

**ENVIRONMENTAL INDICATOR (EI) RCRIS CODE (CA725)**

**Current Human Exposures Under Control**

Facility Name: Evanite Fiber Corporation  
Facility Address: 1115 SE Crystal Lake Drive  
Facility EPA ID #: ORD 009 023 466

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 not available skip to #6 and enter "IN" (more information needed) status code.

In August 1985, construction of a ditch near the Evanite Submicro building found TCE contamination coming from the Submicro operations. EPA and DEQ designated this spill area as a F002 hazardous waste landfill. Approximately 900 tons of contaminated soil were removed. The removed soil was replaced with gravel and the area capped with a 6-inch thick concrete cap. DEQ accepted the closure certification on July 21, 1987.

The Oregon DEQ Cleanup Program is currently involved with corrective action at Evanite Fiber Corporation. The Cleanup Program issued Order on Consent No. WMCSR-WR-00-19 signed by DEQ on April 10, 2001 requiring corrective action activities. Soon thereafter, DEQ issued a post-closure permit renewal effective April 30, 2001, that incorporates the Order into the permit and therefore can be enforced by the permit.

The national RCRAInfo database lists on August 14, 2000, an Incomplete CA725 and an Incomplete CA 750. Since then, DEQ issued the Order and the post-closure permit was renewed from the original permit issuance of April 1990. More importantly, corrective action activities were initiated and continued up to this current date which warrants an updated CA 725 and CA 750.

Evanite issued two documents which are good summaries of the corrective action performed and the risks posed. The first document is Focused Feasibility Study dated May 30, 2007 and is posted on the DEQ ECSI site at <http://www.deq.state.or.us/Webdocs/Controls/Output/PdfHandler.ashx?p=aed44d31-2b11-4b19-8a4d-56aaec7b5c81.pdf>. More recently, Evanite issued Draft Evanite Remedial Performance Report, dated August 2012. In discussions with the DEQ Cleanup project manager, these are documents whose data and analysis are adequate for filling out the EI forms.

**BACKGROUND**

**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

**Definition of "Current Human Exposures Under Control" EI**

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of

appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

#### **Relationship of EI to Final Remedies**

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

#### **Duration / Applicability of EI Determinations**

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

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2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be "contaminated" 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)?

**"Contaminated" Media**      **Yes**      **No**      **?**      **Rationale / Key Contaminants**

Groundwater	✓			TCE and breakdown constituents. From the Draft Remedial Performance Report: 20-plus years of groundwater extraction, vapor extraction and treatment, source removal and environmental monitoring has controlled the contamination from human exposure.
Air (indoors)	✓			"
Soil (surface, e.g., <2 ft)	✓			"
Surface Water	✓			"
Sediment	✓			"
Soil (subsurface e.g., >2 ft)	✓			"
Air (outdoors)	✓			"

- If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.
- If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.
- If unknown (for any media) - skip to #6 and enter "IN" status code.

**Rationale and Reference(s):**

The following rationales come mostly from the Draft Evanite Remedial Performance Report dated August 2012. This report is currently under review by the DEQ Cleanup Program. However, the DEQ Cleanup project manager stated in a personal communication that the summaries in the report and the stated risk-based concentrations (RBCs) are justified. The RBCs used are those derived from DEQ guidance.

Corrective action at the Evanite facility is due to unintentional TCE releases that were discovered by a work crew. Since then, Evanite began and continues to operate a monitoring and a corrective action treatment program to address the release. TCE, a dense non-aqueous phase liquid (DNAPL), migrated through the soil and ultimately to groundwater.

For Groundwater:

For the facility and the immediate area with residences, all water is provided by the City of Corvallis and therefore no human exposure to ingestion. The TCE groundwater plume direction is towards the nearby Willamette and Marys Rivers, however the Draft Report states that groundwater discharge to the rivers is a completed pathway but qualifies it as follows:

"Potentiometric surface elevations and groundwater analytical data at the site indicate the Evanite TCE plume is substantially captured by the hydraulic containment system, as wells MW-6, MW-13, MW-15, and corresponding down gradient pore water samples were either non-detect or contained very low VOC concentrations. Trace concentrations of cis-1,2-dichloroethene and vinyl chloride detected at these locations likely indicate remnant dissolved phase VOC in the aquifer matrix or minimal plume discharge due to heterogeneity in the aquifer system. Anaerobic degradation is active and the breakdown products are orders of magnitude below applicable screening levels."

Based on direction from DEQ, the TCE RBC being used comes from the Oak Ridge National Laboratory Tier II SVC of .47 ug/L.

For Indoor Air:

The Draft Report states:

"As indicated on Table 13 by the air samples listed under the category of Downgradient Buildings (Figure 2), none of the indoor air samples from buildings adjacent to the Submicro Source Area (the building that originated the release of TCE and adjacent to the landfill/TCE spill/Source Area) and overlying the TCE groundwater plume contained TCE at concentrations exceeding the occupational RBC."

For occupational exposure to indoor air, the TCE RBC is 3.0 ug/m<sup>3</sup>.

In addition to the above air samples there was additional sampling at the Submicro building located next to the landfill/Source Area. Many samples exceeded the screening RBC but the report states that the concentrations were still 4,000 times less than the OSHA TWA worker standard. The Submicro Building is currently used as a warehouse with an average of 10 hours per week worker occupancy (Anita Ragan, personal communication August 2012).

It is concluded that human exposure to indoor air is controlled.

For Surface Soil:

The surface soil impacted by the spill is the area adjacent to the Submicro Building. In this area, 40 truckloads of soil (approximately 900 tons) were removed, replaced with gravel, and capped with a 6-inch thick concrete cover. The area around the landfill/Source Area is likewise paved with concrete or other industrial materials. Therefore, exposure to contaminated surface soil is controlled.

The Draft Report states that the occupational RBC for TCE is 46 mg/kg (ppm). The DEQ ECSI online database states that TCE soil contamination has been reported from 1,000 to 10,000 ppm. Since emplacement of the 6-inch concrete cap, there is not recent soil data. Even with historical and recent TCE removal from the substrate, it can be presumed that TCE levels in soil are above 46 ppm.

For Surface Water:

At the Evanite facility there are 2 surface water areas of concerns. First, the TCE plume generally migrates towards the Willamette and Marys Rivers, see the discussion of groundwater above. Second, there is a manmade ditch called the millrace which runs close to the spill area and eventually discharges to the Marys River. It was during the construction of a culvert for the millrace on Evanite property where TCE spill was discovered.

The Draft Report states:

"An obvious boundary for relatively shallow lateral flow is the millrace, which historically was an open ditch nearly 20 feet below grade running north-south along the eastern side of the process area. This former ditch now hosts a large diameter culvert ... with culvert located between Submicro and Glass Plant buildings. Whereas TCE contamination is

expected to be encountered in the unsaturated zone beneath the former process area where releases occurred, any borings or wells located to the east of the millrace are not expected to encounter TCE contamination above the seasonal high water table. The millrace historically represented a physical barrier (i.e. deep ditch) between the TCE process area and other areas of the property ...."

With the millrace being an engineered culvert in the immediate area, infiltration into the millrace is not likely and therefore exposure from TCE is controlled.

#### For Subsurface Soil:

See discussion for surface soil above. Because the concrete slab (landfill/Source Area) and surrounding paved area prevents human exposure, subsurface soil contamination exposure is under control.

In May 1991 Evanite installed 6 soil vapor extraction wells screened from 5 feet to 20 feet below ground surface at the landfill/Source Area resulting in TCE removal in soil resulting in further soil control. See Focused Feasibility Study, Kennec, May 2007.

In 2009, Evanite drilled more wells at 6 locations in the immediate area of the Source Area/landfill to conduct pilot studies for enhanced removal of TCE. Soil samples were taken at depth. The Draft Report lists a soil RBC for TCE in soil leaching to groundwater at .21 mg/kg. The 2009 1121 Well Installation Report has some soil samples at depth above the .21 mg/kg RBC. See <http://www.deq.state.or.us/Webdocs/Forms/Output/FPController.aspx?SourceIdType=11&SourceId=40&Screen=Load>.

#### From the 2007 Focused Feasibility Study:

"In the first 20 months of operations ending in December 1992, over 16,000 pound of TCE were recovered, primarily from the center wells VW-3 through VW-5. Wells on either end produced little TCE and are likely outside of the primary unsaturated DNAPL Source Zone. Recoveries indicate a steady declining trend since startup, with less than 100 pounds per year recovered since 2004. Overall, the system has been very effective at mass recovery, with nearly 27,000 pounds of TCE recovered. Initially, the SVE system accounted for over 20 percent of the total TCE recovered on an annual basis."

Evanite has removed significant amounts of TCE from subsurface soils adding further control to human exposure.

However, the Draft Report states a TCE RBC for construction worker and excavation worker at 120 mg/kg and 3,400 mg/kg, respectively. Given the nature of DNAPL through the vadose zone it can be presumed that TCE at depth could exceed these RBCs.

#### For Outdoor Air:

Evanite collected outdoor air samples from 2005 to 2009. Samples were taken at the landfill/Source Area and at other locations around the facility along with a background sample taken by nearby Highway 99. Using DEQ screening levels for air for both occupational and residential exposures (3.0 ug/m<sup>3</sup> and .44 ug/m<sup>3</sup>, respectively), only 1 sample at the north section of the landfill exceeded the screening level. The Draft Report states that the nearby treatment shed which has an air stripper used in the groundwater extraction/soil vapor extraction treatment system could be the cause. Evanite is considering a new treatment system that would eliminate TCE air stripping emissions, and might reevaluate outdoor air in the landfill/Source Area. All the data taken together, it is concluded that human exposure to outdoor air is under control.

Outdoor air samples of TCE breakdown constituents were also taken and all values were below screening levels.

**Footnotes:**

<sup>1</sup>. "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

<sup>2</sup>. Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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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**

Potential **Human Receptors** (Under Current Conditions)

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

Groundwater	No	No	No	No	No	No	No
Air (indoors)	No	Yes	No	No	No	No	No
Soil (surface, e.g., <2 ft)	No	No	No	No	No	No	No
Surface Water	Yes	Yes	Yes	Yes	No	Yes	Yes
Sediment	No	No	No	No	No	No	No
Soil (subsurface e.g., >2 ft)	No	No	No	No	No	No	No
Air (outdoors)	Yes	Yes	?	No	No	Yes	No

\* Contamination to the Willamette River would expose a large population and interests downriver.

**Instructions for Summary Exposure Pathway Evaluation Table:**

- Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated”) as identified in #2 above.
- Enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

**Note:** In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“\_\_\_”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

- If no** (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).
- If yes** (pathways are complete for any “Contaminated” Media - Human Receptor combination) - continue after providing supporting explanation.
- If unknown** (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code

**Rationale and Reference(s):**

The Draft Report lists several risk assessment complete pathways. However, for this EI, completed human exposure pathways are for current conditions and not necessarily those listed in the Draft Report that could be possible in the future. With Evanite and the surrounding community on City of Corvallis water, groundwater exposure is not a complete pathway. With the 6-inch concrete cap in place, and with TCE DNAPL migrating at depth, soil exposure is not a complete pathway, especially considering Evanite Fiber is still an ongoing business with no expectations of immediate construction or excavation.

Indoor and Outdoor Air sampling has shown TCE concentrations and is an exposure pathway for workers and residents.

Sediment sampling at the Evanite facility has found TCE concentrations and qualifies as a complete pathway.

**Footnotes:**

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

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4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be "significant"<sup>4</sup> (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: (1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or (2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?
- If no** (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."
- If yes** (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."
- If unknown** (for any complete pathway) - skip to #6 and enter "IN" status code

**Rationale and Reference(s):**

See previous discussions.

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**Footnotes:**

<sup>4</sup> *If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.*

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5. Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?
- If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).
  - If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.
  - If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

**Rationale and Reference(s):**

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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** - 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 **Evanite Fiber** facility, EPA ID **ORD 009 023 466**, located at 1115 SE Crystal Lake Drive, Corvallis, Oregon, under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

**NO** - "Current Human Exposures" are NOT "Under Control."

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

Completed By:

Fredrick Moore  
(Signature)

9/26/2012  
(Date)

Fredrick Moore  
(Print Name)

Hazardous Waste Permit Writer  
(Title)

Supervisor:

Elizabeth Druback  
(Signature)

9/26/2012  
(Date)

Elizabeth Druback  
(Print Name)

Manager, Eastern Region Hazardous Waste Program  
(Title)

Oregon Department of Environmental Quality  
(EPA Region or State)

Locations where References may be found:

DEQ Eugene Office, 165 E 7<sup>th</sup> Avenue, Eugene, OR 97401

Contact telephone and E-mail numbers:

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

ENVIRONMENTAL INDICATOR (EI) RCRIS CODE (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: Evanite Fiber Corporation  
Facility Address: 1115 SE Crystal Lake Drive  
Facility EPA ID #: ORD 009 023 466

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.

In August 1985, construction of a ditch near the Evanite Submicro building found TCE contamination coming from the Submicro operations. EPA and DEQ designated this spill area as a F002 hazardous waste landfill. Approximately 900 tons of contaminated soil were removed. The removed soil was replaced with gravel and the area capped with a 6-inch thick concrete cap. DEQ accepted the closure certification on July 21, 1987.

The Oregon DEQ Cleanup Program is currently involved with corrective action at Evanite Fiber Corporation. The Cleanup Program issued Order on Consent No. WMCSR-WR-00-19 signed by DEQ on April 10, 2001 requiring corrective action activities. Soon thereafter, DEQ issued a post-closure permit renewal effective April 30, 2001, that incorporates the Order into the permit and therefore can be enforced by the permit.

The national RCRAInfo database lists for August 14, 2000, an Incomplete CA725 and an Incomplete CA 750. Since then, DEQ issued the Order and the post-closure permit was renewed from the original permit issuance of April 1990. More importantly, corrective action activities were initiated and continued up to this current date which warrants an updated CA 725 and CA 750.

Evanite issued two documents which are good summaries of the corrective action performed and the risks posed. The first document is Focused Feasibility Study dated May 30, 2007 and is posted on the DEQ ECSI site at <http://www.deq.state.or.us/Webdocs/Controls/Output/PdfHandler.ashx?p=aed44d31-2b11-4b19-8a4d-56aaec7b5c81.pdf>. More recently, Evanite issued Draft Evanite Remedial Performance Report dated August 2012. In discussions with the DEQ Cleanup project manager, these are documents whose data and analysis are adequate for filling out the EI forms.

**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  
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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?

- 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):

From the 2012 Draft Remediation Performance Report, groundwater analysis is broken down into different locations. From the Draft Report, see the figure at the end of this Groundwater EI form. The designated locations are Source Zone Area (landfill/Source Area), Hardboard Area, Upgradient Area, Downgradient Area and Neighborhood Area. Because the City of Corvallis provides water to the facility and nearby residential area, the following risk-based concentration screening levels (RBCs) are applied to these locations:

<u>Area</u>	<u>Applicable Exposure Point</u>	<u>TCE RBCs</u>
<u>Source Zone</u>	<u>Occupational Building Vapor Intrusion</u>	<u>3,300 ug/L</u>
<u>Hardboard</u>	<u>Occupational Building Vapor Intrusion</u>	<u>3,300 ug/L</u>
<u>Upgradient</u>	<u>Occupational Building Vapor Intrusion</u>	<u>3,300 ug/L</u>
<u>Downgradient</u>	<u>Ecological Pore Water<sup>1</sup></u>	<u>47 ug/L</u>
<u>Neighborhood</u>	<u>Residential Building Vapor Intrusion</u>	<u>160 ug/L</u>

<sup>1</sup> Portland Harbor Joint Source Control Strategy Tier 2

The most recent groundwater data collected in 2012 (for monitoring wells) and 2011 (for pore water measurements) show that the Hardboard, Upgradient and Neighborhood Areas meet the groundwater RBC for building vapor intrusion. The Source Zone Area (located at the landfill/Source Area) exceeds the groundwater RBC, however, with current data showing that human exposure is under control in addition to the currently operating groundwater and soil vapor extraction and treatment system concludes that groundwater in these areas are in control.

For the Downgradient Area, monitoring wells are screened at depths well below the area of discharge to surface water. Several pore water measurements were taken in 2011 and all measurements but one were below the TCE groundwater RBC. The one groundwater measurement above the RBC was at a location 3 feet in depth while a measurement directly above it at 1 foot in depth met the RBC. The 1 foot in depth measurement did meet the RBC and is more representative of what TCE concentration would be discharged to surface water.

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  
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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)?

- 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):

From the Draft Report:

"Overall, the groundwater TCE analytical data indicates capture is successful across the Evanite site. Moreover, the capture zone is currently larger than necessary to maintain hydraulic containment. Note that this capture zone will likely increase in size as new pumps are installed for the air stripper and associated transfer piping networks allowing for higher groundwater extraction rates (i.e., necessary to support aggressive SVE in the source zone)."

**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.

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

- 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):**

The Draft Report reports on 2011 pore water measurements that did show concentrations of TCE and its breakdown products and therefore it is presumed that there is discharge to surface water. The Draft Report goes on to state:

"The pore water sampled is representative of the discharge of the groundwater plume in the hyporheic zone, to the extent this plume migrates beyond the hydraulic containment ...."

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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 ecosystems 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 ecosystem.

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):

From the Draft Report:

"Potentiometric surface elevations and groundwater analytical data at the site indicate the Evanite TCE plume is substantially captured by the hydraulic containment system, as wells MW-6, MW-13, MW-15, and corresponding downgradient pore water samples were either non-detect or contained very low VOC concentrations. Trace concentrations of cis-1,2-dichloroethene and vinyl chloride detected at these locations likely indicate remnant dissolved phase VOC in the aquifer matrix or minimal plume discharge due to heterogeneity in the aquifer system. Anaerobic degradation is active and the breakdown products are orders of magnitude below applicable screening levels."

*Footnotes:*

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

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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 ecosystems that should not be allowed to continue until a final remedy decision can be made and implemented<sup>4</sup>)?

- 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 ecosystems), 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 ecosystems, 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 ecosystems.
- If unknown - skip to 8 and enter “IN” status code.

**Rationale and Reference(s):**

**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 ecosystems.

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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?"

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):**

The DEQ Cleanup Order includes Attachment B which is a Focused Remedial Action Scope of Work which includes a schedule of groundwater monitoring which is enforceable and insures future monitoring.

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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 **Evanite Fiber** facility, EPA ID **ORD 009 023 466**, located at **1115 SE Crystal Lake Drive, Corvallis, Oregon**. 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:

Frederick Moore  
(Signature)

9/26/2012  
(Date)

Frederick Moore  
(Print Name)

Hazardous Waste Permit Writer  
(Title)

Supervisor:

Elizabeth Druback  
(Signature)

9/26/2012  
(Date)

Elizabeth Druback  
(Print Name)

Manager, Eastern Region Hazardous Waste Program  
(Title)

Oregon Department of Environmental Quality  
(EPA Region or State)

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