



Division of Surface Water

Response to Comments

Project: Geothermal Discharges General NPDES Permit

Ohio EPA ID #: OHO000001

Agency Contacts for this Project

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Ohio EPA held a public hearing on December 7, 2010, regarding Geothermal Discharges National Pollutant Elimination System (NPDES) General Permit. This document summarizes the comments and questions received at the public hearing and/or during the associated comment period, which ended on December 14, 2010.

Ohio EPA reviewed and considered all comments received during the public comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health. Often, public concerns fall outside the scope of that authority. For example, concerns about zoning issues are addressed at the local level. Ohio EPA may respond to those concerns in this document by identifying another government agency with more direct authority over the issue.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format. Comments were received from the Sierra Club and the City of Dayton.

Comments on the NPDES Fact Sheet

Comment 1: In Part I. Background, Ohio EPA should add the following reference to discharges via Municipal Separate Storm Sewer Systems (MS4s): Some types of geothermal systems discharge to surface waters of the state, and some through the municipal separate storm sewer system (MS4) to waters of the state.”

Response 1: Ohio EPA has included similar language in this part of the fact sheet.

Comment 2: In Part II. Description of Permit Conditions, Ohio EPA should add (1) the estimated amount of discharge to the MS4 for NOI requirements; and (2) a requirement that a copy of the NOI is to be provided to the MS4 operator.

Response 2: Ohio EPA has incorporated both of these changes into the fact sheet.

Comments on the NPDES General Permit

Comment 3: The Sierra Club supports streamlining of permit processing for green energy projects; geothermal heating/cooling applications decrease dependence on fossil fuels and are a positive contribution to green energy development.

Response 3: We acknowledge this comment.

Comment 4: While the Sierra Club favors close-loop geothermal systems, we have concerns about open-loop systems related to surface water and air impacts. We have concerns about the release of sulfide and radon into surface waters and air. While some of these issues may be related to volcanic geothermal sources, which are not expected in Ohio, these pollutants may still be released from groundwater that reaches the open environment.

Response 4: Ohio EPA believes that most of these concerns are addressed to volcanic geothermal sources, which are not the subject of this permit. We do not believe that amounts of sulfur or radon will be significant from the types of geothermal wells under this permit.

Comment 5: The Sierra Club has concerns that open-loop systems may deplete ground water resources. Is the Division of Surface Water coordinating reviews with the Ohio Department of Natural Resources to ensure that this does not occur?

Response 5: ODNR Division of Soil and Water Conservation has the authority under ORC 1521.17 (Determination of reasonableness of use of water.) to investigate water quality use conflicts. This authority gives ODNR the ability to regulate ground water withdrawals. ODNR will know about installations of larger systems (those using over 100,000 gpd) because owners of these systems need to register with them. Any investigation conducted under ORC 1521.17 may be coordinated with ODH, Ohio EPA and/or local agencies.

Comment 6: The Sierra Club has concerns about the general permit concept. Many things about a discharge are site-specific – what is

appropriate for one community, location or habitat is not appropriate in others.

One of our specific concerns is the 100,000 gpd threshold for NOIs. If a general permit is determined to be appropriate, we suggest specifying only home-scale systems (1000-5000 gpd) as exempt from NOIs, and looking more closely at discharges larger than this. New Jersey took this approach to permitting geothermal discharges in their state.

Another concern about the general permit is the need to account for geological variation in the assessment of discharges. Salt deposits above the aquifer may introduce pollutants into the geothermal discharge; also, discharges from an aquifer that lies between igneous rock or sediment columns may create impacts due to dissolved materials and contaminants.

Response 6: Ohio EPA believes that site-specific conditions can be written into a general permit. Several site- or waterbody-specific conditions are listed in the Limitations on Coverage (Part I. C. 2. of the permit).

Ohio EPA has retained the 100,000 gpd NOI threshold. The Agency does not want to create a reporting threshold differs significantly from that required by the Ohio Department of Natural Resources. From our experience with geothermal applications received to date, we believe that this threshold will require NOI submittal for most commercial applications.

Ohio EPA considered geologic variations, particularly salt deposits, in drafting this permit. In Ohio, natural salt deposits are generally greater than 500 feet below the surface; geothermal wells using groundwater will not be this deep. See also Response 7.

Comment 7: The Sierra Club supports the eligibility restrictions in Part I.C.2. of the permit. In addition to these restrictions, we suggest two other restrictions that we believe necessary to prevent environmental impacts: (1) any discharge that causes a temperature increase greater than 10 degrees Fahrenheit; and (2) any discharge from an aquifer that goes through a brownfield, natural salt deposit, or any other chemical or biological contamination.

Response 7: Ohio EPA has added two restrictions based on this comment. We have added the temperature increase provision. It is already a limitation in the permit, and adding it to the eligibility restrictions adds clarity to the application process. We have also added a restriction on discharges

that go through natural salt deposits. While we do not believe that these situations will occur (see Response 6) it is unlikely that such discharges would meet water quality standards for total dissolved solids.

We have not added prohibitions on discharges from brownfields because we are concerned that this provision would unreasonably restrict voluntary cleanups. If discharges from these aquifers can meet the standards in the draft permit, we see no reason why they cannot be approved. For similar reasons we have not included a prohibition on aquifers with "other chemical or biological contamination". The draft permit envisions that discharges with low- to moderate levels of chemical pollutants will occur; the requirement to meet WQS that is already in the permit will prevent impacts from discharges of biological pollutants.

Comment 8: In Part III, A. of the permit, oil&grease, dissolved oxygen, pH and volatile organic compound monitoring should be required annually.

Response 8: We have added annual pH monitoring to ensure that groundwater plumes contaminated by acids or alkalis are not pulled into the geothermal system. While we have not added VOC testing across the board, we have added a statement to Part III of the permit that allows the director to require periodic sampling of VOCs for discharges that have the potential to draw contaminated groundwater plumes from surrounding properties.

We have not added monitoring requirements for oil&grease or dissolved oxygen because we do not believe that oils will be present in these discharges; we believe that systems can be designed to meet dissolved oxygen WQS when the discharge reaches surface waters of the state.

Comment 9: In Part IV of the permit, Ohio EPA should add a condition about not creating a sheen, sediment or staining at the outfall from iron deposits.

Response 9: These conditions are included in the permit in Part V – specifically Items J.1., J.2. and J.3. To increase the visibility of these requirements, we have moved them to Part IV in the final permit.

Comment 10: In Part V, Item S. add a requirement to notify an MS4 operator of a non-compliance notification.

Response 10: We have added this requirement to the final permit.

Ohio EPA has also revised the delta-T limit for discharges that are designed to discharge 5000 gallons per day or less. The temperature change limit for these home-

scale systems is 15 degrees F. The Agency made this change because smaller systems often have less sophisticated heat transfer systems that may not be able to meet the 10 degree delta-T characteristic of larger systems. Ohio EPA expects that a 15 degree delta-T will meet Ohio WQS for the receiving waters covered by this permit.

End of Comments