _____ Date _____

(print) George Hamper

(title) Chief, Corrective Action Section 2

(EPA Region or State) 5

Locations where References may be found:

Contact telephone and e-mail numbers

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(phone #) (312) 886-1660

(e-mail) Sundar.bhooma@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.

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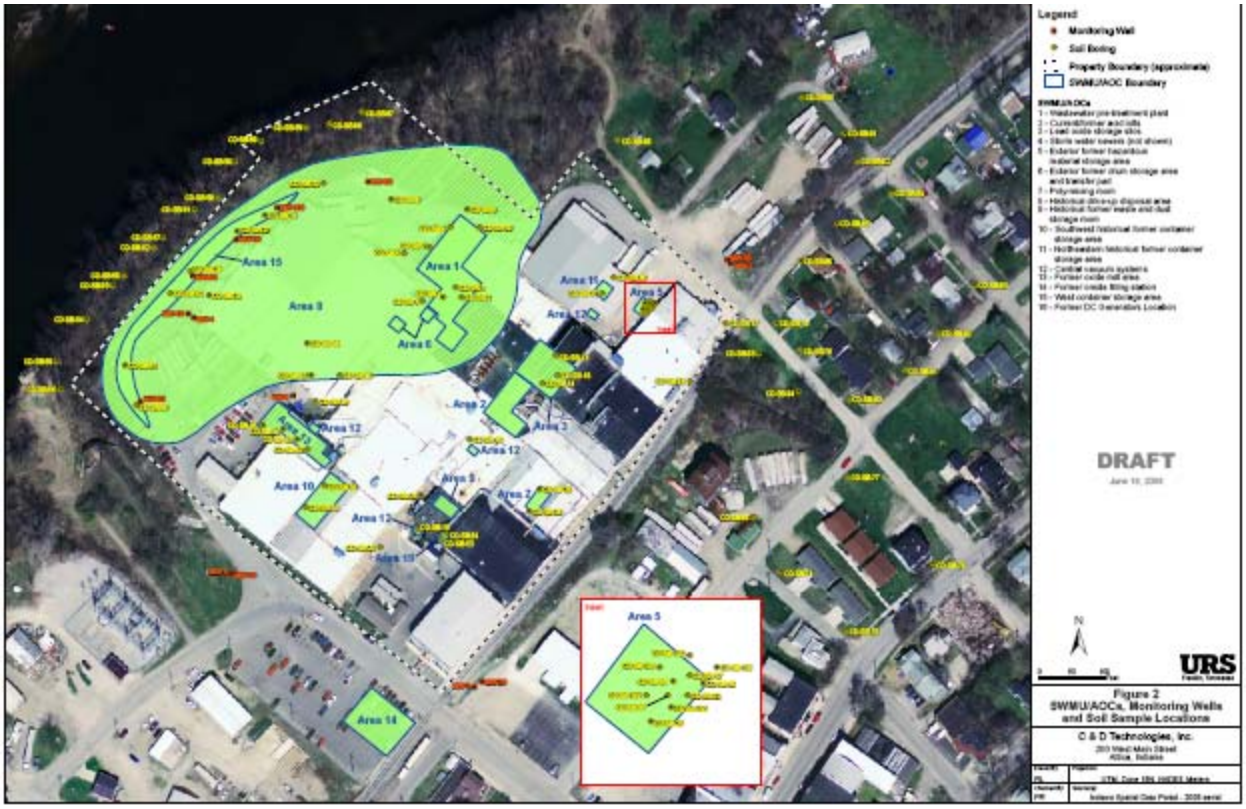
Figure 1



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