MAYOR'S OFFICE
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January 10, 2011

Rebecca Inman
P.O. Box 47600
Olympia, WA 98504-7600

RE: City of Bellingham Petition to Amend WAC 173-501-060 and WAC 173-501-070

Dear Ms. Inman:

This is a request that the above-referenced petition be handled on an emergency expedited basis, as the City is concerned that there will be a rush for building permits and attendant well applications once landowners learn of the petition to prohibit future groundwater withdrawals in the Lake Whatcom watershed. The approval of the building permits and drilling of these new wells, as outlined in the petition, will further impair the City's beneficial use of its senior water right.

Sincerely,

Dan Pike, Mayor
City of Bellingham

c: Richard Grout

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

PETITION OF THE CITY OF BELLINGHAM

TO AMEND WAC 173-501-060 and WAC 173-501-070

Introduction. Pursuant to RCW 34.05.330 and chapter 82-05 of the Washington Administrative Code, the City of Bellingham (the "City") petitions the Department of Ecology to amend the provisions of WAC 173-501-060 (Instream Resources Protection Program — Nooksack Water Resource Inventory Area (WRIA) 1 – Ground Water) and WAC 173-501-070 (Instream Resources Protection Program — Nooksack WRIA 1 – Exemptions) in order to close the Lake Whatcom watershed to new withdrawals of groundwater for consumptive use. The text of the proposed amendment to the rules is set forth at the end of this petition. The proposed closure would apply to all proposed new wells for consumptive use of groundwater, including wells exempt from applying for permits under the provisions of RCW 90.44.050.

Agency responsible for administering the rule. The Washington State Department of Ecology ("Ecology") is responsible from administering chapter 173-501 WAC.

Rationale for amendment. Under WAC 173-501-040, "Lake Whatcom and its tributaries are closed to all further consumptive appropriation." The groundwater in the Lake Whatcom watershed is in continuity with Lake Whatcom. Moreover, new groundwater withdrawals are enabling development that impairs the City's ability to exercise its senior rights to use water from Lake Whatcom for purposes of municipal supply. Thus new withdrawals of groundwater impair water rights held by the City and others in the Lake Whatcom watershed because they interfere with the ability of existing water right holders to put their rights to beneficial use. New withdrawals are contrary to the public interest because they adversely affect water quality in Lake Whatcom. Ecology may not issue a new groundwater permit for withdrawal of water that would affect a closed

stream or lake because to do so would fail the "four part test"[1] for new water rights. *Postema v. PCHB*, 142 Wn.2d 68, 95, 11 P.3d 726 (2000). Moreover, under RCW 90.44.030, existing surface water rights in Lake Whatcom must be protected against interference from new groundwater withdrawals ("to the extent that any underground water is part of or tributary to the source of any surface stream or lake, … the right of an appropriator and owner of surface water shall be superior to any subsequent right hereby authorized to be acquired in or to groundwater"). Water rights associated with withdrawals from exempt wells are exempt only from the provisions of the groundwater statute relating to permits, and are generally subject to the same requirements as other groundwater rights. RCW 90.44.050. Ecology must administer water allocation and use programs in a manner that gives full recognition to the interrelationships of surface and ground waters. RCW 90.54.020 (9). Ecology should therefore close groundwater in the Lake Whatcom basin to exempt and permitted withdrawals alike.

Factors under WAC 82-05-020(1)(c). The following paragraphs address the considerations specified in WAC 82-05-020(1)(c).

(i) The amendment is authorized.

(ii) The amendment is needed to protect Lake Whatcom, to protect existing water rights, and to serve the public interest.

(iii) The current rule conflicts with state laws relating to water rights and water resources.

(iv) There are no alternatives to the amendment that will serve the same purpose at less cost.

(v) The amendment will apply equally to public and private entities.

(vi) The amendment will serve the purposes for which chapter 173-501 WAC was adopted – "to retain perennial rivers, streams, and lakes in the Nooksack water resource inventory area with instream flows and levels necessary to provide for preservation of wildlife, fish, scenic, aesthetic, and other environmental values, and navigational values, as well as recreation and water quality.

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[1] Prior to issuing a new water rights permit Ecology must determine (1) that there is water available for appropriation, (2) the proposed use is a beneficial use, (3) the proposed use will not impair existing rights holders and (4) the withdrawal will not be detrimental to the public interest. RCW 90.03.290(1).

(vii) The amendment will not impose unreasonable costs.

(viii) The proposed amended rule is clearly and simply stated.

Proposed Rule Text. For the foregoing reasons, the City of Bellingham respectfully requests that Ecology amend WAC 173-501-060 and WAC 173-501-070 by making the additions and deletions reflected in the text that is underlined and stricken out below.

Proposed revisions to WAC 173-501-060 (ground water):

(1) If department investigations determine that there is significant hydraulic continuity between surface water and the proposed ground water source, any water right permit or certificate issued shall be subject to the same conditions as affected surface waters. If department investigations determine that withdrawal of ground water from the source aquifers would not interfere with stream flow during the period of stream closure or with maintenance of minimum instream flows, then applications to appropriate public ground waters may be approved.

(2) Notwithstanding subsection (1) of this section, ground water sources in hydraulic continuity with Whatcom Creek, Lake Whatcom, and tributaries to Lake Whatcom are closed to any further appropriation for consumptive use.

Proposed revisions to WAC 173-501-070 (exemptions)

(1) Nothing in this chapter shall affect existing water rights, perfected riparian rights, federal Indian and non-Indian reserved rights, appropriative or otherwise existing on the effective date of this chapter, nor shall it affect existing rights relating to the operation of any navigation, hydroelectric, or water storage reservoir or related facilities.

(2) Single domestic, (including up to 1/2 acre lawn and garden irrigation and associated noncommercial stockwatering) shall be exempt from the provisions established in this chapter, except that Whatcom Creek ~~is~~, Lake Whatcom, tributaries to Lake Whatcom and associated ground water are closed to any further appropriation, including otherwise exempted single domestic use. For all other streams, when the cumulative impact of single domestic diversions begins to significantly affect the quantity of water available for instream uses, then any water rights issued after that time shall be issued for in-house use only, if no alternative source is available.

(3) Nonconsumptive uses which are compatible with the intent of this chapter may be approved.

Conclusion. The City will provide Ecology with documents and other information in support of this petition. The City appreciates Ecology's consideration of its petition.

EXECUTED, this 10th day of January, 2011 for the **CITY OF BELLINGHAM**:

Mayor

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

DECLARATION OF CLARE FOGELSONG IN SUPPORT OF

PETITION OF THE CITY OF BELLINGHAM

TO AMEND WAC 173-501-060 and WAC 173-501-070

I, Clare Fogelsong, hereby make the following statements under penalty of perjury:

1. I have held the position of Environmental Resources Manager for the City of Bellingham, Washington for ten years. In that position I have worked as lead staff for various projects: the Lake Whatcom watershed acquisition program; City of Bellingham water policy; municipal water supply; Olympic Pipeline explosion restoration; climate action plan implementation; salmon recovery; WRIA 1; Habitat Conservation Plan; and the City of Bellingham's compliance with Endangered Species Act. I make this declaration on my own knowledge.

2. In my work with the projects listed above, I have become familiar with patterns of development in the vicinity of Lake Whatcom. Any sort of new development will require a supply of water. In my experience, new development near the Lake typically relies on construction of new wells that tap groundwater to meet water supply needs. Absent the ability to use new groundwater wells, I believe there would be substantially less development near the Lake.

3. Unfortunately, these new wells and the development the wells make possible impair the City's beneficial use of its water rights. We use two Lake Whatcom rights in providing a supply of municipal water to our customers: we withdraw water from the Lake under our water right claim, which dates to 1883; and we store water in the Lake for municipal supply under Certificate No. 2020, which has a 1937 priority date. As described in more detail below, new development relying on groundwater has made it increasingly difficult

for us to exercise our rights for municipal supply purposes by seriously degrading the quality of the water.

4. I believe that the Department of Ecology ("Ecology") should close ground water sources in hydraulic continuity with Whatcom Creek, Lake Whatcom, and tributaries to Lake Whatcom to any further appropriation for consumptive use because further appropriations from these ground water sources impair the City's beneficial use of the water rights it holds in the Lake to provide municipal supply to our area. Moreover, further appropriations from these ground water sources are contrary to the public interest and may jeopardize the City's ability to comply with its storm water permit.

5. Ecology is in the process of preparing a Total Maximum Daily Load ("TMDL") report for Lake Whatcom to address two pollutants that are present in the Lake -- phosphorus and bacteria. More information about the TMDL is on Ecology's Lake Whatcom TMDL status page: http://www.ecy.wa.gov/programs/wq/tmdl/LkWhatcom/LkWhatcomTMDL.html.

6. In connection with preparing the TMDL, Ecology has issued a document titled, "Lake Whatcom Watershed Total Phosphorus and Bacteria Total Maximum Daily Loads: Water Quality Study Findings," ("Findings") dated November 2008. I am familiar with the Findings. Excerpts from the Findings, marked to show relevant text, are included as Exhibit 1 to my Declaration. The complete documents is available at Ecology's website: http://www.ecy.wa.gov/pubs/0803024.pdf

7. In the Findings, Ecology recognizes the direct linkage between development and degradation of water quality in the Lake: "*There are many ways that the lake is vulnerable to additional degradation. The most obvious is from population growth and ongoing development in the watershed.*" Findings at p. 28.

8. In the Findings, Ecology also recognizes how important Lake Whatcom is to the water supply for members of the public in our area: "*Lake Whatcom is a critical water supply*

source for approximately 86,000 Whatcom County residents, including those in the City of Bellingham and in the Lake Whatcom Water and Sewer District (formerly Water District No. 10). The city uses its water supply for industrial and commercial uses. The number of direct withdrawals by single family residences is not known but is estimated to be between 150 and 400." Findings at p. 29.

9. The Findings also reflect that groundwater is in hydraulic continuity with the Lake. This is always a concern for potential impacts on flows and availability of water. At Lake Whatcom, the Findings recognize that hydraulic continuity also leads to adverse impacts on water quality: "*The principal source of groundwater inflows are the unconsolidated sediments in the valleys, with a minor fraction entering from bedrock areas (Pitz, 2005).*" Findings, p. 35. There is also a reference on page 36 to phosphorous loads entering the lake from the soils in the lake shore. Thus there is continuity between the Lake and nearby sources of groundwater, and the groundwater is part of the system that transports pollutants into the Lake.

10. The degradation of water quality caused by well-enabled growth has hampered our ability to exercise our rights for municipal supply purposes. When the City provides water for municipal purposes, it has to meet a number of water quality standards that are established by the federal State Drinking Water Act and related state laws to protect human health. We have to be sure that the water does not contain a variety of substances in excess of specified thresholds. As degradation increases, it becomes more and more difficult and costly for the City to meet these standards.

I declare under penalty of perjury under the laws of the state of Washington that the foregoing is true and correct.

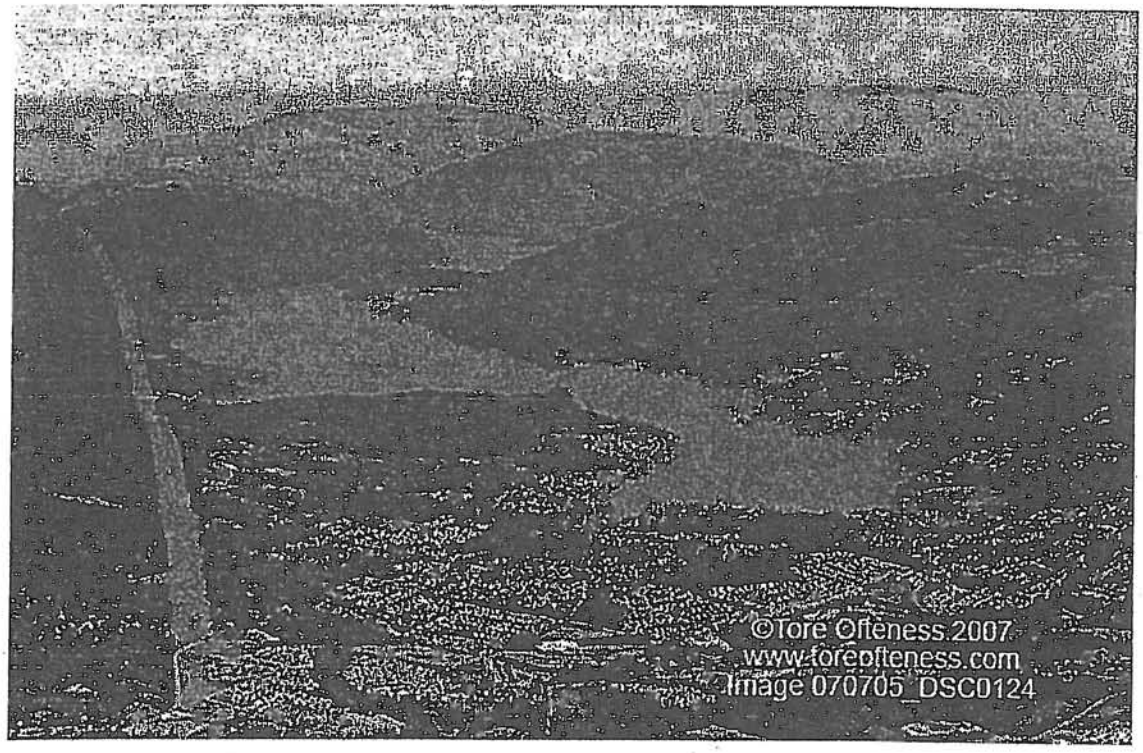
Bellingham, WA, 1-4-2011
(Date and Place)

Clare Fogelsong
Clare Fogelsong

Excerpt

Lake Whatcom Watershed
Total Phosphorus and Bacteria
Total Maximum Daily Loads

Volume 1. Water Quality Study Findings



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DEPARTMENT OF
ECOLOGY
State of Washington

There are many ways that the lake is vulnerable to additional degradation. The most obvious is from population growth and ongoing development in the watershed. Less obvious is that because of the lake's long mean water residence time, phosphorus entering the lake may not manifest an immediate water quality impact, but will continue to influence it for several years. The observed acceleration in algae growth and declining dissolved oxygen is associated with the cumulative and increasing amounts of phosphorus entering the lake in recent years. Sampling over many years has consistently shown that the highest concentrations of phosphorus come from the most developed areas (Matthews et al., 1996-2008)

Phosphorus leaves the lake through withdrawals of water, outflow to Whatcom Creek, and deposition in sediments. The most serious but least obvious source of vulnerability to additional degradation is that, as the anoxia of the hypolimnion increases in duration and severity, phosphorus lost to the sediments can reenter the water column. Under low oxygen conditions, phosphorus becomes more soluble, and the export of phosphorus from the lake to the sediments is reduced or even reversed, causing the sediments to be a source of phosphorus. The result is a positive feedback loop that may take many years to stabilize. Reductions in loading from runoff may not meet the target dissolved oxygen levels for years because of the internal loading from the sediments.

The decline in water quality associated with increases in pollutants as documented by the Institute of Watershed Studies (Matthews et al., 2003-2007), highlights the importance of initiating control measures to begin reversing this trend.

Water Quality Standards and Beneficial Uses

Lake Whatcom is a critical water supply source for approximately 86,000 Whatcom County residents, including those in the City of Bellingham and in the Lake Whatcom Water and Sewer District (formerly Water District No. 10). The city uses its water supply for industrial and commercial uses. The number of direct withdrawals by single family residences is not known but is estimated to be between 150 and 400 (Buroker, 2007).

Lake Whatcom provides habitat to both warm-water and cold-water fish. The lake provides the brood stock for the Brannian Creek Hatchery, which is the state's source of kokanee for fish planting throughout the state. The bass fishing tournaments in Lake Whatcom attract many fishers from throughout the state.

The lake also provides source water for the Washington Department of Fish and Wildlife's Whatcom Falls Fish Hatchery, which raises cutthroat and rainbow trout for stocking lakes and ponds throughout northwest Washington. Lake Whatcom also provides flow for water quality purposes in Whatcom Creek during low-flow periods.

Lake Whatcom is a regional recreation destination for swimming and boating. Many homes have docks with water craft which residents use throughout the year.

Dissolved oxygen

Aquatic organisms are very sensitive to reductions in the level of dissolved oxygen in the water. The health of fish and other aquatic species depends on maintaining an adequate supply of oxygen dissolved in the water. Growth rates, swimming ability, susceptibility to disease, and the relative ability to endure other environmental stressors and pollutants are all affected by dissolved oxygen levels. While direct mortality due to inadequate dissolved oxygen can occur, the state's criteria are designed to maintain conditions that support healthy populations of fish and other aquatic life.

Oxygen levels can fluctuate over the day and night in response to changes in climatic conditions as well as the respiratory requirements of aquatic plants and algae. In a lake, oxygen levels can also vary seasonally as the deeper, cooler layer of the lake (the hypolimnion) is isolated from sources of oxygen in warmer surface waters (the epilimnion) in the warm months, and respiration of aquatic life in the hypolimnion consumes the supply of oxygen. Typically the hypolimnion develops in the spring, maintains its maximum thickness during the summer, and erodes from the top downward in the fall, until the lake is again fully mixed in the winter.

Of particular interest in this TMDL is the connection between nutrients and the decline of oxygen in the hypolimnion. Phosphorus is the limiting nutrient for most of the lake and most of the year (Matthews et al., 2002a). Excess phosphorus promotes additional algae growth. Algae settling into the hypolimnion and decaying increases the consumption of oxygen in the

man-made drainage systems (Delahunt, 1990). The seven perennial tributaries flowing into Lake Whatcom are Anderson, Smith, Olsen, Carpenter, Austin, Brannian, and Fir Creeks. The principal source of groundwater inflows are the unconsolidated sediments in the valleys, with a minor fraction entering from bedrock areas (Pitz, 2005).

The City of Bellingham diverts water from the Middle Fork of the Nooksack River to Lake Whatcom via Mirror Lake and Anderson Creek at the south end of Basin 3 (Figure 1). The diversion operates during the fall and winter when the lake is below 312 feet above mean sea level, and continuously during the spring and summer when sufficient water is available in the Middle Fork. During the summer, it is often the major water source for the lake. Recently, the city has voluntarily decreased its diversion during low-flow periods to help maintain instream flows in the Middle Fork of the Nooksack River and protect salmon. Instream flows are being re-examined by the city, tribes, and other parties as agreed to in the WRIA 1 Watershed Management Plan. Future operation and management of the diversion is a core element of these negotiations.

The natural outlet of Lake Whatcom, Whatcom Creek, is located at the northwest end of Basin 1 and drains to Bellingham Bay. The City of Bellingham regulates outlet flow and lake level by a manually controlled dam, which the city constructed in 1938 (URS, 1985). The city operates the dam to provide additional water storage and prevent flooding. Flow into Whatcom Creek can be reduced if water supply is low. The natural flow to Whatcom Creek is controlled by a natural sill at 308.8 feet (COB, 2007).

The Washington Department of Fish and Wildlife withdraws water for the Whatcom Falls Hatchery from the lake in Basin 1. The City of Bellingham's intake is about 12 meters deep and is located about 366 meters offshore in Basin 2. The Lake Whatcom Water and Sewer District intake is located in a protected cove of Basin 3 at a depth of 21 meters.

Land uses in Lake Whatcom are predominantly urban, rural residential, and forestry (Figure 4). Only a very small fraction of the watershed is used for agriculture, mostly for grazing. The general trend is that the northwest end of the lake is most urban, the southeast end and northeast shore are the least developed, and the southwest shore is a mixture for forest and pockets of residential development.

The dominant land-use dynamic of the watershed is growth in the city of Bellingham and development of the unincorporated areas into residential use. The existing population within the watershed is about 13,000 based on the 2000 census. Current zoning will allow an increase of up to about 28,000 residents within the watershed (Hisch Consulting Services, 1998).

Pollutant sources

Key watershed processes important to this TMDL study are the deposition, release, and transport of phosphorus in the watershed. Some processes that can be hypothesized for this watershed from past studies, field observations, and research in other watersheds include:

- Deposition of phosphorus in domestic livestock and pet manure, both on the land and directly into storm conveyances and streams.
- Use of phosphorus-based fertilizers on lawns, gardens, landscaping, and commercial agriculture and silviculture.
- Release of phosphorus from on-site sewage disposal (septic systems) both from surfacing wastewater and from percolation of wastewater into shallow interflow or deep groundwater soil layers. Phosphorus in wastewater can enter wastewater both from human body waste and from phosphorus detergents and other household products.
- Transport of phosphorus adsorbed to soil particles by erosion. Erosion can occur from the heavy rainfall on the land surface, especially from dirt roads, construction sites, and other areas cleared of vegetation, and from streambank erosion. Sediment in stormwater conveyances and streams can also be deposited and resuspended by variation in flow.
- Aerial deposition on a regional scale of phosphorus adsorbed to dust particles.

Phosphorus can be transported from the land surface by direct wash-off of phosphorus-bearing materials or percolation into the soil. Once in the soil, phosphorus can be adsorbed onto soil particles or enter shallow interflow or deeper groundwater in dissolved form. Soil particles can be eroded into a stream, and interflow and groundwater may also carry its phosphorus load to a stream. All these processes can also occur directly into the lake from the lake shore.

In a forest, significant quantities of water are retained in the canopy. When the rainfall reaches the forest floor, the organic matter in the top layers of soil can store up to a foot of rainfall. This storage of rainfall during a storm allows water to continue to infiltrate into the soil columns even after the storm has passed. Because those storage functions are lost when the forest is removed and because the soil covered by impervious surface is no longer available for infiltration, we see dramatic changes as the land is developed. It has long been noted that the highest concentrations of phosphorus come from the most developed drainages in the Lake Whatcom watershed (Matthews et al., 1996 – 2007). For that reason, this TMDL focuses on controlling the phosphorus from the developed areas.

One direct source of phosphorus to the lake that has been suggested is gas-power boats. Any impact on the lake from boats would be through exhaust gasses. The lake is not currently listed for primary gasoline constituents or combustion by-products. Phosphorus in unleaded gasoline is limited to 0.005 grams per gallon or approximately 0.002 g/kg, making it a very minor contributor. Because both Whatcom County and the City of Bellingham have prohibited two-stroke engines using carburetors, and because of the short duration of boating season on Lake Whatcom, it is believed the contribution of phosphorus from boating activity is not significant.

Processes that affect phosphorus and bacteria are similar. Fecal coliform bacteria is deposited to the land surface or directly to water from many of the same sources, including livestock, pets, and septic systems.