DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF WASTE AND HAZARDOUS SUBSTANCES
DIVISION OF WATER

Memorandum

TO: Marjorie Crofts, Director, Division of Waste & Hazardous Substances 10.18.12
Kathleen Stiller, Director, Division of Water 10/15/12

THROUGH: Stewart Lovell, Program Manager II, Water Supply 10-15-12
Timothy Ratsep, Administrator, DNREC-SIRS 10/9/12

FROM: Robert Asreen, Hydrologist IV, DNREC-SIRS 10/9/12
John Cargill, Hydrologist IV, DNREC-SIRS 10/9/12
Todd Keyser, Hydrologist IV, DNREC-SIRS 10/9/12

DATE: October 5, 2012

SUBJECT: Groundwater Institutional Control – GMZ/GEZ Policy Implementation

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This policy defines the use of groundwater institutional controls in the State of Delaware as implemented by the DNREC Site Investigation and Restoration and Water Supply Sections (Department). The use of Groundwater Management Zones has not previously been defined by the Department through formal policy. This policy defines Groundwater Management Zones (GMZ) and the introduction of the Groundwater Exclusion Zone (GEZ) as a tool for the Department. The following document approved by the Directors of the Divisions of Water and Waste and Hazardous Substances and describes their proper implementation through a concise documentation of the groundwater impact and the steps to be taken to address it.

DNREC-SIRS agreed to a request from the Brownfield Advisory Committee (BAC) to defer implementation of this policy at Delaware Certified Brownfield sites until July 1, 2013. Members of the committee expressed the need to create a section of the "Brownfield Grant Eligible Expenses Guidance and Reimbursement Application Instructions (Guidance)" to address potential groundwater remediation expenses within Delaware's Brownfield Program and develop a framework for financial assistance for groundwater impacts at Brownfield sites.

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Department of Natural Resources and Environmental Control
Division of Waste and Hazardous Substances
and
Division of Water

Implementation Policy for Groundwater Management Zone/Groundwater Exclusion Zone Memorandum of Agreement October 5, 2012

Purpose:
The Delaware Department of Natural Resources and Environmental Control (DNREC or Department) has determined that establishing a groundwater institutional control (IC) in the form of a Groundwater Management Zone (GMZ) or Groundwater Exclusion Zone (GEZ) is appropriate for monitoring new water supply well permitting and/or well placement/construction in areas where groundwater contamination has the potential to cause harm to public health, welfare and the environment.

DNREC's intent with this Memorandum of Agreement (MOA) is to formally establish the authorities of each Division to create the groundwater ICs, and to clarify appropriate use of GMZs and GEZs in a manner which is consistent with Delaware's Comprehensive State Ground Water Protection Program, 1997 ("CSGWPP"). In developing this MOA, the Water Supply Section and the Site Investigation and Restoration Section are:

- Giving priority to the Site due to degraded groundwater conditions, and
- Coordinating efforts and collaborating to prevent the exposure of the public to the risk of consuming contaminated groundwater.

Authorities:
The DNREC Division of Waste and Hazardous Substances (DWHS) is responsible for hazardous substance management in the State of Delaware. DWHS's Site Investigation & Restoration Section ("SIRS") investigates and remediates sites under the provisions of the Delaware Hazardous Substance Cleanup Act ("HSCA") Del. C. Chapter 91 and the Delaware Regulations Governing Hazardous Substance Cleanup ("Regulations").

DNREC's Division of Water ("DW") is responsible for managing water withdrawals within the State of Delaware by issuing permits. DW's Water Supply Section (WSS) has the authority to impose any conditions or restrictions on wells as deemed necessary in accordance with

hydrologic conditions at a proposed well site under the Regulations Governing the Construction and Use of Wells.

Application of Groundwater Institutional Controls:
A two component structure for these types of groundwater institutional controls is defined here that includes the creation of Groundwater Exclusion Zones **(GEZ),** and clarification of the application of Groundwater Management Zones **(GMZ).** Each of these components has notification procedures in place to ensure that SIRS and WSS are aware of any well permit application activity in or around the groundwater zones as defined below.

1) **Groundwater Exclusion Zone (GEZ)**: A GEZ will consist of those areas where *multiple* source properties exist, and where there is no area-wide monitoring or remedial goal established, and/or where municipal ordinances prohibit the installation and use of potable wells. In addition, these areas will contain an alternate source of drinking water other than groundwater. GEZs will mainly consist of municipalities where public water is available, or areas where active facilities and multiple groundwater contaminant sources exist that are not likely to be cleaned to drinkable standards without tens of years of remediation. GEZs will contain areas/properties that do not have impacted groundwater in addition to those that do. Implementation of a GEZ does not preclude the establishment of site-specific groundwater remedial goals. A GEZ template is attached.

2) **Groundwater Management Zone (GMZ)**: A GMZ consists of those areas where a *single* source property exists, or where multiple source areas associated with the same facility exist, ***and where offsite migration of contaminants has occurred***. Remedial goals and monitoring plans, including GMZ review timeframes, should be established and noted in the GMZ MOU document and in the site Operation and Maintenance Plan/Long Term Stewardship Plan. A GMZ should not be established unless it is anticipated that it will be lifted on a measurable time frame, and where there are plans in place to achieve groundwater remedial goals. A GMZ template is attached.

In general, GMZs should no longer be linked, as remedial goals for each site may be achieved in different time frames. Futher, the GMZ or GEZ shall only be a part (not all) of the DNREC approved final groundwater remedial actions as defined in the Final Plan of Remedial Action, Record of Decision, and/or Long Term Stewardship Plan for each Site. DNREC may, at any time, based upon site specific variables and/or programmatic constraints, impose variations to the institutional controls described in this policy in order to better protect human health, welfare and the environment.

10.18.12

Marjorie A. Crofts
Director - Division of Waste & Hazardous Substances

Kathleen M. Stiller
Director – Division of Water

Groundwater Exclusion Zone Memo

GEZ Name: [Click **here** and type name]

Site Location & Tax Parcel(s): See attached map for details

Project Officer Contact Name/Number: Any DNREC-SIRS Hydrologist/302-395-2600

Signature: Marjorie A. Crofts, Director WHS _____ Date: _____

Signature: Kathleen M. Stiller, Director Division of Water _____ Date: _____

Contaminants of Concern

[Click **here** and type name]

Aquifer Characteristics

[Click **here** and type name]

Well Construction Conditions

Potable drinking water wells are not permitted within a GEZ, as another source of drinking water is available.

Geothermal wells or other non-potable wells may be permitted within a GEZ, but will need to be evaluated on a case-by-case basis.

- Attach GEZ Map
- The restrictions/conditions outlined in this GEZ may be modified on a case-by-case basis at the Department's discretion, and after joint review of the Division of Water and the Division of Waste & Hazardous Substances

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Groundwater Management Zone Memo

GMZ Name: [Click **here** and type name]

DE#: [Click **here** and type name]

Site Location & Tax Parcel(s): [Click **here** and type name]

Final Plan of Remedial Action Date: [Click **here** and type name]

Operation and Maintenance Plan Date: [Click **here** and type name]

Project Officer Contact Name/Number: [Click **here** and type name]

Signature: Marjorie A. Crofts, Director WHS _____ Date: _____

Signature: Kathleen M. Stiller, Director Division of Water _____ Date: _____

Contaminants of Concern

[Click **here** and type name]

Aquifer Characteristics

[Click **here** and type name]

Well Construction Conditions

[Click **here** and type name]

Description of Groundwater Remedy

[Click **here** and type name]

GMZ Review Timeframe

[Click **here** and type name]

- Attach GMZ Map
- The restrictions/conditions outlined in this GMZ may be modified on a case-by-case basis at the Department's discretion, and after joint review of the Division of Water and the Division of Waste & Hazardous Substances

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