

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action

Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: Kelly Run Sanitation, Inc. (KRS)  
Facility Address: P.O. Box 298, Elizabeth, PA 15037  
Facility EPA ID #: PAD 00 481 0222

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 #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 "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)**

Page 2

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?

  X   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): See Below:**

<b>Contaminant</b>	<b>4thQ 1999</b>	<b>KRS limit</b>	<b>DEP Act 2</b>	<b>EPA RBC</b>
Chloride	2740ppm-306D	250 ppm	250 ppm	None
Benzene	40.3ppb - 312R	5 ppb	5 ppb	0.36 ppb
Ethyl Benzene	9.0ppb - 303R	5 ppb	700 ppb	1300 ppb
Toluene	17.1ppb - 303R	5 ppb	1000 ppb	750 ppb
Xylene	22.0ppb - 303R	10 ppb	10,000 ppb	520 ppb
Naphthalene	<5.0ppb DL	10 ppb	20 ppb	None

KRS data from 4<sup>th</sup> quarter 1999 groundwater monitoring report dated February 2, 2000. Highest concentration in Benwood Limestone wells identified. Well 303R is a pumping well.

KRS limit found in March 13, 1996 Consent Decree, paragraph 11 and Table V-1 of April 8, 1997 modified hazardous waste closure/post-closure permit.

DEP Act 2: 25 Pa. Code 250 Table 1, Used Aquifer, TDS <= 2500, Residential Use

EPA RBC: 10/4/95 tap water

**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)**

Page 3

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)?

- 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): Refer to the February 2, 2000 Monitoring Report by American Resource Consultants, on behalf of KRS. Groundwater monitoring/remediation requirements were established in the March 13, 1996 Consent Decree and April 8, 1997 revised post-closure permit. In addition to pumping the Benwood Limestone Aquifer using well MW-303R, KRS is required to accelerate leachate removal from the RCRA Western Disposal Area and Pre-RCRA Old Waste Area landfills, the sources of contamination of the Benwood Limestone. Recovered groundwater/leachate is discharged to the Elizabeth Borough Municipal Authority Wastewater Treatment Facility. Both the Western Disposal Area and Old Waste Area are capped and closed. The area around MW-303R is the most contaminated in the Benwood. KRS has a monitoring well network in the underlying Pittsburgh Coal to assess the vertical migration of contamination (still in assessment stage). Additionally, Benwood wells and surface water flows (seeps/springs) downgradient of MW-303R show no signs of contamination from the Western Disposal Area or Old Waste Area.**

<sup>2</sup> “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)**

Page 4

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

\_\_\_\_\_ If yes - continue after identifying potentially affected surface water bodies.

**X** 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): Based on downgradient well and seep/spring data, groundwater contamination remains on the property. Pumping of leachate in the Western Disposal Area and Old Waste Area is reducing recharge of the Benwood Limestone; pumping well MW-303R is controlling contamination in the Benwood Limestone.**

**Refer also to the February 2, 2000 Monitoring Report.**

**Additionally, all recovered leachate (including leachate from the closed Phase 1 and 2 municipal waste landfills and operating Phase 3 municipal waste landfill) and recovered groundwater is discharged to a POTW, not to a surface water body.**

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

Page 5

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)?

\_\_\_\_\_ 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): \_\_\_\_\_

<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)**

Page 6

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): \_\_\_\_\_

<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)**

Page 7

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?"

  X   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):** KRS is required by Consent Decree and RCRA post-closure permit to continue the prescribed groundwater monitoring and groundwater-leachate recovery efforts. DEP considers that the approved monitoring plan is sufficient for a determination of changes in groundwater chemistry that could mean changes in the horizontal/vertical dimensions of contamination.

DEP is looking at conditions in a downgradient Pittsburgh Coal Well (MW-211R) to see if detectable benzene (below DEP imposed clean up standard of 5 ppb for KRS) shows only trends or the need for further assessment.

Additionally, DEP is evaluating the leachate removal efforts from the Western Disposal Area to see if the removal rate can be increased, since the current is low and shows little signs of improving on its own plus KRS is only using a small fraction (< 2%) of the hydraulic capacity of the Western Disposal Area segment of the sewer system connection to the POTW. Leachate volume estimates for the Western Disposal Area range from 75 million gallons (KRS) to 225 million gallons (DEP). Improved leachate removal from the Western Disposal Area and continued acceptable removal rates of leachate from the Old Waste Area will hasten the elimination of the sources of Benwood contamination. DEP will advise KRS of the need for increased leachate removal rate from the Western Disposal Area by September 30, 2000.

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

Page 8

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).

  X   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 **Kelly Run Sanitation, Inc.** facility, EPA ID # **PAD 00 481 0222**, located at **P.O. Box 298, Elizabeth, PA 15037**. 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 02/24/2000\*  
                  (print)     Michael G. Forbeck  
                  (title)     Regional Facilities Manager (PADEP)

Supervisor      (signature) \_\_\_\_\_ Date 03/13/2000\*  
                  (print)     Paul Gotthold  
                  (title)     PA Operations Branch Chief  
                  (EPA Region or State) EPA, Region 3

**\*Originals were signed on the indicated date(s). This electronic version was created on 9/23/02.**

**Locations where References may be found:**

PADEP Southwest Regional Office Files  
Pittsburgh, PA 15222

**Contact telephone and e-mail numbers:**

(name)            Carl Spadaro  
(phone #)        412-442-4157  
(e-mail)         spadaro.carl@dep.state.pa.us