



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: Wyman - Gordon Worcester
Facility Address: 105 Madison St. Worcester, MA
Facility EPA ID #: MAD001128016

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).

RCRA RECORDS CENTER
FACILITY Wyman - Gordon
ID NO. MAD001128016
FILE NO. R-13
OTHER # 107895

Current Human Exposures Under Control  
 Environmental Indicator (EI) RCRIS code (CA725)  
 Page 2

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>	___	<u>See Below</u>
Air (indoors) <sup>2</sup>	___	<u>X</u>	___	_____
Surface Soil (e.g., <2 ft)	___	<u>X</u>	___	_____
Surface Water	___	<u>X</u>	___	_____
Sediment	___	<u>X</u>	___	_____
Subsurf. Soil (e.g., >2 ft)	___	<u>X</u>	___	_____
Air (outdoors)	___	<u>X</u>	___	_____

  X   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.

\_\_\_\_\_ 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):    Several studies have been conducted at the Wyman-Gordon Facility which together comprise a Response Action Outcome (RAO) for the entire site. The RAO provides documentation that a “Permanent Solution” as defined in the Massachusetts Contingency Plan (MCP) regulations 310 CMR 40.0000 has been achieved at the site. The RAO relies on the placement of an Activity and Use Limitation (AUL) on the property which restricts it to non-residential uses. The LSP for the facility owner/operator has determined that no additional response actions are necessary at the facility.

Wyman-Gordon Worcester Facility consists of approximately 26 acres of land which is zoned for general manufacturing and industrial uses. It is surrounded by a mixture of other industrial, commercial and residential properties. Wyman-Gordon performed ferrous and non-ferrous metal forging operations at the site. In 2003 Wyman-Gordon purchased the abutting Stanly Tools site at 149 Washington Street.

Contaminants of Concern include Volatile Organic Compounds (i.e. chlorinated solvents), PCB’s, and Petroleum Hydrocarbons. Releases to the soil, ground water and air have occurred historically at the site and remediation activities have been conducted to

address the releases. The potential human exposure pathways at the site are through contact with soils by workers and trespassers and the potential for impacts from contaminated groundwater to indoor air at nearby residential structures. Studies have shown the concentration of residual contamination do not pose a risk to Human Health at the site for workers, trespassers or nearby residents. Wyman-Gordon utilized both a Method 1 and Method 3 Risk Characterization as defined in the MCP to support this conclusion.

#### Risk Evaluation: Soils and Ground Water

Adults are expected to be the primary receptors present at the Site because it is used for general manufacturing. The entire perimeter of the property is surrounded by fencing, so trespassing children are not expected to be present at the Site. The ground surface of the Site is primarily either paved or occupied by Site buildings or former foundations; however, there is some exposed bare ground. Based on the characterization of soil and the Soil Category Selection Matrix contained in the MCP (310 CMR 40.0933(9)), accessible soils at the Site are currently classified as S-2, and potentially accessible and isolated soils are classified as S-3. The soils do not exceed the applicable current use standards. However, future uses must be restricted with an activity and use Limitation (AUL) to preserve current uses.

No water supply wells have been identified within 500 feet of the Site, and the Site is not located within 400 feet of a Class A Surface Water Body; therefore, contact with constituents in groundwater through drinking water supplies is not a potential exposure pathway at this Site. Because the depth to groundwater across the Site is less than 15 feet bgs, groundwater located within 30 feet of existing on-Site buildings is classified as GW-2, which indicates the potential for volatile constituents in groundwater to migrate into the indoor air of buildings but does not indicate that such migration has occurred. According to the MCP (310 CMR 40.0932(2)), groundwater at all sites is considered to be a potential source of discharge to surface water and therefore is classified as GW-3.

#### Conclusion:

The conclusions of the risk characterization indicate that a condition of No Significant Risk of harm to health, safety public welfare, and the environment has been demonstrated for residual levels of petroleum, polychlorinated biphenyls (PCBs), metals, semi-volatile organic compounds (SVOCs), and chlorinated volatile organic compounds (CVOCs) in soil and groundwater. Based on these findings Current Human Health Exposures are under control at the site.

#### References:

REVISED CLASS A-3 PARTIAL RESPONSE  
ACTION OUTCOME (RAO)  
AND RISK CHARACTERIZATION  
WYMAN-GORDON COMPANY  
105 MADISON STREET AND  
149 WASHINGTON STREET

WORCESTER, MASSACHUSETTS  
RTN 2-10256

PREPARED BY:  
GZA GeoEnvironmental, Inc.  
Norwood, Massachusetts  
August 2009  
File No. 13651.48

PARTIAL RESPONSE ACTION OUTCOME  
(RAO) STATEMENT AND RISK  
CHARACTERIZATION  
WYMAN-GORDON COMPANY  
HERMON STREET PARKING AREA  
105 MADISON STREET  
WORCESTER, MASSACHUSETTS  
RTN 2-10256

PREPARED BY:  
GZA GeoEnvironmental, Inc.  
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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.

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

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)

<b>“Contaminated” Media</b>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food <sup>3</sup>
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.

- \_\_\_ 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): \_\_\_\_\_

Footnotes:

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

Current Human Exposures Under Control  
Environmental Indicator (EI) RCRIS code (CA725)  
Page 4

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)?

\_\_\_\_\_ 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): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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.

**Current Human Exposures Under Control**  
**Environmental Indicator (EI) RCRIS code (CA725)**  
Page 5

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): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Current Human Exposures Under Control  
Environmental Indicator (EI) RCRIS code (CA725)  
Page 6

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 the Wyman - Gordon Worcester facility, EPA ID # MAD001128016, located at 105 Madison St., Worcester, MA 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) Jeffrey H. Chormann Date 9/28/09  
(print) JEFFREY H. CHORMANN  
(title) ENVIRONMENTAL ANALYST IV

Supervisor (signature) Maria E. Pinard Date 9/28/09  
(print) MARIA E. PINARD  
(title) Deputy Division Director  
(EPA Region or State) \_\_\_\_\_

Locations where References may be found:

MassDEP  
1 Winter St.  
Bureau of Waste Prevention  
Boston, MA 02108 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Reviewed by James C. [Signature]  
9/30/09 Chief RCRIS Corrective Action

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.**