

ENVIRONMENTAL PROTECTION AGENCY

Sole Source Aquifer Designation of the Troutdale Aquifer System; Clark County, Washington.

AGENCY: 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 (42 U.S.C. 300h-3(e), Public Law 93-523), and in response to a petition from a group of Clark County residents (two private groups and 8 individuals), the U.S. Environmental Protection Agency (EPA) Region 10 Administrator has determined that the Troutdale aquifer system, in Clark County, Washington, is a sole or principal source of drinking water, and that if contaminated, would create a significant hazard to public health. As a result of this action, all federal financially-assisted projects proposed over the designated aquifer system will be subject to EPA review to ensure that they do not create a significant hazard to public health.

EFFECTIVE DATE: This determination shall be promulgated for purposes of judicial review at 1:00 p.m. Eastern time on **[insert date two weeks after date of publication in the FEDERAL REGISTER]**.

ADDRESSES: The information upon which this determination is based is available to the public and may be inspected during normal business hours at the EPA Region 10 Library, 1200 Sixth Avenue, Seattle, Washington, 98101, or on the EPA website at: <http://yosemite.epa.gov/r10/water.nsf/Sole+Source+Aquifers/Program>.

FOR FURTHER INFORMATION CONTACT: Martha Lentz, Hydrogeologist, Office of Environmental Assessment, OEA-095, Environmental Protection Agency, Region 10, 1200 Sixth Avenue, Seattle, Washington, 98101, 206-553-1593.

SUPPLEMENTARY INFORMATION:

I. Background

Section 1424(e) of the Safe Drinking Water Act states:

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 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.

The EPA Region 10 Drinking Water Section received a draft sole source aquifer (SSA) petition in early November 2005 from a group of Clark County residents, who represent both individuals and private public interest groups. The petitioners were:

The Columbia Riverkeeper

The Rosemere Neighborhood Association

Dvija Michael Bertish

Dennis Dykes

Thom McConathy

Nathan Reynolds

Karen Kingston

Coleen Broad

Richard Dyrland

Dean Swanson

A final petition was presented to EPA on November 29, 2005. On December 28, 2005, EPA sent a letter to the petitioners acknowledging that the agency considered the petition complete, and that the technical review process would begin.

In January 2006 EPA met with the petitioners to discuss expanding the aquifer system boundary to include more of the geologic formations. There was agreement to extend the boundary, and the petitioners agreed to provide updated values for population and drinking water use data. On January 17, 2006 the petitioners provided the adjusted water use and population data to EPA.

In February of 2006, the Troutdale aquifer system review was completed and the area appeared to meet all criteria for SSA designation. The legal and technical basis for the proposal was outlined in an EPA publication titled: “Draft Support Document for the Sole Source Aquifer Designation of the Troutdale Aquifer System “. After a technical peer review and public comment period, a final publication was compiled titled: “Final Support Document for the Sole Source Aquifer Designation of the Troutdale Aquifer System”.

II. Basis for Determination

Among the factors to be considered by EPA in connection with the designation of an area under Section 1424(e) are: (1) whether the aquifer 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.

EPA Region 10 follows EPA guidance which interprets the statutory language of “sole or principal” as meaning that the aquifer must supply at least 50 percent of the drinking water for the area. Furthermore, there should be no alternate drinking water source(s) which can physically, legally, and economically supply all those who depend upon the aquifer for drinking water, should it become contaminated. In addition, aquifer boundaries should be delineated based on sound hydrogeologic principles and the best available scientific information.

Although designation determinations are largely based on science-based criteria, the Regional Administrator may also consider the overall public interest and net environmental and public health benefits in making a sole source aquifer determination.

On the basis of information available to this Agency, the Region 10 Administrator has made the following findings:

(1) The aquifer system is the principal source of drinking water (approximately 99.4%) for the people in the Troutdale aquifer system area and there are no alternate sources which can physically, legal, and economically supply all those who depend upon the aquifer for drinking water, should it become contaminated. Potential alternate sources considered include surface water, alternative aquifers, and an intertie with the Portland Water Bureau. None of these drinking water sources are considered by EPA to be feasible replacements for the entire aquifer system due to economic barriers or because these sources are not consumed or utilized for domestic purposes in significant quantities.

(2) Contamination of the aquifer system would create a significant hazard to public health. The aquifer system is vulnerable to contamination because recharge occurs essentially over the entire area, the aquifer is highly permeable, and there are many human activities that have released, or have the potential to release, contaminants to the aquifers. The Washington Department of Ecology (WDOE) currently lists 204 active cleanup and 12 federal Superfund sites in the proposed aquifer service area. These sites are known to have been contaminated and are undergoing cleanup. Many of these sites

include plumes of groundwater contamination. WDOE also lists 625 hazardous waste generators, and 609 underground storage tanks in this area.

▪ Superfund sites	12
▪ Active state cleanup sites	90
▪ Active voluntary and independent cleanup sites	114
▪ LUST sites	185
▪ Hazardous waste sites	625
▪ UST sites	609

Other sources of contamination include untreated or poorly treated storm water and septic systems. There are about 7,000 septic systems within the City of Vancouver's sewer service area. There are tens of thousands of additional septic systems outside the city discharging to the aquifer. The county is experiencing rapid growth which increases the threat to the quality of the aquifer as well as increases the demand for potable water.

Because the aquifer system is vulnerable to contamination and restoring ground water quality can be difficult or even impossible; and because the aquifer system is the principal source of drinking water for the area and there are no other sources which can economically supply all those who depend upon it for drinking water; EPA believes that contamination of the aquifer system would pose a significant hazard to public health.

These findings are based on information from various sources including the petition, EPA guidance, U.S. Geological Survey reports, and public comments.

III. Description of the Troutdale Aquifer System

The following is a summary of information from the Support Document available upon request from EPA Region 10, or from the EPA website. Much of the hydrogeological information in the Support Document is taken from the petition and from “Description of the Groundwater Flow System in the Portland Basin, Oregon and Washington”, U.S. Geological Survey (USGS) Water Supply Paper 2470-A, by McFarland, William D. and David S. Morgan, 1996A.

The petitioned area is within Clark County, Washington, which is a part of the southernmost boundary of the state, along the Columbia River. The geography is characterized by flat-lying alluvial lands along the Columbia River and its tributaries. These alluvial lands are interrupted by low, rolling hills and/or buttes with benches and hilly areas that rise to meet the foothills of the Cascade Range to the east and the northeast. The altitude of the land surface ranges from approximately 10 feet along the Columbia River to about 3,000 feet in the foothill of the Cascade Range. The Columbia River flows westward out of the Columbia River Gorge, past the City of Vancouver, Washington, where it flows northward. The tributaries to the Columbia River that drain Clark County include the North and East Forks of the Lewis, Little Washougal, Washougal, and Lake Rivers. Major creeks are Cedar, Salmon, Burnt Bridge, and Lacamas Creeks.

The geologic units of the Troutdale aquifer system are all lacustrine and fluvial sediments of the upper and lower members of the Troutdale Formation, other consolidated sand and gravel aquifer units, and overlying unconsolidated alluvium and flood deposits. These aquifer system units overlie volcanic and marine sedimentary rocks that are commonly known as the “older rocks” unit. The older rocks unit is minimally productive as an aquifer and is therefore not included in the aquifer system being considered for sole source designation.

Sedimentary units of the aquifer system include eight hydrogeologic units comprising the Portland Basin aquifer system. From youngest to oldest, these hydrogeologic units are (1) the unconsolidated sedimentary aquifer, (2) the Troutdale gravel aquifer in the Troutdale Formation, (3) confining unit 1, (4) the Troutdale sandstone aquifer in the Troutdale Formation, (5) confining unit 2, (6) the sand and gravel aquifer, and (7) older rocks. The eighth unit is an undifferentiated fine-grained sediment deposit that occurs in the basin where the Troutdale sandstone and the sand and gravel aquifer are absent or where there is insufficient information to characterize the aquifer units within the lower Troutdale member.

The quality of groundwater in the proposed aquifer service area is generally good with some exceptions. Dissolved-solids concentrations ranged from 12 to 245 milligrams per liter, with a median concentration of 132 milligrams per liter. Most waters can be characterized as soft to moderately hard. Concentrations of nitrate as nitrogen exceeded 1.0 milligram per liter throughout the Vancouver urban area, and were as large as 6.7

milligrams per liter (Maximum Contaminant Level (MCL) is 10 milligrams per liter). Potential nitrate sources are septic systems and fertilizers. According to the 1990 Census, there are more than 31,000 septic systems in Clark County. An analysis of limited historical data indicates that nitrate concentrations may be decreasing in the southwestern part of the county around the Vancouver urban area. A slight increase in nitrate concentrations was noted in rural areas. Nitrate concentrations correlated with sulfate concentrations ($r = 0.61$), indicating similar sources for the two. Volatile organic compounds have been detected in wells in the Vancouver urban area. Compounds identified included tetrachloroethene, 1,1,1-trichloroethane, and other solvents. Atrazine and 2,4-D have also been detected in well water. Trace elements and radiochemical constituents were present only at small levels, indicating natural sources for these constituents.

The Troutdale aquifer system boundaries are represented by rivers and the geologic boundary between the aquifer system units and the older rocks unit. The Columbia River forms the southern and western boundaries of the proposed Troutdale aquifer system. The northern boundary follows the North Fork of the Lewis River from its confluence with the Columbia River, east to the confluence of Cedar Creek. Cedar Creek is used as the northeast boundary because its location is the closest geographic representation of the geologic boundary between the Troutdale unit and the older rocks unit, and the creek also most likely acts as a local ground water divide for the upper parts of the aquifer system. The aquifer boundary follows Cedar Creek east where the boundary turns southeast and follows the mapped geologic contact between the Troutdale

Formation and the older rocks unit. The eastern boundary follows the geologic contact south to the Little Washougal River, and then follows the Little Washougal River to its confluence with the Washougal River. The boundary then follows the Washougal River south to Woodburn Hill, where it turns northwest and follows the geologic contact along a small outcrop of the older rocks unit. The boundary follows the geologic contact through the City of Camas, and meets the Columbia River. In the northern part of the area, the aquifer system boundary is drawn around Bald Mountain, which is excluded from the aquifer system because it is composed of the older rocks unit. Please see the Support Document for a more detailed hydrogeologic description.

IV. Project Reviews

The Safe Drinking Water Act authorizes EPA to review proposed Federal financially-assisted projects which have the potential to contaminate a designated SSA. Federal assistance may be denied if EPA determines that a project may contaminate the SSA through its recharge zone so as to create a significant hazard to public health. Outright denial of federal funding is rare as most projects pose limited risk to ground water quality or can be feasibly modified to prevent ground water contamination. Proposed projects that are funded entirely by state, local, or private concerns are not subject to SSA review by EPA.

EPA does not review all possible federal financially-assisted projects, but tries to focus on those projects which pose the greatest risk to public health. Memorandums of Understanding have been developed between EPA and various federal funding agencies

to help identify, coordinate, and evaluate projects. EPA relies to the maximum extent possible on existing local and state mechanisms to protect SSAs from contamination. Whenever feasible, EPA coordinates project reviews with local and state agencies that have a responsibility for ground water protection. Their comments are given full consideration in the federal review process.

V. Public Participation and Response to Comments

The following is a summary of the information from the “EPA Response to Public Comments Submitted on the Draft Support Document for the Sole Source Aquifer Designation of the Troutdale Aquifer System”, which is available on the EPA Region 10 Sole Source Aquifer website.

EPA used various methods to notify and involve the public and others in the Troutdale Aquifer System SSA designation process. The outreach effort included briefings to local and State government, distribution of EPA facts sheets, placing information in local libraries, a public advertisement in the local newspaper, and posting all designation information on the EPA Region 10 Sole Source Aquifer website.

A public comment period was in effect from March 1, 2006 to May 1, 2006. EPA received 26 letters of support for the designation from a combination of individuals, public interest groups, Indian tribes, and public utilities. A letter from the City of Portland Bureau of Water Works suggested corrections to the Support Document regarding accurate wording of information about the Bureau of Water Works. A letter

from the Board of Clark County Commissioners listed 7 questions for EPA to answer. In a follow-up letter, the Board questions the need for the designation and requests a written guarantee that EPA will only address technical aspects of federally-funded projects in the area, and not involve itself in local land use issues. A letter from the City of Vancouver questioned the need for the designation, and questioned the validity of the alternative source evaluation. There were no letters expressing strong opposition to the designation.

The primary reason given for supporting the proposed action was a belief that designation would increase protection of the area's ground water. Many people cited concerns regarding historical and current ground water contamination of the aquifer system, indicating the high degree of aquifer vulnerability. Many cited the educational benefit that SSA status would have on the area's residents and on Clark County government on the source of the area's drinking water, and its value and the need for protection and conservation. Some people commented that protection of the area's ground water was important because there are no feasible alternate sources of drinking water.

Two local governmental agencies questioned the need for the sole source, citing other ground water protection laws that are currently in effect. In response, there is no program in the State of Washington that designates an entire aquifer boundary for protection efforts. EPA has authority to review, and recommend mitigating measures to any federally-financially assisted project that is determined to be a risk to the ground water. No such review exists through any other program.

One governmental agency expressed concern that special interests would exploit the designation which would lead to unnecessary project delays and the advancement of other agendas. In response, EPA's role, after designation, is to review federally-financially assisted projects proposed in the area, to make sure that they will not contaminate the aquifer. Project delays would only occur if it became necessary to incorporate mitigating measures to assure that the public's drinking water would be protected.

One government agency believes that there are feasible alternative sources of drinking water for the area. In response, EPA considered and evaluated the potential costs of supplying the aquifer population with water from various rivers, Lake Vancouver, etc... individually. We did not consider them collectively because if they were not feasible individually, then they would certainly not be economically feasible collectively. It would cost considerably more to hook up everyone to not only a river source, but also to a lake source. When evaluating economic feasibility, the costs of supply lines running to every single household in the area must be included... this includes every household up in the foothills, out in the middle of the woods, and not just in the metropolitan areas. Although there may be a collection of alternative water supplies that could serve the City of Vancouver, this still does not meet the EPA guidance criteria for alternative sources, which states that it has to be shown that the alternative source could supply the entire population that lives over the aquifer. We requested

information from the public that would show us if any such alternatives exist, but none were supplied to us.

One government agency requested the EPA provide the technical basis for listing Salmon Creek and Lacamas Creek as losing stream reaches. In response, both creeks were measured as losing reaches by the U.S. Geological Survey in stream measurements made in 1996.


One government agency expressed concern that EPA is unwilling to guarantee in writing that federal agency Memorandums of Understanding (MOU's) will only address technical project elements and not diverge into non-technical issues such as land use or other local jurisdiction decisional concerns. In response, EPA creates MOU's with other federal agencies to ensure that that EPA receives project information on all federally-financially assisted projects that are located in a Sole Source Aquifer and which have the potential to contaminate such aquifer. EPA's role is to review the projects and either approve as-is, or recommend changes in the project design that offer aquifer protection. Such recommended changes in project designs could have an indirect impact on local land use. EPA's direct role in local projects is solely the technical review of federally-financially assisted projects.

VI. Summary

This determination affects only the Troutdale Aquifer System located in Clark County, Washington. As a result of this determination, all federal financially-assisted

projects proposed in the designated area will be subject to EPA review to ensure that they do not create a significant hazard to public health.

Dated:

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Ron Kreizenbeck

Action Regional Administrator

U.S. Environmental Protection Agency, Region 10