

Final Significant Analysis

Chapter 246-291 WAC Group B Public Water Systems

October 31, 2012

Contents

- Section 1: Introduction
- Section 2: What is the scope of the rule?
- Section 3: What are the general goals and specific objectives of the rule's authorizing statute?
- Section 4: Is a rule required to achieve the goals and objectives?
What are the consequences of not adopting the rule?
- Section 5: What are the Probable Costs and Benefits of the Rule?
- Section 6: What alternative versions of the rule were considered?
Is the rule the least burdensome approach?
- Section 7: Does the rule require those to whom it applies to take an action that violates requirements of another federal or state law?
- Section 8: Does the rule require more stringent performance requirements on private entities than on public entities unless the difference is required in federal or state law?
- Section 9: Does the rule differ from any federal regulation or statute applicable to the same activity or subject matter? If so, is the difference justified by an explicit state statute or by substantial evidence that the difference is necessary?
- Section 10: Is the rule coordinated to the maximum extent possible with other federal, state, and local laws applicable to the same activity or subject matter?
- Appendix A: List of Participants Who Provided Cost Information
- Appendix B: Cost Information

Section 1: Introduction

Washingtonians receive water from one of three sources: Group A public water systems (Group A systems)¹, Group B public water systems (Group B systems)² or private water sources³. These classifications are defined in statute. Currently:

- 5.8 million people (86 percent) receive water from 4,200 Group A systems.
- 111,000 people (two percent) get their water from about 13,100 Group B systems.
- The remaining 845,000 people (12 percent) get their water from individual sources (most often from wells).

The rule pertains to Group B systems.

Revised Code of Washington (RCW) 43.20.050 establishes requirements for the State Board of Health (board) to adopt rules for Group B systems. RCW 70.119A.060(3) directs the Department of Health (department) and local health jurisdictions (LHJs) to administer the drinking water program to oversee compliance with board rules.

Group B systems typically serve:

- Small subdivisions;
- Home-based businesses;
- Campgrounds;
- Community facilities; and
- Churches.

The department receives no federal or state funding for oversight of Group B systems. The department receives revenue because it charges a fee for its review of Group B system design proposals. This “fee-for-service” activity provides the only funding for the department to implement the Group B regulatory program. There is no funding for the department to oversee compliance with ongoing requirements.

The federal Safe Drinking Water Act (SDWA) does not define Group B systems as public water systems. Nationally, only 20 states regulate systems that are not public water systems under the SDWA. Of those, about 15 states regulate only initial design and construction with no ongoing water quality monitoring requirements.

¹ A Group A system is defined in RCW 70.119A.020 as a public water system providing water to at least 15 service connections, 25 people per day for at least 60 days per year, or 1,000 or more people on two consecutive days.

² A Group B system is defined in RCW 70.119A.020 as a public water system that is not a Group A system. This is further defined in WAC 246-291-020.

³ A private or “individual” water system, does not meet the definition of a public water system under RCW 70.119A.020.

The department shares regulatory responsibility of Group B systems with LHJs. An agreement called a “Joint Plan of Responsibility” (JPR) lays out the roles and responsibilities between the LHJ and the department. In some counties, the LHJ has primary oversight responsibility; in others, the department retains primary oversight responsibility. Statewide, roughly 40 percent of the Group B systems are under department’s oversight. Of these, the department has waived all requirements for two-connection residential Group B systems as allowed in WAC 246-291-030(3), and retains regulatory oversight for about 4,000 Group B systems.

Rule Revision Background

The board filed a CR-101 Pre-proposal Statement of Inquiry in the Washington State Register (No. 07-14-147) in 2007 to begin revising chapter 246-291 Washington Administrative Code (WAC). The objective of the revision was to, *“provide more focused regulation in areas where it is needed to make more efficient use of available resources while at the same time improving public health protection.”*

The board was working on the revision when, in 2009, the Governor and the Legislature set a new direction for regulating Group B systems. The Governor and Legislature eliminated funding for Group B oversight and passed Substitute Senate Bill (SSB) 6171. The change in state policy recognized the challenge in regulating the large number of Group B systems that serve so few people in Washington.

SSB 6171 directed the board to adopt rules meeting the following criteria:

- Rules must, at a minimum, address the initial design and construction of a Group B water system. This change allows the board to adopt rules that have no ongoing requirements after initial approval of the system.
- LHJs can set requirements that are more stringent than state rules.
- The rules may eliminate some or all regulatory requirements for Group B systems serving fewer than five connections.

The rule follows the objective of the revision and incorporates the legislative directive by:

- Protecting public health through more rigorous initial design and construction standards; and
 - Eliminating costs for the department’s oversight of compliance with ongoing monitoring requirements.
-

Section 2: What is the scope of the rule?

The primary purpose of the rulemaking is to meet the objective of the pre-proposal statement of inquiry (CR-101), while meeting the legislative intent to reduce the program costs related to oversight of ongoing requirements. Overall, the rule modifies the Group B regulatory program to protect public health by establishing more rigorous design and construction requirements for new and expanding systems. The rule defines an expanding system as a system increasing the number of approved service connections.

At the same time, the rule eliminates ongoing monitoring requirements, except when necessary to protect public health from an identified risk. This represents a shift in the regulatory framework to align the Group B chapter with the department's ability to implement it.

The rule requires new and expanding Group B systems to:

- Meet water quality standards without needing treatment;
- Use a drilled well for the source of supply; and
- Follow more rigorous design and construction standards.

Under the rule, all Group B systems must comply with more stringent public notification requirements when serious public health risks exist.

The rule also:

- Includes editorial changes so that requirements are more clear and understandable;
- Clarifies roles and authorities of the department and LHJs;
- Updates language to mirror national standards that have been adopted in other rules (primarily in chapter 246-290 WAC); and
- Updates or removes obsolete references.

The scope of the rule extends to all Group B water systems in Washington State. Purveyors of Group B systems and their customers will be directly affected by these changes.

Section 3: What are the general goals and specific objectives of the rule’s authorizing statute?

RCW 34.05.328(1)(a) requires that agencies clearly state in detail the general goals and specific objectives of the statute that the rule implements.

The general goals and specific objectives of RCW 43.20.050(2)(b) direct the board to:

Adopt rules as necessary for group B public water systems, as defined in RCW [70.119A.020](#). The rules shall, at a minimum, establish requirements regarding the initial design and construction of a public water system. The state board of health rules may waive some or all requirements for group B public water systems with fewer than five connections.

The legislative digest for Substitute Senate Bill (SSB) 6171 describes the effect of the changes to the law:

“[The bill] Revises certain department of health statutes to allow the department to achieve savings for the 2009 supplemental budget and the 2009-2011 biennial budget.”

Section 4: Is a rule required to achieve the goals and objectives? What are the consequences of not adopting the rule?

RCW 34.05.328(1)(b) requires that agencies determine that the rule is needed to achieve the general goals and specific objectives stated under (a) and analyze alternatives to rulemaking and the consequences of not adopting the rule.

The rule meets the general goals and specific objectives identified in RCW 43.20.050(2)(b) by establishing minimum requirements for the initial design and construction of Group B public water systems.

SSB 6171 modifies the board’s authority to provide flexibility to adopt rules that would achieve cost savings. The rule also achieves the savings identified in the legislative intent of SSB 6171 by eliminating ongoing monitoring requirements and the department’s associated oversight costs.

The board assessed the current chapter and authorizing statute and determined that amendments are needed to achieve the goals and objectives. There are no feasible alternatives to rulemaking. The program changes directed by statute require adopting amendments.

Section 5: What are the Probable Costs and Benefits of the rule?

RCW 34.05.328(1)(d) requires agencies to determine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented.

Overall, the rule modifies the Group B regulatory program to protect public health by establishing more rigorous design and construction requirements for new and expanding systems. At the same time, the rule eliminates ongoing monitoring requirements, except when the department or health officer determines a public health risk exists. For example, a source is vulnerable to contamination from a flood event.

This represents a shift in the regulatory framework to align the Group B chapter with the department’s ability to implement it. Any individual, corporation, or public utility that creates a new Group B system will pay the increased costs of new design and construction requirements.

Some aspects of the rule, however, could reduce consumers’ costs over time. For example, some types of home-based small businesses will experience reduced costs because their system will be exempt from the requirements in this chapter.

The board determined the chapter includes some significant legislative rules that are subject to the requirements of RCW 34.05.328(5). The chapter includes new sections, changes to existing sections, and repeals sections from the current chapter.

This analysis evaluates each of the 22 rule sections and the 13 repealed sections to determine whether the changes in each section are “significant” or “non-significant.”

Based on the evaluation, the rule sections identified in Table 1 are non-significant under RCW 34.05.328(5)(c) and do not require analysis.

Table 1: Sections determined to be non-significant

Sections Determined Non-Significant	Description of Proposed Changes	Rationale for Determination of Non-Significance
WAC 246-291-001 Purpose and scope	Clarifies the existing purpose and scope of the Group B chapter	Changes conform to recent changes to statute.

Sections Determined Non-Significant	Description of Proposed Changes	Rationale for Determination of Non-Significance
WAC 246-291-010 Definitions, abbreviations and acronyms	Definitions added where necessary, deleted when not used anymore, and modified to be consistent with other rules.	Definitions by themselves do not create a significant change. One definition, “Single family residence”, is analyzed in Section 020 Applicability.
WAC 246-291-025 Bottled water and ice making facilities	New language requires ice manufacturers to comply with chapter 246-290 WAC.	Changes align with existing Department of Agriculture rules regulating ice manufacturing, WAC 16-165-130.
WAC 246-291-050 Enforcement	References statutory enforcement authorities.	Changes clarify enforcement intent by referencing underlying statutory authorities.
WAC 246-291-090 Public Water System Coordination Act and satellite management	This new section is comprised of existing requirements previously in Section 140.	Changes in this section are editorial and clarifying and do not change the underlying existing requirements.
WAC 246-291-205 Drinking water materials and additives	Makes editorial changes and references current standards that exist in chapter 246-290 WAC.	Changes in this section clarify procedures, and reference updated technical standards.
WAC 246-291-220 Group B system disinfection	Makes editorial changes and references current standards that exist in chapter 246-290 WAC.	Changes in this section clarify procedures and reference updated technical standards.
WAC 246-291-300 Monitoring requirements	Incorporates requirements from repealed Sections 170 and 310.	Clarifies existing requirements without material change.

The remaining sections are significant under RCW 34.05.328(5). The following section-by-section analysis evaluates the probable benefits and costs of each section deemed significant.

WAC 246-291-005, Applicability (Replaces WAC 246-291-020 Applicability)

The rule repeals WAC 246-291-020, creates a new section, WAC 246-291-005. The new section retains some of the existing standards and makes the following significant changes:

1. Exempts Group B systems with one or two non-residential service connections from the requirements of chapter 246-291 WAC; and

2. Requires purveyors of Group B systems designed to serve ten or more residential connections to follow planning, design, and engineering requirements under chapter 246-290 WAC.

This section also contains one non-significant change. It amends the definition of a Group B system to be consistent with RCW 70.119A.020 and with chapter 246-290 WAC, Group A public water supplies.

1. Exempting one and two connection Group B systems

The current rule provides the department with authority to eliminate some or all requirements for Group B systems serving two residential connections. The department adopted Policy A.13 in 1996 to implement this provision.

This section incorporates the long-standing policy that exempts systems with two residential connections from all requirements, and expands the exemption to include many *non-residential* one- and two-connection Group B systems. This section provides the department with authority to require a purveyor to meet all requirements under chapter 246-291 WAC if necessary to protect public health and safety.

This section makes a distinction between a single-family residence and a dwelling unit. Some people use their dwelling as both a residence and a business. A dwelling unit does not meet the definition of a single-family residence if it is also used for a business that specifically requires an approved public water system as a condition of the business permit. The section requires the following businesses, when located in a dwelling unit that otherwise would be defined as a single-family residence, to obtain approval under chapter 246-291 WAC:

- Food service, regulated under chapter 246-215 WAC;
- Food inspection, regulated under chapter 16-165 WAC;
- Residential treatment facility, regulated under chapter 246-337 WAC;
- Transient accommodations, regulated under chapter 246-360 WAC;
- Boarding homes licensing rules, regulated under chapter 388-78A WAC;
- Minimum licensing requirements for child care centers, regulated under chapter 170-295 WAC;
- School-age child care center minimum licensing requirements, regulated under chapter 170-151 WAC; and
- Adult family home minimum licensing requirements, regulated under chapter 388-76 WAC.

RCW 70.119A.020 excludes a water system serving a single-family residence from being considered a public water system. But, many businesses must comply with specific rules for those businesses. For example, a homeowner operating a Bed and Breakfast must comply with chapter 246-360 WAC, Transient Accommodations, and chapter 246-215 WAC, Food Service. These rules require a Bed and Breakfast to serve water from a source that meets drinking water quality standards under chapter 246-290 or 246-291 WAC as a part of their transient accommodations license and food service permit.

Benefits: These changes result in cost reduction for many types of home-based businesses. Many of the businesses that will experience cost reductions are located in rural areas, where existing public water supplies cannot serve new development.

Under This section, a typical Group B system with one or two connections would cost between \$10,000 and \$80,000 to design and construct, depending on site-specific conditions.⁴ For example, costs vary based on the depth of the system's well, whether storage and secondary contaminant treatment are needed, and length of distribution system.

This section reduces the number of water systems required to comply with chapter 246-291 WAC for situations that pose low public health and safety risk. Exempting one and two connection Group B systems reduces the regulatory burden for homeowners and many small businesses. At the same time, the changes maintain protection for consumers served by Group B systems that pose more public health risk due to greater exposure.

Cost: There are no new costs associated with this significant change.

2. Group B systems with ten or more service connections

This section requires a purveyor who designs a Group B system to serve ten or more residential connections to use the design, planning and engineering standards for Group A water systems in chapter 246-290 WAC. This significant change is analyzed in Section 200.

WAC 246-291-040, Requirements for Engineers (repealed)

The rule repeals WAC 246-291-040, and incorporates the professional engineering requirements previously in this section into WAC 246-291-120(3), (4), and (5).

WAC 246-291-060, Waivers

This section provides authority to the local health officer or local board of health to grant waivers, but does not provide authority for the department or the board to grant waivers.

In counties in which the LHJ has accepted primary responsibility for implementing chapter 246-291 WAC or has developed a local ordinance, the local health officer or local board of health may grant a waiver to a purveyor of a proposed Group B system from the requirements of this chapter, except in calculating residential population⁵.

⁴ Cost estimate based on a survey of consulting engineers. See Appendix B for more information.

⁵ In the design of a new or expanding Group B system, a purveyor must calculate residential population based on the statewide OFM average household population, which is 2.5 persons per household (WAC 246-291-200(2)). No waivers can be provided to this requirement.

When a new or expanding Group B system cannot meet the requirements for approval, the purveyor can request a waiver from a local board of health or health officer. Specific conditions outlined in this section must be met before a local health officer or board of health may grant a waiver. Conditions for a purveyor to obtain a waiver include, at a minimum:

- The local board of health or health officer must condition the approval by requiring the new or expanding Group B system to provide water quality treatment, monitor and report the quality of water to document that drinking water standards are not exceeded;
- The local board of health or health officer must condition the approval by requiring appropriate operations and maintenance; and
- The local health jurisdiction must provide ongoing oversight.

Benefits: Establishing a statewide minimum standard for a local health officer or local board of health to grant a waiver provides a more consistent level of public health protection. This section requires a local health officer or local board of health to establish clear expectations for a Group B system purveyor for treatment, monitoring, reporting, and operations and maintenance as a part of their approval when granting a waiver.

The department in 2001, in cooperation with local health jurisdictions inspected existing Group B systems and summarized findings in a report⁶. The report identified a number of “unsafe conditions” that could be addressed through the waiver process required under this section:

- Unsafe sources, such as surface water taken from creeks or lakes;
- Use of shallow dug wells;
- Non-functioning treatment systems; and
- Lack of knowledge and experience operating and maintaining the system by purveyors.

Cost: This section does not create new treatment requirements. The only cost to purveyors seeking a waiver is the cost that the local board of health or health officer charges for processing the request. The cost of a waiver fee ranges from a nominal cost to \$760⁷.

WAC 246-291-100, Ground water source approval and protection (repealed)

The rule repeals WAC 246-291-100, and incorporates source approval and sanitary control area requirements into WAC 246-291-125(1) through (5). Significant changes in ground water source approval and protection are evaluated in WAC 246-291-125.

⁶ Group B Project Report: Safe Drinking Water for Small Communities, DOH Pub # 331-243 (November 2003)

⁷ Summary of data gathered from nine LHJs.

WAC 246-291-110, Surface Water and GWI Source Approval and Protection (repealed)

The rule repeals WAC 246-291-110, and eliminates source protection requirements for systems with surface water and groundwater under the influence of surface water (GWI) sources.

The repeal of this section affects only existing Group B systems that use a surface water or GWI source because under WAC 246-291-125 all new and expanding Group B systems must use a drilled well. The significant changes from limiting approvable sources to drilled wells are assessed in WAC 246-291-125.

Repealing this section eliminates the requirement for Group B systems with a surface water or GWI source to update a watershed control plan every six years. According to department records, 73 existing Group B systems providing water to about 550 people use a surface water or GWI source. Of those, LHJs regulate 25 systems, and the department regulates the other 48 systems.

Benefit: The rule has a low public health risk and results in some cost savings to purveyors and consumers on Group B systems. Existing Group B systems will save money because they will no longer have to update their watershed control program every six years. A purveyor can spend up to \$1,000 updating a watershed control program⁸. The actual cost depends on how much has changed in the watershed and the level of effort required to update the watershed control program.

Cost: There are no new costs associated with this significant change.

WAC 246-291-120, Design Report Approval

This section includes two significant changes.

1. It eliminates the requirement for existing Group B systems to submit a water system plan update or design report for changes to the system that do not change the number of approved service connections.
2. It requires Group B systems intending to expand the number of approved service connections to complete and submit all documentation required for approval of a new water system under this chapter.

This section also contains one non-significant change. This section includes professional engineering requirements, which previously had been in WAC 246-291-040.

⁸ Cost estimate based on a survey of consulting engineers. See Appendix B for more information.

1. Eliminate requirements for Group B systems not increasing service connections

This section eliminates the requirement for a purveyor of a Group B system to submit a water system plan update or a design report for changes made after initial Group B system approval. The only exception is if the purveyor intends to expand and seeks approval for additional service connections. An example of a change not requiring department approval is replacing a storage tank.

Benefits The changes will reduce costs for Group B system purveyors as follows:

- Cost of hiring an engineer to update a Group B water system plan, and for the department to review: \$500 - \$1,500.⁸
- Cost of hiring an engineer to complete a design report for system changes, and for the department to review: \$500-\$4,000.⁸

This change will result in cost savings for purveyors of Group B systems with low public health risk because this change applies to previously approved systems that have shown they have capacity for the existing service connections.

Cost: There are no new costs associated with this significant change.

2. New requirements for expanding systems

This section requires purveyors of expanding systems to obtain a complete Group B system approval meeting all requirements of this chapter. Under current rules, a purveyor intending to increase the number of approved connections must submit to the department an engineering report or other documentation that demonstrates system capacity. The department reviews the engineering report and makes a determination whether or not the system has sufficient capacity to expand. The system's capacity is how many service connections can be supplied safely and reliably for the number of people who may ultimately rely on the system for water.

Benefits: This section creates a single process for the department to review Group B system designs whether the submittal is for a new or expanding system. This section requires purveyors intending to expand their system to submit all the information necessary for a new system approval under this chapter. The single process provides better assurance to existing and future consumers on Group B systems that the system capacity and reliability will be maintained.

Cost: Under this section, purveyors intending on expanding their systems will incur higher costs to obtain a complete new system approval for the expansion than they would have for submitting a design report. But, many of the documents for the new system approval would not need to be generated because the information is the same as when the system was approved (for example, site maps). This results in higher costs than the under current rules, but are lower than a complete new Group B system approval. Under this section, the probable new cost for creating a Group B system submittal ranges from \$1,000 to \$3,000 more than the cost of meeting requirements under current rules.⁹

⁹ Based on information from a survey of consulting engineers. See Appendix B for more information.

WAC 246-291-125, Groundwater Source Approval

This section establishes requirements for drinking water sources used for new and expanding Group B systems. It incorporates requirements that previously had been in WAC 246-291-040 and WAC 246-291-100. This section contains several significant changes.

1. A source for a new or expanding Group B system must be a groundwater source from a properly constructed drilled well. Dug wells, groundwater under the influence of surface water (GWI) and surface water sources cannot be used.
2. A source for a new or expanding Group B system must meet minimum supply requirements, producing at least 750 gallons per day (gpd) per residential connection for systems in western Washington and 1,250 gpd per residential connection for systems in eastern Washington.
3. Before submitting the system design to the department for approval, a potential GWI source for a new or expanding Group B system must be evaluated to determine whether the source is or is not GWI.

This section also specifies that a source must be physically connected to the distribution system. This clarification is not considered significant.

1. Drilled well requirement

Benefits: A safe and reliable source of supply is a fundamental public health protection. This requirement that new or expanding Group B systems use a drilled well significantly improves public health protection for consumers. Drinking surface water or water from a shallow dug well represents a much greater risk for getting waterborne disease, such as giardiasis than consuming water that comes from a properly constructed drilled well.

Properly sited and constructed drilled wells provide substantial public health protection. Shallow groundwater captured by dug wells typically contains contaminants, pathogens, and can be seasonally unavailable resulting in an inadequate supply of water. This section increases public health protection by eliminating the use of dug wells for Group B systems.

This section does not remove the option for a landowner to develop their property using a dug well, GWI or a surface water source. A purveyor intending to use one of these sources can use it for a single-family residence, an unregulated Group B system (one- or two-connection system), or for a Group A system with treatment, operations and monitoring as required under chapter 246-290 WAC.

Cost: A purveyor of a new or expanding Group B system could incur additional costs if the purveyor intended to use a dug well, GWI or surface water source. Because this section requires a purveyor to use a drilled well instead of a dug well or surface water source, the difference between the costs of a drilled well and the costs of a dug well or a surface water source represents a new cost.

The cost of a new well varies, depending mostly on the well depth. Most well drillers charge a set-up fee to pay the expense of getting the well drilling rig on site, a minimum charge for drilling a shallow well (usually 50 feet), and then a per foot cost beyond the minimum. A 20 to 40 foot deep dug well can cost between \$5,000 and \$8,000¹⁰.

The costs of a drilled and dug well meeting current well construction standards (chapter 173-160 WAC) vary greatly depending on site-specific conditions, which confound the assessment of the cost differences between them. Most often, a purveyor drilling a well will have the well drilled deeper and obtain water from a more protected aquifer.

A review of the well depths reported for current Group B water systems in the department's records shows an average depth of 175 feet, with a range from 20 feet to over 400 feet. Using the average well depth provides a cost approximation of a typical drilled well of between \$8,000 and \$20,000¹¹. This estimate of a typical cost range for the average new drilled well will be used throughout the remainder of this analysis.

Most dug wells require water quality treatment because the shallow aquifer typically contains bacteria and other contaminants. Disinfection using chlorine injection is generally the most inexpensive method of treatment. The capital costs typically range from \$1,000 to \$1,500 and annual operations and maintenance (O&M) can cost \$200 to \$400 per year.

The cost of a surface water source (allowed under the current rules) with current surface water treatment in Part Six of chapter 2460290 WAC should be compared to the costs of a drilled well. The cost of a surface water source varies greatly, depending on the conditions on the site and quality of the water that determine the appropriate treatment technology. For a Group B system, the minimum costs are over \$50,000 plus O&M costs.¹² Clearly, after accounting for treatment costs, using a drilled well is more cost effective than complying with all current requirements for systems using a surface water source.

2. Minimum supply requirement

This section requires sources used for new or expanding Group B systems to produce at least 750 gpd per residential connection for systems in western Washington and 1,250 gpd per residential connection for systems in eastern Washington. That equals roughly a minimum of one-half gallon per minute (gpm) of well production per residential connection in western Washington and roughly one gpm per residential connection in eastern Washington. A typical six-connection Group B system would need a well that produces either three or six gallons per minute in western Washington and eastern Washington, respectively.

Benefits: Creating a Group B system using a source with an inadequate supply can result in water shortages or low water pressure. Both situations cause serious public health risks. Under low-pressure conditions, contaminants in the soil surrounding the distribution system can be pulled into the public water system and cause waterborne illnesses.

¹⁰ Costs obtained from a survey of licensed well drillers. See Appendix B for more information.

¹¹ Cost estimate based on a survey of consulting engineers. See Appendix B for more information.

¹² Based on estimates from EPA-600/2-79-162a, August 1999

Current department guidelines for water system design recommend purveyors design Group B systems for 750 gpd per residential connection for systems in western Washington and 1,250 gpd per residential connection for systems in eastern Washington. Establishing the minimum supply requirement in this section instead of relying on department guidance provides better reliability and public health protection for consumers on Group B systems.

Cost: A purveyor of a new or expanding Group B system will incur additional cost if the purveyor intends to use a drilled well that does not meet the minimum supply requirements. In those cases, the purveyor would need to drill a new well for additional supply, or obtain water from an intertie with another public water system. Based on department records, fewer than two percent of sources for existing Group B systems would not supply a minimum of 750 gpd for a typical six-connection system. However, the department’s records are not complete, with about ten percent of systems not having a source capacity listed.

The typical cost range for an average depth well (175 feet) ranges between \$8,000 and \$20,000.¹³ The cost of obtaining water through an intertie can vary greatly, and would not be a flat cost, but a monthly or yearly charge based on a long-term agreement.

3. GWI determination

This section does not create a new GWI evaluation requirement. This section clearly states that the purveyor must complete the GWI determination (when necessary) before submitting a new Group B system design.

Benefits: The purveyor will know if a source can be used before completing the new Group B system design and therefore save time and money. A purveyor will know if the proposed source is approvable before spending additional money on completing a Group B system design.

Cost: There are no new costs associated with this change.

WAC 246-291-130, Existing System Approval (repealed)

The rule repeals WAC 246-291-130, and establishes specific criteria for evaluation of existing systems in WAC 246-291-280. Significant changes to the process for evaluating the capacity of existing Group B systems are evaluated in WAC 246-291-280.

WAC 246-291-135, Interties (New Section)

This section establishes standards for purveyors of new and expanding Group B systems intending to use an intertie source. An intertie is a physical connection between two public water systems. Most commonly, a Group A system will provide water to a Group B system under terms of an intertie (or a “wholesale”) agreement.

¹³ Costs obtained from a survey of licensed well drillers. See Appendix B for a summary of responses.

This section requires a purveyor of a new or expanding Group B system using an intertie source to get an agreement and supporting documents that will guarantee the reliability and long-term commitment of the intertie source. This section establishes requirements that are similar to those found in chapter 246-290 WAC, which apply to Group A systems.

Benefits: Establishing clear requirements for purveyors intending to use an intertie source ensures long-term safe and reliable water for a Group B system. The elements of an intertie agreement result in a long-term commitment from a neighboring water system to supply the Group B system. The agreement sets the conditions for that supply to provide safe and reliable drinking water.

Cost: Typically, a wholesale water system already requires a signed agreement that establishes terms and conditions for service meeting the requirements that exist in WAC 246-290-132 for Group A water systems. Depending if the purveyor of the Group B system uses an attorney to review and approve the agreement and other documents, the cost of producing the required documents can be from nominal costs to \$1,000.¹⁴

WAC 246-291-140, Water system planning and disclosure requirements

This section requires additional water system planning and disclosure documents to be submitted by a purveyor of a new or expanding Group B system.

- A purveyor must submit disclosure language to the department for review and approval as a part of the Group B system design submittal.
- A purveyor must record the approved disclosure language on the property title for all properties to be served by the Group B system.

A non-significant change in this section clarifies the requirements for purveyors of a new or expanding Group B system to describe the system's operational, financial and managerial plan.

Benefits: Under this section, the additional disclosure information required to be recorded to property titles for all service connections will inform consumers about their system and their purveyor. Information will be in the legal record in perpetuity. Informed consumers have better knowledge and tools to keep their water supply safe and reliable to protect their health.

When a waiver is approved under WAC 246-291-060, consumers will be notified on the property title of each service connection. The notification requirements strengthen public health protection when a waiver has been granted from the standards in this chapter. In those cases, the purveyor will have to comply with additional requirements for water quality treatment and monitoring.

¹⁴ Based on an estimate of up to three hours of attorney time plus document production costs.

Cost: Many counties in Washington have similar fee structures for recording documents. In those counties, the cost of recording the first page to the property title is \$62. Each additional page costs \$1. The requirements would require recording up to 30 pages on the property title, depending on how many parcels the system will serve. Overall, the costs of the notification requirements would typically range between \$70 and \$100.

WAC 246-291-170, Water quality requirements for groundwater source approval

This section incorporates water quality requirements from current rules that apply to the design and approval of a new or expanding Group B water system, including WAC 246-291-320(2), -330 and -350(1). This section also makes significant changes to the water quality requirements for only new or expanding Group B systems. This section:

1. Eliminates the drinking water standard for nickel;
2. Strengthens the primary drinking water standard for arsenic from 50 micrograms per liter to ten micrograms per liter;
3. Requires purveyors to submit two coliform samples for a new or expanding Group B system design approval; and
4. Prohibits use of a source that exceeds a primary drinking water standard. Sources for new and expanding Group B systems cannot rely on treatment to meet primary drinking water standards.

This section also contains one non-significant proposed change. The section includes clearer requirements on how water quality samples must be collected. This non-significant change improves clarity for sampling procedures without imposing additional costs.

1. Eliminating the drinking water standard for nickel

This section removes nickel from the list of primary drinking water standards. The U.S. Environmental Protection Agency (EPA) no longer considers nickel a primary drinking water contaminant.

Benefits: This section change results in small cost savings. There will be no loss of public health protection because EPA determined nickel found in groundwater creates minimal health risk to consumers.¹⁵ Eliminating the requirement for sampling for nickel is consistent with current scientific understanding of public health risks from drinking water and eliminates unnecessary monitoring.

Cost: There are no new costs associated with this change.

2. Primary standard for arsenic strengthened

This section strengthens the primary drinking water standard for arsenic. Only new or expanding Group B system approvals would be subject to the change in the standard.

¹⁵ EPA 811-F-95-002m-T, October 1995.

In January 2004, the board adopted amendments to chapter 246-290 WAC that strengthened the arsenic primary drinking water standard for Group A systems from 50 micrograms per liter to ten micrograms per liter. This change was required for Washington State to be consistent with the federal rule adopted by the EPA in January 2001. The board determined that there should be no difference between the arsenic standard for approving a new Group A and approving a new or expanding Group B system. So, the board filed a CR-101 Preproposal Statement with the intent to adopt the change into the Group B chapter.

Existing Group B systems with arsenic greater than ten micrograms per liter must notify system consumers of the detrimental health effects of consuming arsenic in their drinking water.

Benefits: Since the original standard (50 micrograms per liter) was set by EPA, considerable information has been gathered through major studies, including those conducted by the federal government, on the health effects of arsenic in drinking water. Based on the EPA's information, chronic exposure to arsenic has been reported to cause more than 30 different adverse health effects. These include cardiovascular disease, diabetes mellitus, skin changes, nervous system damage, and various forms of cancer. Short-term exposure to high doses of arsenic can cause acute adverse health effects, including nausea, vomiting, and even death. EPA set the new standard of ten micrograms per liter at a level that "maximizes health risk reduction benefits at a cost justified by the benefits" (National Academy of Sciences, March 1999).¹⁶

Cost: A purveyor of a new or expanding Group B system could incur additional costs from this section if the purveyor drills a well that exceeds the new arsenic standard. A purveyor intending to use a source that does not meet the arsenic standard can drill a new well, use the existing source, develop a one or two connection system without treatment or water quality monitoring, develop a Group A system with treatment, operations and water quality monitoring as required under chapter 246-290 WAC. The costs are assessed under 4. (Sources for new Group B systems cannot exceed primary drinking water standards and cannot use treatment to achieve standards), below.

3. Two coliform samples required

This section requires a purveyor of a new or expanding Group B system to submit results from two samples (instead of one sample in the current rules) analyzed by a certified lab for coliform bacteria. If lab analysis indicates that a sample has coliform bacteria, the purveyor must submit results from a third (repeat) sample. If the repeat sample has coliform bacteria, then the source cannot be used for the new or expanding Group B system.

This section does not remove the option for a purveyor to use a drilled well that does not meet the coliform requirement. A purveyor can use the well for a single-family residence, an unregulated Group B system (one- or two-connection system), or for a Group A system with treatment, operations and monitoring as required under chapter 246-290 WAC.

¹⁶ National Research Council. *Arsenic in Drinking Water*. Washington, DC: The National Academies Press, 1999.

Benefits: Two samples provide a more comprehensive assessment of the Group B system's water quality. The amount of water being sampled, and the potential to detect a problem, increases two-fold. Because this section eliminates ongoing monitoring requirements, increasing the initial sampling requirement provides a higher level of public health protection.

Cost: Requiring one extra sample will cost a purveyor of a new Group B system between \$30 and \$40 for sample analysis, depending on what a laboratory typically charges for coliform analysis.

4. Sources for new Group B systems cannot exceed primary drinking water standards and cannot use treatment to achieve standards.

This section requires a purveyor of a new or expanding Group B system intending to use a source (a drilled well) that meets all primary drinking water standards without the use of treatment.

Many Group B system purveyors have difficulties maintaining water quality treatment. While the initial costs may not be excessive for simple chlorination, O&M costs can be unaffordable to the system's consumers because each Group B system has so few consumers to share the costs.

Water quality treatment is unreliable without adequate O&M. Many Group B systems that have water quality treatment for primary drinking water contaminants do not have trained operators. Without department oversight, Group B systems using water quality treatment cannot be relied-upon to protect the health of consumers. Instead, this section protects public health by requiring Group B systems to use sources that do not require treatment to provide safe drinking water.

This section does not remove the option for a purveyor to use a drilled well that does not meet primary drinking water standards. A purveyor can obtain water from an intertie, or use the well for a single-family residence, an unregulated Group B system (one- or two-connection system), or for a Group A system with treatment, operations and monitoring as required under chapter 246-290 WAC.

This section does not affect existing Group B systems. Existing systems can continue to use department-approved water quality treatment. Under this section, only wells used for new or expanding Group B systems that exceed standards cannot rely on water quality treatment to meet standards.

Benefits: Requiring a Group B water system to meet all primary standards without the use of treatment will reduce public health risk from poorly functioning water quality treatment systems. A purveyor of a Group B system may also avoid significant costs from water quality treatment because of high O&M costs over time.

Designing and installing water quality treatment for primary standards depends on the type of treatment provided. Table 3 shows the range of costs associated with common Group B system treatment technologies—costs that can be avoided by obtaining another source of water.

Table 3. Treatment costs for common contaminants.¹⁷

Typical primary contaminants	Type of Treatment	Treatment Capital Cost	Annual O&M
Microbiological	Chlorination	\$1,000 - \$1,500	\$200 - \$400
Arsenic	Coagulation and filtration	\$10,000 - \$40,000	\$500 - \$1,500
Arsenic	Absorption	\$7,000 - \$40,000	\$500 - \$2,000
Nitrate	Ion exchange or reverse osmosis	\$2,000 - 5,000	\$750 - \$2,000

Cost: A purveyor of a new or expanding Group B system could incur additional costs from this section if the proposed source does not meet primary drinking water standards. In those cases, the purveyor would need to drill a new well that meets standards, obtain water from an intertie with another public water system, or use the well for a Group A system with treatment, operations and monitoring as required under chapter 246-290 WAC.

Sometimes, if a well is contaminated with bacteria or nitrate, the problem can be resolved with the construction of a new well or deepening the existing well to obtain water from a more protected aquifer. Using the average well depth of 175 feet, the cost of a typical drilled well is between \$8,000 and \$20,000¹⁷.

There are cases when a purveyor will not be able to drill a new well that meets primary drinking water standards. For example, some geologic formations create high arsenic levels in groundwater supplies, and any well drilled in the affected area would exceed the primary drinking water standard.

The cost of obtaining water through an intertie can vary greatly, and would not be a flat cost, but a monthly or yearly charge based on a long-term agreement. As analyzed under WAC 246-291-135, intertie agreement costs can range from nominal costs up to \$1,000.

Another option for a purveyor would be to create a new Group A system, and meet the requirements of chapter 246-290 WAC that allows for water quality treatment with requirements for appropriate planning, engineering and monitoring. The cost for the design and construction of a system meeting planning, engineering and design standards in chapter 246-290 WAC ranges between \$30,000 to \$50,000.¹⁸

¹⁷ Cost estimate based on a survey of consulting engineers, and information on nitrate treatment costs from the Office of Drinking Water Yakima Watershed nitrate treatment project. See Appendix B for more information.

¹⁸ Cost estimate based on a survey of consulting engineers. See Appendix B for more information.

WAC 246-291-200, Design standards

This section modifies design standards for new or expanding Group B systems. A purveyor must design a system using:

1. Minimum residential population calculations;
2. Minimum water supply design requirements; and
3. Updated Design Standard References.

1. Minimum residential population calculations

Population and the number of service connections define the classification of a water system. A Group B system serves fewer than 15 service connections and fewer than 25 people per day. A Group A system serves at least 15 connections or 25 people per day.

According to Washington State Office of Financial Management (OFM), the statewide average household population is 2.5 people per dwelling unit.¹⁹ This section requires purveyors of new or expanding Group B systems to use 2.5 people per dwelling unit to calculate the population to be served using residential service connections.

Based on the OFM statewide average, about half of the new or expanding Group B systems that propose to serve 10 connections will eventually serve 25 or more people per day, and will meet the definition of a Group A system. This section requires purveyors to plan and design the system for that likelihood. Under this section, a Group B system design to serve 10 or more residential connections will be required to design for a population of 25 people per day, even if the system does not actually serve 25 people. The purveyor must comply with the design, planning and engineering standards in chapter 246-290 WAC, Group A systems.

This section does not change the definition of a Group B system to be only those systems serving fewer than ten service connections. The other requirements of chapter 246-291 WAC apply so long as a system does not meet the definition of a Group A system. The requirements of chapter 246-290 WAC (such as monitoring, O&M, and operating permit requirements) would apply when the system's population actually reaches 25 or greater, or the system is expanded to serve 15 or more service connections.

Of the current 534 Group B systems serving ten to 14 connections (representing four percent of existing Group B systems), about 25 percent serve a full time population of 24 people per day. All of these systems are on the cusp of being reclassified as Group A systems. The other 96 percent of Group B systems serve fewer than ten connections.

¹⁹ Washington State Office of Financial Management, access at <http://www.ofm.wa.gov/pop>

Benefits: The rule requires all new and expanding public water systems to use planning and engineering design standards that envision the eventuality that the system will be subject to the chapter 246-290 WAC, Group A public water supplies. Proper planning, design and construction is fundamental to protecting public health. If the purveyor has not properly planned for the increased costs to comply with chapter 246-290 WAC, the system may not be financially viable when the system serves 25 people or more.

Cost: Planning, design, and construction of a new or expanding Group B system that serves ten to 14 residential service connections using Group A system standards cost about \$14,000 to \$27,000 more than complying with the requirements under the current Group B chapter.²⁰

2. Minimum water supply design requirements

This section requires new and expanding Group B systems to be designed to deliver a minimum of 750 gallons per day (gpd) per residential service connection for systems in western Washington and 1,250 gpd per residential connection for systems in eastern Washington.

Current department guidelines for Group B system design recommend that purveyors design Group B systems to meet the minimum supply requirements. This section incorporates department guidance into the design of a new or expanding system.

Benefits: This section helps prevent a new or expanding Group B system from being designed with an inadequate supply. Systems with inadequate supply are likely to experience water shortages or low water pressure. Both situations cause serious public health risks. Under low-pressure conditions, contaminants can be introduced into the Group B system and cause waterborne illnesses such as giardiasis. Establishing the minimum water supply standard in this section provides better reliability and public health protection for consumers on Group B systems.

Cost: This requirement results in minimal implementation costs to new or expanding systems. Group B system storage requirements are more a function of a system's need to meet peak hourly demand (PHD) requirements; those requirements have not changed in this section.

3. Updated Design Standard References

This section incorporates current department guidelines for Group B system design and requires a purveyor of a new or expanding Group B system to design and construct the system following updated technical standards.

Benefits: Referencing national standards creates consistency and reliability, which improves public health protection.

Cost: Because the current Group B chapter requires engineers to use "best practices", engineers typically use the updated national standards, and the cost for compliance is minimal.

²⁰ Based on information from a survey of consulting engineers. See Appendix B for more information.

WAC 246-291-210, Distribution systems

This section incorporates current department guidelines for Group B system design and requires the following new standards:

- Lockable access hatch;
- Screened roof vent;
- Overflow pipe;
- Sample tap;
- Drain to daylight;
- Tank isolation; and
- The storage reservoir has to be above the groundwater table and the top of the tank must be at least two feet above ground surface.

Benefits: Storage reservoirs are a major source of contamination in water systems. The requirements reflect current industry practice with specific features designed to protect public health.

Cost: Specific costs from these new requirements are not available.²¹ Storage reservoirs without these design features are not commonly available from local suppliers. Based on this information, there is no cost associated with this change.

WAC 246-291-230, Treatment design and operations (repealed)

The rule repeals WAC 246-291-230, and incorporates the requirements of WAC 246-291-230 (1) into WAC 246-291-170(6) for treatment of secondary contaminants. All other requirements from the repealed section are eliminated because new and expanding Group B systems cannot use water quality treatment to meet primary drinking water standards.

Eliminating ongoing requirements is consistent with legislative direction.

WAC 246-291-240, Reliability (repealed)

The rule repeals WAC 246-291-240. WAC 246-291-200 incorporates the requirements of this section that relate to Group B system design. Significant changes to the requirements that relate to Group B system design are evaluated in that section. The repeal of WAC 246-291-240 eliminates other requirements consistent with legislative direction.

²¹ Water system design engineers that were surveyed indicated that new storage tanks include these as standard features.

WAC 246-291-250, Continuity of service

This section eliminates two requirements in the current rule for a purveyor transferring Group B system ownership. Under this section, a purveyor will no longer have to:

- Ensure that all health-related standards are met during transfer; and
- Inform and train the new owner regarding operation of the system.

Benefit: This section will simplify the process for transferring ownership. By reducing costs, this section could help to create a financial incentive for a purveyor to transfer ownership to a more financially viable entity, such as a Public Utility District. Because ownership transfers are not common, this section reduces costs for purveyors with a low public health risk.

Cost: There are no costs from this change.

WAC 246-291-260, Recordkeeping and reporting (repealed)

The rule repeals this section, and eliminates purveyors' responsibility for recordkeeping and reporting of ongoing monitoring, and other administrative information. This change is consistent with legislative direction.

Notification requirements in WAC 246-291-360 incorporate the reporting requirements from WAC 246-291-260(2)(c). The benefits and costs of these changes to public notification are assessed in WAC 246-291-360.

Benefits: This rule repeals recordkeeping and reporting requirements. Purveyors will save time and money by not being required to complete these tasks.

Cost: There are no costs from this change.

WAC 246-291-270, Cross-Connection Control (repealed)

The rule repeals this section, and eliminates requirements for purveyors of Group B systems to maintain an ongoing cross-connection control program. Cross-connection control planning and design requirements from this repealed section have been incorporated into WAC 246-291-140 and WAC 246-291-200, respectively. New and expanding Group B systems have to comply with industry best practices, identify and eliminate cross-connections when possible, and include appropriate protections for the water system.

Benefits: Under this chapter, purveyors must identify and eliminate potential cross-connections in the Group B system design. This approach prevents potential contamination. Purveyors will save time and money by not being required to oversee a cross-connection control program after the system has been approved.

Cost: There are no costs from this change.

WAC 246-291-280, Existing Group B Systems (Replaces WAC 246-291-130, Existing System Approval)

This section incorporates the intent of WAC 246-291-130, Existing System Approval, and establishes more specific requirements. This section provides a route for purveyors of Group B systems created before the final adoption of this rule to obtain a status of “adequate for existing uses” if the system did not have prior department design approval.

This section includes one non-significant change. This section authorizes purveyors of Group B systems that obtained approval under the current section to provide service to additional connections, up to the total number of approved connections, without having to meet the new requirements.

Determining that a system is adequate for existing uses

Under this section, existing systems may be provided with a determination of “adequate for existing uses” without having to meet all the new requirements. The most common application of this determination is when a consumer of a Group B system applies for a building permit or sells their house. A local government or lender may require documentation of the system’s status. A determination of “adequate for existing uses” meets the need.

A Group B system determined to be “adequate for existing uses” is not approved by the department to expand. A purveyor intending to expand the Group B system must obtain department approval meeting all requirements under chapter 246-291 WAC.

This new section establishes minimum standards for a Group B system to be determined adequate for existing uses. The department does not review and provide a determination of system adequacy. That determination is made by the local permitting authority.

In order for a local permitting authority to determine a Group B system to be “adequate for existing uses”, the Group B system must demonstrate that it:

- Uses a well meeting well construction standards under chapter 173-160 WAC;
- Has no identified sources of contamination in the sanitary control area; and
- Meets primary water quality standards in section 170, Table 2.

This section clarifies the intent of the current section and adds specific requirements that apply to existing systems that may not meet all requirements for approval under this chapter.

Benefits: This section provides greater public health protection over the current section. The current section provides authority to the department to approve an existing system with fewer specific requirements for that approval. This rule provides clear standards so that consumers (for example, a prospective homebuyer) have specific knowledge about the status and condition of their Group B system. This information will help consumers make informed decisions about how to protect their health.

Often, the existing system approval process is used when a home is being sold. The potential new homeowner and lender may want assurances that the drinking water is safe and reliable. This section establishes clearer requirements for existing Group B systems than the current section.

Cost: To meet the requirements of this section, a purveyor could have to spend three to twenty hours reviewing the system's water well report, inspecting and assessing the well site for potential sources of contamination, and obtaining updated water quality samples.

The labor costs for assessing a Group B system's adequacy could range from \$300 to \$2,000 depending on:

- How much documentation exists;
- How much field work would need to be done, and
- If an engineer or designer would be required to complete and submit documentation.

Sample analysis would range from \$300 to \$500.²²

WAC 246-291-310, General follow-up (repealed)

The rule repeals WAC 246-291-310. Changes to WAC 246-291-300 incorporate the requirements from this section that specify the department's authority to require a purveyor to take water quality samples. Changes under WAC 246-291-360 include notification requirements previously in this section.

WAC 246-291-320, Bacteriological (repealed) and WAC 246-291-330, Inorganic chemical and physical (repealed)

The rule repeals these sections, eliminating requirements for a purveyor to collect and analyze one bacteriological sample each year, and one nitrate sample every three years. This change affects all Group B systems (existing, expanding and new). This chapter incorporates the sampling requirements of this section for initial source approval into WAC 246-291-170.

²² Based on costs obtained from department staff to conduct onsite investigations and system evaluation, hourly rates charged by Satellite Management Agencies, and information from a telephone survey of analytical laboratory costs. See Appendix B for more information.

Since 2009, when the legislature eliminated funding to the Group B program, less than 50 percent of the purveyors of Group B systems sampled their water system for coliform bacteria, and 30 percent sampled for nitrate. The benefit of requiring monitoring only exists if a purveyor conducts the monitoring and the department enforces the requirement.

Even well-designed water systems eventually may experience problems. When problems occur, the chapter protects public health by providing the department or health officer authority to require a purveyor to sample under WAC 246-291-300 and report results under WAC 246-291-360.

Benefit: Requiring initial monitoring for coliform bacteria as a part of a new or expanding Group B system approval with no ongoing requirements is consistent with legislative direction. For new or expanding systems, increased rigor in system design and construction replaces the limited public health protection provided by a single bacteriological sample collected each year. The combination of these measures mitigates the public health impact from the repeal of this section, eliminating the requirement for a single annual coliform sample.

This change results in small avoided costs from sample collection and lab analysis.

Cost: There are no costs from this change.

WAC 246-291-340, Turbidity (repealed)

The rule repeals this section and requirements for compliance with turbidity standards. This change affects purveyors of Group B systems with surface water or GWI sources. Because the chapter no longer allows new or expanding Group B systems to be approved using a surface water or GWI source, only existing Group B systems using these sources would be affected by the repeal of this section. According to the department's records, 73 existing Group B systems use a surface water source, providing water to about 550 people in Washington.

This chapter protects public health by providing the department or health officer authority to require a purveyor to sample under WAC 246-291-300 and report results under WAC 246-291-360.

Benefit: Existing Group B systems will save money by not having to meet the turbidity monitoring requirements. The current rule (WAC 246-291-340(1)) requires daily monitoring for turbidity if using a grab sample, or the use of continuous turbidity monitoring. A turbidity meter used for grab sampling costs between \$200 and \$1,000. Daily monitoring takes only a few minutes each day once on-site, but the daily monitoring requirement would mean the purveyor would have to get to the site each day. Assuming an hour a day and excluding weekends, on average, creates a cost savings of \$11,000 to \$19,000 per year. This change results in cost savings to purveyors and consumers on Group B systems with low public health risk because of the small number of affected systems and population.

Cost: There are no costs from this change.

WAC 246-291-350, Other substances (repealed)

The rule repeals this section. The authority for the department to require monitoring for other substances as a part of new system approval is incorporated into WAC 246-291-170(2) and (4). The authority for the department to require monitoring for other substances for existing Group B systems is incorporated into WAC 246-291-300. Because the rule maintains the requirements of this section, the repeal of this section does not result in a significant change.

WAC 246-291-360, Public Notification

This section includes significant changes for public notification requirements related to monitoring, including requirements for a purveyor to:

- Notify consumers served by the system and provide information within 30 days if they are required to monitor for water quality under WAC 246-291-300;
- Notify consumers served by the system within 24 hours if a sample contains *E. coli* or has a nitrate level greater than 10 milligrams per liter;
- Notify consumers served by the system within 30 days if the system has an arsenic level greater than 10 micrograms per liter;and
- Use specific language for a consumer notice.

Although the rule eliminates ongoing monitoring requirements with the repeal of WAC 246-291-320 and -330, many purveyors will continue to monitor water quality for their system or be required to monitor under WAC 246-291-300.

Benefits: The presence of *E. coli* in a Group B system represents an immediate health risk. Notifying consumers of this risk immediately reduces the likelihood of waterborne disease, such as giardiasis. Current rule requires notification within 28 days, exposing consumers to immediate health risks for up to four weeks.

The specific notification language required in this section provides clearer information for Group B system consumers. Consumers will know what they should and should not do, and will have better information so they can make informed decisions that may affect their health.

Cost: In general, this section will not increase costs to purveyors. There could be minor costs for a purveyor required to deliver a public notice within 24 hours instead of 30 days. For example, a purveyor who lives in a primary residence away from the Group B system may have to drive some distance to deliver the required notification. In this case, the purveyor would incur costs for fuel and time spent in transit. However, the purveyor could rely on email, fax or one of the system's consumers to deliver the notice at a minimal cost.

The additional information required for public notification result in no additional cost to purveyors. Overall, the additional information required to be included in the public notice will be less than \$100 (if required to drive to deliver notice).

Summary of Costs and Benefits

In 2009, the Legislature eliminated funding to the department for oversight of more than 13,000 Group B systems serving less than two percent of the state's population. At the same time, the Legislature amended the law and provided the board flexibility to amend the Group B chapter to establish, at a minimum, initial design and construction standards.

This chapter protects public health through more stringent design and construction standards, especially for source approval. The chapter does not rely on the department to oversee ongoing requirements because the department does not have funding necessary to implement such requirements. With limited resources, the best protection for public health is upfront through stringent design and construction standards.

The chapter also requires improved consumer notification. As a part of the new Group B system approval process, consumers will have information on their property title so they can make informed decisions about their health.

Problems may occur, even in well-designed water systems. The chapter retains authority for the department to require monitoring for instances when it is necessary to protect public health and safety. And, when Group B system purveyors monitor water quality, under either department direction or their own decision, system consumers must be notified of the results.

The costs of this chapter incurred by a Group B purveyor will range greatly, depending on site-specific and situation-specific conditions. Some Group B systems will now be exempt from all requirements, and will save money. Overall, purveyors of the more than 13,000 existing Group B systems will save money because of reduced ongoing monitoring requirements.

For new and expanding Group B systems, this chapter may cost purveyors additional money to meet more rigorous initial design standards. Most new Group B systems use a drilled well with sufficient supply that meets water quality standards. For those systems, this chapter will result in lower additional costs.

For those purveyors intending to create a new Group B system using a source other than a drilled well, or if the well does not meet water quality standards, the costs could be substantial. However, the benefits of the rules outweigh these costs when considered against the public health risk associated with elimination of the departments funding. This chapter provides public health benefit by ensuring that new and expanding systems use the best possible drinking water source and provide public health protection from the initial design and construction.

Based on the preceding analysis, the board has determined that the probable benefits of the rules are greater than the probable costs.

Section 6. What alternative versions of the rule did we consider? Is the rule the least burdensome approach?

RCW 34.05.328(1)(e) requires that agencies determine, after considering alternative versions of the rule and this analysis, that the rule being adopted is the least burdensome alternative for those required to comply.

Least-Burdensome Determination

The following alternate versions were considered during rule development. In considering each requirement, the version chosen is the most flexible and the least costly for purveyors, while meeting the public health protection mandates of the underlying statute.

OPTIONS CONSIDERED	REASON FOR NOT SELECTING
Exempt all Group B systems with four or fewer connections from the requirements of the chapter, as allowed by the legislature.	<p>This would deregulate more than 70 percent of Group B systems serving about half of the population currently served by Group B systems.</p> <p>During the rule development process, some board members and staff from local health jurisdictions expressed concerns that this option would eliminate basic public health protections for too many people.</p>
Require Group B systems to continue with ongoing monitoring requirements, but not submit the information to the department.	This option would create confusion for consumers. If the chapter contained a monitoring requirement without a reporting requirement, consumers would have conflicting information about whether the department had a role in oversight of the requirements. Consumers might continue to expect that the department would take action against purveyors that did not comply with monitoring requirements. Without funding, the department cannot oversee ongoing compliance with routine water quality monitoring requirements.
Maintain the definition of a Group B system in the current chapter, which states that a Group B system is a public water system with fewer than 15 service connections, regardless of population	This would create a conflict with the definition of a Group A system in chapter 70.119A RCW, the Safe Drinking Water Act, and other state rules that include a definition of a Group A system.
Maintain the current arsenic standard at 50 micrograms per liter.	This would create a standard in which new Group B systems would be approved serving water with contaminants with a documented health risk.

OPTIONS CONSIDERED**REASON FOR NOT SELECTING**

<p>Eliminate the requirement for Group B systems to treat for secondary contaminants.</p>	<p>Allowing new Group B systems to be created without requiring them to treat the water for secondary contaminants will have the unintended consequence of reducing consumers' ability to use their water, and reduce the confidence they have with their purveyor.</p> <p>Secondary contaminants can make water undrinkable because of serious taste and odor problems, and can cause fixture staining. A consumer using water from a Group B system with high concentrations of secondary contaminants might be faced with costly damage to fixtures. A consumer that has to install their own treatment system would face a much higher individual cost than if the system treated secondary contaminants for all consumers.</p>
---	---

Section 7. Does the rule require those to whom it applies to take an action that violates requirements of another federal or state law?

No. The rule does not require those to whom it applies to take an action that violates requirements of federal or state law.

Section 8. Does the rule require more stringent performance requirements on private entities than on public entities unless the difference is required in federal or state law?

No. The rule does not impose more stringent performance requirements on private entities than on public entities.

Section 9. Does the rule differ from any federal regulation or statute applicable to the same activity or subject matter? If so, is the difference justified by an explicit state statute or by substantial evidence that the difference is necessary?

No. There is no applicable federal regulation or statute. The federal definition of a public water system excludes Group B water systems. The rule includes a change to the definition of a Group B system that eliminates inconsistency between the definition of a Group B system and a Group A system.

Section 10. Is the rule coordinated to the maximum extent possible with other federal, state, and local laws applicable to the same activity or subject matter?

The rule includes a change to the definition of a Group B system. The change eliminates inconsistency between the definition of a Group B system and a Group A system, so that it is clear the federal Safe Drinking Water Act applies only to Group A systems.

Department staff met with staff from the Department of Ecology and Department of Commerce to explain the changes and obtain feedback. Neither agency identified concerns about conflicts with other state rules or laws.

Department staff met with staff from Local Health Jurisdictions (LHJs) to explain changes and obtain feedback. Concerns about potential conflicts between local rules and this rule prompted changes to eliminate the conflicts when possible.

Appendix A

Individuals Providing Information for the Significant Analysis

Consulting Engineers

Doug Ecklund	Morrisette Engineering
Brian Belsby	Belsby Engineering
Bill Whiteley	Whitely Engineering
Todd Krause	Northwest Water

Satellite Management Agencies

Julie Parker	Thurston PUD
Drew Noble	H2O Services

Well Drillers

Dave Rutledge (President)	A-1 Drilling & Digging
Ron Wiley (Owner & Operator)	Nicholson Drilling
Tom Richardson (President)	H2OWell Service Inc

Other resources used to estimate well construction costs: Estimates for the range of screen and casing came from web based product searches from suppliers. They were consistent with the estimates provided by the drillers.

- Department of Ecology Fact sheet for homeowners and well construction
<http://www.clark.wa.gov/public-health/water/documents/Homeowners%20guide%20to%20well%20construction.pdf>
- Other resources
<http://www.waterwelldrillingcost.com/>
<http://www.findwellwater.com/faq.htm>
http://www.ehow.com/info_8164501_average-cost-drilling-water-well.html
<http://www.ngwa.org/Documents/Bookstore/ddc-manual-080706.pdf>
- <http://www.rwsn.ch/documentation/skatdocumentation.2010-07-08.6754105740/file>

Certified Laboratories contacted in phone survey

- Addy Lab
- Amtest Laboratory
- Cascade Analytical
- Columbia Analytical
- Water Management Labs

Appendix B

1. Survey Questions to licensed engineers

What would the cost be for the design of a new Group B system meeting the current (old) Group B rule vs. proposed (new) rule?

Engineer 1: \$1500 3-9 connections current.

Engineer 2: Our fees typically ranged from \$2,500 to \$3,500 using the old Group B workbook. I am anticipating our fees will be approximately \$4,500 to meet the new Group B standards. The construction costs are very site specific and vary widely depending on topography, treatment, depth of well, lot sizes, etc. Systems typically cost between \$45,000 to \$80,000 to construct.

Engineer 3: I anticipate the cost of construction, design and review will increase by approximately 25%.

Engineer 4: A “typical” Group B water system costs \$30,000-\$50,000, including engineering, tests, and fees. Cost to design a B system under current rule: \$2,000-\$4,000 covers most designs. Construction costs are a function of well depth, need for storage, need for treatment and to a lesser degree size of distribution. Typical costs range as follows:

- a. Well and Pump \$10,000-\$30,000**
- b. Storage and booster \$7,000-\$10,000**
- c. Treatment \$3,000-\$10,000**
- d. Distribution \$3,000-\$10,000**

What is the range for capital costs for of water quality treatment for Group B systems:

- Chlorination

Engineer 1: \$1,000-1,500

Engineer 2: \$1,500

Engineer 4: \$1,500

- Arsenic removal

Engineer 2: I anticipate the costs for Arsenic treatment for Group B systems are \$40,000 to \$60,000.

Engineer 4: \$10,000 for coagulation/filtration, \$7,000 for absorptive media

- Nitrate treatment

Engineer 4: \$5,000

O&M costs for Group B systems that have:

- No treatment
Engineer 4: \$700-\$1,500 Operations \$500 for maintenance and replacements
- Chlorination
Engineer 4: \$100-\$400
- Coagulation/filtration for arsenic removal
Engineer 4: \$500-\$1,500
- Absorptive media treatment for arsenic removal
Engineer 4: \$500-\$2,000
- Treatment for nitrate
Engineer 4: \$750-\$2,000

What was the cost to prepare a Watershed Control Plan?

- **Engineer 4: I would charge ~\$1,000**

What is the cost of updating a Group B water system plan?

- **Engineer 2: I have updated Group B water systems. It has ranged from providing a new Group B workbook with the associated costs previously mentioned to providing limited supplemental information with costs less than \$1,000.**
- **Engineer 4: We are unaware of DOH requesting a Group B Planning Document of any kind beyond the initial Group B Workbook. We have completed non-submitted system evaluations for \$500-\$1,500.**

How much more does a Group A submittal cost than a Group B submittal?

Engineer 1: The difference is going to be around \$10,000 or more. Lowest cost \$14,000.

Engineer 2: We have prepared Comprehensive Water Plans for a lot of small Group A systems. Our fees for the planning, design, and source approval is typically between \$17,000 to \$20,000.

Engineer 3: A group A community system Water System Plan is ten times the cost of group B design report. Say \$30,000 vs \$3,000.

Engineer 4:

- a. Large, standard Group B \$2,500**
- b. Small, standard Community Group A \$15,000**

Is there any extra cost associated with designing or constructing a system to produce 750 gpd/connection in Western Washington, and 1,250 gpd/connection in Eastern Washington?

Engineer 1: Storage and/or treatment will increase cost. Going to increase your design cost \$500-\$1,000 and increase construction cost \$5,000-\$10,000.

Engineer 2: In the event these standards trigger the requirement of an additional source, the extra cost of the additional source can be substantial. For example in Upper Kittitas County, many wells are located in fractured basalt, have fairly low production, and typically range in depth from 250 feet to 400 feet in depth. The costs to drill a well in this area typically range from \$20,000 to \$30,000.

Engineer 4: No change in cost. The PHD values in the New Guidance are much higher.

The new draft Group B rule has requirements for reservoirs that previously were only in guidance. Can you tell me how much these new requirements would cost (or tell me where I might find this information)?

- Lockable access hatch;
- Screened roof vent;
- Overflow pipe;
- Sample tap;
- Drain to daylight; and
- Tank isolation.

Engineer 2: These requirements appear to be fairly consistent what is already required. I estimate the cost for an underground 2,500 gallon cistern installed is approximately \$4,500.00.

Engineer 4: Most local jurisdictions already have these, or similar requirements. Most Group B tanks are pre-manufactured plastic tanks that incorporate most of the above features. The systems we design already address all of the above issues.

2. Cost summary from Satellite Management Agencies -- what is your hourly fee charged?

**SMA 1: \$58 per hour for Operations Manager
\$71 per hour for General Manager**

SMA 2: \$75 per hour. Costs are higher if a permit is required.

3. Cost summary from survey of licensed well drillers

Drilling costs can vary significantly across the state due to different site and aquifer conditions and use expectations. There are rules of thumb that are applied locally by drillers that make a simple cost per foot estimates problematic.

A project specific bid will include some or all of the following elements:

- Move in & move out costs (the cost of moving drilling rigs and related equipment to the well site – generally a fix base cost with an additional millage cost) generally around \$1500
- Start card/permit fee – standard for DW wells is \$200
- 18-20 ft Surface seal - \$1200 - \$1800
- Drilling (prices vary by diameter and depth). Most wells start with a 2-4” larger diameter than the finished well. That allows the placement of a 20 ft surface seal as well as telescoping pipe size and the placement of casing and/or liners. The deeper the well, the greater the need to start with a larger diameter borehole and telescope to smaller diameter construction.
- Casing - lays inside the drilled hole and can run the length of the well. In consolidated formations some portion may not require casing. Material may be steel or
- Liners: Where casing is not run the length of the well- liners are used to keep debris from dropping in and clogging the pump intake.
- Screens: These are sections of casing that are either slotted or perforated to allow water to move from aquifer into the well without clogging.
- Drive shoe – welded end to casing to protect the bottom of the casing as it is driving into the well bore.
- Surface Seal: Generally the top 18 - 20 ft of a well must be developed in a manner that will protect the well from surface contamination and as well protect the pump and water lines from freezing (placement of the pitless adaptor).
- Development - this is the process and procedures used to stabilize the bottom or water producing area of the well. It may involve packing, scouring and flushing. This is not the same as pump placement or development.

Well Construction Costs

Elements	costs	West Side Drilled Sand & Gravel 6" finished well (175ft)	East Side Drilled Sand & Gravel 8" finished well (175 ft)	Drilled Rock 8" finished well (175ft)	Excavated Well* 36" finished well (30 ft)
Start Card / Permit (ECY)	\$200	\$200	\$200	\$200	\$200
Move in/Move out	\$1000-1500	\$1500	\$1500	\$1400	\$1500
Drilling	14" @\$120/ft			\$2160 (18ft)	
	12" @\$90/ft		\$1620 (18ft)		
	10" @\$45/ft			\$8685 (193ft)	
	8" @ \$26/ft		\$5018 (193ft)		
	6" @ \$20/ft	\$3500 (175ft)			
Casing	14" @\$45/ft			\$900 (20ft)	
	12" @\$38/ft		\$760 (20ft)		
	10" @\$22/ft			\$440 (20ft)	
	8" @ \$22/ft		\$3894 (177ft)		
	6" @ \$17/ft	\$2975 (175)			
Drive shoe	\$150	\$150	\$150	\$150	
Liner (needed in rock & wells)	8" @ \$22/ft			\$3630 (165ft)	
Surface seal	\$1200- \$1800	\$1750		\$1200	
Screen	\$100-200/ft	\$1000 (10ft)			
Development @ screen (2-5 ft)	\$450/ft	\$900 (2 ft)	\$1800(4ft)	\$450 (1ft)	
Excavated surface seal & liner	\$175-200/ft (20 ft)				\$3500
Add. excavation & tile	150/ft				\$1500
Estimated cost to construct small domestic well		\$11975	\$14942	\$15585	\$6,700.00
Estimated \$/ft		\$68/ft	\$85/ft	\$89/ft	\$224/ft