

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

Revised 11/8/00

RCRA Corrective Action
Environmental Indicator (EI) RCRIS Code (CA725)

Current Human Exposures Under Control

Facility Name: Burlington Basket (Former General Electric Company [GE] Facility)
Facility Address: West Burlington, Iowa
Facility EPA ID #: IAD000678037

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?

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.

SWMUs and AOCs identified at Burlington Basket to date are described below. A site map identifying the approximate current or former location of each SWMU and AOC is attached as Figure 1.

SWMU/AOC 1, General Solvent Storage Area: This unit consists of a concrete pad north of Assembly Plant #3 and was used to store virgin solvent in 55-gallon drums and in one 350-gallon aboveground storage tank (AST). Solvents were composed of chlorinated and non-chlorinated volatile organic compounds (VOC). Solvents and wastes include: 1,1,1-trichloroethane (1,1,1-TCA), xylene, methyl isobutyl ketone, toluene, methyl ethyl ketone, and waste oil. During September and November 1986, about 1,500 cubic yards (yd³) of soil were excavated from this area to a depth of 8 feet below ground surface (bgs), and the excavation was backfilled with clean fill.

SWMU/AOC 2, Storm Sewer Pipe: The storm sewer pipe runs from the northeastern corner of Assembly Plant #3 to the northern edge of the property.

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.

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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).

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 [e.g., Maximum Contaminant Levels (MCLs), the maximum permissible level of a contaminant in water delivered to any user of a public water system under the Safe Drinking Water Act]) 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>			<u>Supporting information for all answers is given below</u>
Air (indoors) ²		<u>X</u>		
Surface Soil (e.g., <2 ft)		<u>X</u>		<u>Supporting information for all answers is given below</u>
Surface Water		<u>X</u>		
Sediment		<u>X</u>		
Subsurf. Soil (e.g., >2 ft)	<u>X</u>			<u>Supporting information for all answers is given below</u>
Air (outdoors)		<u>X</u>		

_____ 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.

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 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 Reference(s): Burlington Basket is located on Highway 34 in the City of West Burlington, Iowa. The facility layout is shown in Figure 1. From 1974 to 1986, GE manufactured voltage switchgear and switchboard apparatus in both of the facility’s buildings. Solvents composed of chlorinated and nonchlorinated VOCs were used in the manufacturing operations (Beak Environmental Specialists [Beak] 1997). Fresh and waste solvents were stored in 55-gallon drums and a 350-gallon aboveground storage tank, respectively, within the fenced area underlain by a concrete pad to the north of Assembly Plant 3. Beak (1997) reported that, according to the U.S. Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) Inspection Report, dated 10 July 1986, the plant generated the following wastes:

- Thirty-three 55-gallon barrels per year waste paint-related materials
- About 7 to 9 55-gallon barrels per year waste 1,1,1-trichloroethane (1,1,1-TCA)
- About 1 to 2 55-gallon barrels per month waste oil
- Roll-off boxes (40-yd³ capacity) of general trash hauled about two times per month

Soil contamination within the unguarded fenced area has been attributed to releases of solvent-containing wastes.

In November and December 1986, February and October 1987, February 1988, and May 1994, VOCs, were identified in soils along the northern foundation of Assembly plant 3 (Geosyntec Consultants [GeoSyntec] 1999). Surface soil contaminants included 1,1,1-TCA and toluene, and contamination is restricted to within the fenced area owned by Burlington Basket. Table 1 depicts the levels of contamination found in surface soils.

Subsurface soil contamination was found in the highest concentrations along the northern wall of Assembly Plant 3 (GeoSyntec 1999). Also, small areas of subsurface soil containing VOCs up to 0.3 parts per million were found along the northern facility boundary. The center of mass of VOCs in this area is located from 2 to 6 feet bgs. Table 2 depicts the levels of contamination found in subsurface soils. Table 3 depicts the highest level of each contaminant detected and the EPA’s preliminary remediation goal (PRG) for that chemical.

In May 1988, September 1989, September 1990, and April 1993, VOCs were identified in the surface water of the unnamed creeks immediately adjacent to, and northwest of, the Burlington Basket facility. The creeks are depicted as Creeks 1, 2, and 3 in Figure 1. Immiscible-phase VOCs (pure solvents) were not detected in surface water samples collected during these investigations. Two dissolved VOCs were found in the samples collected on April 27, 1993 at concentrations above their respective maximum contaminant level (MCL): 1,1-dichloroethene (1,1-DCE) was found at 23 micrograms per liter (µg/L), above its MCL of 7 µg/L; and

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tetrachloroethene (PCE) was found at 8.1 µg/L, above its MCL of 5 µg/L. An additional water sample was taken from a surface seep located at the confluence of Creeks 1 and 3. The seep water sample collected on May 17, 1988 contained the following VOCs at concentrations above MCLs: trichloroethene; 1,1,1-TCA; vinyl chloride; 1,1-DCE; and PCE (Beak 1997). Surface water samples were also collected in 2001 and 2002. The data from the two most current sampling events shows that no VOCs were found above detection limits (Harrington Engineering Consultants [HEC] 2002).

Groundwater samples have been collected periodically from 1987 to 2002. In December 1987; May 1988; February, September, and December 1989; September 1990; April 1993; and May 1994, May 2001, July 2001, November 2001, and May 2002. Dissolved VOCs were identified in groundwater monitoring wells located both on and off of Burlington Basket's property to the north of Assembly Plant 3 (see Figure 2). Several VOCs have been identified in groundwater located in the upper 10 feet of unconsolidated soils. These include: tetrachloroethene; trichloroethene; 1,1-dichloroethene; trans-1,2-dichloroethene; cis-1,2-dichloroethene; 1,2-dichloroethane; 1,1-dichloroethane; 1,1,1-TCA; 1,1,2-trichloroethane; 1,1-dichloroethene; chloroethane, chloroform, vinyl chloride; and methylene chloride.

Groundwater samples collected from wells located near the northern facility boundary (see Figure 2) contain total VOCs at concentrations greater than 1 milligram per liter (mg/L). The lateral distribution of VOCs in the upper 10 feet of unconsolidated soils extends from Assembly Plant 3 to about 250 feet north of Assembly Plant 3, and the concentrations decrease with depth. VOCs have been identified at the bottom of the upper unconsolidated aquifer, near the northern facility boundary. The one bedrock well (Well Number GE-20) at the facility was sampled and contained a maximum concentration of 0.015 milligrams per liter of 1,1-dichloroethene, which is greater than the maximum contaminant level (MCL) of 0.007 milligrams per liter (Harrington Engineering Consultants [HEC] 2002). Tables in Attachment A summarize the contaminants found in each well during each sampling event, the concentration of contaminants, and the contaminants that exceed their respective maximum contaminant levels. Figures in Attachment B show the location of all monitoring wells and the extent of contamination.

Previous remedial response activities have consisted of excavation and off-site disposal of soil at the accessible areas of the subsurface that contained VOCs. During September and November 1986, about 1,500 yd³ of soil was excavated from an area near the northeastern corner of Assembly Plant 3, to a depth of 8 feet bgs. The excavation was backfilled with clean fill. GeoSyntec (1999) reports that this action effectively removed the potential source of VOCs to groundwater in the upper till, to the extent practicable and warranted.

According to the facility, sediment sampling has not been conducted in the creeks because of the highly volatile nature of VOCs and the low concentrations detected in surface water samples. However, Di Toro and others (1991) have found that by using surface water data, it is possible to estimate potential sediment concentrations. The assumption is that an equilibrium exists between constituent concentrations within two media and that this concentration is related to a partitioning. The partitioning of nonionic, organic chemicals to sediments is reasonably well understood, and a standard model exists for describing the process. For sediments with a fraction of organic carbon (f_{oc}) greater than 2 percent by weight, which provides for a conservative

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estimate, the organic carbon appears to be the predominant phase for chemical sorption. The following equation describes this partitioning relationship:

$$K_d = \frac{C_s}{C_d} = (f_{oc}) (K_{oc})$$

where:

K_d = partitioning constant

C_s = sediment concentration

C_d = concentration of contaminant in water (determined by highest surface water concentration)

f_{oc} = fraction of organic carbon = 0.05 (conservative estimate)

K_{oc} = soil organic carbon/water partitioning coefficient

To estimate the theoretical sediment concentration, the maximum seep concentrations were used for the following constituents.

Chemical Contaminant	K_{oc} Values*	Water Concentration ($\mu\text{g/L}$)	Calculated Sediment Concentration (mg/kg)	Preliminary Remediation Goals (PRG) (mg/kg)
1,1,1- TCA	1.35×10^2	560	3.78	1.4×10^3
1,1- DCE	6.5×10^1	400	0.13	1.2×10^1

*Values obtained from EPA (1996)

mg/Kg= milligrams per kilogram

These values were compared to the EPA Region 9 PRG values for industrial exposures and were all found to be below the PRGs. This indicates that no unacceptable risk likely exists for exposures to these estimated sediment concentrations.

Contaminants are relatively concentrated in groundwater directly under the plant buildings at the Burlington Basket facility, which made it necessary to determine if volatilized VOCs were contaminating indoor air and therefore endangering workers at the facility. The Johnson-Ettinger model (EPA 1992) was used to calculate indoor air quality from contaminant concentrations in underlying soils. The model is based on values derived for residential exposures. This forms a conservative estimate when used in an industrial setting, because exposure times higher than actual exposures to workers, are factored in. Concentrations for 1,1,1-TCA were used because concentrations were the highest and closest to the facility. Results of the Johnson-Ettinger model indicated that indoor air did not pose a hazard to workers at Burlington Basket. Consequently, outdoor air also would not pose a hazard because of dispersion and the lack of being in a confined space. Attachment 2 shows the calculation and results of the Johnson-Ettinger model for 1,1,1-TCA.

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Footnotes:

¹ “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).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggests 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.

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	?	no	no	no			no
Air (indoors)							
Soil (surface, e.g., <2 ft)	no	no	no	no	no	no	no
Surface Water	no	no			no	no	no
Sediment							
Soil (subsurface e.g., >2 ft)				no		no	
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

3. Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated” as identified in #2 above.
4. 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.

 X 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)

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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).

_____ 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

Rationale and Reference(s): The groundwater located in the upper 10 feet of unconsolidated sediments, composed of glacial till, is not a usable water resource because of the high clay content. In addition, the facility and surrounding area are connected to the city water supply, which extracts groundwater from the bedrock aquifer. Drinking water wells will not be drilled in the area of the facility because of city ordinance Chapter 90.03. This ordinance prohibits the extraction of groundwater where access to the city’s municipal supply system is available. Groundwater contamination in the upper till at the facility remains in an area located between the former paint waste container and the end of the former storm sewer pipe that drained into the ditch north of the facility. The plume has not migrated horizontally from this area as shown in data collected in quarterly sampling events over the last year from May 2001 to May 2002.

According to GeoSyntec (1999), two city wells that are within a half-mile southeast of Burlington Basket pump an estimated 600 gallons of water per minute to the community from the Cambro-Ordovician Jordan Aquifer and are about 1,800 feet deep. The Jordan Aquifer is separated from the upper till by alternating layers of light gray, cherty limestone and less-indurated, light red-brown limestone and shale. The Maquoketa Shale is considered an aquiclude in western Illinois and also exists between the till and the Jordan Aquifer. Although the direction of flow in the Cambro-Ordovician Jordan Aquifer is reported to be toward the southeast, downgradient of Burlington Basket, the great depth of the city wells in the Jordan Aquifer and the existence of the Maquoketa shale aquiclude would prevent contaminants at the site from contaminating the city water wells.

Data has been collected from four monitoring wells installed in bedrock at the facility to determine the extent of contamination in the bedrock aquifer during 2001 and 2002. Only one of the bedrock wells has contained VOCs during the quarterly sampling events. Monitoring well MW-20 has contained 1,1-dichloroethene at a range of 0.012 to 0.015 milligrams per liter; however, the concentration of 1,1-dichloroethene in MW-20 has decreased over the last two quarterly sampling events. Data collected from the bedrock wells in quarterly sampling events over the past year from May 2001 to May 2002 show that the contamination in the bedrock has not migrated from MW-20 and remains on facility property. Possible human receptors exist southeast of the facility, because groundwater is obtained from wells located there. Several private wells located closest to the facility were sampled in 2002. None of the private wells contained any detectable levels of VOCs.

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No pathways for contamination from soil exist, because the facility is largely covered in concrete. A small area does exist where no concrete is present; however, no contaminant releases have occurred in this area.

Current conditions in the creek indicate that previous VOC contamination concentrations have decreased to below detection limits in the creek sampling conducted in 2001 and 2002. Human exposure routes from contaminated surface water do not exist because of a natural barrier that prevents access to the creek adjacent to the facility. Vegetation and a steep, deep embankment prevent people and trespassers from coming into contact with contaminants in the surface water. A human foodchain exposure route also does not exist because fish do not exist in the pooled waters at the head of the creek where contaminants, 1,1-DCE and 1,1,1-TCA, have been found. The flow is not continuous and several small waterfalls act as barriers that eliminate the presence of fish upstream of the facility. Contaminants have not been detected in surface water samples downstream of the facility. Additionally, the surface water in the creek is not used for irrigation.

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

- 4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (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): _____

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⁴ 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.

5 Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?

X 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): _____

6. Check the appropriate RCRA Info 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 **Burlington Basket** facility, EPA ID #**IAD000678037**, located at **Mt. Pleasant Ave. in West Burlington, Iowa** 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) Original signed by _____ Date 08/21/02
(print)Gayle Hubert
(title)RCAP Project Manager EPA Region 7

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Supervisor (signature) Original signed by William F. Lowe for Date 8/27/02
 (print) John Smith
 (title) ARTD RCAP Manager
 (EPA Region or State) EPA Region VII

Locations where References may be found:
Region 7 Records Center, 501 N. 5th St., KC KS 66101

Contact telephone and e-mail numbers

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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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REFERENCES

- Beak Environmental Specialists (Beak). 1997. "RCRA Facility Investigation Report." Prepared for: The (Former) General Electric Company (GE). Burlington, Iowa. February.
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- Di Toro and others. 1991. "Technical Basis for Establishing Sediment Quality Criteria for Nonionic Organic Chemicals Using Equilibrium Partitioning." *Journal of Environmental Toxicology and Chemistry*. Volume 10, Number 12. Pages 1541 to 1583.
- Geosyntec Consultants(GeoSyntec). 1999. Final Draft-Corrective Measures Study Report. Prepared for: GE (Former). Fort Wayne, Indiana. September 30.
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- EPA. 1996. "Soil Screening Guidance: User's Guide." Office of Solid Waste and Emergency Response. Washington D. C. Pages 140 to 145.
- Harrington Engineering, 2002, 2002 Monitoring Well Installation, Groundwater Sampling, and Surface Water Results Report, Chesterton, Indiana, July 19.

TABLE 1

**BURLINGTON BASKET
SURFACE SOIL SAMPLE RESULTS FOR VOLATILE ORGANIC CONTAMINANTS**

Soil Sample Identification	1,1,1-Trichloroethane ($\mu\text{g}/\text{kg}$)	Toluene ($\mu\text{g}/\text{kg}$)
FG-101	8	ND
FG-122	ND	12

Notes:

Surface soil samples were collected from 0 to 2 feet bgs.

$\mu\text{g}/\text{kg}$ = micrograms per kilogram

ND= not detected

The table has been modified from the RCRA Facility Investigation Report (Beak 1997)

TABLE 2

BURLINGTON BASKET
SUBSURFACE SOIL SAMPLE RESULTS FOR VOLATILE ORGANIC CONTAMINANTS

Sample Identification	1,2-Dichloroethane	Ethylbenzene	Trichloroethene	Methylene Chloride	1,1,1-Trichloroethane	cis-1,2-Dichloroethene	Chloroethane	Tetrachloroethene	Xylene	1,1-Dichloroethane	Toluene	2-Butanone	1,1-Dichloroethene
FG-102	ND	ND	ND	21	13	ND	ND	ND	ND	ND	ND	ND	ND
EG-103	ND	ND	ND	ND	230	ND	ND	ND	ND	13	ND	ND	ND
EG-111	57	ND	122	ND	139	41	ND	ND	ND	ND	ND	ND	ND
EG-112	ND	ND	ND	ND	ND	ND	ND	19	ND	ND	ND	ND	ND
EG-116	ND	ND	ND	ND	102	16	ND	ND	21	ND	ND	ND	ND
EG-118	ND	ND	ND	ND	69	ND	ND	20	ND	33	ND	ND	ND
EG-119	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8	ND	ND
FG-121	ND	ND	ND	ND	ND	ND	ND	112	ND	ND	ND	ND	ND
EG-123	ND	ND	ND	ND	142	ND	ND	ND	ND	ND	ND	ND	ND
EG-124	ND	ND	ND	ND	ND	ND	ND	55	31	ND	ND	ND	ND
EG-125	ND	ND	ND	ND	2,480	ND	ND	36	ND	1,820	26	93	ND
EG-126	ND	ND	ND	ND	ND	ND	ND	ND	ND	17	ND	212	ND
EG-127	ND	ND	ND	536	4,406	ND	ND	23	ND	1,025	287	52	429
EG-128	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	225	ND
EG-129	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	145	ND
EG-130	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	316	137	ND
SB-102 (A),(B),(C)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (15.6) (176)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(9.3) (ND) (42.5)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (37.2)
SB-103	(ND)	ND	ND	ND	67.5	ND	ND	38.1	ND	684	ND	ND	14.9
SB-104	ND	ND	ND	ND	ND	ND	ND	ND	ND	35.5	ND	ND	ND
SB-105 (A),(B),(C)	(ND) (ND) (ND)	(15.7) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(823) (287) (858)	(21.1) (ND) (ND)	(ND) (ND) (ND)	(143) (ND) (6.2)	(95) (ND) (ND)	(201) (68.8) (117)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (41.5) (ND)
SB-106	ND	ND	ND	ND	ND	ND	ND	ND	ND	41.5	ND	ND	ND
SB-107 (A),(B),(C)	(ND) (ND) (ND)	(ND) (5) (9.4)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(7,681) (ND) (ND)	(ND) (ND) (ND)	(ND) (7.1) (8.1)	(48.5) (ND) (ND)	(5.7) (40) (66.4)	(ND) (63.3) (35.8)	(ND) (ND) (ND)
SB-108 (B)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	31.5	84.8	ND
SB-109(A),(B),(C)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(22.8) (ND) (5)	(38.7) (98) (68.7)	(ND) (ND) (ND)
SB-110	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	61.4	ND	ND
SB-202	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.2	ND	ND
SB-203(A),(B)	(ND) (ND)	(ND) (ND)	(ND) (ND)	(ND) (ND)	(ND) (18)	(ND) (ND)	(ND) (ND)	(ND) (ND)	(ND) (ND)	(ND) (ND)	(11.2) (7.2)	(ND) (ND)	(ND) (ND)
SB-204(A),(B)	(ND) (ND)	(ND) (ND)	(ND) (ND)	(ND) (ND) (ND)	(ND) (21.9)	(ND) (ND)	(ND) (ND)	(ND) (ND)	(ND) (ND)	(12.9) (29.4)	(ND) (ND)	(ND) (ND)	(ND) (ND)
SB-206 (A), (B), (C)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(71.9) (51.5) (19.3)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(32.2) (14.4) (ND)	(ND) (ND) (ND)	(ND) (ND) (ND)	(14.5) (12.3) (ND)
SB-210 (B)	ND	ND				ND	ND	ND	ND	12.2	ND	ND	0.1
SB-211 (A)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12.8	ND	ND
SB-212(A), (B)	(ND) (ND)	(ND) (ND)	(7.2) (ND)	(ND) (ND)	(ND) (ND)	(1,421) (ND)	(ND) (ND)	(ND) (ND)	(ND) (ND)	(6.5) (ND)	(41.4) (7.8)	(57.8) (ND)	(22.6) (ND)
GE-3-8	ND	ND	ND	ND	12.6	ND	ND	ND	ND	ND	ND	ND	ND
GE-3-10	ND	ND	ND	ND	44	ND	ND	3.5	ND	ND	ND	ND	11
GE-3-10 (FD)	ND	ND	ND	ND	26	ND	ND	2.2	ND	ND	ND	ND	ND
GE-3-20	ND	ND	ND	ND	ND	ND	ND	ND	9.2	ND	13.6	ND	ND
GE-4-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.1	ND	ND	ND
GE-4-3	ND	ND	13	ND	180	12	ND	27	9.6	90	ND	ND	ND
GE-4-9	ND	ND	ND	ND	150	ND	ND	17	ND	ND	ND	ND	31
GE-6-1	ND	ND	ND	ND	18	ND	ND	17		12	ND	ND	ND
GE-6-1 (FD)	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	ND	ND	ND
GE-6-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	22	ND	ND	ND
GE-6-10	ND	ND	ND	ND	15	ND	ND	ND	ND	ND	ND	ND	ND
GE-14-1	ND	ND	8.1	ND	ND	ND	700	ND	ND	ND	8.2	ND	ND
GE-14-2	5	ND	7.5	32	750	41	100	29	73	400	ND	ND	93

Notes:

All concentrations are in micrograms per kilogram.

The table has been modified from the RCRA Facility Investigation Report (Beak 1997)

FD= Field duplicate; ND= Not Detected

TABLE 3

**BURLINGTON BASKET
HIGHEST CONCENTRATION OF EACH CONTAMINANT DETECTED
AND THE CORRESPONDING ENVIRONMENTAL PROTECTION AGENCIES'S (PRGS) FOR INDUSTRIAL SOIL**

Chemical	Maximum concentration detected	PRGs for Cancer Risk				PRGs for Chronic Hazard Quotient			
		Soil inhale	Soil dermal	Soil ingest	Combined	Soil inhale	Soil dermal	Soil ingest	Combined
1,2-Dichloroethene	93	7.7×10^{-1}	--	6.3	7.6×10^{-1}	3.5	--	6.1×10^4	3.5
Ethylbenzene	15.7	--	--	--	--	6.2×10^3	--	2.0×10^5	6.0×10^3
Trichloroethene	122	6.2	--	5.2×10^2	6.1	8.0	--	1.2×10^4	7.9
Methylene Chloride	536	2.1	--	7.6×10^2	2.1	1.1×10^4	--	1.2×10^5	9.8×10^3
1,1,1-Trichloroethane	4,406	--	--	--	--	3.5×10^3	--	4.1×10^4	3.2×10^3
Cis-1,2-Dichloroethane	1,421	--	--	--	--	--	--	--	--
Chloroethane	7,681	6.5	--	2.0×10^3	6.5	1.9×10^4	--	8.2×10^5	1.9×10^4
Tetrachloroethene	143	2.2	--	1.1×10^2	1.9	1.9×10^3	--	2.0×10^4	1.7×10^3
Xylene	95								
1,1-Dichloroethane	1,820	--	--	--	--	2.1×10^3	--	2.0×10^5	2.1×10^3
Toluene	66.4	--	--	--	--	2.0×10^3	--	4.1×10^5	2.0×10^3
2-Butanone	225								
1,1-Dichloroethene	41	1.2	--	9.5	1.2	6.8	--	1.8×10^4	6.7

Notes:

All concentrations are in milligrams per kilogram.

PRG = Preliminary Remediation Goals

ATTACHMENT 1

**DISTRIBUTION AND CONCENTRATION OF VOLATILE ORGANIC CONTAMINANTS
AT DIFFERENT DEPTHS IN GROUNDWATER**

(Four Sheets)

ATTACHMENT 2

RESULTS OF JOHNSON-ETTINGER MODEL FOR INDOOR AIR QUALITY

(Two Pages)