



## Palouse Basin Aquifer Committee

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April 16, 2009 Meeting Minutes

### Pullman City Hall, East End (Large) Conference Room

#### Attendance

	UI: Michael Holthaus, Water Systems Manager	X	WSU: Mike Leonas, Project Manager, Capital Planning & Dev.
	UI: Joe Kline, Director, Utilities and Engineering		WSU: Rob Corcoran, Asst Dir, Arch, Engr & Const Services
X	Moscow: Tom Scallorn, Water Dept Superintendent	X	Pullman: Mark Workman (Chair), Director of Public Works
X	Moscow: Walter Steed, City Council Member		Pullman: Art Garro, Maintenance & Operations Superintendent
	Moscow: Les MacDonald, Director of Public Works		Pullman: Barney Waldrop, City Council Member
X	Latah County: Paul Kimmell (Vice- Chair), County Representative	X	Whitman County: Mark Storey, Director of Public Works
	Latah County: Tom Stroschein, County Commissioner		Whitman County: Michael Largent, County Commissioner
X	Colfax: Carl Thompson, City Administrator		Colfax: Andy Rogers, Public Works Supervisor

#### Visitors and Others

Bob Haynes, IDWR; Mimi Wainwright, WA Ecology; Mandie MacDonald, Landau Associates; Cheryl Morgan, Property Owner SFPR – Pullman; Matt Darrington, UI Water Resources; Luke Marchant, UI Water Resources; Katie Bilodeau, UI Water Resources; Matt Reeves, UI Water Resources; Barbara Cosens, UI Water Resources; Brad Bennett, UI – PBAC Project Presentation; Guy Gregory, WDOE; Robin Nimmer, Terragraphics Env. Eng.; Julie Titone, CAG; Steve Robischon, PBAC

#### Call to Order

Mark Workman, PBAC Chair, called the meeting to order at 2:00 PM.

#### Introductions

The assembled group introduced themselves and their representation.

#### 1) Approval of the March 19, 2009 Meeting Minutes

The draft March minutes were approved by consensus.

## 2) Presentations –

### **Integrated Analysis of the Decision Making Process in the Palouse Basin – Katie Bilodeau, Matt Reeves, Luke Marchant, Matt Darrington**

The group, representing the UI Water Resources Program, presented a summary of the results of their research, which looked at water management uncertainty on the Palouse from four different perspectives: physical, social, policy, and legal. Bilodeau analyzed a survey of Palouse area residents and Reeves studied uncertainty in previously published reports related to recharge to the Wanapum aquifer system. Marchant looked at the uncertainty in the integration of water management by the State and land use planning by the County, and Darrington studied uncertainties associated with managing water across State boundaries. Results of the students' research will be published in Masters theses that should become publically available in the next several months

### **Recharge Implications of Strategic Pumping of the Wanapum Aquifer System in the Moscow Sub-basin – Brad Bennett**

Bennett presented results of research related to pump tests conducted on the Wanapum system in the Moscow area. His results indicate that recharge from the streams to the Sediments of Bovill influences the water level in the underlying Wanapum, and that by strategically pumping the Wanapum system during periods of high flow, additional recharge may be induced which could result in an increase in the sustainable level of withdrawal from the system.

## 3) Unfinished Business -

### **Response to CAG Recommendation to Fund Public Information Campaign –**

Robischon reported the CAG has requested a written response to their February 2009 recommendation that PBAC fund a regional public information campaign targeted at conservation. Titone provided further input on the CAG's reasoning behind their recommendation. The group discussed the general content of a response letter and directed Robischon to draft a response that includes ideas voiced by the group, including:

- PBAC should thank the CAG for their recommendation.
- It's not PBAC's practice to use research money for non-research activities.
- A regional campaign is a good idea; some of the entities have talked about it and may pick it up and carry it forward themselves.
- Moscow and Pullman would be interested in participating. PCEI is already doing some similar work in both cities.
- Washington water purveyors have a conservation element in their water systems plans.

**Potential PBAC Research Projects –**

The group discussed and voted on funding the tritium testing project proposed by Jim Osiensky. All non-research funding entities expressed support for the project and all research funding members present voted to fund the project. Robischon was directed to poll by email those members not present to determine whether support is unanimous.

Wainwright reported the WRIA 34 Planning Unit had decided not to pursue further work on instream flows, and that this will result in the need for DOE/PBAC coordination of funding and administration of the Framework project. Discussion related to the scope and administrative details of the project will be worked out in the months to come. Morgan expressed concern that the Planning Unit is not involved in reviewing the details of project scoping or realization.

**WoW Systems Dynamics Workshop Questions (not on agenda) -**

Robischon collected responses to 3 questions posed by Allyson Beall related to how best to structure the makeup and reporting of the workshops that are part of the System Dynamics project. The first workshop will likely be conducted within the next 60 days.

**4) New Business –**

No new business was considered at the meeting.

**5) PBAC Projects Progress Report –**

No project reports, other than the presentation by Bennett earlier in the meeting, were heard. Bennett's Wanapum monitoring duties will be taken over by Robischon beginning next month, and Robischon will transfer monitoring of the Grand Ronde wells to the new student/project (long term aquifer testing) that will begin in the Fall.

**6) Citizens Advisory Group Report**

Robischon reported Michael Echanove has indicated a desire to step down as chair of the CAG. Further discussion will occur at next month's meeting. Titone noted that the Environmental Wellbeing Coordinator at WSU had presented information about conservation-related activities at the Student Recreation Center.

**7) Budget Report**

Robischon displayed the latest update to the budget status.

**8) Other Reports and Announcements –**

**Changes to Idaho Code for municipal domestic service beyond city limits**

Steed presented a history of the bill, responded to a question that the bill would not allow Moscow to sell water across the State Line, and reported that the bill is currently being held from further consideration by the House Speaker.

**Pullman/WSU Wastewater Reclamation Project**

Five proposals have been received for the services contract. The selection committee will meet within the next two weeks to narrow the finalists to 2 or 3. Finalists will be asked to present to the committee, and a final selection will then be made.

**WRIA 34 Planning Unit**

Wainwright indicated that the Planning Unit has completed their work and no further meetings are currently scheduled. This item will be removed from the Other Reports and Announcements portion of the agenda at future meetings.

**Water Summit Planning**

Kimmell reported the planning committee met April 16 and continued planning for the 2009 Water Summit to be held on October 6 in Pullman at the SEL Event Center. The tentative Summit theme is “Complexities on the Surface”. The Summit’s focus will be on surface water.

**Other**

Robischon displayed the latest SNOTEL snow water equivalent map indicating the Clearwater Basin is at 100% of normal snowpack.

**9) Next Meeting –**

The next meeting is scheduled for May 21 in Moscow.

**10) Adjournment -**

The meeting was adjourned at 4:08 PM.

**Submitted for review and approved at the May 21, 2009 PBAC meeting.**

**Steve Robischon, Executive Manager**

# Evaluation of Ground Water Trends, Temperatures and Tritium Contents for the Primary Ground Water Resource Systems of the Palouse Basin

## Executive Summary:

The Grande Ronde/Wanapum aquifer system(s) of the Palouse Basin are part of the Columbia River Basalt Plateau, and constitute(s) the primary inter-state, ground water resource system(s) for more than 50,000 residents of Latah County, Idaho and Whitman County, Washington. Ground water levels in the Grande Ronde aquifer system have been declining regionally (like in many basalt aquifer systems in the northwest) at a rate between about 0.5 and 1.5 feet per year since at least the 1960's while water levels in the Wanapum aquifer system have stabilized. Scientific evidence suggests that most the ground water contained within the basalt flows, and interbedded sediments, of the Grande Ronde/Wanapum aquifer system is old with reported, spatially distributed,  $^{14}\text{C}$  age dates between recent (along Paradise Creek) and 31,000 years before present (Crosby and Chatters, 1965; Douglas, 2004; Douglas et al., 2007). Declining ground water levels together with the presence of apparently old, in situ water, suggest strongly that ground water currently is being withdrawn from Palouse Basin aquifers much faster than it is being replenished. Ground water resource managers are being forced to make significant local and regional decisions on what constitutes "beneficial" uses of the limited ground water resources within the basin based on the limited information available at this time. Arguably, ground water age dates provide the most direct and most easily understood information for ground water resource managers to base these important decisions, because confirmed and valid age dates offer detailed spatiotemporal information on the potential for natural renewability or replenishment of the resources.

The goal of this proposed research is to provide ground water resource managers with some additional scientific information on the state of the Grande Ronde/Wanapum aquifer system(s) to help them make informed, impartial, and unbiased, political decisions on what constitutes "beneficial" uses of the limited ground water resources of the Palouse Basin. To accomplish this goal, a comprehensive analysis of water levels, ground water temperatures and Tritium contents for the Grande Ronde/Wanapum aquifer system(s) is proposed. Water level records for selected Grande Ronde wells will be "corrected" for barometric effects, and ground water temperatures and Tritium contents will be evaluated for the presence of "young" ground waters mixed with the older ground waters. The software program BETCO will be used for each selected well to "correct" the measured water levels for fluctuations caused by barometric pressure variations. This process should yield "clean" water level data to help evaluate short-term, seasonal to annual, water level trends within the Palouse Basin. Ground water samples for concentrations of Tritium, the radioactive isotope of hydrogen indicating post-1950's precipitation, will be collected for selected wells to help evaluate the  $^{14}\text{C}$  age dates reported by Crosby and Chatters, 1965; Douglas, 2004; and Douglas et al., 2007. Tritium data will be used to determine the absence or presence of younger (recent) waters in selected areas of the Palouse Basin. These data will be used to help confirm/refute the existing conceptual

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hydrogeologic model that suggests young waters (i.e., recharge) are conspicuously absent from the regions of the Palouse Basin that are expected to provide recharge to the Grande Ronde/Wanapum aquifer system(s). New evidence in the form of aquifer test data, ground water levels and ground water temperatures suggests that seasonal stream flows may be the primary sources of recharge to the Wanapum and Grande Ronde aquifer systems in specific portions of the Palouse Basin.

### **Project Name:**

Evaluation of Ground Water Trends, Temperatures and Tritium Contents for the Primary Ground Water Resource Systems of the Palouse Basin

### **Period of Performance:**

Begin August 24, 2009 and run through May 13, 2011. Project start date is contingent upon securing the services of a qualified graduate student investigator.

### **Project Description and Objectives:**

This project is designed with two purposes:

**Purpose 1** of this project will be to collect Grande Ronde/Wanapum ground water Tritium samples for selected Grande Ronde/Wanapum aquifer system wells to evaluate the presence or absence of young ground water within the Palouse Basin.

**Purpose 2** of this project will be to evaluate ground water level trends and ground water temperatures in relation to the presence or absence of Tritium in the ground waters of the Palouse Basin.

The general objective of this project is to evaluate existing ground water level data, ground water temperature data,  $^{14}\text{C}$  data and  $^{18}\text{O}/^2\text{H}$  sample data to identify optimal Grande Ronde/Wanapum wells for Tritium sample collection and analysis.

List of specific objectives:

1. Evaluate the selected portions of the existing ground water monitoring data base for ground water level trends and ground water temperatures.
2. Evaluate the existing  $^{14}\text{C}$  and  $^{18}\text{O}/^2\text{H}$  data base to help delineate optimal target wells for Tritium sampling.

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3. Conduct basin-wide, Tritium sampling in the Grande Ronde/Wanapum aquifer system(s) and, collect, synthesize, analyze and interpret the data to evaluate potential recharge areas in the Palouse Basin.
4. Compose/complete a ground water Tritium sampling/ground water level/temperature analysis report as an MS thesis in Hydrology that addresses issues, documents observed field data, and compiles findings of results and interpretations.

### **Project Deliverables:**

- The final report for the project will be presented as an MS thesis in Hydrology at the University of Idaho. An electronic copy of the thesis will be provided in Adobe.pdf format and made available for download from the PBAC web page if desired.
- A ground water sampling/monitoring database for the period of investigation will be provided to PBAC on CD/DVD.
- Semiannual progress updates (presentations) will be presented at PBAC meetings. Electronic files containing a project specific, 2-page progress report clearly stating the goals and accomplishments for that period, and digital file(s) of presentation graphics, will be submitted to PBAC prior to the presentation.
- Monthly 1-page progress reports will be submitted via email to PBAC on or before the second Thursday of each month.

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**Project Budget:**

Project Title: Evaluation of Ground Water Trends, Temperatures and Tritium Contents for the Primary Ground Water Resource Systems of the Palouse Basin

Cost Category	PBAC	UI Geological Sciences	Total
<b>1. Salaries and Wages</b>			
<u>James L. Osiensky (PI)</u>	---	---	---
<u>C. Kent Keller (PI)</u>	---	---	---
<u>Grad Student (8-24-09 to 5-13-11)<sup>1</sup></u>	\$4,500	\$30,000	\$34,500
<b>2. Fringe Benefits</b> (1%, 9% for summer 2010)	\$405	\$300	\$705
<b>3. Supplies/Analyses</b> (Sample bottles, shipping, Tritium and <sup>14</sup> C analyses, thesis prep/printing) <sup>2</sup>	\$35,800	---	\$35,800
<b>4. Equipment</b>	---	---	---
<b>5. Services or Consultants</b>	---	---	---
<b>6. Travel</b> (local and to regional meeting)	\$2,500	---	\$2,500
<b>7. Other direct costs</b> (fees and insurance) <sup>3</sup>	---	\$13,124	\$13,124
<b>8. Total direct costs</b>	\$43,205	\$43,424	\$86,629
<b>9a. Indirect costs on PBAC share</b> <sup>4</sup>	\$8,641	---	\$8,641
<b>9b. Indirect costs on non-PBAC share</b>	---	---	---
<b>10. Total estimated costs</b>	\$51,846	\$43,424	\$95,270

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<p><sup>1</sup> \$34,500 total student salary for 4 semesters (TA support) plus 3 months (20hrs/wk) during summer 2010.</p> <p><sup>2</sup> Costs associated with sample bottles, sample shipping and sample Tritium analyses (approximately \$300/sample).</p> <p><sup>3</sup> Estimated from current rates.</p> <p><sup>4</sup> Indirect costs are assumed to be 20% of the total PBAC share.</p>			
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**Project Budget Explanation:**

**Salary and Fringe:**

The project budget includes salary and fringe for one graduate student for the period August 24, 2009 to May 13, 2011. The salary listed is for 20 hours per week over the entire project period. This includes 20 hours per week for summer 2010 (PBAC funds).

**Supplies/Analyses:**

Costs associated with sample bottles, preservatives, sample shipping and sample analyses.

**Equipment:** None

**Travel:**

Travel is budgeted specifically for local mileage to and from all wells to sample wells between August 24, 2009 and May 13, 2011. In addition, travel funds are included to attend one regional professional meeting to present the results of the Tritium sampling project. All unused travel funds will be returned to PBAC.

**Other Direct Costs** (fees and insurance):

Graduate student fees and insurance are estimated from current (April, 2009) rates. Any increases will be the responsibility of the Dept. of Geological Sciences.

**Indirect Costs:**

Indirect costs are assumed to be 20% of the total PBAC share.