

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action  
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Boeing Portland  
Facility Address: 1900 N.E. Sandy Blvd., Gresham, Oregon  
Facility EPA ID #: ORD 05496 4481  
Date of Evaluation: February 25, 1999 (Reviewed Oct 25, 1999, Revised December 3, 1999, Reviewed March 15, 2001)

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?

**YES** If yes - check here and continue with #2 below.

\_\_\_\_\_ If no - re-evaluate existing data, or

\_\_\_\_\_ if data are not available skip to #6 and enter "IN" (more information needed) status code.

**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, GPRR). 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”**<sup>1</sup> 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)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	YES	___	___	1,1 DCE; Cis 1,2 DCE; TCA; TCE; PCE; Vinyl Chloride
Air (indoors) <sup>2</sup>	___	NO	___	_____
Surface Soil (e.g., <2 ft)	___	NO	___	_____
Surface Water	___	NO	___	_____
Sediment	___	___	___	_____
Subsurf. Soil (e.g., >2 ft)	YES	___	___	<b>Same as above</b> _____
Air (outdoors)	___	NO	___	_____

\_\_\_\_\_ 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.

**YES**\_\_ 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 risk based level for the groundwater is MCL (Maximum Contaminant Level), since the groundwater has the potential in the future to be used as a drinking water source. MCLs are promulgated under the Safe Drinking Water Act and are the maximum levels of contaminants allowed in water used for drinking. The MCLs are: 1,1 DCE - 7Fg/L; cis-1,2 DCE - 70Fg/L; TCA- 200 Fg/L; TCE- 5Fg/L; PCE - 5Fg/L; Vinyl Chloride - 2 Fg/L. Documentation is in the Final Phase III RFI prepared by Landau Associates for Boeing Company, dated June 21, 1995. The level for Vinyl Chloride was established in the Final Decision/Response to Comments issued by EPA, July 1997.

Surface soil was sampled during the Phase I RFI (March 1988). No detectable volatile organics were present in the soil samples. All surface water on the facility site is collected in the storm drain system this storm water flows to a drainage canal. Water samples were collected and analyzed during the Phase I RFI from various points in the stormwater collection system. None of the samples had organics above the corresponding MCL. A soil gas monitoring survey was conducted during the Phase I RFI. This

survey was conducted in part to determine if significant concentrations of volatile organics could be released to the atmosphere from subsurface sources. The results of the soil gas survey was that the volatile organics were significantly lower than ambient air standards. (Reference: Phase I RFI report, March 17, 1988)

Separate cleanup levels were not proposed for deep soil, although remediation of deep soil contamination is addressed in the CMI as a source control issue, based on its potential to affect the ability to achieve cleanup levels in groundwater, i.e. the leaching of contaminants in the deep soil vadose zone would continue to affect the groundwater if it is not remediated. Documentation:

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)

<b>“Contaminated” Media</b>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food <sup>3</sup>
Groundwater	<b>YES</b>	NO	NO	NO			NO
Air (indoors)							
Soil (surface, e.g., <2 ft)							
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft)				<b>YES</b>			NO
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).

**YES** 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 Troutdale Gravel Aquifer (TGA) [the affected aquifer addressed by the RCRA program] has been used in the past as a drinking water supply. With a half-mile radius down gradient from the Boeing facility, six domestic supply wells are screened within the TGA. Four of these wells have been taken out of service. Because the TGA is not restricted from use as a drinking water source and has been historically used for that purpose, human exposure via ingestion, inhalation, and dermal contact with groundwater is possible and hence represents a completed exposure pathway. (However, within the contaminant plume area, restrictions have been placed on any drinking well construction.) Onsite at the Boeing facility, drinking water is provided by the city and therefore is not affected by the TGA.

Reference: Statement of Basis (issued by EPA, March 1997)

Regarding the contaminated deep soils at the facility, their affect is mainly as a source for further leaching to the groundwater. Soil vapor extraction is being utilized to extract contaminants from the vadose zone where measurable amounts of can be recovered. This approach is being used to augment the pump and treat remediation of the groundwater. Reference: Statement of Basis - EPA, 1997

The exposure pathway for workers would be only if there were soil removal for construction or maintenance within an area that contains contaminants. Exposure will be controlled with the use of an institutional control plan.

**Currently, Boeing is finalizing an Institutional Control Plan to address any subsurface soil excavations within any contaminated area.**

<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)?

**NO**\_\_\_\_\_ 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): Groundwater use restrictions have been placed with the affected TGA area to prevent ingestion of groundwater that could contain Volatile Organic Compounds (VOCs) above MCLs. Reference: pg 4 of Final Decision and Response to Comments, issued by EPA, July 1997. All affected drinking water and agricultural wells within the groundwater plume has been abandoned. An Institutional Control Plan is being written by Boeing (expected completion and approval is 2001). This Plan will address subsurface soil excavations and control of possible exposures to workers involved in the process.

<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):\_ **NOT APPLICABLE**

**Current Human Exposures Under Control  
Environmental Indicator (EI) RCRIS code (CA725)**

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** 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 **Boeing Portland facility, EPA ID # ORD 05496 4481, located at 19700 N.E. Sandy Boulevard, Gresham, 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 /S/ \_\_\_\_\_ Date: December 3, 1999  
Michael Fagan  
Environmental Scientist

Supervisor /S/ \_\_\_\_\_ Date : December 10, 1999  
Jamie Sikorski  
Manager, RCRA Compliance Unit - EPA Region 10

Locations where References may be found:

RFI, CMS, Statement of Basis, and Final Decision/Response to Comments can be found in the Site Facility File in the RCRA Records at Region 10, Office of Waste and Chemicals Management, Seattle, WA.

Contact telephone and e-mail numbers

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**FINAL NOTE: THE HUMAN EXPOSURES 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.**

## DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

### RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA750)

#### Migration of Contaminated Groundwater Under Control

**Facility Name:** Boeing Portland  
**Facility Address:** 1900 N.E. Sandy Blvd., Gresham, Oregon  
**Facility EPA ID #:** ORD 05496 4481  
**Date of Evaluation:** February 25, 1999 (Reviewed October 25, 1999, March 15, 2001)

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?

**YES** 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, GPRAs). 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)**

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?

**YES** 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):

Groundwater is contaminated with the following [above Maximum Contaminant Levels (MCLs)] Volatile Organic Compounds (VOCs):

1,1 dichloroethene (1,1-DCE)	7 Fg/L
cis 1,2 dichloroethene (cis -1,2 DCE)	70 Fg/L
1,1,1 - trichloroethane (TCA)	200 Fg/L
trichloroethene (TCE)	5 Fg/L
tetrachloroethane (PCE)	5 Fg/L
vinyl chloride (VC)	2 Fg/L

References: Final Phase III RCRA Facility Investigation (RFI), prepared by Landau Associates,  
June 21, 1995

Statement of Basis, issued by EPA, March 1997

Final Decision/Response to Comments, issued by EPA, July 1997

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)**

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)?

**YES** 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 Final Decision/Response to Comments (EPA, July 1997) “EPA believes that the monitoring data collected to date demonstrate that the Interim Measures are presently controlling the extent of the TGA contaminant plume. Implementation of the final corrective measures will enhance control of the contaminant plume” The Interim Corrective Measures includes a 13-well groundwater extraction and treatment system.

“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)**

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

**YES** 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 only surface water that is affected directly by the contaminant plume is the Columbia Slough, located north of the Boeing Portland facility. From the Statement of Basis: “Trace levels of VOCs have been detected in surface water in the canal north of the facility (referred to as Storm Drain Creek) and low levels of TCE (less than 5 ppb) have been detected in Columbia Slough. It is believed that TGA aquifer discharges are responsible for the VOC detections. No VOCs have been detected in sediment samples collected from Columbia Slough in the vicinity of the Boeing Portland Facility.”

Reference: Statement of Basis (EPA, March 1997)

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

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)?

**YES**\_\_\_ 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.

\_\_\_ 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): See the citation in question 4. The only contaminant of concern detected in the Columbia Slough was TCE. The level was below the MCL of 5 Fg/L (Fg/L = ppb).

Reference: Statement of Basis (EPA, March, 1997)

<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)**

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>)?

\_\_\_\_\_ 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): \_\_\_NOT APPLICABLE\_\_

<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)**

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?”

**YES**\_\_ 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 Boeing Portland facility is unique in that contamination at the facility is being covered under two concurrent cleanup authorities. The deeper aquifer, the Troutdale Sandstone Aquifer (TSA) is being cleaned under a separate enforcement action by the Oregon Department of Environmental Quality (DEQ). The off-site drinking water monitoring program will be handled under the TSA monitoring program.

As per the Final Decision, Boeing has submitted a Performance Monitoring Plan for the TGA. This plan is under review by EPA. Under this monitoring program, Boeing will conduct periodic sampling and analysis of: the groundwater monitoring and extraction wells in the area, the treated water (effluent) discharged from the air stripping system, and soil vapor removed by the Soil Vapor Extraction (SVE) system. This program

will assess the progress towards achieving the corrective action objectives and the target cleanup levels for the TGA and confirm compliance with applicable water discharge requirements.

Boeing will also continue to send quarterly reports summarizing the sampling data and the effectiveness of the corrective measures.

References: Statement of Basis (EPA, March, 1997)  
Final Decision/Response to Comments (EPA, July, 1997)  
Performance Monitoring Plan TGA CMI (Boeing, February, 1999)

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

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**      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 **Boeing Portland facility , EPA ID # ORD 05496 4481 , located at 19700 N.E. Sandy Blvd., Gresham, 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    /S/ \_\_\_\_\_      Date: December 3, 1999  
Michael Fagan  
Environmental Scientist

Supervisor      /S/ \_\_\_\_\_      Date: December 10,1999  
Jamie Sikorski  
Manager, RCRA Compliance Unit, Office of Waste and Chemicals Management  
EPA Region 10

Locations where References may be found:

Final Phase III RCRA Facility Investigation, Statement of Basis, Final Decision, Performance Monitoring Plan can be found in the Boeing Portland Facility file in the RCRA Records at Region 10, Office of Waste and Chemicals Management, Seattle, WA.

Contact telephone and e-mail numbers

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