

[FRL-3369-5]

Buried Valley Aquifer System, Ohio, Sole Source Aquifer Petition; Final Determination

AGENCY: U.S. Environmental Protection Agency.

ACTION: Notice of final determination.

SUMMARY: Notice is hereby given that, pursuant to section 1424(e) of the Safe Drinking Water Act, the U.S. Environmental Protection Agency (EPA) Region V Administrator has determined that the Buried Valley Aquifer System of the Great Miami/Little Miami River Basins of Southwestern Ohio, hereafter called the Buried Valley Aquifer System (BVAS), is the sole or principal source of drinking water in the petitioned area, and that this aquifer, if contaminated, would create a significant hazard to public health. As a result of this action, all Federal financially assisted projects constructed in the BVAS area and its principal recharge zone will be subject to EPA’s review to ensure that these projects are designed and constructed such that they do not create a significant hazard to public health.

DATES: Because the economic and regulatory impact of this action will be minimal, this determination will be effective as of the date it is signed by the Regional Administrator.

ADDRESSEES: The data on which these findings are based are available to the public and may be inspected during normal business hours at the U.S. Environmental Protection Agency, Office of Ground Water SWG-TUB8, 230 S. Dearborn Street, Chicago, Illinois 60604.

FOR FURTHER INFORMATION CONTACT: Wm. Turpin Ballard, Office of Ground Water, U.S. Environmental Protection Agency, Region V, at 312-353-1435.

SUPPLEMENTARY INFORMATION:

I. Background

Section 1424(e) of the Safe Drinking Water Act {42 U.S.C. 300f, 300h-3(e), Pub.L. 93-523} states:

(e) If the Administrator determines on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the publication of any such notice, no commitment for Federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for Federal financial assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.

Effective March 9, 1987, authority to make a Sole Source Aquifer Designation Determination was delegated to the U.S. EPA Regional Administrators.

On November 25, 1987, EPA received a complete petition from the Miami Valley Regional Planning Commission of Dayton, Ohio, which petitioned EPA to designate the BVAS as a Sole Source Aquifer.

On December 22, 1987, EPA published notice to announce a public comment period regarding the

petition. The public was permitted to submit comments and information on the petition until February 22, 1988. A public meeting, scheduled during this period, was cancelled due to lack of written response challenging the aquifer’s eligibility for designation. Cancellation was coordinated through the petitioner with concurrence by Regional Counsel.

II. Basis for Determination

Among the factors to be considered by the U.S. EPA in connection with the designation of an area under section 1424(e) are: (1) Whether the BVAS is the area’s sole or principal source of drinking water, and (2) whether contamination of the aquifer would create a significant hazard to public health. On the basis of technical information available to this Agency, the Regional Administrator has made the following findings, which are the bases for the determination noted above:

1. The BVAS currently serves as the “sole source” of drinking water for approximately 920,600 residents of Preble, Dark, Champaign, Miami, Montgomery, Logan, Clark, Greene and Shelby Counties.

2. There is no existing alternative drinking water source or combination of sources which provides 50 percent or more of the drinking water to the designated area, nor is there any available cost-effective potential source capable of supplying the drinking water needs of the communities and individuals that presently rely on the aquifer.

3. The Buried Valley Aquifer System is an unconfined to semi-confined aquifer that transmits water through unconsolidated glacial deposits. Its high porosity and permeability, coupled with thin overlying soils and shallow depth of water, make the BVAS very vulnerable to contamination. Contamination has already occurred, especially in the Dayton Metropolitan

area and other highly industrialized areas. Sources for contamination include, but are not limited to: (A) Leaking underground storage tanks, (B) stormwater drains that discharge to ground water, (C) accidental release of hazardous materials, (D) use and improper storage of agricultural chemicals, and (E) salting of roads for ice control. Should any of the above sources of contamination enter the public water supply, there could be a significant negative effect on drinking water quality, with a consequent adverse effect on public health.

III. Description of the Buried Valley Aquifer System: Hydrogeology; Use, Recharge; Boundaries

The BVAS was formed when successive glacial events discharged sediment-choked meltwaters through pre-existing bedrock valleys. These meltwaters left behind heterogeneous deposits of gravel, sand, silt, and clay. The gravel and sand deposits form the principal aquifers of the BVAS, and range from 20 to 400 feet in thickness, and from 1/10th to 3 miles in width. The Ohio Department of Natural Resources subdivides the BVAS into Class I and Class II aquifers, based on hydrogeologic characteristics.

Ground water withdrawal from public and private water supply wells averages approximately 140 million gallons per day (mg/d) within the proposed area, with another 45 mg/d going to industrial use. This resource is so readily available and prolific that few communities and individuals within reach of it have developed alternative sources. In fact, 97 percent of the public water and 100 percent of the private water in the proposed designated area is drawn from the BVAS.

The BVAS is recharged primarily by precipitation, with a minor amount contributed as inflow from the upland

areas. Many of the large wellfields produce sufficient drawdown to cause induced recharge from surface water bodies to be the primary recharge to the wellfield. However, according to a USGS report on the aquifers, "The flow (in the rivers) that is equaled or exceeded 90 percent of the time * * * is generally considered to come primarily from ground water." In other words, ground water contributes the bulk of the water to rivers in the area. So the primary recharge mechanism ultimately remains the infiltration of precipitation over the aquifer.

The project review area consists of the area over the Class I and II aquifers from a hydrodynamic boundary which occurs just south of the City of Franklin in Warren County, to the northern boundary of the Great Miami Basin and including that portion of the BVAS in the Little Miami Basin north of Warren County. Excluded are two small "fingers" of aquifer in western Preble County that do not connect with the main aquifer in the proposed area. Also excluded is a portion of Class II aquifer in Logan and Shelby Counties in which ground water flows north and west, indicating a hydrologic boundary across the aquifer in the northwest corner of Harrison Township, Champaign County. Maps of the boundaries are available from the U.S. EPA Region V Office of Ground Water.

IV. Alternative Sources

The Petitioner considered several alternatives to the BVAS to supply drinking water: Existing surface water systems; bedrock aquifers; and construction of surface impoundments.

Existing surface water systems could supply water to a limited area, but current costs from these systems already exceed quantitative guidance thresholds, and the installation of additional water lines would raise

these costs substantially. Also, existing surface water systems could not replace the 140 mg/d currently drawn from the BVAS.

Bedrock aquifers do not have the hydrogeologic characteristics to enable them to transmit sufficient water to replace the amount currently supplied by the aquifer. In addition, the water is highly mineralized, requiring additional treatment to bring it up to the quality of the current supply. New wells would have to be drilled, and additional piping installed for public water supplies. Private users would have the expense either of hooking up to public water, deepening their existing wells, or redrilling.

The Petitioner conducted a cost analysis for construction, operation, and maintenance of surface impoundments on the major rivers as a potential alternative source. Current O&M costs, construction costs indexed to 1987, as well as the cost of additional piping, interconnections, and land acquisition show that construction of impoundments is far too costly. In fact, the cost of O&M alone turned out to be greater than the guidance thresholds of 0.4 – 0.6 of average annual income.

V. Information Utilized in Determination

The information utilized in this determination includes the petition, published State and Federal reports on the area, and various technical publications. The petition file is available to the public and may be inspected during normal business hours at the U.S. Environmental Protection Agency, Region V, Office of Ground Water, 111 W. Jackson, 10th Floor, Chicago, Illinois 60604.

VI. Project Review

EPA Region V is working with the Federal agencies that may in the

future provide financial assistance to projects in the area of concern. Interagency procedures and Memoranda of Understanding will be developed through which EPA will be notified of proposed commitments of funding by Federal agencies for projects which could contaminate the designated area of the Buried Valley Aquifer System. EPA will evaluate such projects and, where necessary, conduct an in-depth review, including soliciting public comments where appropriate. Should the Administrator determine that a project may contaminate the aquifer through its recharge zone so as to create a significant hazard to public health, no commitment for Federal financial assistance may be made. However, a commitment for Federal financial assistance may, if authorized under another provision of law, be made to plan or design the project to ensure that it will not so contaminate the aquifer.

Although the project review process cannot be delegated, the U.S. Environmental Protection Agency will rely to the maximum extent possible on existing or future State and local control mechanisms in protecting the ground water quality of the BVAS. Included in the review of any Federal financially assisted project will be coordination with State and local agencies. Their comments will be given full consideration, and the Federal review process will attempt to complement and support State and local ground water protection mechanisms.

VII. Summary of Public Comments

Only one comment was received during the public comment period, and that was in support of designation.

VIII. Economic and Regulatory Impact

Under the provisions of the Regulatory Flexibility Act (RFA), 5 U.S.C. 605(b), I hereby certify that the attached rule will not have a significant impact on a substantial number of small entities. For purposes of this Certification, the “small entity” shall have the same meaning as given in section 601 of the RFA. This action is only applicable to the designated area of the Buried Valley Aquifer System. The only affected entities will be those area-based businesses, organizations, or governmental jurisdictions that request Federal financial assistance for projects which have the potential to contaminate the aquifer so as to create a significant hazard to public health. EPA does not expect to be reviewing small isolated commitments of financial assistance on an individual basis, unless a cumulative impact on the aquifer is anticipated; accordingly, the number of affected small entities will be minimal.

For those small entities which are subject to review, the impact to today’s action will not be significant. Most projects subject to this review will be preceded by a ground water impact assessment required pursuant to other Federal laws, such as the National Environmental Policy Act (NEPA) as amended 42 U.S.C. 4321, *et seq.* Integration of those related review procedures with Sole Source Aquifer review will allow EPA and other Federal agencies to avoid delay of duplication of effort in approving financial assistance, thus minimizing any adverse effect on those small entities which are affected. Finally, today’s action does not prevent grants of Federal financial assistance which may be available to any affected small entity in order to pay for the redesign of the project to assure protection of the aquifer.

Under Executive Order 12291, EPA must judge whether a regulation is “major” and, therefore, subject to the requirement of a Regulatory Impact Analysis. This regulation is not major because it will not have an annual effect of \$100 million or more on the economy, will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of United States enterprises to compete in domestic or export markets. Today’s action only provides an in-depth review of ground water protection measures, incorporating State and local measures, whenever possible, for only those projects which request Federal financial assistance.

Dated: April 14, 1988.

Valdas V. Adamkus.
Regional Administrator.

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