DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

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

Current Human Exposures Under Control

Facility Name: **Morco, Inc. (a.k.a. Morco Corporation, Coinco)**
Facility Address: **High Street, Cochranton, PA 16314**
Facility EPA ID #: **PAD 05 688 2822**

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).

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_	___	___	On-going groundwater monitoring.
Air (indoors) [2]	___	_x_	___	No record of releases/contamination. The VOC groundwater plume is onsite and outside the vicinity of the any occupied manufacturing building.
Surface Soil (e.g., <2 ft)	___	_x_	___	Contaminated soil was excavated.
Surface Water	___	_x_	___	No record of releases/contamination.
Sediment	___	_x_	___	No record of releases/contamination.
Subsurf. Soil (e.g., >2 ft)	_x_	___	___	The majority of contaminated soil was excavated in the former units. The remaining soil was capped.
Air (outdoors)	___	_x_	___	No record of releases/contamination.

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

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

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Groundwater:

On April 9, 1986, PADEP discovered that stored wastes in the former concrete pad and surface impoundment leached through the units and impacted the groundwater. As part of closure to the concrete pad and the surface impoundment, six nested monitoring wells, shallow and deep, were installed. In addition to the monitoring wells, three recovery wells were installed to treat and control the groundwater migration. The pump and treat system was implemented on March 1, 1993 and utilizes a dual treatment system consisting of air stripping and carbon absorption. The treated water recycles back to a subsurface leach field located near the former surface impoundment. Over the years the pump and treat system has substantially reduced the levels of the constituents in groundwater. Presently, the groundwater concentrations are:

Constituents	**Concs. (ppb)**
1,1-dicholroethylene (DCE)	ND
cis-1,2-dichloroethylene (DCE)	ND - 1500
trans-1,2-dichloroethene (DCE)	ND - 34
tetrachloroethylene (PCE)	ND - 5
trichloroethylene (TCE)	ND - 440
vinyl chloride	ND - 12

(ND: Non-detects)

On occasion the pump and treat system was inoperable due to drought and silty water conditions. The longest period in which the system was down was approximately18 consecutive months, which occurred between 1998 and 2000. When the system restarted on July 26, 2000, the system again stalled after two months of operation due to silty water conditions. Because of the inefficacy of the system under these conditions the facility proposed an alternative approach to the groundwater clean-up. Based on the fact that the levels of constituents have substantially decreased over the years, the plume is within the facility property line and the nearby residents are connected to public water, the facility proposed to discontinue the pump and treat system and instead conduct periodic groundwater monitoring.

In 2001, the PADEP modified the existing Consent Order and Agreement to temporarily discontinue the pump and treat system with established provisions to address the potential of groundwater migration during the system shut down. The objective of the modified Order is to evaluate the groundwater plume under static conditions and to determine the feasibility of the pump and treat system. Pursuant to the modified Order, in 2002 Morco initiated the first of eight (8) consecutive quarters of groundwater monitoring for the former concrete pad and surface impoundment areas. During the eight (8) quarters of monitoring, if the downgradient wells show an increase in concentrations, which suggest that the plume may be migrating offsite, Morco will restart the system to control the migration. However, if after eight (8) quarters of monitoring, and the results indicate that the plume is not migrating offsite, Morco will not be required to re-start the pump and treat system. At such time, the frequency of groundwater monitoring will change from quarterly to annual sampling. As a contingency plan, the pump and treat system will remain in place in the event that the groundwater plume may migrate offsite. The decision to restart the system will be based on the annual groundwater results. If the results of the annual sampling exceed 5 ppb for TCE or exceed the statewide health standard for the constituents of concern, the facility will implement groundwater sampling the following quarter. If the sample results from that quarter show an exceedence, Morco will restart the pump and treat system. However, if the sample results do not exceed the regulatory standards, Morco will not be required to re-start the pump and treat system. Instead, annual groundwater monitoring will resume.

In addition to the former concrete pad and surface impoundment, a pre-RCRA solid waste unit exists onsite. The unit is located in a wooded area southwest of the former surface impoundment. During its operation, the unit collected paint sludge, waste paper, metal scraps, and plastic from the facility. Some of the local residents also illicitly disposed household appliances and domestic garbage into the unit. The facility closed the unit with waste in place. The unit was capped with topsoil and partially re-vegetated. As part of the closure, monitoring well TW-1 was installed directly downgradient of the unit. The well was sampled only once in November 1989. Although the single round of groundwater data demonstrate that VOCs are not present downgradient of the pre-RCRA unit, additional sampling is needed to fully evaluate the groundwater quality. Outside the scope of the modified PADEP Consent Order, EPA requested Morco. to sample TW-1 for four (4) consecutive quarters. Morco has implemented the first of four (4) quarters in March 2002. Depending on the groundwater results, additional measures may or may not be necessary. *(Annual Reports Prepared by Moody & Associates, Inc., PADEP Consent Order and Agreement, PADEP Environmental Indicator Report, EPA letter to Morco, February 22, 2002)*

Surface and Subsurface Soil:

Contaminated soils associated with the former impoundment were excavated to the saturated groundwater zone and disposed of off-site. The area was backfilled and capped with topsoil and re-vegetated. The pre-RCRA solid waste unit was closed with waste in place. The unit was capped with topsoil and partially re-vegetated. (Annual Reports Prepared by Moody & Associates, PADEP Environmental Indicator Report)

Air (outdoor) Surface Water, and Sediment:

There has been no record of releases that are above protective risk-based “levels” by the facility. (Annual Reports Prepared by Moody & Associates, PADEP Environmental Indicator Report)

Air (indoor):

There has been no record of releases that are above protective risk-based “levels” by the facility. The groundwater plume is onsite and outside the vicinity of the any occupied manufacturing building. Therefore, there are no indoor air concerns associated with the groundwater plume. (Annual Reports Prepared by Moody & Associates, PADEP Environmental Indicator Report)

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) 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.

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_			_No_
~~Air (indoors)~~	___	___	___				
~~Soil (surface, e.g., <2 ft)~~	___	___	___	___	___	___	___
~~Surface Water~~	___	___				___	___
~~Sediment~~	___	___			___	___	___
Soil (subsurface e.g., >2 ft)				_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 "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.

__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) 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):

Groundwater:

There are no human receptors affected by the groundwater plume. The plume is located within the facility property line. Residential wells within a one mile radius of the facility are connected to public water. (Annual Reports Prepared by Moody & Associates, Inc., PADEP Consent Order and Agreement, PADEP Environmental Indicator Report)

Subsurface Soil (>2 ft.):

The remaining contaminated soil in pre-RCRA solid waste unit has been capped and therefore, eliminates an exposure pathway to human receptors. (Annual Reports Prepared by Moody & Associates, Inc., PADEP Environmental Indicator Report)

[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)?

_____ 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):

[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?

_____ 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)

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 **Morco, Inc. (a.k.a. Morco Corporation, Coinco)** facility, EPA ID # **PAD 05 688 2822**, located at **High Street, Cochranton, PA 16314** 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 04-25-02
(print) Khai M. Dao
(title) Remedial Project Manager

Supervisor (signature) _____ Date 04-30-02
(print) Paul Gotthold
(title) PA Operations Branch Chief
(EPA Region or State) EPA, Region III

Locations where References may be found:

PADEP
Waste Management Program
230 Chestnut Street
Meadville, PA 16335

US EPA
Region III
Waste and Chemical Mgmt. Division
1650 Arch Street
Philadelphia, PA 19103

Contact telephone number and e-mail:

PADEP Contact:
Sigma Toth
814-332-6843
toth.sigma@state.pa.us

EPA Contact
Khai M. Dao
(215) 814-5467
dao.khai@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.