

ENVIRONMENTAL INDICATOR (EI) RCRIS CODE (CA725)

Current Human Exposures Under Control

Facility Name: Evrax Oregon Steel Mills
Facility Address: 14400 N. Rivergate Blvd, Portland, Oregon
Facility EPA ID #: ORD 009 106 055

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.

The following documents were reviewed and deemed a good survey of history and current conditions:

- Phase 1 Remedial Investigation Report Vol. 1, Exponent, March 2004
- Riverbank Source Control Evaluation Work Plan, RETEC, June 2, 2005
- Source Control Evaluation Work Plan – TPH in Groundwater, RETEC, June 10, 2005
- Soil Management Plan, RETEC, March 14, 2006
- Record of Decision Stormwater Source Control Measures for the Evrax Oregon Steel Mills Site, DEQ Northwest Regional Office, December 2010
- Upland Human Health Risk Assessment for the Evrax Oregon Steel Facility, AECOM, April 2014
- (Draft) Memorandum: No Further Action Recommendation Groundwater Source Control, DEQ Northwest Region Office, April 4, 2013
- (Draft) Staff Report Proposed Source Control Measure for Evrax Oregon Steel Mills Riverbank, DEQ Northwest Region Office, June 2014
- Oregon DEQ Environmental Cleanup Site Information (ECSI) Database for Oregon Steel Mills at <http://www.deq.state.or.us/lq/ECSI/ecsidetailfull.asp?seqnbr=141>

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)?

| <u>“Contaminated” Media</u> | <u>Yes</u> | <u>No</u> | <u>?</u> | <u>Rationale / Key Contaminants</u> |
|-------------------------------|------------|-----------|----------|--|
| Groundwater | √ | | | Contaminants: Total petroleum hydrocarbons present but below human risk concern. Manganese |
| Air (indoors) | | √ | | |
| Soil (surface, e.g., <2 ft) | √ | | | Contaminants: Cadmium, chromium, lead, copper, polyaromatic hydrocarbons (PAHs), total petroleum hydrocarbons, PCBs. |
| Surface Water | | √ | | |
| Sediment | √ | | | Contaminants: Cadmium, chromium, copper, lead, PCBs, PAHs, manganese, zinc. |
| Soil (subsurface e.g., >2 ft) | √ | | | Contaminants: PCBs, petroleum, and manganese. |
| 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):

In the RCRAInfo database, Oregon Steel Mills received a data code “US CA050PA – RFA Completed – Assessment was a PA-Plus.” By coincidence, this assessment was done, in part, by the DEQ author of this EI assessment. The PA-Plus done at the time focused on an assessment of were there any solid waste management units (SWMUs) and if yes, were they releasing? The report found general industrial conditions and not a need for further RCRA corrective action (Moore). However, DEQ later recommended in 1999 a high-priority remedial investigation to evaluate sediment contamination from surface water runoff and storm sewer migration (ECSI). Surface water runoff and storm sewers are not typical RCRA solid waste management units.

From the Oregon DEQ ECSI site, only total petroleum hydrocarbons (TPH) are listed as “substance contamination” constituent in groundwater (ECSI Site ID 141). See groundwater EI for determination. Manganese is being reviewed as an eco risk contaminant (Sutter).

The constituents listed in the table above are derived from the 2010 DEQ Record of Decision and the 2014 Upland Risk Assessment.

Also from the DEQ Record of Decision (ROD): “The selected measures address contaminants

associated with upland soils and facilities that are entrained in stormwater runoff and transported to the Lower Willamette River. Separate proposals are being developed to address erosion of contaminated bank soils and contaminated groundwater migration from the Evraz Oregon Steel facility.” The DEQ program manager (Jennifer Sutter) confirmed that human exposure to indoor air and outdoor air are not an issue.

From the April 2014 Upland Human Risk Assessment it is stated that there is risk to construction workers in surface and subsurface soils but that exposure is mitigated through an onsite Soil Management Plan.

The sediment issues are at the shoreline between the facility and the Willamette river. From the June 2014 DEQ staff report it states “As summarized in Section 5.1.1, concentrations of PCBs and several metals along the shoreline exceed screening levels for aquatic toxicity and bioaccumulation impacts.” The DEQ Cleanup project manager confirmed there are no likely direct human health exposure risks from the sediments except for likely future sediment corrective action removal. Otherwise, the DEQ project manager stated there are occupational risks in shoreline sediments but that no future construction work is contemplated at the shoreline sediments and very likely the sediments will be removed next year making occupational exposure unlikely.

Stormwater discharges and capture of contaminants in catch basins have been of concern at the site. From the DEQ 2010 ROD it states “The catch basin data and general understanding of the site activities suggest that sources of contamination at the facility are diffuse with contaminant concentrations that are moderately elevated.” In general, industrial activities through the years has caused contamination throughout the site where stormwater flow captures constituents and either is deposited in a catch basin or discharged through stormwater pathways. From the DEQ 2010 ROD it states that the site has performed several actions to control surface runoff from contact from contaminated soil. There have been several soil removal actions. Several areas have been paved. Previous stormwater discharges that went directly to the Willamette River are now directed to either an onsite clarification pond before discharge to the Willamette River or discharged to bioswales and a sand filter prior to discharge to the City of Portland stormwater system. Lastly, the site uses several best management practices (BMPs) which are listed in their Stormwater Pollution Control Plan (May 28, 2009) which is attached to the DEQ 2010 ROD as Appendix A.

DEQ is reviewing the April 2014 risk assessment report. The DEQ project manager states that there could be localized areas of contamination, maybe with PCBs, that the facility will remove. Currently, human exposures are controlled by asphalt and gravel cover and adherence to the aforementioned onsite Soil Management Plan. Also, the risk constituents of PCB, manganese and petroleum are not RCRA hazardous waste constituents under 40 CFR 268 Appendix VIII. However contamination is still noted in this section to be conservative in this review.

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 | Food³ |
|-------------------------------|------------------|----------------|-----------------|---------------------|--------------------|-------------------|-------------------------|
| Groundwater | No | No | No | No | No | No | No |
| Air (indoors) | No | No | No | No | No | No | No |
| Soil (surface, e.g., <2 ft) | No | No | No | No | No | No | No |
| Surface Water | No | No | No | No | No | No | No |
| Sediment | No | No | No | No | No | No | No |
| Soil (subsurface e.g., >2 ft) | No | No | No | No | No | No | No |
| Air (outdoors) | | | | | | | |

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):

From the Oregon DEQ ECSI site, only total petroleum hydrocarbons (TPH) are listed as “substance contamination” constituent in groundwater (ECSI Site ID 141). See groundwater EI for determination.

The constituents listed in the table above are derived from the 2010 DEQ Record of Decision and the 2014 Upland Risk Assessment.

Also from the DEQ Record of Decision (ROD): “The selected measures address contaminants associated with upland soils and facilities that are entrained in stormwater runoff and transported to the Lower Willamette River. Separate proposals are being developed to address erosion of contaminated bank soils and contaminated groundwater migration from the Evraz Oregon Steel facility.” The DEQ

program manager (Jennifer Sutter) confirmed that human exposure to indoor air and outdoor air are not an issue.

From the April 2014 Upland Human Risk Assessment it is stated that there is risk to construction workers in surface and subsurface soils but that exposure is mitigated through an onsite Soil Management Plan.

The sediment issues are at the shoreline between the facility and the Willamette river. From the June 2014 DEQ staff report it states "As summarized in Section 5.1.1, concentrations of PCBs and several metals along the shoreline exceed screening levels for aquatic toxicity and bioaccumulation impacts." The DEQ Cleanup project manager confirmed there are no likely direct human health exposure risks from the sediments except for likely future sediment corrective action removal. Otherwise, the DEQ project manager stated there are occupational risks in shoreline sediments but that no future construction work is contemplated at the shoreline sediments and very likely the sediments will be removed next year making occupational exposure unlikely.

Stormwater discharges and capture of contaminants in catch basins have been of concern at the site. From the DEQ 2010 ROD it states "The catch basin data and general understanding of the site activities suggest that sources of contamination at the facility are diffuse with contaminant concentrations that are moderately elevated." In general, industrial activities through the years has caused contamination throughout the site where stormwater flow captures constituents and either is deposited in a catch basin or discharged through stormwater pathways. From the DEQ 2010 ROD it states that the site has performed several actions to control surface runoff from contact from contaminated soil. There have been several soil removal actions. Several areas have been paved. Previous stormwater discharges that went directly to the Willamette River are now directed to either an onsite clarification pond before discharge to the Willamette River or discharged to bioswales and a sand filter prior to discharge to the City of Portland stormwater system. Lastly, the site uses several best management practices (BMPs) which are listed in their Stormwater Pollution Control Plan (May 28, 2009) which is attached to the DEQ 2010 ROD as Appendix A.

DEQ is reviewing the April 2014 risk assessment report. The DEQ project manager states that there could be localized areas of contamination, maybe with PCBs, that the facility will remove. Currently, human exposures are controlled by asphalt and gravel cover and adherence to the aforementioned onsite Soil Management Plan.

From review of the documents and interviews, the DEQ hazardous waste program concludes that currently human exposure to contamination at Evrax Oregon Steel Mills is controlled.

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):

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):

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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 **Evraz Oregon Steel Mills** facility, EPA ID **ORD 009 106 055**, located at **14400 N. Rivergate Blvd., Portland, OR** 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)

Sept. 18, 2014
(Date)

Fredrick Moore
(Print Name)

Hazardous Waste Permit Writer
(Title)

Supervisor:

Elizabeth Druback
(Signature)

9/18/2014
(Date)

Elizabeth Druback
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Manager, Eastern Region Hazardous Waste Program
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Oregon Department of Environmental Quality
(EPA Region or State)

Locations where References may be found:

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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: Evrax Oregon Steel Mill
Facility Address: 14400 N. Rivergate Blvd., Portland, Oregon
Facility EPA ID #: ORD 009 106 055

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):

The following documents were reviewed and deemed a good survey of history and current conditions:

- Phase 1 Remedial Investigation Report Vol. I, Exponent, March 2004
- Riverbank Source Control Evaluation Work Plan, RETEC, June 2, 2005
- Source Control Evaluation Work Plan – TPH in Groundwater, RETEC, June 10, 2005
- Record of Decision Stormwater Source Control Measures for the Evrax Oregon Steel Mills Site, DEQ Northwest Regional Office, December 2010
- Upland Human Health Risk Assessment for the Evrax Oregon Steel Facility, AECOM, April 2014
- (Draft) Memorandum: No Further Action Recommendation Groundwater Source Control, DEQ Northwest Region Office, April 4, 2013
- (Draft) Staff Report Proposed Source Control Measure for Evrax Oregon Steel Mills Riverbank, DEQ Northwest Region Office, June 2014
- Oregon DEQ Environmental Cleanup Site Information (ECSI) Database for Oregon Steel Mills at <http://www.deq.state.or.us/lq/ECSI/ecsdetailfull.asp?seqnbr=141>

From the DEQ April 4, 2013, memorandum: “Petroleum and associated constituent contamination was limited to the immediate vicinity of upland sources, appears to be stable, and was not detected in beach wells above screening levels. Consequently, no further action is needed to control migration of organic contaminants in groundwater.”

From the DEQ April 4, 2013, memorandum: “Arsenic and manganese were detected in monitoring wells located on the beach at concentrations exceeding screening levels for protection of benthic organisms, and, in the case of arsenic, bioaccumulative screening criteria (ambient water quality criteria based on fish and water ingestion).”

It is a question whether the indirect sources of site-wide contamination (i.e., without relatively well defined solid waste management units, regulated unit or areas of concern) that migrate to groundwater at current low concentrations could be addressed by RCRA corrective action.

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):

See Section No. 4.

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):

From the DEQ April 13, 2013, memorandum: "... concentrations of metals in groundwater sampled from beach wells at the site appear consistent with regional concentrations in the Portland Harbor and the Columbia Slough. Concentrations are stable or declining, and any discharge to the river does not appear to be contributing to unacceptable risk in Willamette River receptors. Consequently, no source control measure are necessary to control or reduce metals migrations to the river via groundwater."

Groundwater flow from the site does discharge into the Willamette River. DEQ's opinion is that such groundwater is not "contaminated" as used in this question.

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5. Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant" (i.e., the maximum concentration³ 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 concentration³ 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 judgment/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 concentration³ 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 concentrations³ 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):

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 implemented⁴)?
- 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):

From the April 4, 2013, memorandum: "Potential sources of groundwater contamination at the facility have been identified and adequately characterized. The groundwater monitoring network at the site is sufficient to determine contaminant concentrations and trends throughout the facility and at the point of discharge to the Willamette River."

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS Code (CA750)
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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 **Evraz Oregon Steel Mills** facility, EPA ID **ORD 009 106 055**, located at **14400N. Rivergate Blvd, Portland, OR**. 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:

Fredrick Moore
(Signature)

Sept. 18, 2014
(Date)

Fredrick Moore
(Print Name)

Hazardous Waste Permit Writer
(Title)

Supervisor:

Elizabeth Druback
(Signature)

9/18/2014
(Date)

Elizabeth Druback
(Print Name)

Acting Manager, Eastern Region Hazardous Waste Program
(Title)

Oregon Department of Environmental Quality
(EPA Region or State)

Locations where References may be found:

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