

**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**  
Interim Final 2/5/99  
**RCRA Corrective Action**  
**Environmental Indicator (EI) RCRIS code (CA750)**

**Migration of Contaminated Groundwater Under Control**

**Facility Name:** [DuPont Martinsville](#)  
**Facility Address:** [1000 DuPont Road, Martinsville, VA, 24112](#)  
**Facility EPA ID #:** [VAD 00 311 4865](#)

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?

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 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).

**Migration of Contaminated Groundwater Under Control**

**Environmental Indicator (EI) RCRIS code (CA750)**

Page 2

2. Is **groundwater** known or reasonably suspected to be “**contaminated**”<sup>1</sup> 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):** *As a conservative measure, drinking water standards were used to define groundwater “contamination” consistent with the Martinsville EI 725 determination (DuPont, 2003). However, groundwater is not used for drinking water on site. Based on the use of these criteria, groundwater in the vicinity of the following units was identified as contaminated, Unit I (VOCs especially carbon tetrachloride, metals, nitrate), Unit D (metals and chlorinated VOCs), Unit G and H (VOCs, pesticides, metals), Area of Concern (AOC) DuPont Precision Concepts (DPC) (chlorinated VOCs), and AOC Fire Training Area (FTA) (total lead).*

*Of the constituents detected, chlorinated VOCs are present as groundwater plumes. Other constituents are detected sporadically and do not constitute a definable “plume”. The chlorinated VOC plumes are present in the vicinity of Unit I, AOC DPC, and Unit G and H. The primary constituents are carbon tetrachloride, tetrachloroethene, trichloroethene, and degradation products of these constituents (chloroform, methylene chloride, dichloroethenes and vinyl chloride).*

*DuPont 2003: Environmental Indicator Determination Report Current Human Exposures Under Control (CA 725) DuPont Martinsville Site.*

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

**Migration of Contaminated Groundwater Under Control  
Environmental Indicator (EI) RCRIS code (CA750)**

Page 3

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within “existing area of contaminated groundwater”<sup>2</sup> 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”<sup>2</sup>).

       If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”<sup>2</sup>) - 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):**

*As noted in the July 2003 EI 725 Report (DuPont 2003) and the Addendum to Environmental Indicator Determination Report (CA 725) dated September 2004 (DuPont 2004), there are two main VOC plumes. The two main plumes are associated with Unit I and the AOC DPC. Both plumes discharge to the Smith River. Chlorinated VOCs in groundwater also are found associated with Unit H. The groundwater in this area typically has low VOC concentrations and discharge primarily to onsite springs. . Groundwater and surface water are monitored routinely. The age of the plumes and data collected since the 1993 Verification Investigation and 1997-99 RFI have shown that the plumes have not increased in size nor have concentrations shown any upward trends. Supporting data on stability of the main plumes are provided as follows.*

*Unit I: The Unit I plume discharges to the site Intake Canal, which subsequently flows to the Smith River. Several wells monitor the Unit I groundwater plume (see Figure 2.1 of the EI 725 Addendum). Well MWI-15 is located along the centerline of the plume near the edge of the Intake Canal. MWI-15 is installed in the alluvium (less than 100 feet from the Intake Canal), and has the highest concentrations of Unit I plume constituents. The primary constituent in the groundwater is carbon tetrachloride. Results of the groundwater monitoring show that although concentrations fluctuate, levels in this well have decreased dramatically since the source area was treated with Zero Valent Iron (ZVI) in November 2002. Carbon tetrachloride concentrations measured in MWI-15 over time are summarized below.*

Recent Monitoring Results from MWI-15

	Carbon Tetrachloride
8/25/1998	73000
10/29/1998	62000
5/10/2000	78000
6/13/2001	66000
6/14/2002	55000
10/30/2003	17000
4/6/2004	15000

The AOC DPC plume discharges to the Smith River just south of the DPC parking lot. Several wells monitor the AOC DPC groundwater plume (see Figure 2.1 of the EI 725 Addendum). Well PCM-17 is located along the plume centerline that is nearest to the Smith River. This well is installed in alluvium and is located at the south edge of the parking lot. The primary (and highest detected) constituent is trichloroethene. Results of the groundwater monitoring show a downward trend from 1999 to the present.

Recent Monitoring Results from PCM-17

	Trichloroethene
12/9/1999	6400.
5/11/2000	5400.
6/12/2001	4600.
6/10/2002	4600.
4/8/2004	2900

Further, the results of quarterly surface water sampling, which has been in place since 1998 support the premise that the onsite plumes are stable. Chlorinated VOCs have only been detected infrequently in the main river channel and have not been detected in any consistent manner. As discussed later, the levels detected in the surface water are typically low and none of the detections (except in the Intake Canal immediately adjacent to Unit I) have been above applicable Virginia Water Quality Standards (VWQS, 2004).

The groundwater and surface water monitoring programs will continue to be used to evaluate changes to current conditions as well as to confirm plume stability.

Finally, nine offsite wells were installed across the Smith River in May 2004.

DuPont Environmental Remediation Services, 1994, DuPont Martinsville Plant Verification Report.

DuPont, 2000, RFI Update Report, DuPont Martinsville Site.

DuPont, 2003: Environmental Indicator Determination Report Current Human Exposures Under Control (CA 725) DuPont Martinsville Site.

DuPont, 2004: Addendum to Environmental Indicator Determination Report Current Human Exposures Under Control (CA 725) DuPont Martinsville Site.

Virginia Water Quality Standards (2004): State Water Control Board 9 VAC 25-260. Effective February 12 2004.

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Footnotes:

<sup>2</sup> “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.

**Migration of Contaminated Groundwater Under Control  
Environmental Indicator (EI) RCRIS code (CA750)**

Page 4

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 previously noted, there are two main VOC plumes that discharge to the Smith River. The Unit I plume discharges to the site Intake Canal and subsequently to the Smith River). The AOC DPC plume discharges to the Smith River just south of the DPC parking lot. Both groundwater and surface water are sampled to monitor these two plumes.*

*A portion of the Unit H VOC plume extends beneath the Unit G landfill and then presumably discharges to the Smith River. Another portion of the Unit H plume (near H1 and H2) discharges to the surface at Spring 2. Water from this spring eventually discharges to the Smith River. Groundwater is monitored in wells around Unit G and H, although some of the wells are often “dry”. Surface water is also monitored at Spring 2 and in the surface water of Smith River near where the Unit G/H plume discharges.*

*A surface water monitoring program has been in place since 1998. Quarterly, surface water samples are collected at eight locations adjacent to the Site, including locations, which are upstream and downstream of the Site (see Figure 2.1 of the EI 725 Addendum). The samples are analyzed for chlorinated VOCs as well as metals that might be associated with groundwater discharge. The results indicate that only at location SW-08, which is an industrial intake canal that directly receives groundwater discharge from Unit I, are some constituents (specifically carbon tetrachloride) regularly detected. The source of the carbon tetrachloride is likely Unit I. As indicated earlier, the recent Zero Valent Iron (ZVI) treatment at Unit I has reduced VOC concentrations in groundwater at Unit I significantly. It is expected that subsequently concentrations in the intake canal will continue to fall. Some evidence of this reduction is provided subsequently.*

*With the exception of carbon tetrachloride, none of these constituents have exceeded VWQS in the Smith River over the last year.*

**Migration of Contaminated Groundwater Under Control  
Environmental Indicator (EI) RCRIS code (CA750)**

Page 5

5. Is the **discharge** of “contaminated” groundwater into surface water likely to be “**insignificant**” (i.e., the maximum concentration<sup>3</sup> 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)?

\_\_\_\_\_ 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<sup>3</sup> 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.

  X   If no - (the discharge of “contaminated” groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration<sup>3</sup> 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<sup>3</sup> 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):**

*As noted in the Martinsville EI Determination Report for CA 725, the Smith River is not used as a drinking water source in the Martinsville area. The nearest public intake from the Smith River is approximately 15 miles downstream in Eden, North Carolina. Water from the DuPont site would travel over and through a dam less than a mile downstream before making it way south. In addition, the Smith River is 303d listed for fecal coliform downstream of the Martinsville Dam and upstream of "Turkey Pen Branch" (see Appendix C from the 725 report). Hence, the screening criteria used for determining significance of the groundwater discharge are the Virginia Water Quality Standards (VWQS) for protection of human health assuming no use as a public water supply. Also, these criteria are expected to be protective of ecological receptors.*

*A discussion of groundwater results follows. However, it is important to note that surface water at eight locations is monitored for chlorinated VOCs and metals (arsenic and lead). With the exception of carbon tetrachloride, none of these constituents have exceeded VWQS over the last year. Recent surface water data (September 2003 through July 2004) are summarized in Appendix A in this document. Historical surface water results were presented in the Environmental Indicator Determination Report (CA-725) that was submitted to EPA in July 2003.*

**Unit I:**

*The Unit I plume discharges to the site Intake Canal. Several monitoring wells monitor the Unit I groundwater plume (see Figure 2.1 in the EI 725 Addendum). Well MWI-15 is along the centerline of the plume near the edge of the Intake Canal. MWI-15 is installed in the alluvium, and has the highest concentrations of Unit I plume constituents near the Smith River.*

*Current groundwater results from MWI-15 show detections of carbon tetrachloride, chloroform, methylene chloride, tetrachloroethene, and trichloroethene. The tetrachloroethene and trichloroethene detections are significantly less than the carbon tetrachloride, chloroform, and methylene chloride and do not exceed ten*

times the Virginia WQS. Discharge of these constituents is not considered significant. Similarly, the discharge of both chloroform and methylene chloride are not considered significant since they are less than 10 times the surface water screening standards. Further, none of these constituents have been measured in surface water above their respective water quality standards.

The carbon tetrachloride concentration in groundwater from MWI-15 is currently greater than 100 times the criteria and is, therefore, considered potentially "significant" based on the definition supplied in EPA's EI guidance worksheet.

*Recent Monitoring Results from MWI-15*

	Carbon Tetrachloride	Chloroform	Methylene Chloride (dichloromethane)
Virginia WQS (human health, all uses except public water supply)	44 ug/L	29,000 ug/L	16,000 ug/L
10/30/2003	17000	2000	270
4/6/2004	15000	2700	240

The discharge of carbon tetrachloride will be carried forward into Step 6 where measured concentrations in surface water will be used to determine acceptability of the current discharge.

AOC DPC:

The AOC DPC plume discharges to the Smith River just south of the DPC parking lot. Several monitoring wells monitor the AOC DPC groundwater plume (see Figure 2.1 of the EI 725 Addendum). Well PCM-17 is located along the plume centerline that is nearest to the Smith River. This well is installed in alluvium and is at the south edge of the parking lot.

The primary (and highest detected) constituent detected in groundwater in PCM-17 is trichloroethene. However, tetrachloroethene and carbon tetrachloride also have been detected. Chloroform and cis-1,2 dichloroethene also have been detected but at much lower concentrations. Groundwater results from PCM-17 have not exceeded ten times the applicable Virginia Water Quality Standard for any of these constituents. Therefore, the VOC concentrations in groundwater from the AOC DPC plume are considered "insignificant" and the AOC DPC plume is not carried forward into Step 6.

*Recent Monitoring Results from PCM-17*

	Trichloroethene	Tetrachloroethene	Carbon Tetrachloride
Virginia WQS (human health, all uses except public water supply)	810 ug/L	89 ug/L	44 ug/L
6/10/2002	4600.	270	64
4/8/2004	2900	410	51

As further support of this conclusion, none of these constituents have detected in surface water during recent sampling (and well over the last 4 quarters) adjacent to the plume or downstream.

Unit G/H:

As noted above, the Unit H VOC plume discharges to two locations, Spring 2 and the Smith River after passing beneath Unit G. Spring 2 is the source of a creek south of and downhill from Unit H2. It is effectively groundwater because no dilution by surface water occurs at the spring origin. Wells MW-02, MW-06, and MW-07 are the downgradient wells for Unit G. Of these three, MW-02 has historically had the highest trichloroethene concentrations while MW-07 has had the highest cis-1,2 dichloroethene, and trichlorofluoromethane. Tetrachloroethene has been detected only at "J-value" concentrations at this part of the plume. None of these constituents however are ten times higher than their respective criteria. Shown below are the maximum detected concentrations for the VOCs in the April 2004 sampling event. Also shown are the maximum detected VOCs concentrations for any VOC detected in Spring 2. Because the VOC concentrations in groundwater from the Unit G/H plume are currently "insignificant", the Unit G/H plume is not carried forward into Step 6.

*Maximum Concentrations Detected for VOCs from MW-02, MW-06 or MW-07 – April 2004*

Constituent	Virginia WQS	Concentration	Well	Sample Date
Trichlorofluoromethane	Unavailable*	510 ug/l	MW-07	4/10/2004
Vinyl Chloride	61 ug/l	5 ug/l	MW-07	4/10/2004
cis-1,2 dichloroethene	Unavailable (trans-1,2 DCE WQS is 140,000 ug/L)	15 ug/l	MW-02	4/10/2004
Trichloroethene	810 ug/L	9 ug/l	MW-02	4/10/2004
Tetrachloroethene	89 ug/L	2 J ug/l	MW-06	4/10/2004

\* This constituent exhibits low toxicity. The federal drinking water equivalent is set at 10 mg/L (USEPA, 2004 Edition of the Drinking Water Standards and Health Advisories EPA 822-R-04-005, Office of Water U.S. Environmental Protection Agency, Washington, DC, Winter 2004)

*Maximum Concentrations Detected for VOCs from Spring 2 - May 2000 to April 2004*

Constituent	Virginia WQS	Concentration	Sample Date
cis-1,2 dichloroethene	Unavailable (trans-1,2 DCE WQS is 140,000 ug/L)	7 ug/L	4/9/2004
Carbon Tetrachloride	44 ug/L	3. J ug/L	5/9/2000
Chloroform	29,000 ug/L	2 J ug/L	4/9/2004
Tetrachloroethene	89 ug/L	5 ug/L	4/9/2004
Trichloroethene	810 ug/L	3 J ug/L	4/9/2004

Footnotes:

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



**Migration of Contaminated Groundwater Under Control  
Environmental Indicator (EI) RCRIS code (CA750)**

Page 6

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<sup>4</sup>)?

  X   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,<sup>5</sup> 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):**

Surface water sampling has been conducted in the Smith River since June 1998. Locations of the surface water sampling locations are shown in the EI 725 Report on Figure 2-5 (Monitoring Well Location Map) and Figure 2.1 of the EI 725 Addendum. SW-08 is located at the end of the Intake Canal and is collected from a catwalk that is just above the water in front of the river water pump house intake. The Unit I groundwater plume discharges into this Intake Canal, thus SW-08 is the most appropriate location to assess the immediate influence of the plume. SW-04 and SW-05 are at the river entrance to the Intake Canal, on the upstream and downstream side respectively. SW-06 is downstream of the Intake Canal, monitoring the discharge area of the AOC DPC plume (which is primarily tetrachloroethene and trichloroethene). SW-07 is at the downstream edge of the Site.

From the onsite groundwater well data, carbon tetrachloride is the only constituent that potentially has a “significant” effect in the Smith River. The following table displays carbon tetrachloride results from 2002 to 2004 for the above-mentioned surface water sampling locations.

*Carbon Tetrachloride Results for SW-04 through SW-08*

	<i>SW-08 (ug/L)</i>	<i>SW-04 (ug/L)</i>	<i>SW-05 (ug/L)</i>	<i>SW-06 (ug/L)</i>	<i>SW-07 (ug/L)</i>
<i>2/20/2002</i>	<b>76.</b>	<i>31.</i>	<i>31.</i>	<i>&lt;1.</i>	<i>1. J</i>
<i>6/15/2002</i>	<b>290.</b>	<b>140.</b>	<b>52.</b>	<i>&lt;1.</i>	<i>&lt;1.</i>
<i>9/13/2002</i>	<b>120.</b>	<b>60.</b>	<i>10.</i>	<i>&lt;1.</i>	<i>&lt;1.</i>
<i>12/15/2002</i>	<b>100.</b>	<i>&lt;1.</i>	<i>12.</i>	<i>&lt;1.</i>	<i>&lt;1.</i>
<i>3/19/2003</i>	<b>100.</b>	<i>&lt;1.</i>	<i>37.</i>	<i>&lt;1.</i>	<i>&lt;1.</i>
<i>9/3/2003</i>	<i>38</i>	<b>45</b>	<i>7</i>	<b>1 J</b>	<i>&lt;1</i>
<i>10/28/2003</i>	<i>29</i>	<i>17</i>	<i>2 J</i>	<i>&lt;1.</i>	<i>&lt;1</i>
<i>1/13/2004</i>	<b>48</b>	<i>&lt;1</i>	<i>2 J</i>	<i>&lt;1.</i>	<i>&lt;1</i>
<i>4/11/2004</i>	<b>80</b>	<i>&lt;1</i>	<i>&lt;1</i>	<i>&lt;1.</i>	<i>&lt;1</i>
<i>7/28/2004</i>	<i>32</i>	<i>21</i>	<i>4 J</i>	<i>&lt;1</i>	<i>&lt;1</i>

**Results exceed the Virginia Water Quality Standard for carbon tetrachloride of 44 ug/L.**

*As can be seen from these results, carbon tetrachloride is detected at location SW-08, which is immediately adjacent to Unit I. While exceedances of the surface water standards occur at this location, the concentrations in the surface water are typically 2 orders of magnitude lower than the groundwater concentration on the closest well (MWI-15). While the concentrations fluctuate, there is a general downward trend since the Unit I source area was treated with ZVI. Over the last year, three of the last five sampling events (including the most recent) do not show an exceedence.*

*Locations SW-04 and SW-05, which are at the entrance of the Intake Canal and Smith River, also show detections of carbon tetrachloride, however, concentrations are typically less than half that at SW-08. Over the last year (five sampling events), there has only been one marginal excellence of the WQS at location SW-04 (that being for the earliest sampling event and none at SW-05). In general, concentrations at these locations appear to be declining as well.*

*At locations SW-06 and SW-07, which are in the main river channel down stream of Unit I and the Intake Canal, detections of carbon tetrachloride are rare, with only one possible detection at SW-06 over the last year (that being for the earliest sampling event) and none at SW-07. In general, concentrations at these locations appear to be unaffected by the carbon tetrachloride plume.*

*Based on the above evidence, the current discharge of the carbon tetrachloride plume is acceptable for EI purposes. The treatment of the Unit I source area is expected to continue to reduce constituent concentrations in groundwater discharging to the Intake Canal (and ultimately to the Smith River). The current on-site and off-site groundwater monitoring programs as well as the surface water monitoring program will continue to evaluate changes to current conditions.*

Footnotes:

<sup>4</sup> 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.

<sup>5</sup> 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.

**Migration of Contaminated Groundwater Under Control  
Environmental Indicator (EI) RCRIS code (CA750)**

Page 7

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

*DuPont has been following the Monitoring Program dated May 18, 2001, and will continue to do so. In addition, the nine (9) newly installed off-site wells will be added to the sampling program.*

**Migration of Contaminated Groundwater Under Control  
Environmental Indicator (EI) RCRIS code (CA750)**

Page 8

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).

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 [DuPont Martinsville Site , EPA ID # VAD 00 311 4865, located at 1000 DuPont Road, Martinsville VA, 24112](#). 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.

Completed by (signature) /s/ Date 9/28/04  
(print)  
(title)

Supervisor (signature) /s/ Date 9/28/04  
(print)  
(title)  
(EPA Region or State)

Locations where References may be found:

DuPont Charlotte  
6324 Fairview Road  
Charlotte, NC 28210

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