

## Rose Hill Regional Landfill Superfund Site South Kingstown, Rhode Island

### Summary

The Rose Hill Regional Landfill Superfund Site (site), located in the rural Rhode Island town of South Kingstown, consists mostly of a closed municipal landfill that received domestic and industrial waste from 1967 to 1983. The landfill comprises two main areas: the Solid Waste Area (SWA) and the Bulky Waste Area (BWA).



Under an agreement with South Kingstown, the adjacent town of Narragansett also cooperatively operated and brought waste to the landfill. Active waste disposal ceased when the landfill capacity was reached. South Kingstown currently operates a regional waste transfer facility immediately south of the former disposal areas.

### Quick Facts

<b>Location:</b>	Rose Hill Road
<b>Acreage:</b>	52 acres
<b>Parcels:</b>	Three
<b>Current Uses:</b>	Closed town landfill, refuse transfer facility
<b>Ownership:</b>	Private/public
<b>Zoning:</b>	Governmental and Institutional ("GI")
<b>Cleanup Status:</b>	Ongoing remedial action
<b>Surrounding Land Uses:</b>	Residential and commercial

The discovery that several private wells adjacent to the landfill were contaminated resulted in South Kingstown's extending municipal water lines to affected homes in 1985, as well as other actions by the town, state and EPA to investigate and address risks posed by site contamination. The site was placed on the Superfund National Priority List in October 1989. In December 1999, EPA selected a long-term remedy for the site that includes the consolidation of wastes, construction of a protective cover system, collection and treatment of landfill gas emissions, and management of leachate/storm water to minimize impacts to local water bodies. Long term monitoring and assessment of ground water and surface water will also be conducted.

EPA and the state have been working closely with town officials from South Kingstown and Narragansett to consider future site reuse in the design and implementation of the cleanup. This coordination will help facilitate potential reuse and ensure the long-term protectiveness of the cleanup. Cleanup-related construction activities began in May 2005 and are expected to be completed in early 2007.

## Reuse Status

During the time of disposal activities, the 27.7-acre SWA and the 9.4-acre BWA were under a long-term lease to the town of South Kingstown. Both properties were recently purchased by the town. South Kingstown acquired the 15-acre area being used for the waste transfer facility in 1983.



**Waste consolidation at SWA (lime-based Posi-Shell™ is sprayed on piles to reduce odors)**

To assess potential reuse options for the site, the towns of South Kingstown and Narragansett, in consultation with EPA and the Rhode Island Department of Environmental Management (RIDEM), prepared a report in November 2003 entitled, “Rose Hill Landfill Beneficial Reuse Study” (reuse study). A copy of the reuse study is available on-line at the EPA web site listed at the end of this document.

After considering a number of reuse scenarios, the reuse study recommended a recreation-based plan

that could include the following elements: a golf driving range on the former SWA, multi-use fields on the former BWA, a dog exercise park, and nature trails. The reuse study notes that the proposed configuration is only conceptual and subject to future revision. The reuse study also recognizes that a final plan would need to go through South Kingstown's Capital Improvement Program budget process and obtain other municipal approvals.

Although the town has not formally committed to implementing the reuse study's recommendations, the information contained in that study has enabled the EPA and RIDEM to better anticipate future uses and assess whether the planned cleanup will safely support those uses. In addition, this information has been useful in identifying ways that the cleanup can be accomplished without creating unnecessary impediments to the proposed uses. For example, the preliminary design plans for the SWA containment system have been modified to greatly expand the footprint that could be used for a golf driving range. For the town to have made these changes to the SWA after the landfill closure was completed would have been very expensive and technically complex.

Other examples of how the reuse study recommendations were considered in the cleanup plans are:

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- Landfill gas collection systems will be located to where they are less likely to interfere with the proposed uses, and where potential human exposure to these gases can be minimized.
- Best management practices (BMPs) will be employed to control storm water runoff (e.g., using “constructed wetlands” instead of traditional detention ponds). In addition to being more visually and functionally-compatible with the planned recreational use of the site, these BMP approaches are expected to more effectively manage the runoff.
- Site grading and engineering plans will allow for better-designed parking facilities and access roads.

EPA and the RIDEM will continue to coordinate with the towns on the cleanup and potential reuse activities, and to make appropriate accommodations when it can be done without compromising the safety of the cleanup or incurring unjustifiable additional costs. This includes ensuring that any site reuse will meet the remedial performance standards, including institutional controls concerning land use and the use, or alteration, of local groundwater.



**Site preparation for the future SWA “constructed wetlands” and stormwater retention system**

### Site Description

As described previously, both the SWA and BWA are no longer receiving waste and are not being actively used. The waste transfer facility is expected to continue operating into the foreseeable future. No disposal takes place at the waste transfer facility. Refuse is unloaded from collection trucks and transferred to vehicles that transport it off-site to a state-permitted landfill.

There are currently no buildings or structures on the SWA and BWA other than those associated with the operation, cleanup and monitoring of the landfills (e.g., drainage systems, gas vents, groundwater monitoring wells, fencing, etc.). Public utilities are available along Rose Hill Road and the waste transfer facility road. The SWA, BWA and waste transfer facility are zoned “GI” - governmental and institutional.

Primary vehicular access to the SWA is from Rose Hill Road to the west and the waste transfer facility road to the south. Access to the BWA is currently only from the SWA construction easement that crosses Mitchell Brook over a re-built culvert.



Rose Hill Regional Landfill  
South Kingstown, RI  
Figure 1  
Aerial Site Plan (from CDM Beneficial Reuse Study, 11/2003)

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Mitchell Brook divides the SWA from the BWA and the waste transfer facility. The area immediately surrounding the brook is generally undeveloped woodland. A wetland area and the Saugatucket River are located just to the east of the BWA. A small section of the BWA that abuts the Saugatucket River lies within a wetland buffer zone established by RIDEM.

Adjacent land uses are primarily residential and commercial. Residences and a 9-hole executive golf course are located on the west side of Rose Hill Road, and an additional residence is adjacent to the northeast corner of the SWA. A large block of privately-owned land is located to the north. Although most of this property is undeveloped, the owner of the site conducts various businesses on the land that include: sport, target, and archery ranges; a kennel; and dog training. To the north of the BWA is a 9-acre area known as the Sewage Sludge Area (SSA), a state-regulated landfill that is not considered part of the Superfund site.

<b><u>Key Events</u></b>	
<b>1967 – 1983</b>	Landfill in operation
<b>1983</b>	Town of South Kingstown purchases waste transfer facility property
<b>1989</b>	Site added to National Priority List
<b>1990</b>	EPA initiates Remedial Investigation/Feasibility Study
<b>1993</b>	Towns install gas sensors/alarms at nearby residences
<b>1994</b>	Towns install bentonite clay dam around water line at residence
<b>1999</b>	Record of Decision signed by EPA
<b>January 2003</b>	Consent Decree signed by EPA, RIDEM, towns of South Kingstown and Narragansett
<b>November 2003</b>	Town of South Kingstown and Narragansett complete reuse study
<b>May 2005</b>	Cleanup-related construction begins

Land use within one mile of the Site is predominantly agricultural and residential. An estimated 17,300 people obtain water from wells located within 3 miles of the site.

### Environmental Summary

The contamination of nearby drinking water wells triggered further investigation of the landfill by EPA and the RIDEM, and led to the site being included on the federal Superfund National Priority List. In 1990, EPA initiated a Remedial Investigation (RI) to determine the nature and extent of contamination and to evaluate risks to human health and the environment. Early evaluations indicated that certain residences could be at risk from subsurface soil gases migrating laterally from the landfill. This prompted EPA to issue an order in March 1993 directing the towns of Narragansett and South Kingstown to install methane gas sensors/alarms at three nearby residences and a methane gas ventilation system in one of them. The gas sensors/alarms were installed at two of the

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residences in May of that year. The residents of the third were relocated and the “Quonset Hut” style dwelling was razed by the town in June. Later in 1994, the towns also installed a bentonite clay dam around the water line at one of the residences to prevent landfill gases from entering the building.

The RI detected a wide array of contaminants in the landfill that included volatile and semi-volatile organics, pesticides, and metals, among others. It was also determined that contamination had migrated into the ground water, nearby surface waters, and landfill gases. A feasibility study (FS) was conducted to evaluate potential cleanup options. EPA’s December 1999 Record of Decision outlined a phased approach for the final site cleanup that included the following major components: excavate and consolidate the BWA landfill materials into the SWA, collect and manage leachate and surface water collected from runoff and de-watering operations, construct a protective cover system over the consolidated materials in the SWA, implement institutional controls to restrict land and groundwater use, and collect and monitor landfill gases. Active treatment of the landfill gases may also be conducted depending on the monitoring results. The site will be monitored to assess the effectiveness of the implemented source control remedy in controlling contaminant migration to surface and ground waters. This information will also assist RIDEM in assessing the total mass daily load (TMDL) of contaminants contributing to the Saugatucket River and other local water bodies. Ammonia is one of the contaminants that resulted in the Saugatucket River being classified by RIDEM as an “impaired water body” under the Clean Water Act. If warranted, EPA and RIDEM plan to excavate composted sludge from the SSA and use it as a soil fertilizer/amendment for the SWA cover. By transferring this sludge from the SSA, it is hoped that the ammonia loading to the river can be reduced, adding to the overall water quality improvement within the watershed.

A Consent Decree signed in January 2003 by EPA, RIDEM, and the towns of South Kingstown and Narragansett outlines the terms of a settlement that, among other things, established responsibilities for designing and implementing the cleanup. The settlement also officially recognizes RIDEM as the lead agency for the remaining cleanup activities under this source control remedy.

### For Additional Information

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**EPA web site:** <http://www.epa.gov/region01/superfund/sites/rosehill>