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: **Johnson Controls Battery Group, INC**
Facility Address: **Middletown, DE**
Facility EPA ID #: **DED 00 235 3092**

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?

   Yes 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"** [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		**XX**		
Air (indoors)			**n/a**	
Surface Soil (e.g., <2 ft)	**XX**			
Surface Water	**XX**			
Sediment	**XX**			**LEAD**
Subsurf. Soil (e.g., >2 ft)	**XX**			
Air (outdoors)		**XX**		

___ 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.

XX 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:

EPA has completed its review of JCBGI's 7/99 Environmental Investigation Report (EIR) and JCBGI's Response to Comment documents dated 14 July 1997, 30 September 1997 and 14 October 1997, the Final Environmental Investigation Report, Attachments A (XRF), B (Soil Data), and C (QA/QC), 7/99, and the Final Environmental Investigation Report Addendum Remedial Action Report, Attachment D (Confirmatory Sampling Data Analysis) dated July 2000. We have coordinated this review with the State of Delaware Department of Natural Resources and Environmental Control (DNREC) and approved these reports.

JCBGI's EIR concludes that the groundwater is within EPA acceptable criteria, however, lead in soil was at unacceptable levels, and, in December 1998, JCBGI began remediation of the site. Johnson presents the December 3, 1998, December 11, 1998 and December 18, 1998 newsletters describing its cleaning of the rooftops and gutters at onsite buildings, and removal of surface soil as JCBGI proposed in the EIR and discussed with EPA and DNREC.

The Draft Sediment Investigation and Ecological Investigation report identifies lead contaminants in sediment in Dove Nest Creek at location SED-8 at 351 ppm. Further investigation of the mobility of the lead contaminants is being conducted to determine the impact on the ecosystem. However, the lead in sediment imposes no threat to the human exposure. The final EIR Addendum includes the soil remediation, confirmatory sampling and analyses, the data validation, and a work plan and schedule for the ecological assessment of Dove Creek. The ecological assessment will be characterized separately as the Final Dove Nest Branch Supplemental Investigation.

REFERENCES: - See RCRA File Room

1.- EPA 3013 Order, Docket # RCRA-3018-AM, Issued 3/8/94;
2.- Revised RFI Work Plan Addendum Report
3.- Stormwater Sample Collection and Analyses Work Plan and Preliminary Geologic Interpretation, 3/8/96
4.- Sampling and Analysis Report, Johnson Controls Battery Group, Middletown, DE, Dated 11/12/96
5. - Draft Environmental Investigation (EIR) Report, Dated 2/6/97
6.- Final EIR Report, July 1997
7- Sediment Investigation and Ecological Reconnaissance Work Plan, dated 7/97
8.- Draft Sediment Investigation and Ecological Reconnaissance Report, dated 3/99
9.- EPA 9/10/97 Comments Letter

10.- JCBGI 10/27/97 Letter: Re: Comments
11.- JCBGI Preliminary EIR Report-Response to Comments, March 1998
12.- EPA EIR comment Letter: 4/22/98
13.- Final Preliminary EIR Report, dated 6/29/98
14.- D. Goldblum 8/7/98 Memo
15.- Final Remedial Action Work Plan, 9/98
16.- Revised Final Environmental Investigation Report, 12/98
17.- JCBGI 1/8/99 Letter- Revised Final EIR
18.- DNREC 2/11/99 Memo
19.- EPA EIR Comment letter, dated 2/23/99
20.- Final Environmental Investigation Report, Attachments A(XRF), B(Soil Data) , and C(QA/QC), 7/99
21.- Final Environmental Investigation Report Addendum Remedial Action Report, Attachment D (Confirmatory Sampling Data Analysis) dated July 2000

Contact telephone and e-mail numbers

Matthew Higgins, DE Department of Natural Resources and Environmental Control (DNREC)(302) 739-3689

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] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

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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? **NO.**

Summary Exposure Pathway Evaluation Table

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

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater							
Air (indoors)							
Soil (surface, e.g., <2 ft)							
Surface Water	___	___		___	___	___	
Sediment	___	___		___	___	___	
Soil (subsurface e.g., >2 ft)			___			___	
Air (outdoors)							

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.

NO 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).

_____ 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):See Item 2

_____
_____
_____
_____

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

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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)?

NO 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): See Item 2

[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.

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

_____ 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):_____
_____
_____
_____
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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 — 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 Johnson Controls Battery Group, Inc. facility, EPA ID # DED 00 235 3092, located at Middletown, DE 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 02-20-02
(print) Vernon Butler
(title) Remedial Project Manager

Supervisor (signature) _____ Date 02-26-02
(print) Robert E. Greaves
(title) Chief, General Operations Branch
EPA Region III

Rationale and Reference(s): _____
_____
_____

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.