



# PROPOSED RULE MAKING

## CR-102 (June 2012)

(Implements RCW 34.05.320)

Do NOT use for expedited rule making

**Agency:** State Board of Health

- Preproposal Statement of Inquiry was filed as WSR 07-14-147 ; or
- Expedited Rule Making--Proposed notice was filed as WSR \_ ; or
- Proposal is exempt under RCW 34.05.310(4) or 34.05.330(1).

- Original Notice
- Supplemental Notice to WSR
- Continuance of WSR

**Title of rule and other identifying information:** (Describe Subject)

Chapter 246-291 WAC, proposing amendments to Group B Public Water Systems. The 2009 legislature eliminated Department of Health (department) funding for the Group B program and amended RCW 43.20.050 and chapter 70.119A RCW directing the State Board of Health (board) to adopt rules to: establish minimum design and construction standards for Group B systems; allow the board to waive requirements for systems with fewer than five connections; and allow local governments to establish regulations that are more stringent than state standards.

**Hearing location(s):** Washington State Capital Campus  
John A Cherberg Building  
Senate Hearing Room 3

Date: October 10, 2012

Time: 1:15 p.m.

**Submit written comments to:**

Name: Theresa Phillips  
Address: Department of Health  
PO Box 47822  
Olympia, Washington 98504-7822  
e-mail: <http://www3.doh.wa.gov/policyreview/>  
fax (360) 236-2252 by (date) 09/25/2012

**Assistance for persons with disabilities:** Contact

Desiree Robinson by 09/10/2012

TTY (800) 833-6388 or () 711

**Date of intended adoption:** 10/10/2012

(Note: This is **NOT** the **effective** date)

**Purpose of the proposal and its anticipated effects, including any changes in existing rules:**

This proposal shifts the regulatory framework of chapter 246-291 WAC to align the rules with the department's capacity to implement the rules. The proposed rules strengthen water system design and construction standards for new and expanding systems, strengthen new source water approval requirements, set more stringent water quality and quantity standards, improve public notification requirements, eliminate ongoing monitoring requirements, provide local governments flexibility to set more stringent standards, and allow local governments to waive certain requirements under specific conditions.

**Reasons supporting proposal:**

The 2009 legislature eliminated funding for the Group B program and directed the Board to amend chapter 246-291 WAC as required by Engrossed Substitute Senate Bill SB 6171. This proposed rule revision is necessary to implement these statutory requirements.

**Statutory authority for adoption:**

RCW 43.20.050

**Statute being implemented:**

Chapter 70.119A RCW

**Is rule necessary because of a:**

- Federal Law?  Yes  No
  - Federal Court Decision?  Yes  No
  - State Court Decision?  Yes  No
- If yes, CITATION:

**DATE** 08/21/12

**NAME** (type or print)  
Michelle Davis

**SIGNATURE**

**TITLE**  
Executive Director

**CODE REVISER USE ONLY**

OFFICE OF THE CODE REVISER  
STATE OF WASHINGTON  
FILED

**DATE:** August 21, 2012

**TIME:** 4:40 PM

**WSR 12-17-138**

**Agency comments or recommendations, if any, as to statutory language, implementation, enforcement, and fiscal matters:**

None.

**Name of proponent:** (person or organization) State Board of Health

- Private  
 Public  
 Governmental

**Name of agency personnel responsible for:**

Name	Office Location	Phone
Drafting..... David Christensen	243 Israel Road SE, Tumwater, WA 98501	(360) 236-3153
Implementation.... David Christensen	243 Israel Road SE, Tumwater, WA 98501	(360) 236-3153
Enforcement..... David Christensen	243 Israel Road SE, Tumwater, WA 98501	(360) 236-3153

**Has a small business economic impact statement been prepared under chapter 19.85 RCW or has a school district fiscal impact statement been prepared under section 1, chapter 210, Laws of 2012?**

Yes. Attach copy of small business economic impact statement.

A copy of the statement may be obtained by contacting:

Name: Theresa Phillips

Address: Department of Health

PO Box 47822

Olympia, Washington 98504-7822

phone (360) 236-3147

fax (360) 236-2252

e-mail [theresa.phillips@doh.wa.gov](mailto:theresa.phillips@doh.wa.gov)

No. Explain why no statement was prepared.

**Is a cost-benefit analysis required under RCW 34.05.328?**

Yes A preliminary cost-benefit analysis may be obtained by contacting:

Name: Theresa Phillips

Address: Department of Health

PO Box 47822

Olympia, Washington 98504-7822

phone (360) 236-3147

fax (360) 236-2252

e-mail [theresa.phillips@doh.wa.gov](mailto:theresa.phillips@doh.wa.gov)

No: Please explain:

AMENDATORY SECTION (Amending WSR 94-14-002, filed 6/22/94, effective 7/23/94)

**WAC 246-291-001 Purpose and scope.** (1) The purpose of ~~((these rules))~~ this chapter is to ~~((define basic regulatory requirements to))~~ protect the health of consumers ~~((using))~~ by establishing minimum design, construction, and other standards for Group B public drinking water ((supplies)) systems. ~~((These rules are specifically designed to ensure the provision of high quality drinking water in a reliable manner and in a quantity suitable for intended use.))~~

(2) ~~((The rules set forth are adopted under chapter 43.20 RCW and owners of Group B public water systems shall be responsible for ensuring compliance with these rules.))~~ This chapter is adopted under chapter 43.20 RCW. A purveyor of a Group B public water system shall comply with this chapter and rules adopted by a local board of health under RCW 70.05.060 or 70.46.060 as applicable.

(3) Other statutes relating to this chapter are:

(a) RCW 43.20B.020, Fees for services--Department of health and department of social and health services;

(b) Chapter 43.70 RCW, Department of health;

(c) ~~((Chapter 70.05 RCW, Local health departments, boards, officers--Regulations;~~

~~((d))~~ Chapter 70.116 RCW, Public Water System Coordination Act of 1977; and

~~((e))~~ (d) Chapter 70.119A RCW, Public water systems--Penalties and compliance.

~~((3) Prior to expanding a Group B public water system to a Group A public water system, the entire system shall be brought into compliance with chapter 246-290 WAC.))~~

NEW SECTION

**WAC 246-291-005 Applicability.** (1) The rules of this chapter apply to a Group B public water system that provides drinking water to fewer than fifteen service connections and:

(a) Fewer than twenty-five people per day; or

(b) Twenty-five or more people per day for fewer than sixty days per year, provided the system does not serve one thousand or more people for two or more consecutive days.

(2) The rules of this chapter do not apply to a Group B system that:

(a) Consists only of distribution or storage facilities and

does not have any source or treatment facilities;

(b) Obtains all water from, but is not owned by, a public water system where the rules of this chapter or chapter 246-290 WAC apply; and

(c) Does not sell water directly to any person.

(3) The rules of this chapter do not apply to a Group B system that provides water to one or two service connections, except:

(a) In a county in which a local board of health has adopted requirements for Group B systems with one or two service connections; or

(b) When the department determines that it is necessary to protect public health and safety, such as if the system serves a connection with a use listed under WAC 246-291-010 (62)(a) through (g).

(4) A proposed Group B system shall meet planning, engineering, and design requirements under WAC 246-290-100 through 246-290-250 if:

(a) The design submitted under WAC 246-291-120 proposes to supply water to another public water system and the combined number of service connections or total population served meets the definition of a Group A public water system; or

(b) The proposed system is being designed to serve ten to fourteen residential service connections using average household population standards as required under WAC 246-291-200(2).

AMENDATORY SECTION (Amending WSR 95-20-078, filed 10/4/95, effective 11/4/95)

**WAC 246-291-010 Definitions, abbreviations, and acronyms.**

((Abbreviations:

~~CSE~~ -- comprehensive system evaluation;

~~GWI~~ -- ground water under the direct influence of surface water;

~~m~~ -- meter;

~~MCL~~ -- maximum contaminant level;

~~mg/L~~ -- milligrams per liter;

~~ml~~ -- milliliter;

~~mm~~ -- millimeter;

~~NTU~~ -- nephelometric turbidity unit;

~~psi~~ -- pounds per square inch;

~~umhos/cm~~ -- micromhos per centimeter;

~~VOC~~ -- volatile organic chemical;

~~WFI~~ -- water facilities inventory form; and

~~WHPA~~ -- wellhead protection area.

~~"Authorized agent"~~ means any person who:

~~Makes decisions regarding the operation and management of a public water system whether or not he or she is engaged in the physical operation of the system;~~

~~Makes decisions whether to improve, expand, purchase, or sell the system; or~~

~~Has discretion over the finances of the system.~~

~~"Coliform sample" means a sample of water collected from the distribution system at or after the first service and analyzed for coliform presence in compliance with this chapter.~~

~~"Comprehensive system evaluation (CSE)" means a review, inspection and assessment of a public water system, including, but not limited to: Source; facilities; equipment; operation and administration; maintenance; records; planning documents and schedules; and monitoring, for the purpose of ensuring that safe and adequate drinking water is provided.~~

~~"Confirmation" means to demonstrate the results of a sample to be precise by analyzing a repeat sample. Confirmation occurs when analysis results fall within plus or minus thirty percent of the original sample.)~~ The definitions, abbreviations, and acronyms in this section apply throughout this chapter unless the context clearly indicates otherwise.

(1) "Acute" means posing an immediate risk to human health.

(2) "ADD (average day demand)" means the total volume of water produced from all sources of supply over a calendar year divided by three hundred sixty-five.

(3) "APWA" means American Public Works Association.

(4) "ASTM" means American Society for Testing and Materials.

(5) "AWWA" means American Water Works Association.

(6) "Board" means the Washington state board of health.

(7) "Certified lab" means an analytical laboratory meeting requirements under chapters 246-390 and 173-50 WAC for one or more drinking water analytical parameters.

(8) "Coliform bacteria" means a group of rod-shaped bacteria found in the gastrointestinal tract of vertebrate animals. The presence of coliform bacteria in water is an indicator of possible fecal contamination.

(9) "Contaminant" means a substance present in drinking water which may adversely affect the health of the consumer or the aesthetic qualities of the water.

(10) "Critical water supply service area" means a geographical area characterized by a proliferation of small, inadequate water systems, or by water supply problems that threaten the present or future water quality or reliability of service in a manner that efficient and orderly development may best be achieved through coordinated planning by the water utilities in the area.

(11) "Cross-connection" means ((a physical arrangement connecting a public water system, directly or indirectly, with anything other than another potable water system, and capable of contaminating the public water system)) any actual or potential physical connection between a public water system or a consumer's water system and any source of nonpotable liquid, solid, or gas that could contaminate the potable water supply by backflow.

(12) "Cross-connection control plan" means a document that identifies the procedures the purveyor uses to protect the Group B system from contamination from cross-connections.

(13) "Department" means the Washington state department of health ~~((or health officer as identified in a joint plan of operation in accordance with WAC 246-291-030(1)))~~.

(14) "Disinfection" means the use of chlorine or other agent or process the department approves for killing or inactivating microbiological organisms, including pathogenic and indicator organisms.

(15) "Distribution system" means ~~((that portion))~~ all piping components of a ((public water supply)) Group B system ((which stores, transmits, pumps, and distributes water to consumers)) that serve to convey water from transmission mains linked to source, storage, and treatment facilities to the consumer excluding individual services.

(16) "Drilled well" means a well where the well hole is excavated by mechanical means such as rotary, cable tool, or auger drilling equipment.

(17) " Dwelling unit " means a structure, or unit within a structure, with independent living facilities for one or more persons that includes permanent provisions for living, sleeping, eating, cooking, and sanitation. A dwelling unit includes, but is not limited to:

(a) A single-family residence; or

(b) Each unit of an apartment building or multifamily building.

(18) "Ecology" means the Washington state department of ecology.

(19) "Equalizing storage" means the volume of storage needed to supplement supply to consumers when the peak hourly demand exceeds the total source pumping capacity.

(20) "Expanding ((public water)) Group B system" means a ~~((public water))~~ Group B system installing additions, extensions, changes, or alterations to ~~((their))~~ its existing source, transmission, storage, or distribution facilities ~~((which))~~ that will enable the system to increase ~~((in))~~ the size of its existing service area ~~((and/))~~ or ~~((its))~~ the number of approved service connections.

(21) "Fire flow" means the maximum rate and duration of water flow needed to ~~((fight))~~ suppress a fire~~((s))~~ under WAC 246-293-640 or ~~((adopted city, town, or county))~~ as required under local fire protection authority standards.

(22) "Fire suppression storage" means the volume of stored water available during fire suppression activities maintaining a pressure of at least 20 psi (140 kPa) at all points throughout the distribution system, and under the condition where the designed volume of fire suppression and equalizing storage has been depleted.

(23) "Generator disconnect switch" means an electrical ~~((circuit arranged to allow connection of a generator to the power supply for the pumping equipment while prohibiting))~~ device that physically prevents electrical current from flowing back into the main service line.

~~(( "Ground water under the direct influence of surface water~~

~~(GWI)" means any water beneath the surface of the ground, which the department determines has the following characteristics:~~

~~Significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* *Cryptosporidium*; or~~

~~Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH closely correlating to climatological or surface water conditions.~~

~~"Group B water system" means a public water system:~~

~~Constructed to serve less than fifteen residential services regardless of the number of people; or~~

~~Constructed to serve an average nonresidential population of less than twenty-five per day for sixty or more days within a calendar year; or~~

~~Any number of people for less than sixty days within a calendar year.)~~ (24) "gpm" means gallons per minute.

(25) "Group A public water system" is defined and referenced under WAC 246-290-020.

(26) "Group B public water system" or "Group B system" means a public water system that is not a Group A public water system, and is defined and referenced under WAC 246-291-005.

(27) "Guideline" means a department document assisting ((the owner)) a purveyor in meeting a rule or statutory requirement.

(28) "GWI (groundwater under the direct influence of surface water)" means any water beneath the surface of the ground, that the department determines has the following characteristics:

(a) Presence of insects or other macroorganisms, algae, or larger-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*; or

(b) Significant and relatively rapid shifts in water conditions such as turbidity, temperature, conductivity, or pH closely correlating to weather or surface water conditions, where natural conditions cannot prevent the introduction of surface water pathogens into the source at the systems' point of withdrawal.

(29) "Health officer" means the health officer of the ((city, county, city-county)) local health ((department or district)) jurisdiction, or an authorized representative.

(30) "Human consumption" means the use of water for drinking, bathing, showering, handwashing, cooking, food preparation, dishwashing, ice-making, or oral hygiene.

(31) "Hydraulic analysis" means the study of the ((water system network evaluating water flows within the distribution system under worst case conditions such as, peak hourly design flow plus fire flow, when required. Hydraulic analysis includes consideration of all factors affecting system energy losses)) Group B system's distribution main and storage network to determine the system's present or future adequacy for providing service to consumers within the established design parameters for the system under peak flow conditions, including fire flow. The analysis establishes the adequacy of design for distribution system components such as piping, elevated storage, booster stations or similar facilities used to pump and convey water to consumers.

(32) "Infiltration gallery" means a water collection system built of perforated pipe or conduit and placed in permeable earth, for collecting shallow groundwater. An infiltration gallery is usually located close to springs, wetlands, streams, or ponds.

(33) "Intertie" means an interconnection between public water systems permitting the exchange or delivery of water between those systems.

(34) "JPR (joint plan of responsibility)" means a written agreement between the department and local health jurisdiction that:

(a) Lists the roles and responsibilities of the department and health officer for reviewing and approving Group B system designs;

(b) Provides for a level of supervision necessary to effectively achieve the responsibilities in the JPR;

(c) Is signed by an authorized representative from the department and local health jurisdiction; and

(d) Is reviewed at least once every five years and updated as needed.

(35) "kPa" means kilo pascal (Standard International units of pressure).

(36) "Local board of health" means the governing body of a county health department under chapter 70.05 RCW, or a health district under chapter 70.46 RCW.

(37) "Local health jurisdiction" means a county health department under chapter 70.05 RCW, city-county health department under chapter 70.08 RCW, or health district under chapter 70.46 RCW.

(38) "Local permitting authority" means the local building official, health officer, or authorized representative that makes determinations regarding building permits and development proposals.

(39) "MCL (maximum contaminant level ((~~MCL~~)))" means the maximum permissible level of a contaminant in water ((~~delivered~~) the purveyor delivers to any ((~~public water~~) Group B system ((~~user~~) consumer, measured at the source before entry to the distribution system.

((~~"Maximum contaminant level violation" means a confirmed measurement above the MCL and for a duration of time, where applicable.~~

~~"Owner" means any agency, subdivision of the state, municipal corporation, firm, company, mutual or cooperative association, institution, partnership, or person or any other entity that holds as property, a public water system.)~~ (40) "MDD (maximum day demand)" means the highest actual or estimated quantity of water that is, or is expected to be, used over a twenty-four hour period, excluding unusual events or emergencies.

(41) "mg/L" means milligrams per liter (1mg/L = 1 part per million).

(42) "ml" means milliliter.

(43) "mm" means millimeter.

(44) "Nonresidential service connection" means a connection to a public water system that provides potable water including, but

not limited to a:

- (a) Commercial property;
- (b) Industrial property;
- (c) Civic property;
- (d) Municipal property;
- (e) Institutional property;
- (f) School;
- (g) Recreational use as defined in this section; or
- (h) Any other authorized use that provides potable water to a

nonresidential population.

(45) "PAS" means pitless adaptor standard.

(46) "PHD (peak hourly ((design flow) demand))" means the maximum rate of water use, excluding fire flow(, which)) that can ((be expected to ever)) occur within a defined service area over a continuous sixty minute time period. PHD is typically expressed in gallons per minute (gpm).

(47) "Potable" means water ((suitable)) safe for ((drinking by the public)) human consumption.

((("Pressure zone" means a distribution system whereby an established minimum and maximum pressure range can be maintained without the use of ancillary control equipment (e.g., booster pumps, pressure reducing valves, etc.)) (48) "Potential GWI" means a source identified by the department or local health jurisdiction as possibly under the direct influence of surface water including, but not limited to a:

(a) Well that has a screened interval fifty feet or less from the ground surface at the wellhead and is located within two hundred feet of a freshwater surface water body;

- (b) Ranney well;
- (c) Infiltration gallery; or
- (d) Spring.

(49) "Primary ((standards)) MCL" means a standard((s)) based on chronic, nonacute, or acute human health effects.

(50) "psi" means pounds per square inch.

(51) "Public water system" means any system providing water for human consumption through pipes or other constructed conveyances, excluding a system serving only one single-family residence and a system with four or fewer service connections all of which serve residences on the same farm(, providing piped water for human consumption, including)). The term includes:

(a) Collection, treatment, storage, or distribution facilities under the control of a purveyor and used primarily in connection with ((such)) the system((.

"Repeat sample" means a sample collected to confirm the results of a previous analysis.)) ; and

(b) Collection, or pretreatment storage facilities not under the control of a purveyor, and primarily used in connection with the system.

(52) "Purveyor" means an agency, subdivision of the state, municipal corporation, firm, company, mutual or cooperative association, institution, partnership, or person or other entity owning or operating a public water system, or applying to create a

public water system. Purveyor also means the authorized agents of these entities.

(53) "Ranney well" means a water well or collection system including a central chamber with horizontal perforated pipes extending out into an aquifer. The perforated pipes may extend out under a surface water body such as a lake or river.

(54) "Recreational service connection" means a connection to a public water system that provides potable water to each:

(a) Campsite; or

(b) Recreational vehicle site.

(55) "Residential service connection" means a connection to a public water system that provides potable water to a dwelling unit.

(56) "Same farm" means a parcel of land or series of parcels ((which are)) connected by covenants and devoted to the production of livestock or agricultural commodities for commercial purposes ((and does not qualify as a Group A water system)).

(57) "Sanitary survey" means a review, inspection, and assessment of a public water system by the department or local health jurisdiction.

(58) "SCA (sanitary control area)" is defined under WAC 246-291-125(5).

(59) "SMA (satellite system management agency)" means a person or entity approved by the department in accordance with chapter 246-295 WAC to own or operate public water systems on a regional or county-wide basis without the necessity for a physical connection between the systems.

(60) "Secondary ((standards)) MCL" means a standard((s)) based on factors other than health effects ((such as taste and odor)).

(( "Sell" means to bill separately for drinking water or to include drinking water as part of an itemized listing in a bill delivered to customers, where the amount billed is an increase over what the purveyor pays for water. The presence of centralized source or individual service meters does not affect whether the water is being sold.))

(61) "Service connection" means a ((connection to a public water system designed to provide potable water)) residential, nonresidential, or recreational service connection as defined in this section.

(( "Special purpose sample" means a sample collected for reasons other than the monitoring compliance specified in this chapter.

"Standard methods" means the 18th edition of the book, titled *Standard Methods for the Examination of Water and Waste Water*, jointly published by the American Public Health Association, American Water Works Association (AWWA), and Water Pollution Control Federation. This book is available through public libraries or may be ordered from AWWA, 6666 West Quincy Avenue, Denver, Colorado 80235.

"State board of health" and "board" means the board created by RCW 43.20.030.) (62) "Single family residence" means a structure in which one or more persons maintain a common household. A structure is not a single family residence if it is used for an

activity requiring a permit or license under one or more of the following rules:

- (a) Food service, chapter 246-215 WAC;
- (b) Food inspection, chapter 16-165 WAC;
- (c) Residential treatment facility, chapter 246-337 WAC;
- (d) Transient accommodations, chapter 246-360 WAC;
- (e) Boarding homes licensing rules, chapter 388-78A WAC;
- (f) Minimum licensing requirements for child care centers, chapter 170-295 WAC;
- (g) School-age child care center minimum licensing requirements, chapter 170-151 WAC; or
- (h) Adult family home minimum licensing requirements, chapter 388-76 WAC.

(63) "Spring" means a source of water where the aquifer comes in contact with the land surface.

(64) "Surface water" means a body of water open to the atmosphere and subject to surface runoff, including captured rainfall.

~~((**"Volatile organic chemical (VOC)"** means a manufactured carbon-based chemical that vaporizes quickly at standard pressure and temperature.~~

~~**"Water facilities inventory form (WFI)"** means the department form summarizing each public water system's characteristics.~~

~~**"Well field"** means a group of wells one system owns or controls which:~~

~~Draw from the same aquifer or aquifers as determined by comparable inorganic chemical analysis; and~~

~~Discharge water through a common pipe and the common pipe shall allow for collection of a single sample before the first distribution system connection.)) (65) **"WSDOT"** means Washington state department of transportation.~~

(66) "Water right" means a permit, claim, or other authorization, on record with or accepted by the department of ecology, authorizing the beneficial use of water in accordance with all applicable state laws.

(67) "Well site inspection" means a physical inspection of the area near an existing or proposed well location, and completion of a department or health officer-approved form that identifies the suitability of the site for a public water supply well.

AMENDATORY SECTION (Amending WSR 95-20-078, filed 10/4/95, effective 11/4/95)

**WAC 246-291-025 Bottled water and ice-making facilities.** (1) ~~((Any))~~ Water sources used ((for bottling, regardless of size,)) by a facility that produces bottled water or ice for public consumption shall meet the ((minimum)) requirements ((in accordance with)) under chapter 246-290 WAC.

(2) In addition to the requirements (~~imposed by the department~~) under chapter 246-290 WAC, the processing of bottled water and ice is regulated by the state department of agriculture under chapter 69.07 RCW, and the United States Food and Drug Administration under 21 C.F.R. 165.110.

AMENDATORY SECTION (Amending WSR 95-20-078, filed 10/4/95, effective 11/4/95)

**WAC 246-291-030 General administration.** (1) The department administers this chapter unless:

(a) A local board of health adopts rules under RCW 70.05.060 or 70.46.060 to implement this chapter that are at least as stringent as this chapter; or

(b) The (~~department and the health officer for each local health jurisdiction may develop a joint plan of operation. Responsibility for administering these rules shall remain with the department of health unless there is a joint plan of operation in place. This plan shall:~~

(a) List the roles and responsibilities and specifically designate those systems for which the department and local health officer have primary responsibility;

(b) Provide a list of water system requirements and procedures which the local board of health may waive for systems within its jurisdiction;

(c) Provide for a level of water system supervision necessary to effectively achieve listed responsibilities;

(d) Be signed by the department and the local health department or district; and

(e) Be reviewed at least once every five years and updated as needed.

Wherever in these rules the term "department" is used, the term "health officer" may be substituted based on the terms of this joint plan of operation.

(2) The)) local health jurisdiction has accepted primary responsibility for administering this chapter in a JPR.

(2) Existing local rules shall remain in effect, except requirements of this chapter that are more stringent than the local board of health rules.

(3) In addition to the requirements of this chapter for Group B systems, local board of health rules may include, but are not limited to:

(a) System operations and maintenance;

(b) Ongoing water quality and water use monitoring;

(c) Reporting of water quality and water use monitoring data to the local health jurisdiction;

(d) System inspections or sanitary surveys;

(e) Public notification;

(f) Additional requirements for existing systems to be

considered in compliance; and

(g) Regulation of systems with one or two service connections.

~~(4) A local board of health may adopt rules ((pursuant to RCW 70.05.060 governing public water systems for which the health officer has assumed primary responsibility. Adopted local board of health rules shall be:~~

~~(a) No less stringent and may be more stringent than this chapter; and~~

~~(b) Revised, if necessary, within twelve months after the effective date of revised state board of health rules. During this time period, existing local rules shall remain in effect, except provisions of the revised state board of health rules which are more stringent than the local board of health rules shall apply.~~

~~(3) For residential systems with only two services, the department may eliminate any or all requirements of these rules.~~

~~(4) For any residential system, the department may eliminate all ongoing requirements of these rules, except for recordkeeping and reporting requirements under WAC 246-291-260, provided the system has been granted an initial approval or an existing system has been categorized as fully approved/adequate or provisionally approved.~~

~~(5) The health officer may approve design reports and water system plans which reflect good engineering practice such as those found in the department guideline titled *Group B Water System Approval*, for those public water systems where the health officer has assumed primary responsibility.~~

~~(6) The health officer may allow system owners to substitute results of a calculated fixed radius method and a ten year time of travel criteria instead of using the six hundred foot radius prescribed in WAC 246-291-100 (2)(f) and 246-291-110 (3)(f).~~

~~(7) The department may develop and distribute guidelines to clarify sections of the rules as needed.~~

~~(8) Fees may be charged by the department of health as authorized in RCW 43.20B.020 and by local health agencies as authorized in RCW 70.05.060 to recover all or a portion of the costs incurred in administering these rules)) that require a purveyor of a Group B system to obtain an annual operating permit as authorized under RCW 70.119A.130.~~

AMENDATORY SECTION (Amending WSR 94-14-002, filed 6/22/94, effective 7/23/94)

**WAC 246-291-050 Enforcement.** (1) When a Group B system is out of compliance with ((these rules)) this chapter, the department may initiate ((appropriate)) enforcement actions((, regardless of any prior approvals issued by the department, including, but not limited to:

~~(a) Issuance of a compliance schedule;~~

~~(b) Issuance of departmental orders requiring submission of water system plans, design reports, and construction report forms;~~

~~(c) Issuance of departmental orders requiring specific actions or ceasing unacceptable activities within a designated time period;~~

~~(d) Issuance of departmental orders to stop work and/or refrain from using any public water system or improvements thereto until all written approvals required by statute or rule are obtained;~~

~~(e) Imposition of civil penalties as authorized under chapter 70.119A RCW or local authority where applicable; and~~

~~(f) Legal action by the attorney general or local prosecutor.~~

~~(2) When enforcing the MCLs under this chapter, the department shall enforce compliance with the primary MCLs as its first priority)) under RCW 70.119A.030 and 70.119A.040.~~

(2) A health officer may initiate enforcement actions as authorized under RCW 70.46.060 and 70.119A.050, and as authorized under local board of health rules.

AMENDATORY SECTION (Amending WSR 94-14-002, filed 6/22/94, effective 7/23/94)

**WAC 246-291-060 Waivers.** (1) ~~((The state board of health or the local health officer in those counties having a joint plan of operation, may grant waivers of the requirements of this chapter, provided that procedures used are consistent with WAC 246-290-060 (5)(b) and in the case where a local health officer is authorized to grant the waiver, procedures used shall be approved by the department of health as part of the joint plan of operation.~~

~~(2) Consideration by the board or local health officer of requests for waivers shall)) A health officer or local board of health may grant a waiver from the requirements of this chapter, provided that:~~

(a) The local health jurisdiction has:

(i) Adopted rules under RCW 70.05.060 or 70.46.060 that are at least as stringent as this chapter; or

(ii) Accepted primary responsibility for administering this chapter in a JPR;

(b) The health officer conditions the approval of a waiver to include, at a minimum:

(i) Water quality treatment;

(ii) Monitoring; or

(iii) Maintenance and oversight; and

(c) The health officer obtains sufficient evidence from a purveyor that a proposed Group B system will deliver drinking water that does not exceed a primary MCL under WAC 246-291-170, and will provide an adequate supply of water under WAC 246-291-125(3).

(2) The health officer shall not grant a waiver from the residential population requirement for each dwelling unit under WAC 246-291-200(2).

(3) A request for a waiver is not ~~((be))~~ considered an adjudicative proceeding~~((s))~~ as ~~((that term is))~~ defined ~~((in))~~ under chapter 34.05 RCW.

~~((3) Statements and written material regarding the request may be presented to the board or local health officer wherein the application will be considered.))~~

~~((4) ((The board or local health officer may grant a waiver if it determines the water system is unable to comply with the requirements and granting of the waiver will not result in an unreasonable risk to the health of consumers. No waivers may be granted for exceedance of a primary MCL.~~

~~(5))~~ A waiver granted under this section shall ~~((lapse two))~~ expire five years from the date of issuance ~~((unless the water system project has been completed or an extension is granted))~~ if construction of the Group B system is not completed.

#### NEW SECTION

**WAC 246-291-090 Public Water System Coordination Act and satellite management.** (1) A purveyor of a new or expanding Group B system shall comply with the applicable coordinated water system plan created under chapter 246-293 WAC and 70.116 RCW if located within the boundaries of a critical water supply service area.

(2) The department or health officer shall approve a new or expanding Group B system consistent with requirements under WAC 246-293-190 and RCW 70.116.060(3).

(3) A new Group B system must comply with SMA requirements under RCW 70.119A.060.

AMENDATORY SECTION (Amending WSR 94-14-002, filed 6/22/94, effective 7/23/94)

**WAC 246-291-120 Design report approval.** (1) ~~((Design reports shall be submitted to the department for))~~ A purveyor shall receive written department or health officer approval of a design report prior to ~~((installation of any))~~ :

(a) Installing a new ~~((water))~~ Group B system ~~((, or water system extension or improvement with the following exceptions:~~

~~((a) Installation of valves, fittings, and meters))~~ ; or

~~((b) ((Repair of a system component or replacement with a similar component of the same capacity; and~~

~~((c) Maintenance or painting of surfaces not contacting potable water.))~~ Providing service to more than the current approved number of service connections.

~~(2) ((Design reports submitted for approval by owners of systems required to have a water system plan, will not be considered for approval unless there is a current approved water system plan and the plan adequately addresses the project.~~

~~(3) Design reports shall include, at a minimum, the following:)) To obtain design report approval for a Group B system, a purveyor shall provide a copy of the following, at a minimum, to the department or health officer:~~

~~(a) ((Alternatives. Verify contacts with other water system owners as applicable in accordance with WAC 246-291-140(2);)) Documentation that creating a new system or expanding an existing system does not conflict with any applicable coordinated water system plan adopted under chapter 246-293 WAC;~~

~~(b) ((Legal considerations. Identify legal aspects such as ownership, right of way, sanitary control area, and restrictive covenants;)) Documentation that creating a new system complies with the SMA requirements under RCW 70.119A.060(2);~~

~~(c) ((Engineering calculations. Describe how the project complies with the design considerations;)) Source approval under WAC 246-291-125 or 246-291-135;~~

~~(d) ((Drawings. Include detailed drawings of each project component;)) Documentation that all requirements under WAC 246-291-140 are met;~~

~~(e) A system design that complies with the requirements under WAC 246-291-200 including, but not limited to:~~

~~(i) Drawings of each project component, including:~~

~~(A) Location;~~

~~(B) Orientation;~~

~~(C) Size; and~~

~~(D) Easements for:~~

~~(I) Future access and maintenance of distribution system pipelines located on private property, or franchise agreements necessary for distribution system pipelines located within public right of way; and~~

~~(II) Other system components, including access and maintenance of reservoirs, wells, and pumping stations.~~

~~(ii) Material specifications(.——~~List detailed material specifications~~)) for each project component;~~

~~((~~f~~)) (iii) Construction specifications(.——~~List detailed construction specifications~~)) and assembly techniques ((~~for carrying out the project~~));~~

~~((~~g~~)) (iv) Testing(.——~~Identify testing~~)) criteria and procedures ((~~for each applicable portion of the project~~)); and~~

~~((~~h~~)) (v) A description of disinfection(.——~~Identify specific disinfection~~)) procedures ((~~which must conform with American Water Works Association standards or other standards acceptable by the department~~;~~

~~(i) Inspection. Identify provisions for inspection of the installation of each project component. See WAC 246-291-040 for construction reporting requirements; and~~

~~(j) Change orders. All changes except for minor field revisions must be submitted to and approved by the department in writing.~~

~~(4) Approval of design reports shall be in effect for two years unless the department determines a need to withdraw the approval. An extension of the approval may be obtained by submitting a status report and a written schedule for completion. Extensions may be subject to additional terms and conditions imposed by the department)) as required under WAC 246-291-220.~~

~~(3) The design report shall be prepared, sealed, and signed in accordance with chapter 196-23 WAC by a professional engineer who:~~

~~(a) Is licensed in the state of Washington under chapter 18.43 RCW; and~~

~~(b) Has specific expertise regarding design, operation, and maintenance of public water systems.~~

~~(4) A local health jurisdiction that has accepted primary responsibility in a JPR under WAC 246-291-030 may adopt by rule, an exception to the professional engineer requirement for Group B systems that:~~

~~(a) Do not use a variable speed pump;~~

~~(b) Do not provide fire flow;~~

~~(c) Do not have special hydraulic considerations;~~

~~(d) Do not have atmospheric storage in which the bottom elevation of the storage reservoir is below the ground surface; and~~

~~(e) Serve fewer than ten service connections.~~

~~(5) A purveyor shall submit a "Construction Completion Report for Public Water System Projects" to the department or health officer on a form approved by the department or health officer within sixty days of construction completion, and before use of any approved Group B system. The form must:~~

~~(a) Be signed by a professional engineer, unless the health officer approves the project as meeting the requirements under subsection (4) of this section;~~

~~(b) Include a statement that the project is constructed and completed according to the design report requirements under this chapter; and~~

~~(c) Include a statement that the installation, testing, and disinfection of the Group B system is completed in accordance with this chapter.~~

~~(6) All design changes, except for minor field revisions, must be submitted in writing to, and approved by, the department or health officer.~~

#### NEW SECTION

**WAC 246-291-125 Groundwater source approval.** (1) Groundwater sources submitted to the department or health officer for design approval under WAC 246-291-120 must comply with the following requirements:

(a) Drinking water shall be obtained from the highest quality source feasible.

(b) All permanent groundwater sources must:

(i) Be designed to be physically connected to the distribution system;

(ii) Be a drilled well constructed in accordance with chapter 173-160 WAC; and

(iii) Meet water quality requirements under WAC 246-291-170.

(c) The department or health officer shall not approve a design for a new or expanding Group B system using a GWI source.

(d) The department or health officer shall not approve a design for a new or expanding Group B system using a potential GWI source until a hydrogeologic evaluation is completed by a licensed hydrogeologist or engineer that determines the source is not GWI. The GWI evaluation and determination must be completed before the department or health officer will review the Group B design report.

(2) Before pursuing groundwater source approval under this section, a purveyor shall contact the department or local health jurisdiction to identify any additional requirements.

(3) A purveyor shall provide a copy of the following to the department or health officer to obtain groundwater source approval:

(a) The water right permit, if required, for the source, quantity, type, and place of use;

(b) The water well report, as required under WAC 173-160-141;

(c) The well site inspection report form completed by the department or local health jurisdiction, or designee;

(d) A map showing:

(i) The project location;

(ii) A six hundred foot radius around the well site designating the preliminary short-term groundwater contribution area; and

(iii) The perimeter of a one hundred foot SCA, meeting the requirements in subsection (4) of this section.

(e) A map showing topography, distances to the well from existing property lines, buildings, potential sources of contamination within the six hundred foot radius around the well, and any other natural or man-made features that could affect the quality or quantity of water;

(f) The recorded legal documents for the SCA;

(g) Results from an initial analysis of raw source water quality from a certified lab, including, at a minimum:

(i) Coliform bacteria;

(ii) Inorganic chemical and physical parameters under WAC 246-291-170, Tables 2, 3, and 4; and

(iii) Other contaminants, as directed by the department or health officer in areas where it determines that other contamination may be present.

(h) Pump test data establishing groundwater source capacity including, but not limited to:

(i) Static water level;

(ii) Sustainable yield;

(iii) Drawdown;

(iv) Recovery rate; and

(v) Duration of pumping.

(i) Additional pump testing in locations where water resource limitations or known seasonal groundwater fluctuations may affect

future reliability as directed by the department or health officer.

(4) Groundwater source capacity.

(a) A groundwater source for a Group B system with residential connections must be pump tested to determine if the well(s) and aquifer are capable of reliably supplying water that meets the minimum requirements under Table 1 of this section.

(b) A groundwater source must be pump tested to determine if the well(s) and aquifer are capable of supplying water at the rate required to provide the water volume as determined under WAC 246-291-200 for a source supplying a Group B system with:

(i) Nonresidential service connections; or

(ii) Both residential and nonresidential service connections.

(c) Where a locally adopted watershed plan or ecology watershed rule under Title 173 WAC establishes a higher water supply requirement, the purveyor shall use the higher value to assess the adequacy of the source of supply.

(d) A purveyor shall design the Group B system to meet the requirements under Table 1, even if a locally adopted watershed plan or watershed rule under Title 173 WAC limits water use below the values in Table 1.

**Table 1**  
**Minimum Source Capacity and Water Supply for Residential Service Connections**

County	Gallons per day per dwelling unit
Clallam, Clark, Cowlitz, Grays Harbor, Island, Jefferson, King, Kitsap, Lewis, Mason, Pacific, Pierce, San Juan, Skamania, Skagit, Snohomish, Thurston, Wahkiakum, and Whatcom	750
Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, and Yakima	1,250

(5) SCA.

(a) A purveyor shall establish the SCA around each groundwater source to protect it from contamination.

(b) The SCA must have a minimum radius of one hundred feet, unless technical justification submitted by a licensed hydrogeologist or engineer to the department or health officer supports a smaller area. The justification must address geological and hydrogeological data, well construction details, and other relevant factors necessary to provide adequate sanitary control.

(c) The department or health officer may require a larger SCA if geological and hydrological data support such a decision.

(d) A purveyor shall own the SCA, or the purveyor shall have the right to exercise complete sanitary control of the land through other legal provisions.

(e) A purveyor shall record a restrictive covenant to the title of each property that is sited partially or completely within

the SCA to protect the SCA in perpetuity.

NEW SECTION

**WAC 246-291-135 Interties.** (1) A purveyor submitting a new or expanding Group B system design for approval using a nonemergency intertie source shall provide the following to the department or health officer:

(a) A copy of the intertie agreement under subsection (2) of this section;

(b) Evidence that the supplying water system currently operates in compliance with chapter 246-290 or 246-291 WAC;

(c) Location of the proposed intertie;

(d) Information on any water quality issues and treatment being used;

(e) Demonstration of the source capacity and hydraulic capacity of the supply and receiving systems at the designed flow rate through the intertie;

(f) A copy of the water right or water right change issued by ecology, if required under RCW 90.03.383;

(g) Identification of alternative sources that will be used when the intertie agreement expires if the water is not being provided in perpetuity; and

(h) Verification that a source meter has been installed to measure water received.

(2) An intertie agreement between purveyors must identify:

(a) Specific time periods in which water will be provided;

(b) The volume of water available for use, including any seasonal or other restrictions; and

(c) How operations will be coordinated.

AMENDATORY SECTION (Amending WSR 95-20-078, filed 10/4/95, effective 11/4/95)

**WAC 246-291-140 Water system planning and disclosure requirements.** (~~((1) Water system plan.~~

~~(a) The water system plan shall:~~

~~(i) Identify present and future needs;~~

~~(ii) Set forth means for meeting those needs; and~~

~~(iii) Do so in a manner consistent with other relevant plans and local, state, and federal laws.~~

~~(b) Owners of the following categories of systems shall ensure the development and submittal of a water system plan for review and approval by the department:~~

~~(i) All systems as required by chapter 70.116 RCW the Public Water System Coordination Act of 1977 and chapter 246-293 WAC;~~

~~(ii) Any system experiencing problems related to planning, operation, and/or management as determined by the department and outlined in a departmental order;~~

~~(iii) Any proposed or expanding system as determined by the department; and~~

~~(iv) Any system which installs treatment, other than simple chlorination disinfection equipment, after the effective date of these regulations.~~

~~(c) A department guideline titled *Group B Water System Approval* is available from the department to assist owners in developing this plan. Design reports may be combined with a water system plan. To the extent to which they are applicable, the water system plan shall address the following elements:~~

~~(i) Description of system management and ownership;~~

~~(ii) Description of appropriate water quality monitoring and reporting requirements;~~

~~(iii) Service area and identification of existing and proposed major facilities;~~

~~(iv) Maximum number of connections the system can safely and reliably support;~~

~~(v) Water conservation program. Systems which are developed or expanded after the effective date of this rule shall develop a conservation program;~~

~~(vi) Relationship and compatibility with other plans;~~

~~(vii) Description of water source(s) including compliance with applicable source approval and protection under WAC 246-291-100 and 246-291-110;~~

~~(viii) Source protection (including required protective covenants, wellhead protection and watershed control where applicable); and~~

~~(ix) Financial viability.~~

~~(2) Prior to developing a new water system, the developer of the proposed system shall follow the steps listed below as applicable:~~

~~(a) The developer shall ensure that the new system is owned or operated by a department-approved satellite management agency (SMA), or if a department-approved SMA is not available, that the proposed new system has a department-approved water system plan in accordance with WAC 246-291-140;~~

~~(b) Department approval of any system created after July 22, 1995, that is not owned or operated by a SMA shall be conditioned upon future management or ownership by a SMA, if such management or ownership can be made with reasonable economy and efficiency, or upon periodic review of the system's operational history to determine its ability to meet the department's financial viability and other operating requirements.~~

~~(c) If the proposed system is located within the boundaries of a critical water supply service area, the ability to develop an independent system shall be governed by the provisions of the Public Water System Coordination Act, chapter 70.116 RCW and chapter 246-293 WAC, and will be subject to the jurisdictional~~

~~coordinated water system plan; or~~

~~(d) If the proposed system consists of a surface water or GWF source, ensure that the proposed system will be owned and operated by a department-approved satellite system management agency.~~

~~(3) For systems approved after the effective date of these rules, a summary of the following shall be recorded, by the system owner, on all affected property titles as a means of providing information about the system to property owners, lending institutions, and other potentially affected parties:~~

~~(a) Notice that the property is served by a public water system;~~

~~(b) The initial water system plan, planning section of the *Group B Water System Guideline*, or equivalent information from other documents as determined by the department;~~

~~(c) Notice that the system is subject to state and local rules;~~

~~(d) Recommendation to check with the jurisdictional regulatory authority on the current system status;~~

~~(e) Notice that fees may be assessed by the department for providing information on a public water system;~~

~~(f) Requirement for satellite management, if applicable;~~

~~(g) Notice of any waivers granted to the system; and~~

~~(h) Other information required by the department.) (1) A purveyor submitting a new or expanding Group B system design for approval shall provide the following information to the department or health officer:~~

~~(a) The system's management and ownership;~~

~~(b) The system's service area and existing and proposed major facilities;~~

~~(c) The maximum number of service connections the system can safely and reliably supply;~~

~~(d) The relationship and compatibility with other locally adopted plans;~~

~~(e) The amount of revenue needed to operate and maintain the system, and a plan to meet revenue needs;~~

~~(f) A cross-connection control plan if any existing cross-connections are identified;~~

~~(g) Security measures under the strict control of the purveyor to be provided to protect the water source, water storage reservoir, and the distribution system;~~

~~(h) For systems that will use sources with a well pump test indicating a yield of 5.0 gpm or less, a contingency plan describing short-term and long-term measures to restore water to consumers in the event the well(s) cannot provide an adequate supply of water;~~

~~(i) The public notification procedures that the purveyor will use as required under WAC 246-291-360.~~

~~(2) A purveyor shall record the following information on each customer's property title before providing water from the Group B system to any service connection:~~

~~(a) System name and a department issued public water system identification number;~~

~~(b) System owner name and contact information;~~

(c) The following statement: "This property is served by a Group B public water system that has a design approval under chapter 246-291 Washington Administrative Code";

(d) Parcel numbers to be served by the system;

(e) Indicate if the system is designed and constructed to provide fire suppression;

(f) A copy of any waiver granted under WAC 246-291-060 to the purveyor;

(g) Indicate:

(i) If service connections are metered or not;

(ii) If the purveyor intends to monitor the system for contaminants;

(iii) How often monitoring will occur; and

(iv) How the consumers of the system will be notified of monitoring results;

(h) Contact information for the approving authority (department or local health jurisdiction);

(i) The type of source treatment provided for any contaminants that exceed secondary MCLs;

(j) Instructions about how to obtain a copy of the agreements for consumers, if one exists; and

(k) Other information, as directed by the department or health officer.

## NEW SECTION

**WAC 246-291-170 Water quality requirements for groundwater source approval.** (1) All water quality samples collected under this section must be:

(a) Collected without chlorine, ultraviolet light, ozone, or other disinfectant in use to treat the source;

(b) Collected after the well has been pumped long enough to allow for collection of a representative sample of the aquifer, as described in the *Group B Water System Design Guidelines (2012)*; and

(c) Analyzed by a certified lab.

(2) To meet the requirements for design approval under WAC 246-291-120, a purveyor shall obtain, at a minimum:

(a) Satisfactory results from two raw source water samples analyzed for coliform bacteria;

(b) Results from one raw source water sample that have been analyzed for, and do not exceed, any primary MCL in Table 2 of this section; and

(c) In areas known or suspected to have contaminants of public health concern, one raw source water sample analyzed for the contaminant(s) as directed by the department or health officer.

(3) When analytical results indicate a presence of coliform bacteria, a purveyor shall do the following:

(a) Disinfect the source using procedures under WAC 246-291-

220; and

(b) Collect two repeat samples and analyze for coliform bacteria by a certified lab.

(4) A purveyor shall collect a confirmation raw source water sample and have the sample analyzed for each parameter that exceeded the MCL in the initial sample, if:

(a) An analysis exceeds a primary MCL in Table 2 of this section; or

(b) A contaminant of public health concern under subsection (2)(c) of this section exceeds the primary MCL under WAC 246-290-310.

(5) The department or health officer shall not approve the proposed source if:

(a) The average concentration from all samples for each substance taken under this section exceeds a primary MCL in Table 2 of this section;

(b) The repeat sample results collected under subsection (3) of this section indicate a presence of coliform bacteria; or

(c) A contaminant of public health concern collected under this section exceeds the primary MCL under WAC 246-290-310.

(6) When an analysis exceeds a secondary MCL in Table 3 or 4 of this section, a purveyor shall include treatment in the Group B system design under WAC 246-291-200 so that drinking water delivered to consumers does not exceed a secondary MCL.

**Table 2**  
**Primary Inorganic Chemical Contaminants**

Substance	MCLs (mg/L)
Antimony (Sb)	0.006
Arsenic (As)	0.010*
Barium (Ba)	2.0
Beryllium (Be)	0.004
Cadmium (Cd)	0.005
Chromium (Cr)	0.1
Cyanide (HCN)	0.2
Fluoride (F)	4.0
Mercury (Hg)	0.002
Nitrate (as N)	10.0
Nitrite (as N)	1.0
Selenium (Se)	0.05
Thallium (Tl)	0.002

Note: \*The arsenic MCL in Table 2 applies to new and expanding Group B systems. For Group B systems constructed prior to January 1, 2013, the arsenic MCL is 0.05 mg/L. WAC 246-291-360 (3) and (4) establish public notification requirements for Group B systems constructed prior to January 1, 2013, with an arsenic concentration exceeding 0.010 mg/L.

**Table 3**  
**Secondary Inorganic Chemical Contaminants**

Substance	MCLs (mg/L)
Chloride (Cl)	250.0
Fluoride (F)	2.0
Iron (Fe)	0.3
Manganese (Mn)	0.05
Silver (Ag)	0.1
Sulfate (SO <sub>4</sub> )	250.0
Zinc (Zn)	5.0

**Table 4**  
**Secondary Physical Characteristics**

Substance	MCLs
Color	15 color units
Specific conductivity	700 umhos/cm
Total dissolved solids (TDS)	500 mg/L

AMENDATORY SECTION (Amending WSR 94-14-002, filed 6/22/94, effective 7/23/94)

**WAC 246-291-200 Design standards.** (1) ~~((Water system owners))~~ A purveyor submitting a new or expanding Group B system design for approval shall ((ensure that)) use good engineering practices ((are used in the design of all public water systems. Information on what is good engineering practice is available from)) and apply industry standards in the design, such as those in:

(a) The department ((in the)) guideline titled *Group B Water System ((Approval)) Design Guidelines (2012)*;

(b) *Water Systems Council PAS-97(04) Pitless Adapters and Watertight Well Caps (2004)*;

(c) Standard specifications of the:

(i) American Public Works Association;

(ii) American Society of Civil Engineers;

(iii) American Water Works Association; and

(iv) American Society for Testing and Materials.

(d) Minimum standards for construction and maintenance of wells, chapter 173-160 WAC;

(e) *Recommended Standards for Water Works, A Committee Report of the Great Lakes - Upper Mississippi River Board of State Public Health and Environmental Managers (2007)*;

(f) *Standard Specifications for Road, Bridge and Municipal Construction (WSDOT/APWA 2012)*;

(g) *USC Manual of Cross-Connection Control, 10th edition (October 2009)*;

(h) PNWS-AWWA Cross-Connection Control Manual, sixth edition (1996);

(i) International Building Code (IBC) (2012); and

(j) Uniform Plumbing Code (UPC) (2012).

~~(2) ((In addition, owners of new or expanding public water systems shall ensure the following factors are addressed:~~

~~(a) Local conditions, plans and/or regulations;~~

~~(b) Public Water System Coordination Act considerations where appropriate; and~~

~~(c) Other requirements as determined by the department.~~

~~(3) Any pipe, pipe fittings, solder, or flux used in the installation or repair of a public water system shall be lead-free. Within the context of this section, lead-free shall mean having no more than eight percent lead in pipes and pipe fittings, and no more than two-tenths of one percent lead in solder and flux. This prohibition shall not apply to leaded joints necessary for the repair of cast iron pipes.)) A purveyor submitting a new or expanding Group B system design for approval shall:~~

~~(a) Calculate residential population by using 2.5 persons per dwelling unit;~~

~~(b) Use full-time occupancy for each dwelling unit; and~~

~~(c) Use planning, engineering and design criteria under WAC 246-290-100 through 246-290-250 if the system is being designed to serve ten to fourteen residential service connections.~~

~~(3) A purveyor shall demonstrate that the source(s) of supply, pipes and other constructed conveyances are capable of meeting the minimum residential water supply as required under WAC 246-291-125(3) Table 1.~~

~~(4) A new or expanding Group B system must be designed with the capacity to deliver the PHD at 30 psi (210 kPa) measured along property lines adjacent to distribution mains, under the following conditions:~~

~~(a) When all equalizing storage has been depleted, if the system is designed to supply PHD in part with equalizing storage; and~~

~~(b) At the "pump-on" pressure setting for the pump directly supplying the distribution system, when the water system is designed to supply PHD without any equalizing storage.~~

~~(5) If the design PHD exceeds the total source pumping capacity, then sufficient equalizing storage must be provided.~~

~~(6) The minimum design flow and duration required for fire flow and fire suppression storage, if provided, shall be determined by:~~

~~(a) The local fire protection authority; or~~

~~(b) As required under chapter 246-293 WAC for Group B systems within the boundaries of a designated critical water supply service area.~~

~~(7) In the design of a new or expanding Group B system that does not have to comply with minimum fire flow standards, a purveyor shall coordinate with the local fire protection authority to assess if any hydrants create adverse pressure problems as a result of expected fire suppression activities, and address any pressure problems in the design.~~

(8) If fire flow is provided, the distribution system must be designed to provide the MDD for the entire Group B system and the required fire flow at a pressure of at least 20 psi (140 kPa) at all points throughout the distribution system when the designed volume of fire suppression and equalizing storage has been depleted.

(9) The Group B system design must contain a water meter that measures the water use of the entire water system (totalizing source meter) and a source sample tap.

(10) The use of individual service booster pumps to meet the requirements of this section is prohibited.

(11) A purveyor shall equip a new or expanding Group B system with a generator disconnect switch.

(12) A purveyor shall use generally accepted industry standards and practices in the elimination or control of all cross-connections, such as:

(a) USC Manual of Cross-Connection Control, Tenth Edition, October 2009; and

(b) PNWS-AWWA Cross-Connection Control Manual, Sixth Edition (1996).

(13) A pitless unit, pitless adaptor, and vented sanitary well cap must conform with the product, material, installation, and testing standards under the Water Systems Council PAS-97(04) Pitless Adaptors and Watertight Well Caps (2004).

## NEW SECTION

### **WAC 246-291-205 Drinking water materials and additives. (1)**

In the design of a new or expanding Group B system, all materials shall conform to the ANSI/NSF Standard 61 if in substantial contact with potable water supplies.

(2) Substantial contact means the degree that a component is in contact with drinking water.

(a) Examples of water system components considered to be in substantial contact with drinking water include, but are not limited to:

(i) Storage reservoir interiors, liners, or covers;

(ii) Treatment, transmission, and distribution piping; or

(iii) Other water system components that have high potential for contact with drinking water, such as filter media, absorption media, ion exchange resins, and pressure vessels.

(b) Materials such as valves, pipe fittings, debris screens, gaskets, or similar appurtenances are not considered to be in substantial contact.

(3) Any chemicals specified for use in the design of treatment for secondary MCLs in Table 3 under WAC 246-291-170, with the exception of commercial grade hypochlorite compounds such as unscented Clorox or Purex, shall comply with ANSI/NSF Standard 60.

The design dosage shall not exceed the maximum application dosage recommended for the product as certified by the ANSI/NSF Standard 60.

(4) Pipes, pipe fittings, fittings, fixtures, solder, or flux used in the design of a new or expanding Group B system shall be lead-free. For the purposes of this section, lead-free means:

(a) No more than twenty-five one-hundredths of one percent lead in pipes and pipe fittings;

(b) No more than two-tenths of one percent lead in solder and flux; and

(c) Fittings and fixtures that are in compliance with standards established in accordance with 42 U.S.C. 300g-6(e).

AMENDATORY SECTION (Amending WSR 94-14-002, filed 6/22/94, effective 7/23/94)

**WAC 246-291-210 Distribution systems.** (1) (~~All distribution reservoirs shall have suitable watertight roofs or covers preventing~~) Storage reservoirs shall be designed to:

(a) Prevent entry by birds, animals, insects, ((and)) excessive dust ((and shall include appropriate provisions to safeguard against trespass, vandalism, and sabotage. All new distribution reservoirs shall be able to be drained by gravity to daylight)), and other potential sources of external contamination;

(b) Include:

(i) A weathertight roof;

(ii) A lockable access hatch;

(iii) A screened roof vent;

(iv) An overflow pipe with atmospheric discharge or other suitable means to prevent a cross-connection;

(v) A sample tap;

(vi) A drain to daylight, or an alternative design approved by the department or health officer that is adequate to protect against cross-connection;

(vii) Tank isolation in order to perform maintenance procedures; and

(viii) Other appurtenances appropriate for the protection of stored water from contamination;

(c) Be above normal ground surface level. If the bottom elevation of a storage reservoir must be below normal ground surface:

(i) The storage reservoir must be placed above the groundwater table; and

(ii) The top of a partially buried storage reservoir must be at least two feet above normal ground surface.

(2) (~~The owner shall ensure that the distribution system is sized and evaluated using a hydraulic analysis acceptable to the department.~~

~~(3))~~ A Group B system((s)) designed to ((provide)) supply

fire hydrants (~~(shall)~~) must have a minimum distribution main size of six inches (150 mm) supplying each hydrant.

~~((4) New water systems or additions to existing systems shall provide a design quantity of water at a positive pressure of at least thirty psi throughout the system under peak hourly design flow conditions measured at any customer's water meter or at the property line if no meter exists.~~

~~(5) If fire flow is to be provided, the distribution system shall be designed to provide the required fire flow at a pressure of at least twenty psi throughout the system during peak hourly design flow conditions.~~

~~(6) Booster pumps needed for individual services shall be subject to review and approval by the department. Installation shall be made under the supervision of the owner to ensure cross-connection control requirements are met. Installation of booster pumps which are an integral part of the system design shall be inspected and certified by the engineer.))~~

AMENDATORY SECTION (Amending WSR 94-14-002, filed 6/22/94, effective 7/23/94)

**WAC 246-291-220 Group B system disinfection ((of facilities))**. ~~((No portion of a public water system containing potable water shall be put into service, nor, if service has been terminated, shall service resume, until the facility has been effectively disinfected. The procedure used for disinfection shall conform to the American Water Works Association standards or other standards acceptable to the department. In cases of new construction, drinking water shall not be furnished to the consumer until satisfactory bacteriological samples have been analyzed by a laboratory certified by the state.))~~ (1) A purveyor shall disinfect a Group B system before providing service to any consumer.

(2) The water system disinfection procedures must conform to the following standards:

(a) AWWA C651-05 or APWA/WSDOT (2010 revision), for water main disinfection;

(b) AWWA C652-02, for reservoir disinfection; and

(c) AWWA C654-03, for well disinfection.

AMENDATORY SECTION (Amending WSR 94-14-002, filed 6/22/94, effective 7/23/94)

**WAC 246-291-250 Continuity of service.** ~~((1) Notification shall include a time schedule for transferring responsibilities,~~

~~identification of the new owner, and under what authority the new ownership will operate. If the system is a corporation, identification of the registered agent shall also be provided.~~

~~(2) The system transferring ownership shall ensure all health-related standards are met during transfer and shall inform and train the new owner regarding operation of the system.~~

~~(3) No owner shall end utility operations without providing written notice to all customers and the department at least one year prior to termination of service.~~

~~(4) Nothing in these rules shall prohibit an owner from terminating service to a specific customer if the customer fails to pay normal fees for service in a timely manner or if the customer allows or installs an unauthorized service connection to the system.~~

~~(5) Where this section may be in conflict with existing state statutes, the more stringent statute shall prevail.))~~ (1) A purveyor of a Group B system shall notify all the system's consumers in writing before transferring ownership. The notification must include a time schedule for transferring responsibilities, identification of the new owner, and under what type of authority the new ownership will operate.

(2) At least one year prior to terminating system operation, a purveyor of a Group B system shall notify all consumers in writing and provide a copy of the written notice to the department and health officer.

#### NEW SECTION

**WAC 246-291-280 Existing Group B systems.** (1) A purveyor of a Group B system shall apply for and obtain design approval under WAC 246-291-120, or approval under subsection (3) of this section before the system:

(a) Expands to serve a new service connection needing potable water; or

(b) Provides potable water for a new use of an existing service connection if a local permitting authority requires an approved public water supply as a condition of an approval of the new use.

(2) A local permitting authority may determine a Group B system constructed before January 1, 2013, without design approval under this chapter, to be adequate for existing connections if, at a minimum, the following requirements are met:

(a) The system's source(s) must meet well construction standards, under chapter 173-160 WAC;

(b) A well site inspection completed by the department, local health jurisdiction, or designee has documented that there are no sources of contamination in the SCA that could create a public health risk;

(c) The system meets water quality standards under WAC 246-

291-170, Table 2; and

(d) The system is capable of maintaining a minimum 20 psi at all points throughout the distribution system during peak demand.

(3) A purveyor of a Group B system approved prior to January 1, 2013, may provide potable water to additional service connections provided that:

(a) The expanded use is consistent with the existing design approval;

(b) The expanded use does not exceed the number of approved service connections; and

(c) The purveyor complies with all locally adopted requirements.

AMENDATORY SECTION (Amending WSR 94-14-002, filed 6/22/94, effective 7/23/94)

**WAC 246-291-300 General ((monitoring)) requirements.** (1) A purveyor of a Group B system shall provide potable water to the system's consumers.

~~(2) The department or health officer may require ((additional monitoring when it determines contamination is present or suspected in the water system or when it determines the source may be vulnerable to contamination.~~

~~(2) Special purpose samples shall not count toward fulfillment of the monitoring requirements of this chapter.~~

~~(3) The owner shall ensure samples required by this chapter are collected, transported, and submitted for analysis according to department approved methods. The analyses shall be performed by the state public health laboratory or another laboratory certified by the department. Qualified water utility, certified laboratory, or department personnel may conduct measurements for pH, temperature, residual disinfectant concentration and turbidity as required by this chapter, provided, these measurements are made in accordance with *Standard Methods*.~~

~~(4) When one Group B water system sells water to another public water system and the cumulative number of services or population served meet the definition of a Group A system, the owner of the selling system shall ensure that source monitoring is conducted in accordance with the minimum requirements for Group A community systems found in chapter 246-290 WAC.) a purveyor to collect water quality samples, have the samples analyzed by a certified lab, and report results as required under WAC 246-291-360, when the department or health officer:~~

~~(a) Determines a public health risk exists;~~

~~(b) Receives information documenting contamination;~~

~~(c) Receives a report of suspected or known waterborne illness from a health care provider as required under chapter 246-101 WAC;~~  
or

(d) Is aware of, or observes, a situation in which the source may be vulnerable to contamination. For example, a source is vulnerable to contamination from a flood event.

AMENDATORY SECTION (Amending WSR 94-14-002, filed 6/22/94, effective 7/23/94)

**WAC 246-291-360 Public notification.** (~~((1) Responsibility. Within fourteen days of the violation, the owner shall ensure that water system users are notified when the system has a violation of a primary MCL.~~

~~(2) Content. Notices shall provide:~~

- ~~(a) A clear, concise, and simple explanation of the violation;~~
- ~~(b) Discussion of potential adverse health effects and any segments of the population that may be at higher risk;~~
- ~~(c) A list of steps the owner has taken or is planning to take to remedy the situation;~~
- ~~(d) A list of steps the consumer should take, including advice on seeking an alternative water supply if necessary;~~
- ~~(e) The owner's and manager's names and phone numbers; and~~
- ~~(f) When appropriate, notices shall be multilingual.~~

~~The owner may provide additional information to further explain the situation.~~

~~(3) Distribution. Owners shall ensure that a written notice is distributed to all water system users within fourteen days of a violation unless otherwise directed by the department.~~

~~(4) When circumstances dictate the owner give a broader or more immediate notice to protect public health, the department may require notification by whatever means necessary.~~

~~(5) When a system is granted a waiver for reduction of water quality standards, the owner shall ensure that customers are notified. The owner shall provide a notice annually and send a copy to the department.)~~

(1) A purveyor of a Group B system shall notify the department, health officer, and all system consumers in writing within twenty-four hours when the purveyor:

(a) Obtains a water quality sample analysis from a certified lab indicating the presence of *E. coli*;

(b) Obtains a water quality sample analysis from a certified lab indicating the presence of nitrate at a concentration at or above 10.0 mg/L; or

(c) Is aware of circumstances that pose a threat of acute contamination, such as a flood event.

(2) A purveyor of a Group B system required to monitor water quality under WAC 246-291-300 that is not required to notify consumers within twenty-four hours under subsection (1) of this section shall notify the department, health officer, and all system consumers, in writing, within thirty days of receiving the results from a certified lab if directed by the department or health

officer.

(3) If a Group B system constructed prior to January 1, 2013, has an arsenic concentration exceeding 0.010 mg/L, the purveyor shall notify consumers in writing:

(a) By March 31, 2013, if the sample analysis result from a certified lab was obtained prior to January 1, 2013;

(b) Within thirty days of receiving a sample analysis result from a certified lab; or

(c) Within thirty days of adding a new service connection under WAC 246-291-280(3).

(4) The public notification must include the following information:

(a) A description of contamination and any known problem(s);

(b) What the purveyor is doing to resolve the problem(s);

(c) Where to get information about potential health effects;

(d) What the consumers should do to protect their health, including the use of another source of water;

(e) When the purveyor expects the problem(s) to be resolved;  
and

(f) Group B system contact information, including address, phone number, and if available, an e-mail address.

#### REPEALER

The following sections of the Washington Administrative Code are repealed:

WAC 246-291-020	Applicability.
WAC 246-291-040	Requirements for engineers.
WAC 246-291-100	Ground water source approval and protection.
WAC 246-291-110	Surface water and GWI source approval and protection.
WAC 246-291-130	Existing system approval.
WAC 246-291-230	Treatment design and operations.
WAC 246-291-240	Reliability.
WAC 246-291-260	Recordkeeping and reporting.
WAC 246-291-270	Cross-connection control.
WAC 246-291-310	General follow-up.
WAC 246-291-320	Bacteriological.
WAC 246-291-330	Inorganic chemical and physical.
WAC 246-291-340	Turbidity.
WAC 246-291-350	Other substances.

Small Business Economic Impact Statement  
Chapter 246-291 WAC, Group B Public Water Systems  
August 21, 2012

**Section 1. What is the scope of the proposed rule package**

The primary purpose of the rulemaking is to meet the objective of the preproposal statement of inquiry (CR-101), and include changes to chapter 246-291 WAC, Group B public water systems, to be consistent with legislative intent. The proposal 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 proposal, all Group B systems must comply with more stringent public notification requirements when serious public health risks exist.

The proposal also:

- Includes editorial changes so that requirements are more clear and understandable;
- Clarifies roles and authority 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 proposal represents a shift in the regulatory framework that aligns the Group B chapter with the department's ability to implement it. The scope of this proposal 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 2. Which businesses are impacted by the proposed rule package? What are their North American Industry Classification System (NAICS) codes? What are their minor cost thresholds?**

There is one NAICS business code that applies to the proposal. Because most purveyors of Group B systems do not identify themselves primarily as a Group B system, the number of systems found in the state database is a small fraction of the total number of Group B systems in Washington State.

NAICS code	NAICS code description	Total establishments	Minor cost threshold (1% of annual payroll)	Minor cost threshold (3/10% of receipts)	Number of establishments by employment-size	
					49 and fewer	50 and greater
221310	Water supply and irrigation systems	159	\$1,295	No information available	159	0

**Section 3. What is the average cost per business of the proposed rule?**

**WAC 246-291-060, Waivers**

The proposed 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 population<sup>1</sup>.

When a new or expanding Group B system cannot meet the proposed 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.

Cost: The proposed 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 \$760<sup>2</sup>.

**WAC 246-291-120, Design Report Approval**

The proposed 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.

<sup>1</sup> 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.

<sup>2</sup> Summary of data gathered from nine LHJs.

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.

Cost: Under the proposed 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 under the current rules. 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 under the current rules, but lower than a complete new Group B system approval. Under the proposed 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.<sup>3</sup>

### **WAC 246-291-125, Groundwater Source Approval**

This proposed 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. The proposed 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.

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 the proposed 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 associated with the proposed section.

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 \$8,000<sup>4</sup>.

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<sup>3</sup> Based on information from a survey of consulting engineers. See Appendix B of the preliminary significant analysis for more information.

<sup>4</sup> Costs obtained from a survey of licensed well drillers. See Appendix B of the preliminary significant analysis for a summary of responses.

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 \$20,000<sup>5</sup>. 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 (allowed under the current rules) 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 246-290 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.<sup>6</sup> 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.

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.<sup>7</sup> 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.

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<sup>5</sup> Cost estimate based on a survey of consulting engineers. See Appendix B of the preliminary significant analysis for more information.

<sup>6</sup> Based on estimates from EPA-600/2-79-162a, August 1999

<sup>7</sup> Costs obtained from a survey of licensed well drillers. See Appendix B of the preliminary significant analysis for a summary of responses.

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

The proposed 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.

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 on 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.<sup>8</sup>

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

The proposed 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.

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 proposed 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**

The proposed 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). The proposed section also makes significant changes to the water quality requirements for only new or expanding Group B systems. The proposal:

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 for new or expanding systems;
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.

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<sup>8</sup> Based on an estimate of up to three hours of attorney time plus document production costs.

Cost: A purveyor of a new or expanding Group B system could incur additional costs from the proposed 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, develop a one or two connection system without treatment or water quality monitoring, or develop a Group A system with treatment, operations and water quality monitoring as required under chapter 246-290 WAC.

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.

A purveyor of a new or expanding Group B system could incur additional costs from the proposed 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 \$20,000<sup>9</sup>.

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.<sup>10</sup>

### **WAC 246-291-200, Design standards**

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

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<sup>9</sup> 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 of the preliminary significant analysis for more information.

<sup>10</sup> Cost estimate based on a survey of consulting engineers. See Appendix B of the preliminary significant analysis for more information.

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

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.<sup>9</sup>

This proposed 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 the proposal.

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

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

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

Cost: To meet the requirements of the proposed 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 \$400 to \$500.<sup>11</sup>

### **WAC 246-291-360, Public Notification**

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

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<sup>11</sup> 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 of the preliminary significant analysis for more information.

- Notify consumers served by the systems and provide information within 30 days if they are required to monitor for water quality under WAC 246-291-300;
- Notify consumers 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.

Cost: In general, the proposed 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 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).

**Section 4. Does the rule impose more than minor costs on impacted businesses?**

Does the average cost per business exceed both of the minor cost thresholds? (Yes or No)

Yes. The compliance cost is expected to exceed the annual payroll minor cost threshold for some businesses with new or expanding systems.

**Section 5. Does the rule have a disproportionate impact on small businesses?**

Yes. The rule may have a disproportionate impact on some small businesses.

**Section 6. Did we make an effort to reduce the impact of the rule?**

**A. Did we reduce, modify, or eliminate substantive regulatory requirements? Yes.**

The proposal eliminates ongoing monitoring requirements for more than 13,000 Group B systems. The proposal retains authority for the department to require monitoring for instances when it is necessary to protect public health and safety.

**B. Did we simplify, reduce, or eliminate record keeping and reporting requirements? Yes.**

The proposal eliminates recordkeeping and reporting requirements. If monitoring is conducted, under either department direction or their own volition, purveyors must provide results to system consumers and the department.

**C. Did we reduce the frequency of inspections? Yes.**

All routine inspections are eliminated under the proposal.

**D. Did we delay compliance timetables? No.**

**E. Did we reduce or modify fine schedules for noncompliance? Yes.**

The proposal modifies enforcement provisions to reference only statutory obligations.

**F. Did we create or implement any other mitigation techniques? No.**

**G. If you answered “No” for the previous six questions, please explain why it is not “legal or feasible” to implement any of these mitigation techniques.**

Not applicable.

**Section 7. Did we involve small businesses in the rule development process?**

Department staff met with a representative from the Association of Washington Business, and solicited comments on behalf of that organization, which represents both small and large business interests. The department held four public workshops and solicited input from small business and the public at large, and also met with various stakeholder groups to get feedback on the rule:

- Association of Realtors
- Association of Counties
- Building Industry Association of Washington
- Drilling and Groundwater Association
- Plumbing and Pipefitters Union
- Public Utility District Association
- Water Supply Advisory Committee
- Washington Water Utility Council

**Section 8. Will businesses have to hire or fire any employees because of the requirements in the rule?**

There will not be any jobs created or lost as a result of the proposed rules.

# **Preliminary Significant Analysis**

## **Chapter 246-291 WAC Group B Public Water Systems**

**August 21, 2012**

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- Section 1: Introduction
- Section 2: What is the scope of the rule?
- Section 3: What are the general goals and specific objectives of the proposed 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 proposed 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)<sup>1</sup>, Group B public water systems (Group B systems)<sup>2</sup> or private water sources<sup>3</sup>. 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 proposal pertains to Group B systems.

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.

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

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<sup>1</sup> 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.

<sup>2</sup> 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.

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

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 proposal 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.

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## 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 proposal modifies the Group B regulatory program to protect public health by establishing more rigorous design and construction requirements for new and expanding systems. The proposal defines an expanding system as a system increasing the number of approved service connections.

At the same time, the proposal 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 proposal 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 proposal, all Group B systems must comply with more stringent public notification requirements when serious public health risks exist.

The proposal 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 proposal 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.

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### **Section 3: What are the general goals and specific objectives of the proposed 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.”*

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## **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 proposal 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 proposal 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.

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

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

Based on the evaluation, the proposed 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**

<b>Sections Determined Non-Significant</b>	<b>Description of Proposed Changes</b>	<b>Rationale for Determination of Non-Significance</b>
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.
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.	Proposed changes align with existing Department of Agriculture rules regulating ice manufacturing, WAC 16-165-130.
WAC 246-291-050 Enforcement	References statutory enforcement authorities.	Proposed changes clarify enforcement intent by referencing underlying statutory authorities.
WAC 246-291-090 Public Water System Coordination Act and satellite management	This proposed new section is comprised of existing requirements previously in Section 140.	Proposed changes in this section are editorial and clarifying and do not change the underlying existing requirements.
WAC 246-291-205	Makes editorial changes and	Proposed changes in this section

Sections Determined Non-Significant	Description of Proposed Changes	Rationale for Determination of Non-Significance
Drinking water materials and additives	references current standards that exist in chapter 246-290 WAC.	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.	Proposed 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 proposed 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 proposal repeals WAC 246-291-020, creates a new section, WAC 246-291-005. The new section retains some of the existing standards and proposes 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.

The proposed 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.

The proposed 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. The proposed 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.

The proposed 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;
- 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 proposed 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 the proposed 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.<sup>4</sup> 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.

The proposed 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 proposed 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**

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

The proposed 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 proposal 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**

The proposed 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 population<sup>5</sup>.

When a new or expanding Group B system cannot meet the proposed 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. The proposed 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 report<sup>6</sup>. The report identified a number of “unsafe

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<sup>5</sup> 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.

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

conditions” that could be addressed through the waiver process required under the proposed 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: The proposed 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 \$760<sup>7</sup>.

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

The proposal 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.

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

The proposal 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 proposed 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 proposal 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 program<sup>8</sup>. The actual cost depends on how

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<sup>7</sup> Summary of data gathered from nine LHJs.

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

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**

The proposed 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.

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

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

The proposed 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 proposed 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.<sup>8</sup>
- Cost of hiring an engineer to complete a design report for system changes, and for the department to review: \$500-\$4,000.<sup>8</sup>

This proposed 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**

The proposed 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: The proposed section creates a single process for the department to review Group B system designs whether the submittal is for a new or expanding system. The proposed 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 the proposed 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 the proposed 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.<sup>9</sup>

## **WAC 246-291-125, Groundwater Source Approval**

This proposed 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. The proposed 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.

The proposed 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. The proposed requirement that new or expanding Group B systems use a drilled well significantly

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

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. The proposed section increases public health protection by eliminating the use of dug wells for Group B systems.

The proposed 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 the proposed 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 associated with the proposed section.

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 \$8,000<sup>10</sup>.

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 \$20,000<sup>11</sup>. 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.

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

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

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.<sup>12</sup> 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**

The proposed 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.

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 the proposed 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.<sup>13</sup> 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**

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

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

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

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 proposed change.

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

The proposal 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)**

The proposed 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.

The proposed 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. The proposed 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.<sup>14</sup>

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

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

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

- 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 the 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 proposed 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 proposed WAC 246-291-060, consumers will be notified on the property title of each service connection. The proposed 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.

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 proposed 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**

The proposed 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). The proposed section also makes significant changes to the water quality requirements for only new or expanding Group B systems. The proposed 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 proposed section also contains one non-significant proposed change. The proposed 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**

The proposed 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 proposed 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.<sup>15</sup> 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 proposed change.

## **2. Primary standard for arsenic strengthened**

The proposed 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.

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).<sup>16</sup>

Cost: A purveyor of a new or expanding Group B system could incur additional costs from the proposed 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

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<sup>15</sup> EPA 811-F-95-002m-T, October 1995.

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

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**

The proposed 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.

The proposed 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.

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 the proposal 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.**

The proposed 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, the proposed section protects public health by requiring Group B systems to use sources that do not require treatment to provide safe drinking water.

The proposed 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.

The proposed section does not affect existing Group B systems. Existing systems can continue to use department-approved water quality treatment. Under the proposed 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.**<sup>17</sup>

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 the proposed 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 \$20,000<sup>17</sup>.

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.

<sup>17</sup> 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.

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.<sup>18</sup>

## **WAC 246-291-200, Design standards**

The proposed 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.<sup>19</sup> The proposed 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. The proposed section requires purveyors to plan and design the system for that likelihood. Under the proposed 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.

The proposed 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.

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

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

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.

Benefits: The proposal 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.<sup>20</sup>

## **2. Minimum water supply design requirements**

The proposed 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 proposed minimum supply requirements. This proposed section incorporates department guidance into the design of a new or expanding system.

Benefits: The proposed 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 the proposed section provides better reliability and public health protection for consumers on Group B systems.

Cost: This proposed 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 the proposed section.

## **3. Updated Design Standard References**

The proposed 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.

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

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.

## **WAC 246-291-210, Distribution systems**

The proposed 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 proposed requirements reflect current industry practice with specific features designed to protect public health.

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

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

The proposal 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 proposal repeals WAC 246-291-240. Proposed WAC 246-291-200 incorporates the requirements of this section that relate to Group B system design. Significant changes to the

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

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.

### **WAC 246-291-250, Continuity of service**

The proposed section eliminates two requirements in the current rule for a purveyor transferring Group B system ownership. Under the proposal, 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: The proposed section will simplify the process for transferring ownership. By reducing costs, this proposed 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, the proposed section reduces costs for purveyors with a low public health risk.

Cost: There are no costs from the proposed change.

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

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

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

Benefits: This proposal 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 the proposed change.

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

The proposal 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 the proposed 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 the proposed change.

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

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

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

### **Determining that a system is adequate for existing uses**

Under the proposed 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.

The proposed 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.

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

Benefits: The proposed 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. The proposed 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. The proposed section establishes clearer requirements for existing Group B systems than the current section.

Cost: To meet the requirements of the proposed 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.<sup>22</sup>

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

The proposal repeals WAC 246-291-310. Proposed 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. Proposed 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 proposal 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). The proposed chapter

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<sup>22</sup> 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.

incorporates the sampling requirements of this section for initial source approval into WAC 246-291-170.

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

Cost: There are no costs from the proposed change.

### **WAC 246-291-340, Turbidity (repealed)**

The proposal 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 proposed 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 proposed 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.

The proposed 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. The proposed 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 the proposed change.

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

The proposal repeals this section. The authority for the department to require monitoring for other substances as a part of new system approval is incorporated into proposed 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 proposed WAC 246-291-300. Because the proposal maintains the requirements of this section, the repeal of this section does not result in a significant change.

## **WAC 246-291-360, Public Notification**

The proposed 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 proposal 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 the proposed 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, the proposed 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 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.

The proposal protects public health through more stringent design and construction standards, especially for source approval. The proposal 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 proposal 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 proposal 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 volition, system consumers must be notified of the results.

The costs of the proposal 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, the proposal 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, the proposal 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 proposed rules outweigh these costs when considered against the public health risk associated with elimination of the departments funding. The proposal 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 proposed rules are greater than the probable costs.

## **Section 6. What alternative versions of the rule did we consider? Is the proposed 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.

<b>OPTIONS CONSIDERED</b>	<b>REASON FOR NOT SELECTING</b>
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	This would create a conflict with the definition of a Group A system in chapter 70.119A RCW, the

that a Group B system is a public water system with fewer than 15 service connections, regardless of population	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.
Eliminate the requirement for Group B systems to treat for secondary contaminants.	<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>

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**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.

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**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.

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**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 proposed 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.

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**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 proposed change to the definition of a Group B system. The proposed 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 proposed 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.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