September 29, 2005

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action
Environmental Indicator (EI) RCRAInfo code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: **Marisol, Inc.**
Facility Address: **125 Factory Lane, Middlesex, Middlesex County, New Jersey**
Facility EPA ID#: **NJD002454544**

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, 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 #8 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 "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "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 "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

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 Information

A detailed description of the site and its history is provided in the RFI Phase 1 Workplan and the RFI Phase 2 Workplan for the Marisol, Inc. Facility and the Environmental Indicator assessment report for CA-725 (Refs. 1, 2 and 3). The Marisol, Inc. facility (the site) is located at 125 Factory Lane, in Middlesex, Middlesex County, New Jersey. This document contains updated and additional information as needed to supplement the understanding of site conditions conveyed in the CA-725 report, as required for the CA-750 determination.

Figures 3 and 4 of the RFI Phase 1 Workplan show the past and current layout of the site. Following use in the early 20th century as a railroad engine maintenance yard, the site was purchased and developed into its current configuration by Marisol, beginning in 1968. During the 1970s, the western portion of the site was leased to a hazardous waste trucking firm. Marisol's historical and current operations have focused primarily on solvent recycling and blending of fuels for use in cement kilns. Additional activities performed during recent years include sale of virgin solvents and the repackaging and recycling of lab pack wastes.

The property is situated in an industrially zoned area and the nearest residential properties are located approximately 400 feet to the north. The site is bounded to the north by the Conrail (Lehigh Valley) and New Jersey Transit railroad lines and industrial properties further north, to the east by Reagent Chemical (Reagent) and other industrial properties further east, to the south by Factory Lane, the Conrail (Port Reading) railroad line and commercial/industrial properties further south; and to the west by vacant land owned by Reagent.

Operations by past occupants of the current Reagent Chemical property east of Marisol resulted in widespread contamination of soil, groundwater, surface water and sediment with pesticide compounds, principally arsenic. This property and 30 surrounding properties impacted by the past pesticide production are referred to as the Factory Lane Site (FLS) – Main Site and Peripheral Properties, respectively. The FLS responsible party, Bayer AG, successor to Aventis CropScience and Rhone-Poulenc Inc. (hereinafter, "Bayer") and their consultants, URS Corporation (URS), S.S. Papadopulous & Associates, Inc. and Arcadis, has performed extensive environmental investigation and remediation at the FLS since the early 1980s (Ref's 4 through 10).

Bayer completed Interim Remedial Measures (IRMs) for intermittent and perennial surface water drainage ditches downgradient of the FLS Main Site and is currently constructing a final remedy for those ditches. The IRMs included excavating shallow arsenic contaminated sediment and soil from the ditches and emplacement of engineered ditch liners and rip-rap backfill. The final remedy now being constructed includes concrete liners in the ditches, with subdrains that capture perched groundwater that formerly discharged to the ditches. Approximately 90% of the final remedy ditch liner has been completed and water withdrawn from the subdrains is directed to an interim treatment system, pending construction of a water treatment plant (Ref. 7). The IRMs and final remedy components installed to date have stopped the discharge of perched groundwater to the ditches and therefore there is no risk posed to ecological receptors by shallow groundwater contamination in the area.

A major chemical plant and a landfill site, both owned by Dow Chemical (formerly Union Carbide Corporation), are situated south and southwest, respectively, of the site. These properties have undergone extensive environmental investigations, during which chemical contamination similar to that at the Marisol site (i.e., volatile organic compounds) was identified. Dow currently operates a series of wells

which extract contaminated groundwater from the bedrock aquifer. The groundwater is treated onsite prior to discharge to the Middlesex County Utilities Authority (MCUA) (Ref's 11 and 12).

Attachment C of the CA-725 submittal showed a conceptual model of geologic, hydrogeologic and contaminant transport conditions in the vicinity of the Marisol site. The site is underlain by unconsolidated overburden and gently dipping, interbedded siltstone, mudstone and shale of the Passaic Formation. The overburden consists of glacial outwash sediments (silty sand with traces of gravel and lenses of clay), localized areas of manmade fill and a zone of weathered, clay-rich material that separates the overburden from the underlying, unweathered bedrock. Overburden thickness ranges from six feet in the eastern part of the Marisol property to sixteen feet near the western property boundary (Ref. 13).

Hydrogeologic investigations (Refs. 4, 5 and 14) indicate that groundwater in the site vicinity occurs in two separate zones: shallow perched groundwater and bedrock groundwater. The perched groundwater zone occurs within the overburden unit, primarily in the outwash materials. The underlying weathered, clay-rich material is typically moist to dry and marks the lower boundary of the perched zone. The saturated thickness of the perched zone ranges from several feet in the eastern portion of the site to about eight feet near Marisol's western boundary. The water table in the perched zone occurs at depths between five and ten feet and perched groundwater flows in a westerly direction, toward the Raritan River.

Bedrock groundwater occurs in the underlying competent bedrock, beginning at depths of approximately twenty to thirty feet below grade. In this unit, groundwater flow takes place along bedding plane partings and vertically inclined fractures. Regionally, groundwater flow in the bedrock aquifer is in a westerly direction, toward the Raritan River. However, operation of industrial supply wells on the Marisol and Reagent Office properties has lowered water levels in the bedrock aquifer below surface water levels in the Raritan River and Green Brook. As a result, the natural flow system has been reversed downgradient of the Marisol site, and bedrock groundwater near the site flows in an easterly direction toward the Marisol well. When the rates of pumping have been highest, surface water has been shown to discharge from Green Brook and the Raritan River to the bedrock aquifer and be drawn under the influence of pumping toward the industrial supply wells. This condition was documented during monitoring performed for the FLS investigations in the 1990s and is the basis for the selected remedy for FLS-related bedrock groundwater contamination: continued pumping of Marisol's production well to maintain a capture zone (Refs. 4 and 5).

Based on a 1980 administrative consent order from NJDEP and the HSWA permit, Marisol is required to operate their production well at a pumping rate of at least 50,000 gallons per day, with treatment of the extracted groundwater via air-stripping prior to discharge to the sanitary sewer system. Reagent typically operates their production well Monday through Friday for 11 hours per day, at a flow rate of 65 gallons per minute, resulting in an average flow of about 30,000 gallons per day (Ref. 4). The combined pumping the Reagent and Marisol production wells results in capture of bedrock groundwater from areas onsite and from surrounding properties. To enhance capture and treatment of VOC-impacted bedrock groundwater, Marisol has increased pumping to near 100,000 gallons per day. Though the increased pumping has resulted in a greater degree of hydraulic containment, areas of VOC-impacted groundwater remain downgradient of the capture zone. In addition, recent sampling by the owner indicates that water withdrawn from the bedrock aquifer via the Reagent production well contains concentrations of several VOCs (Ref. 15).

As discussed below, neither of the latter conditions pose a risk to receptors (e.g., there are no unacceptable impacts to downgradient surface water). In addition, one or more offsite sources may contribute to the observed VOC impacts downgradient and at the Reagent well. Determination of the source or sources of these downgradient impacts is complicated due to the effects of the aforementioned pumping at offsite locations. Nonetheless, Marisol is developing plans for an aquifer pumping test that

will provide the basis for an application for a Water Allocation Permit from NJDEP. Such a permit is required to allow pumping at a rate greater than 100,000 gallons per day. When the permit (or alternate interim authorization to increase the pumping rate) is obtained, Marisol will modify the remedial pumping as needed to optimize capture of VOC-impacted groundwater from the bedrock aquifer.

Attachments A through C summarize groundwater sampling locations and results obtained from sampling conducted during April and May 2005. A piezometric surface contour map for the bedrock aquifer based on measurements made during April 2005 is presented as Attachment D. Photographs documenting current conditions at the ditches remediated by Bayer are included in Attachment E. Attachment F shows surface water sampling locations and results from sampling performed during September 2005.

2. Is **groundwater** known or reasonably suspected to be **"contaminated"** [1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

__**X**___ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

_____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Work performed during the RFI to date has provided an understanding of the nature and extent of groundwater contamination sufficient for the purposes of this assessment (see Attachments A, B and C). For the perched zone, groundwater grab samples were collected approximately 40 locations and groundwater monitoring wells were sampled at over 25 locations during two sampling events. The bedrock investigation has included sampling over 20 shallow and deep monitoring wells in the bedrock aquifer during two sampling events. The initial sampling events in each unit included analyses of a broad suite of contaminants (VOCs, SVOCs, selected metals); follow-up analyses during the second event targeted VOCs, which were the only Marisol related analytes detected in groundwater at concentrations above the New Jersey Class II-A Groundwater Quality Standards (GWQS).

Based on groundwater sampling during the RFI, groundwater in the perched and bedrock zones at the site exhibits VOC concentrations exceeding appropriately protective levels (i.e., GWQS). GWQS exceedances in the perched zone are generally limited to the area near the site and immediately downgradient (i.e., east of River Road). GWQS exceedances in the bedrock aquifer are evident throughout this same area and are also observed at locations further downgradient (i.e., west of River Road). However, the source of the bedrock aquifer VOC detections furthest downgradient of the site is presently unknown, and one or more offsite sources (e.g., Dow's River Road Landfill site) may be involved. For purposes of this EI assessment, however, it is assumed that the downgradient VOC detections in the bedrock aquifer are part of a continuous plume originating at the Marisol facility.

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 appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

__**X**__ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) – skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Natural and man-made features at the site function as migration barriers. As noted above, VOC impacts above GWQS extend only a short distance downgradient of the site. Because the plume is at least 25 years old, the limited downgradient extent indicates that significant natural attenuation mechanisms are at work. In addition, current pumping (during installation) and future operation of the ditch subdrain system discussed above and described in the CA-725 submittal and Bayer's reports (Ref's 3, 4, 5, 7 and 9) will prevent any addition migration that may occur in the future.

In the bedrock aquifer, pumping of the Marisol and Reagent production wells achieves a substantial degree of hydraulic containment of VOC impacted groundwater (Ref's 4 and 5). Based on water levels measured during the RFI, any VOC impacted bedrock groundwater not intercepted by these wells (or perched zone groundwater not intercepted by the ditch subdrains) would flow to and discharge into either the Raritan River or Green Brook (Attachments E and F of Reference 16).

Groundwater withdrawn at the Marisol production well is treated via air-stripping prior to permitted discharge to MCUA, the local publicly owned treatment works. Water pumped from the bedrock aquifer at the Reagent well is used for non-contact cooling water. After use, the water is discharged to Green Brook pursuant to a New Jersey Pollutant Discharge Elimination System (NJPDES) permit (Ref. 17). NJDEP and Reagent are currently reviewing the need to modify the NJPDES permit to address the groundwater quality (Ref. 15). As discussed in the response to Question #5, based on the surface water sampling performed by Marisol during September 2005, which included sampling at a location 42 feet downstream of Reagent's NJPDES outfall, the discharge does not significantly impact surface water quality in Green Brook.

[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.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

__**X**__ If yes - continue after identifying potentially affected surface water bodies.

_____ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

As noted in the response to Question #3, perched groundwater is controlled by the ditch subdrain system Bayer is installing. Therefore, periodic discharge of VOC impacted perched groundwater to the ditches has been terminated and is not expected to occur in the future. VOC impacts significantly above GWQS are limited in the perched zone to areas encompassed by the ditch subdrain system, so VOC impacted perched groundwater is not expected to discharge to the Raritan River or Green Brook, which are located further downgradient (Attachments A through C).

In the bedrock aquifer, individual VOCs have been detected at concentrations above GWQS at the furthest downgradient well cluster (R-18S/R-18D), which is located approximately 120 feet from the Raritan River. At this location (Attachments B and C), nine VOCs were detected at concentrations above GWQS (Attachment A). Therefore, for purposes of this assessment, Marisol assumes that VOC impacts above GWQS do extend to the Raritan River.

As noted in the response to Question #3, Reagent withdraws bedrock groundwater from their production well for use as non-contact cooling water. After use, the water is discharged to Green Brook pursuant to a NJPDES permit. As discussed further in the response to Question #5, recent sampling identified VOC concentrations in the raw production well water and in the water discharged to the Brook.

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

__**X**__ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

Based on the laboratory analysis, the concentrations of VOCs in water discharged to Green Brook at the Reagent NJPDES outfall are as follows:

Detected Compound	Detected Concentration (ug/L)	New Jersey Class II-A Ground Water Quality Standard (ug/L)
Vinyl Chloride	5.6	5
Chloroethane	0.9	NA
1,1 Dichloroethene	1.8	2
1,1 Dichloroethane	16	50
Chloroform	1.8	6
1,1,1 Trichloroethane	0.4	30
Bromodichloromethane	0.7	1
Trichloroethene	0.5	1
Benzene	6.0	1
Chlorobenzene	4.0	50
Ethylbenzene	0.7	700
Cis-1,2 Dichloroethene	5.4	70
1,2 Dichlorobenzene	1.8	1.8

All of these concentrations are less than 10 times their respective "appropriate levels" (i.e., GWQS). As noted below, surface water sampling additionally shows that the discharge causes no impact to the Brook at a nearby location, 42 feet downstream of the outfall. Therefore, Reagent's NJPDES discharge to Green Brook is considered insignificant under this assessment.

Currently, there are no bedrock monitoring wells close to the Raritan River and Green Brook. Any bedrock groundwater not captured by the Marisol well and flowing in a westerly direction toward Green Brook would be intercepted by the Reagent production well, which is open to the full thickness of the VOC impacted portion of the bedrock aquifer (Ref. 16).

Bedrock groundwater not captured by the Marisol well and flowing along a more southwesterly course would fall outside the capture zone of the Reagent well, and would flow toward the Raritan River. Based on groundwater elevations, bedrock groundwater in the vicinity of the R-18 well cluster flows toward the River under current pumping conditions. Located 120 feet upgradient of the River, the R-18 wells are the bedrock monitoring wells closest to the River. Nine VOCs exceed GWQS at the R-18 wells. Five of the detected VOCs exceed GWQS by a factor of less than 10 and therefore pose no significant risk to surface water 120 feet further downgradient. The remaining four detected VOCs and their respective GWQS exceedance factors are as follows: 1,1 dichloroethene (1,1 DCE) (43 times GWQS); 1,2 dichloroethane (1,2 DCA) (125 times GWQS); trichloroethene (TCE) (120 times GWQS); and tetrachloroethene (PCE) (330 times GWQS).

Based on conditions at the site and the nature of these four VOCs, substantial reduction in concentrations along the 120 foot flow path to the River from the R-18 cluster is expected to occur. The RFI Phase 1 documented conditions favorable to and indicative of natural attenuation of chlorinated VOCs in the perched zone (e.g., reducing conditions, presence of degradation daughter products) (Ref. 3, 13). In addition, the VOCs detected at highest concentrations relative to their GWQS (e.g., PCE and TCE) are the least mobile in the groundwater environment and would be expected to attenuate significantly along the flowpath to the River. Based on this information, it is unlikely that any of the VOCs detected at the R-18 well cluster reach the River at a concentration greater than 10 times their respective GWQS. Therefore, the discharge of VOC contaminated groundwater into surface water of the Raritan River is likely to be insignificant.

Additionally, direct measurement of surface water VOC concentrations indicates no impact attributable to discharge of contaminated groundwater, either directly from the aquifer or indirectly via Reagent's NJPDES discharge. Attachment F shows locations and analytical results of surface water sampling performed by Marisol during September 2005, pursuant to the RFI Phase 2 Workplan (Ref. 2). Samples were collected from the six-inch interval of the water column immediately above the streambed, to assess the maximum impact discharging groundwater might have on surface water quality. Aside from a single trace-level benzene detection (0.4 ug/L) at an upstream location (SW-2), the only constituents detected in the surface water samples were the low concentrations of trihalomethane compounds (THMs) chloroform, bromodichloromethane and dibromochloromethane and the gasoline oxygenate compound, methyl tertiary butyl ether (MTBE).

THMs were detected only in Raritan River samples, with highest concentrations at locations SW-1 and SW-2, upstream of where VOC impacted water from the site would discharge to the River. MTBE was detected in each of the Green Brook samples and in the two Raritan River samples collected downstream of the Green Brook confluence. The highest concentrations of MTBE were detected in Green Brook, upstream of where VOC impacted groundwater from the site would discharge. These results indicate minor surface water contamination resulting from sources other than discharging groundwater. The THMs may be associated with discharge of chlorinated effluent at a wastewater treatment plant at an upstream location along the Raritan River. The MTBE detections may be due to urban runoff or other releases associated with gasoline.

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

(SKIPPED TO #7)

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

(SKIPPED TO #7)

[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

__**X**__ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

Regular groundwater monitoring will be performed for the perched zone and bedrock aquifers under the RCRA Corrective Action program implemented by Marisol pursuant to the HSWA Permit. The corrective action program is on-going and as it progresses to development of a site-wide final remedy, a review of groundwater analytical results, in combination with additional surface water sampling (as necessary) will enable verification that migration does not take place beyond the boundaries discussed in this assessment. In addition, as described under the Facility Information heading in the response to Question #1, Marisol plans to obtain a Water Allocation Permit through NJDEP. This will allow Marisol to increase the rate of pumping from the bedrock aquifer to above 100,000 gallons per day, and to thereby optimize capture of VOC impacted groundwater from the aquifer. Therefore, steps are being taken which should result in a reduction in the size of the area of VOC impacted groundwater in the bedrock aquifer.

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

__**X**__ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the facility, EPA ID # NJD002454544, located at 125 Factory Lane, Middlesex, Middlesex County, New Jersey. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

_____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

_____ IN - More information is needed to make a determination.

References:

1. RCRA Facility Investigation Phase 1 Workplan for the Marisol, Inc. Facility. Prepared by Princeton Geoscience, Inc. November 1, 2002.

2. RCRA Facility Investigation Phase 2 Workplan for the Marisol, Inc. Facility. Prepared by Princeton Geoscience, Inc. March 24, 2005.

3. Report Documenting "YE" Status for Environmental Indicator CA-725 (Human Exposures Under Control) at the Marisol, Inc. Facility. Prepared by Princeton Geoscience, Inc. September 2004.

4. Remedial Action Workplan – Factory Lane Site. Prepared by S.S. Papadopulous & Associates, Inc. August 1995.

5. Remedial Action Workplan – Factory Lane Site. Prepared by S.S. Papadopulous & Associates, Inc. December 1997.

6. Factory Lane Site Status Update – Presented to NJDEP Site Remediation Program. Prepared by URS Corporation. October 28, 2003

7. Remedial Design Proposal, Perched Groundwater Contamination – Supplement to Remedial Action Workplan - Factory Lane Site. Prepared by S.S. Papadopulous & Associates, Inc. August 5, 1999

8. Groundwater Treatment Pilot Study – Factory Lane Site. Prepared by S.S. Papadopulous & Associates, Inc. June 26, 2002

9. Remedial Design Proposal Addendum No. 2, Perched Groundwater Contamination – Factory Lane Site. Prepared by Arcadis. September 19, 2003.

10. 2003 Annual Progress Report (Progress Report No. 71) – Factory Lane Site. Prepared by URS Corporation. January 30, 2004.

11. Remedial Investigation – River Road Landfill Site – Union Carbide. Prepared by Environmental Resources Management, Inc. October 25, 1991.

12. Phase II Remedial Investigation – Polyolefins Plant – Union Carbide. Prepared by Environmental Resources Management, Inc. November 15, 1991.

13. Progress Report #2 – Fourth Quarter 2002 – Marisol, Inc. RCRA Corrective Action. Prepared by Princeton Geoscience, Inc. January 15, 2003.

14. Progress Report #1 – Third Quarter 2002 – Marisol, Inc. RCRA Corrective Action. Prepared by Princeton Geoscience, Inc. October 15, 2002.

15. USEPA. Personal Communication. September 2005.

16. Progress Report #12 – Second Quarter 2005 – Marisol, Inc. RCRA Corrective Action. Prepared by Princeton Geoscience, Inc. July 15, 2005.

17. Review of NJDEP NJPDES Project File for the Reagent Chemical and Research, Inc. facility.

Attachments:

A. Table Showing 2005 Groundwater Sampling Results Compared to New Jersey Class II-A Groundwater Quality Standards

B. Map Showing Total Benzene, Toluene, Ethylbenzene and Xylenes Concentrations Detected in Groundwater

C. Map Showing Total Chlorinated Volatile Organic Compound Concentrations Detected in Groundwater

D. Piezometric Surface Elevation Contour Map for the Bedrock Aquifer

E. Photographs Documenting Current Conditions in the Site Vicinity

F. Map Showing Results of September 2005 Surface Water Sampling in the Raritan River and Green Brook

Completed by: James L. Peterson
Environmental Consultant
Princeton Geoscience, Inc.

Reviewed by:

_____ Date: _____
Clifford Ng, RPM
RCRA Programs Branch
EPA Region 2

_____ Date: _____
Barry Tornick, Section Chief
RCRA Programs Branch
EPA Region 2

Approved by: Original signed by: Date: September 29, 2005
Adolph Everett, Acting Chief
RCRA Programs Branch
EPA Region 2

Locations where references may be found:

References reviewed to prepare this EI determination are cited within the text of each response and listed by number after the response to Question 8. Referenced materials are available for review at two separate locations. For access to documents in USEPA files pertaining to the Marisol, Inc. facility (including document Reference Nos. 1, 2, 3, 13, 14 and 15), please contact the USEPA Region 2, RCRA Records Center, located at 290 Broadway, 15th Floor, New York, New York.

Other referenced documents, which pertain to investigation and remediation of the surrounding Factory Lane Site (a.k.a., "Chipman Chemical") by Bayer AG (successor to Aventis CropScience and Rhone-Poulenc Inc.) and to the nearby Dow (formerly Union Carbide) properties, are available for review at the New Jersey Department of Environmental Protection Office located at 401 East State Street, Records Center, 6th Floor, Trenton, New Jersey.

Contact telephone and e-mail numbers:

Clifford Ng, EPA RPM
(212) 637-4113
ng.clifford@epamail.epa.gov