

**ENVIRONMENTAL PROTECTION AGENCY**

[EPA-HQ-OW-2005-0005; FRL-8035-7]

**Small Drinking Water Systems Variances—Revision of Existing National-Level Affordability Methodology and Methodology To Identify Variance Technologies That Are Protective of Public Health****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Notice.

**SUMMARY:** The 1996 amendments of the Safe Drinking Water Act (SDWA) provide States the authority to grant variances to small public water systems that cannot afford to comply with a primary drinking water standard. These variances allow a system to install and maintain technology that can remove a contaminant to the maximum extent that is affordable and protective of public health in lieu of technology that can achieve compliance with the regulation. One of the conditions for States to grant variances on a case-by-case basis is that the EPA must have found for systems of a similar size and with similar source water that there are no affordable technologies available that achieve compliance with the standard, but that there are affordable variance technologies that are protective of public health.

The EPA currently determines if there are affordable compliance technologies available to small systems by comparing (for a representative system) the current household cost of water plus the estimated additional cost to comply with a new rule to an affordability “threshold” of 2.5 percent of the median household income (MHI). Today’s **Federal Register** notice requests comment on revisions to this existing national-level affordability methodology for small drinking water systems and an approach for determining if an affordable variance technology is protective of public health. The Agency is committed to working with State and local officials and stakeholders to update and improve affordability analyses under the Safe Drinking Water Act.

**DATES:** Comments must be received on or before May 1, 2006.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-HQ-OW-2005-0005, by one of the following methods:

- <http://www.regulations.gov>. Follow the on-line instructions for submitting comments.

- *E-mail:* [OW-Docket@epa.gov](mailto:OW-Docket@epa.gov), Attention Docket ID No. OW-2005-0005.

- *Fax:* (202) 566-1749.

- *Mail:* Water Docket, Environmental Protection Agency, Mailcode: 4101T, 1200 Pennsylvania Ave., NW., Washington, DC, 20460.

- *Hand Delivery:* Water Docket, Environmental Protection Agency, EPA West Building, Room B102, 1301 Constitution Avenue, NW., Washington, DC. Such deliveries are only accepted during the Docket’s normal hours of operation, and special arrangements should be made for deliveries of boxed information.

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*Docket:* All documents in the docket are listed in the <http://www.regulations.gov> index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either

electronically in <http://www.regulations.gov> or in hard copy at the Water Docket, EPA/DC, EPA West, Room B102, 1301 Constitution Avenue, NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-1749.

**FOR FURTHER INFORMATION CONTACT:** Dan Olson, Standards and Risk Management Division, Office of Ground Water and Drinking Water, (4607M), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC, 20460; telephone number: (202) 564-5239; fax number: (202) 564-3758; e-mail address: [olson.daniel@epa.gov](mailto:olson.daniel@epa.gov).

**SUPPLEMENTARY INFORMATION:****I. General Information***A. What Should I Consider as I Prepare My Comments for EPA?*

1. *Submitting CBI.* Do not submit this information to EPA through <http://www.regulations.gov> or e-mail. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information so marked will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

2. *Tips for Preparing Your Comments.* When submitting comments, remember to:

- Identify the rulemaking by docket number and other identifying information (subject heading, **Federal Register** date and page number).
- Follow directions—The agency may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.
- Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or data that you used.
- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.

• Provide specific examples to illustrate your concerns, and suggest alternatives.

- Explain your views as clearly as possible.
- Make sure to submit your comments by the comment period deadline identified.

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## II. Background

This section provides the purpose of today's action, a brief statutory background on affordability-based small drinking water system variances, and how EPA currently determines if affordability-based variances can be made available to small drinking water systems.

### A. What Is the Purpose of Today's Action?

Today's notice seeks comment on revisions to EPA's national affordability methodology for small drinking water systems and a methodology for determining if an affordable variance technology is protective of public health. EPA believes such revisions are needed to address variability in both incomes and costs across small systems, and to maintain transparency and consistency in determinations regarding affordability and protectiveness of public health. Neither the national affordability methodology nor the methodology for determining if an affordable variance technology is protective of public health imposes any requirement on any person or entity. Rather, these methodologies will be applied by EPA in evaluating small system affordability of future National Primary Drinking Water Regulations (NPDWRs), except regulations for microbial contaminants (including bacteria, viruses, or other organisms) or indicators for microbial contaminants. SDWA section 1415(e)(6)(B) states that small system variances are not available for microbial contaminants.

### B. Statutory Background

Today's **Federal Register** requests comment on a revised approach for implementing the small systems variance provision of the 1996 SDWA amendments. The SDWA, as amended in 1996, includes a provision intended to help reduce the economic impact that certain new regulations will have on some small systems. For small systems with a service population of less than 10,000, SDWA section 1415(e) authorizes a primacy agency to grant a variance from compliance with a Maximum Contaminant Level (MCL) or treatment technique under certain conditions. (An MCL is the maximum permissible level of a contaminant in drinking water that is delivered to any

user of a public water system. A treatment technique is an enforceable procedure or level of technological performance, which public water systems must follow to ensure control of a contaminant.) A primacy (primacy enforcement) agency may grant such a variance on a case-by-case basis for an NPDWR only if EPA has determined that there are no nationally affordable compliance technologies for small systems in the corresponding size category and with comparable source water quality and EPA has identified one or more affordable variance technologies that are protective of public health. In granting this variance, a primacy agency must provide public notice and an opportunity for a public hearing. The primacy agency must also make two system-specific determinations: (1) That the system cannot otherwise afford to comply (using the State's affordability criteria) through treatment, using an alternative source of water supply or restructuring or consolidation; and (2) that the terms of the variance ensure adequate protection of public health. In accordance with the SDWA, EPA evaluates the affordability of new drinking water rules for these categories of small systems: (1) A service population of 10,000 or fewer but more than 3,300; (2) a service population of 3,300 or fewer but more than 500; and (3) a service population of 500 or fewer but more than, or equal to, 25.

The legislative history of section 1415(e) does not provide guidance on how EPA is to interpret the term "affordable." However, the Senate Report for S 1316, the Senate version of the SDWA amendments of 1996 which contained similar small system variance provisions, includes the following discussion.

"Of the approximately 57,000 community water systems regulated under the Safe Drinking Water Act, nearly 54,000 serve populations of 10,000 or less. While EPA has taken steps to recognize the difficulties of small systems by establishing the Small System Technology Initiative, by forming the National Training Coalition, and by developing handbooks and computer software, the current Safe Drinking Water Act does not successfully address the problems of small systems.

The fundamental problem is one of economics. Maximum contaminant levels in national primary drinking water regulations have been based on the best available treatment techniques that are affordable for large systems. Because small systems do not enjoy the economies of scale that are available to large systems (infrastructure costs cannot be spread over a large number of households) drinking water regulations can have a much greater economic impact on small systems. EPA and the Congressional

Budget Office have published estimates indicating that systems serving more than 10,000 persons experience costs averaging less than \$20 per household per year to comply with the current requirements of the Safe Drinking Water Act. By way of comparison, the average annual incremental household cost to comply with the requirements of the Safe Drinking Water Act for systems serving 25 to 100 persons is \$145." (Senate Report No. 104-169, Nov 7, 1995, pp 54-55) <sup>1</sup>

This language underscores the Senates concern for the burden imposed on very small systems by NPDWRs, and provides an indication of the treatment cost data considered by the Senate at the time they developed these small system variance provisions. The House and Conference Reports do not provide any additional guidance on interpreting section 1415(e).

### *C. How Does EPA Currently Determine if Affordable Compliance Technologies Are Available to Small Drinking Water Systems?*

As explained in the August 6, 1998 **Federal Register** notice (63 FR 42032), EPA currently determines if there are any affordable compliance technologies for a given NPDWR by comparing the estimated household costs to national-level affordability criteria based on household income. If EPA cannot identify affordable compliance technologies, then EPA must identify affordable variance technologies, pursuant to section 1412(b)(15) of the SDWA. A variance technology is one that provides the maximum contaminant removal, or inactivation, that is affordable, considering the quality of the source water to be treated and the expected useful life of the technology, and that the Agency determines is protective of public health. To date, EPA has found no NPDWRs "unaffordable" for small systems.

The focus of the current national-level affordability analysis is the household. Treatment technology costs are presumed affordable to the typical household if they do not cause median water bills to exceed an affordability threshold of 2.5 percent of MHI. This approach assumes that affordability to the median household in a system size category can serve as an adequate measure for the affordability of technologies to the size category as a whole.

<sup>1</sup> The average annual household increases cited in the report is for the cumulative impact imposed by the drinking water regulations at the time of the report. These are average costs across all systems in the size category including those with no impact. Treatment costs would not be derived in that manner for the options in this notice.

The current national-level affordability criteria consider current annual water bills, or baseline cost, the incremental cost of the new regulation, and the affordability threshold (i.e., 2.5 percent of MHI). For each NPDWR, EPA estimates the baseline cost using annual sales revenue per residential connection from the most recent Community Water System Survey (CWSS). The CWSS is a national survey that the Agency conducts and is designed to compile operating and financial information from a statistically representative sample of community water systems. EPA subtracts this baseline from the affordability threshold to yield an "expenditure margin." The Agency then compares this expenditure margin with the projected per household treatment costs for a new rule to make affordable technology determinations. As previously stated, this national affordability threshold currently sets the maximum affordable water bill at 2.5 percent of the MHI for the median system in a given size category (e.g., public water systems serving (1) a population of 10,000 or fewer but more than 3,300; (2) a population of 3,300 or fewer but more than 500; and (3) a population of 500 or fewer but more than, or equal to, 25).

Some stakeholders have argued that the current criteria are too stringent and fail to recognize situations in which a significant minority of systems within a size category may find a regulation unaffordable. After seven years of experience with the current criteria, EPA agrees it is time to consider refinements to address the situations of communities with below average incomes or above average drinking water and treatment costs.

In today's notice EPA has changed the term it uses to refer to the procedures for evaluating the affordability of compliance technologies. Today's notice refers to an "affordability methodology" rather than "affordability criteria." EPA believes the term "methodology" better describes its procedures for determining small system affordability of NPDWRs. EPA again reiterates that this methodology imposes no regulatory requirements on the public. Its only purpose is to guide EPA in making small system affordability determinations under the SDWA. EPA may continue to update and refine this methodology as appropriate in the future.

### **III. Affordability Methodology**

As part of the 2002 appropriations process, Congress directed EPA to review and update the national-level affordability methodology. In response,

EPA sought the advice of its Science Advisory Board (SAB) and the National Drinking Water Advisory Committee (NDWAC). This section summarizes the SAB and NDWAC recommendations to EPA for revising the national-level affordability methodology, presents the key issues EPA considered in evaluating its affordability methodology, and discusses a range of options for revising the existing national-level affordability methodology.

#### *A. The EPA's Science Advisory Board Recommendations on Affordability*

The EPA SAB is a public advisory group that provides extramural scientific information and advice to the Administrator and other EPA officials. The Board is structured to provide balanced and expert assessment of scientific matters related to problems facing the Agency.

In March 2002, the EPA asked the SAB to consider the economic issues associated with the current national-level affordability methodology, as well as the factors that were used to establish the methodology. The SAB's Environmental Economics Advisory Committee met twice to prepare recommendations regarding four key topics:

1. EPA's approach to determining affordability for small systems.
2. Components of the affordability determination method.
3. Source water and regional disparities.
4. Whether financial assistance should be considered in EPA's national-level affordability methodology.

The SAB's findings and recommendations on these topics were published in the report *Affordability Criteria for Small Drinking Water Systems: An EPA Science Advisory Board Report* (EPA-SAB-EEAC-03-004) which can be found in the EPA Docket. The discussion in today's notice summarizes the key findings with respect to the four general areas noted above.

#### **1. EPA's Approach To Determining Affordability for Small Systems**

The SAB found that EPA's approach to determining affordability for small systems addressed equity, efficiency, and administrative practicality considerations. However, the SAB recommended that the Agency consider some modifications to address long-term efficiency issues (i.e., allowing variances potentially inhibit movement toward small system consolidation) and to more effectively deal with the diversity among small systems.

## 2. Components of the Affordability Determination Method

a. *Measures other than median.* The SAB highlighted some concerns with relying on median household income as the basis for the affordability threshold for small systems. One concern is that it does not reflect income inequality within water systems. That is, even if the median household can afford to pay the increased water bill, poorer households within a water system may find it unaffordable. Another concern about using median household income arises from income inequality across water systems within a size class. That is, even if the median system in a size category can afford to pay for a treatment technology, poorer systems may find it unaffordable.

The SAB identified three approaches to account for these income inequalities. To address within-system income inequality, SAB suggested that EPA could keep the current affordability formula, but specify a lower household income percentile within water systems (instead of the current MHI) such as the 10th or 25th percentile. To address between-system income inequality, SAB suggested that EPA could consider whether a significant percentage of systems (e.g., 10 percent or 25 percent) fall below the threshold, even when the median system does not. A third approach that may address both issues involves basing the threshold on some statistical measure of dispersion, such as variance or standard deviation, in addition to the mean (i.e., basing it on 1.5 standard deviations below the mean household income within a system size category).

b. *Alternatives to 2.5 percent as the income percentage.* The SAB highlighted the fact that the national affordability threshold has never been exceeded and that there was evidence suggesting that some small water systems have genuinely struggled with compliance costs. They believe that this suggests that the 2.5 percent threshold is too high, and that a lower cutoff should be used resulting in a greater likelihood that small systems variances would be authorized.

c. *Alternatives to the expenditure baseline calculation.* The use of an expenditure baseline (e.g., current water bills) potentially has the effect of causing early regulations to be considered affordable, whereas later, if the affordability threshold is exceeded, even regulations with trivial costs could be found unaffordable to small systems. The SAB recommended eliminating the expenditure baseline from the formula and evaluating the affordability of each

set of regulations incrementally (i.e., where the cost of each new rule is compared to a percentage of household income). EPA notes that in practice, this has not been an issue, as the expenditure margin calculated using 2.5 percent of MHI has widened, not narrowed, over time.

## 3. Source Water and Regional Disparities

a. *Ground water versus surface water.* The SAB noted that a significant number of (typically) small rural communities have historically relied on ground water as their source of supply with little or no treatment. For these communities to comply with new drinking water regulations, they may incur costs of establishing a Awhole treatment system@ rather than simply adding onto an existing system. While this may be more likely for groundwater systems, the SAB noted that some surface water supplies also require little treatment. The SAB also noted that there is great variation in treatment costs for both surface water and ground water systems. Therefore, the SAB recommended that the affordability methodology not differentiate between ground water and surface water systems.

b. *Regional versus national basis.* The SAB discussed making determinations on a regional or even local basis as well as adding an urban/rural distinction. The SAB stated that “regional income measures and expenditure baselines would capture affordability relative to the resources available in a community more accurately than the national values; however, a national affordability threshold is necessary to implement the fairness goal.”

## 4. Financial Assistance

Funding is available to assist small systems through the Drinking Water State Revolving Loan Fund and the Rural Utilities Service of the U.S. Department of Agriculture. However, it is not available to all systems because affordability is only one criterion used in awarding this type of assistance. The SAB stated that since this funding is only available to some systems, it should not affect the national-level affordability determination.

### B. *The National Drinking Water Advisory Council's Recommendations on Affordability Criteria*

One of the formal means by which EPA works with its stakeholders is the National Drinking Water Advisory Council. The NDWAC, comprised of members of the general public, State and local agencies, and private groups concerned with safe drinking water,

advises the EPA on everything that the Agency does relating to drinking water. To assist in this process, the NDWAC forms work groups of experts to perform assessments of specific drinking water issues. The work groups prepare reports and recommendations that the NDWAC considers when making its recommendations to EPA.

The NDWAC Affordability Work Group met five times between September 2002 and January 2003. The NDWAC Work Group was comprised of 18 individuals representing an array of backgrounds and perspectives. Collectively, these individuals brought into the discussion the perspectives of State, local, and tribal governments, environmental and consumer groups, drinking water utilities, small system advocates, technical assistance providers, and academia.

The NDWAC Work Group was specifically asked—based on six charge questions posed by EPA—to provide advice on EPA’s national-level affordability methodology, the process used to derive the methodology, and EPA’s approach to applying this methodology to NPDWRs. The six questions were as follows:

1. Should MHI or another income measure (such as per capita income) be used for the income level?

2. Should 2.5 percent or another percentage be used as the income percentage for determining the maximum affordable water bill, and what is the basis for an alternative selection?

3. How should the expenditure baseline be adjusted to account for new rules?

4. Should separate affordability criteria be developed for surface and ground water systems?

5. Should financial assistance be incorporated in the calculations of the expenditure baseline?

6. Should regional affordability criteria be developed, given current data limitations?

The NDWAC’s findings and recommendations on these topics were published in the report *Recommendations of the National Drinking Water Advisory Council to U.S. EPA on Its National Small Systems Affordability Criteria* (NDWAC, 2003) and can be found in the EPA Docket. The discussion in today’s notice summarizes the key findings with respect to the six general areas noted earlier.

1. Should MHI or Another Income Measure (Such as Per Capita Income) Be Used for the Income Level?

The NDWAC found that since the MHI is clearly defined and available for all regions of the nation, it was the most appropriate income metric to use for this purpose at the time of the report. The NDWAC members noted that a better metric may be found in the future.

2. Should 2.5 Percent or Another Percentage Be Used as the Income Percentage for Determining the Maximum Affordable Water Bill, and What Is the Basis for an Alternative Selection?

The NDWAC recommended that EPA replace its current approach with an incremental approach where the cost of each new rule is compared to a percentage of household income (e.g., one percent) because it “is theoretically sounder, is simpler to administer, and has greater transparency than the current EPA method.” The NDWAC observed that the incremental approach permits EPA to assess each new rule independently of the cumulative costs of preceding regulations. While this recommendation does not involve calculating a maximum water bill, the NDWAC did recommend that the incremental affordability threshold be set at a fixed percent of MHI.

The NDWAC stated that the incremental percentage of MHI could be based on an analysis of willingness to pay measures (comparable expenditures as a percent of MHI), defensive expenditures (i.e., bottled water or point-of-use/filter devices), or other considerations related to household affordability such as a “doubling of current water bills.” The NDWAC did not believe that an affordability threshold should be greater than twice the amount of current household water bills. The NDWAC stated that national data indicated the average water bill for households amounted to 0.5–0.6 percent of MHI. In addition, NDWAC stated that one percent of MHI was approximately equal to 1.5 times the cost of point-of-use technologies used to treat water. Based on these observations, the NDWAC recommended that EPA use one percent of MHI as the incremental affordability threshold.

3. How Should the Expenditure Baseline Be Adjusted To Account for New Rules?

The NDWAC recommended an incremental approach that eliminates the need for establishing or updating an expenditure baseline.

4. Should Separate Affordability Criteria Be Developed for Surface and Ground Water Systems?

The NDWAC recommended that EPA use the same criteria for surface water and ground water systems. The NDWAC Work Group observed not only minimal cost differences between surface and ground water systems, but also that treatment costs vary widely for both types of systems.

5. Should Financial Assistance Be Incorporated in the Calculations of the Expenditure Baseline?

The NDWAC recommended an incremental approach that eliminates the need for establishing or updating an expenditure baseline. However, if EPA retains its present approach to making the national affordability determination, the NDWAC recommended incorporating financial assistance into the calculations if the financial support is generally available to all systems nationwide. The NDWAC further recommended that States consider the availability of financial assistance in their analysis and calculations when determining whether a variance should be granted to a particular system, regardless of EPA’s approach to making the national affordability determination.

6. Should Regional Affordability Criteria Be Developed, Given Current Data Limitations?

The NDWAC recommended that EPA establish differential regional affordability criteria when sufficient supporting data are available. In particular, the NDWAC recommended that EPA separate the MHI into rural and urban categories to more accurately reflect actual ability and willingness to pay.

7. NDWAC Perspective

The NDWAC adopted the Work Group report with minor modifications to some of the Work Group’s recommendations, and provided additional recommendations and perspective on affordability issues associated with small public water systems. These are summarized below. The recommendations of the NDWAC Work Group were made in the context of the SDWA requirement to make affordability-based variances available to small systems when the statutory criteria are satisfied. However, the NDWAC did not believe that this is generally the best approach for addressing affordability issues at small systems. The NDWAC stated specifically that “significant practical, logistical, and ethical issues mitigate against the use of variances.”

The NDWAC noted that the regulatory burden associated with the procedures for obtaining a variance (40 CFR part 142, subpart K) may be substantial to both small drinking water systems and primacy (primacy enforcement) agencies. Furthermore, the NDWAC found that “the potential acceptance of lower water quality for disadvantaged communities is ethically troublesome.”

The NDWAC believes that alternatives to the variance process, including cooperative strategies (e.g., State leadership to promote consolidation or other types of cooperation among small systems), and targeted use of funding to disadvantaged water systems (e.g., supporting individual households with a Low-Income Water Assistance Program funded through Congressional appropriation) are more appropriate means to address affordability issues associated with small public water systems that cannot afford to comply with a NPDWR.

8. NDWAC Work Group—Minority View

Through its representative on the Work Group, the National Rural Water Association (NRWA) filed a minority report indicating disagreement with the recommendations of the majority of the Work Group members. The minority report is entitled *Small and Rural Community Affordability Consensus Report* and is included as an appendix to the NDWAC Report. The NRWA Report identifies three issues on which it dissents from the NDWAC recommendations.

First, the NRWA Report states that the NDWAC Work Group recommended affordability level is “clearly unaffordable for millions of low-income families and many communities by any reasonable definition of affordable.” The NRWA Report also identifies a problem with the use of median household income (MHI) as a metric for determining affordability, noting that, “The fact that a certain level of expenditure is affordable to the median income household in a community tells us very little about the ability of the low-income households in the community to afford the same levels of expenditure.” To address these concerns, the NRWA suggested an alternative “Safe and Affordable Variance Approach” under which EPA would list variance technologies for each applicable rule, and States would decide on a case by case basis if a variance technology is appropriate. Under this approach, all NPDWRs would be found potentially “unaffordable” at the national level, and it would be up to States to determine

which small systems actually could not afford to comply and thus were eligible for a variance.

Second, NRWA found that the NDWAC Work Group recommendations do not “provide a reasonable and workable small systems variance technology program as mandated in the SDWA.” NRWA expressed concern that the NDWAC Work Group’s recommended affordability level was designed to avoid requiring EPA “to determine a variance technology policy, which incidentally is the Congressionally prescribed solution to unaffordable EPA rules.”

Finally, the NRWA identified concerns with the NDWAC recommendations regarding consolidation, USDA Program Initiatives, low-income water assistance programs (LIWAP) and other potential federal initiatives. NRWA found these to be “steps in the wrong direction for assisting small and low-income communities to comply with rules because each recommendation shares a common theme of eroding local government authority, control and protection.”

In developing the proposed revisions to its national affordability methodology, EPA has carefully

considered the recommendations of both the NDWAC majority report, and the NRWA minority report.

*C. Key Factors Considered in Developing Affordability Methodology Options*

Based on the recommendations of the SAB, the NDWAC and the NRWA, the Agency identified three key factors that it considered in developing revisions to its affordability methodology: Variability in household costs of water treatment, variability in small system ability to pay, and the need for improved implementation at the Federal level of the small system variance provisions of the SDWA. This section discusses these issues.

1. Variability in Household Costs of Water Treatment

Within and among the approximate 50,000 small systems in the U.S., there are a number of factors that affect the household cost of a given technology. Among these, the SDWA requires the Agency to consider two: population served and source water quality.

a. *Population served.* EPA currently selects the median sized system as representative of the costs within a system size category and estimates the household costs for each of the

technologies that can achieve compliance with the primary drinking water standard. In general, total costs for installation, operation, and maintenance of treatment units are greater for systems that serve large populations than for systems that serve small populations. However, on a per household basis, the opposite is true. Because of fixed costs and substantial economies of scale, the per household costs of treatment are higher for small water systems (especially very small systems serving less than 500 people) than for large regional systems. It was this concern that led Congress to include the affordability-based small system variance provisions in the 1996 SDWA amendments.

Table III–1 demonstrates the increasing per household cost for compliance as system size decreases by presenting the average household costs for compliance among system size categories for recently promulgated or proposed drinking water standards. In addition to economies of scale, average household costs presented in Table III–1 are also affected by larger systems being more likely to have multiple sources of water, not all of which will have source water concentrations of a contaminant that require treatment.

TABLE III–1.—COMPARISON OF AVERAGE COSTS<sup>1</sup> PER HOUSEHOLD BY SYSTEM SIZE FOR THREE RECENT RULEMAKINGS

System size	Arsenic <sup>2</sup>	Radon <sup>3</sup>	Stage 1 DBPR <sup>4</sup>
25–100 .....	\$327	\$270	\$177
101–500 .....	163	99	123
501–1,000 .....	71	27	84
1,001–3,300 .....	58	27	55
3,301–10,000 .....	38	17	27
10,001–50,000 .....	32	12	14
50,001–100,000 .....	25	12	8
100,001–1 million .....	21	10	7
> 1 million .....	1	10	6

<sup>1</sup> Costs are an average of the treatment costs for all systems installing treatment in the size category. The majority of these systems do not need significant removal of the contaminant, since they are just above the MCL.

<sup>2</sup> Costs are based on Exhibit 6–17 in the *Arsenic in Drinking Water Rule Economic Analysis* (EPA 815–R–00–026) and can be found in the Docket.

<sup>3</sup> Costs are presented for compliance with the proposed Radon MCL of 300 pCi/L and are taken from Table XIII.11 of the Proposed Radon Rule preamble (64 FR 59246–59378) and can be found in the Docket. The costs presented do not reflect the proposed AMCL in combination with a multi-media mitigation plan.

<sup>4</sup> The Stage 1 DBPR economic analyses does not present an average of household costs across influent and treatment conditions as was done in arsenic and radon. The values listed are a weighted average from tables F–1 through F–4 in Appendix F of the November 1998 *Regulatory Impact Analysis of Final Disinfectant/Disinfection By-Products Regulations* (EPA 815–B–98–002) and can be found in the Docket.

As the table shows, there is significant variability in per household costs, even within the statutory system size categories, particularly within the smallest size category. For example, for the arsenic rule, the average per household cost for systems serving <101 persons was roughly double that for systems serving 101–500 persons, while for the proposed radon rule, it was roughly triple. For the Stage 1 DBP rule,

the average per household cost for systems serving <101 persons was roughly 50 percent higher than that for systems serving 101–500 persons. These figures suggest that the per household costs for the median sized system within a statutory size category may not be the best proxy for per household costs within the category generally, particularly for the smallest size category.

b. *Source water quality.* The type of treatment a system must install and the treatment costs are also affected by the quality of the source water, including the concentration of the contaminant to be removed, the pH of the source water, and the presence of other dissolved or suspended solids. The concentration of the contaminants may affect the size of the treatment units, the amount of treatment chemicals that must be used,

or the amount of residual to be disposed of—all of which affect the cost to install, operate, and maintain the treatment units. Source water quality parameters such as pH or the presence of dissolved solids can make some treatment technologies ineffective, requiring a system to select a different technology or to install and operate a pretreatment system that removes or adjusts these parameters so that the treatment to remove the contaminant will be effective. Source water varies significantly among public water systems. It is affected by the source water type (ground water or surface water) and the conditions in the watershed or aquifer from which it is drawn.

Population served and source water quality are perhaps the most significant factors that affect the household cost of technologies. Therefore, it is appropriate that the SDWA requires the Agency to consider these factors in its evaluation of the affordability of new drinking water rules. The national affordability methodology should address the variability in these factors, such that a reasonable range of potential household costs are considered by the Agency in its national affordability determination.

## 2. Variability in the Ability of Small Systems To Pay for Treatment

Under the approaches EPA is currently considering for revising the national affordability methodology, EPA would continue to use an income threshold (i.e., a fixed percentage of household income) as a screen to make general findings of unaffordability. The affordability threshold has two components: the income percentile and the income percentage. The income percentile is the value selected from the distribution of household incomes. It can be based either on the distribution of individual incomes, or on the distribution of system-level median incomes. The income percentage is the percentage by which the selected income level is multiplied to determine the affordable level of per household treatment costs. For example, EPA's current threshold is 2.5 percent of the MHI for the median system in a given size category (currently \$44,544 for the smallest size category). In this example, the income percentile is 50 percent and it is based on the distribution of system-level median incomes. The income percentage is 2.5 percent (\$1,114, or \$44,544 times 2.5 percent).

EPA views the affordability determination to be made under SDWA Section 1412(b)(4)(E) as a general screen to determine the likelihood that a significant number of systems may find

a regulation unaffordable. Congress left to the primacy (primacy enforcement) agencies (usually the States) the task of determining which particular small systems cannot afford compliance technologies once EPA determines that affordability may be an issue for a particular regulation. The Agency established household income as the basic measure to determine affordability for the current methodology. If the households served by a system do not have income available to pay for increased water bills, then the modifications to the system are unaffordable. Because systems ultimately pass additional water treatment costs on to customers, EPA believes that household income remains the appropriate basis for determining affordability.

EPA believes that system-level MHI is the most appropriate income metric for determining water system affordability because it meets several reasonable criteria for a national-level affordability methodology. First, MHI data are available nation-wide. Second, the calculation of system-level MHI is simple (it is based on readily available Census data on household income), and finally, the metric can be easily understood. Consequently, it provides a consistent income-based metric for determining affordability or "ability to pay" for new drinking water regulations. Additionally, the NDWAC supported the use of system-level MHI as the metric for determining small water system affordability.

EPA used system-level MHI as the basis for its original affordability threshold for several reasons. EPA stated that the approach was based on the assumption that affordability to the median household served by a system can serve as an adequate measure of the affordability of technologies to the system as a whole. EPA does not believe that the economic circumstances of the poorest households within a system should drive its national level affordability methodology. Communities have other mechanisms (e.g., financial assistance, rate structures) for addressing inequalities within a community.

EPA chose the median system-level MHI for its original affordability methodology, based on income data from the 1995 CWSS. EPA reasoned that the median is a measure of central tendency and would thus be appropriate for a national level affordability screen because it reflects the characteristics of "typical" systems rather than those at the low end of the income distribution. However, one limitation of basing the national level affordability

determination on the median system is that there may be a significant number of systems below the median that might find a regulation unaffordable even when it is affordable to the median system. As a practical matter, this concern can be addressed in two equivalent ways, basing the threshold on a lower MHI percentile (e.g., 25th or 10th percentile, as was suggested by the SAB), or basing it on a lower percentage of the median MHI. The revised approaches that EPA is considering would retain the median MHI and consider lower percentages (rather than using a lower percentile of MHI) because EPA believes this method is more transparent and better supported by existing data. However, EPA wishes to emphasize that looking at lower percentages is to some extent a proxy for looking at lower percentiles. In other words, if EPA were to ultimately select a threshold of, say, 0.5 percent of MHI (one of the options presented below), this is partially in recognition of the fact that that particular income level (\$220 for the 25–500 system size category) represents a significantly higher percentage of income for systems at the low end of the income distribution, and it is exactly these systems that are most likely to find a new regulation unaffordable and may thus need a small system variance.

In examining the distribution of system-level income across a size category, another argument in favor of applying a lower income percentage to the median system, as opposed to applying a higher percentage to a significantly below-median system (as ranked by its MHI) is the shape of the distribution of system-level MHIs. Toward the lower end of the range, especially at around the 10th percentile system, the income figures tend to drop off sharply. This implies that relatively slight data inaccuracies could have relatively large impacts on estimated income levels. Given the inherent difficulties of measuring income, EPA believes the median system provides a more reliable basis for its national affordability methodology than a system at the low end of the income distribution (e.g., 10th percentile). This is not to suggest that EPA is not concerned about affordability for these systems. On the contrary, it is exactly these systems that are most likely to have affordability issues. But EPA believes that these can be better addressed by choosing a lower income percentage and applying it to the median system MHI.

As previously stated, EPA established the current threshold at 2.5 percent of median system MHI. However, that

income percentage was applied to a cumulative approach. As recommended by both the SAB and NDWAC, EPA is considering revisions that would drop the expenditure baseline and move to an incremental approach. This means that the total cost of water (including current costs) could be significantly higher than whatever affordability threshold EPA selects, because the threshold is compared only to the incremental cost of complying with the regulation. In addition, as water systems are subject to future regulations, they could potentially be required to undergo expenditures up to the affordability threshold multiple times. The current methodology has also never triggered a finding that a regulation was unaffordable, while the evidence suggests that there may in fact be significant numbers of systems that have struggled with compliance costs for some recent regulations. For all of these reasons, the options EPA is considering for revising its affordability methodology are based on a range of income percentages significantly below the current 2.5% threshold.

### 3. Need for Improved Implementation at the Federal Level of the Small System Variance Provisions of the SDWA

As previously stated, SDWA section 1415(e) authorizes a primacy (primacy enforcement) agency to grant small systems a variance from compliance with an MCL or treatment technique for a NPDWR *only* if EPA has determined that there are no affordable compliance technologies for small systems and EPA has identified affordable variance technologies that are protective of public health. To date, EPA has found no NPDWRs (either existing or new) unaffordable using the current methodology. However, the SAB and various stakeholders have suggested, and EPA recognizes, that some small systems have legitimate affordability concerns regarding compliance with some of these regulations.

EPA recognizes that its current approach has not allowed small system variances to be included among the options that States and systems consider as they struggle to address small system affordability issues. EPA is therefore considering revisions that would make a national level determination of unaffordability significantly more likely, thus triggering the listing of affordable variance technologies that are protective of public health. This will in turn give primacy states which choose to include small system variance provisions in their drinking water programs the option to evaluate small system variance applicants on a case-by-case basis and to

authorize adoption of affordable alternatives to compliance technologies that provide some measure of regulatory relief while still protecting public health.

### D. Affordability Methodology Options

Based on the SAB and NDWAC recommendations, the Agency is considering several options under which the incremental increase in household water costs that is expected to occur as a result of the system installing, operating, and maintaining a treatment technology required to comply with a NPDWR would be compared to an affordability threshold based on a percentage of household income. In evaluating different household cost and affordability threshold options, EPA considered the three key factors discussed in section III.C (i.e., variability in the household costs of water treatment, variability in the ability of small systems to pay for treatment, and the need for improved implementation at the Federal level of the small system variance provisions of the SDWA). This section discusses the household cost and affordability threshold options EPA is seeking comment on as a result of this process, and discusses EPA's interpretation of affordability for both compliance and variance technologies.

#### 1. Calculating Household Costs

There are two issues concerning the calculation of household costs on which EPA is requesting comment: (1) Should only incremental costs (i.e., those of complying with the new regulation) be considered, or the total (i.e., cumulative) cost of water to consumers after the new treatment technology is installed, and (2) should costs be evaluated for the 10th percentile or the 50th percentile sized system within a given small system size category. The following discusses each of these issues in turn.

EPA is considering using incremental costs of compliance with the new regulation only, rather than the cumulative costs of providing water, as the basis for its affordability determination. This is a change from the Agency's current approach which adds incremental costs to an expenditure baseline to determine affordability. An incremental approach would not calculate or consider current household water bills, nor would it provide a ceiling on the total increase in household costs due to the cumulative effects of different NPDWRs.

The Agency believes the incremental approach is a better approach than the current cumulative approach for several reasons. First, the incremental approach

focuses directly on the regulation for which affordability is being evaluated. The cumulative approach, in contrast, considers not just the cost of treatment to comply with the new standard but also takes into account costs for existing water system improvements, which may involve treatment for odor control, taste, or other items not regulated under NPDWRs, as well as costs for distributing and storing water. These costs may not be relevant for determining whether a system can afford to comply with NPDWRs. In addition, the cumulative approach could have the effect of making new rules with similar system costs affordable in the near-term, but not in the future, as cumulative costs increase. Additionally, an incremental approach is consistent with SAB and NDWAC recommendations. An incremental approach may also be more transparent than the cumulative approach because it deals with fewer variables and calculations in that it only considers the costs of the regulation in question. EPA requests comment on moving to an incremental approach for calculating household costs.

Under its current national affordability methodology, EPA estimates household costs for small systems by estimating each technology's per household cost for the 50th percentile (median) system size in each size category. This approach assumes that affordability to the median sized system within a small system size category can serve as an adequate measure for the affordability of technologies to systems within the size category as a whole. However, household costs for systems at the low end of a system size category are likely to be significantly higher than costs for the median-sized system. This is particularly true for the smallest system size category (serving 25 to 500 people). Thus, even if a NPDWR is affordable to the median sized system within this size category, there may be a significant number of systems at the low end of this category (i.e., serving less than 100 people) for which compliance with the standard would not be affordable.

To address this concern, EPA is considering basing its affordability determination on the incremental per household costs for the 10th percentile system size in each system size category rather than the median. This approach recognizes that smaller systems do not enjoy the same economies of scale and have a smaller customer base over which to spread fixed costs of providing water. In general, household costs would most likely be significantly greater for the 10th percentile than for

the 50th percentile sized system in a system size category due to this lack of economies of scale.

For the current methodology, the Agency determined the 50th percentile system size by compiling the population sizes for all systems in a given size category and finding the system where half of the systems serve fewer individuals. For today's notice, EPA

used the same method to determine the 10th percentile system size (i.e., finding the system where 10 percent of the systems serve fewer individuals).

Table III-2 provides an example of household costs for the 10th and the 50th percentile size systems within each of the small system size categories. This example demonstrates that the greatest difference in household costs are

typically found in the 25-500 size category, as the estimated household cost for the 10th percentile size system is more than double that for the 50th percentile (median) size system. It is this smallest system size category where there is most likely to be an affordability concern.

TABLE III.-2—COMPARISON OF ANNUAL PER HOUSEHOLD COSTS OF ION EXCHANGE TREATMENT

System size	10th Percentile sized system		50th Percentile sized system	
	Population size	Treatment costs	Population size	Treatment costs
25-500 .....	40	\$540	120	\$200
501-3,300 .....	600	72	1,195	54
3,301-10,000 .....	3,609	40	5,325	35

**Note:** Costs are based on cost curve equations in the document *Technologies and Costs for Removal of Arsenic from Drinking Water* (EPA-815-R-00-028). System sizes are determined from SDWISFED January 2004.

EPA requests comment on whether it should continue to base affordability determinations on the median system within a size category, or should move to an approach based on costs to the 10th percentile size system.

Section 1412(b)(15)(A) of SDWA requires the Administrator to list affordable variance technologies "considering the size of the system and the quality of the source water." Under the current methodology, EPA estimates household costs for small systems within a size category under a range of scenarios that represent the range of expected source water conditions that these systems are likely to encounter. Thus, the Agency might find a new regulation affordable for systems with a particular source water quality, but not for systems in the same size category with a different source water quality. The Agency plans to continue to evaluate household costs in the same manner. This involves estimating the range of expected levels of a contaminant that may be present in the source water based on available data, as well as considering other source water parameters likely to affect the efficiency of identified treatment technologies, and estimating incremental per household costs separately for each relevant source water quality. If a new regulation is found unaffordable only for some subset of systems within a size category, based on poor source water quality, only those systems with comparably poor source water quality, and for which the regulation may thus be unaffordable, would be eligible to apply for small system variances. EPA requests comment on continuing to evaluate source water quality in this manner.

2. Affordability Determination Options

EPA is requesting comment on two distinct approaches for determining affordability. Both approaches would start by determining whether the incremental household cost of treatment to meet a new regulation exceeds an increment based threshold. Under the first approach, this would be the sole criterion for determining affordability. Under the second approach, if EPA were to find the compliance technology affordable at the national level, we would then take the additional step of identifying counties that are economically at-risk, and list affordable variance technologies for small systems in these counties. These systems could then apply to their primacy agency for a variance. In other words, EPA would determine that any regulation is potentially unaffordable for small systems in these economically at-risk counties, and leave it to the primacy agency to evaluate affordability individually for systems applying for a variance, as they are required to do under the SDWA for all small system variance requests if the State includes such variances in its drinking water program. EPA requests comment on which of these two approaches to adopt.

EPA further requests comment as to what the most appropriate national affordability threshold is and what system size should be used to calculate costs (i.e., 10th or 50th percentile) for each of the three population size categories defined in SDWA (i.e., 25-500, 501-3,300, and 3,301-10,000).

Specifically, EPA requests comment on three affordability thresholds: 0.25 percent, 0.50 percent, and 0.75 percent of the median MHI for small systems in

a particular small system size category. The thresholds represent an approximate one third, two thirds, and 100 percent increase in a current median water bills though for any individual system these percent increases might be greater or smaller. EPA also requests comment on comparing the selected threshold with household treatment costs for either the 10th percentile or 50th percentile system size in each of the three population size categories.

Table III-3 presents the three thresholds as a percentage of the median incomes among small systems, the current dollar amount for each threshold for a given size category, and the current median, 10th percentile and 90th percentile water bills for each system size category. While the options under consideration are based on an incremental approach, commenters can see from the table what the 10th percentile, median, and 90th percentile projected total cost of water would need to be both before and after a regulation for compliance technologies to be considered unaffordable at a national level. For example, if the 0.5 percent threshold option were selected, compliance technologies would be considered unaffordable if they raised the median water bill for a system in the smallest size category from about \$300 to about \$520 per year. This would also have the effect of raising the 10th percentile water bill (i.e., a system with low baseline costs) from about \$105 to about \$325 per year, and of raising the 90th percentile water bill (i.e., a system with high baseline costs) from about \$580 to about \$800 per year. It should be noted that over time, the total baseline cost of water would rise as new

regulations are added, but under the incremental approach being considered today, the affordability threshold would not be adjusted to compensate for this rise, as it is under the current expenditure baseline approach.

TABLE III-3.—AFFORDABILITY THRESHOLD OPTIONS

Income threshold	Current dollar value (median system MHI <sup>1</sup> )		
	25-500 (\$44,544)	501-3,300 (\$40,872)	3,301-10,000 (\$42,459)
Threshold <sup>2,3</sup> = 0.25% MHI .....	\$110	\$100	\$110
Threshold <sup>2,3</sup> = 0.50% MHI .....	\$220	\$200	\$210
Threshold <sup>2,3</sup> = 0.75% MHI .....	\$330	\$310	\$320
Current Median Water Bill .....	\$299	\$294	\$285
Current 10th Percentile Water Bill .....	\$106	\$176	\$151
Number of Systems <10th Percentile <sup>4</sup> .....	3,013	1,426	466
Current 90th Percentile Water Bill .....	\$576	\$492	\$488
Number of Systems >90th Percentile <sup>4</sup> .....	3,013	1,426	466
<b>Total Number of Systems<sup>4</sup> .....</b>	<b>30,1323</b>	<b>14,263</b>	<b>4,661</b>

<sup>1</sup> Based on 2000 U.S. Census figures adjusted to 2004 using national trends and then to September 2005 using the Consumer Price Index.  
<sup>2</sup> Percentage of the median value (50th percentile) of a distribution of system-level median household incomes.  
<sup>3</sup> Threshold calculations are adjusted to two significant figures.  
<sup>4</sup> Total number of systems in each size category based on January 2004 SDWIS/FED.

The second approach is based upon analysis presented in two papers prepared by Scott Rubin (Rubin, 2001 and Rubin, 2002). Under this approach, EPA would use a two-part test to screen at first the national level and then the county level for systems that cannot afford compliance.

The national-level screen would work the same way as under the first approach, except that because of the additional screen for at-risk counties, EPA might choose a higher percentage of median system MHI for the national screen than it would under the first approach.

Should the national-level screen find that the compliance treatment costs are affordable for some or all small systems, the Agency would proceed to a county

level screen to identify economically at-risk counties, in which States could still grant variances.

For any small drinking water system in counties deemed to be at-risk in this second part of the affordability test, compliance technologies would be considered potentially unaffordable, regardless of EPA's national per household cost estimates, and it would be up to the primacy agency to grant variances where appropriate based on a system specific analysis of affordability. That is, States would be enabled to determine, based on the criteria in SDWA section 1415(e), whether to grant small system variances to small systems in those at-risk counties.

EPA is requesting comment on three socioeconomic triggers for the county-

level screen: (1) MHI less than or equal to 65 percent of the national MHI, (2) U.S. Census Bureau-defined poverty rate at least twice the national average, or (3) two-year average unemployment rate at least twice the two-year national average.

Under this option, triggering any one of these measures would be sufficient to trigger a finding of unaffordability for small systems within the county. Therefore, this methodology allows for regional socioeconomic conditions to supplement the national-level affordability determination. Table III-4 shows how many counties and small systems would be eligible for variances under this county-level screen.

TABLE III-4.—THE NUMBER OF COUNTIES, SMALL DRINKING WATER SYSTEMS, AND THE POPULATION SERVED THAT WOULD BE ELIGIBLE FOR SMALL SYSTEM VARIANCES UNDER THE COUNTY-LEVEL SCREEN

Criterion	Number of counties <sup>1</sup>	Percent all counties	Number of small systems <sup>2</sup>	Percent all small systems	Population served	Percent of national population <sup>3</sup>
MHI ≤0.65 National MHI .....	356	11.3	3,485	7.3	4,372,677	1.5
Poverty Rate ≥Twice National Average ...	81	2.6	532	1.1	950,205	0.3
Two-year Unemployment Rate ≥Twice National Average .....	80	2.5	920	1.9	1,391,226	0.5
One or more of the Above .....	410	13.1	4,249	8.8	5,485,158	1.9

<sup>1</sup> Based on 3,140 total counties in the U.S.  
<sup>2</sup> There are 48,025 small drinking water systems in SDWIS that could be linked to counties.  
<sup>3</sup> Based on July 1, 2004 U.S. Census, the national population was 293,655,404.

EPA requests comment on this approach to a county-level affordability screen, and on the specific criteria listed above for identifying economically at-risk counties.

3. Identification of Affordable Variance Technologies

As previously stated, SDWA section 1415(e) authorizes a primacy (primacy enforcement) agency to grant small systems a variance from compliance with an MCL or treatment technique for

a NPDWR only if EPA has determined that there are no affordable compliance technologies for small systems and EPA has identified affordable variance technologies that are protective of public health.

Under the current methodology, EPA uses the same threshold to determine affordability for both compliance and variance technologies. While this seems sensible on its face, it can lead to a situation where no compliance technologies are found to be affordable, but there are no variance technologies that are found to be affordable either. As a result, EPA would not list any variance technologies and primacy agencies (in most cases the States) would be unable to grant small system variances under section 1415(e). This could occur even if there were candidate variance technologies that were both cheaper than the compliance technologies and protective of public health, if these cheaper technologies still exceeded a predetermined affordability threshold. Not listing "affordable" variance technologies in this case would be inconsistent with Congressional intent that States be provided the authority to grant variances which allow small systems that cannot afford to comply fully with NPDWRs to instead adopt alternative protective but less expensive technologies where such technologies are available.

EPA is thus considering an alternate approach to determining affordability for variance technologies in situations where there is no candidate variance technology that falls below the affordability threshold. Under this approach, EPA would consider variance technologies "affordable" if they are cheaper than the least expensive compliance technology and still protective of public health. Of course, the Agency's first choice would still be to list variance technologies whose costs fall below the affordability threshold if such technologies are available and protective of public health. As an example, suppose the affordability threshold were set such that it equated to an incremental per household cost of \$200 per household per year, and suppose further that the cheapest compliance technology for a particular size category cost \$300 per household per year. If there were a candidate variance technology that cost less than \$200 per household per year and were protective of public health, EPA would list this technology. But if there were no such technology, and EPA identified a candidate variance technology costing \$250 per household per year (and it was protective of public health), EPA would list this as an affordable variance technology even though its costs exceed the affordability threshold of \$200 per household per year (in this example). Under this approach, EPA would

interpret "affordability" of variance technologies under section 1412(b)(15) as not being limited by the affordability threshold (i.e., 0.25 percent, 0.50 percent, or 0.75 percent of median system MHI) under section 1412(b)(4)(E). Rather, in cases where no variance technology had costs below the affordability threshold, EPA would interpret "affordable" for purposes of listing variance technologies as meaning any technology that is less costly than the corresponding compliance technologies and that is protective of public health.

EPA requests comment on this approach to determining affordability for variance technologies.

EPA reiterates that its national level affordability methodology is only a screen to make general findings of unaffordability, in accordance with SDWA section 1412(b)(4)(E), not a definitive finding of whether the application of a technology at a particular small system will be affordable. If EPA determines that compliance technologies are not affordable for small systems in one or more categories, then, under section 1412(b)(15), EPA must identify variance technologies that are affordable and protective of public health. Congress left to the primacy (primacy enforcement) agencies (usually the States) the task of granting small system variances on a case-by-case basis to those small systems included in any size/water quality category for which EPA has determined that compliance technologies are generally "unaffordable." States may utilize EPA's methodology or develop a different methodology for evaluating the affordability of compliance technologies for individual systems. Only if the primacy agency finds that compliance is unaffordable for a specific system, using its chosen affordability methodology, is it authorized under SDWA to grant a small system variance, and as a condition of that variance, the system must install, operate and maintain an alternative variance technology from among the list identified by EPA at the time the regulation was promulgated. Further, the system must operate the variance technology in a way that both EPA (at the national level) and the primacy agency (at the system specific level) determine to be protective of public health. EPA's methodology for determining protectiveness of public health is discussed in Section IV below.

EPA believes that interpreting "affordable" to mean something different for compliance and for variance technologies is a reasonable way to implement these provisions in a

manner consistent with Congressional intent. First, while Congress provided the same phrase "affordable, as determined by the Administrator in consultation with the States" in both sections of the statute, Congress did not cross-reference the two provisions and expressly left the definition of "affordable" to EPA (in consultation with States). As a result, EPA believes there is flexibility to interpret the terms differently based on the different purposes of these provisions. As noted above, the purpose of the "affordable" finding in section 1412(b)(4)(E) is to serve as a general screen to determine when, as a class, compliance technologies may not be affordable for entire categories of small systems. In contrast, the purpose of the "affordable" finding in section 1412(b)(15) is to list for States those technologies that are generally protective of public health even though the technology would not achieve full compliance with NPDWRs and that would provide some relief for small systems for which compliance technology are not affordable. States must make a site-specific finding of protectiveness and affordability prior to granting a small system variance and it is appropriate for them to have protective technologies available to choose from in order to select the most appropriate for each system. Finally, to interpret the statute in a way that makes variances unavailable when there are no affordable compliance technologies defeats the Congressional purpose in setting up small system variances.

If this approach is adopted, and depending on the threshold selected, the actual cost of a variance technology could be greater than the affordability threshold. The lower the affordability threshold chosen, the more likely this result would be.

#### **IV. Protective of Public Health Methodology**

This section presents EPA's approach for determining if an affordable variance technology is protective of public health. As background, this section also discusses how EPA considers public health in establishing drinking water standards.

##### *A. How Does EPA Consider Public Health in Establishing Drinking Water Standards?*

The SDWA requires EPA to consider public health impacts of contaminants at several steps in the process for establishing NPDWRs. EPA considers peer-reviewed science and data collected in accordance with accepted methods to support an intensive evaluation of public health impacts of

the contaminant under consideration, which includes factors such as: Occurrence in the environment; human exposure and risks of adverse health effects in the general population and sensitive subpopulations; analytical methods of detection; technical feasibility; and impacts of regulation on water systems, the economy, and public health. However, while the general purpose of SDWA is to protect public health from unacceptable risks that may be posed by contaminants in tap (drinking) water, the criterion in section 1412(b)(15) that variance technologies be “protective of public health” is distinct from the requirements for setting drinking water standards.

### 1. Setting the Maximum Contaminant Level Goal

The Maximum Contaminant Level Goal (MCLG) is the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MCLGs are non-enforceable public health goals. Since MCLGs consider only public health and not the limits of detection and costs and capabilities of treatment technologies, sometimes they are set at levels which water systems cannot meet using available technologies, or that can not currently be reliably measured.

EPA has traditionally established MCLGs of zero for known or probable human carcinogens based on the default assumption that any exposure to carcinogens might represent some non-zero level of risk. If there is substantial scientific evidence, however, that indicates there is a threshold below which no adverse effect is expected to occur, then a non-zero MCLG can be established with an adequate margin of safety.

For non-carcinogens that can cause adverse noncancer health effects, the MCLG is based on the reference dose (RfD). A reference dose is an estimate (with uncertainty spanning perhaps an order of magnitude) that is likely to be without appreciable risk of deleterious effects during a lifetime. It can be derived from a no-observed adverse effect level, lowest-observed adverse effect level, benchmark dose level (the lowest confidence limit of the dose that will result in a level of “x” percent response), or other suitable point of departure. Uncertainty factors are generally applied to reflect limitations of the data used and ensure an appropriate margin of safety.

The RfD is multiplied by typical adult body weight and divided by daily water consumption. The result is then

multiplied by a percentage of the total allowable daily exposure contributed by drinking water to determine the MCLG.

### 2. Setting the MCL or Treatment Technique

Once the MCLG is determined, EPA sets an enforceable standard. In most cases, the standard is an MCL. When it is not economically and technically feasible to ascertain the level of a contaminant in drinking water, EPA may set a treatment technique rather than an MCL. The MCL is set as close to the MCLG as feasible, which the SDWA defines as the level that may be achieved with the use of the best available technology, treatment techniques, and other means that EPA finds are available taking cost into consideration. The legislative history for this provision makes it clear that “feasibility” is to be defined relative to “what may reasonably be afforded by large metropolitan or regional public water systems.”<sup>2</sup> Thus affordability may be considered in establishing the feasible level, but it is affordability to large water systems. As noted above, costs are generally significantly higher on a per household basis for customers of small systems than for customers of large ones. As a result, what is feasible (taking cost into consideration) for large systems may not be feasible (taking costs into consideration) for small ones. To address this situation, in addition to other tools, SDWA requires EPA to determine if affordable small system compliance technologies are available, and when there are none, SDWA requires EPA to identify small system variance technologies.

After determining a feasible level of treatment or treatment technique based on affordable technologies for large systems, EPA prepares a health risk reduction and cost analysis to determine whether the benefits of the feasible level justify the costs. If not, the Administrator may in some cases set the MCL at a less stringent level that “maximizes health risk reduction benefits at a cost that is justified by the benefits.” In evaluating the quantified benefits and costs, EPA has found the ratio of benefits to costs is likely to be much greater among large systems than it is among small systems. This is because the per household costs are likely to be significantly higher for customers of small systems than for customers of large ones, while the per household benefits will be about the same for both groups. As a general

matter, EPA considers the total cost and benefits for all systems (large and small) as the principal factor when determining whether or not benefits of a proposed NPDWR justify its costs.<sup>3</sup> Because this analysis will generally be dominated by the costs and benefits for large systems, it can mask a situation where benefits justify costs for large systems but would not justify the significantly higher costs for small systems.

This is not to suggest that the costs and benefits at small systems can never influence NPDWRs. In fact, small system impacts were a factor in the Agency’s determination to utilize this SDWA authority to establish the MCLs for arsenic and uranium at levels less stringent than the feasible levels. However, use of this authority will not ensure that a drinking water standard is affordable to small systems; therefore Congress provided the small system variance provisions as a mechanism for EPA to recognize in the standard setting process the different economic situations of large and small systems.

### 3. Determining that Variance Technologies are Protective of Public Health

As discussed in the previous section, EPA sets drinking water standards based on what is affordable for large systems. In 1996, Congress amended the SDWA to address affordability issues for small systems. Rather than change the Congressional mandate by which EPA establishes drinking water standards (i.e., as close to the MCLG as is “feasible”), Congress established a new small system variance provision under which States would be able to grant special variances to small systems if (1) EPA makes a finding as part of a new drinking water standard that compliance with the MCL or treatment technique is “unaffordable” for specific groups of small systems and identifies variance technologies that are available, affordable, and “protective of public health,” (section 1412(b)(15)), and (2) the State makes a subsequent finding that compliance with the new MCL or treatment technique would be unaffordable for a particular small system applying for a variance and that an alternative variance technology identified by EPA would provide adequate protection of human health when installed by that system (section 1415(e)). Thus, the 1996 amendments established a two-step process for

<sup>2</sup> A Legislative History of the Safe Drinking Water Act, Committee Print, 97th Cong., 2d Sess. (1982) at 550.

<sup>3</sup> The one exception is that, under the SDWA, EPA must exclude systems likely to be granted small system variances from this determination based on information provided by the States.

granting these variances under which EPA would make general findings of unaffordability and protectiveness at a national level, but where the determinative findings of actual unaffordability and protectiveness at a specific water system would be made by the State, after consultation with the affected consumers following the comprehensive public process for variances set out in section 1415(e) and EPA's regulations at 40 CFR part 142, subpart K.

When granted by the State, a small system variance allows a small system that cannot afford to comply with a new drinking standard to install a variance technology that provides treatment which is affordable and protective of human health. SDWA 1412(b)(15)(A) specifically recognizes that the variance technology " \* \* \* may not achieve compliance with the maximum contaminant level or treatment technique requirement of such regulation \* \* \*," but does require that the variance technology " \* \* \* achieve the maximum reduction or inactivation efficiency that is affordable considering the size of the system and the quality of the source water." Thus, by requiring EPA to establish affordable variance technologies that are protective of public health for systems unable to comply with a new drinking water standard, Congress was clearly intending that EPA consider contaminant levels above the MCL protective of public health for purposes of identifying small system variance technologies.

This interpretation is also consistent with the standard setting process itself, which is designed to identify a feasible MCL or treatment technique that provides an acceptable level of public health protection, consistent with the statutory factors considered, which include cost, but only the cost reasonably affordable to large systems.

As a result of the two-step statutory findings as well as the fact that Congress clearly intended that the "protective of public health" mandate would necessarily encompass situations in which the applicable federal drinking water standard is not met, EPA views the protectiveness finding to be made under SDWA section 1412(b)(15) as a national-level screen, not a definitive finding that a particular technology or contaminant level is adequately protective for a particular public water system and its customers. Instead, Congress left to the primacy agencies (usually States) the task of determining: (1) Which specific small systems, within a class for which EPA has determined that compliance is generally

"unaffordable," are truly unable to afford to comply with the standard, and (2) the specific conditions under which the use of a listed variance technology would be protective of public health at a particular system. EPA expects that States would be partially guided by public input from within the affected communities in making these system-specific determinations, particularly the determination regarding the appropriate level of public health protection.

#### *B. Methodology To Identify Affordable Variance Technologies That Are Protective of Public Health*

The Agency requests comment on finding a variance technology to be sufficiently protective of public health for purposes of the national-level screen required by SDWA section 1412(b)(15) if the concentration of the target contaminant after treatment by the variance technology is no more than three times the MCL. When evaluating variance technologies for treatment technique standards, EPA similarly requests comment on finding a variance technology sufficiently protective of public health if the Agency determines that the expected concentration of the target contaminant in water treated by the variance technology would not be more than three times greater than the expected concentration of the contaminant if the same source water were treated in accordance with the requirements of the treatment technique. EPA would view this 3x level as a general guideline, which might be modified for a specific contaminant if unusual factors associated with the contaminant or EPA's risk assessment suggested that an alternate level, whether higher or lower, was appropriate. In such cases, EPA would clearly explain its reasons for departing from the 3x guideline in the proposed rule and request public comment on the alternate level.

EPA is required under the SDWA to establish MCLGs based on best available science. Even the best available science is limited and therefore has some degree of uncertainty. For contaminants with non-zero MCLGs, the uncertainty in the estimate of the level of exposure that is likely to represent an appreciable risk may span an order of magnitude (i.e., 10 fold or one log unit) or more. For carcinogens, EPA generally uses a default assumption that sets the MCLG at zero and uses the cancer slope factor (which contains some uncertainty) to inform its MCL decision. In addition, SDWA requires that MCLGs be set at a level at which no adverse effects occur and "which allows an adequate margin of safety." In many cases, the margin of

safety may also span an order of magnitude or more in recognition of this uncertainty (as well as other factors). The margin of safety embodied in the MCLG may be explicit, or it may result from the parameter choices used in the risk assessment (e.g., use of 95th percentile upper confidence bound for a dose response function or point of departure). As described in Section IV.A.2 of this notice, SDWA generally requires EPA to set the MCL as close to the MCLG as is feasible. Determining what is feasible involves considerations of treatment technology effectiveness, measurement capabilities, and cost, all of which also involve uncertainty. In SDWA section 1412(b)(15), Congress assumed that some level less stringent than the MCL would still be sufficiently "protective" for small systems for which compliance with the MCL is unaffordable. Therefore, EPA believes that for purposes of determining what is "protective" under this section, it is reasonable to allow variance technologies to be considered by the primacy agency if such technologies achieve removal of a contaminant from drinking water within a span of one log unit (10x) centered on the MCL, which is established through a SDWA mandated procedure designed to identify an acceptable level of risk for drinking water, taking all of the statutory factors into account. Therefore, EPA requests comment upon considering concentrations up to three times the MCL "protective of public health" under SDWA section 1412(b)(15)(B).

EPA believes that for the majority of contaminants, restricting the contaminant level for a variance technology to not more than three times the level that would be produced by a compliance technology would be adequately protective for purposes of enabling States to make a variance decision. While EPA recognizes that consuming water with as much as three times the concentration of a particular contaminant results in greater exposure and may translate to a greater risk of adverse health effects, EPA believes that the small system variance provisions, as directed by Congress, are intended to permit State primacy agencies, small water systems, and their consumers to decide, within a range of levels close to the drinking water standard, the specific conditions upon which they can best assure the safety of their water supply when they are unable to afford compliance.

EPA believes that this methodology for determining if a variance technology is protective of public health is transparent and reproducible. State

officials, water system operators, and water system consumers will be able to readily understand the basis for the national determination and evaluate its applicability to their system specific conditions.

#### V. State Consultation

SDWA section 1412(b)(15)(A) requires "consultation with the States" by EPA in its determination that variance technologies are available and affordable. EPA has consulted with administrators of State drinking water programs in developing the options for revising the affordability methodology presented in today's notice. The NDWAC Work Group whose recommendations on the affordability methodology are described earlier in this notice included administrators of the drinking water programs from two States. Additionally, on December 5, 2005 EPA consulted with drinking water administrators from seven States regarding the options under consideration for revisions to the methodology for evaluating the affordability of new drinking water standard and determining if variance technologies are protective of public health. State administrators expressed concern that implementation of the revisions described in today's notice would result in a two level standard: one standard for small systems that cannot afford compliance, and another more stringent standard for all other systems. A State administrator noted the risk communication challenge that such a situation would pose.

States expressed concern that reviewing and issuing small system variances for future regulations will place additional demands upon their already limited, and in many cases decreasing, State drinking water program resources. If a State chooses to include small system variances in its drinking water program, SDWA section 1415(e)(3) requires the State to determine that a system on a case by case basis, cannot afford to comply and that the terms of a variance will ensure adequate protection of public health before it may grant a variance. SDWA section 1415(e)(7) requires notification of customers, and a public hearing before granting a variance. States agreed with the conclusion of the NDWAC that alternatives to the variance process, including cooperative strategies (e.g., State leadership to promote cooperation among small systems), and targeted use of funding to disadvantaged water systems (e.g., supporting individual households with a LIWAP funded through Congressional appropriation) are more appropriate means to address

affordability issues associated with small public water systems that cannot afford to comply with a NPDWR.

States also believe that EPA should consider NDWAC's recommendation of an incremental affordability threshold of one percent of median household incomes among small systems (approximately \$400 per year).

EPA appreciates and has carefully considered the State administrators' concerns. EPA is sensitive to the risk communication challenge posed by different systems effectively having different standards, based on affordability. However, Congress in amending SDWA determined that cost differences between large and small systems may make it appropriate for a small system to operate above the MCL as long as it achieves the maximum reduction that is affordable. Small systems have the greatest treatment costs per household served due to economies of scale. Households that receive water from these systems face the greatest challenge of affording to comply with a drinking water standard. Congress established the small system variances as an answer to this problem; however, the current methodology has never triggered a finding that a regulation was unaffordable. The options being considered by EPA are more likely to trigger such a finding and thus make small system variances available as one option that States and small systems customers may consider. States that choose to implement a small system variance program would make the system-specific determinations on affordability and protectiveness for regulations EPA determines are unaffordable. It is the choice of an individual small system and the community it serves whether to apply for a variance following a comprehensive public process (set out in SDWA section 1415(e)). This process ensures that customers of a small system will be fully informed and have opportunity for input into the decision before a system receives a variance. EPA would not expect a variance application to be successful without significant community support.

EPA is also mindful of the potential strain on State resources of evaluating small system variance applications. EPA notes that States are not required to include small system variances in their drinking water programs. EPA's affordability methodology is merely a screen. If a regulation is found unaffordable and EPA is able to identify more affordable variance technologies which are protective of public health, States that wish to grant small system

variances and communities that wish to apply for them may do so.

EPA also appreciates the State recommendations for alternatives to small system variances. EPA believes that such variances should be a last resort. Where a State is able to make financial assistance available to small systems for compliance through its SRF, or aggressively encourage cooperation among small systems, EPA strongly encourages States to do so. As for the recommendation that assistance be targeted directly to low income consumers through some kind of LIWAP program, only Congress can authorize such an approach. In the meantime, EPA has a responsibility to utilize the existing tools under the Safe Drinking Water Act, which include small system variances, as mechanisms to address the legitimate affordability concerns of small systems and their customers.

Finally, EPA has not included the NDWAC recommendation among the options it is considering because, in EPA's judgment, it would not allow for appropriate implementation at the Federal level of the small system variance provisions that Congress included in the SDWA. As Table III-1 shows, an incremental threshold of \$400 would not likely have triggered an unaffordability finding or the listing of alternative, protective variance technologies for any size category of small systems for any recent drinking water standard. For all of the reasons discussed previously in this notice, EPA believes that some small systems have genuinely struggled with compliance costs for some recent NPDWRs, and that EPA needs an affordability methodology that will allow States that wish to do so an opportunity to address these concerns through, among other strategies, the granting of protective small system variances where appropriate.

#### VI. Request for Comment

The EPA seeks comments on the range of issues addressed in this notice. The information and comments submitted in response to this notice will be considered in determining the affordability methodology for small drinking water systems and the methodology for determining when variance technologies are protective of public health.

Specifically, EPA seeks comments on the following issues:

1. EPA requests comment on basing its determination of affordability on the incremental cost of new treatment required rather than the total (i.e., cumulative) cost of water to consumers

after the new treatment technology is installed.

2. EPA requests comment on whether it is more appropriate to base its affordability determination on the incremental costs of treatment for the system at the 10th percentile or the 50th percentile of system size in each small system category.

3. EPA requests comment on what the most appropriate national-level percentage threshold is (i.e., 0.25 percent, 0.50 percent, or 0.75 percent of the median MHI among small systems within a size category).

4. EPA requests comment on the key factors considered in developing affordability methodology options as described in section III.C of this notice. Do commenters believe these are the appropriate factors to consider? Are there other factors commenters would suggest the Agency consider?

5. EPA requests comment on whether the Agency should use a two-part test to screen at the national and county levels for systems that cannot afford compliance. Additionally, EPA seeks comment on whether the county or a different level is the appropriate unit of analysis for the second part of this test. The approach would first compare the incremental household cost of compliance to a national income-based threshold. If EPA were to find compliance affordable at the national level, we would then identify counties that are economically at-risk based on three socioeconomic triggers (MHI less than or equal to 65 percent of the national MHI, a U.S. Census Bureau-defined poverty rate at least twice the national average, or a two-year average unemployment rate at least twice the two-year national average). EPA also requests comment on the specific triggers that should be used to identify economically at-risk counties.

6. EPA requests comment upon its interpretation of affordability in section III.D.3 of today's notice. That is, should EPA consider variance technologies affordable even when they do not fall below the affordability threshold in cases where there would otherwise be no affordable variance technologies to list.

7. EPA requests comment on implementation challenges to States in reviewing and issuing small system variances.

8. EPA requests comment on finding a variance technology to be protective of public health if the concentration of the target contaminant after treatment by the variance technology is no more than three times the MCL unless unusual factors associated with the contaminant or EPA's risk assessment suggest that an

alternate level is appropriate, in which case EPA would explain its basis for the alternate level and request public comment in the proposed rule. EPA requests comment on whether a finding that variance technologies are protective of public health if they achieve a contaminant level within three times the MCL should be "capped" at a particular risk level (i.e.,  $10^{-3}$ ) in order to provide further assurance that variance technologies are in fact protective.

The Agency also requests comment on any other issue raised by this notice on options for revising its national-level affordability methodology or its methodology for determining if a variance technology is protective of public health.

## VII. References

- National Drinking Water Advisory Council (NDWAC). 2003. Recommendations of the National Drinking Water Advisory Council to U.S. EPA on Its National Small Systems Affordability Criteria. Available at <http://www.epa.gov/safewater/ndwac/council.html>.
- Rubin, Scott, J. 2001. White Paper for National Rural Water Association, Criteria to Assess the Affordability of Water Service. Available at <http://www.nrwa.org>.
- Rubin, Scott, J. 2002. White Paper for National Rural Water Association, Criteria to Assess Affordability Concerns in Conference Report for H.R. 2620. Available at <http://www.nrwa.org>.
- U.S. EPA. 1998. Announcement of Small System Compliance Technology Lists for Existing National Primary Drinking Water Regulations and Findings Concerning Variance Technologies. Notice. **Federal Register** Vol 63, No. 151, p. 42032. August 6, 1998. Available at <http://www.epa.gov/safewater/standard/clistfrn.pdf>.
- U.S. EPA Science Advisory Board (SAB). 2002. Affordability Criteria for Small Drinking Water Systems: An EPA Science Advisory Report. EPA-SAB-EEAC-03-004, U.S. EPA Science Advisory Board, Washington, DC, December 2002. Available at <http://www.epa.gov/sab>.

Dated: February 14, 2006.

**Benjamin H. Grumbles,**

*Assistant Administrator, Office of Water.*

[FR Doc. 06-1917 Filed 3-1-06; 8:45 am]

**BILLING CODE 6560-50-P**

## FEDERAL ELECTION COMMISSION

### Notice of Meetings; Sunshine Act

**AGENCY:** Federal Election Commission.

**PREVIOUSLY SCHEDULED DATE AND TIME:** Thursday, February 23, 2006, meeting open to the public. The following item was withdrawn from the agenda: Final audit report on CWA COPE political contributions committee.

**PREVIOUSLY SCHEDULED DATE AND TIME:** Tuesday, February 28, 2006. Meeting open to the public. This meeting was cancelled.

**DATE AND TIME:** Tuesday, March 7, 2006 at 10 a.m.

**PLACE:** 999 E Street, NW., Washington, DC.

**STATUS:** This meeting will be closed to the public.

### ITEMS TO BE DISCUSSED:

Compliance matters pursuant to 2 U.S.C. 437g.

Audits conducted pursuant to 2 U.S.C. 437g, § 438(b), and Title 26, U.S.C. Matters concerning participation in civil actions or proceedings or arbitration. Internal personnel rules and procedures or matters affecting a particular employee.

\* \* \* \* \*

**DATE AND TIME:** Thursday, March 9, 2006 at 10 a.m.

**PLACE:** 999 E Street, NW., Washington, DC (Ninth floor).

**STATUS:** This meeting will be open to the public.

### ITEMS TO BE DISCUSSED:

Correction and Approval of Minutes. Advisory Opinion 2006-01: Pac for a Change by Douglas Boxer, Committee Director. Advisory Opinion 2006-02: Robert Titley by counsel, Robert F. Bauer and Judith L. Corley. Advisory Opinion 2006-06: Francine Busby for Congress by Brandon Hall, Campaign Manager. Final Rules and Explanation and Justification for the Definitions of "To Solicit" and "To Direct" (11 CFR 300.2(m) and (n)). Explanation and Justification for the Final Rules on Municipal Elections (11 CFR 100.24(a)). Routine Administrative Matters. **FOR FURTHER INFORMATION CONTACT:** Mr. Robert Biersack, Press Officer. Telephone: (202) 694-1220.

**Mary W. Dove,**

*Secretary of the Commission.*

[FR Doc. 06-2027 Filed 2-28-06; 2:56 pm]

**BILLING CODE 6715-01-M**

## FEDERAL RESERVE SYSTEM

### Formations of, Acquisitions by, and Mergers of Bank Holding Companies

The companies listed in this notice have applied to the Board for approval, pursuant to the Bank Holding Company Act of 1956 (12 U.S.C. 1841 *et seq.*) (BHC Act), Regulation Y (12 CFR part 225), and all other applicable statutes