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<p>(1) Agency</p> <p>Department of Environmental Protection</p>		<p>RECEIVED</p> <p>2004 JAN 13 PM 3:08</p> <p>PA DEPARTMENT OF ENVIRONMENTAL PROTECTION REVIEW COMMISSION</p>	
<p>(2) I.D. Number (Governor's Office Use)</p> <p>7-381</p>		<p>IRRC Number: 2331</p>	
<p>(3) Short Title</p> <p>Radionuclides Rule</p>			
<p>(4) PA Code Cite</p> <p>25 PA Code, Chapter 109</p>		<p>(5) Agency Contacts & Telephone Numbers</p> <p>Primary Contact: Sharon Trostle, 783-1303</p> <p>Secondary Contact: Michele Tate, 783-1303</p>	
<p>(6) Type of Rulemaking (Check One)</p> <p><input type="checkbox"/> Proposed Rulemaking</p> <p><input checked="" type="checkbox"/> Final Order Adopting Regulation</p> <p><input type="checkbox"/> Final Order, Proposed Rulemaking Omitted</p>		<p>(7) Is a 120-Day Emergency Certification Attached?</p> <p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes: By the Attorney General</p> <p><input type="checkbox"/> Yes: By the Governor</p>	
<p>(8) Briefly explain the regulation in clear and nontechnical language.</p> <p>The regulation is intended to ensure that all customers, rather than just the "average customer," are protected from health impacts of radionuclides by requiring monitoring for compliance at every entry point to the distribution system, rather at a "representative point in the distribution system." The regulation also provides protection from kidney damage from high concentrations of uranium. In addition, the regulation eliminates the beta particle monitoring for large systems, and keeps only the beta monitoring requirements for systems which are vulnerable or which use water contaminated by effluent from nuclear facilities.</p>			
<p>(9) State the statutory authority for the regulation and any relevant state or federal court decisions.</p> <p>The Pennsylvania Safe Drinking Water Act, 35 P.S. §721.4(a) and Sections 1917-A and 1920-A of the Administrative Code of 1929, 71 P.S. §§510-7 and 510-20(b).</p>			

(10) Is the regulation mandated by any federal or state law or court order, or federal regulation? If yes, cite the specific law, case or regulation, and any deadlines for action.

Yes. Section 1413 of the Federal Safe Drinking Water Act, 42 U.S.C. § 300g-2a, requires that, in order for the state to retain primary enforcement authority (primacy), the state must adopt drinking water regulations that are "no less stringent than" the national primary drinking water regulations not later than 2 years after the date on which the regulations are promulgated by the United States Environmental Protection Agency (EPA). The federal drinking water primacy regulations at 40 CFR § 142.12(a) also require the state to adopt all new and revised national primary drinking water regulations contained in 40 CFR Part 141 in order to retain primary enforcement responsibility. Furthermore, Section 4(a) of the Pennsylvania Safe Drinking Water Act, 35 P.S. § 721.4(a), requires the Environmental Quality Board to adopt maximum contaminant levels and treatment technique requirements no less stringent than those promulgated under the federal act for all contaminants regulated under the national primary and secondary drinking water regulations. Also Section 5(a) of the state act, 35 P.S. § 721.5(a), requires the Department to adopt and implement a public water supply program which includes those program elements necessary to assume state primary enforcement responsibility under the federal act.

EPA promulgated the *Radionuclides Rule* on December 7, 2000. Therefore, Pennsylvania must adopt regulations implementing the federal rules by December 7, 2002. Failure to do so, and without an EPA-granted extension, may result in Pennsylvania losing primacy. The Department has requested and EPA has granted an extension until December 8, 2004 because the state is adopting two or more EPA regulations at the same time (one of the criteria for EPA to grant an extension).

(11) Explain the compelling public interest that justifies the regulation. What is the problem it addresses?

Although radium-226 and -228 are regulated, the conditional monitoring scheme currently in effect may create an unacceptably high risk of cancer. In addition, there is currently no mechanism to protect the public from cancer or kidney damage due to high levels of uranium in drinking water.

(12) State the public health, safety, environmental or general welfare risks associated with non-regulation.

EPA estimates, nationwide, that failure to implement the regulations will result in 420,000 persons will be exposed to unacceptably high levels of radium, and 620,000 persons will be exposed to unacceptably high levels of uranium in drinking water.

(13) Describe who will benefit from the regulation. (Quantify the benefits as completely as possible and approximate the number of people who will benefit.)

There are approximately 2,200 community water systems serving approximately 10.4 million people in Pennsylvania. These 10.4 million people will benefit from a significant reduction in health risks associated with radionuclides, such as bone cancer and kidney damage.

(14) Describe who will be adversely affected by the regulation. (Quantify the adverse effect as completely as possible and approximate the number of people who will be adversely affected.)

The regulatory amendments are not expected to produce any adverse impacts.

(15) List the persons, groups or entities that will be required to comply with the regulation. (Approximate the number of people who will be required to comply.)

The regulatory amendments will affect approximately 2,200 community water systems in Pennsylvania. Each of these water systems will need to comply with various requirements of the amendments.

Initial monitoring is based on system population, and begins on the following dates:

<u>Population Served</u>	<u>Monitoring Start Date</u>
>3,301	January 1, 2005
500 – 3,300	January 1, 2006
<500	January 1, 2007

(16) Describe the communications with and input from the public in the development and drafting of the regulation. List the persons and/or groups who were involved, if applicable.

The federal radionuclides regulation was developed through a regulatory process with the cooperation of stakeholder groups. These participants included public water systems, environmental groups, and public health groups. The Water Resources Advisory Committee (WRAC) and the Small Water Systems Technical Assistance Center Advisory Board (TAC) reviewed drafts of both the proposed and final regulation and provided comments and suggestions. A thirty-day public comment period was held. No public comments were received. The Independent Regulatory Review Commission (IRRC) reviewed the proposed regulation and provided comments. The IRRC comments have been addressed in the final regulation.

(17) Provide a specific estimate of the costs and/or savings to the regulated community associated with compliance, including any legal, accounting or consulting procedures which may be required.

The EPA has estimated that implementing the Radionuclides Rule will cost the regulated community \$10,000,000 annually nationwide for startup implementation (the first three years) and \$4,900,000 annually nationwide for follow-up implementation. It is estimated that Pennsylvania's regulated community will incur a startup cost of \$407,000 and an annual cost of \$199,400 to implement the amendments.

(18) Provide a specific estimate of the costs and/or savings to local governments associated with compliance, including any legal, accounting or consulting procedures which may be required.

The radionuclides rule will impact all community water systems. There are approximately 2,200 community water systems in Pennsylvania. Of these systems, approximately 30% are owned and operated by local governments. The costs to these municipally owned and operated water systems for complying with the radionuclides rule are included in Section 17, Costs and/or Savings to the Regulated Community. The radionuclides rule imposes no additional costs on local governments over and above those that apply to the regulated community.

(19) Provide a specific estimate of the costs and/or savings to state government associated with the implementation of the regulation, including any legal, accounting or consulting procedures which may be required.

DEP will incur additional costs to implement the final amendments. Costs will also be borne by DEP for training, surveillance and compliance assistance.

Primary activities in the first three years after adoption of the amendments will include training, data management, and compliance assistance activities. After the initial 3-year period following adoption, program activities will shift to include field surveillance and compliance follow-up activities.

The EPA has estimated that implementing the Radionuclides Rule will cost the regulating state agencies \$250,000 annually nationwide for startup implementation and \$60,000 annually nationwide for follow-up implementation. It is estimated that the Department will incur a startup cost of \$10,200 and an annual cost of \$2,400 to implement the amendments.

(20) In the table below, provide an estimate of the fiscal savings and cost associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

	Current FY Year	FY +1 Year	FY +2 Year	FY +3 Year	FY +4 Year	FY +5 Year
SAVINGS:	\$	\$	\$	\$	\$	\$
Regulated Community	0	205,390	205,390	205,390	205,390	205,390
Local Government	0	0	0	0	0	0
State Government	0	0	0	0	0	0
Total Savings	0	205,390	205,390	205,390	205,390	205,390
COSTS:	\$	\$	\$	\$	\$	\$
Regulated Community	0	407,000	407,000	407,000	199,400	199,400
Local Government	0	0	0	0	0	0
State Government	0	10,200	10,200	10,200	2,400	2,400
Total Costs	0	417,200	417,200	417,200	201,800	201,800
REVENUE LOSSES:	\$	\$	\$	\$	\$	\$
Regulated Community	0	0	0	0	0	0
Local Government	0	0	0	0	0	0
State Government	0	0	0	0	0	0
Total Revenue Losses	0	0	0	0	0	0

(20a) Explain how the cost estimates listed above were derived.

Costs to Regulated Community:

Ratio of Pennsylvania CWSs to Nationwide CWSs = $2,200 / 54,100 = 0.0407$

Costs of Startup implementation to all CWSs = \$10,000,000 (first three years)

Cost of Implementation to all CWSs = \$4,900,000

Startup Cost to Pennsylvania CWSs = $0.0407 \times \$10,000,000 = \$407,000$

Implementation Cost to Pennsylvania CWSs = $0.0407 \times \$4,900,000 = \$199,400$

Costs to Local Government:

Included in Regulated Community. No additional costs to local governments.

Costs to the State Government:

Costs of Startup implementation to all State Governments = \$250,000 (first three years)

Cost of Implementation to all State Governments = \$60,000

Startup Cost to Pennsylvania State Government = $0.0407 \times \$250,000 = \$10,200$

Implementation Cost to Pennsylvania State Government = $0.0407 \times \$60,000 = \$2,400$

The estimated cost to state government over the next five years will be applied to the Environmental Protection Operations appropriation (160—field) and the Environmental Program Management appropriation (161—central office). The breakdown is 82% in 160 and 18% in 161 for each year, as follows: \$8,364 (160) and \$1,836 (161) for FY+1 thru FY+3, and \$1,968 (160) and \$432 (161) for FY+4 and FY+5.

Regulatory Analysis Form

(20b) Provide the past three year expenditure history for programs affected by the regulation.

Program	FY-3 (00-01)	FY-2 (01-02)	FY-1 (02-03)	Current FY (03-04)
Env. Prot. Operations (160)	\$76,018,000	\$75,074,000	\$75,560,000	\$76,393,000
Env. Program Mgmt. (161)	41,471,000	43,354,000	43,782,000	43,679,000

The safe drinking water program expenditures from the above appropriations are as follows:

<i>Env. Protection Operations (160)</i>	<i>491,116</i>	<i>792,445</i>	<i>853,816</i>	<i>950,000</i>
<i>Env. Program Management (161)</i>	<i>2,210,022</i>	<i>3,566,000</i>	<i>3,842,170</i>	<i>5,420,000</i>

21) Using the cost-benefit information provided above, explain how the benefits of the regulation outweigh the adverse effects and costs.

The proposed amendments are not expected to produce any adverse effects. The EPA has estimated that the nation may realize a total annual benefit of up to \$ 4,700,000. In Pennsylvania, this translates in to a total annual benefit of up to \$ 205,390. This benefit was derived from multiplying the national benefit by the ratio of radionuclide-exposed Pennsylvania to radionuclide-exposed US citizens.

Ratio of Pennsylvania exposure to Nationwide exposure = $10,455,296 / 239,137,000 = 0.0437$

Annualized benefits for reduction of radium cancer = \$1,700,000

Annualized benefits for reduction of uranium cancer = \$3,000,000

Total annualized benefits = \$4,700,000

Annualized benefits to Pennsylvania = $0.0437 \times \$4,700,000 = \$205,390$

(22) Describe the nonregulatory alternatives considered and the costs associated with those alternatives. Provide the reasons for their dismissal.

No nonregulatory alternatives were considered. This is a federal rule that must be either complied with, or adopted, by the individual states.

(23) Describe alternative regulatory schemes considered and the costs associated with those schemes. Provide the reasons for their dismissal.

No alternative regulatory schemes were considered. This is a federal rule that must be either complied with, or adopted, by the individual states.

(24) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulation.

The regulatory amendments contain one provision that is more stringent than the federal radionuclides rule. Section 109.301(14)(i)(B)(V) prohibits reduced monitoring where treatment has been provided to comply with a radionuclide maximum contaminant level. This provision is required due to the fact that the raw water being treated is unsafe, and that additional monitoring is required to ensure that the treatment plant is operating properly and is providing water that is safe for human consumption. This requirement is consistent with the requirements for inorganic chemical contaminants, volatile organic chemical contaminants, and synthetic organic contaminants.

(25) How does the regulation compare with those of other states? Will the regulation put Pennsylvania at a competitive disadvantage with other states?

The federal radionuclides rule will need to be either complied with, or adopted, by all of the other 49 states. Because of this, the proposed amendments will not put Pennsylvania at a competitive disadvantage with any other state.

(26) Will the regulation affect existing or proposed regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

The regulatory amendments will be incorporated into the existing language of 25 Pa Code Chapter 109. Other than this incorporation, the regulatory amendments should not affect any existing or proposed regulations of DEP, or any other state agency.

(27) Will any public hearings or informational meetings be scheduled? Please provide the dates, times, and locations, if available.

The proposed regulation was published for public comment. EPA and the IRRC provided comments on the proposed regulation. These comments have been addressed in the final regulation, but required no substantial changes to the regulation. Based on this, and because no other adverse public comments have been received, no public hearings or information meetings have been scheduled.

(28) Will the regulation change existing reporting, record keeping, or other paperwork requirements? Describe the changes and attach copies of forms or reports which will be required as a result of implementation, if available.

There will be no changes to forms or reports which will be required as a result of implementation of this regulation. However, it is anticipated that the majority of the community water systems in Pennsylvania will be required to monitor on a 6- or 9- year monitoring schedule, as opposed to the 4- year monitoring schedule that is currently in place. Therefore, reporting, recordkeeping, and paperwork requirements will be significantly reduced.

(29) Please list any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, elderly, small businesses, and farmers.

The regulatory amendments should have no effects on one particular group relative to another since it will apply to most of Pennsylvania's population.

(30) What is the anticipated effective date of the regulation; the date by which compliance with the regulation will be required; and the date by which any required permits, licenses or other approvals must be obtained?

The regulatory amendments are targeted for consideration by the EQB in December 2003. It is anticipated that the amendments will be promulgated in April 2004. Initial monitoring is scheduled to begin on January 1, 2005. No additional permits, approvals or licenses will be required.

(31) Provide the schedule for continual review of the regulation.

The amendments will be reviewed in accordance with the Sunset Review Schedule published by the Department.

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FOR FILING DOCUMENTS
WITH THE LEGISLATIVE REFERENCE
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(Pursuant to Commonwealth Documents Law)

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Attorney General

By: _____
(Deputy Attorney General)

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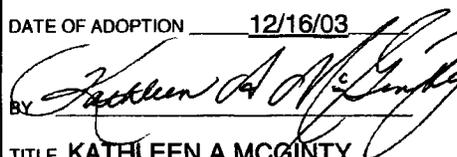
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DEPARTMENT OF ENVIRONMENTAL
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ENVIRONMENTAL QUALITY BOARD

(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-381

DATE OF ADOPTION 12/16/03

BY 

TITLE KATHLEEN A MCGINTY
CHAIRPERSON

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

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BY



DATE OF APPROVAL

(Deputy General Counsel)
(Chief Counsel - Independent Agency)
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Check if applicable. No Attorney General Approval
or objection within 30 days after submission.

ORDER ADOPTING REGULATIONS

**DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD**

Radionuclides Rule

25 Pa. Code, Chapter 109

Notice of Final Rulemaking
Department of Environmental Protection
Environmental Quality Board
(25 Pa. Code, Chapter 109)
(Safe Drinking Water)
(Radionuclides Rule)

Preamble

The Environmental Quality Board (Board) by this order amends 25 Pa. Code, Chapter 109 (relating to safe drinking water). The amendments include requirements for uranium, which is not currently regulated, and revisions to the monitoring requirements for combined radium-226 and radium-228, gross alpha particle radioactivity, and beta particle and photon radioactivity, and to make the radionuclides regulations more consistent with other regulations, such as revisions to monitoring frequencies and the point of compliance.

This order was adopted by the Board at its meeting of December 16, 2003.

A. Effective Date

These amendments will go into effect upon publication in the *Pennsylvania Bulletin* as final rulemaking.

B. Contact Persons

For further information contact Jeffrey A. Gordon, Chief, Division of Drinking Water Management, P.O. Box 8467, Rachel Carson State Office Building, Harrisburg, PA 17105-8467, (717) 772-4018, or Marylou Barton, Assistant Counsel, Bureau of Regulatory Counsel, P.O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the AT&T Relay Service by calling 1-800-654-5984 (TDD users) or 1-800-654-5988 (voice users). This proposal is available electronically through the DEP Web site (<http://www.dep.state.pa.us>).

C. Statutory Authority

The final rulemaking is being made under the authority of section 4 of the Pennsylvania Safe Drinking Water Act (35 P.S. §721.4), which grants the Board the authority to adopt rules and regulations governing the provision of drinking water to the public and sections 1917-A and 1920-A of the Administrative Code of 1929 (71 P.S. §§510-7 and 510-20).

D. Background of the Amendments

In 1976, National Interim Primary Drinking Water Regulations were promulgated for combined radium-226 and -228, gross alpha particle radioactivity and beta particle and photon radioactivity. The 1986 reauthorization of the Safe Drinking Water Act (SDWA) required EPA to promulgate maximum contaminant level goals (MCLGs) and National Primary Drinking Water Regulations (NPDWRs) for the above radionuclides, radon and uranium.

In 1991, EPA proposed new radionuclide regulations. These proposed regulations established MCLGs for all of the radionuclides, established maximum contaminant levels (MCLs) for uranium (20 pCi/l or 30 µg/l) and radon (300 pCi/l), and revised the MCLs for radium-226 (20

pCi/l), radium-228 (20 pCi/l), and beta and photon radioactivity (4 mrem-effective dose equivalent). The proposal also established a standard monitoring framework, and changed the monitoring requirements for beta and photon radioactivity from large systems using surface water and serving over 100,000 people to only those systems that are vulnerable to contamination by radionuclides. The proposed regulation proved controversial, especially the radon component, and the regulation was not finalized at the time.

On April 21, 2000, EPA published a Notice of Data Availability (NODA) on radionuclides. The NODA included updated information on the health effects of the radionuclides. Based on the updated information, EPA reestablished the combined radium MCL at 5 pCi/l, the beta and photon radioactivity at 4 mrem, and requested comments on establishing a uranium MCL of 20, 40, or 80 µg/l or pCi/l. The EPA excluded radon from the proposed radionuclides rule as required by the 1996 SDWA amendments.

EPA finalized the radionuclides rule on December 7, 2000. The final federal regulation applies to all community water systems, retains the MCLs for combined radium-226 and radium-228, gross alpha particle activity, and beta and photon radioactivity, and establishes the uranium MCL at 30 µg/l, based on kidney toxicity. The final rule also retains the standard monitoring framework proposed in 1991, as well as beta and photon radioactivity monitoring only for systems that are designated as vulnerable to radionuclide contamination or which utilize waters contaminated by effluents from nuclear facilities. The deadline for adoption of this regulation is two years after federal promulgation, or December 7, 2002. The Department has requested an extension from EPA to allow Pennsylvania to maintain primacy for the Safe Drinking Water Program. EPA has granted an extension until December 8, 2004.

In order to ensure that every Pennsylvania customer's water meets the MCLs for radionuclides, the Department's Radionuclides Rule requires monitoring at each entry point to a community water system's distribution system. This requirement is consistent with the monitoring requirements for other, comparable drinking water contaminants. By contrast, the 1976 Rule protected only "the average customer" by requiring the collection of monitoring samples from a "free flowing tap."

The Technical Assistance Center for Small Water Systems Advisory Board (TAC) reviewed the draft final regulation at their meeting on August 14, 2003. The Board endorsed the changes to Chapter 109 of the Department's regulations.

The Water Resources Advisory Committee reviewed the draft final regulation at their meeting on September 10, 2003. The committee recommended that the terms "nuclear facility," "vulnerable," "contaminated," and "vicinity" be defined in the preamble, since they are not defined in the text of the regulation. These terms are defined as follows:

Nuclear facilities are defined as nuclear power and non-power plants, Department of Energy facilities, military bases utilizing nuclear materials, and radiation-contaminated sites listed on EPA's National Priority List or NRC's Site Decommissioning Management Plan.

Vulnerable systems are defined as water systems that are located in the same watershed as a nuclear facility, or located within 15 miles downstream of a nuclear facility. Additional systems may be designated as vulnerable if the watershed contains hazardous geologic conditions, including: carbonate geology, highly fractured bedrock, or gravel deposits.

Contaminated systems will be identified by the prior analytical results for gross beta particle and photon radioactivity. Systems with wide variations in the analytical results, or analytical results close to the MCL will be considered a system contaminated by a radioactive source.

A system will be defined as being “in the vicinity of a nuclear facility” if there is any environmental surveillance data taken by a nuclear facility that is applicable to the system, and which may be used in lieu of monitoring.

In addition, these terms will be further defined in Departmental guidance.

E. Summary of Changes to the Proposed Rulemaking

§109.301(8)(iii)

This subparagraph applies to consecutive water systems, and clarifies that the monitoring requirements for radionuclides do not apply to consecutive systems, provided that the public water system from which the finished water is obtained monitors for compliance with the MCLs for radionuclides established by the EPA.

§109.301(14)(i)(A)

This subclause was clarified to indicate the initial monitoring starting date for systems serving 3,301 or more persons.

§109.301(14)(i)(A)(VI)-(VII) and §109.301(14)(i)(B)(I)-(IV)

These subclauses were clarified to indicate that radionuclides are to be monitored individually, and not lumped together as a group.

§109.301(14)(i)(B)

This clause was clarified to indicate that January 1, 2008, is the beginning date of a compliance monitoring period.

§109.301(14)(i)(D)

This clause was modified to reflect consistent terminology throughout the clause. Several terms that all have the same meaning have been replaced by the term “appropriate historical data.”

§109.301(14)(iii)(A)

This clause was clarified to indicate that the Department may require more frequent sampling, rather than more frequent monitoring than specified in subparagraphs (i) and (ii).

§109.303(j)

This paragraph was deleted from the final regulation. It was determined that the location of performance samples is better handled through the permitting process than through the regulation.

§109.503(a)(1)(iii)(B)(VII)

This subclause was clarified to indicate that the new source sampling requirements also include radium-226, radium-228, and uranium.

F. Summary of Comments and Responses on the Proposed Rulemaking

The only comments submitted on the proposed regulation came from the EPA and the IRRC. The following is summary of the comments and the Board's responses:

EPA noted that DEP left out the sentence stating that when a community water supply (CWS) substitutes gross alpha for radium-226 or uranium, the gross alpha result will be used to determine the future monitoring frequency for radium-226 or uranium, and that this omission could leave a reader unclear about how to determine when next to sample for radium-226 or uranium. The Board disagrees that this omission could result in confusion. When the gross alpha value is substituted for the radium-226 and/or uranium, the result becomes the result for radium-226 and/or uranium. The future monitoring is based on the values for radium-226 and uranium, not the gross alpha value.

IRRC commented that the phrases "historical monitoring data," "monitoring data," "appropriate historical monitoring data," and "appropriate historical data" have the same meaning, and that one term should be used consistently. The Board has changed the regulation to reflect the use of one consistent term, "appropriate historical data."

IRRC commented that the term "environmental surveillance data" needs to be clarified. The Board notes that this term is not defined in the federal regulation, but will include samples collected by either the nuclear facility or the Department. Environmental surveillance data typically include surface water samples downstream of the facility, air samples, milk samples, and sediment samples. Several of the nuclear facilities (Susquehanna, Three Mile Island, and Limerick) also collect samples at nearby water treatment plants.

IRRC questioned what criteria the Department will use to determine if a community water system is in the vicinity of a nuclear facility. The Board notes that the only place in the regulation where the term "vicinity of a nuclear facility" is used is in the utilization of environmental surveillance data. Therefore, if the environmental surveillance data is applicable to the system, it will be considered to be in the "vicinity of a nuclear facility." If the environmental surveillance data are not applicable to the system, it is not considered to be in the "vicinity."

IRRC commented that the proposed regulation does not contain a definition of a nuclear facility, and questioned the rationale for defining the term in the preamble, rather than in the regulation. The Board notes that EPA does not include a definition of nuclear facility in its regulation. The definition is included in the guidance documents. The Board believes that it is in the best interest of the Commonwealth to define a term in the same manner that EPA does. Nuclear facilities are defined as nuclear power and non-power plants, Department of Energy facilities, military bases utilizing nuclear materials, and radiation-contaminated sites listed on EPA's National Priority List or NRC's Site Decommissioning Management Plan.

EPA commented that the proposed regulation does not contain any provisions consistent with 40 C.F.R. § 141.66(f), which lists compliance dates. The Board notes that the compliance dates for the MCL and public notification requirements are incorporated by reference. The monitoring requirement will become effective immediately upon publication in the *Pennsylvania Bulletin*.

EPA commented that the proposed regulation does not contain any provisions in the new regulations consistent with 40 C.F.R. §141.66(g), which lists best available technologies (BAT). The Board has never listed BAT in its regulations. BAT is used for obtaining variances and

exemptions. The Board requires the use of “the best treatment technology that the Department, in concurrence with the Administrator, finds are generally available to reduce the level of the contaminant.” BAT is also considered in the Department’s permitting program, which the EPA does not have.

IRRC requested clarification on Section 109.301(14)(iii)(A) concerning the requirement of more frequent monitoring. The Board has identified conditions where more frequent monitoring may be required. These conditions are listed in Section 109.302.

IRRC requested clarification on Section 109.303(j) concerning performance monitoring. The Board has deleted this section, since it was determined that it would be best to address this issue on a case-by-case basis in the permitting process, rather than in regulation.

G. Benefits, Costs and Compliance

Executive Order 1996-1 requires a cost/benefit analysis of the final regulation.

Benefits

The purpose of the radionuclide regulation is to minimize the public risk of consuming drinking water containing unsafe levels of naturally occurring and man-made radionuclides.

The current regulations do not provide protection from kidney damage due to the presence of high levels of uranium in drinking water. The new uranium MCL will reduce the exposure of 620,000 persons in the U.S. to this contaminant, will protect CWS customers from exposure to uranium at levels that may cause kidney damage, and will reduce the risk of cancer caused by exposure to uranium. An estimated 0.8 cancer cases are expected to be avoided annually in the U.S. due to the MCL, resulting in estimated benefits of \$3 million per year. (The monetary benefits from reduced kidney damage cannot be quantified because of limitation in existing health effects models at levels near the MCL). Reducing the presence of uranium in drinking water will also remove other contaminants, providing additional benefits to CWS customers.

The current regulations do not require the analysis of radium-228 unless the gross alpha particle activity is greater than 5 pCi/l. However, since radium-228 is a beta emitter, linking the sampling to results of alpha particle activity is not protective of health. The new rule sets separate monitoring requirements for radium-228, which are expected to reduce the exposure of 420,000 persons in the U.S. and result in the avoidance of 0.4 cancer cases per year, with estimated monetized health effects benefits of \$2 million annually. Water mitigation for radium also tends to reduce iron and manganese levels and hardness, which also has significant associated benefits.

In addition to providing increased public protection, the regulation allows for reduced monitoring frequencies in systems where the concentration of radionuclides is low. The reduced monitoring will result in lower costs for compliance with the regulation.

Compliance Costs

The compliance cost depends on the number of entry points to the distribution system for a CWS and whether the MCL is exceeded. CWSs have been monitoring for gross alpha and radium since the late 1970s. Since 1986, Pennsylvania CWSs have also been monitoring for both radium-226 and radium-228 when the gross alpha exceeds 5 pCi/L. Pennsylvania CWSs that

have exceeded the combined radium MCL have either provided treatment or abandoned the source. The Department will also use the option that allows the grandfathering of previous compliance monitoring results to reduce the initial compliance monitoring for gross alpha and combined radium, as well as uranium, if applicable. There should be minimal additional monitoring costs associated with the combined radium MCL, except possibly for those CWSs which have more than a single entry point to the distribution system.

The only new MCL is for uranium, which the Department has incorporated by reference in 25 Pa. Code 109.202(a)(2). EPA has estimated that the cost for the analysis of total uranium is approximately \$48 per sample (by laser phosphorimetry, 1999 dollars). The cost to individual CWSs will depend on the number of entry points. The larger systems will have more entry points than a smaller system. The cost estimate for uranium testing has been estimated to be \$37 – \$512 per year per system.

EPA has not done a cost analysis for the uranium MCL of 30 µg/l. They have, however, done cost analyses for MCLs of 20 µg/l and 40 µg/l. Based on these analyses, it is estimated that nationwide between 430 and 970 CWSs will require treatment to meet the uranium MCL with a total estimated annual cost of \$68 million to \$157 million.

Compliance Assistance Plan

The Safe Drinking Water Program utilizes the Commonwealth's PENNVEST Program in order to offer financial assistance to eligible public water systems. This assistance is in the form of a low-interest loan, with some augmenting grant funds for hardship cases. Eligibility is based upon factors such as public health impact, compliance necessity, and project/operational affordability.

The Safe Drinking Water Program has established a network of regional and central office training staff that is responsive to identifiable training needs. The target audience in need of training may be either the program staff or the regulated community. Training is anticipated for water systems in the fall of 2003.

In addition to this network of training staff, the Bureau of Water Supply and Wastewater Management has a division dedicated to providing both training and outreach support services to public water system operators. The Department's website also contains the *Drinking Water and Wastewater Operator Information Center* Internet site, which provides a bulletin board of timely, useful information for treatment plant operators.

Paperwork Requirements

Community water systems are already required to monitor for radionuclides. Systems may use existing forms for compliance with this proposed regulation. It is anticipated that the majority of systems will be able to monitor on 6- and 9-year frequencies, rather than the 4-year frequency that is required under the existing regulations. This reduced monitoring frequency will reduce the paperwork and recordkeeping requirements.

H. Sunset Review

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

I. Regulatory Review

Under Section 5(a) of the Regulatory Review Act (71 P.S. §745.5(a)), the Department submitted a copy of the proposed rulemaking, published at 33 Pa.B. 1239, March 8, 2003, to the Independent Regulatory Review Commission (IRRC), and the Chairpersons of the Senate and House Environmental Resources and Energy Committees for review and comment.

Under Section 5(c) of the Regulatory Review Act, IRRC and the Committees were provided with copies of the comments received during the public comment period, as well as other documents when requested. In preparing these final-form regulations, the Department has considered all comments from IRRC, the Committees and the public.

Under Section 5.1(j.2) of the Regulatory Review Act (71 P.S. §745.5a(d)), on _____, these final-form regulations were deemed approved by the House and Senate Committees. Under section 5.1(e) of the Regulatory Review Act, IRRC met on _____ and approved the final-form regulations.

J. Findings of the Board

The Board finds that:

- (1) Public notice of proposed rulemaking was given under sections 201 and 202 of the Act of July 31, 1968, P.L. 769, No. 240 (45 P.S. §§1201 and 1202) and regulations promulgated thereunder at 1 *Pennsylvania Code* §§7.1 and 7.2.
- (2) A public comment period was provided as required by law, and all comments were considered.
- (3) These regulations do not enlarge the purpose of the proposal published at 33 *Pennsylvania Bulletin* 1239, March 8, 2003.
- (4) These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this order.

K. Order of the Board

The Board, acting under the authorizing statutes, orders that:

- a) The regulations of the Department of Environmental Protection, 25 *Pennsylvania Code*, Chapter 109, are amended by amending Chapter 109 to read as set forth in Annex A, with ellipses referring to the existing text of the regulations.
- b) The Chairperson of the Board shall submit this order and Annex A to the Office of General Counsel and the Office of Attorney General for review and approval as to legality and form, as required by law.
- c) The Chairperson shall submit this order and Annex A to the Independent Regulatory Review Commission and the Senate and House Environmental Resources and Energy Committees as required by the Regulatory Review Act.

- d) **The Chairperson of the Board shall certify this order and Annex A and deposit them with the Legislative Reference Bureau, as required by law.**
- e) **This order shall take effect immediately.**

BY:

**KATHLEEN A. McGINTY
Chairperson
Environmental Quality Board**

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION

PART I – DEPARTMENT OF ENVIRONMENTAL PROTECTION

Subpart C. PROTECTION OF NATURAL RESOURCES

ARTICLE II. WATER RESOURCES

CHAPTER 109. SAFE DRINKING WATER

Subchapter C. MONITORING REQUIREMENTS

§109.301 General monitoring requirements.

(8) Monitoring requirements for public water systems that obtain finished water from another public water system.

(iii) Consecutive water suppliers are exempt from conducting monitoring for the MCLs for VOCs, SOCs ~~[and]~~ , IOCs, **AND RADIONUCLIDES** if the public water system from which the finished water ~~is~~ **IS** obtained complies with paragraphs (5)-(7) **AND** **(14)**, except that asbestos monitoring is required in accordance with subparagraph (ii)(B).

(14) Monitoring requirements for radionuclides. Community water systems shall monitor for compliance with the MCLs for radionuclides established by the EPA under 40 CFR 141.66(b), (c), (d) and (e) (relating to MCLs for radionuclides). The monitoring shall be conducted according to the requirements established by EPA under 40 CFR 141.25 and 141.26 (relating to monitoring frequency; and compliance requirements) which are incorporated by reference, except as modified by this

chapter. Initial or first-year monitoring mentioned in this paragraph refers to monitoring conducted on or after January 1, ~~2004~~ 2005.

(i) *Monitoring requirements for gross alpha particle activity, radium-226, radium-228, and uranium.*

(A) *Initial monitoring schedule.* The initial monitoring shall consist of four consecutive quarterly samples for each radionuclide at each entry point in accordance with the following monitoring schedule except for systems that are granted reduced initial monitoring in accordance with subclause ~~(VI)~~(V).

~~(I)~~ *Systems serving more than 10,000 persons shall begin monitoring during the quarter beginning January 1, 2004.*

~~(H)~~ *Systems serving more than 3,301 persons ~~to 10,000 persons~~ shall begin monitoring during the quarter beginning January 1, 2005.*

~~(H)~~(II) *Systems serving 500 to 3,300 persons shall begin monitoring during the quarter beginning January 1, 2006.*

~~(IV)~~(III) *Systems serving fewer than 500 persons shall begin monitoring during the quarter beginning January 1, 2007.*

~~(V)~~(IV) *Systems that add new entry points associated with new sources shall begin initial quarterly monitoring during the first quarter the entry point begins serving the public. Quarterly monitoring shall continue until reduced monitoring is granted in accordance with clause (B) or subclause ~~(VI)~~(V).*

~~(VI)~~(V) *If the first 2 quarterly samples for ~~each~~ A radionuclide at ~~each~~ AN entry point have results below the detection limit, as defined in 40*

CFR 141.25(c)(1), the final two quarterly samples for that radionuclide at that entry point are waived.

~~(VH)~~(VI) For entry points at which the monitoring result for A RADIONUCLIDE AT an entry point is above the MCL, the system shall collect and analyze quarterly samples FOR THAT RADIONUCLIDE at that entry point until the system has results from 4 consecutive quarters FOR THAT RADIONUCLIDE at that entry point that are at or below the MCL.

(B) Repeat Monitoring. Beginning WITH THE ~~on~~ January 1, 2008, COMPLIANCE PERIOD, systems shall take one sample for each radionuclide at each entry point in each 3-year compliance period, unless the system qualifies for reduced monitoring as follows:

(I) For entry points where the average of the initial monitoring results for ~~each~~ A radionuclide is at or above the detection limit as defined in 40 CFR 141.25(c)(1), but at or below one-half of the MCL for that radionuclide, the repeat monitoring is reduced to one sample for that radionuclide at that entry point every 6 years.

(II) For entry points where the average of the initial monitoring results for ~~each~~ A radionuclide is below the detection limit as defined in 40 CFR 141.25(c)(1), the repeat monitoring is reduced to one sample for that radionuclide at ~~each~~ THAT entry point every 9 years.

(III) If a system has a monitoring result that exceeds the MCL FOR A RADIONUCLIDE ~~while on reduced monitoring~~, the system shall collect and analyze quarterly samples for that radionuclide at that entry point

beginning the next calendar quarter following the exceedance until the system has results from 4 consecutive quarters for that radionuclide at that entry point that are below the MCL.

(IV) Systems shall use the results of the samples collected during the ~~reduced~~ REPEAT monitoring period to determine the monitoring frequency for subsequent monitoring periods.

(V) Reduced monitoring does not apply to those systems where treatment has been installed for radionuclide removal to comply with an MCL listed under 40 CFR 141.66. Compliance monitoring for radionuclides where treatment has been installed to comply with an MCL shall be conducted at least annually, and performance monitoring for the specific radionuclide(s) for which treatment is provided shall be conducted quarterly.

(C) Gross Alpha Substitution. A gross alpha particle activity measurement may be substituted for the required radium-226 measurement provided that the measured gross alpha particle activity does not exceed 5 pCi/l. A gross alpha particle activity measurement may be substituted for the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/l. The gross alpha measurement shall have a confidence interval of 95% (1.65σ , where σ is the standard deviation of the net counting rate of the sample) for radium-226 and uranium. If the gross alpha particle activity result is less than THE detection LIMIT as defined in 40 CFR 141.25(c)(1), one-half of the detection limit will be used to determine compliance and the future monitoring frequency.

(D) Grandfathering. The Department will allow APPROPRIATE historical [monitoring] data collected at an entry point to satisfy the initial monitoring requirements required under clause (A) for that entry point in the following situations:

(I) A system having only one entry point may use the monitoring data from the compliance monitoring period between June 2000 and December 8, 2003.

(II) A system with multiple entry points and having appropriate historical [monitoring] data for each entry point may use the monitoring data from the compliance monitoring period between June 2000 and December 8, 2003.

(III) A system with multiple entry points and having appropriate historical data for a representative point in the distribution system may use the monitoring data from the compliance monitoring period between June 2000 and December 8, 2003, provided that the Department finds that the APPROPRIATE historical data satisfactorily demonstrate that each entry point is expected to be in compliance based upon the APPROPRIATE historical data and reasonable assumptions about the variability of radionuclide levels between entry points. The system shall supply sufficient information to allow the Department to make a written finding indicating how the data conform to these requirements.

(ii) Monitoring Requirements for beta-particle and photon radioactivity.

(A) Systems designated by the Department as vulnerable to beta-particle or photon radioactivity or both shall sample for beta particle and photon radioactivity. Systems shall collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each entry point, beginning within 1 quarter after being notified by the Department.

(I) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at an entry point has a running annual average (computed quarterly) less than or equal to 50 pCi/L (screening level), the frequency of monitoring at that entry point shall be repeated every 3 years. Systems shall collect all samples required in clause (A) during the reduced monitoring period.

(II) For systems in the vicinity of a nuclear facility, the system may utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry points, when the Department determines that the data is applicable to the system. If there is a release from a nuclear facility, systems that are using surveillance data shall begin monitoring at the community water system's entry points in accordance with clause (A).

(B) Systems designated by the Department as utilizing waters contaminated by effluents from nuclear facilities shall sample for beta particle and photon radioactivity. Systems shall monitor quarterly for beta emitters and iodine-131, and annually for tritium and strontium-90 at each entry point, beginning within

1 quarter after being notified by the Department. Monitoring shall be conducted as follows:

(I) Monitoring for gross beta particle activity shall be based on the average of an analysis of 3 monthly samples.

(II) For iodine-131, a composite of 5 consecutive daily samples shall be analyzed once each quarter. More frequent monitoring, as determined by the Department, shall be conducted when iodine-131 is identified in the finished water.

(III) Monitoring for strontium-90 and tritium shall be conducted by means of the analysis of four quarterly samples.

(IV) If the gross beta particle activity [beta] minus the naturally occurring potassium-40 beta particle activity at an entry point has a running annual average (computed quarterly) less than or equal to 15 pCi/L (screening level), the frequency of monitoring at that entry point shall be reduced to 4 consecutive quarterly samples taken once every 3 years. Systems shall collect all samples required in clause (B) during the reduced monitoring period.

(V) For systems in the vicinity of a nuclear facility, the system may utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry points, when the Department determines that the data is applicable to the system. If there is a release from a nuclear facility, systems that are using surveillance data shall begin monitoring at the system's entry points in accordance with clause (B).

(C) Systems designated by the Department to monitor for beta particle and photon radioactivity may not apply to the State for a waiver from the monitoring frequencies specified in clause (A) or (B).

(D) Systems may analyze for naturally occurring potassium-40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. The potassium-40 beta particle activity shall be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82.

(E) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the screening level, an analysis of the sample shall be performed to identify the major radioactive constituents present in the sample. The results of the individual constituent analysis shall be reported in pCi/l, and the appropriate doses must be calculated and summed to determine compliance with the MCL, using the formula in 40 CFR §141.66(d)(2). Doses shall also be calculated and combined for measured levels of tritium and strontium to determine compliance.

(F) Systems shall monitor monthly at the entry points that exceed the MCL beginning the month after the exceedance occurs. Systems shall continue monthly monitoring until the system has established, by a rolling average of three monthly samples, that the MCL is being met. Systems that establish that the MCL is being met shall return to quarterly monitoring until they meet the requirements set forth in subclause (A)(I) or (B)(IV).

(iii) General monitoring and compliance requirements.

(A) The Department may require more frequent SAMPLING [monitoring] than specified in subparagraphs (i) and (ii), or may require confirmation samples. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

(B) Each system shall monitor at the time designated by the Department during each compliance period.

(C) Compliance with the MCLs will be determined based on the analytical result(s) obtained at each entry point. If one entry point is in violation of an MCL, the system is in violation of the MCL.

(I) For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each entry point. If the running annual average at an entry point is greater than the MCL, the system is in violation of the MCL. If a sample result will cause the running annual average to exceed the MCL at an entry point, the system is in violation of the MCL immediately.

(II) Systems shall include all samples taken and analyzed under this section in determining compliance, even if that number is greater than the minimum required.

(III) If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.

(IV) If a sample result is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 or uranium, or both. If the gross alpha particle activity result is less than detection, one-half of the detection limit will be used to calculate the annual average.

(D) The Department may delete results of obvious sampling or analytic errors.

§109.303. Sampling requirements.

(h) Samples taken to determine compliance with combined radium-226 and radium-228, gross alpha particle activity, or uranium under 40 CFR 141.66 (b), (c), and (e) (relating to MCLs for radionuclides) may be composited from a single entry point if the analysis is done within a year of the date of the collection of the first sample. The Department will treat analytical results from the composited sample as the average analytical result to determine compliance with the MCLs and the future monitoring frequency.

(1) If the analytical result from the composited sample is greater than one-half the MCL, the Department may direct the system to take additional quarterly samples before allowing the system to sample under a reduced monitoring schedule.

(2) Samples obtained from an entry point that contains water treated to specifically meet an MCL for a radionuclide contaminant listed under 40 CFR 141.66 (b), (c), or (e) may not be composited.

(i) Samples taken to determine compliance with beta particle and photon radioactivity under 40 CFR 141.66(d) (relating to MCLs for beta particle and photon radioactivity) may be composited as follows:

(1) Monitoring for gross beta-particle activity may be based on the analysis of a composite of three monthly samples.

(2) Monitoring for strontium-90 and tritium may be based on the analysis of a composite of four consecutive quarterly samples.

~~{(i) Performance samples required under §109.301(14)(i)(B)(V) (relating to general monitoring requirements) shall be taken immediately following treatment for the radionuclide, or at another location approved by the Department. Systems may not take performance samples at an entry point.}~~

§109.503. Public water system construction permits.

(a) Permit application requirements. An application for a public water system construction permit shall be submitted in writing on forms provided by the Department and shall be accompanied by plans, specifications, engineer's report, water quality analyses and other data, information or documentation reasonably necessary to enable the Department to determine compliance with the act and this chapter. The Department will make available to the applicant the Public Water Supply Manual, available from the Bureau of Water Supply and Community Health, Post Office Box 8467, Harrisburg, Pennsylvania 17105 which contains acceptable design standards and technical guidance. Water quality analyses shall be conducted by a laboratory certified under this chapter.

(1) *General requirements.* An application shall include:

(iii) *Information describing new sources.* The Department may accept approval of an out-of-State source by the agency having jurisdiction over drinking water in that state if the supplier submits adequate proof of the approval and the agency's standards are at least as stringent as this chapter. Information describing sources shall include:

(B) An evaluation of the quality of the raw water from each new source. This subparagraph does not apply when the new source is finished water obtained from an existing permitted community water system unless the Department provides written notice that an evaluation is required. The evaluation shall include analysis of the following:

(VII) Gross Alpha (α), **RADIUM-226, RADIUM-228,**
URANIUM and Gross Beta (β).

SAFE DRINKING WATER ACT AMENDMENTS

25 PA CODE CHAPTER 109

RADIONUCLIDES RULE

COMMENT AND RESPONSE DOCUMENT

List of Commentators

1. **Richard Watman**
EPA Region III
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2. **Independent Regulatory Review Commission**
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COMMENTS AND RESPONSES

Monitoring

1. PADEP has left out the sentence stating that when a community water supply (CWS) substitutes gross alpha for radium-226 or uranium, the gross alpha result will be used to determine the future monitoring frequency for radium-226 or uranium. This omission could leave a reader unclear about how to determine when next to sample for radium-226 or uranium. (1) (2)

Response: The proposed regulation has been reviewed by regional Department staff, the Water Resources Advisory Committee, and the Small Drinking Water Systems Technical Assistance Center Board. None of the reviewers expressed any uncertainty concerning future sampling frequency based on the exclusion of this sentence. The proposed regulation was published for public comment, with no concerns received from the public expressing uncertainty about this language. When the alpha result is substituted for the radium-226 or uranium analysis, the substituted value becomes the result for that parameter. The radium-226 or uranium value (even if it is the same as the alpha result) is the result that will be used to determine the date of the next sample. Since no other similar concerns were raised, the change has not been made.

2. Clause D uses the phrases “historical monitoring data,” “monitoring data,” “appropriate historical monitoring data,” and “appropriate historical data.” Do these terms have the same meaning? If so, we recommend that one term be used consistently. (2)

Response: These phrases were taken directly from EPA’s regulation; however, the language has been changed in the final rulemaking to the use of one term, “appropriate historical data.”

3. Subclause (D)(III) states: “...the historical data satisfactorily demonstrate that each entry point is expected to be in compliance based upon the historical data and reasonable assumptions about the variability...”

We have two concerns. First, what happens if the entry point is tested and the results do not comply with the requirements? What are the consequences for the community water system? (2)

Response: Subclause (D)(III) does not apply where entry points are tested. It applies where entry points are NOT tested, and the system has only distribution system samples. The system would have to make “reasonable assumptions about the variability of the radionuclide levels between entry points,” and supply data that support these “reasonable assumptions.” If the system cannot supply data to support these “reasonable assumptions” or if the Department determines that the assumptions are not reasonable, the data will not be considered to be valid for the purposes of grandfathering, and the system must then take the required initial monitoring samples.

Second, the phrase “reasonable assumptions” is vague. What sort of assumptions would be considered reasonable? (2)

Response: The language was taken directly from EPA’s regulation. In order to make a “reasonable assumption about the variability of radionuclides between entry points,” a system must be able to show that all of the water in the distribution system comes from the same source (i.e. aquifer, river, or lake). If the water is not from the same source, there can be no connection in the variabilities of the radionuclides levels between the entry points. In addition, the system must be able to show that, for any combination of flows between the entry points, there is no possibility that ANY of the entry points will exceed the MCL.

4. Clause (A) states: “Systems designated by the Department as vulnerable to beta-particle or photon radioactivity or both shall sample for beta particle or photon radioactivity.”

We have two concerns. First, how will the Department determine if a community water system is vulnerable? (2)

Response: As noted in Section E of the preamble, the Department is proposing to use a watershed-based approach to determining vulnerability. Systems lying in the same watershed as a nuclear facility will be considered to be vulnerable to contamination.

Second, please explain what a watershed-based approach is and how it would be implemented. Is this approach more or less stringent than the federal requirements? (2)

Response: Systems lying in the same watershed as a nuclear facility will be considered to be vulnerable to contamination. The EPA has given the states the discretion to determine which systems are vulnerable. There are no federal requirements for this determination, only guidelines and recommendations. EPA recommends the use of a 15-mile radius around nuclear facilities as the designation for vulnerability. The Department used this recommendation as a starting point, and has compiled a list of all systems within 15 miles of each nuclear facility. The watershed approach proposed by the Department will encompass a smaller geographic area around a nuclear facility, unless geologic conditions require that a larger area be designated for vulnerability. This approach is considered to be more realistic than a 15-mile radius for conditions except for a release of radionuclides to the atmosphere. In the event of an atmospheric release from a nuclear facility, the Department may require all systems within a 15-mile radius to conduct monitoring for beta particle and photon radioactivity, as recommended by EPA.

5. Subclause (A)(II) states, “For systems in the vicinity of a nuclear facility, the system may utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system’s entry points...”

We have three concerns. First, what criteria will the Department use to determine if a community water system is in the vicinity of a nuclear facility? (2)

Response: The language was taken directly from EPA’s regulation. The only place in the regulation where the term “vicinity of a nuclear facility” is used is in the utilization of environmental surveillance data. Therefore, if the environmental surveillance data is applicable to the system, it will be considered to be in the “vicinity of a nuclear facility.” If the environmental surveillance data are not applicable to the system, it is not considered to be in the “vicinity.”

Second, the proposed regulation does not contain a definition of a nuclear facility. However, the term is defined in the Preamble. What is the Department’s rationale for not including the definition of nuclear facility in the regulation? (2)

Response: EPA does not include a definition of nuclear facility in its regulation. The definition is included in the guidance documents. The Department believes that it is in the best interest of the Commonwealth to define a term in the same manner that EPA does. If the Department put the definition in the regulation, any change that EPA may make to the definition in their guidance may cause the Department’s regulation to be more stringent than the federal requirements. Therefore, where EPA defines a term in guidance, the Department will also define the term in guidance.

Third, the term “environmental surveillance data” needs to be clarified. It is our understanding that the U. S. Nuclear Regulatory Commission (NRC) requires routine monitoring of release points of power plants. If these NRC requirements are contained in federal regulations, this subclause should contain a specific reference to those federal rules. (2)

Response: The term “environmental surveillance data” is not defined in the federal regulation. Nuclear facilities may be required to take environmental surveillance samples to document any impacts of the facility on the environment in general, but not specifically on drinking water sources. Environmental surveillance data typically include surface water samples downstream of the facility, air samples, milk samples, and sediment samples. Several of the nuclear facilities in Pennsylvania (Susquehanna, Three Mile Island, and Limerick) also collect samples at nearby water treatment plants. The water system will have access to this data. The Department plans on using surface water samples downstream of the nuclear facility or samples collected at the water treatment plants as the environmental surveillance data under this section. Systems using environmental surveillance data will receive training from the Department on the scope of appropriate data to be collected under this section.

Clause (B) states, “Systems designated by the Department as utilizing waters contaminated by effluents from nuclear facilities shall sample...” How will the Department notify a system that it is designated as using waters contaminated by a nuclear facility?

Response: The Department is not currently considering any facilities to be “utilizing waters contaminated by effluents by nuclear facilities,” because there is insufficient evidence to make such a determination. This determination will probably be made on a case-by-case basis as information becomes available. Although a final determination has not been made

pertaining to the method of notification, it is likely that the water system will be notified directly and individually.

6. Clause (A) states, “The Department may require more frequent monitoring than specified...”

We have two concerns. First, when would the Department require more frequent monitoring? (2)

Response: This language is required for the Department’s regulation to be as stringent as the federal regulation. More frequent monitoring may be required where analytical results are near the MCL. More frequent monitoring may also be required where analytical results show levels well above or below the historical monitoring results.

Second, monitoring refers to all of the responsibilities of a community water system. Sampling is a specific action. This provision would be clearer if it stated, “The Department may require more frequent *sampling*...” (2)

Response: The Department agrees and has made the change.

7. Clause (B) states the following: “Each system shall monitor at the time designated by the Department during each compliance period.” How will a system be notified of the time designated by the Department? (2)

Response: The monitoring schedule will be established prior to the commencement of the compliance period and shared with the system in writing to allow each community water system to know when it will be required to monitor. Advanced notice will aid the system in planning accordingly, as well as avoid overloading the laboratories with samples.

Compliance Dates

8. EPA does not see any provisions consistent with 40 C.F.R. § 141.66(f), which lists compliance dates. (1) (2)

Response: 40 CFR 141.66(f) states: “Community water systems must comply with the MCLs listed in paragraphs (b), (c), (d), and (e) of this section beginning December 8, 2003 ... Compliance with the reporting requirements ... is required on December 8, 2003.” Section 109.202(a)(2) incorporates the MCLs by reference, and Sections 109.407(b) and 109.411(d) incorporate the public notification requirements by reference. None of these section were amended by this rulemaking.

Best Available Technology

9. EPA did not find any provisions in the new regulations consistent with 40 C.F.R. §141.66(g), which lists best available technologies (BAT). (1) (2)

Response: Pennsylvania does not list BAT for any contaminant in the regulations. Treatment technologies that are used to comply with the MCLs are addressed in the Department's permitting program, which EPA's regulations do not reflect. BAT technologies are used only for the purposes of granting variances and exemptions. §109.901(a)(1), which applies to the granting of variances, requires the public water system to have installed and to be currently using the best treatment technology that the Department in concurrence with the Administrator finds are generally available to reduce the level of the contaminant.

Sampling Requirements

10. Subsection (j) states: "Performance samples required under §109.301(14)(i)(B)(V) (relating to general monitoring requirements) shall be taken immediately following treatment for the radionuclide, or at another location approved by the Department."

We have two concerns. First, the use of the phrase "immediately following treatment" is unclear. It is our understanding that the phrase related to a location or place where sampling may occur. That location is downstream from the radionuclide treatment area. The final-form regulation should be revised to indicate that the phrase "immediately following" refers to a place and not a time. (2)

Second, if a system opts to use another location, how would they apply for approval of the Department? (2)

Response: Subsection (j) has been deleted in the final regulation because the Department believes that this issue will be best addressed in the permitting process, rather than through regulations.

ONE PAGE SUMMARIES

The following is a summary of the comments submitted by the U.S. Environmental Protection Agency (EPA) in response to the Board's request for comments on the Proposed amendments to Chapter 109, Safe Drinking Water as published in the Pennsylvania Bulletin (vol.33, No.10, page 1239) on March 7, 2003. These amendments consist of new and modified requirements for the regulation of radionuclides.

EPA appreciates the opportunity to comment on these proposed regulations. The Drinking Water Branch and Office of Regional Counsel of EPA, Region III reviewed the proposed rule in comparison to the Federal regulations to insure that the rules to be adopted by Pennsylvania are no less stringent than the Federal regulations in order for the PA Department of Environmental Protection (PADEP) to maintain Primacy for the drinking water program. EPA recognizes the importance of PADEP maintaining primacy for these regulations.

- In Section 109.301(14)(i)(C), PADEP has restated the federal regulation, but has left out the sentence stating that when a community water supply (CWS) substitutes gross alpha for radium-226 or uranium, the gross alpha result will be used to determine the future monitoring frequency for radium-226 or uranium. This omission could leave a reader unclear about how to determine when next to sample for radium-226 or uranium. EPA recommends that the omitted sentence be returned to the paragraph.
- EPA does not see any provisions consistent with 40 C.F.R. § 141.66(f), which lists compliance dates. Information supplied by PADEP in their "Crosswalk", which compares the Federal Radionuclides rule with the PADEP regulation, states that this C.F.R. section is incorporated into the PADEP regulation by reference. EPA cannot find such a reference. The PADEP regulations under consideration specifically concern themselves with monitoring requirements (§109.301) and sampling requirements (§109.303). However, since 40 C.F.R. § 141.66(f) contains neither monitoring requirements nor sampling requirements, this section does not appear to be included in the PADEP regulations. It is strongly recommended that PADEP revise the regulations to include these requirements.

Submitted by Richard Watman, Radionuclides Rule Lead, Drinking Water Branch, U.S. EPA Region III



Pennsylvania Department of Environmental Protection

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January 13, 2004

Policy Office

717-783-8727

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14th Floor, Harristown #2
333 Market Street
Harrisburg, PA 17120

Dear Mr. Nyce:

RE: Final Rulemaking: Chapter 109, Radionuclides Rule (#7-381)

Pursuant to Section 5.1(a) of the Regulatory Review Act, enclosed is a copy of a final-form regulation for review by the Commission. The Environmental Quality Board (EQB) approved this final-form rulemaking on December 16, 2003.

This final rulemaking reflects recent changes to the federal radionuclides rule to minimize the public risk of consuming drinking water containing unsafe levels of naturally occurring and manmade radionuclides. The rulemaking establishes a new maximum contaminant level (MCL) for uranium and retains the MCLs for existing regulated radionuclides. It applies to all community water systems and requires compliance monitoring at each entry point to the distribution system, thereby ensuring that the radionuclide MCLs are met throughout the entire system. Initial monitoring will be quarterly for gross alpha particle activity, radium-226, radium-228 and uranium, starting on January 1, 2005, and ending on December 31, 2007. The regulation also allows for reduced monitoring in systems where the concentration of radionuclides is low, which will result in lower compliance costs.

The deadline for adoption of this regulation is two years after federal promulgation, which would have been December 7, 2002. However, EPA granted the department an extension until December 7, 2004, to finalize the regulation.

The proposed rulemaking was adopted by the EQB on December 17, 2002, and published in the *Pennsylvania Bulletin* on March 8, 2003, with a 30-day public comment period. In addition to the Commission's comments, EPA also provided written comments on the proposed rulemaking. All comments have been considered and addressed.

The Technical Assistance Center for Small Water Systems (TAC) and the Water Resources Advisory Committee (WRAC) reviewed and endorsed the final rulemaking at separate meetings held on August 14, 2003, and September 10, 2003, respectively.



The Department will provide assistance as necessary to facilitate the Commission's review of this final-form regulation under Section 5.1(e) of the Regulatory Review Act. Please contact me if you would like additional information.

Sincerely,



Sharon F. Trostle
Regulatory Coordinator

Enclosure

**TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE
REGULATORY REVIEW ACT**

I.D. NUMBER: 7-381
SUBJECT: Radionuclides Rule
AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION

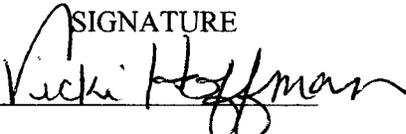
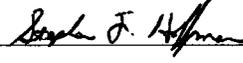
2331

TYPE OF REGULATION

- Proposed Regulation
- Final Regulation
- Final Regulation with Notice of Proposed Rulemaking Omitted
- 120-day Emergency Certification of the Attorney General
- 120-day Emergency Certification of the Governor
- Delivery of Tolled Regulation
 - a. With Revisions
 - b. Without Revisions

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REGULATORY REVIEW COMMISSION

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
1-13		HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
1-13		SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
1/13		INDEPENDENT REGULATORY REVIEW COMMISSION
		ATTORNEY GENERAL (for Final Omitted only)
		LEGISLATIVE REFERENCE BUREAU (for Proposed only)

January 13, 2004

