

[FRL-3410-7]

Buried Valley Aquifer System, Ohio (Southern Portion) 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 petitioned southern portion of the Buried Valley Aquifer System of the Great Miami/Little Miami River Basins of Southwestern Ohio, hereafter called the Buried Valley Aquifer System (BVAS-South), 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 March 10, 1988, EPA received a complete SSA petition from the Ohio-Kentucky-Indiana Regional Council of Governments of Cincinnati, Ohio, which petitioned EPA to designate the BVAS-South as a Sole Source Aquifer.

On April 20, 1988, EPA published notice to announce a public comment period regarding the petition. The public was invited to submit comments and information on the petition until June 3, 1988. A public meeting was held on May 18, 1988 at the EPA Research facility in Cincinnati. Comments were accepted for 16 days following the meeting.

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-South 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-South currently serves as the “sole source” of drinking water for approximately 650,000 residents of Butler, Warren, Hamilton, Clermont and Clinton 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-South is an unconfined to semi-confined aquifer that transmits water through unconsolidated glacial sediments. The high porosity and permeability of these deposits, coupled with thin overlying soils and shallow depth of water, make the BVAS-South very vulnerable to contamination. Contamination has already occurred, especially in Hamilton, Butler, Warren, and

Clermont Counties. 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, (E) salting of roads for ice control, and (F) poorly functioning on-site waste water disposal systems. 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 entire BVAS of the Great Miami/Little Miami River Basins 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 in thickness from 20 to 400 feet, and in width from 1/10th to 3 miles. 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 in the BVAS-South averages approximately 74 million gallons per day (mg/d) within the proposed area. This resource is so readily available and prolific that few communities and individuals within reach of it have developed alternative sources, with the exception of much of the Cincinnati Metropolitan Area, which relies on water from the Ohio River. In fact, 73 percent of the public water and 100 percent of the private water

in the proposed designated area is drawn from the BVAS-South.

The BVAS-South is recharged primarily by precipitation, with a minor amount contributed as inflow from the upland areas. Some of the public supply 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 aquifer system, "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, and the recharge area boundaries are coincident with the aquifer system boundaries.

The project review area consists of the area over the Class I and II aquifers south a hydrodynamic boundary which occurs just south of the City of Franklin in Warren County, to the southern boundary of the Great Miami Basin and including that portion of the BVAS in the Little Miami Basin in Warren, Clermont, and Clinton Counties. Included are two small "fingers" of aquifer in western Preble County that connect with the main aquifer in the BVAS-South area.

The designated area does not include the Mill Creek Basin in Butler and Hamilton Counties. This basin contains a Class I aquifer, but the population in the drainage basin depends primarily on surface water for their drinking water supply. Although the communities of Wyoming, Lockland, Glendale, and Reading do use ground water as their water source, they can connect to the Cincinnati water system if the aquifer becomes contaminated beyond levels commensurate with public health. When considered as a separate

hydrologic system, the Mill Creek Basin does not meet the criteria established by EPA for sole source eligibility. Also excluded is a portion of the Ohio River in southwest Butler County, just upstream from the confluence of the Ohio with the Great Miami River. This designation includes no part of the Ohio River Aquifer.

IV. Alternative Sources

The Petitioner considered two alternatives to the BVAS-South to supply drinking water: existing surface water systems and bedrock aquifers.

Bedrock aquifers do not have the characteristics necessary 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. Thousands of 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 City of Cincinnati public water system draws heavily on Ohio River water, using over 27 million gallons per day. Additional river water, as well as water from two reservoirs in Warren and Clermont Counties, could be supplied to nearby, ground water-dependent systems. However, many water systems, are not within a distance that is normal for the area to transport water. Under the EPA Sole Source Aquifer Guidance, for a potential source to be considered as viable, it must be "near" in terms of what is normal for the area. Also, in many cases where the potential source is near, the infrastructure necessary to transfer to that source must be constructed, which would send annual costs to users over the economic thresholds of the guidance.

The potential alternative water sources considered in the petition could not replace the increment supplied by the BVAS-South if it should become widely contaminated. Therefore, from the standpoint of use, the BVAS-South, excluding the Mill Creek Basin Aquifer, meets the criteria of a sole or principal source aquifer.

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

The City of Oxford, Ohio, requested that a portion of Class II Aquifer within its boundaries be excluded because there are no wells in it that could be impacted by contamination. Because there is no hydrogeologic reason to exclude this portion, EPA will include it in the designated area. However, the absence of drinking water wells will be a factor to consider in future reviews when determining whether contamination from a project would create a hazard to public health.

During a public meeting on May 18, 1988, the question arose as to whether the Mill Creek Basin (MCB) Aquifer should be included in the designated area. When considered as a separate hydrologic system, the MCB aquifer supplies only about 20 percent of the drinking water, with the majority of the population on surface water from the Cincinnati System. The area is highly industrialized, and a substantial portion of the recharge area is already occluded by development. The Mill Creek itself is heavily channelized and, in many stretches, enclosed in a cement channel which prevents it from gaining flow in those stretches from ground water. Proponents for

inclusion of the MCB Aquifer maintained that to exclude it from the designated area would disrupt the integrity of the BVAS Sole Source Aquifer and have adverse impacts on the water supply of those communities that do use the MCB Aquifer for their water supply.

In a written comment, the Greater Cincinnati Chamber of Commerce opposed designation of the entire proposed area on the strength of the amount of surface water used by Cincinnati. However, the entire surface water dependent area need not be included in the Aquifer Service Area, and the Chamber submitted no data to support its claim. The data supplied in the petition is based on U.S. Census figures and field work, and in the absence of data to support the Chamber's position, EPA is accepting the demographic and water use data of the petition.

Cincinnati Gas and Electric Company requested that a portion of the proposed designated area that includes the Ohio River Aquifer in southwest Butler County be excluded from the final designation. Analysis of geologic data suggests that the area in question is separate and upgradient from the Great Miami aquifer and, therefore, will *not* be part of the final designated area.

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-South. 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: June 17, 1988.

Valdas V. Adamkus.
Regional Administrator.

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