

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

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

Facility Name: Ellwood Group, Inc. (former National Forge Company)
Facility Address: One Front Street, Irvine, Pennsylvania 16329
Facility EPA ID #: PAD002101418

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).

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

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 Facility is formerly known as the National Forge Company (NFC). In 2003, the Ellwood Group, Inc. (EGI) acquired the assets of the NFC out of bankruptcy. EGI reconfigured the former NFC facility into two new subsidiaries, the Ellwood National Forge and the Ellwood National Crankshaft. EGI closed the steel melting and forging operations at the facility and transferred the work to EGI's New Castle and Ellwood City plants.

The onsite groundwater plume consists of mineral/cutting oil, quenching oil and No. 2 fuel oil. The five dissolved constituents of concern are polynuclear aromatic hydrocarbons (PAHs), acenaphthene, anthracene, fluorene, phenanthrene, and pyrene. The cause of the groundwater contamination was due to past releases from the underground process flow-through tanks and the aboveground fuel storage tanks. The nearest residential wells are located upgradient from the onsite groundwater plume. There are no direct human exposures to the groundwater plume.

In December 1995, NFC initiated the pump and treat/recovery system to recover free-phase product and to control groundwater plume migration. After years of pump and treat, the groundwater concentrations for the constituents of concern achieved the Pennsylvania Act 2 non-residential Statewide Health Standard. In April 2001, NFC with the approval of the Pennsylvania Department of Environmental Protection (PADEP), discontinued the pump and treat system for two years to evaluate the groundwater plume under static conditions. The study consists of sampling 44 monitoring points for two consecutive years on a monthly basis. The study was conducted between April 2001 and March 2003. The results from the study were compared to historic data to evaluate the potential of future offsite migration. Based on the study, the assessment of the historic data, and given the characteristics of the constituents, PADEP concluded that the groundwater plume has remained relatively immobile for the last 70-80 years and is unlikely to migrate beyond its present location in the future. Subsequently, PADEP terminated the groundwater monitoring program and approved the decommissioning of the wells. NFC executed a deed notice that limits the property for non-residential use and restricts groundwater use for industrial purposes only.

(NFC Environmental Inspection Report March 2002, Combined Remedial Investigation Statewide Health Standards and Site Specific Standard Final Report Sept. 2003, PADEP Final Report Approval Letter Nov 2003, PADEP Closure Letter to NFC Sept. 2008)

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).

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”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):

The Facility conducted a two-year study to evaluate the groundwater plume under static conditions. The results from the study were compared to historic data to evaluate the potential of future offsite groundwater migration. The evaluation of the historic data indicates that the plume has remained relatively immobile since the discovery of the plume, which was approximately 70-80 years ago. The results from the study, particularly at the points of compliance, confirm that the phase-separated hydrocarbons plume is stabilized and is not expected to migrate beyond its present location.

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.

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

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):

As a further indication that the phase-separated hydrocarbons plume has remained stabilized, historic surface water samples at the nearby Brokenstraw Creek have detected no exceedances for the constituents of concern. All applicable VOCs and SVOCs were below the acceptable detection levels.

(NFC Environmental Inspection Report March 2002)

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 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 concentration³ 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.

**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 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 eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater;
 - OR
 - 2) providing or referencing an interim-assessments, 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):

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.

**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?"
- 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 - provide or cite documentation to support the conclusion that the groundwater plume will remain stabilized without future groundwater monitoring enter.
- If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

The onsite groundwater plume consists of mineral/cutting oil, quenching oil and No. 2 fuel oil. The five dissolved constituents of concern are polynuclear aromatic hydrocarbons (PAHs), acenaphthene, anthracene, fluorene, phenanthrene, and pyrene. The onsite groundwater plume remains within the facility property line. The nearest residential wells are located upgradient from the groundwater plume. The groundwater plume does not present a pathway to potential human receptors. The groundwater flow is north/northeast from the facility toward the nearby Brokenstraw Creek. Historic surface water samples at the Creek have not detected exceedances for the constituents of concern. The surface water samples further support the fact that the groundwater plume has not migrated beyond the facility property line.

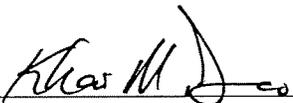
After years of pump and treat, the groundwater concentrations for the constituents of concern achieved the Pennsylvania Act 2 non-residential Statewide Health Standard. In April 2001, the facility discontinued the pump and treat system for two years to evaluate the groundwater plume under static conditions. The study consists of sampling 44 monitoring points for two consecutive years on a monthly basis (24 events). The objective of the study is to determine if the pump and treat system is still needed to control groundwater plume migration. Based on the two-year study, the assessment of the historic data, and given the characteristics of the constituents, PADEP concluded that the groundwater plume has remained relatively immobile for the last 70-80 years and is unlikely to migrate beyond its present location in the future. EPA concurs with PADEP that future groundwater monitoring is no longer necessary to confirm that the groundwater plume will remain within the horizontal dimensions of the existing area. Subsequently, PADEP terminated the groundwater monitoring program and approved the decommissioning of the wells. NFC executed a deed notice that limits the property for non-residential use and restricts groundwater use for industrial purposes only.

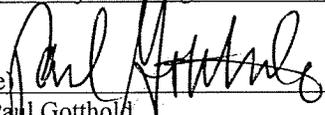
(Combined Remedial Investigation Statwide Health Standards and Site Specific Standard Final Report Sept. 9, 2003, PADEP Final Report Approval Letter Nov. 2003)

**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 - 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 **Congoleum Corporation** and EPA ID # **PAD002343200**, located at **4401 West Ridge Road, Marcus Hook, PA 19061**. 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 8/18/15
(print) Khai M. Dao
(title) EPA Project Manager

Supervisor (signature)  Date 8/19/15
(print) Paul Gotthold
(title) Assoc. Director Office of PA Remediation
(EPA Region or State) EPA Region III

Locations where References may be found:

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