



PRESIDENT'S NOTES

Jamie Morin, WA-AWRA Section President

Top Ten Reasons to attend the 2009 AWRA National Conference:

Reason #10: Buy Local National AWRA's Annual Conference is hosted by a different Section every year. This year, the Washington Section is proudly hosting the event. That means Washington Section members can attend without the added travel costs, great news in this economy!

Reason #9: Legendary Coffee Breaks Piping hot coffee, tea, & beverages plus yummy snacks to keep you energized for the also legendary networking opportunities open to you during the breaks. Visit with exhibitors, view scientific posters, make contact with presenters, check out job opps on the Jobs Board, or check your email in the AWRA Conversation Corner.

Reason #8: Not-to-be-Missed Field Trips Come a day early and stay to the bitter end to take full advantage of some remarkable water resources sites in and around our great city. Already seen it all? Join members from the Washington, Oregon, Idaho and Montana Sections for a special northwest only networking event on Sunday.

Reason #7: Multidisciplinarity If your work involves water resources in any way, there's something here for you.

Reason #6: Street Cred Reasonably priced, pre-conference workshops provide you with an opportunity to improve your technical training, get new skills, or even get certified: Certified Professional in Stormwater Quality Exam Review Course and Exam, Methods for Estimating Groundwater Recharge, Conflict Resolution Skills for Water Resource Professionals. CEU's are available, too!

Reason #5: Specially Trained, Approachable Exhibitors Okay, we're making up the part about them being specially trained, but we're not making up the approachable part. Exhibitors have much to offer in the way of information, products, and services of practical and immediate use to water resources professionals.

Reason #4: Meet new people to add to your Social Networks. Social networking-- Twitter, LinkedIn, Facebook, MySpace, blogs -- is great, but good, old fashioned, face-to-face networking is still the best. "Live chat" in person with your professional colleagues and friends at the Opening Reception; the Tuesday nite event at the Seattle Aquarium; before, in-between, and after the sessions; and if you're a student, at the speed networking event at Student Career Night.

Reason #3: Students Rule! To encourage student attendance, registration for the conference is deeply discounted for student registrants. On the first day of the conference students will learn how to make the most of the experience at the Student Orientation. Throughout the conference, student presenters will be participating in a Student Presenter Competition. And, the AWRA Student Career Night introduces students to practicing water resources professionals in a variety of fields and sectors in a fun and engaging way. If you are planning your career in water resources, you should be here.

Reason #2: "All Men Are Equal Before Fish." We have no idea what Herbert Hoover was talking about when he said this, but if you like to look at fish, join us Tuesday nite for some fun at the Seattle Aquarium. Or, if you just like the smell of fish, get up early Tuesday morning and join us for a quick 5K Fun Run loop down to the Seattle waterfront and back before the sessions start.

Reason #1: A Scientific Program as Rich and Diverse as a Healthy Ecosystem The AWRA Annual Conference is like a healthy reef, wetland, or rainforest ecosystem with its multitudes of species linked together, existing in harmony. A conference that offers 75 scientific sessions featuring hundreds of oral presentations, 14 technical tracks, 16 panel discussions, and 40 poster presentations on every topic of interest to water resources professionals is a rare and wondrous thing. Support the ecosystem of your profession & attend!

Register Online at www.AWRA.org. Register by Oct 19 for the best rates.

[A color version of the newsletter may be viewed at:](#)

www.wa-awra.org

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International, National, Local

The 2009 AWRA Water Resources Conference Brings Water Resource Issues Close to Home

Get information on international and national water resource issues without going far from home! The AWRA Annual Water Resources Conference in Seattle will feature over 400 presentations on water resource challenges from around the nation and even the world! Hear how other regions are tackling our shared water resources problems, such as:

- Middle East North Africa Water Governance Benchmark
- Impressions of the Fifth World Water Forum from Istanbul
- Trans-boundary Integrated Water Resources Management
- Collaboration between Nations
- Developing Nutrient Cap Load Allocations for Chesapeake Bay
- Climate Change impacts on Water Resources in Ontario
- Managing the Lower Colorado River Basin
- Impact of Land Use Changes on Water Quality in Georgia
- Water Quality Monitoring in Northwest Arkansas

Interested more in Northwest water issues? The Conference will feature hundreds of presentations on projects in Washington and Oregon. This will be a great opportunity to connect with colleagues. Hear, explore and discuss how your neighbors are tackling our local water resource problems:

- Development programs to reduce toxics in Oregon
- Restoration of Puget Sound, the role of freshwater science
- Columbia River Treaty: From here to where?

- Evolving Guidelines for more habitat friendly floodplains in Puget Sound
- The Tualatin Basin Water Supply Project, Oregon
- Integrated approach to Resolving Water Use Conflicts in Yakima Basin
- Evaluating Green Infrastructure Options for Seattle CSO Control
- Assessment of Effects of Endocrine Disruptors in Puget Sound

This conference will give us all a chance to hear, discuss, and explore new knowledge and techniques for our work. There is no better way to refresh your work and connect with other professionals locally and nationally. There are also field trips, workshops and evening social events that will provide more opportunities to network with your colleagues.

Don't miss this opportunity to attend a national conference close to home!

Please join us in November for what promises to be the best selection of presenters on the most current water resource research, policy, and management topics.

For the complete information and program schedule, click here:

<http://www.awra.org/meetings/Seattle2009/>

(For a listing of presentations click on the "Program Info" button at the top of the page)

Register by Oct. 19TH for early-registration discount.

Polish Up Your Elevator Speech and Try Your Hand at Career Speed Networking!

The Student Career Night returns to the AWRA conference this year with an added twist: a Speed Networking event, sponsored by Bioengineering! As an AWRA member, we are encouraging your participation in this exciting opportunity to quickly interact and network with a variety of AWRA student members!

Following a panel discussion on professional success stories, students and professional AWRA members will come together for an hour of Speed Networking. By the end of the hour, students and professional members will have met 20-30 new faces and will walk away with a portfolio of new contacts. Professional members can act as mentors and get a peek at new talent entering the work force. Students can gain career guidance, insights and advice.

Please join us November 11, 2009 from 5:30-7:30 in supporting the next generation of AWRA professionals. Contact Mark Raleigh at mraleigh1@u.washington.edu to sign up. Send your name, profession, specialization(s), and current city of residence.

Exempt Well Controversy Boils Over

Joe Mentor¹, Mentor Law Group, PLLC

Controversy over the use of so-called “exempt wells” has been simmering for years. The 1945 Groundwater Code allowed for an exemption from state permitting requirements for certain categories of small groundwater withdrawals. Critics have sought to limit the exemption. Proponents counter that exempt wells often are the only way to provide water in rural areas.

The controversy finally boiled over recently when the Washington Department of Ecology declared a moratorium on the development of new exempt wells in upper Kittitas County. The moratorium came after a series of “emergency rules” adopted by Ecology to restrict – but not to prohibit – the use of new exempt wells. Finally, after lengthy negotiations with Kittitas County proved unsuccessful, Ecology adopted an emergency to close the upper Kittitas Basin to new exempt wells, unless they were mitigated by equivalent transfers of water rights to the state trust water program. On September 21, 2009, the Washington Attorney General’s Office issued a formal opinion affirming Ecology’s authority to close the basin.

Background: Washington’s Exempt Well Statute

Washington is one of 18 western states that follow the Prior Appropriations doctrine as the legal framework for regulation and use of water resources. Under the Prior Appropriations doctrine, the first claimant in time has priority over other claimants, provided the senior claimant puts the water to beneficial use. Senior rights also are protected from impairment by later claimants. Water rights that are not put to beneficial use for an extended period are subject to forfeiture.

The Water Code of 1917 declared that, subject to prior existing rights, all surface waters are public resources. The 1917 Act established a permit system as the exclusive method to appropriate surface water.² The Groundwater Code of 1945 extended the permit system established in 1917 to subsurface or “groundwater” water resources.³ Following enactment of the 1945 Groundwater Code, a water right, whether in the form of a permit, certificate or claim, is required for all uses of surface water and groundwater, with the exception of groundwater for the following purposes:

- stockwatering;
- watering a lawn or noncommercial garden not exceeding one-half acre;
- single or group domestic use in an amount not exceeding 5,000 gallons per day;

- residential use in clustered residential developments in Whitman County in an amount not exceeding 1,200 gallons per day, as provided in RCW 90.44.052; or

- industrial purposes in an amount not exceeding 5,000 gallons per day.⁴

Groundwater wells that fall under any of these categories are commonly known as “exempt wells” because they are exempt from the Groundwater Code’s requirement that water users to obtain state permits to use groundwater.

Not much was heard about the groundwater permit exemption during the first 50 years of its existence. Then, in 1997, the Office of then Attorney General Christine Gregoire issued a formal opinion suggesting that the exemption could not be expanded by using multiple exempt wells for a single project. This opinion set the stage for a much-anticipated test case over the use of multiple exempt wells for domestic purposes. Five years later, the Washington State Supreme Court in 2002 determined that a project or development is eligible for only a single 5,000 gallon per day exemption from the water right requirement of RCW 90.44.050.5 In *Campbell & Gwinn*, Supreme Court ruled that a development or project is limited to only a single 5,000 gallon per day exemption regardless of how many wells are used. The Supreme Court based its decision both on statutory interpretation of RCW 90.44.050, as well as an analysis of how the exempt well statute fit into the State’s general scheme of water right allocation. The question as to what constitutes a “single project” for purposes of the exempt well statute has plagued Ecology and County officials ever since the Supreme Court handed down its *Campbell & Gwinn* decision.

The Battle in Kittitas County

Surface water rights in the Yakima Basin have been overappropriated since May 10, 1905, when the U.S. Bureau of Reclamation, acting pursuant to state law, withdrew all previously unappropriated water from further appropriation. Ecology has not issued a new groundwater permit in the Yakima Basin since 1993, and in fact in 1999 signed a Memorandum of Agreement with the Bureau of Reclamation and the Yakama Indian Nation to impose a moratorium on issuing new groundwater permits.⁶ In 2007, a non-profit advocacy group called Aqua Permanente, joined by the Center for Environmental Law and Policy, petitioned Ecology under the State Administrative Procedures Act to close the upper Kittitas County to new exempt groundwater withdrawals as well. Ecology ultimately rejected the Petition for Rulemaking, and

¹ Joe Mentor practices water law in Seattle with the Mentor Law Group, PLLC. Joe is a former AWRA State Chapter President.

² Chapter 90.03 RCW.

³ Chapter 90.44 RCW.

⁴ RCW 90.44.050.

⁵ *Ecology v. Campbell & Gwinn, LLC*, 146 Wn.2d 1, 43 P.3d 4 (2002).

⁶ *Campbell & Gwinn, LLC*, 146 Wn.2d at 6.

instead began negotiations with Kittitas County to limit the use of exempt wells in certain circumstances. Ecology and Kittitas County entered into a Memorandum of Understanding describing a series of interim measures, and adopted a temporary, emergency rule to implement the Memorandum of Understanding.⁷

An administrative rule adopted on an emergency basis is valid only for 120 days, and expires at the end of the 120-day period. Consequently, Ecology adopted a second emergency rule when the first emergency rule expired.⁸ Ecology adopted a third version of the emergency rule on March 13, 2009, shortly after the second emergency rule expired.⁹ All of the first three emergency rules followed the agreement between Ecology and Kittitas County as outlined in the Memorandum of Understanding. On July 16, 2009, Ecology adopted a fourth version of the emergency rule. The fourth version, however, was dramatically different from the previous three versions in that it closed the upper Kittitas basin to all new groundwater withdrawals. The only exception contained in the new emergency rule was for "water budget neutral projects" using water right transfers into the state trust water program "to offset the consumptive use associated with the proposed new use of groundwater."¹⁰ On July 31, 2009, Ecology adopted a fifth version of the rule that maintained the provisions of the fourth version, but added definitions and a clarification regarding the applicability of the rule.¹¹

The Attorney General Joins the Fray

In the midst of their negotiations over the emergency rule both Ecology and Kittitas County asked the Attorney General Rob McKenna for a formal opinion to interpret the exempt well statute. In May 2009 Prosecuting Attorney Greg Zempel made a formal request to the Attorney General's office asking for an opinion about Ecology's authority to adopt a rule to reduce the quantity of water available from new exempt wells. Shortly thereafter Ecology Director Jay Manning also filed a request for an Attorney General's Opinion, giving his own version of events and questions about legal interpretation of the statute.

On September 21, 2009, the Attorney General's Office issued its formal opinion interpreting the exempt well statute.¹² The Attorney General concluded that the use of water for watering lawns and noncommercial gardens is not included within the 5,000 gallon-per-day limit for single or group domestic uses. In other words, the individual exemptions contained in the statute are additive, and

cannot be subsumed within each other if a well is used for multiple purposes. Next, the Attorney General concluded that Ecology lacks the authority to impose lower or different limits on exempt withdrawals by "partially withdrawing" the waters of the applicable area from additional appropriations. Nevertheless, the Attorney General concluded that Ecology's authority to withdraw water from new appropriation applies to both permitted and permit-exempt uses. This means that the withdrawal of water from further appropriation has the effect of precluding new exempt withdrawals, except that new appropriations that are mitigated for any consumptive use in equal or greater amount by existing trust water rights may be authorized.

The Attorney General's Opinion offered something for both sides, and both Ecology and Kittitas County claimed vindication. The Opinion affirmed the opinion of Ecology and many observers (including this writer) that exempt wells create appropriate water rights, which are exempt from permitting but not from the Prior Appropriations doctrine. The Opinion also confirmed Kittitas County's view that neither the County nor the State can impose new use restrictions on exempt wells. The bottom line is the Attorney General's opinion that the State can close a basin to future appropriations, including those from exempt wells, and it can close a basin conditionally by allowing only "water budget neutral" or mitigated permits.

The Future for Exempt Wells

The controversy over exempt wells in Kittitas County is a harbinger of the future in other parts of Washington. Increasingly, the development of new exempt wells will come into conflict with other senior water rights, including, and perhaps especially, instream flow water rights. Nevertheless, exempt wells will remain a critical component of the State's water supply strategy in rural areas. The Growth Management Act obligates counties to plan for and accommodate projected population growth.¹³ Exempt wells will be needed as long as counties allocate a portion of their total projected growth into rural areas.

Conclusion

The exempt well statute, written in 1945, consists of just over 200 words packed into one sentence but divided by 10 commas. Notwithstanding creative arguments on both sides, the statute has been interpreted literally by the courts and the Office of the Attorney General, both of which consistently see the commas in the statute as erecting impenetrable barriers to more creative interpretations. As a result, the volume limitations of the statute apply only to some purposes and not to others, and the exemptions are additive as to purpose. Nevertheless, an individual cannot use the exemption for the same purpose multiple times. Thus the basic framework is clear, even though details continue to evolve.

7 Codified at Chapter 173-539A WAC. See Wash. State Register 08-15-020 (July 8, 2008).

8 Wash. State Register 08-23-012 (Nov. 6, 2008).

9 Wash. State Register 09-07-068 (March 13, 2009).

10 WAC 172-539A-050(2).

11 Wash. State Register 09-16-075 (July 31, 2009).

12 The Attorney General's Opinion is available online at http://www.ecy.wa.gov/programs/wr/cro/images/pdfs/2009_n06_aqo_ZempleManningOpinion.pdf

13 RCW 36.70A.020, .030, .110.

Except for the permit requirement, exempt wells are treated as other appropriative water rights, and establish time-based priorities. Consequently, as with other appropriate water rights, they are subject to interruption in times of shortage, and cannot be used in a manner that impairs the rights of senior water right holders. Ecology may close a water body to further appropriations. A general closure applies to exempt well in the same manner as it does to all other appropriative water rights.

The recent Attorney General's Opinion sets the stage for Ecology to adopt a permanent rule for new water withdrawals in Kittitas County. The

permanent rule probably will continue the moratorium, subject only to an exception for "water budget neutral" withdrawals. It is too soon to tell how this fight will end or if it will without extensive litigation. Private property owners may file a legal challenge Ecology's moratorium. In the meantime, however, senior water users such as Suncadia LLC are working with Ecology and Kittitas County to develop a mitigation water banking program for Kittitas County. The mitigation program should be operational by the end of the year, and will offer a way to balance development needs with the rights of senior water right holders.

The 2008-09 Water Year in Review, Possible Drought in 2010?

Kurt Unger, Washington State Department of Ecology

The onset of a drought is usually first recognized in late winter or early spring when it appears inevitable that the water year's (October 1st - September 30th) snowpack will be significantly below average. Often a drought can be recognized even earlier. Such is the case when a warm mid-winter storm removes a significant portion of snowpack or if a late winter month is both warm and dry. Both events occurred during the 2005 drought; neither occurred in 2008-09.

The 2008-09 water year was defined by a few major events. While precipitation started off average, temperatures were warmer than normal in late October and November when snowpack traditionally starts to build. As a result, the state started the water year in a hole. Temperatures cooled back to normal in early December. In late December/early January most of the state experienced record rain and snowfall. It appeared (then) that the deficit we had started with was a moot point. But then the tap turned off and little to no precipitation occurred throughout most of the state from early January through the end of February. It appeared (then) that a drought was likely. Because of this, the Department of Ecology began monitoring snowpack levels statewide.

Then the tap came back on. Post-February snowfall was normal to above normal in nearly all areas of the state with exception to the North Central Cascades and Olympics which, for a variety of reasons, were consistently left out of the different storm tracks that made their way across the state. Concurrently Washington experienced one of the coldest springs on record. This enabled the snowpack to stay up in the mountains longer than normal and caused late season precipitation that often falls as rain to instead fall as snow.

For most basins, snow water equivalent (SWE) never reached its historic average peak in late March/early April. However, because of the cold temperatures, SWE was higher than normal later in

the season. In some cases, records were set for late season snowpack. Despite that, full melt-off occurred about two weeks earlier than the historic 1971-2000 30-year average in most basins. This is actually the norm nowadays as climate change has shifted the timing of runoff about two weeks ahead of that average. What was unusual this year was that even at sites such as Paradise (5,100' elevation), which sustained well above normal snowpack levels as late as June, full melt-off still occurred approximately three weeks earlier than the 1971-2000 30-year average.

Washington then experienced one of the hottest and driest summers on record. While one cannot directly attribute any specific event or series of events to climate change, the conditions that we experienced this summer are the kind of conditions that experts have projected will likely become more common in a climate-changed future. Because of the hot and dry weather, the situations in the North Central Cascades and Olympic Peninsula continued to deteriorate and many west side creeks and streams experienced historic low flows at times. Isolated parts of the state experienced water supply issues. Some utilities, farmers and well-reliant individuals are going into the 2009-10 water year in a hole. This deficit will, of course, be exacerbated if the rains do not come as planned this fall. Furthermore, there is a real potential for a drought in 2010 as a weak El Niño developed this summer and the National Weather Service's Climate Prediction Center is forecasting that this will strengthen to moderate to severe El Niño conditions through the northern hemisphere winter 2009-2010. In Washington, El Niño winters tend to be warmer and drier than average with below normal snowpack and streamflow. Of course, the inverse is also true – we could receive normal precipitation with normal temperatures this winter and the April-June newsletter will have an article scoffing at this warning. I'm all for scoffing.

The Unsustainable Stockwater Exemption

Rachael Paschal Osborn, Center for Environmental Law & Policy

"I have one well that my great grandfather dug in 1900. If I lose it, I'm done."

- Scott Collin, Five Corners
Family Farmers Board Member
"Industrial Wells Could Leave Eastern Washington
with Dry Wells"
April 9, 2009, New York Times

The AG Opinion

In 2001, conflict over water supply for a Moxee Valley dairy boiled over into litigation. Ultimately, the Department of Ecology won a ruling that the 5,000 gallon per day limit on permit-exempt wells applies to large dairies. *Dennis and DeVries v. Department of Ecology*, PCHB No. 01-073, Summary Judgment Order (9/21/01). The *DeVries* ruling was significant in two respects. First, it defined the term "stockwater" to include industrial, non-potable uses of water within a dairy. Second, the decision limited such uses to 5,000 gallons per day (gpd). Per *DeVries*, if a dairy needs more than 5,000 gpd for any use or combination of uses, that water must be obtained via water right. Ecology's prevailing arguments in *DeVries* were consistent with several decades of policy and guidance statements on the subject.

The *DeVries* ruling raised alarms about the extent to which livestock operations throughout the state were already withdrawing large quantities of water without permits. The dairy industry estimates that 70% of the approximately 450 dairies in the state are using groundwater without a water right.¹ In addition, cattle feedlots and other types of industrial livestock facilities may be using water without permits.

In 2005, Attorney General Rob McKenna was asked to interpret the stockwater language set forth in the groundwater permit-exemption contained in Washington's groundwater code, RCW 90.44.050. In the resulting Attorney General Opinion (AGO), the AG's office and Ecology changed course. The AGO tersely construed the language of the statute, finding that the placement of commas indicates that the 5,000 gpd limit does not apply to stockwater, and concluding that stockwater use is therefore unlimited. AGO 2005 No. 17 (11/18/05). The AGO contains no reference to other parts of the statute, including the use of the term "small withdrawals" in the proviso following the permit exemption, nor to the legislative history of the Groundwater Code, Chapter 90.44 RCW, enacted in 1945.

The history of the permit-exemption is sparse but interesting. Reports issued around the time of enactment of Chapter 90.44 RCW indicate that wa-

¹ Estimates of unpermitted water usage were provided by Chris Cheney and John Stuhlmiller at the September 4, 2009 meeting of the Washington Legislative Stock Water Work Group, described in more detail below.

ter needs for rural farmsteads (for both humans and livestock), ranged around 1,500 gallons per day.²

The 2005 AGO opened an unexpected and substantial loophole in the hornbook rule that all water use in Washington requires a permit. RCW 90.03.010, 90.44.050. Although livestock water use is encompassed within the permit-exemption, an interpretation allowing *unlimited* usage contradicts the rule that exceptions to statutes (including the water code's general requirements) must be narrowly construed.

It is difficult to obtain a new water permit in Washington, in large part because water resources are over-allocated in most basins, particularly when environmental needs such as instream flows for aquatic habitat and water quality are taken into account, as they must be. It comes as no surprise then that, shortly after the AGO was issued, large livestock operations announced intent to use the unlimited exemption for water supply.

In 2006 and again in 2007, two dairies in eastern Washington indicated in county land use applications that they would use the stockwater exemption to supply water for several thousand head of dairy cows, pumping between 150,000 and 500,000 gallons per day. Ecology's SEPA comment letter for one of the operations suggested that, because the agency itself could not do so, the dairy should analyze the potential for impairing the rights of other water users and whether pumping might jeopardize the maintenance of "safe sustaining yields" of groundwater as required by RCW 90.44.130. Ecology also noted the existence of hydraulic continuity between the target aquifers and the Columbia and Snake Rivers, citing the need to avoid depletion of surface water flows that support endangered salmon populations.³ Thus, from the outset, it was clear that the basis for the permitting process, i.e., protection of senior water rights and the public interest, was not served by the 2005 AG Opinion.

Enter Easterday

In 2008, Easterday Ranches, Inc., proposed the third (known) explicit use of the unlimited exemption: a 30,000-head cattle finishing feedlot near EL-

² See Dunn, Kara, "Got Water? Limiting Washington's Stockwater Exemption to Five Thousand Gallons Per Day," 83 Wash. L. Rev. 249, 257-261 (2008) and documents cited therein.

³ *Washington Department of Ecology to Benton County Planning Dept. re Watts Bros. Dairy, LLC* (1-26-06). Notably, however, Ecology missed the water supply issue in its comments on the SEPA checklist for Mesa Dairy. *Washington Department of Ecology to Franklin County Planning & Building Dept. re Mesa Dairy* (3-28-09). Copies on file with author.

topia, Washington that would rely entirely on permit-exempt wells for water supply. A group of local dryland wheat farmers, collectively known as Five Corners Family Farmers, began raising questions. The Family Farmers' members rely on their own permit-exempt wells to provide basic household water supply.

The proposed feedlot is located a few miles from and would withdraw water from the same aquifers as serve the Odessa Subarea, a groundwater sub-basin where water levels are declining at an average rate of 10 feet per year. See WAC 173-130A-060. Groundwater decline in the Odessa Subarea is causing irrigators to chase water to depths of 1-2 thousand feet below ground surface, and creating a regional crisis mentality. Federal and state agencies are responding with multi-million dollar studies for replacement supply that would pump more water from the Columbia River.⁴

Five Corners Family Farmers are concerned about the potential impacts of increased groundwater pumping on their own domestic water supply. Unlike farms to the north and west, these dryland wheat farmers utilize groundwater solely for household usage. Loss of water supply would preclude their ability to continue to live on their farms.

The Easterday Ranches proposal led Ecology to re-examine the scope of the permit exemption established by the 2005 AGO. In November 2008, Ecology announced that the groundwater exemption could be used for drinking water for livestock, but could not be used for industrial purposes associated with the feedlot (e.g., dust control, boiler use).⁵

Ecology urged Easterday Ranches to purchase and transfer an existing water right to serve water for its industrial uses, which it promptly did. In a water supply analysis submitted as part of the water right transfer, Easterday Ranches indicated that the feedlot would require approximately 250 acre-feet per year for industrial uses and 500 acre-feet per year for drinking water.⁶ This latter water use will be supplied without a water right. The same well will provide water pursuant to the transferred water right, and Easterday is required to measure water use for both uses (250 acre-feet of industrial, plus unlimited potable).

⁴ U.S. Bureau of Reclamation, Odessa Subarea Special Study, Appraisal-Level Investigation Summary of Findings (4/1/08), see http://www.usbr.gov/pn/programs/ucao_misc/odessa/index.html.

⁵ The Easterday Ranches correspondence can be found on Ecology's website at <http://www.ecy.wa.gov/programs/wr/rights/easterday.html>, and on CELP's website at www.celp.org. Copies also on file with the author.

⁶ Franklin County Water Conservancy Board, In re Easterday Ranches, Inc., Report of Examination, Groundwater Certificate No. G3-00101C (4/10/09). Copy on file with author.

In June 2009, Five Corners Family Farmers, along with the Center for Environmental Law & Policy and Sierra Club, filed a declaratory judgment action seeking judicial interpretation of the quantity of water available under the stockwater prong of the permit exemption.⁷ A case schedule is not yet established.

Legislative Working Group

In late 2008, as the state was trying to determine its position on unlimited stockwater, Ecology Director Jay Manning urged legislators to address the issue. Several bills were filed during the 2009 session, two of which received a hearing. HB 1091 would clarify that all listed uses of permit-exempt wells are subject to the 5,000 gpd limitation, and also grandfather existing stockwater use. HB 1489 would allow up to 350 acre-feet per year in permit-exempt withdrawals for stockwater purposes. Neither bill advanced to the floor.

With a live controversy and no fix in sight, the legislature decided to study the matter over the interim. The budget passed with an unfunded proviso directing Ecology to convene a working group, composed of agricultural, environmental, tribal, agency and legislative representatives, who are directed to "review issues surrounding the use of permit-exempt wells for stock-watering purposes and . . . develop recommendations for legislative action."⁸ The working group met on August 4 and September 3, and is expected to hold 2 more meetings this year.⁹ The second meeting focused on the status of water resources affected by stock watering and the extent to which the livestock industry relies on the unlimited exemption for water supply.

Meanwhile, the Attorney General's office recently issued another opinion regarding exempt wells (discussed elsewhere in this newsletter). The opinion follows the same logic as the stockwater opinion in finding that the use of water for irrigating a half-acre lawn or garden is unlimited in quantity. The opinion also finds that Ecology lacks authority to limit the quantity of permit-exempt use of water on eligible parcels, as recently proposed in a rule for managing water in Kittitas County (WRIA 39).¹⁰ This raises the intriguing question why the Attorney General's office is advocating and advising agency action to control exempt wells (e.g., the *DeVries* case, the draft Kittitas rule) while simultaneously issuing opinions that such agency actions are in violation of the law.

⁷ *Five Corners Family Farmers, et al. v. State of Washington, et al.*, Thurston County Superior Court Cause No. 09-2-01622-1. The case has been transferred to Franklin County. CELP, the author's employer, is a party to this lawsuit.

⁸ ESHB 1244, p. 107. No tribes are participating.

⁹ The Legislature has created a website for the Stockwater Working Group, found at <http://www.ecy.wa.gov/programs/wr/hq/swwg.html>.

¹⁰ Ecology may, however, simply close a basin to new appropriations, whether permitted or permit-exempt.

Litigation over the unlimited stockwater exemption raises larger questions about the sustainability of water resources in Washington. Despite clear lessons from the Odessa Subarea aquifer, to date no branch of government has taken action to prevent and reverse groundwater mining and attendant surface water depletions. The outcome of the Five Corners Family Farmers litigation may be a partial

remedy for the problem of unsustainable groundwater use, but policy changes at the agency and legislative level are clearly needed.

Rachael Paschal Osborn is executive director of the Center for Environmental Law & Policy, a public interest organization dedicated to protecting and restoring the rivers and drinking water aquifers of Washington state and the Columbia River Basin.

Measuring Exempt Well Use

Jacque Klug, Washington Department of Ecology

RCW 90.44.050 exempts certain uses, including small-scale domestic water use, from needing to obtain a water right permit. Consequently, most domestic water users relying on permit exempt wells for the water supply do not measure their water use. Public health drinking water requirements and water right requirements require large water systems to meter at the source and encourage end use metering. As a result, we often have good water use measurements for large public water system customers but very little, if any, information on permit exempt water use. The uncertainty surrounding domestic exempt well use adds complexity to an already challenging task of water resource planning and instream flow management. Some people argue that households using exempt wells must use more water because, unlike public water supply customers, these households do not pay a water bill and have no economic incentive to conserve water. Furthermore, exempt well households are generally in rural areas with larger lots with more potential irrigated areas. On the other side of the argument, people argue that exempt well household use is equal or may be less than urban water users. Although rural lots may be larger, more of the outdoor landscape may be native vegetation and therefore require less watering.

Besides potentially laying this tiresome argument to rest, better understanding household exempt well use will be helpful in water planning and creating workable instream flow rules and programs. This article will describe various measurement programs currently being implemented across the state either as part watershed planning or from requirements in instream flow rules. The challenges of using metering information in an active management system will be also be discussed.

Water Budgets/Evaluations

As part of the watershed planning conducted under the Washington's Watershed Planning Act, (RCW 90.82) several watershed planning units are undertaking studies and metering pilot projects to estimate residential water use from exempt wells. Information gathered from these studies will help shape the water budgets generated for the watershed or shape the administrative framework of instream flow rules. On Vashon-Maury Island in King County, the Vashon-Maury Island Groundwater Protection Committee developed a voluntary

exempt well metering pilot program. Water use data is collected at different times of the year providing a look at seasonal fluctuations. A major limitation with a voluntary metering approach is getting a representative sample of exempt well users. Some people claim that people willing to volunteer for studies may be more attuned to water issues and may use less water than typical self-supplied households. As a result, other watershed groups are looking at ways to increase participation. For instance, a metering pilot study proposed in Skagit River Basin is looking at providing a cash incentive or some other incentives to increase participation.

Two watershed planning groups are taking a different evaluation approach primarily focused on refining estimations of outdoor water use. In general, indoor water use does not vary as much as outdoor water use. Therefore better estimating methods for outdoor water use should greatly improve overall water use estimates. The Wenatchee Watershed (WRIA 45) and the Hangman Creek watershed (WRIA 56) are focusing their evaluations on better understating outdoor water use. The Wenatchee Watershed Planning Unit is working on a study that estimates outdoor water use by calculating actual evapotranspiration (AET) within parcels with exempt wells in a sub-basin. AET will be calculated using Surface Energy Balance Algorithm for Land (SEBAL), a model that estimates AET through satellite imagery and meteorological data. AET on each parcel will be added up within a sub-basin to calculate the cumulative impacts of outdoor water use within a basin. Remote sensing of water use is used for agricultural irrigation management and may hold promise for collecting information on domestic irrigation in a less-resource intensive manner than metering.

The Hangman Creek Water Demand/Landscape Irrigation Study will examine data correlations between irrigation use and land use and demographic variables. Aerial photos will be used to identify irrigated areas and will be digitized for a sample of parcels within the study area. Variables to be assessed include lot size, residence size, year built, soil types, and recharge areas. If strong correlations exist, standard data from Assessors Offices (e.g., lot size, residence size, year built) could be used in lieu of metering or other costly estimation practices.

Measurement in Instream Flow Rules

Establishing a management program for exempt wells through water reservations or closures for exempt wells are key components of recently adopted instream flow rules. Water reservations are finite allocations of water for specific future beneficial uses, such as domestic water supply using permit exempt wells. With each new reservation use, the reservation is reduced by an amount of water approximating the water use. These new management systems require tracking and accounting programs to ensure the exempt withdrawals are following the provisions of the rules. Measurement of domestic use is a critical component of the new rules, but the rules vary in how active the measurement and tracking is required. For instance, some rules, such as the Stillaguamish Instream Resources Protection Program rule (WAC 173-505) and the Lewis, Salmon-Washougal Instream Water Resources Management Program (WAC 173-527 and 173-528), do not require metering as a condition of reservation use. Instead, a standard debiting figure is used that has been calculated to represent average exempt well use in that area. In other instream flow rules, such as the Water Resources Program for the Walla Walla River Basin (WAC 173-532), as long as the well is placed in certain aquifers or water sources, the use does not need to be actively measured.

Metering of exempt wells is required in the Wenatchee River Basin Instream Flow Rule (WAC 173-545) and for certain exempt uses under the conditions of use in the Walla Walla and Skagit instream resources protection plan (WAC 173-503). Metering data provide the debiting figure used in the water use accounting. In many cases, an interim debiting figure is being used to account for use before metering data is available. Since these rules have been recently adopted, information is slowly coming in. For users in the Walla Walla required to meter, they must install meters that can be remotely read. The Department of Ecology will read the meters remotely and account for these uses. In the Skagit Instream Flow Rule, exempt wells serving two or more connections (equivalent to the Department of Health's definition of Group B water systems) are required to meter. Exempt wells serving a single household are not required to meter as condition of the reservation in the Skagit Instream Protection Program. Water metering information from the Group B domestic systems will be used to adjust the debiting figure. The Wenatchee Instream Flow Rule requires all users of the water reservation to meter water use.

Challenges with Metering for Reservation Accounting

In theory, metering data would be used to determine the reservation debiting figure. Water use would be determined with metering data and the reservation would be debited by the metered quantity. However this system is extremely difficult to implement. First, it takes considerable staff time

and resources to process the metering data. In many watersheds, Ecology is partnering with local entities to implement the metering requirements sharing the collection and processing responsibilities. However, it requires a significant investment of time and resources to fully administer a metering program. Second, water use fluctuates over time and therefore the figure debited from the water reservation will need to change. That presents considerable uncertainty for property owners and local governments to know the true availability of water under the reservation. If in one year 25 homes use the reservation but in the next year water use increases such that the reservation can only support 23 homes, what do you do with the two homes that no longer have a legal source of water supply? Fluctuating reservation use could complicate water reviews by local governments required under land use laws.

There are several possible actions to reduce uncertainty associated with fluctuations in water use on the administration of water reservations that have been discussed in rule-making efforts. First, a conservative initial debiting figure could be used to estimate water use and it could be refined to reflect actual water use as metering data become available. Advantages of this method include enhanced certainty on the amount of water available in the reservation. However, questions of fairness are bound to be raised. Is it fair to initially assume households use considerably more than is estimated by studies and near-by water systems? A second approach for addressing the uncertainty with using metering data to administer water reservations would be to keep a quantity of water permanently locked up as a safety margin to absorb fluctuations in water use. Challenges of this approach include determining an adequate safety margin and legal uncertainties of associated with denying permits based when there is water technically available for withdrawal. The third approach would be to use metering not for water use debiting, but to ensure compliance with the ground water exemption and instream flow rule only.

More directly managing exempt wells represents paradigm shift for our state. Striking the right balance between certainty for property owners and local governments and accurate accounting of water use is challenge for water reservations set forth in rule. Just like each watershed has unique physical characteristics, implementation of water use accounting is tweaked a bit in each watershed based on resource availability and local input.

Conclusions

There is a lot of work occurring around the state to better understand domestic exempt well water use. Results from water use studies and instream flow rule implementation will give us a better picture of what factors influence water use. This information can help communities refine water estimates and help us build management systems that represent the differences in water use.

ANNUAL MEETING OF THE WASHINGTON SECTION OF THE AWRA

AGENDA

Washington Section AWRA Board of Director Elections

The AWRA Washington Section will convene its annual meeting and conduct elections for the 2010 Board of Directors at 6:00 pm on Thursday, December 3, 2009, at Pyramid Ale House, 1201 1st Ave S, Seattle. The Board of Directors consists of up to fifteen directors, plus the past president. All members are welcome to attend the annual meeting and to nominate other candidates.

The 2009 Board of Directors presents below fifteen candidates for the 2010 Board of Directors.

Board members are expected to actively participate and support the following activities:

- Attending monthly board meetings
- Refining section policies
- Running dinner meetings
- Organizing the annual conference
- Securing articles for newsletters
- Supporting the student chapter and establishing new student chapters
- And other activities

Dustin Atchinson – Dustin has 12 years of experience in consulting firms as a water resource engineer, specializing in stormwater management in the State of Washington. He has expertise in the emerging field of low-impact development (LID) design, analysis and development of implementation guidelines and tools. Dustin has consulted on development of new regulations, developed design manuals and tools, provided education through training and presentations on stormwater and LID design. Dustin's additional work in water resources includes stream restoration design, hydraulic and hydrologic modeling, sustainability and water rights. Dustin is currently serving as an instructor in a new Low Impact Development Certification Course at the University of Washington. In his personal time he likes to do anything outdoors including hiking, climbing, soccer, Ultimate Frisbee, garden gnomes, and chasing his two-year old boy and 2-month old girl.

Steven Hughes – Steve is a senior hydrogeologist in the Seattle office of URS. For the last 8 years he has managed the remedial investigation/feasibility study of mining impacts on the Coeur d'Alene River Basin. During 27 years of consulting, his work has included water resource studies, well-head protection plans, watershed studies, water supply source exploration/development studies, well rehabilitation, in-situ uranium exploration, open-pit mining, contaminated site studies, and environmental impact statements. He has a BS in geology for the University of Wisconsin-

Milwaukee and is a licensed geologist in Pennsylvania and Washington and a licensed hydrogeologist in Washington. Steve and his wife Trish enjoy their three golden retrievers, tennis and wine.

Scott Kindred – Scott is a registered Professional Engineer and has worked as a consulting hydrogeologist since 1987. His primary expertise includes hydrogeology, stormwater infiltration, and environmental site assessment and remediation. Mr. Kindred works closely with civil engineers and owners to optimize the use of infiltration facilities and incorporate low impact development elements into their designs. He has managed hydrogeology and infiltration projects for the 7,000 acre Suncadia resort, North Fort Lewis, the Cascadia development in Bonney Lake, Plateau 465, and Kitsap Transit. Mr. Kindred's environmental expertise includes contaminated site assessment and remediation design, ground water modeling, remedial investigations/feasibility studies under CERCLA and MTCA, and environmental permitting. He has been a member of NAIOP's Community Enhancement Committee since 2004 and enjoys planning and organizing large volunteer efforts that help needy organizations. Mr. Kindred's other preoccupation with water includes riding slippery boards down mountains covered with snow.

Jacque Klug – Jacque is a Watershed Lead with the Department of Ecology. Her experience includes watershed planning, water rights administration, and policy development and analysis. She has a B.A. in Environmental

Science from Duke University and a M.S. in Forest Resources from the University of Washington College of Forest Resources. In her leisure time, she enjoys backpacking, skiing, running, and restoring her Craftsman bungalow.

Meagan Kogut– Megan oversees the administration of the stormwater and water quality programs and water rights at the University of Washington. She taught water policy, maritime history and field science at UW Tacoma and has over ten years of diverse experience in laboratories exploring metal fate and toxicity in coastal waters, drinking water quality, corals as indicators of sea temperature, anthropogenic carbon dioxide concentrations in seawater, and atmospheric gas transport. She has a BS in chemistry from the University of Washington and a PhD in environmental chemistry from MIT. She races mountain bikes, sails and runs, and she has rearranged almost all the dirt in her yard in order to create a NW native landscape and a vegetable garden.

Felix Kristanovich – Felix is a senior water resources engineer with Anchor Environmental in Kirkland, Washington. He has over 18 years of professional experience in the Pacific Northwest and California working on numerous watershed analysis and streamflow restoration projects, water quality monitoring programs, environmental impact studies, hydrologic field investigations, floodplain analysis, and design and modeling of storm water systems. He designed and implemented several streamflow stabilization projects, using biotechnical erosion protection measures, and evaluated innovative water quality treatments for transportation agencies, including WSDOT. Felix is actively involved in several professional societies, including AWRA, where he organized technical field trips during the 2005 AWRA Conference in Seattle. Felix enjoys backpacking, hiking, and telemark skiing in Washington Mountains, and sea kayaking with his wife around Puget Sound and in Alaska.

Stan Miller – Stan is semi-retired, and currently doing water resources consulting as Inland Northwest Water Resources. Prior to venturing into retirement, Stan held the position of Program Manager for Spokane County's Water Resources Section in the County Utilities Division of the Public Works Department for over 20 years. The prime focus of Water Resources is the regional aquifer protection program. In that capacity he worked toward integrating the groundwater protection efforts of all municipalities and water purveyors using the Spokane Valley-Rathdrum Prairie Aquifer. In addition to working on this program at the administrative level, Stan has developed

technical information and conducted local studies on the potential impacts of storm water infiltration on ground water quality and the interaction of the Spokane River and the Spokane Valley Aquifer. Away from work, Stan enjoys canoeing, backpacking, running, and working on the restoration of a turn-of-the-century home.

Jamie Morin – Jamie is an attorney with Mentor Law Group, PLLC, where her practice emphasizes water law, water utility regulation and related natural resource issues. Jamie assists clients with acquisition, transfer, and adjudication of water rights, compliance with public water system regulations, environmental review under SEPA and NEPA, and compliance with various state and federal environmental regulations. Prior to obtaining her law degree, Jamie worked as a policy consultant in Olympia, Washington, focusing on water resource management and policy, public water utility and local government issues. Jamie raises kids, chickens and cats on her urban homestead and is actively involved in her community through organizing the Camas Farmer's Market.

Darcy Nonemacher– [available at annual meeting].

Beth Peterson – Beth is a water resource engineer with HDR Engineering. She has over 11 years of experience and has been with HDR for the past 6 years. Her experience includes wetland mitigation and restoration design, stormwater management, planning and design, modeling, and managing a variety of water resource projects. She has a B.S. from Trinity University in San Antonio and a M.S. in Civil and Environment Engineering from the University of California- Berkeley. Beth lives in Seattle and takes advantage of all that the City and area has to offer.

Tom Ring – Tom is a hydrogeologist with the Water Resources Program of the Yakama Nation. He has held this position since 1990 and, in that role, has worked on a variety of projects involving groundwater and surface water quantity and quality, water rights, irrigation and fisheries issues and planning for future water needs. Previously he worked for the Water Resources Program at the Washington Department of Ecology. Tom has Bachelors and Masters of Science degrees in geology from Central Washington University and Northern Arizona University respectively. He has taught geology and hydrogeology classes at Central Washington University and is a licensed geologist and hydrogeologist in Washington State. When not working, he enjoys hiking, climbing, and skiing in the mountains of the west.

Cleve Steward – As a fisheries and conservation biologist, Cleve has been deeply involved in efforts to recover and protect salmon and steelhead populations throughout the Pacific Northwest. He has over 30 years experience and education in salmonid ecology and management, both as a government agency employee and as a private consultant. He is a recognized authority on the habitat and migratory requirements of juvenile salmonids, instream flows, fish habitat and fish passage. Cleve is a former president of the Washington Section of the American Water Resources Association and is the Chair of the 2009 Annual Water Resources Conference. He likes to fish, but isn't particularly good at lying about his exploits, such as they are.

Peter Sturtevant – Pete is a Senior Water Resources Engineer at CH2M Hill in Bellevue. He works primarily on drainage and stream restoration projects. He has 30 years of experience in the fields of water resources and environmental impact assessment that has included water supply studies, water quality assessments, flood control, wastewater and water reuse projects. More recently his work has centered on stream stabilization and restoration. A proud Husky alumnus, Pete enjoys hiking, canoeing, sailing, and other water related activities in the Great Northwest and he bicycled across North America in 2002. Pete co-chaired the AWRA National Conference, in 2005 in Seattle and has also served as past chapter president. He is also active in Engineers Without Borders and has twice traveled to Bolivia to implement projects with the University of Washington Student Chapter.

Steve Swope – Steve is a Principal Hydrogeologist with Pacific Groundwater Group with 20 years of consulting experience. He specializes in basin assessments, local hydrogeological site assessments, water-supply development projects, and contaminant hydrogeology projects. Since 1998, he has developed data management systems incorporating statistical analysis for groundwater monitoring projects. He holds a BA in Geology from Claremont McKenna College and a MSc in Hydrology from the University of Idaho. Steve is a licensed hydrogeologist in the states of Washington and Oregon. He enjoys losing to his children at gin rummy, mojitos, and piloting

bicycles up severe inclines with unflinching speed.

Stephen D. Thomas – Stephen is a senior hydrogeologist in the Seattle office of Golder Associates. He has 18 years experience as a consultant in the areas of geologic and water resources. He manages and performs technical aspects of hydrogeological investigations for groundwater resources development, wellhead protection and groundwater management, groundwater contamination and waste disposal, dewatering, and environmental projects. He currently works on developing and protecting groundwater resources for municipalities in the Nisqually and Deschutes basins, seawater intrusion projects along the Los Angeles Coastal Plain, optimizing a geothermal development program in Nevada, and has played a lead role in characterizing the geosequestration potential of sedimentary basins in western states as part of a USDOE program. A native of the United Kingdom, Stephen moved to Seattle in 2001, having previously lived in Los Angeles since 1992. He holds a BSc in Geology from the University of Cardiff (Wales) and a MSc in Hydrogeology from the University of Birmingham (England), and is a licensed hydrogeologist in the states of Washington and California. Stephen enjoys many outdoors activities, particularly skiing, cycling and lake swimming, and recently discovered the joys of the guitar and short film making.

Kurt Unger – Kurt works for the Washington State Department of Ecology's Water Resources Program on policy and rule development as well as code and statutory modifications focused on instream flows, water conservations and efficiency, low impact development, drought and climate change. Kurt is also an adjunct professor at the Evergreen State College where he teaches a graduate level class on global climate change science and policy. Prior to Ecology, he worked for the Desert Research Institute in Reno while earning a Master's degree in Environmental Science and a Ph.D. in Hydrology from the University of Nevada. He is also a licensed attorney (J.D from the University of Oregon). Prior to his graduate studies, he spent two years in Las Vegas working as an environmental consultant. When not working, Kurt enjoys playing in the natural resources his work aims to protect.

Did you know?

The phrase *to back water* "was said of a ship, boat, canoe, or the like, to which the paddle wheel was reversed, or the oars or paddles were moved backward. Hence, figuratively, one is said to back water when obliged to retract a statement or reverse a position or withdraw from a situation. The expression dates from the early days of the steamboat, the early nineteenth century."

– 2107 Curious Word Origins, Sayings & Expressions, by Charles Earle

Washington Department of Ecology Clarifies Longstanding Water Rights Ambiguity Associated with Rooftop Rainwater Harvesting

Kurt Unger, Washington Department of Ecology

To the delight of the green building community and many other Washingtonians throughout the state, the Department of Ecology issued a [policy statement](#) on October 12th clarifying that water rights are not required for the storage and on-site use of rainwater collected by a rooftop system or a guzzler (Guzzlers are devices used to catch and store rainwater and dew to provide wildlife or livestock with drinking water.)

Under the [department's policy](#), the on-site storage and/or beneficial use of rooftop or guzzler collected rainwater is not subject to the permit process of RCW 90.03. But if and when the department determines that rooftop or guzzler rainwater harvesting (RWH) systems are likely to negatively affect instream values or existing water rights, local restrictions may be set in place to govern subsequent new systems. To qualify as rooftop collected rainwater, the roof collecting the rainwater must be part of a fixed structure above the ground with a primary purpose other than the collection of rainwater for beneficial use.

To those not familiar with the issue, the response to reading the above paragraphs is likely "Why in the heck was Ecology requiring water rights for rooftop RWH in the first place?" The short answer is, unfortunately, a long and sordid tale. Over the years, many legislators tried to pass legislation clarifying the legal ambiguity associated with whether or when RWH systems require a water right. Unfortunately, they were unsuccessful. But as the years passed, earlier positions that rooftop RWH was indeed subject to the permit process became more and more untenable. RWH projects were getting pushed into Ecology's permit application backlog (currently just under 7,000 and rising). Ecology tried regional permits but couldn't permit RWH fast enough. The result? Everyone was just doing RWH anyway, and Ecology hydrogeologists were pointing out the timing and stormwater management benefits of RWH. Last year, Ecology undertook a renewed, detailed look at relevant water law to see if there was another viable interpretation of the RWH water rights issue. Happily, we found that another reasonable interpretation does indeed exist and that's where we are today.

The Board of AWRA WA seeks to provide through this newsletter a full range of views on water resource issues. Opinions expressed in this newsletter do not necessarily reflect the views of individual Board members, the section membership, or their employers.

2009 AWRA-WA BOARD MEMBERS

President: **Jamie Morin**
(206) 838-7654
morin@mentorlaw.com

Vice President: **Steven Hughes**
(206) 438-2159
steven_hughes@urscorp.com

Secretary: **Beth Peterson**
(425) 450-6286
Beth.Peterson@hdrinc.com

Treasurer: **Felix Kristanovich**
(425) 827-3243
fkristanovich@anchorqea.com

Editor: **Kurt Unger**
(360) 292-2116
unger_kurt@yahoo.com

Past President: **Jacqueline Klug**
(206) 329-0141
jsklug@gmail.com

Director: **Dustin Atchison**
(425) 453-0730
dustin.atchison@ch2m.com

Director: **Jami Carter**
(425) 883-0777
jcarter@golder.com

Director: **Scott Kindred**
(206) 827-7701
skindred@aesgeo.com

Director: **Stan Miller**
(509) 477-6024
samillerh2o@comcast.net

Director: **Darcy Nonemacher**
(206) 213-0330 ext 16
dnonemacher@americanrivers.org

Director: **Tom Ring**
(509) 865-4946
ringt@yakama.com

Director: **Cleve Steward**
(360) 862-1255
csteward@stewardandassociates.com

Director: **Pete Sturtevant**
(425) 453-5000
psturtev@ch2m.com

Director: **Steve Swope**
(206) 329-0141
steve@pgwg.com

UW Student Rep: **Kelsey Ketcheson**
ketchk@u.washington.edu

UW Faculty Advisor: **Bob Edmonds**
bobe@u.washington.edu

2009 Membership / Change of Address Form

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The American Water Resources Association is a scientific and educational non-profit organization established to encourage and foster interdisciplinary communication among persons of diverse backgrounds working on any aspect of water resources disciplines. Individuals interested in water resources are encouraged to participate in the activities of the Washington Section.

Special Thanks!

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American Water Resources Association, Washington Section
P.O. Box 2102
Seattle, WA 98111-2102

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