

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA750) Migration of Contaminated Groundwater Under Control

Facility Name: Neville Chemical Company
Facility Address: 2800 Neville Road, Pittsburgh, PA 15225
Facility EPA ID #: PAD004334157

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):

As a result of historic leaks and spills of organics from storage tanks, pump packings, piping and valves, and the former lagoon that occurred at the Facility, groundwater beneath the Facility and at certain locations around the Facility contains floating phase, sinking phase, and dissolved phased oils. These oils contain among other constituents, Benzene, Ethylbenzene, Xylene, Napthalene and Toluene. A Light Non-Aqueous Phase Liquid (LNAPL) was identified in six of the twenty-two monitoring wells as well as six recovery wells. A central Benzene, Toluene, Ethylbenzene, and Xylene (BTEX)-plume and a chlorinated plume exist near the northwest corner of the property.

The following table summarizes the range of concentrations of specific constituents and LNAPL detected in groundwater at the Facility:

Monitoring Wells	Benzene (ug/L) Range	Total VOCs (ug/L) Range	LNAPL Thickness (ft) Range
MW-1	0	0	0.59-1.97
MW-2S	2,600-25,000	41,085-375,000	
MW-2D	3,900-7,400	14,088-26,610	
MW- 3S	1,300-1,800	9,877-15,500	
MW-3D	0	0-16	
MW-4	9-170	87-433	
MW-5S	0-90	0-110	
MW-5D	0	0-35	
MW-6S	0-400	2-585	
MW-6D	0-450	0-674	
MW-7S	6,100-12,000	22,550-44,700	0.37-1.23

MW-7D	0-400	37-3,600	
MW-8S	1,900-4,000	3,700-22,622	0.23-1.27
MW-8D	0-590	0-1,367	
MW-9S	0	0-44	
MW-9D	0-150	0-184	
MW-10S	3,700-6,100	22,080-79,370	0-0.86
MW-10D	0-2,800	7,160-53,315	
MW-11S	9,500-13,000	52,000-309,500	0.6-2.02
MW-11D	880-5,400	1,850-24,830	
MW-12S	1,500-4,300	7,363-19,540	0.22-1.37
MW-12D	0-430	0-764	
WW-2	Not Sampled	Not Sampled	0-1.3
WW-3	Not Sampled	Not Sampled	0-1.13
RW-7B	Not Sampled	Not Sampled	0.34-1.28
RW-2C	Not Sampled	Not Sampled	0-1.74
RW-2B	Not Sampled	Not Sampled	1.26-2.92
RW-8B	Not Sampled	Not Sampled	0-0.4

(1994 Phase II Groundwater Quality Assessment Report, 2017-2019 Semi-Annual Groundwater Remediation Reports)

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” 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”).
 - ☐ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”) – 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):

On April 7, 2004, Neville Chemical signed a new Consent Order and Agreement (Order) with the Pennsylvania Department of Environmental Protection Agency (PADEP) to improve the groundwater remediation system to expand the capture zone and to stabilize the groundwater contamination beneath the Facility. Under the requirements of the Order and described in the PADEP Approved Cleanup Plan, Neville Chemical installed additional recovery wells along the Ohio River and increased the hydraulic capture of the existing groundwater remediation system to control the migration of the groundwater plume. The upgrade and expansion of the groundwater remediation consisted of the installation of submersible pumps in all the recovery wells, the installation of additional Light Non-Aqueous Phase Liquid (LNAPL) interceptor wells, the expansion of the air stripper capacity with vapor phase carbon to treat the additional flow rate and the installment of the eight piezometers along the Main Channel Property along the Ohio River to monitor the capture zone of the remediation system to assess the system’s effectiveness in eliminating the potential for offsite migration of LNAPL. The piezometers are screened across the water table to allow for an accurate in-well measurement of LNAPL.

Based on the recent Semi-Annual Groundwater Remediation Reports (2017-2019), the groundwater remediation system continues to maintain the groundwater gradient along the Main Channel Property boundary towards the facility to prevent dissolved phase groundwater contamination, floating phased oil, and sheen from discharging into the Ohio River. Groundwater elevation and piezometer measurements confirm the hydraulic capture and the efficiency of the groundwater remediation system. In addition to operating the groundwater remediation system, Neville will continue to conduct groundwater and surface water monitoring and visual inspection for the presence of sheen in the Ohio River to verify the capture and control of the groundwater contamination.

(2004 PADEP Consent Order and Agreement (COA), 2004 Neville Chemical Co. Approved Risk Assessment Report, 2004 Neville Chemical Co. Approved Cleanup Plan, 2017-2019 Semi-Annual Groundwater Remediation Reports, 2017 First Amendment to the COA)

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):

Since the upgrade of groundwater remediation system and the expansion of the recovery wells to increase the hydraulic capture of the groundwater plume, migration of contaminated groundwater has remained under control. Continuous groundwater elevation and piezometer measurements along the Main Channel Property boundary confirms the effectiveness of the groundwater remediation system to prevent the discharge of contaminants into the Ohio River. Neville will continue to implement surface water monitoring along in the Ohio River main channel north of the facility and conduct visual observation for the presence of sheen to verify that the groundwater plume remains under control and does not impact surface water.

(2017-2019 Semi-Annual Groundwater Remediation Reports)

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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 eco-systems at these concentrations)?
- ☐ If yes - skip to #7 (and enter “YE” status code in #8 if #7 = yes), after documenting:
- 1) the maximum known or reasonably suspected 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 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 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):

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 eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

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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-assessment⁵, 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.

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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.

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

Rationale and Reference(s):

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 eco-systems.

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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):

As presented in the 2004 Approved Cleanup Plan, Neville will continue to conduct groundwater and surface water monitoring and visual inspection for the presence of sheen in the Ohio River to verify the capture and control of the groundwater contamination. In addition, Neville will continue to conduct semi-annual groundwater elevation and piezometer measurements in the monitoring wells to confirm the efficiency of the groundwater remediation system to remediate and to prevent the discharge of contaminants into the Ohio River.

(2004 Approved Cleanup Plan, 2017-2019 Semi-Annual Groundwater Remediation Reports)

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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 **Neville Chemical Company** and **EPA ID # PAD004334157**, located at **2800 Neville Road, Pittsburgh, PA 15225**. 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  Date 8/19/21
(print) Khai M. Dao
(title) EPA Project Manager

Supervisor ALIZABETH OLHASO Digitally signed by ALIZABETH OLHASO
Date: 2021.08.19 08:07:09 -04'00' Date _____
(print) Alizabeth Olhasso
(title) Acting Chief, Corrective Action Branch No. 2
EPA Region III

Locations where References may be found:

US EPA Region III
Land, Chemicals, and Redevelopment Division
1650 Arch Street
Philadelphia, PA 19103

Pennsylvania Department of Environmental Protection
Southwest Regional Office
400 Waterfront Dr.
Pittsburgh, PA 15222

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