

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action

Environmental Indicator (EI) RCRAInfo code (CA725)

Current Human Exposures Under Control

Facility Name:	Merck & Co., Inc.
Facility Address:	126 East Lincoln Ave., Rahway NJ 07065
Facility EPA ID #:	NJD001317064

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, GPRRA). 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 RCRAInfo national database ONLY as long as they remain true (i.e., RCRAInfo status codes must be changed when the regulatory authorities become aware of contrary information).

Facility Background

The Merck and Co., Inc. facility ("the facility") is located in Rahway and Linden, Union County, New Jersey on 210 acres of land. The company is involved in the business of developing and producing pharmaceutical products. The facility began operations in 1903. The facility is bordered by residential and industrial areas of Rahway and Linden. Approximately one half of the site is located within the City of Rahway and the remainder is within the City of Linden. Merck has been implementing remedial actions pursuant to the Hazardous and Solid Waste Amendments (HSWA) permit issued by EPA in 1990 and 2000 and the Administrative Consent Order (ACO) signed by NJDEP and Merck in 1994.

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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.

References

Investigations

- * Phase II RCRA Facility Investigation Report, March 1994
- * Corrective Measure Study, May 1998
- * Former TBZ Area Soil Investigation Report, March 1999
- * Remedial Action Work Plan dated May 2001
- * Proposed Child Development Center Second Addition, Site Assessment Merck Rahway Plant, June 2001
- * Rahway River Water & Sediment Sampling 2001, September 2001
- * Baseline Ecological Evaluation, September 2001

Groundwater

- * RCRA Facility Investigation November 1994 Groundwater Sample Results, March 1995
- * Interim Groundwater Monitoring Report for October 1995.
- * Interim Groundwater Monitoring Report for April 1996
- * Interim Groundwater Monitoring Report for October 1996
- * Interim Groundwater Monitoring Report for April 1997
- * Interim Groundwater Monitoring Report for October 1997
- * Interim Groundwater Monitoring Report for October 1998
- * Interim Groundwater Monitoring Report for October 1999
- * Interim Groundwater Monitoring Report for October 2000
- * Interim Groundwater Monitoring Report for October 2001
- * March 2002 Baseline Groundwater Sampling Report
- * Groundwater Management Report for 2002/2003
- * Groundwater Management Report for 2003/2004.

Vapor Intrusion Investigation

- * Vapor Intrusion Assessment Report, Rahway Site, URS and Geosyntec Consultants, April 2005

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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	X			Exceedances of New Jersey GWQS
Air (indoors) ²	X			See Below
Surface Soil (e.g., <2 ft)	X			Exceedances of New Jersey SCC
Surface Water	X			Exceedances of New Jersey SWQC
Sediment	X			Exceedances of New Jersey SQC
Subsurf. Soil (e.g., >2ft)	X			Exceedances of New Jersey SCC
Air (outdoors)	X			Construction Workers and Groundskeepers Dust Inhalation

_____ 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: Constituents of concern are primarily: 2-propanol, methanol, acetone, chloroform, carbon tetrachloride, tert butyl alcohol, methylene chloride, benzene, trichloroethene, 2-butanone, chlorobenzene, 1,1,2,2-tetrachloroethane, n-butanol, 1,2-dichloroethane, total xylenes, tetrahydrofuran, cis -1,2 dichloroethene. Phase II RCRA Facility Investigation Report (3-94), RCRA Facility Investigation November 1994 Groundwater Sample Results (3-95), Interim Groundwater Monitoring Reports for October 1995, April 1996, October 1996, April 1997, October 1997, October 1998, October 1999, October 2000, October 2001, March 2002 Baseline Groundwater Sampling Report, Groundwater Management Reports for 2002/2003 and 2003/2004.

INDOOR AIR: Indoor air can be reasonably suspected to be contaminated above appropriately protective risk-based levels because groundwater underneath the facility is contaminated with levels of volatile organic compounds above the criteria provided in Table 2b of the Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (November 2002, EPA530-F-02-052). The criteria are developed with a risk level of 10⁻⁵ with assumptions that contaminants in groundwater obey the Henry’s partition coefficients and attenuate one thousandth when vaporized into soil gas and released into indoor air. These assumptions however

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.

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appear to be conservative, particularly where less permeable soil layers are present restricting or prohibiting soil gas from migrating upward.

Volatile contaminants in shallow groundwater have been locally detected along the property boundary to the southwest of the Merck facility marginally above the Table 2b criteria. However, soils in the area seem less permeable with a mixture of silts, clay, and sand. Figures 3b and 3a provided in the November 2002 Draft Vapor Intrusion Guidance allow use of other attenuation factors depending on soil types and depths to groundwater and soil gas. Merck has recommended based on these figures that attenuation factors of 0.0002 and 0.002 be utilized for groundwater-indoor air and soil gas-indoor air, respectively.

The figures however are derived utilizing the Johnson-Ettinger model with variable input parameters depending on soil types and depths to groundwater and soil gas. Therefore, the use of the figures could be inappropriate where the model is to be compensated in its prediction because of its limitation and assumptions utilized in the modeling. Particularly, the prediction/estimation by the model may be significantly compensated when groundwater is shallow less than 5 feet or less than 15 feet. The depth of groundwater in the area is detected at 4 to 11 feet below the ground surface. Furthermore, residential homes may have a basement with a depth of 8 to 10 feet below the ground surface. Therefore, Merck's recommended attenuation factors are questionable.

SOIL: Surface soil (0 to 2 feet below ground surface): VOCs (benzene, chlorobenzene, chloroform, tetrachloroethene, trichloroethene), SVOCs (PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene), pesticides (DDD, DDE, DDT, dieldrin), PCBs, arsenic, lead, mercury.

Subsurface soil (2 feet and deeper below ground surface): VOCs (1,1,2,2-tetrachloroethane, 1,2-dichloroethane, benzene, chlorobenzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, total xylenes), SVOCs (1,2-dichlorobenzene, PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene), pesticides (DDD, DDE, DDT), PCBs, arsenic, lead, mercury. Phase II RCRA Facility Investigation Report (3-94), Corrective Measures Study (5-98), Former TBZ Area Soil Investigation Report (3-99), Remedial Action Work Plan (5-01).

RAHWAY RIVER: DDD, dieldrin, heptachlor epoxide, and tetrachloroethene in surface water exceed New Jersey SWQS. DDD, dieldrin, and heptachlor epoxide exceed New Jersey SQG downstream of Merck's Rahway Plant. Rahway River Water & Sediment Sampling 2001 (9-01), Baseline Ecological Evaluations (9-01).

KINGS CREEK: Surface water: VOCs (1,2-dichloroethane, benzene, carbon tetrachloride, chlorobenzene, methylene chloride, tetrachloroethene, trichloroethene, vinyl chloride), SVOCs (PAHs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, indeno(1,2,3-cd)pyrene), pesticides (DDD, DDE, DDT, dieldrin, heptachlor, heptachlor epoxide), arsenic. Sediment: SVOCs (PAHs: acenaphthene, benzo(a)anthracene, benzo(g,h,i)perylene, chrysene, phenanthrene), pesticides (DDD, DDE, DDT), PCBs, copper, mercury, silver. Phase II RFI (3-94), Baseline Ecological Evaluations (9-01).

OUTDOOR AIR: Inhalation of dust derived from surface soil poses an exposure potential to construction workers and groundskeepers in areas where surface soil may occasionally not be covered by materials such as asphalt, concrete, gravel, vegetation groundcover, etc. Such dust exposure potential most commonly would be associated with construction activities. As presented in Plate A-2 in Rahway Plant, Remedial Action Work Plan (5-01), surface soil contaminants include: pesticides/PCBs, arsenic, SVOCs, VOCs, and metals. Exhibit B of this document provides a description of the affected areas, including summary of positively detected constituents in soil within the area of deed restriction. This summary is useful for describing the levels of the above contaminants that might be expected if dust from the affected areas became entrained in outdoor air. Maximum concentrations observed for the following chemical classes are as follows: pesticides/PCBs (340 mg/kg for DDD), metals [i.e., arsenic (929 mg/kg) and lead (5,670 mg/kg)], SVOCs (2,100 mg/kg for 1,2-dichlorobenzene), and VOCs (2,700 mg/kg for n-hexane). Per Section 2.1 of Rahway Plant, Remedial Action Work Plan (5-01), these concentrations correspond to areas where concentrations exceed NJDEP Residential Direct Contact Soil Cleanup Criteria. Also, see groundwater section. Construction workers may be exposed to volatilized organics from groundwater during excavation activities.

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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?

Summary Exposure Pathway Evaluation Table

<u>Contaminated Media</u>	Potential Human Receptors (Under Current Conditions)						
	<u>Residents</u>	<u>Workers</u>	<u>Day-Care</u>	<u>Construction</u>	<u>Trespassers</u>	<u>Recreation</u>	<u>Food³</u>
Groundwater	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>			<u>No</u>
Air (indoors)	<u>No</u>	<u>OSHA</u>	<u>No</u>				
Surface Soil (e.g., <2 ft)	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>No</u>
Surface Water	<u>No</u>	<u>No</u>			<u>Yes</u>	<u>Yes</u>	<u>Yes</u>
Sediment	<u>No</u>	<u>No</u>			<u>Yes</u>	<u>Yes</u>	<u>Yes</u>
Subsurf. Soil (e.g., >2ft)				<u>Yes</u>			<u>No</u>
Air (outdoors)	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>	<u>No</u>		

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).

X 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):

Rationale and Reference(s):

GROUNDWATER, SOILS, SURFACE WATER, SEDIMENT: Provided in the Human Health and Ecological Risk Assessment, Volume II (Appendix B) of the Corrective Measures Study (May 1998). Additional reference documents include:

- “Vapor Intrusion Assessment Report, Rahway Site” (April 2005)
- “Rahway River Water and Sediment Sampling 2001” (September 2001)

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

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- “Baseline Ecological Evaluations, Merck & Co. Rahway Site (Rahway River and Kings Creek)” (September 2001)
- “Proposed Child Development Center Second Addition, Site Assessment Merck Rahway Plant” (June 2001)
- “Former TBZ Area Soil Investigation Report “ (March 1999).

INDOOR AIR--OFFSITE: Offsite Indoor Air has been evaluated in two ways: 1) Evaluation of offsite and near facility boundary shallow groundwater chemistry data to assess potential vapor generation and intrusion into indoor air, and 2) A vapor intrusion assessment consisting of sampling and analysis of shallow groundwater and soil gas in March 2005 at locations along the southwestern boundary of the Rahway site, immediately adjacent to offsite locations.

1) Initially, groundwater monitoring data for off site and near facility boundary A & B zone proximate to residential areas were reviewed and confirmed to have concentrations that exceed the groundwater screening values at an alpha value = 0.001, as specified in Table 2b of the November 2002 Vapor Intrusion Draft Guidance. However, the presence of less permeable soil layers in the area may limit or prevent vaporized contaminants from migrating upward. It was questionable as to whether soil vapor, if present, causes no health risk through vapor intrusion.

2) Soil gas and groundwater samples were collected as part of a vapor intrusion study in March 2005 along the southwestern boundary of the Rahway Site. The occurrence of shallow groundwater zone contamination near the southwestern boundary appears localized.

In addition to the presence of less permeable soil layers, there was heavy snow and rain immediately prior to the March 2005 sampling. The downward flow of snow and rainwater would have further counteracted the upward migration of any VOCs that might volatilize from groundwater; therefore dramatically reducing, if not eliminating, such migration.

Data collected during the March 2005 sampling event were evaluated using methodologies and procedures consistent with the EPA Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (November 2002). Sampling results were compared to screening values presented in the Guidance.

Merck’s report (Vapor Intrusion Assessment Report Rahway Site dated April 2005) screened groundwater sampling results against values in the EPA Table 3b-GW **Question 5 Groundwater Screening Levels for Scenario-Specific Vapor Attenuation Factors** (alpha = 0.0002). As presented in the Merck 2005 report, groundwater screening criteria exceedances for TCE were detected in four out of a total of thirteen “A-zone” groundwater samples. These exceedances appeared not contiguous but relatively localized. When compared to the more conservative screening criteria provided in Table 2b (alpha=0.001), there would be no significant changes to the conclusion. While the results of this comparison of shallow groundwater data to screening levels indicate that the vapor intrusion pathway is incomplete in most areas, a review of soil gas samples from some of these areas is appropriate as a second line of evidence.

Consistent with the approach used for groundwater, Merck’s April 2005 report screened soil gas sampling results against values in EPA Table 3b-SG **Question 5 Soil Gas Screening Levels for Scenario-Specific Vapor Attenuation Factors** (alpha = 0.002). Concentrations are consistently low or ND and less than the screening criteria with the exception of two (TCE and cDCE) compounds in the sample from Location 9, which was installed within the confines of the municipal storm sewer encountered during drilling and appeared therefore not considered representative. When compared to the more conservative screening criteria provided in Table 2b (alpha=0.1 for shallow soil (< 5 feet bgs) and alpha=0.01 for deep soil (> 5 feet bgs)), a few contaminants were detected marginally above the criteria at SGW03, SGW05, SGW12, and SGW13. A less permeable layer appeared to be present above the sampling point at SGW05 and SGW13 but appeared lacking at SGW03 and SGW12. Furthermore, it remains to be a concern that off-site residential homes may have a basement with a depth of 8 to 10 feet below ground surface which may result in no or little attenuation.

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Therefore, EPA concludes that the vapor intrusion pathway for off-site residences is incomplete. However, further evaluation must be performed with respect to:

- Potential for vapor intrusion of groundwater and soil gas during dry conditions.
- Area of SGW09 and MWV09A and the location of nearby utility lines.
- Townhouses in the vicinity of East Grand Avenue and the Railroad tracks and any underground utility lines exiting the Merck facility and extending beneath the townhouses.
- Information on what foundation construction techniques were employed by the builder of the townhouses.
- Residential areas to the south, west, and southwest of the March 2005 sampling points.

See Vapor Intrusion Assessment Report, Rahway Site, URS and Geosyntec Consultants, April 2005.

INDOOR AIR—ONSITE WORKER EXPOSURE TO GROUNDWATER DERIVED VAPORS: The Occupational Safety and Health Administration (OSHA) and EPA have agreed that OSHA generally will take the lead role in addressing occupational exposures. Therefore, EPA defers to OSHA for the assessment of any potential health risks to onsite workers.

INDOOR AIR—ONSITE CHILDREN EXPOSURE TO GROUNDWATER DERIVED VAPORS: Groundwater contamination has been detected in the vicinity of the Merck on-site day care center. However, potential impacts of contaminated groundwater via vapor intrusion on indoor air at the day care center has not yet been established. Further investigation of groundwater and/or soil gas in subsurface soils must be performed underneath and/or near the day care center to assess vapor intrusion potential. The building is ventilated via a sub-slab depressurization system and is currently considered to have no complete exposure pathway via vapor intrusion.

OUTDOOR AIR - Inhalation of dust derived from surface soil poses an exposure potential to construction workers and groundskeepers in areas where surface soil may occasionally not be covered by materials such as asphalt, concrete, gravel, vegetation groundcover, etc. Construction workers may be exposed to volatilized organics from groundwater during excavation activities. Although the potential for outdoor air exposures for workers exist, these exposures are controlled by the issuance of excavation permits and Health and Safety plans. An excavation permit is required prior to allowing any intrusive work. Excavation permits are issued after reviewing all available subsurface information. Health and Safety Plans must be developed and implemented when working in known contaminated areas. These plans include requirements for personal protective equipment as well as monitoring worker breathing zone to ensure exposure levels are below the OSHA approved levels.

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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)?

- 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):

Any potential exposure is considered significant, requiring an evaluation to assess whether the exposure is acceptable.

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?

YES (a, b, c, d, e, f) _____ 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):

- (a) The May 1998 study titled: *Human Health and Ecological Risk Assessment, Merck Rahway Facility* concluded that human health risks associated with the presence of chemicals at the site are minimal. This study is presented as Appendix B to *Corrective Measures Study, Rahway Plant, Volume II* (May 1998).
- (b) Exposures to onsite construction workers and onsite grounds keepers will be controlled through the use of Health and Safety Plans that require personal protective equipment or monitoring when working in known contaminated areas.
- (c) AIR-OFFSITE: See the analysis presented in Section 3 of this form.
- (d) AIR-ONSITE: See the analysis presented in Section 3 of this form.
- (e) The September 2001 Baseline Ecological Evaluations concluded that no discernable impact of site-related constituents in the Rahway River sediment and surface water exists. Also, the approved remedial strategy for the site consists of the capping of impacted sediments within King’s Creek and the diversion of upgradient regional groundwater contamination from the Merck site.
- (f) Tables 5-1 and 6-2 of the Vapor Intrusion Assessment Report, Rahway Site, URS and Geosyntec Consultants, April 2005, There is uncertainty concerning the attenuation factors. However, based on the impermeable soil layer and results of the sampling, it has been concluded that vapor intrusion is not a concern for now. There will be follow-up investigation and re-evaluation as additional data is generated and new guidance becomes available.

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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 (a) 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 Merck & Co., Inc. Rahway facility, EPA ID # NJD001417064, located at Rahway New Jersey 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.

- (a) YE for all media.

Completed by Merck & Co., Inc.

Reviewed by (signature) _____ Date _____
(print) Andrew Y. Park
(title) Project Manager, EPA Region 2

(signature) _____ Date _____
(print) Barry R. Tornick
(title) Section Chief, EPA Region 2

Approved by Original signed by: _____ Date 9/28/2005
(print) Adolph Everett
(title) Branch Chief, EPA Region 2

Locations where References may be found:

EPA Region 2, RCRA Records Center, 290 Broadway, 15th Floor, NY, NY 10007-1866
NJDEP, Office of Records Custodian, Attn: Public Records Requests, 401 East State Street, P.O. Box 442, Trenton, New Jersey 08625-0442, (609) 341-3121, <http://www.nj.gov/dep/opra>

Contact telephone and e-mail numbers

EPA Andrew Park, 212-637-4184, park.andy@epa.gov
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Merck James Tittensor, 732-594-6837, james_tittensor@merck.com

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BEUSED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.