

## Data Collection, Characterization, Monitoring

### Charge from Groundwater Management Area Advisory Committee

#### Working Group Members

Melanie Redding (Chair); Andres Cervantes; Bob Stevens; Charles (Pony) Ellingson; David Bowen; Chelsea Durfey; Dave Cowan; Donald Brown; Doug Simpson; Elizabeth Sanchez; Eric Winiecki; Frank Lyall; Ginny Stern; Jaclyn Hancock; Jan Whitefoot; Jean Mendoza, Jennifer MacDonald; John Van Wingerden, Kevin Lindsey; Laurie Crowe; Lino Guerra; Mike Shuttleworth; Ralph Fisher; René Fuentes; Robert Farrell; Ron Cowin, Scott Stephen; Sheila Fleming; Steve Swope; Stuart Turner; Dr. Troy Peters

#### Meetings/Calls Dates

Meeting: Wednesday, May 11, 2016, 1:00-3:00 PM

Call Number: 509-574-2353 pin: 2353#

#### Participants

Present: Melanie Redding (Chair)\*, Jim Davenport, Steve George, Steve Swope\*, Gary Bahr, Jean Mendoza, Laurie Crowe\*, Ginny Stern\*, David Bowen, Cynthia Kozma, Sandy Braden, and Bobbie Brady (Yakima County Support Staff). Pony Ellingson and Glenn Mutti-Driscoll from PGG\*. \*via phone

#### Key Discussion Points

Chair, Melanie Redding, opened the meeting at 1:00 PM and noted that there were several large items on the agenda. Everyone then introduced themselves.

#### **Nitrogen Loading Assessment**

Melanie advised that the Department of Agriculture had taken the lead and will work with Yakima County to synthesize all three chapters into one document. Gary Bahr reported that his team was still going through the Livestock chapter reviewing all of the comments made by the peer reviewers and also looking back at the history of the document, reviewing the background literature, calculations, formulas, spreadsheets and all other documents rewriting as necessary based on the peer reviewers' comments. The Irrigated Ag piece is also back from the peer reviewers. Some updating is necessary but not as much as the Livestock piece. WSU will also look at the piece again in order to provide a more thorough review. Gary explained that WSU had reviewed everything preliminarily and found it to be good, but they wanted a second chance since there was now more time to devote to the effort as school's semester had closed.

Melanie added that Mike Martian from the County GIS office was compiling the RCIM component. He and Cynthia Kozma are in the process of adding a table similar to the Irrigated Ag piece which will list each source and document total N by tons/year and a low, average and

high range. Jim Davenport reported that the RCIM working group met with Mike and Cynthia earlier in the week. Vern said that most of the inputs to the piece had originated from RCIM with no surprises except for septic tanks. The group was working on validating the input numbers and had held a great discussion about septic. Mike and Cynthia are now looking at some research on input for septic tanks. They are also looking at the report paper Melanie had written and those input values.

Vern added that the issue of bio-solids had been dealt with in the Irrigated Ag piece. He also said that they continued to get good material about atmospheric deposition and were sorting through it to find the best information. The goal was to wrap up the report into final format in the next couple of weeks so that it could be sent on to the Department of Ag and Melanie for the peer review team.

Everyone had benefitted from the comments on the Livestock piece because it pointed out how important it was for each piece to include the background work (not just the answers) and references. In the end, someone reading all three pieces will be able to understand exactly who, what, where, when, why and how of each document.

A member asked Gary if the Livestock piece had been updated as it had originally been written under the assumption (because of the lack of data) that every lagoon was 10 feet deep. Gary assured everyone that they were updating the piece with the work done this past year on lagoons by Ginny Stern. She had completed a thorough assessment including intricate measurements, dimensions, a clarification of lagoons vs. fresh water holding ponds, earthen vs. synthetic liners and so on. A member asked Gary if the geographical information on the lagoons would be available to the County for their work as well – Gary will provide it.

Vern and Melanie agreed that it would be good to get this new information into the GIS data base and to continue to process updates as this would allow the group to further refine what they know. The goal had been to set everything up in a format that would allow them to: 1) follow along behind in reports because they have everything there; and 2) to provide the ability to make a change in the spreadsheet automatically repopulating the GIS layer. The information would be dynamic as more or better information becomes available. A member wanted to know what the cost would be to maintain the system and if 15 years from now Yakima County would have maintained the information. Vern said the cost would be minimal and that the information would be maintained until the problem no longer remained or there is another entity managing the issue.

### **Ambient Monitoring Network**

Melanie desired to begin the discussion with a brief overview of the conversations and reports that led to the GWAC's February 19, 2015, direction for the Data Working group to develop an ambient monitoring network plan. While it was understood that this wouldn't meet the long-term monitoring plan objectives the GWAC realized that with its limited resources an ambient plan would begin to gauge whether the GWAC was meeting their goal. The group should also understand what the plan would and would not do and that not everything can be done with one plan. Other systems can be built off of this one that could be up-gradient or down-gradient of any hot spots. She felt that the group must keep these things in mind as they moved forward in

their discussion. Vern and Jim agreed that this overview was consistent with the minutes and their memories.

Melanie then turned the meeting over to Steve Swope from PGG. He let the group know that they had begun to evaluate the locations of the monitoring wells and will develop a follow-up report over the next few weeks. In addition, they submitted their drain sample design for the group's consideration which would be wrapped into the same report if approved.

A member desired to explore the option of private wells further. Jim Davenport noted that the GWAC had already made the decision at the February 10, 2015, meeting when they issued a directive that the monitoring network was to be "purpose built" so there would be complete control thus insuring reliability of access. The GWAC had been concerned that access could be denied if the private well property changed hands and that the effort to obtain long-term data would be lost. Jim went on to say that he agreed another step could be added to look at hot spots and that private wells in addition to the purpose built wells suggested by PGG would acquire richer data. However, he felt it was important to remember the purpose – this is an ambient system not an analytical system. The desire is to get the process going and hopefully funding can be procured for additional locations. The task now, however, was to prioritize locations and identify costs.

A member voiced concern that the GWAC hadn't been well enough informed about an ambient monitoring system when it made its decision in February, 2015. Jim and Pony responded to this concern and said that the goal was to provide water quality characterization that couldn't be done with existing data. Therefore, purpose drilled wells at the water table built on County right-of-way (not at various points) met this need, made the most sense and would be cost-effective. This would allow the GWAC to collect data at a location where there would be a plain of water to monitor over time at the point where the nitrate gets into the water.

The member expressed an additional concern about the number of wells on Konnowac Pass and that the data would be averaged or fudged. Melanie agreed that at this time the GWAC did not know how this would be funded or monitored long-term. She also agreed with the member's point that you can't take data points and average them and say this is how water is now. You must look at individual data points over time. Melanie suggested that when PGG gets its next version of the report done and the group has had a chance to review it the group could request that a discussion be had at a GWAC meeting as to how these programs would be funded. Vern agreed but felt it was important to move forward with what could be implemented over the life of the GWMA with the funding already available. He was anxious to make good decisions and get holes in the ground so that data collection was initiated.

Steve spoke up and reminded the group that the intent of this work plan was to look at purpose built wells. Melanie stated that the GWAC had already heard both sides of the argument including information about the work she had done in Whatcom County which included only private wells which produced both good and bad outcome. Vern added that the GWAC's funding of PGG for purpose built wells was in the minutes and also in the contract.

Steve went on to say that the numbers on the map are in priority order. The model presumes that the entire GWMA is unmonitored when the first well is installed. PGG tried to choose a method as objective as possible to alleviate criticism for being subjective in order to defend the statistical analysis that would make data questionable. In a nutshell they adopted a random approach that was designed to cover the aquifer. A member responded that the boundaries of the GWMA are not the boundaries of the aquifer. It was the member's belief that the lower valley had the biggest nitrate problem and the middle valley had less of a problem; therefore, they believed that a line could be drawn through Zillah and testing could be done only in the lower valley. The member also desired a feasibility analysis for two different studies 1) purpose built and 2) private built wells and high risk well testing to identify where issues are. Vern said that he wasn't arguing against the use of private wells. His desire was to obtain the highest quality data from wells we could control. He always thought the group would come back and do more testing especially in hot spots. Jim Davenport said this project wouldn't change but it could be added onto in the future as the Data group decides. Then the group could make a recommendation. This could be a future agenda item, but would not be discussed and decided at the present meeting.

### **Proposed Groundwater Monitoring Locations from Irrigation Drains**

Glen explained that during the non-irrigation season, water diversion from the Yakima River ceases, and water present in the drains is predominantly groundwater that continues to enter the drains. This allows drains to be good test sites, requires no pumps, incurs no additional installation costs and can be sampled in minutes. PGG looked at accessibility and identified 25 potential sites. 19 of these have historical data so trends are already available and the group could move on them quickly. PGG did not prioritize locations because cost sensitivity is lower – they will wait for field verification to decide. He also explained that they did look at concerns raised by Kevin Lindsey but they just want to sample without surface water as the major emphasis is groundwater.

The group held a discussion about obtaining testing for items other than nitrates. David Bowen pointed out however that the GWMA's directive was to determine nitrates and tests for other items would have to be approved by Olympia. The costs for these other tests was estimated at \$20,000 per year (40 wells x 4 times per year). A member proposed the funding for augmented testing come from the remainder of the deep soil sampling funding. Vern pointed out that the RCIM group was going to use it for deep soil sampling of septic systems and that the decision would need to be taken to the GWAC.

Another member desired more information about the augmented tests so that the group could determine its relevancy before any decisions were made. He agreed that the mandate had been to look strictly at nitrates. Vern agreed and said that the only exception had been on the well assessments – there were tests done for coliform/bacteria because they may have revealed additional information that was pertinent to the nitrate study. Melanie agreed and stated that as the group moved forward its directive had been to concentrate on the state of the nitrates in the aquifer.

Melanie liked the idea of sampling drains. She didn't feel it would replace the ambient system but would provide immediate information and is less expensive. Jim added that at the last GWAC meeting when the group compiled its list of "what more it needed to know" one of the responses was that there was a need to learn more about drains and creeks. Testing drains would provide this information for Figure 2, Site Characterization of the GWMA.

Steve noted that 20 drain locations can be sampled at minimal expense – approximately \$2,000.00 for a field study and \$200.00 for lab costs whereas each monitoring well installation was \$2,000.00 and approximately \$20,000.00 annually for four samples of 30 to 40 locations. Drains provide the most information at the least cost.

A member voiced concern about water runoff from fields into drains during irrigation season. He pointed out that in Moxee they had seen an increase in flow when the canals are open. Pony said that he understood this to be true as well. They will look at it site by site and make a determination from there

Jim asked for the group's consensus on proceeding and the group agreed to go ahead with the project. PGG will now integrate drains and wells in their next report. They will also provide enlarged maps of specific well locations as the first map only contained random locations. Slight adjustments will also be made to the nearest public access/right-of-way. The goal is to get everything to the group before the next meeting so that the plan can be reviewed and considered in time to be presented at the next GWAC meeting. PGG will continue to work with Cynthia and Mike at GIS to confirm depth to groundwater and groundwater contours.

A member wanted a drain site down just a bit from No. 11 and up from No. 12 on the map where there was a wildlife refuge. Concern was again expressed that this was not related to nitrates in the groundwater as the drain flows down to the river and away from people and thus does not affect humans which is the focus of the GWMA study. The discussion was tabled. Melanie reminded everyone again to keep in mind goals/objectives given in developing a groundwater monitoring system. She also thanked PGG for their efforts.

Chair, Melanie Redding adjourned the meeting at 2:46 PM.

## **Resources Requested**

### **Recommendations for GWAC**

### **Deliverables/Products Status**

### **Proposed Next Steps**

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Gary Bahr will provide the geographical information on the lagoons to the County for their work.