ENVIRONMENTAL INDICATOR (EI) RCRIS CODE (CA725)

Current Human Exposures Under Control

Facility Name: BARON BLAKESLEE
Facility Address: 5920 NE. 87th Portland, OR 97220
Facility EPA ID #: ORD 061483384

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.

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"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

"Contaminated" Media	Yes	No	?	Rationale / Key Contaminants
Groundwater	✓			1,1,1 TCA, TCE, PCE, methylene chloride, cis- 1,2-dichloroethane
Air (indoors)		✓		Indoor air samples collected to verify.
Soil (surface, e.g., <2 ft)	✓			PCE and TCE
Surface Water		✓		PCE and TCE.
Sediment		✓		PCE and TCE
Soil (subsurface e.g., >2 ft)	✓			TCE, PCE, 1,1,1 TCA
Air (outdoors)		✓		Air samples collected.

☐ **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):

From 1972 to 1993, Baron Blakeslee operated a permitted storage and solvent recovery business. The facility ceased all operations at the site in 1992. The company then implemented an approved Closure Plan, removing all waste and decontaminating all areas used for management of hazardous waste. Results of soil and groundwater sampling conducted at the site under corrective action requirements of the facility's Permit identified volatile and semi-volatile organic compounds. The primary constituents detected at the site include perchlorethylene (PCE), trichlorethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), and cis-1,2-dichloroethene (cis-1,2-DCE).

Maximum levels of contaminants in groundwater are PCE at 43 mg/l, TCE at 2 mg/l, 1,1,1-TCA at 10 mg/L; and methylene chloride at 2 mg/L. For soil, maximum contaminants levels are PCE at 510 mg/kg, and TCE 63 mg/kg. Groundwater is the primary pathway of concern at this site, which is located near the western edge of the City of Portland's Columbia South Shore Wellfield.

Groundwater contamination extends off-site and could impact the western end of the City of Portland's Columbia South Shore Wellfield. This wellfield contains backup drinking water wells that are intended to supplement Bull Run surface water supplies. Groundwater from the site may discharge to surface water at the Columbia Slough located north of the site.

A Consent Order dated May 8, 2000, imposes an RI/FS to investigate all media and the extent of contamination. (See Phase 2 RFI Data Report 3, dated June 30, 1999, and May 8, 2000, Order on Consent). Data collected for the RI/FS was used to establish whether air (indoor/outdoor), surface water, or sediment are contaminated above protective levels.

Footnotes:

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

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

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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[3]
Groundwater	✓	✓		✓			
Air (indoors)		✓					
Soil (surface, e.g., <2 ft)		✓		✓			
Surface Water						✓	
Sediment							
Soil (subsurface e.g., >2 ft)							
Air (outdoors)		✓					

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.

2. Enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

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

☐ **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 May 8, 2000, Order on Consent requires a human health risk assessment. (See May 8, 2000, Order on Consent). A Baseline Human Health Risk Assessment provided a conceptual model, identified the land uses, and beneficial uses in the area. Potentially complete pathways include ingestion, dermal contact and inhalation. The final risk assessment, in conjunction with data collected for the RI/FS will establish whether there are any complete exposure pathways.

Footnotes:

[3] *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"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: (1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or (2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

☐ **If no** (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

☒ **If yes** (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

☐ **If unknown** (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

The most plausible exposure settings to be considered for characterizing human health risks include the following:

- Incidental ingestion and dermal contact with onsite groundwater by future onsite workers.
- Incidental ingestion and dermal contact with offsite downgradient groundwater by future offsite workers or hypothetical future offsite residents.
- Inhalation of vapors generated during showering or household activities by hypothetical future offsite residents.
- Inhalation of vapors emanating from offsite groundwater to indoor air by current and future occupational workers.
- Incidental ingestion and dermal contact with surface water and sediment in Columbia Slough by recreational users.

The human health risk assessment focuses on the potential risks posed by direct exposure (ingestion, dermal, contact, and inhalation via showering) to chemicals of potential concern in groundwater at each well point. This provides a conservative indication of the potential for risk to recreational users of the Columbia Slough. No chemicals of potential concern (COPCs) were detected in the upper 6 feet of soil beneath the site and the property is currently paved and covered with structures; thereby, limiting access to surface soil. Direct contact exposure to COPCs in soil is considered unlikely. Two rounds of indoor air samples taken at different times of the year did not indicate any significant detections. Although there are not any current drinking water wells that are impacted by the contamination, the City of Portland has water rights that would allow the city to install production wells that might be impacted. Consequently, drinking water is an identified beneficial use.

References: Baseline Human Health Risk Assessment (March 2004).

Footnotes:

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

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5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

☐ **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):

Reference documents include the Semiannual Status Report Second and Third Quarters (November 2004), A Level I Scoping Risk Assessment (July 2003), and Level II Ecological Risk Assessment (December 2003). The ecological risk assessments were performed to evaluate releases to surface water. A Baseline Human Health Risk Assessment (March 2004) was performed to determine the potential for risk to human health under current and reasonably anticipated future land uses and water uses. The Columbia Slough is the nearest surface water body, located approximately 700 feet downgradient of the site, and is approximately 40 feet wide. The risk assessments concluded:

- Most of the contamination in groundwater is >25 feet deep and does not discharge to the slough. The potential for human exposure via surface water is low.
- The combination of low-permeability overbank deposits and generally downward hydraulic gradient prevents constituents of interest in groundwater from migrating into the Columbia Slough.
- On the basis of considering groundwater concentrations of constituents of interest at the former Baron-Blakeslee site and the screening values, shallow groundwater concentrations from wells nearest to potential exposure points are not considered high enough to pose unacceptable risk to aquatic organisms, mammals, birds, or vegetation.

The conceptual site model developed for the Baseline Human Health Risk Assessment identified the following potential receptors and complete exposure pathways:

- Incidental ingestion and dermal contact with onsite groundwater by future onsite workers.
- Incidental ingestion and dermal contact with offsite downgradient groundwater by future offsite workers or hypothetical future offsite residents.
- Inhalation of vapors generated during showering or household activities by hypothetical future offsite residents.
- Inhalation of vapors emanating from offsite groundwater to indoor air by current and future occupational workers.
- Incidental ingestion and dermal contact with surface water and sediment in Columbia Slough by recreational users.

The conceptual model for the human health risk assessment focuses on the potential risks posed by direct exposure (ingestion, dermal, contact, and inhalation via showering) to chemicals of potential concern in groundwater at each well point. This provides a conservative indication of the potential for risk to recreational users of the Columbia Slough. No chemicals of potential concern (COPCs) were detected in the upper 6 feet of soil beneath the site and the property is currently paved and covered with structures; thereby, limiting access to surface soil. Direct contact exposure to COPCs in soil is considered unlikely. Two rounds of indoor air samples taken at different times of the year did not indicate any significant

detections. Although there are not any current drinking water wells that are impacted by the contamination, the City of Portland has water rights that would allow the city to install production wells that might be impacted. Consequently, drinking water is an identified beneficial use.

Groundwater monitoring will continue at the site in order to determine whether future conditions change. A full assessment and final remedy decision will be made in late 2005 when the remedial investigation summary, revised risk assessment, and feasibility study are completed.

References:

Level I Scoping Ecological Risk Assessment (July 2003)
Level II Ecological Risk Assessment (December 2003)
Baseline Human Health Risk Assessment (March 2004).

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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 **BARON BLAKESLEE** facility, EPA ID #**ORD 061483384**, located at **5920 NE. 87th Portland, OR 97220** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

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

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

Completed By:

_____ _____
(Signature) *(Date)*

Barb Puchy Hazardous Waste Specialist

Supervisor:

_____ _____
(Signature) *(Date)*

Anne Price Manager, Hazardous Waste Policy and Program Development
(Print Name) *(Title)*

Oregon Department of Environmental Quality
(EPA Region or State)

Locations where References may be found:

DEQ - NW Region DEQ, 2020 SW. 4th Ave.Portland, OR 97201

Contact telephone and E-mail numbers:

BILL ROBERTSON	503-229-6843	robertson.bill@deq.state.or.us
(Name)	*(Phone Number)*	*(E-Mail)*

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: BARON BLAKESLEE
Facility Address: 5920 NE. 87th Portland, OR 97220
Facility EPA ID #: ORD 061483384

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).

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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?

☒ **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 1972 to 1993, Baron Blakeslee operated a permitted storage and solvent recovery business. The facility ceased all operations at the site in 1992. The company then implemented an approved Closure Plan, removing all waste and decontaminating all facilities used for management of hazardous waste. Results of soil and groundwater sampling conducted at the site under corrective action requirements of the facility's Permit identified volatile and semi-volatile organic compounds that have migrated approximately 3,000 feet downgradient from the site. The primary constituents detected at the site include perchloroethylene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), and cis-1,2-dichloroethene (cis-1,2-DCE).

Maximum levels of contaminants in groundwater are PCE at 43 mg/l, TCE at 2 mg/l, 1,1,1-TCA at 10 mg/L; and methylene chloride at 2 mg/L. For soil, maximum contaminants levels are PCE at 510 mg/kg, and TCE 63 mg/kg. Groundwater is the primary pathway of concern at this site, which is located near the western edge of the City of Portland's Columbia South Shore Wellfield.

Groundwater contamination extends off-site and could impact the western end of the City of Portland's Columbia South Shore Wellfield. This wellfield contains backup drinking water wells that are intended to supplement Bull Run surface water supplies. Groundwater from the site may discharge to surface water at the Columbia Slough located north of the site.

A Consent Order dated May 8, 2000, imposes an RI/FS to investigate all media and the extent of contamination. (See Phase 2 RFI Data Report 3, dated June 30, 1999, and May 8, 2000, Order on Consent). Additional data will be collected for the RI/FS that will establish whether air (indoor/outdoor), groundwater, surface water, or sediment are contaminated above protective levels.

Because of the proximity to the Portland well field, drinking water maximum contaminant levels (MCLs) are currently referenced as the appropriate protective level. Additional data collected for the RI/FS will be used to establish the locality of the facility and beneficial uses to be evaluated under the Risk Assessment.

Contaminated soil and groundwater are being removed and treated by an interim remedial action consisting of a soil vapor extraction system (SVE) and groundwater circulation well (GCW) system that has been operating since 1999. Later this year (2005) a pilot program will expand these systems offsite in order to remediate a portion of the groundwater plume that has migrated offsite. The results of these pilot programs will assist in evaluating the potential application of these technologies to remediate a larger portion of the contaminated area.

Reference documents: Baseline Human Health Risk Assessment (January 2004), Semi-annual Status Report Second and Third Quarters 2004 (November 2004), Additional Source Area

Remedial Investigation Work plan (2001.

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).*

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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"[2] 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"[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):

Maximum levels of contaminants in groundwater are PCE at 43 mg/l, TCE at 2 mg/l, 1,1,1-TCA at 10 mg/L; and methylene chloride at 2 mg/L. For soil, maximum contaminants levels are PCE at 510 mg/L, and TCE 63 mg/L. Groundwater is the primary pathway of concern at this site, which is located near the western edge of the City of Portland's Columbia South Shore Wellfield.

Groundwater contamination extends off-site, and may impact the western end of the City of Portland's Columbia South Shore Wellfield. This wellfield contains backup drinking water wells that are intended to supplement Bull Run surface water supplies. Groundwater from the site also migrates toward the Columbia Slough and may discharge to surface water within the slough.

Interim remedial action measures (IRAMs) have been implemented at the site in order to stabilize the plume and remove source area contamination. These IRAMs include removal of contaminated soils during the early 1990s, soil vapor extraction (SVE) since October 1999, and installation and operation of in situ groundwater circulation wells (GCWs) starting in November 1999 that were designed to remove volatile organic compounds (VOCs) from groundwater in the source area. Through February 2003, 2,600 lbs of volatile organic compounds have been removed and concentrations of most of the onsite monitoring wells have dropped by orders of magnitude since the SVE and in situ groundwater systems began operating.

Additional data collected for the RI/FS has determined that the contaminant plume has stabilized. New wells were installed to establish the lateral and vertical extent of the plume and to delineate the locality of the facility. Current and future beneficial water uses will be determined within the locality of the facility and the results of the Risk Assessment will determine whether there are any unacceptable risks.

Footnotes:

[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.*

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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):

A portion of the contaminated groundwater from the upper 10 to 20 feet of the aquifer discharges to surface water in the Columbia Slough which is located approximately 700 feet downgradient from the site.

References:
Step 6 Remedial Investigation Report (March 2003)
Baseline Human Health Risk Assessment (March 2004)
Level I Ecological Risk Assessment (July 2003)
Level II Ecological Risk Assessment (December 2003)

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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 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[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 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[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):

The Level I and II ecological risk assessments were performed to evaluate releases to surface water. A Baseline Human Health Risk Assessment (March 2004) was performed to determine the potential for risk to human health under current and reasonably anticipated future land uses and water uses. The risk assessments concluded:

- Most of the contamination in groundwater is >25 feet deep and does not discharge to the slough. The potential for human exposure via surface water is low.
- The combination of low-permeability overbank deposits and generally downward hydraulic gradient prevents constituents of interest in groundwater from migrating into the Columbia Slough.
- On the basis of considering groundwater concentrations of constituents of interest at the former Baron-Blakeslee site and the screening values, shallow groundwater concentrations from wells nearest to potential exposure points are not considered high enough to pose unacceptable risk to aquatic organisms, mammals, birds, or vegetation.
- Groundwater samples collected for a number of years indicates that contaminant concentrations in groundwater that potentially discharges to the slough are not increasing.
- Maximum volatile organic constituent concentrations in shallow groundwater that potentially discharges to the slough include tetrachloroethene (110 ppb) and trichloroethene (30 ppb).

Groundwater monitoring will continue at the site in order to determine whether future conditions change. A full assessment and final remedy decision will be made in 2005 when the remedial investigation summary, revised risk assessment, and feasibility study are completed.

Reference documents include the Semiannual Status Report Second and Third Quarters (November 2004), A Level I Scoping Risk Assessment (July 2003), and Level II Ecological Risk Assessment (Dec. 2003).

Footnotes:

[3]. *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[4])?

☐ **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,[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 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:

[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 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):

Quarterly and semiannual sampling occurs at many wells screened over multiple intervals within the single aquifer in order to monitor both the vertical and lateral extent of the plume. The wells include the following: GW-1 through 6, GW-8 through 12, PZ-1A, PZ-2, PZ-1C, and PZ-D; MW-4, GW-5A through GW-6A. GW-8A through GW-10A, GW-12A and GW-1A; GW-5C, GW-7C, GW-12C, GW-13C, GW-15C, GW, GW-13D, GW-14D, GW 16D, GW-17, GW-18 and GW-29; DW-1 through DW-4; and TW-1. A decision on which wells will be retained in the future will be made when the final remedy is selected.

References:
Semi-annual Status Report Fourth Quarter 2004 and First Quarter 2005 (April 2005)

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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 **BARON BLAKESLEE** facility, EPA ID # **ORD 061483384**, located at **5920 NE. 87th Portland, OR 97220**. 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) *(Date)*

Barb Puchy Hazardous Waste Specialist

Supervisor:

_____ _____
(Signature) *(Date)*

Anne Price Manager, Hazardous Waste Policy and Program Development
(Print Name) *(Title)*

Oregon Department of Environmental Quality
(EPA Region or State)

Locations where References may be found:

DEQ - NW Region DEQ, 2020 SW. 4th Ave.Portland, OR 97201

Contact telephone and E-mail numbers:

BILL ROBERTSON	503-229-6843	robertson.bill@deq.state.or.us
(Name)	*(Phone Number)*	*(E-Mail)*