



## Palouse Basin Aquifer Committee

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May 17, 2007 Meeting Minutes

### Moscow UI Facilities Services Center, Jack's Creek Meeting Room

#### Attendance

X	UI: Michael Holthaus (Vice Chair), Water Systems Manager		WSU: Keith Bloom Director, Const Servs, Cap Plan Dev
X	UI: Joe Kline, Director, Utilities and Engineering	X	WSU: Rob Corcoran, Asst Dir, Arch, Engr & Const Services
X	Moscow: Tom Scallorn, Water Dept Superintendent	X	Pullman: Mark Workman, Director of Public Works
X	Moscow: Aaron Ament, City Council Member		Pullman: Art Garro, Maintenance & Operations Superintendent
X	Moscow: Les MacDonald, Director of Public Works		Pullman: Barney Waldrop, City Council Member
X	Latah County: Paul Kimmell Citizen and County Representative	X	Whitman County: Mark Storey (Chair), Director of Public Works
	Latah County: Tom Stroschein, County Commissioner		Whitman County: Jerry Finch, County Commissioner
	Colfax: Carl Thompson, City Administrator		Colfax: Andy Rogers, Public Works Supervisor

#### Visitors and Others

David Hall, PWCN; Kathleen Warnick; Bob Haynes, IDWR; Alyssa Douglas, Golder; Aaren Fiedler; Steve Robischon, PBAC.

#### Call to Order

Mark Storey, PBAC Chair, called the meeting to order at 2:03 pm.

#### 1) Approval of the April 19, 2007 Meeting Minutes

The April minutes were approved by consensus.

#### Unannounced Agenda Item

Aaren Fiedler passed around the data logger that has been purchased by the City of Palouse for installation in their well #1. A discussion followed about logger installation, standardization, and accuracy. The pumping entities are interested in cooperating to provide a standardized approach to research instrumentation in their pumping wells, and Tom Scallorn is working with Art Garro to that end. Robischon was directed to forward the specifications (to be provided by Fiedler) for the Palouse logger to PBAC members.

## 2) Unfinished Business

### **DOE \$250K Framework Project**

Storey reported on the Framework project as it relates to the WRIA 34 Planning Unit project prioritization. The Planning Unit has come up with a list of 5 priority projects that will be recommended to DOE for funding. The Framework project is the number 1 priority. Priority 2 involves a conservation tillage and aquifer recharge project, priority 3 involves Palouse Basin ground water resource characterization, priority 4 is Pullman wastewater reuse/reclamation, and priority 5 is West Plains ground water resource characterization. PBAC will assist the Planning Unit in the creation of proposals for Priorities 1 and 3. Pullman is working on Priority 4, and priorities 2 and 5 are being tackled by other Planning Unit members. Proposals are due June 11.

### **Hawkins Companies Transfer Requests**

Documents received from Nancy Belsby at the Whitman County Water Conservancy Board are being scanned and posted to the PBAC web site ([http://www.uidaho.edu/pbac/wr/hawkins\\_index.htm](http://www.uidaho.edu/pbac/wr/hawkins_index.htm)). The May Conservancy Board meeting has been cancelled. The next meeting will likely be in June.

### **FY07-08 Budget**

Robischon handed out a draft FY07-08 budget based upon the assumption of approved administrative fee increases. As an associated item, motions were passed to compensate the Executive Manager in a manner consistent with the compensation practices of the employing entity (with an annual increase not to exceed 7.5%) and to authorize reimbursement for travel expenses upon approval of the PBAC chair.

### **FY07-08 Call for Research Project Proposals**

Robischon handed out the draft RFP as modified from last month, and the summary results of the research question rating questionnaire. Discussion followed about how to incorporate the information into the RFP as well as about whether PBAC should fund new research in the coming fiscal year.

Robischon was directed provide all the questionnaire summary information with the RFP, and modify the wording indicate that PBAC “is considering” (as opposed to “envisions”) granting one or two awards. PBAC can then review any proposals submitted and decide at the time whether funding will be granted

## 3) New Business

### **Wanapum monitoring Project Continuation – Project Proposal**

Robischon handed out a proposal for a project to provide continued monitoring of the Wanapum system combined with long term aquifer stress tests to evaluate annual sustained yield. The project period runs through May of 2009 and will cost approximately \$38,000, roughly \$16,000 of which will be associated with monitoring and funded through the PBAC administrative budget. A motion was passed to fund the project.

### **PBAC Funding Resolution**

Robischon distributed copies of the proposed funding resolution. A motion was passed to approve the text of the resolution for member review with the intent of voting on its acceptance at the next PBAC meeting.

### **PBAC Research Funding Addendum**

Robischon distributed copies of the proposed funding addendum. A motion was passed to approve the text of the resolution for member review with the intent of voting on its acceptance at the next PBAC meeting. As written, the addendum requires the approval of the "CEO" of each of the major pumping entities (Pullman, Moscow, WSU and UI).

### **Barologgers**

In the past, pump test results have been clouded by the lack of high quality, continuous barometric pressure data. To remedy this situation, Robischon proposed that PBAC purchase 3 Barologgers (data loggers specifically designed to record variations in barometric pressure); one for Palouse, one possibly for installation into IDWR 4 (should the road modification allow winter access), and a third either as a backup above-ground logger or installed in the WSU test well. The loggers will cost approximately \$500 each. PBAC approved purchase of the loggers.

### **4) PBAC Projects Progress Report**

Robischon reported on research project progress. In April, Fiedler conducted pump tests on Moscow 6 and 8. Hannah Hernandez is wrapping up her research and is hoping to defend her thesis May 31. Chad Opatz has submitted a second draft of his thesis and is shooting to finish by the end of summer. Mike McVay (Fiedler's predecessor on the Grande Ronde Monitoring and Testing project) defended his thesis May 9. Mike will return to Moscow in the future to present his findings to PBAC, but in the interim interested parties can request a DVD copy of the videotape of his thesis defense.

### **5) Citizens Advisory Group Report**

Robischon reported that the CAG continues to consider conservation, and is currently discussing how best to implement conservation-motivated water rate structures.

### **6) Budget Report**

Robischon passed out summary budget information through the end of April.

### **7) Other Reports and Announcements**

#### **Updated Pumping and Water Level Data**

Robischon displayed pumping and water level information for the period of 2006 through April of 2007. The information will be posted to the PBAC web site.

#### **Whitman County Rural Residential Ordinance**

As the meeting was running late and several members had departed, there was no report on this agenda item.

**Water Summit Coordinating Committee Meeting**

As the meeting was running late and several members had departed, there was no report on this agenda item. Robischon distributed to those members still present a copy of a survey the WoW group has distributed to 1500 households in the Basin.

**Moscow Reservoir Project Reservoir Design Presentations**

As the meeting was running late and several members had departed, there was no report on this agenda item.

**WRIA 34 Planning Unit Meeting**

As the meeting was running late and several members had departed, there was no report on this agenda item. The results of the prioritization exercise the Planning Unit has conducted were discussed under **Unfinished Business** in conjunction with the DOE \$250K Framework Project.

**Palouse River TMDL Meeting**

As the meeting was running late and several members had departed, there was no report on this agenda item.

**Environmental Science Senior Theses Posters**

As the meeting was running late and several members had departed, there was no report on this agenda item.

**Engineering Hydrology Reservoir Discharge Projects**

As the meeting was running late and several members had departed, there was no report on this agenda item.

**8) Next Meeting Date**

The next regular meeting of PBAC is scheduled for

**June 21, 2007**

**Pullman City Hall, East End (Large) Conference Room, 2:00 PM**

Note: PBAC Chairman Storey has a conflict with the regular date and will request committee approval to move the meeting to June 19

**9) Adjournment**

The meeting was adjourned at 4:20 PM.

**Submitted for review and approved at the June 19, 2007 PBAC meeting.**

**Steve Robischon, Executive Manager**



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DRAFT April 19, 2007 Meeting Minutes

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

#### Attendance

X	UI: Michael Holthaus (Vice Chair), Water Systems Manager	X	WSU: Keith Bloom Director, Const Servs, Cap Plan Dev
	UI: Joe Kline, Director, Utilities and Engineering	X	WSU: Rob Corcoran, Asst Dir, Arch, Engr & Const Services
X	Moscow: Tom Scallorn, Water Dept Superintendent	X	Pullman: Mark Workman, Director of Public Works
X	Moscow: Aaron Ament, City Council Member		Pullman: Art Garro, Maintenance & Operations Superintendent
	Moscow: Les MacDonald, Director of Public Works	X	Pullman: Barney Waldrop, City Council Member
	Latah County: Paul Kimmell Citizen and County Representative	X	Whitman County: Mark Storey (Chair), Director of Public Works
X	Latah County: Tom Stroschein, County Commissioner		Whitman County: Jerry Finch, County Commissioner
X	Colfax: Carl Thompson, City Administrator	X	Colfax: Andy Rogers, Public Works Supervisor

#### Visitors and Others

David Hall, PWCN; Cheryl Morgan, Self; Bill French, PWCN; Rob Buchert, Palouse Conservation District; Nancy Chaney, Moscow; Steve Robischon, PBAC.

#### Call to Order

Mark Storey, PBAC Chair, called the meeting to order at 2:04 pm.

#### 1) Approval of the March 15, 2007 Meeting Minutes

The March minutes were approved by consensus.

#### 2) Unfinished Business

##### DOE \$250K Framework Project

There was no specific discussion related to prioritizing this project at the last WRIA-34 Planning Unit meeting. At next month's May 9 meeting, priorities will be discussed and tentatively there will be a vote on the project priority. Buchert noted that Jerry Fairley had made a strong point about the need for the project.

The group discussed whether to submit additional projects for consideration by the Planning Unit, and agreed by consensus to a motion to forward three projects: the framework project as PBAC's number 1 priority, the Cunningham Farm monitoring well project as the number 2 priority, and a project to drill monitoring wells in the Kamiak and Four Mile gaps as the number 3 project.

Morgan asked whether funding for such a project is still within the DOE budget. Storey replied that the project does not appear as a line item in the DOE budget, but that there may be opportunities for project funding outside the traditional Watershed Plan Implementation funding process. A workshop will be conducted May 17 (same day as the next PBAC meeting) in Moses Lake that will include discussion related to DOE funding. Buchert and Morgan will attend and offered to car pool with any interested parties. Buchert will report on the workshop at the June PBAC meeting.

Storey reported on a proposal from Jim Osiensky to synthesize information from theses that have been published over the past decade, as well as additional reports/information that have been generated, in return for provision of summer salary. The committee decided to defer acting on the proposal until such time as more is known about the status of the DOE funding of the Framework project.

Robischon was directed to search for the Cunningham Farm proposal as previously submitted to the EPA. In the event any of the proposals are forwarded by the Planning Unit to the DOE for funding consideration, a specific proposal format will be required. Buchert will forward the DOE form to Storey and Robischon.

#### **Hawkins Companies Transfer Requests**

Robischon reported that scanned information related to the proposed water rights transfers has been posted to the PBAC site. New documents on the site include information provided by the Washington Departments of Fish and Wildlife and Ecology, as well as protests filed by the City of Moscow and PWCN/Sierra Club/Moscow Civic Association.

Robischon was directed to make the information available for public access, but to include a disclaimer as to the potential incompleteness of the contained documents and a referral to the Washington Water Conservancy Board for complete information.

#### **Data Release Policies**

Robischon reported Jim Craig from the Latah County Prosecutor's Office had contacted him. Craig will write a letter to the attorneys representing each of the entities to inquire as to their interpretations of the requirements, and inform Robischon with any conclusions that can be utilized to formulate a PBAC data release policy.

As an interim approach, Robischon was directed to, in receipt of a written submission, supply information to requesting parties, unless the amount of information required provides too onerous to generate. Should the task be too time consuming, Robischon is to refer requestors to the entities responsible for the generation of the data. In addition, Robischon is to report information releases (what and to whom) to appropriate entities.

### 3) New Business

#### **FY07-08 Budget**

Robischon handed out a draft first cut of a potential FY07-08 budget based upon the assumption that increased administrative assessments are approved by all entities. Discussion ensued about the need to get all entities on board with the increase. A motion to include the research funding in the assessment resolution drafted by Pullman last fall was approved, and PBAC members will continue working toward ensuring assessment approval. An additional motion was passed (Bloom against) authorizing a 7.5% salary increase for Robischon beginning July 1.

Robischon provided a brief summary of the proposed budget noting that monitoring expenses have moved from the research to the administrative category and that there will be approximately \$50,000 available for new research projects in the coming fiscal year.

Workman will provide Robischon with the revised assessment resolution.

#### **PBAC/UI Administrative Agreement**

Robischon announced that the UI has expressed the need to change the administrative agreement with PBAC. The current agreement is for PBAC to provide an annual \$3,500 direct payment in lieu of indirect overhead charges. The new agreement will need to be consistent with other UI agreements in charging overhead. The overhead rate will be negotiated between UI and PBAC. In the near term it appears likely that for the coming fiscal year a direct fee arrangement will remain in place, but outyear administration will require a new, overhead-based agreement.

#### **FY07-08 Call For Research Project Proposals**

Robischon handed out a draft call for research proposals for the coming fiscal year. The call refers to a list of "questions" proposals should address. To provide an opportunity for the research community to provide input regarding those questions they feel are important, Robischon solicited input from the CAG, WoW, PCD, IWRRI, WWRC, and the Water Summit Organizing Committee. Robischon passed out responses received for PBAC review.

Workman indicated the need to allow for the potential of multi-year projects in the call. Robischon will aggregate the responses into a single document, and PBAC members will review and rate (high, medium, low importance) the questions. The group will then decide on any cutoff level for the questions, and a call for preliminary proposals can be distributed in early May. Robischon was directed to include the CAG on distribution for the aggregated list.

### 4) PBAC Projects Progress Report

Robischon reported that work continues on the projects, and that two of the students have submitted drafts of their theses.

## **5) Citizens Advisory Group Report**

Robischon reported three resignations from the CAG: Bill Brock, Bill Elliot, and Ben McLuen. Elliot has been replaced by his alternate, Dr. George Grader. Current vacancies include representation of Idaho Municipal Provider, Idaho County/Rural, Technical and Other. Robischon relayed CAG's request to fill the Technical position with Dr. Fritz Fiedler, and the Other position with Mr. Bill French. A motion passed unanimously to approve the appointments.

The CAG continues to work on conservation issues, and could utilize assistance getting the ball rolling. They have also discussed taking their recommendations to elected officials as well as to PBAC.

## **6) Budget Report**

Robischon summarized the current status of the budget. Current budget projections indicate a deficit of approximately \$60,000 for FY07. Robischon was directed to email a copy of the budget report to PBAC members.

## **7) Other Reports and Announcements**

### **CRB GWMA Stratigraphic Groundwater Mapping Project**

Robischon presented a press release announcing a \$1.5 million allocation by the Washington Legislature to the Columbia Basin GWMA to extend mapping of the subsurface geology in the Area.

### **Water Summit Organizing Committee**

Ament reported progress from the recent committee meeting. Agenda design is nearly complete, and selection of speakers will occur next month. Buchert reported that the other working groups formed at the last Summit have been folded into the Organizing Committee as subcommittees.

### **Moscow Reservoir Project Reservoir Design Presentations**

Robischon reported that final presentations of the project designs will be conducted May 4, beginning at 2:30 PM, at the UI Commons in the Crest Room. The designs present will include initial cut and fill details and will act as a bridge between the current Landscape Architecture class (LA362) and a follow on course (LA459) next year.

### **WRIA-34 Planning Unit Meeting**

Buchert reported that work continues on the wording of the final watershed plan. Next month will include a prioritization exercise in the morning and an afternoon presentation by Robischon on Palouse Basin ground water management history.

### **Idaho Otter Water Summit**

Robischon presented a press release for the Summit indicating that Les MacDonald and Joe Kline had been invited to attend, and noted that Governor Otter had appointed Dave Tuthill as permanent Director of IDWR.

Chaney announced that she had participated in a telephone conference with Tuthill and others, and that Tuthill had mentioned several items of interest: Low snowpack this season, but reservoir carryover from last year should avert major problems. Development Moratoriums in the Coeur d'Alene and Teton basins. No firm dates yet, and no legislative funding for adjudication of the Palouse. IDWR declined to submit comments to DOE regarding the Hawkins transfers. IDWR supports the idea of direct use of treated surface water.

#### **New Whitman County Land Use Request**

PBAC has received SEPA documentation for a pole building to be constructed at the Wheatland Express site for boat and RV storage. No ground water is proposed to be used for the development.

#### **Palouse River TMDL Meeting**

A meeting has been scheduled April 25 in Colfax at the Best Western Hotel, beginning at 6:30 PM, to introduce the TMDL process and studies that will begin on the Palouse River (main stem) and Rebel Flat Creek.

#### **Watershed Planning and Columbia River Management Workshop**

The workshop will be held May 17 in Moses Lake at the Best Western Lake Inn.

#### **Colfax Water Savings**

Colfax water use for the months of January-March in 2007 is down 11.7 million gallons (24%) from 2005. Rogers reported that the savings are primarily due to identifying and fixing leaks and conservation.

#### **8) Next Meeting Date**

The next regular meeting of PBAC has been scheduled for

**May 17, 2007**

**Moscow UI Facilities Services Center, Jack's Creek Meeting Room, 2:00 PM**

#### **9) Adjournment**

The meeting was adjourned at 4:35 PM.

**Submitted for review and approval,**

**Steve Robischon, Executive Manager**

**NOTE: *These minutes are submitted in draft form and have not yet been approved by the committee.***

Assessment Income				
	Administrative	Research	Total	
Whitman County	\$5,000		\$5,000	Whitman
Latah County	\$5,000		\$5,000	Latah
Pullman	\$20,000	\$20,000	\$40,000	Pullman
Moscow	\$20,000	\$20,000	\$40,000	Moscow
Colfax	\$5,000		\$5,000	Colfax
Washington State	\$20,000	\$20,000	\$40,000	WSU
University of Idaho	\$20,000	\$20,000	\$40,000	UI
	\$95,000	\$80,000	\$175,000	

Summary FY08 Budget

<i>Income</i>	Administrative	95,000	<b>Income</b>
	Research	80,000	
	<b>Total</b>	<b>175,000</b>	
<i>Expenses</i>	<i>Administrative</i>		<b>Expenses</b>
	Salaries	41,500	
	Fringes	15,000	
	Monitoring	16,000	
	UI Support Fee	3,500	
	Annual Report	4,000	
	Office Support/Supplies	1,200	
	Synoptic Logistics	4,500	
	Misc/Contingency	2,500	
	Subtotal	88,200	
	<i>Research</i>		
	Shallow System	12,000	
	Deep System	12,000	
	New Projects	50,000	
	Subtotal	74,000	
	<b>Total</b>	<b>162,200</b>	

Admin Balance	+ \$ 6,800
Research Balance	+ \$ 6,000
<b>Total FY08 Balance</b>	<b>+ \$12,800</b>

## Palouse Basin Water Management - Call for Preliminary Proposals

The Palouse Basin Aquifer Committee (PBAC) is a voluntary, cooperative, multi-jurisdictional group comprised of representatives from the cities of Pullman, Moscow, and Colfax, Whitman and Latah counties, Washington State University and the University of Idaho. PBAC's mission is to ensure a long-term, quality water supply for the Palouse Basin region.

In support of its mission, PBAC has supported research projects aimed at increasing understanding of those issues pertinent to water management in the basin. PBAC is considering continuation of this support for its upcoming 2007-2008 fiscal year.

PBAC envisions granting one or two project awards in amounts ranging from approximately \$15,000 to \$30,000. Work on the project(s) should target completion by June 30, 2008, but multi-year and extended completion time frames will also receive consideration. Preliminary project proposals must be received no later than June 11, 2007. Up to four preliminary proposals will be selected for further consideration, and invited full proposals will be due by July 16.

Preliminary proposals will be evaluated primarily by the degree to which the proposed project addresses those items included in the accompanying attachment.

Preliminary proposals are to be submitted in electronic format, either on acceptable electronic storage media or (if file size allows) attached to an email addressed to [steve@uidaho.edu](mailto:steve@uidaho.edu), on or before June 11, 2007.

General inquiries may be directed to Steve Robischon, Executive Manager, Palouse Basin Aquifer Committee, PO Box 443011, Moscow, ID, 83844-3011 (208.885.6429).

In anticipation of issuing a call for research proposals for PBAC’s 2007-2008 fiscal year, input was solicited from stakeholder groups (PBAC, CAG, WoW, WRIA 34, IWRI, WWRC, Water Summit Coordinating Committee) regarding the questions that future research should address.

Four responses were received. From the four responses, forty four potential research questions were aggregated into a single rating form that was sent to the PBAC and CAG representatives for input on the relative importance of each question. Responders were asked to rate the importance of each question as “High”, “Medium”, “Low”, or “No Rating”. The questionnaire is attached to the end of this document.

Five responses were received from the initial request. An additional request (second go-round) yielded an additional 9 responses, for a total of 14. For each question, a “High” rating was assigned 3 points, a “Medium” rating 2 points, a “Low” rating 1 point, and “No Rating” 0 points. Points for each question were accumulated across responders, and the ranked results are as shown in the table below and in the figure at the end of this document.

Rank	Rating	No.	Question
1	38	4	Will the results of the project be directly applicable to fulfilling PBAC goals?
2	35	40	Does the project identify recharge areas?
3	34	1	How does this proposal relate to PBAC's mission?
		12	How has the supply been changing over the last several decades? What are the region’s hydrologic cycle and groundwater recharge situations?
		3	How does the proposed project meet the PBAC goal for balancing water supply and use?
6	33	43	Does the project increase our technical understanding of the Palouse Basin Aquifer?
		8	The mission of PBAC is to stabilize ground water levels. The refinement of the water balance is critical to trying to address the supply and demand program. Without a refined water balance, it is a difficult to know how to stabilize the levels. Are there elements of the water balance that can be refined, if an entire water balance project is not proposed? Some projects may be limited in scope, but if they can begin to quantify the supply and demand, they are valuable.
8	32	11	What is our best estimate of the current water supply available in the Palouse Basin? In the region’s sub-basins?
		13	What is our best estimate of the current water demand in the Palouse Basin? In the region’s sub-basins? How has the demand been changing over the last several decades?

Rank	Rating	No.	Question
10	31	41	Does the project address securing long-term water supply for the large municipalities (Moscow and/or Pullman)? Or phrased a little differently: Is the project accomplishing the greatest good for the largest population?
		5	Are there tangible benefits from the project that can be articulated as they relate to long-range management of the hydrologic system?
12	30	30	What technical solutions are feasible in the basin to reduce demand on the water supply, including water re-use?
		33	What engineering designs might be feasible for enhancing recharge?
		36	What engineering designs (locations, sizes, types, yields) might be feasible for surface water storage?
15	29	2	What specific goal does this project propose to address?
16	28	22	What targeted monitoring will allow decision making to evolve with growth and as our understanding of the basin improves?
		42	Does the project help the public's understanding of Palouse Basin Aquifer issues?
		44	Does the project implement practices that curtail use or conserve a significant amount of water currently being drawn from the Palouse Basin Aquifer?
19	27	14	For example, what are projected changes in population, residential housing, commercial development, and other influences on increased water demand? More specifically, for example, what comparative impacts on increased water demand result from significant changes in retail (e.g., big-box) versus residential development?
		28	What legal mechanisms exist for reducing per capita demand as the basin develops, including: assured supply laws, pricing mechanisms, regulatory methods?
21	26	17	What are our best estimates of future changes in supply and demand over the next, say, 50 to 100 years? What are their implications for future growth and a sustainable supply of water in the Palouse Basin?
		20	What are the formal and informal mechanisms for managing ground and surface water basins across state lines?
		25	What is the actual willingness for and potential magnitude of voluntary conservation, and how can these be increased through education and outreach, understanding values, and technology?
		29	What is the magnitude of conservation expected under different scenarios of pricing and regulation?
		34	What are the planning-level costs of engineered recharge?

Rank	Rating	No.	Question
26	25	10	The Interstate Agreement allows for the administration of the ground water to be in accordance with the PBAC management plan. I would therefore hope that evaluation would include how the proposed project supports the management plan in general, as well as the specific goals.
		18	What are development and policy options that are do-able, realistic, cost-effective, etc., that local government could pursue to improve future water supply-demand situations in the basin? For instance, what does a socio-political, institutional, and legal analysis suggest are the prospects and impacts for cross-boundary, institutional arrangements and their effectiveness in inter-state basin management?
		23	Recharge to the aquifers is uncertain: how do the bounds provided by existing estimates affect the type and timing of water management decisions?
		27	What is the current and projected demand in the basin?
30	24	15	Also, what are the beliefs, attitudes and behaviors of residents of the basin concerning its past and current water situation? What is their vision for the future? To what extent would they be willing, for example, to make further changes in their behaviors?
		16	What would the estimated impacts be of increased conservation efforts and other projected changes in resident behaviors?
		32	What is the water supply available for development of surface resources from both a hydrologic (where and when) and legal viewpoint?
		37	What are the planning-level costs of surface water storage facilities?
34	23	35	What are the legal barriers/laws necessary to facilitate recharge?
		38	What are the legal barriers/laws necessary to facilitate surface water storage?
36	22	21	What is the social and political willingness in the Palouse Basin to submit to binding transboundary coordination versus voluntary coordination?
		24	Can a decision tool or community model be developed to aid water managers in assessing risk and uncertainty when making various water allocation/development/conservation etc. decisions?
		39	What are the funding mechanisms available in the Palouse basin for development of surface water resources?
39	21	26	What is the willingness for and potential effectiveness of regulation that imposes non-voluntary conservation?

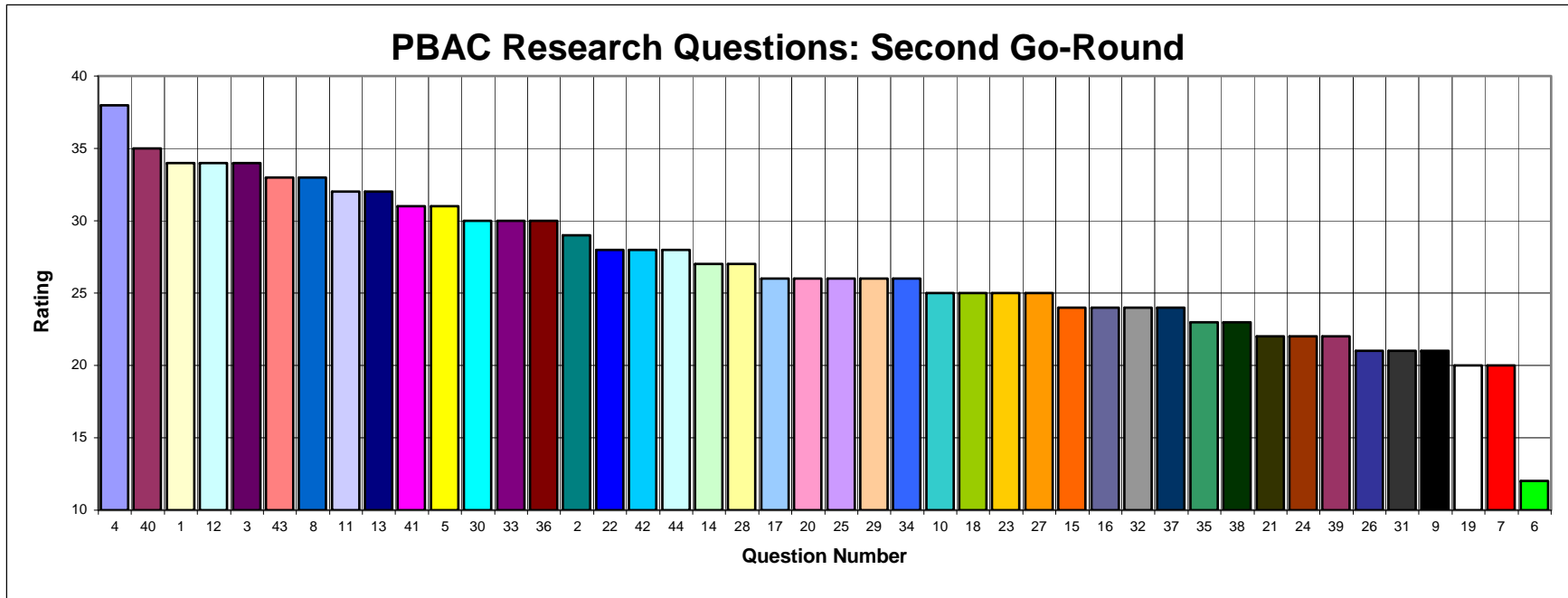
Rank	Rating	No.	Question
39	21	31	How do projected demand and desired growth affect willingness to pay for new water development in the Palouse basin?
		9	The CAG Recommendation #1 recommends development of "a sound applied geohydrologic characterization plan with input from the many scientists interested in the Palouse Basin aquifer system as well as input from a social and environmental perspective." If PBAC agrees with that recommendation, the questions that arise from that are if the proposal addresses any of that recommendation (perhaps a component or prep work that might led to such a plan) and if the proposal addresses social and environmental issues of concern to the water sustainability of the basin. If PBAC does not agree with the recommendation, this can be ignored.
42	20	19	What are current tools, such as dynamic systems modeling that graphically displays effects of modifying assumptions and parameters, for more effectively educating the public as well as decision-makers; would they help increase understanding of current and future supply/demand situations and impacts? What might various uses and effects of these tools be? How effective might they be for involving various parties and aiding them to enhance socially-acceptable decisionmaking at a basin, multi-jursidictional scale?
		7	Would the public support and find benefit if this project were funded?
44	12	6	What are risks or liabilities to this proposal?

In addition to the rating portion of the questionnaire, respondents had the opportunity to submit additional questions or general comments. Three additional comments were submitted.

*Develop water rate structure for adoption by local communities that would encourage conservation and provide excess revenue for funding of conservation programs and development of alternative water supplies.*

*Develop current cost estimates for all feasible water supply increase methods (i.e. reservoir, ASR, passive recharge, effluent reuse, conservation).*

*I think PBAC should fund hard engineering projects that lead to physical solutions to the declining water supply problem and/or expand our technical knowledge for such projects in the future. Sociological projects should be primarily be funded through other means.*



# **Project Scope of Work – Monitoring Wanapum Basalt/Latah Formation Sediments Combined With Long-Term Aquifer Stress Tests To Evaluate Annual Sustained Yield**

## **Executive Summary:**

The annual sustained yield of the Wanapum aquifer system as a renewable resource in the Moscow-Pullman area is not well understood. The only analysis of sustained yield performed to date was based on long-term (decades) water level data (Baines, 1992). Since that time, PBAC funded studies have delineated specific areas and mechanisms through which recharge enters the Wanapum aquifer system. Unlike for the Grande Ronde aquifer system that receives recharge on a time scale of years, the Wanapum aquifer system has been shown to receive pumping induced recharge on a time scale of minutes in specific areas such as the UI Groundwater Field Laboratory (UIGFL). The capability of the Wanapum aquifer system to receive increased pumping induced recharge on an annual time frame has never been investigated.

The present need is to “physically test” the sustained yield of the Wanapum aquifer system by significantly increasing the annual pumping stresses at controlled rates and for controlled durations while closely monitoring the system via the existing PBAC Wanapum/Latah Formation ground water monitoring network. It is proposed that careful correlation and implementation of flexible, increased pumping stresses (controlled by man) with times of maximum water availability (wet periods controlled by nature) will develop optimal conditions for induced recharge, and will maximize the sustained yield of the Wanapum aquifer system annually. System response to the increased pumping stresses will be monitored and analyzed as a long-term aquifer test to evaluate the “maximum” safe pumping stresses temporally and spatially, on an annual time frame.

## **Project Name:**

Monitoring Wanapum Basalt/Latah Formation Sediments Combined With Long-Term Aquifer Stress Tests To Evaluate Annual Sustained Yield

## **Period of Performance:**

Begin August 1, 2007 and run through May 31, 2009. Project start date is contingent upon securing the services of a qualified graduate student investigator.

## **Project Description and Objectives:**

This project is designed with following two purposes:

**Purpose 1** of this project will be to continue the maintenance and expansion of the Wanapum/Latah Formation (sediments) ground water monitoring network and database. The need for continued monitoring of the Wanapum/Latah Formation continues to grow as proposed new developments in the Pullman/Moscow area target this important, renewable, ground water resource system.

## **Project Scope of Work – Monitoring Wanapum Basalt/Latah Formation Sediments Combined With Long-Term Aquifer Stress Tests To Evaluate Annual Sustained Yield**

**Purpose 2** of this project will be to evaluate the optimal pumping stresses that will induce the maximum amount of recharge to the Wanapum Aquifer system on an annual time frame.

The sustained yield of the Wanapum aquifer system was investigated previously based on historical, pumping data and ground water level data (Baines, 1992). However, no detailed aquifer stress tests were ever conducted to quantify optimal, seasonal pumping stresses relative to the ability of the aquifer system to recover fully over a period of several years. The Wanapum aquifer system is known to receive recharge annually. However, recharge is believed to vary spatially and temporally from year to year as annual precipitation and stream runoff vary, and as hydraulic gradients due to seasonal pumping vary. Local, induced recharge from Paradise Creek via the sediments of Bovill has been delineated in response to pumping of the Wanapum aquifer system at the UI Ground Water Field Laboratory (Li, 1991; Hernandez, 2007); however, little is known about the maximum potential recharge to the aquifer system that might be induced over a regional scale, and the long-term average annual sustainable yield of the Wanapum aquifer system as a whole. Theoretically, induced recharge should be greatest when the hydraulic gradients between recharge areas (primarily streams) and discharge areas (i.e., wells) are greatest. However, in the Palouse Basin, this typically occurs during the summer time irrigation season when ground water pumping is at a maximum (i.e., steepest hydraulic gradients), and stream levels and available recharge water are at a minimum (low flow in streams). It may be possible to increase induced recharge significantly on an annual time frame by maximizing hydraulic gradients during the winter and spring seasons when stream levels are greatest and when the sediments of Bovill are the most saturated. This research project will closely monitor seasonal changes in ground water levels so that seasonal pumping gradients can be adjusted (i.e., modify city of Moscow Wanapum pumping) to correspond with maximum recharge water availability.

The general objective of this project is to expand and modify the existing Wanapum/Latah Formation ground water monitoring network to allow detailed monitoring of seasonal water level drawdown and recovery, and induced recharge in response to city of Moscow designed and scheduled increases in pumping from the Wanapum aquifer system. This project will be developed in complete, collaboration and cooperation with the city of Moscow Water Department and PBAC to implement significant increases in pumping from the Wanapum aquifer system seasonally. The effects of these increased pumping stresses on the Wanapum aquifer system will be monitored closely as a long-term aquifer test(s) that includes several cycles of drawdown and recovery on a seasonal or longer time frame.

This project will provide continuity during the transition from one student investigator to another relative to continual development and maintenance of the existing Wanapum/Latah Formation monitoring database. In addition, the project

## **Project Scope of Work – Monitoring Wanapum Basalt/Latah Formation Sediments Combined With Long-Term Aquifer Stress Tests To Evaluate Annual Sustained Yield**

will make full use of the monitoring data collected over the past 3 years (Badon, 2007; Hernandez, 2007; Opatz, 2007) to thoroughly define baseline conditions prior to implementation of the increased pumping rates/durations. These baseline data are critical for comparison purposes to monitor and evaluate the changes in water levels/water temperatures that occur due to increased pumping stresses on the Wanapum aquifer system. Not only will the data collected during this project help city of Moscow water managers identify potentially deleterious effects of exceeding the annual sustained yield of the Wanapum aquifer system, they will help delineate the optimal pumping rates seasonally (spring, summer, fall, winter) that will maximize induced recharge due to that pumping. Maximum use of the Wanapum aquifer system will reduce the overall stress on the Grande Ronde aquifer system; this ultimately will benefit everyone within the Palouse Basin. Information derived during this investigation will be critical for educated, future, inter-state water resource management decisions that pertain to the Wanapum aquifer system as a renewable, sustainable, resource; it is expected that future development in the Pullman/Moscow area increasingly will target this important ground water resource system making collection of these data crucial for future, informed ground water management decisions.

Short-term aquifer tests in the Palouse Basin historically have been conducted in an organized, well-planned manner to evaluate well-to-well hydraulic connections, and to estimate the aquifer coefficients transmissivity and storativity. However, these aquifer tests often were limited by the durations of pumping and recovery periods allowed due to local water demands. This particular project is being designed to circumvent many of the issues associated with short-term aquifer tests (i.e., requirement to maximize pumping durations and minimize well interference effects of other pumping wells in the area). These short-term aquifer tests not only were difficult to schedule and coordinate among Moscow, Pullman, Palouse, UI, and WSU, they were an inconvenience for the pump operators, and it often was difficult to optimize the pumping /recovery periods for specific wells because daily water needs are highly variable seasonally, and very difficult to predict on a daily basis. This project will evaluate the hydraulic effects of the proposed, increased pumping withdrawals from the Wanapum aquifer system; in addition, it will treat the total effects of all on/off pumping cycles as part of a single, long-term aquifer test by invoking the method of superposition. The method of superposition allows for the summation of all hydraulic effects of on/off pumping periods to be analyzed as a single, comprehensive data set that incorporates variable pumping rates and times over a long time period (annual or greater). A high priority of this investigation will be to reduce and synthesize the long-term aquifer test data in parts (few months for each part) to provide preliminary results to PBAC and the city of Moscow in clear form so that modifications to the testing (e.g., decrease in pumping rate/duration) can be implemented as needed to conform with the needs of the city of Moscow, and to reduce/eliminate potential deleterious effects of the increased pumping stresses on rural well owners.

## **Project Scope of Work – Monitoring Wanapum Basalt/Latah Formation Sediments Combined With Long-Term Aquifer Stress Tests To Evaluate Annual Sustained Yield**

List of specific objectives:

1. Maintain and expand the existing Wanapum/Latah Formation monitoring network, download water level data as required, reset dataloggers to record on a consistent time frame as part of an **accepted Palouse Basin monitoring protocol**, test the integrity of all data loggers, and replace faulty dataloggers when necessary.
2. Continuously update the water level monitoring database as appropriate based on periodic downloading of the data. Provide PBAC with the updated database every three months.
3. Design and conduct long-term aquifer stress tests to evaluate hydraulic connections between wells and potential recharge sources. Collect, synthesize, analyze and interpret aquifer test data to evaluate the annual sustainable yield of the Wanapum/Latah Formation aquifer system(s).
4. Evaluate ground water/surface water interaction under long-term pumping conditions in selected areas of the Moscow-Pullman area (e.g., suspected recharge areas along creeks and through the sediments of Bovill).
5. Compose/complete a ground water monitoring/aquifer testing report as an MS thesis in Hydrology that addresses issues, documents observed field data, and compiles findings of results and interpretations.

**Project Scope of Work – Monitoring Wanapum Basalt/Latah Formation Sediments  
Combined With Long-Term Aquifer Stress Tests To Evaluate Annual Sustained  
Yield**

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.
- An updated database will be provided to PBAC on CD/DVD upon each download of the monitoring network (approximately every 3 months).
- 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 and the Principal Investigator on or before the second Thursday of each month.

Project Budget:

	<u>FY08</u>	<u>FY09</u>	<u>Total</u>
*Salaries	\$11,000	\$11,000	\$22,000
Fringe Benefits	\$270	\$310	\$580
Travel	\$700	\$600	\$1300
Health Insurance	\$1246	\$1300	\$2,546
Other Expense	\$800	\$600	\$1,400
**Trustee Benefits	\$4979	\$5148	\$10,127
Capital Expense	\$0	\$0	\$0
Total	<u>\$18,995</u>	<u>\$18,958</u>	<u>\$37,953</u>

Administrative Budget Portion	\$7,333	\$8,000	\$15,333 (for monitoring)
Research Budget Portion	\$11,662	\$10,958	\$22,620 (for research project)

\* - Includes student stipend for 22 months at \$1,000 per month.

\*\* - Includes tuition and fees for 4 semesters at \$2,532 (average) per semester.

**Note: Implementation of the project described in the above proposal is contingent upon the identification of and agreement with an appropriate research assistant.**

**Project Scope of Work – Monitoring Wanapum Basalt/Latah Formation Sediments  
Combined With Long-Term Aquifer Stress Tests To Evaluate Annual Sustained  
Yield**

Approvals:

_____	_____
Research Assistant	Date
_____	_____
Principal Investigator	Date
_____	_____
PBAC Technical Advisor	Date
_____	_____
PBAC Budget Administrator	Date
_____	_____
PBAC Chairman	Date

RESOLUTION NO. R-01-07

A RESOLUTION INCREASING FUNDING CONTRIBUTIONS FOR THE PARTIES  
COMPRISING THE PALOUSE BASIN AQUIFER COMMITTEE

Whereas, the PARTIES comprising the Palouse Basin Aquifer Committee (PBAC) currently consist of the City of Pullman, the City of Moscow, Whitman County, Latah County, the University of Idaho, Washington State University, and the City of Colfax; and,

Whereas, the PARTIES have entered into an Interagency Agreement through which they operate as the Palouse Basin Aquifer Committee; and,

Whereas, Section V.C of said Interagency Agreement establishes funding contributions for the PARTIES and related voting rights for members of PBAC; and,

Whereas, Section V.C.3 of said Interagency Agreement provides that said funding contributions may be raised or lowered by a two-thirds (2/3) majority vote of all members of PBAC with voting rights; and,

Whereas, Section V.C.4. of said Interagency Agreement provides that additional funding may be provided for projects by PARTIES according to the interests and benefits of each participating PARTY and upon approval by each PARTY participating in the project; and,

Whereas, the members desire to increase the operating funding contributions of all PARTIES of the Palouse Basin Aquifer Committee; and,

Whereas, the City of Pullman, the City of Moscow, Washington State University, and University of Idaho each desire to provide ongoing funding for projects; now, therefore;

IT IS HEREBY RESOLVED that Section V.C.1 of the Palouse Basin Aquifer Committee Interagency Agreement is revised to read as follows:

“UI, WSU, MOSCOW, and PULLMAN shall each, as its contribution, pay \$20,000 annually toward the operating budget of PBAC. For this contribution, said PARTIES shall each have two (2) voting members pursuant to Section IV.B”.

BE IT FURTHER RESOLVED that Section V.C.2. of the Palouse Basin Aquifer Committee Interagency Agreement is revised to read as follows:

“LATAH, WHITMAN, and COLFAX and any subsequently admitted PARTY shall each, as its contribution, pay \$5,000 annually toward the operating budget of PBAC. For this contribution, said PARTIES shall each have one (1) voting

member pursuant to Section IV.B. Any said PARTY that increases its contribution to \$20,000 shall have said voting membership increased to two (2) for the related fiscal year”.

BE IT FURTHER RESOLVED that this resolution shall become effective with the contributions that will be due from the PARTIES on July 1, 2007 and shall remain effective thereafter until amended by subsequent action.

Adopted by at least a two-thirds (2/3) majority of all members of the Palouse Basin Aquifer Committee with voting rights on the \_\_\_\_\_ day of \_\_\_\_\_, 2007.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2007

\_\_\_\_\_  
Chairperson

Attest:

\_\_\_\_\_  
Vice Chairperson

Voting Record

<u>Member</u>	<u>Aye</u>	<u>Nay</u>	<u>Abstain</u>	<u>Absent</u>
Barney Waldrop				
Mark Workman				
Aaron Ament				
Tom Scallorn				
Joe Kline				
Mike Holthaus				
Rob Corcoran				
Keith Bloom				
Mark Storey				
Tom Stroschein				
Carl Thompson				

**ADDENDUM TO PALOUSE BASIN AQUIFER COMMITTEE INTERAGENCY AGREEMENT BETWEEN CITY OF MOSCOW, IDAHO, CITY OF PULLMAN, WASHINGTON, UNIVERSITY OF IDAHO AND WASHINGTON STATE UNIVERSITY RELATING TO ADDITIONAL FUNDING CONTRIBUTIONS FOR SPECIFIC RESEARCH PROJECTS**

WHEREAS, Section V.C.4 of the Palouse Basin Aquifer Committee Interagency Agreement (PBAC Agreement) provides: "Additional funding may be provided for any specific project according to the interests and benefits of each participating PARTY. Said funding shall be approved by each PARTY participating in said project;" and,

WHEREAS, the City of Pullman, City of Moscow, Washington State University, and University of Idaho desire to contribute annually additional funds for specific research projects relating to the Palouse Basin Aquifer; and,

WHEREAS, it is in the best interests of the four parties to this Addendum to determine the specific research projects for which these additional contributions shall be utilized.

Now, therefore, the City of Pullman, City of Moscow, Washington State University, and University of Idaho agree:

1. To contribute an additional sum of \$20,000 per year to PBAC,
2. That these additional contributions may be expended by PBAC on a specific project or projects only as approved by a unanimous vote of the PBAC members representing the City of Pullman, City of Moscow, Washington State University, and University of Idaho. Non-contributing PBAC members are not entitled to vote on the expenditure of these additional contributions.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2007.

IN WITNESS THEREOF, the undersigned parties to this ADDENDUM affirm that they have been granted the authority to sign this document on behalf of their respective entities.

**CITY OF PULLMAN**

**CITY OF MOSCOW**

\_\_\_\_\_  
Name: Glenn A. Johnson  
Title: Mayor  
Date: \_\_\_\_\_  
Attest: \_\_\_\_\_

\_\_\_\_\_  
Name: Nancy Chaney  
Title: Mayor  
Date: \_\_\_\_\_  
Attest: \_\_\_\_\_

**WASHINGTON STATE UNIVERSITY**

**UNIVERSITY OF IDAHO**

\_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_  
Attest: \_\_\_\_\_

\_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_  
Attest: \_\_\_\_\_

	Budget	Actual	
Beginning Balance	\$152,975	\$152,975	
Admin/Ops Assessment Revenue	\$38,000	\$38,000	FY07 Posted
Admin/Ops Expenses	\$74,339	\$55,890	
Admin/Ops Balance	(\$36,339)	(\$17,890)	
Research Assessment Revenue	\$80,000	\$80,000	FY07 Posted
Research Commitments/Expenses	\$103,963	\$46,934	
Research Balance	(\$23,963)	\$33,066	
Ending Balance	\$92,674	\$168,152	Current Balance

Assessments

	Budget				Posted	
	Administrative	Research	Total		Admin	Res
Whitman County	\$2,000		\$2,000	Whitman	\$2,000	
Latah County	\$2,000		\$2,000	Latah	\$2,000	
Pullman	\$8,000	\$20,000	\$28,000	Pullman	\$8,000	\$20,000
Moscow	\$8,000	\$20,000	\$28,000	Moscow	\$8,000	\$20,000
Colfax	\$2,000		\$2,000	Colfax	\$2,000	
Washington State	\$8,000	\$20,000	\$28,000	WSU	\$8,000	\$20,000
University of Idaho	\$8,000	\$20,000	\$28,000	UI	\$8,000	\$20,000
	\$38,000	\$80,000	\$118,000		\$38,000	\$80,000

	<b>Commitments</b> FY07*		<b>Expenses</b> FY07 Posted
<b>Administrative</b>	\$74,338.68	Administrative / Operations Subtotal	\$55,890.20

	<b>Commitments</b> FY07 + Outyear **		<b>Expenses</b> FY07 Posted
<b>Research</b>	\$1,182.67	Geophysical Study (Holom)	
		Mapping (Bush)	
	\$115.55	Deep Aquifer Monitoring (McVay)	
	\$50,000.00	Cunningham Well Field	
	\$1,255.87	Shallow Aquifer Monitoring (Badon)	
		Hydrostatigraphy Evaluation (Osiensky)	
	\$21,109.93	Passive Drainage Well (Opatz)	\$14,935.74
	\$1,696.30	Database / GIS / Model (Wu/Leek)	
	\$2,437.47	Deep Aquifer Monitoring (Douglas)	\$2,437.47
	\$26,694.00	Continuation of Deep Aquifer Monitoring (Fiedler)	\$5,615.76
	\$18,404.06	Shallow Aquifer Monitoring Cont. (Hernandez)	\$15,052.34
	\$1,067.05	Shallow Aquifer Drought Level Monitoring (Nimmer)	
	\$30,000.00	Commitment to Complete IDWR Monitoring Wells	\$8,146.01
		General Research Expenses	\$746.32
	\$103,962.90	Research Commitments/Expenses Subtotal	\$46,933.64

<b>Total</b>		
\$178,301.58	Total Commitments / Expenses	\$102,823.84

\* includes admin expenses through June 30, 2007

\*\* includes project agreements through project term