RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
Groundwater Discharge Program

GROUNDWATER DISCHARGE SYSTEM CLOSURE GUIDANCE

Once a groundwater discharge system is abandoned or no longer in use, or where a discharge cannot be authorized or fails to meet standards in order to continue under Department authorization, the owner must close the system under RIDEM oversight. This includes discharges classified as underground injection control (UIC) wells, stormwater sites identified as land uses with higher potential pollution load (LUHPPLs) as defined by the Rhode Island Stormwater Design and Installation Standards Manual, and discharges that are prohibited under the RIDEM Groundwater Discharge Rules. Prohibited discharges are those that drain through a floor drain or sink in a vehicle maintenance area, manufacturing process or chemical use, storage or handling area, or within any facility located in the wellhead protection area of a community water supply well. It should be noted that the owner of a stormwater discharge system that was installed prior to July 12, 2012 and infiltrates stormwater from an area other than a LUHPPL is not required to close the system under RIDEM oversight, unless said system through analytical testing has been characterized as having adversely impacted the groundwater resources of Rhode Island.

The Groundwater Discharge Rules allow for two administrative pathways to achieve permanent closure of a groundwater discharge system. The proper administrative pathway for closure is determined primarily on whether the system was authorized by RIDEM to operate or if the system has or had been operating without Department authorization. The first pathway allows the owner to submit a *Notification of Termination of a Groundwater Discharge System (*"Notification of Termination") under specific circumstances (see RIDEM Groundwater Discharge Rules (250-RICR-150-05-4), § 4.18). Where the eligibility requirements for submitting a Notification of Termination cannot be met, the owner is required to proceed to the second pathway and file an *Application for Closure of a Groundwater Discharge System ("*Application for Closure") and an accompanying closure plan. Both forms can be downloaded from the RIDEM website at http://www.dem.ri.gov/documents/forms/index.php under the Groundwater Protection tab.

The owner also has two alternatives for physically completing a closure under the RIDEM Groundwater Discharge Rules, based on the discharge type and in some cases, the type of groundwater discharge system that is to be closed. The first is a groundwater discharge system "closure in-place," where, as the name implies, the groundwater discharge system is closed *in place* at a site. In order to complete a closure in-place, certain regulatory criteria have to be met. These criteria may include the performance of soil and/or groundwater characterization that indicates no regulatory exceedances at the location where the groundwater discharge has occurred. If, or where, closure in-place is not an option, the other means for completing closure is through "removal" of the groundwater discharge system, including excavation of the system itself and, if present, any associated contaminated materials. Post removal requirements may include the collection of confirmatory soil samples from the excavation and proper staging and disposal of all contaminated materials. Where floor drains are the method of discharge to a groundwater discharge system undergoing closure, the drains must be plugged and sealed, or re-routed to a local POTW (with local POTW approval) or to a holding tank (may require RIDEM approval) as part of the closure. All information detailing the submittal requirements and procedures can be found on the RIDEM website at http://www.dem.ri.gov/pubs/regs/regs/water/gwd14.pdf .

Once a Notification of Termination or an Application for Closure has been received by RIDEM, all submitted information will be reviewed for completeness and a determination will be made as to whether closure of the system can proceed as proposed, or if additional information is required in order to proceed. Once the closure submittals are determined to be complete, the Department will notify the owner/designee that they are approved to proceed as proposed. The owner/designee must then notify the Groundwater Discharge Program at least 10 business days prior to the initiation of the proposed closure activities to allow staff to schedule to be present for on-site closure activities.

Submittal Procedures

Notification of Termination of a Groundwater Discharge

This form (http://www.dem.ri.gov/programs/benviron/water/permits/uic/pdfs/gwdster.pdf) may be used to close a groundwater discharge system that has been operating under a RIDEM authorization (Registration or Order of Approval) or where the RIDEM has determined through system characterization that there is no impact to groundwater from a previously unauthorized discharge. For additional information, see RIDEM Groundwater Discharge Rules (250-RICR-150-05-4), § 4.18.

Application for Closure of a Groundwater Discharge System

This form (http://www.dem.ri.gov/programs/benviron/water/permits/uic/pdfs/gwdsclo.pdf) is used to close an unauthorized groundwater discharge system, or in some cases, an authorized system that has been determined to be causing or have caused impact to groundwater resources.

The completed "Application for Closure of a Groundwater Discharge System" must be accompanied by the following information:

- A non-refundable check for $500 made out to "General Treasurer-State of RI";
- The owner's signature;
- A locus map with a north arrow;
- A site plan drawn to scale, showing the groundwater discharge system locations, a plan view of the systems including all drains and drain lines, property boundary lines, a north arrow, the location(s) of test pits and/or monitoring wells, and any conspicuous features of the site and surrounding area (e.g. buildings, abutting streets, drinking water supply wells, surface water bodies, wetlands, other subsurface discharge systems including OWTS);
- An outline of the closure procedure and activities to be undertaken (i.e. excavation, closure-in place, field screening, confirmatory sampling including proposed parameters, contaminated soil disposal, proposed backfill material, etc.);
- A narrative description of the groundwater discharge system including installation date, type and amount of waste(s) discharged and any problems encountered during system use;
- A proposal for an acceptable alternative for disposal of waste fluids (if the discharge will continue), including a copy of the state or municipal approval(s). The alternative must comply with all state and/or federal regulations and requirements;

- Notification of any remaining or proposed groundwater discharge systems at the site post - closure including a copy of state or municipal approval(s) or appropriate applications, if not approved;
- Material Safety Data Sheets for all materials stored or used at the facility and an explanation of their use;
- Analytical testing data of the soil/sludge from the final discharge point of the groundwater discharge system, if available (required for systems to be closed in-place). Testing parameters should be based on historical discharge waste stream. Questions related to specific testing parameters should be addressed to the RIDEM Groundwater Discharge Program prior to sampling;
- Analytical testing data and disposal receipts of any liquid and/or sludge removed from the system;
- Name(s) of other RIDEM Program(s)/contact(s) that are or have been involved with review of this site and the associated application or approval reference number(s); and
- Any other information as may be necessary to determine compliance with the RIDEM Groundwater Discharge Rules.

Closure Procedures

Once RIDEM has contacted the applicant with approval of the submitted Notification of Termination or Application for Closure, the Groundwater Discharge Program must be notified at least 10 business days prior to the initiation of on-site closure activities. **Note: on-site closure activities cannot proceed until RIDEM has contacted the applicant with approval of the submitted materials.**

The following information describes typical on-site closure procedures.

<u>On-Site Procedures for "Closure In-Place"</u>

In addition to the information required above, if the proposed method of closure is to leave the groundwater discharge system *in-place*, a plan/figure identifying the location(s) where sample(s) will be/have been collected must be included with the submission. All samples must be properly labeled and preserved at the time of collection in accordance with USEPA methodology and protocol. Where analytical results exceed regulatory criteria, removal of contaminated soil/sludge will be required. **In the event that analytical results exceed regulatory criteria, closure in-place may not be acceptable and removal of the discharge system may be required as described below in *On-Site Procedures for Discharge System "Removal".***

The following activities are required when the groundwater discharge system will be *closed in-place*:

- Disconnection and capping or sealing of the discharge system outlet pipe;
- Sealing all associated floor drains with hydraulic cement, concrete, or RIDEM approved alternative;
- Filling the discharge system with either clean backfill, flowable fill, or RIDEM approved alternative; and
- Capping to grade with concrete or RIDEM approved alternative.

On-Site Procedures for Discharge System "Removal"

The following activities are required when the groundwater discharge system will be *removed* from a site:

- Disconnection and capping or sealing of the discharge system outlet pipe;
- Sealing all associated floor drains with hydraulic cement, concrete, or RIDEM approved alternative;
- Excavation of the discharge system and any associated contaminated soil/sludge;
- Proper staging/storage of contaminated materials for future disposal;
- Collection of confirmatory soil sample(s) from the sidewalls and base of the excavation for laboratory analysis. The number of samples will be determined by the RIDEM inspector and owner's representative at the time of closure. Laboratory parameters will be based on the historical discharge waste stream. All samples must be properly labeled and preserved in accordance with USEPA methodology and protocol; and
- Backfill of the excavation to grade at the time of closure or upon receipt of laboratory analysis and corroboration from RIDEM that further excavation will not be necessary. Note that if the excavation is backfilled at the time of closure and laboratory analysis of the confirmatory samples exceeds regulatory criteria, additional excavation may be required.

Preparation and Submission of a Closure Report

Once all on-site work related to an *in-place* closure of a groundwater discharge system or a closure by *removal* has been completed, a Closure Report documenting all closure activities that were performed, must be submitted to the Groundwater Discharge Program within 30 days of completion of the closure. The closure report must in most circumstances include the following:

- A summary of all activities performed to complete closure work;
- A plan/figure of the excavation area showing locations where the confirmatory samples were collected;
- Laboratory reporting sheets for confirmatory samples including chain of custody documentation;
- Photographic documentation of the final excavation pit(s), structure(s) excavated or closed in-place, sealed floor drains/discharge points, excavation area(s) backfilled and returned to grade, and stockpile(s) of any generated materials, where applicable;
- Copies of manifests, bills of lading and/or receipts for materials used as backfill (soil, flowable fill, concrete, etc.) and materials transported off-site for disposal (contaminated soil, sludge, wastewater, debris); and
- Recommendation for post closure remedial activities, including groundwater monitoring, if warranted.

Upon completion of all closure and post- closure remedial activities, as needed, and upon final submittal and review of all required information, the RIDEM will issue a Letter of No Further Action, as appropriate.

For additional information regarding application requirements for closure of a groundwater discharge system or other closure questions, contact Craig Roy at (401) 222-4700 x7604.