



Public Services

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VERN M. REDIFER, P.E., Director

May 1, 2017

David Bowen
Department of Ecology, Central Region Office
1250 West Alder Street
Union Gap, WA 98903

Re: **Lower Yakima Valley GWMA - 2017 First Quarter Report (IAA No. C 1200235)**

Dear David:

Enclosed please find one (1) copy of Yakima County's first-quarter report as required under Attachment A, Statement of Work, Agreement No. C 1200235 between the State of Washington Department of Ecology and Yakima County.

This report addresses deliverables 1.1, 1.4 and 2.2 as required under the agreement.

Deliverable 2.1, invoices, to be sent separately.

If you have any questions, please let me know.

Thank you.

Lisa H. Freund, Administrative Manager
Yakima County Public Services

enclosure

Yakima County ensures full compliance with Title VI of the Civil Rights Act of 1964 by prohibiting discrimination against any person on the basis of race, color, national origin, or sex in the provision of benefits and services resulting from its federally assisted programs and activities. For questions regarding Yakima County's Title VI Program, you may contact the Title VI Coordinator at 509-574-2300.

If this letter pertains to a meeting and you need special accommodations, please call us at 509-574-2300 by 10:00 a.m. three days prior to the meeting. For TDD users, please use the State's toll free relay service 1-800-833-6388 and ask the operator to dial 509-574-2300.

IAA No. C 1200235 – First Quarter 2017 Report
Lower Yakima Valley GWMA
March 31, 2017

TASK 1 - ADMINISTRATIVE FUNCTIONS
DELIVERABLES

1.1 Meeting Records

For each meeting of the GWAC, submit a copy of the agenda, minutes, attendance and public meeting notice at the end of each quarter.

Attachment [A] includes the final GWAC meeting summary of December 15, 2016; the draft GWAC meeting summary of February 16, 2017; the Irrigated Ag Working Group (IAG) summaries of February 21 and March 21, 2017; the Residential, Commercial, Industrial, and Municipal (RCIM) Working Group summaries of February 13 and March 13, 2017; the Data Collection, Characterization and Monitoring Working Group summaries of January 26 and February 22, 2017; the Regulatory Framework Working Group summaries of February 23 and March 22, 2017; the Livestock/CAFO Working Group summaries of January 5 and March 2, 2017; and the Education and Public Outreach (EPO) Working Group summaries of January 5 and March 15, 2017. The Funding Working Group did not hold a meeting in this quarter.

1.4 2017 Meeting Schedule

At its February meeting, the GWAC agreed to continue its bimonthly schedule until April. Thereafter the GWAC decided to hold monthly meetings through December, provided there was sufficient business each month to warrant holding the meeting. As in previous years, meetings will be held the third Thursday of the month from 5:00 p.m. - 7:00 p.m. at the Denny Blaine Boardroom, 810 East Custer Avenue in Sunnyside. If that venue is not available, meetings will be held at Radio KDNA, 121 Sunnyside Avenue in Granger. The 2017 meeting schedule is February 16, April 20, May 18, June 15, July 20, August 17, September 21, October 19, November 16 and December 21.

TASK 2 - PROGRAM FUNCTIONS
DELIVERABLES

2.2 Status Report

Submit written quarterly status reports summarizing GWAC plans, activities and work products, and describing any interlocal agreements or other contracts by the end of each quarter.

The GWAC began its final year of work under this agreement in January. It held one meeting, on February 16, and agreed to hold monthly meetings beginning in April (as needed) to complete its obligations by December.

Discussions at the GWAC meeting and in the working groups focused on completing the monitoring initiatives, including the ambient monitoring network of purpose-built wells, and other monitoring initiatives involving drinking water wells and drains. A contract was signed with USGS to begin to identify drinking wells to sample, and the County began discussions with Pacific Groundwater Group (PGG) about modifications to the Quality Assurance Project Plan (QAPP).

Washington State Department of Agriculture (WSDA) and Yakima County completed the Draft Nitrogen Loading Assessment. It was anticipated that the assessment would be released to the technical working groups in the second quarter. In other work, the GWAC moved to pursue analysis of the deep soil sampling and the County's 450 high risk well assessment sampling surveys.

Several working groups began drafting their reports to the GWAC, and all groups completed the EPO Questionnaire Summary, an exercise intended to create a unified message and outreach plan to inform the public of the GWAC's accomplishments and long-term goals. The document specifically summarized each working group's discoveries, anticipated recommendations, and identified target audiences and key messages.

The EPO Questionnaire Summary is included as Attachment [B].

Details of these and other initiatives follow.

Ambient Groundwater Monitoring Network (AMN)

Background. At the November 2016 GWAC meeting the group agreed to proceed with PGG's Ambient Monitoring Network of purpose-built wells, and to allocate money for its implementation, along with other monitoring initiatives involving drinking water wells and drains. They further agreed to authorize Vern Redifer to contact contractors and develop a sample plan to monitor common water supply and develop a sampling Quality Assurance Project Plan (QAPP).

Work began on March 7, 2017, when a contract between Yakima County and the US Geological Survey (USGS) was executed in the amount of \$491,320 for collecting samples from approximately 150 private domestic wells and 25 locations in agricultural drain systems. The sampling was proposed to be conducted monthly for nitrate concentrations. As of March 31, the USGS had identified a number of private domestic wells for testing and had begun sampling. The USGS contract is included as Attachment [D].

Nitrogen Loading Assessment. Peer review of the draft was completed in the first quarter. The Washington State Department of Agriculture (WSDA) and the County responded to comments from reviewers and focused on consolidating the various documents into a single cohesive document. WSDA committed to giving a presentation on the Livestock/CAFO and Irrigated Ag portions to the technical working groups once the final draft was produced. The draft was scheduled to be distributed to the working groups in April.

Other Work Plans and Products

Public safety and awareness outreach continued with the “Test Your Well” billboard campaign. The first billboard went up in December; the second in January.

What You Can Do to Protect Well Water. Local flooding in Outlook in March prompted the Yakima Health District to distribute the EPO’s “Steps to Assure You Have Safe Drinking Water” (English/Spanish) flyer door-to-door to Outlook residents. Seeing an opportunity to raise awareness and promote the GWAC’s safe drinking water message, the EPO had over 22,000 of the English/Spanish flyers inserted in the *Sunnyside Daily Sun News* and the Spanish-Language *El Sol* weekly publication in late March. Commissioner Rand Elliott continued the promotion by participating in a KIT Radio Show (March 30) and GWAC member Andres Cervantes and EPO member Ignacio Marquez participated in a Spanish-language KDNA news show on the same topic (April 4). A flyer distribution at the Sunnyside Walmart was slated for later in April. The flyer is included with Attachment [C].

Working Group Activities

Education and Public Outreach (Lisa Freund, Chair)

The EPO met on January 5 and March 15. The focus at each meeting was to develop a short- and long-term GWAC communications strategy. Short-term, it was incumbent upon the GWAC to notify the public of its work, encourage participation in plan development and adoption, and to communicate any recommendations agreed to thus far. Long-term (post-plan adoption), it had an obligation to create a strategy to notify the public of its recommendations.

To start the process, an EPO questionnaire was created and circulated to each of the working groups. Each group was asked to briefly state its mission/purpose, accomplishments to date, discoveries or findings, its anticipated products, target audiences and key messages. A summary of the groups’ responses is included as Attachment [B].

“What You Can Do” flyer series. In the first quarter the EPO also developed four flyers using a simple, one-page format to demonstrate to the other working groups how they might promote their own messaging. The brochures addressed topics several working groups had requested the EPO pursue:

1. Steps to Assure You Have Safe Drinking Water
2. Failing Septic Systems
3. Small Farms: What You Can Do (Manure Management)
4. What You Can Do: Well Safety

The brochures were translated into Spanish and posted to the website.

In March the EPO developed the “Steps to Assure You Have Safe Drinking Water” (English/Spanish) campaign as described above.

The “Steps to Assure You Have Safe Drinking Water,” “Failing Septic Systems,” Small Farms: What You Can Do (Manure Management),” and “What You Can Do: Well Safety” English/Spanish flyers are included as Attachment [C].

Data Collection (Melanie Redding, Chair)

The Data Collection working group met on January 26 and February 22. The focus at both meetings was the status of the monitoring initiatives, the Nitrogen Loading Assessment (NLA) and completing the EPO Questionnaire.

Irrigated Ag (IAWG) (Troy Peters, Chair)

Background. In late 2016 the IAWG discussed its agreed-upon solutions that Chair Troy Peters intended to propose to the GWAC: education, soil moisture sensor/irrigation management, soil samples/nutrient management assistance to growers, and outreach to fertilizer companies. The group discussed how these recommendations might be carried out (who, when, how, and at what cost). They considered that for the purposes of the GWMA Plan, they must define what each recommendation would entail, determine the cost, and explain the benefits.

At its meetings on February 21 and March 21, the group refined its list and considered cost recommendations and funding sources. The group used the EPO Questionnaire to outline its four recommendations to the GWAC:

1. Increase funding to state conservation districts and WSU Extension for nutrient management and irrigation water management in the Yakima Valley.
2. Hire 1.0 FTE at the South Yakima Conservation District office to conduct soil sampling and soil moisture monitoring.
3. Increase funding for cost share of irrigation water management and education of these programs. (100 percent cost coverage is not recommended).
4. Increase funding for cost share of soil sampling and analysis (irrigation water management) and education of these programs.

At the conclusion of the March 21 meeting, Chairman Troy Peters asked the group if it was satisfied that it had finished the tasks it had been assigned. The group agreed. However, the group agreed to keep future meeting dates open in case a meeting was needed.

Residential, Commercial, Industrial, and Municipal (RCIM) (Dan DeGroot, Chair)

The group met on February 13 and March 13 and completed its investigations of Residential, Commercial, Industrial and Municipal items for the GWAC.

The group anticipated writing and considering its various proposed recommendations for the GWAC in the second quarter. Pending review of the Draft Nitrogen Loading Assessment (NLA), the group would look to finalize the report and complete the recommendations list for GWAC approval.

Regulatory Framework (Jean Mendoza, Chair)

The Regulatory Work Group met in February and March. The group heard from the Yakima Health District, Ecology, and the WSDA Dairy Nutrient Management Program regarding the regulation of dairy composting operations. They also heard from Ecology regarding Total Maximum Daily Loads (TMDLs) and possible use of this mechanism to address nitrates in groundwater based on monitoring of water in drains.

The group agreed on a list of take-away messages for public outreach that include:

1. In general agencies are under-resourced.
2. There are many laws with some duplication making it difficult for both regulators and the regulated to stay current with the laws.
3. Some laws are not adequately implemented.
4. Coordination/communication between agencies is important.
5. There is a different paradigm/perception of enforcement for the public and for agencies.
6. Most of the presentations have reported that the regulated communities have seen continuous improvement in compliance.

Future activities in 2017 would focus on fulfillment of the tasks in the GWMA work plan.

Livestock/CAFO (David Bowen, Chair)

The Livestock/CAFO Working Group met January 5 and March 2.

The group finalized its collection of information and was in the first stage of reviewing draft language for its portion of the Groundwater Management Plan, with the goal of delivering the product to Yakima County in April or May. The group also completed an extensive look at Best Management Practices (BMPs) and National Resource Conservation Service (NRCS) standards and practices.

GWMA Website

The GWMA website continued to be updated in real time.

Contracts and Interlocal Agreements

A contract with the US Geological Survey, United States Department of the Interior, in the amount of \$491,320, for water resources investigations, was executed on March 7, 2017.

Amendment #1 between Paul's Properties LLC and Yakima County in the amount of \$550 for the "Test Your Wells" billboard campaign was executed on February 21, 2017.

The contracts are included as Attachment [D].

Attachment A

- Final GWAC meeting summary of December 15, 2016.
- Draft GWAC meeting summary of February 16, 2017.
- GWAC agenda, attendance roster record, and public meeting notice for February 16, 2017.
- Irrigated Ag Working Group (IAWG) summaries of February 21, 2017 and March 21, 2017.
- Residential, Commercial, Industrial and Municipal (RCIM) Working Group summaries of February 13, 2017 and March 13, 2017.
- Data Collection, Characterization and Monitoring Working Group summaries of January 26, 2017 and February 22, 2017.
- Regulatory Framework Working Group summaries of February 1250023, 2017 and March 22, 2017.
- Livestock/CAFO Working Group summaries of January 5, 2017 and March 2, 2017.
- Education and Public Outreach (EPO) Working Group summaries of January 5, 2017 and March 15, 2017.

3 MEETING SUMMARY

4 Thursday, December 15, 2016 – 5:00 p.m. – 7:00 p.m.

8 Note: This document is only a summary of issues and actions of this meeting. It is not intended to be
9 a transcription of the meeting, but an overview of points raised and responses from Yakima County
10 and Groundwater Advisory Committee members. It may not fully represent the ideas discussed or
11 opinions given. Examination of this document cannot equal or replace attendance.

12 I. **Call to Order:** This meeting was called to order at 5:09 PM by Vern Redifer, Facilitator.

Member	Seat	Present	Absent
Stuart Turner	Agronomist, Turner and Co.,	✓	
Chelsea Durfey			✓
Bud Rogers	Lower Valley Community Representative Position 1		✓
Kathleen Rogers	Lower Valley Community Representative Position 1 (alternate)		✓
Patricia Newhouse	Lower Valley Community Representative Position 2	✓	
Sue Wedam	Lower Valley Community Representative Position 2 (alternate)	✓	
Doug Simpson	Irrigated Crop Producer	✓	
Jean Mendoza	Friends of Toppenish Creek	✓	
Eric Anderson	Friends of Toppenish Creek (alternate)		✓
Jan Whitefoot	Concerned Citizens of the Yakama Reservation		✓
Jim Dyjak	Concerned Citizens of the Yakama Reservation (alternate)		✓
Steve George	Yakima County Farm Bureau	✓	
Frank Lyall	Yakima County Farm Bureau (alternate)		✓
Jason Sheehan	Yakima Dairy Federation	✓	
Dan DeGroot	Yakima Dairy Federation (alternate)		✓
Ron Cowin	Roza-Sunnyside Joint Board of Control	✓	
	Roza-Sunnyside Joint Board of Control (alternate)		
Laurie Crowe	South Yakima Conservation District	✓	

Jim Newhouse	South Yakima Conservation District (alternate)		✓
Robert Farrell	Port of Sunnyside		✓
John Van Wingerden	Port of Sunnyside (alternate)	✓	
Rand Elliott	Yakima County Board of Commissioners	✓	
Vern Redifer	Yakima County Board of Commissioners (alternate)	✓	
Dave Cole	Yakima Health District		✓
Ryan Ibach	Yakima Health District (alternate)	✓	
Dr. Troy Peters	WSU Irrigated Agriculture Research and Extension Center		✓
Lucy Edmondson	U.S. Environmental Protection Agency		✓
Peter Contreras (by phone)	U.S. Environmental Protection Agency (alternate)	✓	
Elizabeth Sanchez	Yakama Nation		✓
Stuart Crane	Yakama Nation (alternate)		✓
Virginia "Ginny" Prest (by phone)	WA Department of Agriculture	✓	
Jaclyn Hancock	WA Department of Agriculture (alternate)		✓
Andy Cervantes	WA Department of Health	✓	
Ginny Stern	WA Department of Health (alternate)		✓
David Bowen	WA Department of Ecology	✓	
Sage Park	WA Department of Ecology		✓
Lino Guerra	Hispanic Community Representative	✓	
Rick Perez	Hispanic Community Representative (alternate)		✓
Jessica Black	Heritage University		✓
Matt Bachmann	USGS	✓	

13 **II. Welcome, Meeting Overview and Introductions:** Vern Redifer had everyone present
 14 introduce themselves. He then asked everyone to pause for a moment in order to prepare
 15 for the meeting and reviewed the evening's agenda.
 16

17 **III. Budget Discussion:** Vern asked everyone to refer to the budget worksheets he had
 18 provided to facilitate the group's discussion. He noted that the unspent funding balance
 19 was \$1,156,043. Of that, Yakima County would require \$128,362 in the next year to
 20 complete its administrative work, write and coordinate the plan, maintain the database,
 21 GIS, website, facilitation and RCIM loading which left \$1,027,681 in funding that could be
 22 reallocated from the group's previous budget.
 23

24 Several members asked some clarifying questions about items that had existed in the
 25 original budget. Vern then asked the group to begin to discuss how it might best spend the
 26 remaining funds in 2017. He also encouraged the group to suggest any items that might
 27 need to be added or reallocated. Matt Bachmann updated the PGG estimates for the
 28 planning, analysis and implementation of the ambient groundwater monitoring network.
 29 The following suggestions were then made for the newly authorized budget:
 30

Ambient Groundwater Monitoring Plan Planning, analysis and implementation	\$331,000.00
Drain Monitoring	\$60,000
Drinking Water Monitoring Assessment of the quality of existing domestic wells – six samples of 160 domestic wells in the next year	\$350,000.00
Monitoring Analysis For ambient groundwater, drain and drinking water monitoring referred to above	\$76,681.00
Septic System Maintenance Outreach Proposed by the RCIM Working Group	\$10,000.00
Educational Outreach Campaigns, Surveys To educate the public about what the GWAC is doing. This includes billboard costs of \$19,000 already approved.	\$100,000.00
Irrigation Water Management Workshops, Shallow Soil Sampling (1 to 2 feet) for Growers and Education	\$100,000.00

31
 32 The following items were removed from the budget:
 33

34 Hot Spot Monitoring – although this had been a priority from the Data Collection Working
 35 Group the group felt it should be done after information started to come in from the
 36 Ambient Groundwater, drain and drinking water monitoring.
 37 Abandoned Wells – Vern explained that the joint working group had decided to pursue a
 38 pilot program with money available through the Department of Health's Source Water
 39 Protection Fund.
 40 Contingency Reserve – There was no need to fund a contingency reserve as the grant
 41 monies are only available through 2017.

42
43 Wellhead risk assessment surveys (Vern noted that he had looked at the data for trends but
44 found none); deep soil sampling; nutrient loading database, analysis, reporting (WSDA);
45 dairy pens and manure storage sampling; lagoon assessment based on EPA data, regulatory
46 review; and best management practices either required no additional funding or no longer
47 needed to be pursued.

48
49 After a great deal of discussion there were no further questions and a consensus to adopt
50 the revised budget was reached with no further comments or objections. A copy of the
51 revision is attached as Exhibit A.

52
53 **IV. Working Group Reports:** The group agreed to postpone the reports until the next GWAC
54 meeting given the lateness of the hour.

55 **V. Committee Business:** Prior to the approval of last month's meeting summary a member
56 voiced concerns as to whether the Ambient Monitoring Network Plan had been approved
57 and if the group had agreed to the inclusion of the data from the dairy clusters. Several
58 members responded noting that the EPA had agreed to give Yakima County access to the
59 data and the plan had been approved at last month's GWAC meeting. The November 17
60 summary was then approved as presented.

61 **VI. Public Comment:** A member of the public thought the educational and incentive plan
62 proposed for growers encouraging good behavior was crucial. She also suggested that a
63 copy of the revised budget the group had approved be included as part of this meeting
64 summary.

65 **VII. Next Meeting:** The group decided to convene again on February 16, 2017. Vern advised the
66 group to expect monthly meetings in 2017.

67 **VIII. Next Steps:** None.

68 **IX. Meeting Summary** approved by the GWAC on February 16, 2017.

69

1 **YAKIMA VALLEY GROUNDWATER MANAGEMENT AREA ADVISORY COMMITTEE**
 2 **(GWAC)**

3 **MEETING SUMMARY**

4 **Thursday, February 16, 2017 – 5:00 p.m. – 7:00 p.m.**

5 *Denny Blaine Board Room*
 6 *810 East Custer Avenue, Sunnyside, WA*

7

8 *Note: This document is only a summary of issues and actions of this meeting. It is not intended to be*
 9 *a transcription of the meeting, but an overview of points raised and responses from Yakima County*
 10 *and Groundwater Advisory Committee members. It may not fully represent the ideas discussed or*
 11 *opinions given. Examination of this document cannot equal or replace attendance.*

12 **I. Call to Order:** This meeting was called to order at 5:04 PM by Vern Redifer, Facilitator.

Member	Seat	Present	Absent
Stuart Turner	Agronomist, Turner and Co.,	✓	
Chelsea Durfey			✓
Bud Rogers	Lower Valley Community Representative Position 1	✓	
Kathleen Rogers	Lower Valley Community Representative Position 1 (alternate)	✓	
Patricia Newhouse	Lower Valley Community Representative Position 2		✓
Sue Wedam	Lower Valley Community Representative Position 2 (alternate)	✓	
Doug Simpson	Irrigated Crop Producer	✓	
Jean Mendoza	Friends of Toppenish Creek	✓	
Eric Anderson	Friends of Toppenish Creek (alternate)		✓
Jan Whitefoot	Concerned Citizens of the Yakama Reservation		✓
Jim Dyjak	Concerned Citizens of the Yakama Reservation (alternate)	✓	
Steve George	Yakima County Farm Bureau		✓
Frank Lyall	Yakima County Farm Bureau (alternate)	✓	
Jason Sheehan	Yakima Dairy Federation	✓	
Dan DeGroot	Yakima Dairy Federation (alternate)	✓	
Ron Cowin	Roza-Sunnyside Joint Board of Control	✓	
	Roza-Sunnyside Joint Board of Control (alternate)		
Laurie Crowe	South Yakima Conservation District	✓	

Jim Newhouse	South Yakima Conservation District (alternate)		✓
Robert Farrell	Port of Sunnyside	✓	
John Van Wingerden	Port of Sunnyside (alternate)		✓
Rand Elliott	Yakima County Board of Commissioners		✓
Vern Redifer	Yakima County Board of Commissioners (alternate)	✓	
Dave Cole	Yakima Health District	✓	
Ryan Ibach	Yakima Health District (alternate)		✓
Dr. Troy Peters	WSU Irrigated Agriculture Research and Extension Center		✓
Lucy Edmondson	U.S. Environmental Protection Agency		✓
Peter Contreras (by phone)	U.S. Environmental Protection Agency (alternate)		✓
Elizabeth Sanchez	Yakama Nation		✓
Stuart Crane	Yakama Nation (alternate)	✓	
Virginia "Ginny" Prest	WA Department of Agriculture		✓
Jaclyn Hancock	WA Department of Agriculture (alternate)		✓
Andy Cervantes	WA Department of Health		✓
Ginny Stern	WA Department of Health (alternate)	✓	
David Bowen	WA Department of Ecology		✓
Sage Park	WA Department of Ecology	✓	
Lino Guerra	Hispanic Community Representative		✓
Rick Perez	Hispanic Community Representative (alternate)		✓
Jessica Black	Heritage University		✓
Matt Bachmann	USGS	✓	

13 **II. Welcome, Meeting Overview and Introductions:** Everyone introduced themselves. Vern
 14 noted that Commissioner Elliott was absent because of a prior commitment in Olympia.
 15 Vern asked everyone to pause for a moment of silence in order to prepare for the meeting.
 16 He then reviewed the agenda. A member asked that the group discuss the last quarter of
 17 deep soil sampling and the group agreed to add this item to the agenda.
 18

19 **III. Don Stuart Presentation:** Melanie reminded the group that she had heard Don Stuart speak
 20 at a seminar and believed his presentation would be beneficial to the group as they were
 21 deciding how to move forward and thinking about how to work together. She again
 22 summarized his background and how she believed the GWAC could benefit. A member
 23 asked if the presentation would be made during the GWAC meeting or prior to it as others
 24 had done in the past. Vern indicated that would depend on Don's schedule and the group's

25 interest. After a great deal of discussion the group agreed to invite him to speak before or
26 after a meeting which would give everyone a choice to attend and not distract from the
27 business the group needed to accomplish in the next year. Another member suggested that
28 it would be good to ask other experts to speak in order to help the members better
29 understand some of the more technical sides of the decisions they would be making. Vern
30 passed around a sign-up sheet so members could suggest topics and speakers. Suggestions
31 were made as follows: farming systems common to the Valley; soil science –
32 agronomy/horticulture – the tech side of farming; hydrogeology (Matt Bachman USGS);
33 regulatory agency function/water quality (Melanie Redding/Ecology); irrigation
34 technology/management, manure management plans and implementation; basic statistics;
35 the nitrogen cycle; dairy nutrient management plans; irrigation water management/soil
36 moisture sensors (Troy Peters); how to develop a nutrient management plan soil nitrate
37 fate long term – what kind of studies are needed; and, according to current studies what is
38 the cause of methemoglobinemia? What health effects does excess nitrate cause people?
39 Who is the most susceptible? At what levels? These informational meetings would also be
40 held outside of the GWAC time. It was suggested that Vern be given the authority to decide
41 which topics and what speakers were a priority and the group agreed.
42

43 **IV. Working Group Reports:**

44 **Data Collection:** Melanie thanked the group for budgeting funding for groundwater
45 projects. She reported that PGG is putting together documentation and working on a
46 contract with Yakima County for installation of the purpose built wells. There will be an "x"
47 on the ground before any drilling. PGG is also working on the Quality Assurance Project
48 Plan for the drain samples. Matt Bachmann (USGS) is working on a contract for the drinking
49 water program to begin testing private domestic wells. Melanie asked Matt to elaborate on
50 his progress. Matt said that his group had identified a number of possible wells for testing.
51 He brought a map so that the group could see the potential locations and marked it with
52 red and green dots. The red dots on the map indicated the wells that had been tested by
53 Yakima County – of those 35 well logs had been found. The green dots are 289 sites
54 previously used by USGS - ID and well logs for these sites have already been acquired. Matt
55 believed given the number of these sites the group wouldn't have a problem finding 160
56 wells to pick from. In summary, Melanie said she asked PGG and USGS to compile one
57 report so that anyone looking at the program in the future would know exactly what had
58 been done. A member asked who would have oversight of this program after 2017. Vern
59 said he had spoken with the Yakima Health District (YHD) and they had indicated a
60 willingness to take the testing program on after 2017. It was Vern's desire to integrate YHD

61 into the testing this year so that there would be a seamless transition but there were still a
62 number of details to be worked out. Vern said that the plan had been to test intensively for
63 two years and then less frequently and that the group could determine how often YHD
64 would report back to the County. Vern added that he was waiting for a contract proposal
65 and a technical requirement list for drilling the purpose built wells from PGG so that Yakima
66 County could put this into a bid package. Vern thought at the earliest holes would be in the
67 ground by April. The wells would be established in numerical priority and based on the
68 money allocated by the GWAC in its budget for this purpose. Melanie added that the
69 Nitrogen Loading Assessment (NLA) would most likely be delivered to a joint working group
70 meeting by Vern and Gary Bahr (Department of Ag) in March. There would be a time for
71 questions and revisions by the working groups. The goal was to present the NLA at the
72 GWAC's April meeting. ***(NOTE: As this summary was being drafted Melanie received a
73 revision regarding the timeframe for review of the Nitrogen Loading Assessment. It will
74 be presented at a Joint Working Group meeting on April 13 – it will not be presented at
75 the April 20 GWAC meeting).***

76 **Livestock/CAFO:** In David Bowen's absence, alternate Sage Park reported that the group is
77 finalizing the collection of information and is in the first stage of reviewing draft language
78 for their portion of the Groundwater Management Plan with a goal of delivering the
79 product to Yakima County in April or May. A member said the group completed an
80 extensive look at BMP's and NRCS standards and practices in November and December.

81 **Irrigated Ag:** Jim Davenport reported in Troy Peters' absence. He said that the group had
82 two central ideas: irrigation and soil/fertilization management and education. A member
83 mentioned that he had been at a recent water resource conference and was impressed by
84 the changes and progress in irrigation management. Others agreed.

85 **RCIM:** Chair Dan DeGroot reported that David Bowen met with the group and provided a
86 detailed report on the Department of Ecology's NPDES permits. The group reviewed
87 outreach materials from EPO on their "What You Can Do" campaign. The group also
88 discussed onsite sewage systems with the Department of Health and compiled a list of
89 suggested solutions. The group hoped to review its draft report at its next two meetings
90 and have it to the GWAC at its April meeting. A member asked Dan to explain what he
91 meant when he said "high density areas of OSS are particularly problematic because there is
92 not enough land mass to properly filter the effluent before the next well is encountered."
93 Dan explained and the group discussed solutions for high density areas and the possibility of
94 installing community wells in these locations. Ginny Stern noted that when there is a
95 density of systems less dilution will occur before it reaches the aquifer and the effluent can
96 stay distinctive for 200 feet making this area a poor location for a well. A member claimed

97 it was not worth the effort to pursue two to four percent of the cause of contamination in
98 OSS. Dan asked her if she was getting this information from the EPA pie chart that actually
99 claimed that OSS was responsible for four percent of the nitrogen produced in the GWMA.

100 **Regulatory Framework:** Jean Mendoza reported that the group had not met since
101 November when it primarily summarized costs related to elevated nitrates in groundwater.
102 She noted the discussion would continue at next week's meeting. The group will also
103 discuss composting regulations and abandoned wells and this had not been done
104 previously. Jean had visited every working group and added that if the working groups had
105 additional regulatory questions she would be happy to meet with them.

106 **EPO:** Lisa Freund reported the "Test Your Well" billboards were up in the Lower Valley as of
107 January 1. The work group had also created four well protection flyers in English and
108 Spanish as a result of requests from the RCIM and Abandoned Well groups. The flyers were
109 in member meeting packets. In addition, EPO is working with each of the working groups to
110 create a unified message for the GWAC. Questionnaires had been sent out for each group
111 to complete which was delayed because of working group meeting cancellations due to
112 weather. The questionnaires asked each working group's mission, its accomplishments,
113 discoveries, future products/recommendations and audiences. A member thought that the
114 billboards were hard to read and difficult to find. Another member liked the simplicity and
115 thought they were clear and concise. Lisa reminded everyone that it was difficult to get
116 space on billboards in the Lower Valley as most are under contract and it was the group's
117 pilot project which made the member feedback valuable.

118 **V. Fourth Quarter Deep Soil Sampling:** A member indicated that in the last quarter of the
119 deep soil sampling (spring 2016) only 28 fields had been sampled and of that 28, 12 fields
120 didn't return the informational questionnaire making it impossible to know what crops were
121 grown and how much fertilizer was applied. The member felt these tests were now
122 worthless and was disappointed that \$250,000 had been spent on this project at tax payer's
123 expense. Laurie Crowe from the South Yakima Conservation District responded that she
124 thought more than 28 fields had been tested in the last round and she believed the soil data
125 was still good even though 12 questionnaires had not been returned as the levels and crops
126 grown are pretty much the same in this area. She continued that it would be very difficult
127 to obtain this data now as no one knows what fields were tested since anonymity had been
128 part of the project plan because of the litigious climate. A member pointed out that the
129 group had to have known this would happen because testing was done on a strictly
130 voluntary basis and another member said that it would be unrealistic to expect anything
131 else. Laurie indicated that the goal was a good background data base. Another member
132 felt that the group still had a good representative set. Matt Bachmann added that the

133 information would be useful, not useless. Another member asked how much sampling was
134 done – Laurie said four rounds - the first spring and the last fall were low, the others went
135 well. 160 tests had been done; the goal had been 200. 90 percent of the information had
136 been turned back in from the testing sites. Matt indicated that often field programs go
137 awry. Another member indicated that the group had been dealing with volunteers where
138 the level of commitment can be variable. The first member remained disappointed as she
139 felt people were paid to be here and saw it as an example of stone-walling. Later the group
140 agreed to have Troy Peters analyze the data which was already in spreadsheet format.

141 **VI. Committee Business:** The December 15, 2016 summary was approved as presented. The
142 group agreed to schedule monthly meetings beginning in April. The 2017 scheduled dates
143 are: April 20, May 18, June 15, July 20, August 17, September 21, October 19, November 16
144 and December 21. The meetings will be cancelled if they aren't needed.

145 **VII. Public Comment:** A member of the public had attended the recent RCIM meeting and
146 voiced concern that in order to inspect and pump onsite sewage systems the Yakima Health
147 District would be required to get an easement to access homeowners' land. She wondered
148 if the USGS could inspect septic systems when they were inspecting private wells. Matt
149 Bachmann indicated that it would be problematic to the endeavor to test private wells and
150 estimated he may lose approximately 90 percent of his prospective volunteers. As an aside
151 to this discussion Ginny Stern believed she knew someone who would help analyze the
152 approximately 450 well assessments. Ginny also introduced her replacement at the
153 Department of Health – Sheryl Howe - as she would retire the 1st of April. Another member
154 was also concerned about the money spent on the deep soil sample test results. After
155 some discussion Jim Davenport informed the group that Troy Peters had volunteered to
156 have some of his graduate students analyze the data. The group desired to pursue this
157 solution. Another member reminded the group that in addition to the data and its analysis,
158 the deep soil sampling had educated a lot of producers that had never soil sampled or
159 sampled at this depth. He felt there were many teaching moments for those who had
160 volunteered. Ginny Stern reminded the group that groundwater sampling, not deep soil
161 sampling, will tell the group where to look for problems.

162 **VIII. Next Meeting:** The group decided to meet again on April 20, 2017.

163 **IX. Next Steps:** 1) Schedule the Don Stuart presentation and arrange for other suggested
164 topics and speakers; 2) Present the draft Nitrogen Loading Assessment to a joint meeting of
165 the Irrigated Ag, RCIM, Data and Livestock/CAFO Working Groups; and, 3) Pursue analysis
166 by the Department of Health of the County's 450 well assessments; and, 4) Pursue analysis
167 by Troy Peters of the Deep Soil Sampling.

168 **X. Meeting Summary** approved by the GWAC on _____.

Meeting Time and Location

Thursday, February 16, 2017 5:00 p.m. – 7:00 p.m.

Denny Blaine Board Room
 810 East Custer Avenue
 Sunnyside, WA 98944

Agenda

Time	Topic	
5:00 – 5:10 p.m.	Welcome, Meeting Overview and Introductions: <ul style="list-style-type: none">• Committee members• Others attending the meeting	Vern Redifer, Facilitator
5:10 – 5:30 p.m.	Consideration of the Don Stuart Presentation	Melanie Redding
5:30 – 6:20 p.m.	Working Group Reports <ul style="list-style-type: none">• Data Collection• Livestock/CAFO• IAWG• RCIM• Regulatory Framework• EPO	Melanie Redding David Bowen Troy Peters Dan DeGroot Jean Mendoza Lisa Freund
6:20 – 6:30 p.m.	Committee Business <ul style="list-style-type: none">• Approve the December 15, 2016 GWAC Meeting Summary• Approve the 2017 GWAC Calendar	Vern

6:30 – 6:35 p.m. Public Comment

6:40 p.m. Adjourn

2017 - Proposed GWAC Meeting Calendar (all meetings are 5:00 - 7:00 p.m.)

- Thursday, February 16, 2017
- Thursday, April 20, 2017
- Thursday, June 15, 2017
- Thursday, August 17, 2017
- Thursday, October 19, 2017
- Thursday, December 21, 2017 (TBD)

Committee Members

Stuart Turner, agronomist, Chelsea Durfey (alternate)	Turner and Co.
Bud Rogers, Kathleen Rogers (alternate)	Lower Valley Community Representative Position 1
Patricia Newhouse, Sue Wedam (alternate)	Lower Valley Community Representative Position 2
Doug Simpson	Irrigated Crop Producer
Dr. Jessica Black	Heritage University
Jean Mendoza, Eric Anderson (alternate)	Friends of Toppenish Creek
Jan Whitefoot, Jim Dyjak (alternate)	Concerned Citizens of the Yakama Reservation
Steve George, Frank Lyall (alternate)	Yakima County Farm Bureau
Jason Sheehan, Dan DeGroot (alternate)	Yakima Dairy Federation
Ron Cowin	Sunnyside-Roza Joint Board of Control
Laurie Crowe, Jim Newhouse (alternate)	South Yakima Conservation District
Robert Farrell, John Van Wingerden (alternate)	Port of Sunnyside
Rand Elliott, Vern Redifer (alternate)	Yakima County Commission
Dave Cole, Ryan Ibach (alternate)	Yakima Health District
Dr. Troy Peters	WSU Irrigated Agriculture Research and Extension Center
Lucy Edmondson, Peter Contreras (alternate)	U.S. Environmental Protection Agency
Elizabeth Sanchez, Stuart Crane (alternate)	Yakama Nation

Virginia "Ginny" Prest Jaclyn Hancock (alternate)	Washington Department of Agriculture
Andy Cervantes, Ginny Stern (alternate)	Washington Department of Health
David Bowen, Sage Park (alternate)	Washington Department of Ecology
Lino Guerra, Rick Perez (alternate)	Hispanic Community Representative
Matt Bachmann	U.S. Geological Survey

Committee Ground Rules:

- Come to committee meetings prepared
- Treat one another with civility
- Respect each other's perspectives
- Listen actively
- Participate actively
- Honor time frames
- Silence electronic devices during meetings
- Speak from interests, not positions.

2017 Proposed Meeting Dates:

February 16
April 20

June 15
August 17

October 19
December 21

Groundwater Management Area (GWMA):

The purpose of the GWMA is to reduce nitrate contamination concentrations in groundwater below state drinking water

Meeting Materials:

Name	Date Provided	From
2016_12_15 GWAC Meeting Draft Summary	12/21/2016 & 2/9/2017	lisa.freund@co.yakima.wa.us
Meeting Agenda	2/9/2017	lisa.freund@co.yakima.wa.us
EPO Working Group Meeting Summary of January 5, 2017	2/9/2017	lisa.freund@co.yakima.wa.us
Data Collection Working Group Meeting Summary of January 26, 2017	2/9/2017	lisa.freund@co.yakima.wa.us
Livestock/CAFO Working Group Meeting Summary of January 5, 2017	2/9/2017	lisa.freund@co.yakima.wa.us
IAWG Working Group (did not meet)	N/A	lisa.freund@co.yakima.wa.us
Regulatory Framework Working Group (did not meet)	N/A	lisa.freund@co.yakima.wa.us
RCIM Working Group (2/13/17 meeting summary not available)	N/A	lisa.freund@co.yakima.wa.us

GWAC Attendance Roster

Member	16-Feb-2017
Stuart Turner	Present
Chelsea Durfey	Absent
Bud Rogers	Present
Kathleen Rogers	Present
Patricia Newhouse	Absent
Sue Wedam	Present
Doug Simpson	Present
Jean Mendoza	Present
Eric Anderson	Absent
Jan Whitefoot	Absent
Jim Dyjak	Present
Steve George	Absent
Frank Lyall	Present
Jason Sheehan	Present
Dan DeGroot	Present
Ron Cowin	Present
Laurie Crowe	Present
Jim Newhouse	Absent
Robert Farrell	Present
John Van Wingerden	Absent
Rand Elliott	Absent
Vern Redifer	Present
Ryan Ibach	Absent
David Cole	Present
Dr. Troy Peters	Absent
Lucy Edmondson	Absent
Peter Contreras	Absent
Elizabeth Sanchez	Absent
Stuart Crane	Present
Virginia "Ginny" Prest	Absent
Jaclyn Hancock	Absent
Andy Cervantes	Absent
Ginny Stern	Present
David Bowen	Absent
Sage Park	Present
Lino Guerra	Absent
Rick Perez	Absent
Jessica Black	Absent
Matt Bachmann	Present

YAKIMA HERALD-REPUBLIC

Affidavit of Publication

STATE OF WASHINGTON,)

)

COUNTY OF YAKIMA)

)

Danielle Rogers, being first duly sworn on oath deposes and says that she/he is the Accounting clerk of Yakima Herald-Republic, Inc., a daily newspaper. Said newspaper is a legal newspaper approved by the Superior Court of the State of Washington for Yakima County under an order made and entered on the 13th day of February, 1968, and it is now and has been for more than six months prior to the date of publication hereinafter referred to, published in the English language continually as a daily newspaper in Yakima, Yakima County, Washington. Said newspaper is now and has been during all of said time printed in an office maintained at the aforesaid place of publication of said newspaper.

That the annexed is a true copy of a:

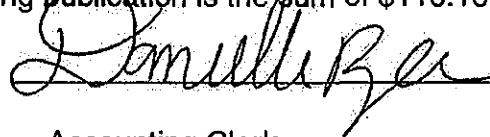
Yakima County Notice of Public Meeti

it was published in regular issues (and not in supplement form) of said newspaper once each day and for a period of 1 times, the first insertion being on 02/08/2017 and the last insertion being on 02/08/2017

Yakima Herald-Republic 02/08/17

YakimaHerald.com 02/08/17

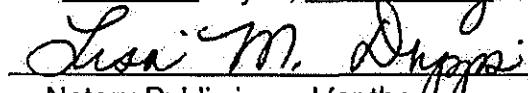
and the such newspaper was regularly distributed to its subscribers during all of the said period. That the full amount of the fee charged for the foregoing publication is the sum of \$116.16



Accounting Clerk



Sworn to before me this 8th day of February 2017



Notary Public in and for the
State of Washington,
residing at Yakima

Yakima County

Notice of Public Meeting
Lower Yakima Valley
Groundwater Advisory
Committee

NOTICE IS HEREBY GIVEN
that Yakima County is holding
a public meeting of the Lower
Yakima Valley Groundwater
Advisory Committee on
Thursday, February 16, 2017,
at 5:00 PM at Denny Blaine
Boardroom, Sunnyside
School District No. 201, 810
E. Custer, Sunnyside, WA
98944 pursuant to Chapter
173-100-080 WAC Ground
Water Management Areas and
Programs.

For Additional Information
To learn more about the
Lower Yakima Valley Ground-
water Management Area,
the Groundwater Advisory
Committee, and its goals and
objectives, please see the
Lower Yakima Valley Ground-
water Management Area on
the County webpage at: [http://
www.yakimacounty.us/gwma/](http://www.yakimacounty.us/gwma/)

For more information about the
meeting, please contact Lisa
Freund, Yakima County Public
Services Administrative Man-
ager at 574-2300.

If you are a person with a
disability who needs any
accommodation in order to
participate in this program,
you may be entitled to receive
certain assistance at no cost
to you. Please contact the ADA
Coordinator at Yakima County
no later than forty-eight (48)
hours prior to the date service
is needed.

*Yakima County ADA
Coordinator
128 N. 2nd Street, Room B27
Yakima, WA 98901
(509) 574-2210
7-1-1 or 1-800-833-6384
(Washington Relay Services
for deaf and hard of hearing)*

Dated this **Thursday, Febru-**
ary 2, 2017

(711094) February 8, 2017

Courtesy of Yakima Herald-Republic

**Yakima County
Notice of Public Meeting
Lower Yakima Valley
Groundwater Advisory
Committee**

NOTICE IS HEREBY GIVEN. that Yakima County is holding a public meeting of the Lower Yakima Valley Groundwater Advisory Committee on **Thursday, February 16, 2017, at 5:00 PM** at **Denny Blaine Boardroom, Sunnyside School District No. 201, 810 E. Custer, Sunnyside, WA 98944** pursuant to Chapter 173-100-080 WAC Ground Water Management Areas and Programs.

For Additional Information To learn more about the Lower Yakima Valley Groundwater Management Area, the Groundwater Advisory Committee, and its goals and objectives, please see the Lower Yakima Valley Groundwater Management Area on the County webpage at: <http://www.yakimacounty.us/gwma/>

For more information about the meeting, please contact Lisa Freund, Yakima County Public Services Administrative Manager at 574-2300.

If you are a person with a disability who needs any accommodation in order to participate in this program, you may be entitled to receive certain assistance at no cost to you. Please contact the ADA Coordinator at Yakima County no later than forty-eight (48) hours prior to the date service is needed. Yakima County ADA Coordinator 128 N. 2nd Street, Room B27 Yakima, WA 98901 (509) 574-2210

7-1-1 or 1-800-833-6384 (Washington Relay Services for deaf and hard of hearing)

Dated this **Thursday, February 2, 2017**

PUBLISH: DAILY SUN NEWS.
February 8, 2017

Affidavit of Publication

STATE OF WASHINGTON
ss.
County of Yakima

Roger Harnack, being first duly sworn on oath deposes and says that he is the Publisher of the DAILY SUN NEWS, a daily newspaper.

That said newspaper is a legal newspaper and it is now and has been for more than six months prior to the date of publications hereinafter referred to, published in the English language continually as a daily newspaper in the city of Sunnyside, YAKIMA County, Washington, and it is now and during all of said time printed in an office maintained at the aforesaid place of publication of said newspaper, and that the said Daily Sun News was on the 4th Day of April, 1969 approved as a legal newspaper by the Superior Court of said Yakima County.

That the annexed is a true copy of a LEGAL PUBLICATION -
Yakima County Public Services
FC3463-100-120

published in regular issues (and not in supplemental forms) of said newspaper once each week for a period of 1 consecutive issue(s) commencing 02/08/17 and ending on 02/08/17, both dates inclusive, and that such newspaper was regularly distributed to its subscribers during all of said period. That the full amount of the fee charged for the foregoing publication is the sum of \$52.50, amount has been paid in full, at the rate of \$7.50 per column inch per insertion.



Subscribed and sworn to before me 02/08/17



Debbie Guerrero
Notary Public in and for the State of Washington

030110-00000



Irrigated Ag Working Group (IAWG)

Charge from Groundwater Management Area Advisory Committee

Working Group Members

Dr. Troy Peters (GWAC-WSU); Bob Stevens (interested party) Bud Rogers (GWAC-Citizen), Chelsea Durfey (GWAC), Dan McCarty (interested party), Dave Cowan (interested party), Dave Fraser (Interested Party - Simplot Agronomist), Donald Jameson (interested party), Doug Simpson (GWAC-Farmer), Frank Lyall (GWAC-Farm Bureau), Ginny Prest (GWAC-Dept. of Ag), Jean Mendoza (GWAC-Friends of Toppenish Creek), Jim Newhouse (GWAC), Kevin Lindsey (interested party), Kirk Cook (GWAC-WSDA), Laurie Crowe (GWAC-South Yakima Conservation District), Melanie Redding (Ecology), Mike Shuttleworth (interested party), Ralph Fisher (EPA), Ron Cowin (GWAC-SVID), Scott Stephen (interested party), Stuart Turner (GWAC-Turner & Co.), Tom Tebb (GWAC-Department of Ecology), Rosario Brambila (interested party), Vern Redifer, Jim Davenport.

Meetings/Calls Dates

Meeting: Sunnyside Valley Irrigation District Office, 120 S. Eleventh Street, Sunnyside, WA

When: February 21, 2017, from 1:30 pm to 3:30 pm.

Call: (509) 574-2353 – Pin # 2353

Participants

Troy Peters (Chair), Vern Redifer, Kathleen Rogers, Jean Mendoza, Jim Davenport, Laurie Crowe, Rodney Heit, Ron Cowin, Dave Cowan, Frank Lyall, Scott Stephen, Doug Simpson, Stuart Crane, Bobbie Brady (Yakima County Support Staff). No one was present via telephone.

Key Discussion Points

Jim Davenport called the meeting to order at 1:35 PM and had everyone introduce themselves. Jim let the group know that he was working with Troy on the draft Irrigated Agriculture Working Group Report to the GWAC and it will be available for the group's review shortly. The goal was to present this report to the GWAC at their April meeting. Troy arrived and the group focused on the first agenda item which was to complete the draft EPO Questionnaire. Troy went through the draft line by line and solicited the group's input and suggestions. The questionnaire is as follows. Items marked in yellow were added by the group. Other comments were deleted. A summary of discussion comments can be found on page 4 of this summary.

GWAC Working Group Outline

Name of your Working Group: Irrigated Agriculture Working Group

1. Briefly state the mission/purpose of your working group (1-2 sentences).

Help solve the high nitrates in the groundwater issue as it relates to irrigated agriculture.

2. What has your working group accomplished to date? (List up to 5 items)

Accomplishment	Date
<ul style="list-style-type: none">Completed the deep soil sampling survey.	•
<ul style="list-style-type: none">Completed a review of the available BMP's related to irrigated agriculture and provided feedback to each of these and "bang-for-the-buck" review.	•
<ul style="list-style-type: none">Have done a lot of discussing to identify potential areas of impact.	•

3. What discoveries or findings has your group identified?

<ul style="list-style-type: none">The deep soil sampling survey showed that some irrigated agricultural practices contribute at least partially to elevated nitrates in the groundwater. The extent of this is dependent on many variables including crop type, rooting zone depth, drainage, field slope, rainfall, soil type, plant vigor, source of nitrogen, depth to groundwater, crop yields, irrigation management practices which make it difficult to attribute nitrogen to particular sources.
<ul style="list-style-type: none">Growers don't want to over-irrigate and definitely have financial disincentives to over-applying commercial fertilizers, bio-solids, or manure, compost, or organic fertilizers.
<ul style="list-style-type: none">Education and incentives to take in-field water and nutrient sampling and help with interpreting these measurements could reduce the amount of water and nutrients applied to many fields.
<ul style="list-style-type: none">Fertilizer companies make many of the recommendations on how much fertilizer to apply. Engaging with this group will be key to affecting changes in the future.
<ul style="list-style-type: none">Educational institutions and crop consultants also make many of the fertilizer, dry and liquid manure and compost recommendations. Engaging with this group will also be important to affecting changes.
<ul style="list-style-type: none">Additional regulations on irrigated agriculture have the potential to affect change depending on what regulations were implemented and how, but these would cause economic harm to

growers, especially smaller to medium sized growers, and rural economies as a whole and are therefore not recommended by the committee.

4. What are your group's anticipated products or recommendations?

Product/Recommendation	Due Date
<ul style="list-style-type: none">• Increase funding to state conservation districts and WSU extension for nutrient management and irrigation water management in the Yakima Valley.• 1.0 FTE at CD office. Soil sampling and soil moisture monitoring.	•
<ul style="list-style-type: none">• Increase funding for cost share of IWM (irrigation water management) and education of these programs. 100% covering of costs is not recommended.	•
<ul style="list-style-type: none">• Increase funding for cost share of soil sampling and analysis (irrigation water management) and education of these programs.	•

5. Who are your target audiences?

<ul style="list-style-type: none">• Washington State Legislature.• Irrigated agricultural producers.• Crop and farm and livestock management consultants.• Fertilizer sales companies, manure, compost, and bio solid providers.• Universities and educational institutions including WSU and conservation districts.• Environmental movement.

6. What are your key messages or top three take-away messages/recommendations?

<ul style="list-style-type: none">• Increase education and outreach efforts to help growers do a better job of nutrient and water management. This should be an ongoing effort and likely associated with, or led by WSU extension and/or the state conservation districts.• Increase the financial incentives and education related to irrigation water management. This could take the form of cost
--

share for irrigation management services, or education workshops and/or a mobile irrigation lab that would come do irrigation system evaluations and education. Growers don't have incentives to over-irrigate.
<ul style="list-style-type: none">• Increase the financial incentives and education related to nutrient management. This might take the form of cost share for soil sampling or nutrient management services. Possibly a service that would spot-check, or give a second opinion of fertilizer recommendations from other companies, who might then be asked to justify their recommendations.• Outreach to Fertilizer Companies to solicit their help in doing a better and more conservative job of nutrient applications and management.

A member was concerned that it was difficult to determine the amount of leaching from a specific source. Jim Davenport reminded everyone that the nitrogen loading assessment would indicate that at least a portion of the nitrogen was attributable to irrigated agriculture.

Several members were concerned with the sentence that read “fertilizer companies . . . have financial disincentives to be conservative with their recommendations (they prefer to sell more fertilizer).” This portion of the sentence was removed. They also recognized that educational institutions and crop consultants make recommendations to growers and agreed these groups should be engaged as well. A member indicated that she had spoken with a representative of the fertilizer industry. He agreed to come to the next meeting to help the group better understand the industry’s practices. Another member was concerned that manure was not addressed separately from commercial fertilizers and discussion on this topic ensued.

As the group worked its way through the questionnaire several members also voiced concern about economic harm to smaller and medium sized growers if additional regulations were recommended. Another member noted a recent article in the Capital Press about the Umatilla, Oregon GWMA. She said that it indicated voluntary measures were not sufficient and that there was a need for regulation. The group also discussed soil moisture monitors – their cost and effectiveness, and how many were needed in each field. Several members stated that they had used them and found them helpful. Laurie Crowe believed that the South Yakima Conservation District would need a full time employee to help with the educational and work components the group was suggesting. Several members added that in that their experience 100 percent cost share of irrigation water management should not be recommended. One member stated that it was important for growers to have “skin in the game” because when growers shared the cost and the program stopped, the value of the program was better recognized and growers continued the efforts long-term after the program funding ended.

Jim Davenport mentioned that the group had not addressed growers’ application of manure at an agronomic rate on crop lands in the same manner as dairies. A member felt that there were a lot of differences in the application of manure as opposed to fertilizer. Members felt that since the hauling manure was expensive, application abuses would be minimal. Another member felt the

list of target audiences should include environmentalists. The group discussed this – Troy felt it was important to do a better job helping environmentalists understand the work and needs of the grower as it may help the groups work together better in the future.

A member indicated that there were no regulations addressing agronomic applications of fertilizers for growers. Jim Davenport suggested that perhaps RCRA did this. A member said that there were so many variables between crops/locations that it would make it difficult to regulate – there is not a cut and dried agronomic rate. Another member felt that regulations would reduce the competitiveness of agriculture in valley and the result would be that there would be less of it. A member also stated that in reality the tools exist to get growers to the right place which was a win/win for both sides and they should be allowed to decide their preferred tools and style. Troy believed that a recommendation like this should be approved by the legislature as they consider these recommendations were made as a result of both environmentalists and growers meeting and making decisions in the same room.

Vern passed out the final draft report of the deep soil sampling. It was agreed that he would send it to Troy as a data base in an Access file. Troy had a soil scientist who was interested in looking at it and analyzing it and would work with the group. Vern said that the size of the file may require it be provided on a thumb drive.

Recommendations for GWAC

Resources Requested

Deliverables/Products Status

Proposed Next Steps

Vern will provide Troy with the data base for the deep soil sampling in an Access file.

Irrigated Ag Working Group (IAWG)

Charge from Groundwater Management Area Advisory Committee

Working Group Members

Dr. Troy Peters (GWAC-WSU); Bob Stevens (interested party) Bud Rogers (GWAC-Citizen), Chelsea Durfey (GWAC), Dan McCarty (interested party), Dave Cowan (interested party), Dave Fraser (Interested Party - Simplot Agronomist), Donald Jameson (interested party), Doug Simpson (GWAC-Farmer), Frank Lyall (GWAC-Farm Bureau), Ginny Prest (GWAC-Dept. of Ag), Jean Mendoza (GWAC-Friends of Toppenish Creek), Jim Newhouse (GWAC), Kevin Lindsey (interested party), Kirk Cook (GWAC-WSDA), Laurie Crowe (GWAC-South Yakima Conservation District), Melanie Redding (Ecology), Mike Shuttleworth (interested party), Ralph Fisher (EPA), Ron Cowin (GWAC-SVID), Scott Stephen (interested party), Stuart Turner (GWAC-Turner & Co.), Tom Tebb (GWAC-Department of Ecology), Rosario Brambila (interested party), Vern Redifer, Jim Davenport.

Meetings/Calls Dates

Meeting: Sunnyside Valley Irrigation District Office, 120 S. Eleventh Street, Sunnyside, WA

When: March 21, 2017, from 1:30 PM to 3:30 PM.

Call: (509) 574-2353 – Pin # 2353

Participants

Troy Peters (Chair), Kathleen Rogers, Jean Mendoza, Frank Lyall, Stuart Crane, Laurie Crowe*, Bobbie Brady (Yakima County Support Staff). *Via telephone.

Key Discussion Points

Troy Peters called the meeting to order at 1:35 PM. His goal was to work on cost recommendations and funding sources for the group's primary recommendations found in No. 4 of the EPO Questionnaire the group completed at last month's meeting.

Increase funding to state conservation districts and WSU extension for nutrient management and irrigation water management in the Yakima Valley – 1.0 full time employee at conservation office – soil sampling and soil moisture monitoring: Laurie estimated it would require approximately \$47,000 per year to cover salary, benefits and overhead for another full time employee annually at the South Yakima Conservation District. Troy estimated that WSU Extension would need \$70,000-80,000 annually for another full time employee. Laurie explained that the cost of the work would be built into the employee's salary and testing would be \$45-65 per test depending on what the test included – nitrate testing only would be on the lower end of the spectrum. The group also discussed the cost of education outreach. A member wanted to know if education outreach would be best one-on-one or a larger outreach event. Several members suggested that

the Yakima County Extension Office could do the outreach since extension agents already have an office and transportation with a record of credibility in the agriculture industry. Troy pointed out that a request would need to be made to the legislature for the agents to redirect their purposes. Members added that their purpose is to educate; they are familiar with publishing materials, working with the media and the topic of soil health. A member suggested the group could invite an extension agent to a meeting to explain what they do, but he felt that their focus now was more on programs with larger groups rather than individual farmers. Troy agreed and said that more and more they have specialists available in a variety of areas.

Troy said the group could ask the GWAC to recommend that there be a more intentional focus on nutrient management and irrigation water management in the GWMA area either through the efforts of the South Yakima Conservation District or WSU Extension services. Another member added that whether the conservation district level or extension level this needs to be the focus of a full time person. A member asked if WSU Extension services focused either on nutrient management or irrigation management. Troy explained that irrigation management is his focus for WSU; he speaks at approximately 30 conferences (events others have organized) per year statewide.

A member stated that commodity groups also put together grower meetings during the winter on a variety of topics. They procure a venue and serve lunch. These meetings are usually well attended especially those that provide credits to the growers for their pesticide applicator's license. Meeting focus is subjective and changes year to year. To a degree irrigation water management and fertilizer use is a continual part of the program, but some is theoretical. Troy thought this working group could recommend more focus on water quality. A member indicated that the meetings providing credits for the applicator's license become more of a priority than those without. A member reminded everyone that Ginny Prest suggested a nutrient applicator's license could be proposed by the group. This is required in other states and has ongoing credit requirements. There would then be more meetings on irrigation water management and soil management because they would be required for accreditation and would become a priority for growers. Another member stated that such a requirement would require legislative action and he didn't feel the agricultural community would support it, but added that if the classes fell under the pesticide application you would get a larger attendance.

Laurie said her team at South Yakima Conservation District work with the WSDA to get grants to put on workshops annually. WSDA provides speaker travel and refreshments. Troy asked Laurie if she could do more if there was more funding from WSDA. Laurie said yes, but felt it was important not to saturate the audience. The group agreed that it would recommend that the WSDA be given more money to spend in the Yakima County GWMA for WSU and SYCD to bid on for the purposes of education and outreach.

Cost Share Irrigation Management and Soil Sampling: Troy said that as much money as could be provided could be used. A member felt however, that if funds were limited education would be a better choice. Other members agreed. He added that education should be a multi-year program and not a one-time opportunity.

Troy asked Laurie how the Conservation District worked statewide. Laurie said that each district has their own goals and they go after grants to fund those goals - each district is diverse/different.

However, they do receive some guidance from the NRCS annual meeting priorities. Troy asked Laurie to explain what would happen if the GWAC asked the legislature to fund \$60,000-70,000 in education and outreach related to water quality. Laurie explained that there is a State Conservation Commission in Olympia that acts as a liaison and if the ask was specific to the South Yakima Conservation District, money would channel down through this commission. Troy thought that instead of recommending the hiring of one full time employee it might be better to make more funding available for dealing with water quality issues pertaining to nitrates in the Lower Yakima Valley. With regard to the cost share soil sampling/analysis the recommendation would be to fund education and outreach first, but whatever additional funding was made available for this project could easily be utilized.

Troy asked if the group was satisfied that it had finished the tasks it had been assigned and the group agreed to keep meeting dates open in case something comes up. A member was concerned that the group had not yet seen the Nitrogen Loading Assessment and that it would reveal synthetic fertilizers were making a greater contribution to nitrates than previously thought. She went on to say that dairies can't over apply the way they used to because they are supervised by the WSDA and now understand the importance of knowing the level of nitrates in manure through soil tests and water management. Her concern was that most growers don't have this knowledge base and no one is addressing third party applications of manure. Troy didn't feel like there would be consensus on those things in this group.

The meeting was adjourned at 2:40 PM.

Recommendations for GWAC

Resources Requested

Deliverables/Products Status

Proposed Next Steps

- Troy will update the group's questionnaire to the EPO.

Residential, Commercial, Industrial, Municipal (RCIM) Work Group

Charge from Groundwater Management Area Advisory Committee

Working Group Members

Dan DeGroot, Chair (Yakima Dairy Federation), Dave Cole (Yakima Health District), Elizabeth Sanchez (Yakama Nation), Jan Whitefoot (Concerned Citizens of Yakama Reservation), John Van Wingerden (Port of Sunnyside), Stuart Turner (Turner & Co.), Tom Ring (Yakama Nation), Kathleen Rogers (Citizen Rep), Sanjay Barik (Ecology)

Meetings/Calls Dates

Meeting: February 13, 2017
SSD Administration Building, 1110 S. 6th Street, Conference Room 23, Sunnyside, WA 98944
Call in: 509-574-2353 (pin 2353#)

Participants

Present: Dan DeGroot (Chair), Kathleen Rogers, Jim Davenport, Dave Cole and John Wilson (YHD) and Bobbie Brady (Yakima County Support Staff). No one was present by phone.

Key Discussion Points

The meeting was called to order at 2:04 PM. Everyone introduced themselves. Dan gave an overview of the information provided to the group by David Bowen from supplemental questions posed to him and the Department of Ecology (Ecology) at the November RCIM meeting. Jim Davenport was going to integrate the information David provided into the draft RCIM report to the GWAC. Review of the draft report will be the focus of the group's March meeting as noted further below.

Dan asked Jim to update the group on the well improvement funding and Ecology concerns about drilling "new" wells. Jim said funding would be investigated after recommendations were made by the group to the legislature. Dan was concerned whether funding could be procured. Jim said drilling any new wells was complex and the State and Ecology were currently discussing this topic. He suggested that the group emphasize the repair and reconstruction of existing wells as a potential alternative to newly constructed ones when it proposed the replacement of old at-risk wells as a possible alternative solution. Dan added that in some areas it wouldn't make sense to drill ten new wells, but to replace them with one community well and wondered if Ecology would allow this. Jim thought the suggestion should be made as part of the group's strategy to improve water and believed community wells made good sense. He added that it would require long-range planning and funding, but would be good to suggest. The group also discussed an issue that Avery Richardson from Ecology had spoken about in the meeting on abandoned wells. Avery had said that cities acquired tiny water rights under city municipal code when cities decommissioned people's wells in urban growth areas as they hooked up to city water. Jim did

not believe that everyone was required to hook-up if they were a certain number of feet away from city water and that such a requirement should be added to a list of possible solutions so that wells that were not well cased, sealed or no longer in use could be properly dealt with. The group agreed to add this and recognized that it was a good suggestion because of the building density in urban growth areas.

A member wanted to know if she could determine the number of wells applications in Yakima County over the past year. Dave Cole explained that Ecology permits exempt wells as part of the County building permitting process. Yakima Health District then performs random inspections of approximately 50 percent of the new wells added in Yakima County. He added that the information the member was looking for could be found on the Ecology website.

Jim suggested that the group also recommend community wells were advisable where there were larger concentrations of homes (15-20) and where nitrate concentrations were over 10PPM. The recommendation would need to include that the County perform an engineering study of areas to determine if community wells were feasible and/or a better option.

Dan then invited Dave Cole (Yakima Health District) to report on the information the group had requested in its October meeting. Dave reported WAC 246-272A governs onsite sewage systems (OSS) and in particular operation and maintenance plans in WAC 246-272A-0015. Subsection (1) requires all counties bordering the Puget Sound to develop a written operations and maintenance (O&M) plan and Section 5 requires an O&M plan be developed by local health officers for all other jurisdictions not required under subsection (1). However, Dave learned that not a single county in eastern Washington had actually done this.

Dave believed that there could be two approaches to a plan the Yakima Health District might consider under this WAC. The first would be enforcement and the second education. He believed that the enforcement component would require dedicated easements from each property owner with an onsite sewage system to the Health District to inspect and pump every three to four years for gravity fed systems and more frequently for alternative systems. There was a discussion about the viability of obtaining easements from property owners, whether an easement could be acquired retroactively or if the requirement would need to be limited to those requesting a permit by making it a requirement before a permit was issued. The group also discussed whether the easement would "hang over" the entire property or be for a specific route. Dave felt a "hang over" easement would be more useful. Another member suggested that an easement could be required at the time of sale. The members also discussed deputizing inspectors, or possibly an ordinance requiring access but Dave felt (and had also discussed with the attorney for the Health District) that they needed an easement in order to do an adequate job. Jim suggested obtaining a license to access the property which is a privilege granted to a person; as opposed to an easement, which would grant permission to touch and concern the ground (not a real property interest). Jim felt both had the same result, but perhaps homeowners would be more accepting of the term "licensed" access. Dave wanted to know if the group had considered application of these requirements within the GWMA boundaries only or countywide. Jim thought that the WAC may authorize limiting the requirement to GWMA boundaries where the groundwater is sensitive as WAC at Section 5 read "within the jurisdiction."

Dave pointed out that the WAC also provided for: 1) A notice to be placed on home titles identifying operational requirement for maintenance; 2) An OSS inspection requirement at the time of sale which some banks are doing now. Dave said that he thought half of the residences in Yakima County were on septic systems. He looked at Zillow and found that there were 5,000 sales in the last year and 2,500 mortgage reviews. Yakima Health District only did 100 mortgage reviews last year which included septic pump and site inspection. He believed an OSS inspection requirement would require an estimated addition of five staff; 3) Required pumping every one to four years depending on the type of system; and, 4) Required alternative septic systems with the ability to reduce nitrates at a cost of \$15-20,000 per system as opposed to the norm of approximately \$5,000. Dave said that conventional gravity systems if operating properly and everything is right (e.g., if the soil is not saturated) will reduce nitrates by 20 percent but the most common is 10 to 15 percent and that nitrate reducing systems can reduce by 50 percent if operating properly. He also pointed out the increase in cost for maintenance and additional effort to operate. There was some discussion that the information provided by Leslie Gordon (Department of Health) indicated at a previous meeting that the nitrate reduction could be higher in some alternative systems. The group discussed that these sorts of systems could be required either countywide or within the boundaries of the GWMA when current OSS have failed.

The second approach Dave suggested was educational encouragement. He suggested developing brochures and flyers dispensed at time of permitting, in the Health District office and on its website, at title companies for closings, building departments, septic pumping companies, and media outlets. "How To" videos could be created for the County's oral learning culture. A manual could be written and provided to new homeowners so that OSS are not "out of sight out of mind." Dave felt this approach should be attempted first and could have a positive effect on the whole valley not just the GWMA and this approach would be far cheaper than the enforcement track. He understood that the GWAC would test water through purpose built wells or private wells in order to assess the trend of nitrates and felt that waiting for the trends would alleviate the invasiveness of the enforcement (both the level of energy and possible costs). This approach would allow time to build public understanding of the issues before a more invasive approach was taken. He also pointed out that in its initial findings the nitrogen loading assessment attributed a two to four percent nitrate contribution to onsite sewage systems. Dan felt this was a misleading perception. Jim pointed out that everyone could agree that onsite sewage systems don't apply nitrates at agronomic rates and that everything goes directly to the aquifer versus a cropping system which is designed to uptake. He also agreed that it was important to address every contribution even if it's small. Dan added that density of systems must be added in as a factor for onsite sewage systems. Jim said that the County GIS could identify the dense areas.

The group agreed that the GWAC should recommend to the legislature that the Yakima Health District put together its O&M plan and provide funding for the District to carry out the plan. The group also agreed that they wanted to wait on an enforcement plan until the data for well testing was in; they wanted proceed with the education component plan first.

The group wanted to know what was included in an inspection. Dave estimated it would require 20 to 25 minutes on each property and include drawing a sketch if there was no as-built on file. No probing is involved. They would check the pump for backflow or surfacing to ensure it was in proper working order. The group wanted to know if they looked at density when approving new

systems. Dave said they only look at minimum setbacks – five feet to the property line; the distance from structure and foundations; and the reserve area which was required. Most systems in Yakima County are on property that is an acre in size. He added that nitrates are never considered in the Code (except in Puget Sound cities) – pathogens are the issue. It was suggested that the RCIM recommend that approval of onsite sewage systems take into consideration nitrate contamination before they are approved.

The group moved on to completing the EPO questionnaire and the answers are as follows:

1. Examine residential, commercial, industrial and municipal operations and their contributions to N loading in the aquifer.
2. 1) Significant research on onsite sewage systems; listed large onsite sewage systems; 2) Ecology explained its NPDES permitting system to the group; 3) Defined hobby farms and their contributions; 4) Determination of residential and commercial application of fertilizers – information was conveyed to the Nitrogen Loading Assessment; and, 5) Assessment of golf courses, port districts and fertilizer distribution facilities.
3. 1) The NPDES permitting system through Ecology covers the "CIM" sections of this group's purview; 2) Onsite sewage systems are a direct source to groundwater as they are systems with no uptake – the full load goes directly to groundwater; 3) Hobby farms, golf courses, municipal, commercial and residential areas need to know not to overload fertilizer or water applications and remember that mulch is fertilizer; 4) Hobby farms should be aware of where their onsite sewage system is located and should not build a corral over a well or on top of a drain field.
4. 1) Community wells (outside urban growth areas) where there is rural density and a greater nitrate concentration is present; 2) Extension of municipal sewer systems within the urban growth areas; 3) Development of an operations and maintenance plan by Yakima Health District as prescribed in WAC 246-272A focusing on education first and then enforcement if testing data declines; 4) Ecology to do a trend analysis of nitrate data (actually charting the numbers) on NPDES permits.
5. Hobby farms, golf courses, municipal, commercial and residential properties with lawns, owners and renters of properties with onsite sewage systems.
6. The group felt that the new EPO brochures generally provided this information although some items that can disturb the function of onsite sewage systems were not addressed in detail, e.g., garbage disposals, feminine products, leaky faucets and toilets.

Jim will add the group's input to the draft RCIM report and forward it to everyone for review at least a week prior to the March 13 RCIM meeting. It will be discussed at that time. The goal was to complete the report at the April 10 RCIM meeting. The meeting was adjourned at 4:00 PM.

Resources Requested

Recommendations for GWAC

Deliverables/Products Status

Proposed Next Steps

Jim will revise the draft RCIM report.

Residential, Commercial, Industrial, Municipal (RCIM) Work Group

Charge from Groundwater Management Area Advisory Committee

Working Group Members

Dan DeGroot, Chair (Yakima Dairy Federation), Dave Cole (Yakima Health District), Elizabeth Sanchez (Yakama Nation), Jan Whitefoot (Concerned Citizens of Yakama Reservation), John Van Wingerden (Port of Sunnyside), Stuart Turner (Turner & Co.), Tom Ring (Yakama Nation), Kathleen Rogers (Citizen Rep), Sanjay Barik (Ecology)

Meetings/Calls Dates

Meeting: March 13, 2017
Sunnyside School District Administration Building, 1110 S. 6th Street, Conference Room 23,
Sunnyside, WA 98944
Call in: 509-574-2353 (pin 2353#)

Participants

Present: Dan DeGroot (Chair), Kathleen Rogers, Steve George, Dave Cole, Jim Davenport and Bobbie Brady (Yakima County Support Staff). No one was present by phone.

Key Discussion Points

The meeting was called to order by Chair Dan DeGroot at 3:00 PM. Dan asked the group to begin the meeting with its discussion on the second agenda item as Jim Davenport had not arrived.

Yakima Health District Plan Required by WAC 246-272: Dave Cole thanked the group for their work on the nitrate contribution to the groundwater and said his participation in the discussions were enlightening. He felt the group's recommendations represented progress towards solutions particularly the recommendation that cities extend sewer service to those areas inside their urban growth areas because 100 percent of the septic waste would then be sent to a treatment plant.

Dan explained that he was interested in the Yakima Health District's (YHD) development of an operations and maintenance (O&M) plan and wondered if it could actually prohibit things like high density development or bring about required changes to failing septic systems. Dave's concern was that at present there are only seven staff in the environmental health services division of YHD. Their priorities are public health, surface sewage and mandated responsibilities, i.e., public food vendor and pool inspections and the facilitation of installation of septic systems; therefore, they have a limited capacity to plan and develop plans except in the winter. A member asked what costs would be involved in developing an O&M plan. Dave thought that discussions would reveal the need for legal counsel, i.e., the requirement for some to install special systems or denying the installation of a septic system because of density issues. There would also be a personnel/time cost to have discussions and put together a plan. Dan said

that the WAC required the Department of Health to provide guidance to the environmental health group on developing a plan and also mentioned that the WAC provides the authority to charge fees that could help with these costs. He reminded everyone that the WAC indicated that this should have been done in 2008/09. Dave pointed out that YHD has not had the funding to prepare and/or implement an O&M plan as has been the case for most of eastern Washington. Dave also said that while the Department of Health was supposed to give counties guidance on how to develop a plan adopting a "one size fits all" plan was difficult because health districts in each county in Washington State are autonomous and there is a great deal of variation in health districts county-to-county. Dave agreed that an O&M plan is important and said that he had spoken with Ryan Ibach (YHD Chief Operating Officer and a member of the GWAC) and Andre Fresco (YHD Administrator) about this and YHD is on board as well. He added that he would like a GWAC recommendation to be the impetus to the official start of a plan. Dave did not feel the process would be simple and would take time, thought and expense – funding would be needed to make it possible. A member thought the group should recommend to the GWAC that YHD put together a plan within a specified number of years and request funding for the project. Jim said normally it takes two to three years to complete a plan and public input is normal as well. A member explained that the recommendation to the GWAC would come from RCIM. If agreed upon the GWAC would make the recommendation to the Department of Ecology. Dan wanted to know if the RCIM recommendation was in line with YHD. Dave thought it was and indicated that he wanted a plan to be pursued that best addresses nitrates in the GWMA and to take into account densities, etc. Jim said he drafted a paragraph on this in the RCIM Draft Report (page 6) which the group reviewed. A member felt that it was suitably generic and didn't tie down YHD to specifics which would allow them the full capacity of authority. Dave agreed it should follow the format of public plan making and agreed with the recommendations as written in the paragraph.

A member added that his recommendation would be for YHD to take the O&M plan to the GWMA first which would give a basis for taking it countywide. Dan liked that suggestion but pointed out that the code applies to the entire County and added that even in the County the O&M could vary because of distance to groundwater, density and soil type. Dave indicated that there was no map which indicated the distance to well water which would be useful in light of the potential GWMA recommendation to determine septic system types. Jim indicated that the County GIS department had prepared density maps. Dave thought that perhaps the Department of Health personnel on the GWAC could help with this. Another member wondered if the counties on the west side of the State who had already prepared O&M's might have this information.

RCIM Draft Report: Dan wanted the group to go over the draft report that had been compiled by Vern, Jim and Dan. His goal was to finish the report at the April RCIM meeting. Jim thought that the group might want to review the Nitrogen Loading Assessment before it finalized its recommendations to the GWAC via the report.

A member wanted to know how it was determined that 6,044 residential households within the GWMA were discharging wastewater to an onsite sewage system as he had commissioned a study that indicated there were 6,180 systems. Jim explained that Vern had calculated the number with information from GIS. Steve will furnish Jim with a copy of the report he had commissioned which included detailed information on how the calculation was derived. Jim thought it was

important that the report and the Nitrogen Loading Assessment have the same number and felt it should be accurate.

A member suggested that page numbers be added to the report. It was also suggested that in the second paragraph on page 2, the acronym "ROSS" be added after 0-10, 11-40 and 40. In the paragraph starting "Conventional ROSS technology" (page 2) Dan wondered if denitrification could be brought up from 15% to 50% in high density areas. And, in the next paragraph starting "The predominant soil types" Dan wondered if there was a desire to identify the depth of the other 10 percent. Jim said this would be hard to do and added that if the group accepts the report he would suggest Dave go through it and assure its validity.

With regard to large onsite septic systems (page 3) Dan noted that the group had learned there were two in the Valley and that they had to file annual reports with the Department of Health - Dan was still trying to get copies of these reports from Ginny Stern. Under Commercial Onsite Septic Systems the group thought "and public facilities" should be added to the first sentence after the words "operates year-round." A member wanted to know if anyone knew how many there were. Jim said no. Steve said his report said there were 157 and explained how that number was calculated. Steve will send Jim a copy of this information.

Dan summarized Residential Lawn Fertilizers and Hobby Farms and said that while the information is short on numbers it reflects the group's view of their minor impact, but reflect the groups' due diligence. Dan added that abandoned wells could be an issue on hobby farms. As for bio-solids the group noted there were two major users - the County which dealt with the majority of the product in the area and Natural Selection Farms which dealt mostly with imports into the area on preapproved sites and added that this was highly regulated with numerous reports.

The group also discussed discharges to surface water (page 4) and whether or not to include the list of current SWDP/NPDES permit holders. After some discussion the group agreed to leave the list in with the caveat that it reflects a snapshot in time, can vary and may or may not be all inclusive.

The group agreed that the second paragraph on page 5 which begins "The Department of Ecology maintains a Well Construction and Licensing System" should become the first paragraph in the section entitled "Water Wells" on page 4. The group asked how many of the estimated 3,853 notices of intent to drill a water well in Yakima County resulted in drilled wells and how many of those were actually inspected. Dave said YHD contracts with the Department of Ecology (Ecology) to inspect 50 percent of the newly drilled wells and added that YHD sends everything back to Ecology once they are done and so he was unable to furnish this information. He did add that actual reports were generated over the last few years. Jim Davenport will check with Ecology and see if he can obtain this information. Dave added that an inspection included tagging the well through GPS and insuring that there was a good bentonite seal.

In the first paragraph on page 5 beginning "Any improperly decommissioned wells" a member suggested the word "waste" be changed to "nutrients."

The next few paragraphs on decommissioning wells caused the group to discuss whether YHD enforces decommissioning wells when there is new development. A member's perception from

the discussion was that YHD's intervention was hit and miss. Another member wanted to know if the County permit to build might include a requirement to decommission any abandoned wells. The group thought that both the building and demolitions permit might ask if there are any existing wells on the property. A member thought that when people realized the cost of decommissioning a well they would simply cut it off at the ground or below the surface so it wouldn't be found. The group thought this kind of action was an indicator of why it was important to reduce the cost to decommission. The recommendation was made to permit the repair or decommissioning of wells by general contractors, rather than exclusively by well drillers so as to diminish the costs of decommissioning. Ultimately, Dan also recommended that the County, Ecology or YHD search for abandoned wells before a building or demolition permit is issued. A member added that the search include looking at the history of the parcel as it would reveal whether or not there had been any buildings on the land which would be indicative of a well on the property. Jim added that if the group made this recommendation the County would ask the property owner to hire a contractor who would inspect for wells. He felt that the decision came down to cost vs. risk and thought someone would charge \$1,000 to prepare a report, to look at the records and to check property. Dave suggested that since Ecology regulates abandoned wells the group instead could recommend that they put together a plan to locate and decommission wells. Dan added that Ecology estimated 10,000 abandoned wells in the State. A member asked who had jurisdiction of abandoned wells; Dave said Ecology. Jim said he will take the group's comments, incorporate them into the next draft for discussion at the April meeting. A member mentioned she had observed several homes being demolished in her neighborhood and wondered if they had properly decommissioned their wells. The group suggested that she speak with David Bowen to see what could be done and then report back to the group on her findings.

In the paragraph beginning "a relatively small number of existing water wells" (page 5) said that "no analysis of well data has been performed" Jim Davenport noted that USGS has information on those wells the GWAC is testing. Dan added that the group knows very little about poorly constructed wells.

The group then reviewed the report's recommendations. A member asked about the recommendation to "encourage connection of residences within urban growth zones to sewer systems." Jim indicated that he had attempted to summarize Vern and the larger group conversations that there would be fewer systems areas with large densities of homes were put on one large system. Dave stated that this could create other problems and nitrogen contribution focus would be in one spot. He added that one home could cause the failure of the whole system. Jim noted that this concept doesn't have a treatment plan like Buena. Dan said that if common systems like this were installed it would encourage cities to extend their sewer system because of the ease of hook up. Dave agreed.

Jim brought up a discussion David Bowen started at last week's Livestock/CAFO working group wherein David suggested that the group could focus on the cost of addressing the symptom - Jim wondered if this should be included in the RCIM report. David had estimated that if a three stage whole house filter system at \$1,800-2,500 per system was installed at approximately 870 homes with wells that were potentially impacted the cost would be approximately \$2 million; annual maintenance for each would be \$200-250 or about \$200,000 per year. The five year approximate cost would be \$3 million. This recommendation would take care of the issue but not take care of

the problem. A member thought that this information could be misleading unless the numbers were verified by an expert and suggested that it required a qualified report. Dan suggested that Jim talk to Vern about getting this on the next GWAC meeting agenda.

In the recommendation starting: "Request that the Yakima Health District prepare a plan, as contemplated," members suggested the word contemplated be replaced by either "stated" or "described." In addition, it was suggested that a recommendation be made that YHD investigate types of system upgrades that could be beneficial for OSS for the GWMA. In the recommendation paragraphs starting with "request the Yakima Health District add the nitrate density element to the pathogen element" (page 6) the group wanted the words "to the pathogen element" deleted. In the next recommendation starting with "promote use of technologies" the group wanted to insert "by YHD to planning departments." The group then decided that it would like these two paragraphs combined. Jim said that during the course of permitting the planning department could look at the density of systems and types of soils. Jim added that he had tucked into these requests the information from the articles Dan had forward to him.

Under the next to the last recommendation "educate the public regarding the importance of the integrity of wells" the group added "more funding was needed to decommission wells" and it was suggested that additional funding be requested so that homeowners with questions could get an inspection at a low cost if they have a concern. Dave added that he liked the recommendations in principle/theory but was concerned that eyes would be focused on YHD to do a lot of the work when groundwater quality was ultimately the responsibility of Ecology. Dan thought that people would see the YHD as the helping agency. Dave added that in that case ongoing and extended resources need to be made available as YHD's responsibilities were primarily health related and he was not aware of a case of blue baby syndrome in the County.

Jim pointed out that he had listed the recommendations in random order. He will redraft the report to include the group's recommendations and combine like recommendations for review at the group's next meeting which is scheduled for April 10 at 2:00 PM. Dan asked that any further recommendations be emailed either to Dan, Bobbie or Jim. The meeting adjourned at 5:08 PM.

Resources Requested

Recommendations for GWAC

The group asked Jim to talk to Vern about presenting David Bowen's temporary solution (as explained in the Livestock/CAFO Working Group meeting) to the GWAC in one of its meetings.

Deliverables/Products Status

Proposed Next Steps

Steve will send Jim a copy of the report he had commissioned.

Kathleen will report on how her calls to Ecology regarding potential abandoned wells were handled at the next meeting.

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 Dursey; Dave Cowan; Doug Simpson; Elizabeth Sanchez; Frank Lyall; Ginny Stern; Jaclyn Hancock; Jan Whitefoot; Jean Mendoza, John Van Wingerden, Kevin Lindsey; Laurie Crowe; Lino Guerra; Mike Shuttleworth; Ralph Fisher; Robert Farrell; Ron Cowin; Scott Stephen; Steve Swope; Stuart Turner; Dr. Troy Peters

Meetings/Calls Dates

Meeting: Wednesday, January 11, 2017, 1:00-3:00 PM

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

Participants

Present: Melanie Redding (Chair)*, Steve George, Jean Mendoza, David Bowen, Jim Davenport, Vern Redifer, Steve Swope*, Margaret Drennan (WSDA, filling in for Gary Bahr)*, Chris Saunders (County support staff) *via phone.

Key Discussion Points

The meeting convened at 1:03pm. After the customary introductions, Melanie thanked the group for keeping flexible schedules as two prior meetings had been cancelled due to bad weather.

Monitoring Initiatives Status: Vern briefly reviewed the decisions made at the November and December GWAC meetings to proceed with Pacific Groundwater Group's (PGG's) ambient monitoring network of purpose-built wells, and to allocate money for its implementation, along with other monitoring initiatives involving drinking water wells and drains.

Moving forward, Vern is talking with PGG about modifications to the Quality Assurance Project Plan (QAPP) in order to accommodate some members' previously-expressed concerns. Bid packages for installing purpose-built wells will need to be completed in short order. The United States Geological Survey (USGS) is helping the County put a program together to identify drinking wells to sample. They're aiming for 160 wells to monitor six times in 2017, although the final number may be something different than 160. Starting with the 450 existing drinking wells the County has already sampled, the intent is to look for people willing to be part of the proposed monitoring network, making sure they're fairly dispersed geographically across the GWMA. Combined with the 30 purpose-built wells in PGG's plan, the long-term monitoring program would need to be in place by September 2017 to get through the State Environmental Policy Act (SEPA) process.

Outstanding Issues with Groundwater Monitoring: The biggest unresolved question, in Vern's view, was what to do with the data that's gathered through these initiatives. There were two factors he considered important to look at: 1) short-term seasonal variations in nitrate concentrations over the next year or two, which could help track how changes in nutrient application over the agricultural cycle were affecting things; and, 2) long-term trends that develop over several years, to track whether the overall picture was getting better, and whether the changes recommended by the GWMA were having an impact. He also wanted to be able to zoom in and look at data by geographic areas within the GWMA.

A member asked whether there was a protocol on how and when information would be gathered from drain monitoring, and what purpose this information would serve. The GWAC had authorized \$60,000 for this endeavor, but at present, there was no implementation plan. Drains don't fit with the protocols that USGS uses, and while PGG's QAPP had a couple sections on conceptual drain stations, it did not address the issue of surface drains. This would require an addendum to the QAPP. Melanie stated that the purpose of this program was to develop an ambient picture of drinking water in the GWMA, not to find sources. That would be a different study. The member requested that this be clarified in the goals statement upfront.

A member asked for clarification on who would be gathering and analyzing the data gathered through the combined monitoring network. At present, Vern was talking with Matt Bachmann about the logistics of sampling existing drinking water wells, and determining USGS' willingness to support such a mission. Vern has also had very preliminary discussions with the Yakima Health District about continuing monitoring beyond 2017, within their existing revenue. Melanie pointed out that PGG had made suggestions on how to analyze data similar to methods she had seen in Whatcom County. Since USGS is looking at sampling the 160 drinking water wells, and PGG the 30 purpose-built wells, it would be important to minimize any differences in sampling methods.

A member suggested that the items discussed above be combined into a single document for future reference of the GWMA and any successor agencies. The group agreed. Melanie added that if USGS was to be out taking field samples in February, this would need to be a high priority.

A member asked whether the EPA dairy cluster would be included in the ambient network. Vern stated that the dairy cluster area would be sampled as part of the drinking water study. The EPA had installed its own wells in that area, but their sampling methods were different. While their data would likely still be useful, integrating it into the ambient network would be difficult, since it would be open to challenge as "comparing apples to pears."

The member also asked whether the October 2015 USGS flow-path study would be incorporated into the final monitoring effort. Vern and Steve Swope stated that, at present, there were no plans to do so as the only purpose of looking at flow-paths would be to see what's up-gradient, not to create a picture of ambient drinking water quality.

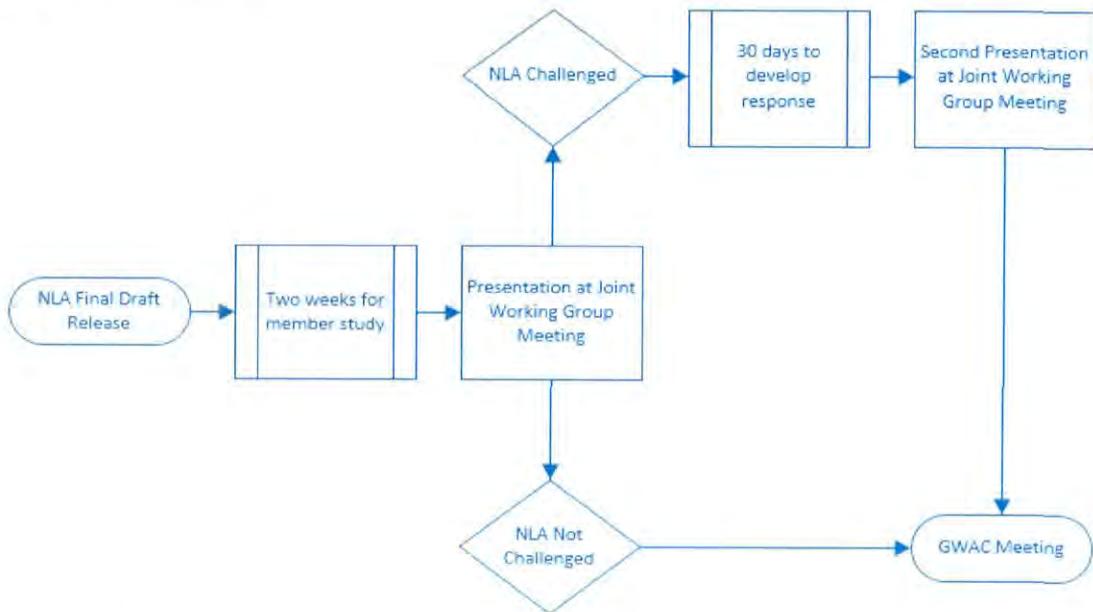
Nitrogen Loading Assessment (NLA): Melanie informed the group that the Department of Agriculture (WSDA) and the County were close to producing a final document in the "near future." WSDA has committed to giving a presentation on the Livestock/CAFO and Irrigated Ag portions to a consolidated working group once the final draft is produced, and another

presentation to the GWAC afterwards. Vern Redifer and Yakima County GIS would likely be giving the presentation on the RCIM portion to the same groups.

Some members expressed frustration at the lack of a firm timeline for the NLA's release. Melanie sympathized, but felt it was important the final product was done right, because if anything was found to be wrong, it would set the process back even further. Vern stated he felt "pretty confident" that a final document would come together no later than March 1st.

Having a completed NLA, which would explain how much of the nitrate problem was coming from each sector, would be necessary for working groups to assess the cost-effectiveness of various mitigation alternatives. Working group recommendations would need to be consolidated into one document, to be approved by the GWAC no later than October 1st to have adequate time to make it through the SEPA process for agency comments.

A member asked what would happen if working group members had problems with the NLA, and how they would be dealt with between April and October. After some discussion, members arrived at a rough timeframe that would allow the WSDA and the County time to respond to members' concerns, while leaving adequate time to produce a final document to inform working group recommendations:



Melanie added that information is always being updated, and that even after the final document is completed, it will likely be a "living document" as more information comes to light over the ensuing years.

Other Technical Issues/Next Steps: The group discussed a variety of outstanding issues, listed in the "Proposed Next Steps" section below. Given the number of topics, it was agreed that the Data working group would meet again, as scheduled, on February 8th.

The meeting adjourned at 2:40pm.

Resources Requested**Recommendations for GWAC****Deliverables/Products Status**

The final draft of the Nitrogen Loading Assessment is nearing completion. WSDA and Yakima County are responding to comments from peer reviewers, and consolidating the different documents so they're consistent and read as one document. A combined working group meeting will be scheduled roughly two weeks after the release of the final draft NLA, whenever that occurs. If necessary, a second meeting will be scheduled 30 days after the initial meeting to address member concerns.

Proposed Next Steps

The following topics will be discussed at the February 8th Data meeting:

Progress on creating a single document, under the auspices of the Data Collection Working Group, clarifying 1) who's going to be doing what in terms of implementing the groundwater monitoring network and analyzing the data; 2) how the data will be gathered and analyzed; 3) the intent of this program is to create an ambient picture of groundwater quality in the GWMA, not to track sources; and, 4) the protocols on how drains were to be monitored. No firm deadline was attached to this, although if USGS is going to begin sampling in February, it will need to be as soon as possible.

The "no-action" scenario (what will water conditions look like in the GWMA in ten years if no action is taken?).

The location of purpose-built wells, in response to concerns by members at prior Data and GWAC meetings.

The question of how to analyze existing well assessment data, and deep soil sampling data, and who will be analyzing it. Vern will contact Dr. Troy Peters in this regard, as he had expressed a willingness to look at deep soil sampling data at a prior Irrigated Ag meeting.

The status of the contract with PGG on installing purpose-built wells, with the hope of making a recommendation to the February 16th GWAC meeting.

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; Doug Simpson; Elizabeth Sanchez; Frank Lyall; Ginny Stern; Jaclyn Hancock; Jan Whitefoot; Jean Mendoza, John Van Wingerden, Kevin Lindsey; Laurie Crowe; Lino Guerra; Mike Shuttleworth; Ralph Fisher; Robert Farrell; Ron Cowin; Scott Stephen; Steve Swope; Stuart Turner; Dr. Troy Peters

Meetings/Calls Dates

Meeting: Wednesday, February 22, 2017, 1:00-3:00 PM

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

Participants

Present: Melanie Redding (Chair), Steve George, Jean Mendoza, Jim Davenport, Vern Redifer, Gary Bahr*, Steve Swope*, Laurie Crowe*, Rodney Heit (SYCD)*, Ginny Stern*, Margaret Drennan (WSDA)*, and Bobbie Brady (County support staff) *via phone

Key Discussion Points

Melanie Redding opened the meeting at 1:06 PM. Melanie indicated there were a few issues with last month's meeting summary. In particular, the flow diagram about the nitrogen loading presentation was incorrect. Melanie also added completion of the EPO questionnaire to the agenda so that the group could compile its ideas and return it to EPO in a timely manner.

Monitoring Initiatives Status: Melanie reported that PGG is preparing a number of documents. Vern indicated that he would be presenting an interlocal agreement with USGS to the Yakima County Board of County Commissioners next Tuesday to conduct sampling and testing for the drinking water initiative and monitoring and sampling of the purpose built wells once installed. PGG is writing an updated agreement and QAPP for the testing regimen for the purpose built wells. Melanie desired to have the USGS and PGG documents integrated so that someone looking at the plan long-term would know exactly what the group did. Vern added that while USGS would do the testing in 2017, he was trying to find a home for ongoing testing starting in 2018 and had been in discussions with Yakima Health District about taking this on. There are many details yet to be worked out. Vern didn't know who would be in charge of data analysis long-term. Melanie thought it would be good for the group to talk about, iron out and document.

A member asked if the QAPP the USGS was developing will depend on what substances were being tested for and if the group was going to discuss this. She would like to see a test for chloride as chloride/bromide helps determine the source of the nitrate. Several members reminded everyone that USGS will test for nitrates only as this was what the GWAC agreed to and

allocated money for and there was no additional funding available in 2017. The group discussed this. Ginny Stern stated that given funding issues it was important to get the project going. Other tests could be added down the road, but she thought keeping the data simple during the first year would add value. The member also asked if USGS was planning on doing active or passive sampling. Vern said the sampling would be active as cost was a factor and both give true results. Vern said the plan was to sample each drinking water location six times in 2017 and the monitoring wells every two months, but if they aren't ready until June it would be every month.

A member asked Vern about ongoing sampling in 2018. Vern reminded the group that David Bowen from the Department of Ecology said in the absence of anyone else they will continue sampling. The group discussed several routes for funding – legislative, the Department of Ecology, the Department of Health or through the Yakima Health District. Ginny said that other Counties had made funds available for this process too through their health districts. It was finally suggested that Yakima County, Yakima Health District, Department of Ecology and the Department of Health sit down together to discuss – Melanie and Vern will set this up.

Data Analysis: Melanie felt it was important to document data analysis of those tests to be collected and those collected previously so that the intent of the group is known long term and to establish boundaries on how to report what this means. Jim said that the activity of analysis will be done after 2017. A member wanted to know if well water testing would be used to analyze the effectiveness of BMPs. Melanie said that funding for this was not approved by the GWAC.

Another member pointed out that one year's worth of data would not result in a correlation between what's being done on the ground and what is found below the ground. Vern did believe that several years from now trends would become evident and suggested that as the Irrigated Ag group discussed BMPs they needed to also address how they are going to measure effectiveness. Melanie added that when the group started its conversations last fall the GWAC approved the Ambient Monitoring Network and the Data group agreed that its next priority was drinking water and hot spots, the other initiatives got very few votes and the group must focus on what the GWAC approved and must be dealt with first. The group agreed that Melanie and Matt talk about a proposed plan for data analysis.

As for the data analysis of the deep soil sampling Melanie will talk to Troy Peters to see if he would do this. Her goal was "this is what we think the data says and this is what we know it does not say." Gary Bahr recommended Dr. Todd Coffey from WSU at the Interdisciplinary Center for Statistics. Ginny and Melanie wanted access to the data as well. A member wanted to know who would be analyzing the data when it was finally decided and mentioned it was important to her that Troy was involved as he was familiar with what crops should be grouped together. With regard to the well assessment survey Vern will provide the information to Ginny.

Other Technical Issues/Next Steps: Vern is waiting for latitude and longitude points from PGG for the well locations so that someone can go out and drive a stake with a flag in the ground noting where they will be drilled. Age dating was discussed but will not be included. The goal is to keep it simple and include what has already been approved. An addendum for chloride could be considered later and estimates were \$30-\$40 per test. For now the focus will be on the parameters that were approved by the GWAC. Ginny indicated that specific conductance, which is a field test that is being measured to assess when groundwater is stable, can also be used as an indicator of salt content (such as chloride). This test would provide information that is

compatible to a chloride test. Vern confirmed that this specific conductance will be taken. Ginny said that this information could be used later to determine where to test for chloride.

Melanie is working with Steve on how best to incorporate several dairy cluster sites into the ambient monitoring network. Not all of these sites will be included in the ambient monitoring network plan, but there will be specific data analysis of dairy cluster well testing as a separate item. A member mentioned that because the dairy cluster was being monitored intensely, and the dairies are lining their lagoons and limiting nutrient application it would be interesting to see a BMP analysis especially since their testing had begun three years ahead of the GWMA's work.

Melanie said that the goal is to understand what programs do or don't do so there are no false expectations when monitoring. Jim suggested that a document be prepared entitled "Monitoring Management Plan." This would include goals, objectives, descriptions of processes for the ambient monitoring network, drinking water and drains and a data analysis section.

Nitrogen Loading Assessment (NLA): Melanie and Gary Bahr had worked out a date to present the NLA to the working groups - April 13 and Bobbie was tasked with working out a meeting place. Melanie proposed educational components be presented in the morning on the nitrogen cycle, hydrological cycle and climate. The Nitrogen Loading Assessment presentation would take place in the afternoon. The NLA would be released to the members two weeks before (last week of March) and then participants would have a couple of weeks to submit responses. The Data, Irrigated Ag, RCIM and Livestock/CAFO Working groups would be invited. Melanie was sorry for the further delay; others were disappointed as well, but she just learned that there were several internal hoops that had to be met before the Department of Agriculture would release the document and spring break factored in as well. A member asked that the literature referenced in the report could be sought out easily.

EPO Questionnaire: Melanie asked everyone to write down their responses to the questionnaire and send them to her; she will compile the information into one draft. Vern said that the questionnaire was an outgrowth of an EPO meeting as they were given the responsibility to educate, engage and inform people what the GWAC is doing.

Jim thanked Melanie for volunteering and her leadership. The meeting was adjourned at 2:52 PM.

Resources Requested

Recommendations for GWAC

Deliverables/Products Status

Proposed Next Steps

- Melanie and Vern will set up a meeting between Yakima County, Yakima Health District, Department of Ecology and the Department of Health to sit down together to discuss funding for ongoing sampling.
- Melanie and Matt will discuss a proposed plan for data analysis and bring it to the group.
- Melanie will talk to Troy Peters about doing the data analysis of the deep soil sampling. Ginny and Melanie wanted access to the data base as well.
- Vern will provide the information to Ginny on the well assessment survey for analysis.

Regulatory Framework Working Group

Charge from Groundwater Management Area Advisory Committee

[Insert Charge]

Working Group Members

Jean Mendoza, Chair (Friends of Toppenish Creek), Andres Cervantes (Department of Health), David Bowen (Department of Ecology), Chelsea Durfey (Turner and Co.), Dan DeGroot (Yakima Dairy Federation), David Newhouse (interested party), Ginny Prest (WSDA), Jason Sheehan (Yakima Dairy Federation), Jim Dyjak (Concerned Citizen of Yakama Reservation), Larry Fendell (interested party), Laurie Crowe (South Yakima Conservation District), Nick Peak (EPA), Patricia Newhouse (Lower Valley Community Representative), Steve George (Yakima County Farm Bureau), Stuart Crane (Yakama Nation), Sue Wedam (Lower Valley Community Representative), Vern Redifer (Yakima County Public Services), Jim Davenport (Yakima County Public Services)

Meetings/Calls Dates

Meeting: February 23, 2017, 5:00-7:30 PM

Call Number: 360 407-3780 PIN Code: 306589#

Participants

Present: Jean Mendoza (Chair), David Bowen, Larry Fendell, Steve George, Pat Newhouse, Dan DeGroot, Carolyn DeGroot, David Cole, Jason Sheehan, Laurie Crowe, Sandy Braden, Jim Davenport, Stuart Crane, and Bobbie Brady (Yakima County Public Services). James Rivard from the Department of Ecology was present for the discussion on composting regulations. No one was on the phone.

Key Discussion Points

Jean opened the meeting at 5:05 PM and welcomed everyone.

Composting Regulations: Jean provided the group with WAC 173-350-220 Composting facilities and a copy of the Department of Ecology's proposed revisions to this WAC. Jean read portions of the WAC aloud to the group and introduced James Rivard, Waste 2 Resources Section Manager, Department of Ecology. Jean was concerned because she had learned only one Yakima dairy was registered with the Department of Ecology (Ecology) and the Yakima Health District (YHD) as a composting business which meant that dairies were not following the law. A great deal of discussion ensued. The group read portions of WAC 173-350-220 and 173-350-100 and finally determined that a dairy does not have to notify YHD or Ecology if the waste is not transported from the dairy. James agreed. A member asked if his dairy was on either list. Both James and Dave Cole (YHD) responded no. The member indicated that when he decided to add a composting operation to his dairy 15 years ago he invited Peter Severtson from Ecology to his farm

and Peter brought a representative from YHD so that they could see the proposed operation and tell him what requirements needed to be met. He was directed to create a berm, install a system to pump water away from the compost and to compact the soil with a roller. The member then sent in reports for three or four years to Mr. Severtson at Ecology and then to the Central Division of Ecology when Mr. Severtson was no longer employed there. Both Mr. Severtson and Ecology said the reports were unnecessary; Ecology didn't know what to do with the reports. The member continues to provide them every year and wondered why dairies are held accountable when the agency fails to do their job. James said a person in Lacey does accept the annual reports and enters them into the data system.

The group continued their discussion. A member stated that most dairies compost through a third party and it was assumed that they had to report but didn't know who to. James said that if entities were taking compost off the farm they would report under solid waste. A member asked Jean if her request for information was for dairies or composting operations and noted that perhaps that would have been a better question. A member stated that in his experience the ground gets packed down under the manure and because of this he didn't believe nitrogen is pushed down farther than 1 to 3 feet. Another member believed that when looking at the nitrate levels in the soil at a composting operation it would be important to know the history of the yard prior to composting and that it would depend on the type of soils the composting operation had been built upon. Jean agreed that it would be important to look at all possible sources.

Costs Related to Elevated Nitrates in Groundwater: Jean asked the group to look at the document "Costs Related to Elevated Nitrates in Groundwater" (which the group had worked on at its last meeting) to determine if they had any corrections and/or suggested changes. She pointed out several changes she had made to the document. Several other members had some concerns about incorrect math, inaccurate estimates, not all costs related to nitrates in the groundwater, precision of language, the purpose of putting together the information and who it was intended for. Jean believed that the information should be part of the GWAC's final document which would be presented to the legislature and wanted to speak to the public at large so that they understood the "cost of doing nothing."

Since there was disagreement about the document Jean asked each member of the group to weigh in. A member read aloud the mission statement of the Regulatory Working Group. Some members were not opposed to creating a list of costs, but did not believe it was a regulatory task assigned to the Regulatory Working Group. A member thought the document should add disclaimers and notes in order to be more accurate. Another member said that hiring someone to do a cost/benefit analysis had already been voted down and felt the document Jean had prepared picked on specific groups. Several members felt it was the task of the Data Collection Working Group and believed it should be tackled with the help of a professional as accuracy is crucial. A member stated that quantifying the cost of doing nothing was futile and that the group should spend their time addressing lowering the nitrates in the groundwater. Another member appreciated the thought behind it. Several members saw a benefit and thought that more information causes people to think and costs catch people's attention. Another member thought it would be useful to show the legislature the cost of doing nothing. Jean indicated that she thought the project belonged in the Regulatory Working Group because it fit within the group's purpose in broad terms. She added that she had tried to get it on the agenda for the GWAC as an individual for four years but was unsuccessful. Jean desired to table the matter until the next

meeting but a member felt that since the group had already been involved in an extensive discussion the group should vote now. Steve George made a motion that this economic effort be stopped tonight in the Regulatory Working Group so that the group could focus on its regulatory duties. Laurie Crowe seconded the motion. The motion was voted on by a show of hands: seven voted in favor of the motion; three abstained and three voted no (13 were present); the motion was passed.

Next Meeting: Jean explained that she would like to move the next working group meeting to Wednesday, March 22 and the group agreed. Jean's idea was to cancel the March 8 meeting since that meeting date was so close and to cancel the April 12 meeting as there would be a joint working group meeting on April 13 (the Nitrogen Loading Assessment will be presented that day).

EPO Questionnaire: Jean pointed out that the group had already agreed to most of the information found on the Questionnaire. However, a member pointed out that the second bullet in Number 4 "An overview of costs related to elevated nitrates in the groundwater" should be deleted in light of the group's vote that evening. Jean explained that she had not completed Number 6 "What are your key messages or top take-away messages/recommendations?" The group listed the following items but agreed to discuss them at the next meeting.

- Agencies are understaffed.
- It is difficult to keep up with the laws by the regulated and the regulators.
- Some laws are not implemented.
- Coordination/communication between agencies is important.
- There are too many unenforceable suggestions.
- Different paradigm of enforcement between agencies and the public
- There are too many laws/duplication of laws.

Jim Davenport felt that "simplification" was the overarching word. The group agreed that the Questionnaire could be passed on as a draft to EPO with the understanding that Number 6 still required some refinement. The meeting concluded at 7:20 PM.

Resources Requested: None.

Recommendations for GWAC: None.

Deliverables/Products Status: None.

Proposed Next Steps

Jean will pass on the completed Questionnaire to EPO as outlined above noting that No. 6 was still in draft format.

Regulatory Framework Working Group

Charge from Groundwater Management Area Advisory Committee

[Insert Charge]

Working Group Members

Jean Mendoza, Chair (Friends of Toppenish Creek), Andres Cervantes (Department of Health), David Bowen (Department of Ecology), Chelsea Durfey (Turner and Co.), Dan DeGroot (Yakima Dairy Federation), David Newhouse (interested party), Ginny Prest (WSDA), Jason Sheehan (Yakima Dairy Federation), Jim Dyjak (Concerned Citizen of Yakama Reservation), Larry Fendell (interested party), Laurie Crowe (South Yakima Conservation District), Nick Peak (EPA), Patricia Newhouse (Lower Valley Community Representative), Steve George (Yakima County Farm Bureau), Stuart Crane (Yakama Nation), Sue Wedam (Lower Valley Community Representative), Vern Redifer (Yakima County Public Services), Jim Davenport (Yakima County Public Services)

Meetings/Calls Dates

Meeting: March 22, 2017, 5:00-7:30 PM

Call Number: 360 407-3780 PIN Code: 306589#

Participants

Present: Jean Mendoza (Chair), Steve George, Sandy Braden, Stuart Crane, Ginny Prest, Dan DeGroot, Carolyn DeGroot, Patricia Newhouse, David Newhouse, Laurie Crowe, Jason Sheehan, Mark Peterschmidt (Ecology) and Bobbie Brady (Yakima County Public Services). No one was on the phone.

Key Discussion Points

Jean opened the meeting at 5:06 PM, welcomed everyone and introduced Mark Peterschmidt, Department of Ecology (Ecology) Water Shed Unit Supervisor for non-point storm water pollution. Jean asked him to make a presentation on TMDL's (total maximum daily loads) because in 2011 when the GWMA began three options had been presented: TMDL's (which could be a part of the other two options), sole source aquifer or the GWMA.

Presentation on TMDL's: Mark defined a TMDL as the amount of specific pollutant that a waterbody can receive and still meet water quality standards and noted that under the Clean Water Act, Section 303(d,) the TMDL requirements were to identify impaired/threatened waterbodies and develop TMDL's for those waters. Mark identified both the waste load allocation components and load allocation components and explained their approach when dealing with waters that don't meet water quality standards. Mark stated that the most common impairment in this region is warm water. Mark cited working with irrigators to decrease sediments and DDT delivered to the Lower Yakima River was an example of a great voluntary TMDL success. He also

explained some of the interactive features found on the Ecology website that the group might be interested in as it pertains to water quality assessments and impaired waters.

Jean asked the group if there were any questions. A member asked if there was a direct correlation between surface water TMDL's and nitrates in the groundwater. Mark said it was hard to say and would be very difficult to relate. He added that there hadn't been any study in the Lower Yakima Valley and he didn't know when a study would be done or how they would do it. The member stated that it was his understanding that the Lower Yakima Valley has more issues with temperatures and flows. Mark indicated that he wasn't aware of the limiting nutrient – it could be nitrogen or phosphorous. Ginny Prest asked if in the TMDL process Ecology does an inventory of sources. Mark said yes. Ginny asked if this had been done in the Lower Yakima Valley. Mark said the entire main stem of the Yakima hadn't been done; it was on his group's priority list but they lacked the resources to do it. Mark added that other smaller studies have been completed on the Yakima which will help with the assessment of the main stem. Also, when asked, he didn't know what the status of fecal coliform testing on the Granger drain was and added that there was an environmental management system available on line that may be able to answer some of these questions. Jean asked him if he was aware of the water testing the GWMA would be doing on the drains in the GWMA and added that perhaps the group could share data. A member asked if there was a way future studies could be useful for the GWMA. Mark said he would want to consider this before he answered. Jean passed around a study of concentrations of contaminates prepared by the ROZA Sunnyside Joint Irrigation Board for the group to look at.

Discussion of Composting Regulation: Jean invited Ginny Prest of the Washington State Department of Agriculture (WSDA) to share about dairy composting and the DNMP. Ginny noted that quite a few dairies in the Yakima Valley compost on site and she estimated 30 to 40 percent of compost was transported out of the Yakima Valley. When they inspect the WSDA looks at how a dairy composts and they make sure that in the process it doesn't go into surface waters. Ginny pointed out that the WSDA does not regulate this; she believed either Ecology or the Yakima Health District (YHD) do. Jean stated that it was her understanding that there was a conditional exemption that would require a dairy to apply to the agency and a categorical exemption which does not require an application. She added that manure is categorical and therefore exempt. Members said that this may change. Dan added that the term composting is often used as a category and can often refer to more than one thing.

Ginny went on to say that if dairy producers can process manure on site the weight decreases, it is less expensive to transport and it can be transported farther away. Dan said the big expense on the dairy is processing and loading and composting is done based on cost/benefit. Jason said liquids (which are low in nutrients) are transported close to the dairy as they are heavier; solids move mid-range and compost (which has the highest nutrient density) can be moved farther away. Dan added that composting can be accelerated by turning it, but it can't be stopped. Both Jason and Dan agreed that composting is an opportunity to move nutrients to where they are most needed and for organic growers it is their only source of nutrients and it kills weed seeds. Dan said that animal nutrients have always been the number one way of feeding plants. Ginny added that compost has many benefits if used responsibly - it adds to soil structure and soil density because it has the ability to hold both air and water where chemical fertilizers deplete soils. Jean noted that as an environmentalist she believes that atmospheric change came about because of the use of commercial fertilizers. A member agreed and said that animal fertilizer is

good for the environment. Another member pointed out that dairy owners are environmentalists as well because they live where they work and want to pass on what they own to the next generation. Other members agreed. A member said that most dairies want to avoid composting regulation so that they can do what works best to get the maximum amount of nitrogen out of the valley. Another member added that the group had heard in the presentation on TMDL's that voluntary measures yielded great results. Instead of regulation people had been educated and did the right thing because they understood the importance. Jean was a proponent of regulation because there was a property near her home with pooling water around large stacks of uncovered manure that had been there since last fall. Several members encouraged her to get the total picture – not just the snapshot she took as she drove by because there may be details she wasn't aware of. Ginny add that when she started in 2004, 35 percent of the dairies in eastern Washington (approximately 150+ locations) had adequate records. Now 85 to 90 percent of dairies have records, take soil samples and use the information to make informed decisions.

EPO Questionnaire: Jean asked the members to consider the six items they had included in question No. 6 of the EPO questionnaire (which had been completed in draft by the group at last month's meeting). The group decided after much discussion to include the following key messages or top take-away messages in final format:

1. In general agencies are under-resourced.
2. There are many laws with some duplication making it difficult for both regulators and the regulated to stay current with the laws.
3. Some laws are not adequately implemented.
4. Coordination/communication between agencies is important.
5. There is a different paradigm/perception of enforcement for the public and for agencies.
6. Most of the presentations have reported that the regulated communities have seen continuous improvement in compliance.

Plan Going Forward for the Regulatory Working Group: Jean informed the group that she had run out of topics for discussion and wondered if the group needed to continue to meet or if anyone had any suggestions. Ginny said that she thought the group needed to put together a summary of the regulations for the GWAC and reminded Jean that Jim had already drafted a document for which she had provided edits. Ginny agreed to forward an electronic copy of the document to Jean. Another member suggested that Jean contact the committee chairs to find if they had a desire for the Regulatory group to develop alternative strategies or suggestions to fill gaps for inclusion in their final reports. Dan reminded everyone that the group needs to complete the tasks given to it in the plan; he suggested that it would be good to refer back to the plan to see what was required.

Closing Thoughts: Many in the work group thanked Mark and Ginny for the valuable information they had presented. Others commented that education should be a priority because compliance increases when people are better informed. Others commented that they felt the group had come a long way in their discussion and they appreciated that the discussion had been civil and

respectful and void of wild accusations. The meeting concluded at 7:15 PM. The April 12 meeting was cancelled because the Joint Working Group Meeting presenting the Nitrogen Loading Assessment was scheduled for the following day (April 13). The next Regulatory Framework Working Group meeting will be held on May 10.

Resources Requested: None.

Recommendations for GWAC: None.

Deliverables/Products Status: None.

Proposed Next Steps

- Ginny Prest will provide Jean with a copy of the draft document Jim had written and Ginny had edited which summarized the regulations the group had reviewed.
- Jean will ask the other working group chairs if they desired the Regulatory group to develop alternative strategies or suggestions to fill gaps for inclusion in their final reports.
- Jean will review the plan to see what tasks had been assigned to the Regulatory Working Group to complete in order to insure the group's work is done.

Livestock/CAFO Working Group

Charge from Groundwater Management Area Advisory Committee

Discussion of data sources and remaining Work Plan Items

Working Group Members

David Bowen, Chair (Department of Ecology), Gary Bahr (Department of Agriculture), Elizabeth Sanchez (Yakama Nation), Jason Sheehan (Dairy Federation), Jim Newhouse (South Yakima Conservation District), Laurie Crowe (South Yakima Conservation District), Sue Wedam (LV Community Rep.), Patricia Newhouse (Community Rep Position #2), Steve George (Yakima County Farm Bureau), Stuart Turner (Turner & Co., Inc.), Jean Mendoza (Friends of Toppenish Creek), Jim Dyjak (Concerned Citizens of the Yakama reservation)

Meetings/Calls Dates

Meeting: Thursday, January 5, 2017, 5:00 – 7:00 PM

Participants

David Bowen, Jim Dyjak, Jean Mendoza, Larry Fendell, Sandy Braden, Sue Wedam, Jason Sheehan, Stuart Crane, Jeff Steele, Chelsi Riordan, Dan McCarty, Stuart Turner, Kathleen Rogers, Bud Rogers, Steve George Vern Redifer and Bobbie Brady (Yakima County Support Services).

Key Discussion Points

David Bowen opened the meeting at 5:03 PM and asked everyone to introduce themselves. He explained that the goal of the evening's meeting was to review the four discussion points still under consideration from the group's December meeting. A discussion ensued on each topic.

County CAFO Ordinance – Alternative Strategy?: David asked Vern to comment on the possibility of the County enacting its own CAFO ordinance. Vern thought the request would carry weight if the GWAC asked the County to do this. A member commented that CAFO/AFO's are authorized under a conditional use permitting process and were subject to a SEPA review. The member's concern was that the County had a limited budget and expertise in this field; others agreed. Vern also agreed and pointed out that under SEPA the County relies on other agencies' (e.g., the Department of Agriculture and the Department of Ecology) expertise to provide input and public comments in order to make decisions. A member added the County's process did not include a review of the DNMP as it would include the CAFO's confidential business plan.

A member reminded the group that the idea of the County CAFO ordinance had been promoted by one or two people and had included a recommendation to limit the number of cows on dairies. The idea had not been the consensus of the group and he was adamantly opposed. Vern suggested that the group could consider a subset of agricultural zoning (as only one currently exists) limiting the intensity of cows in certain geographical areas that may be more susceptible to leaching for a variety of reasons. Vern added that Matt Bachmann in his USGS "Particle Tracking for Selected

Groundwater Wells in the Lower Yakima River Basin" said that there are areas in the GWMA where everything moves faster noting that these areas may be good to consider for limitations as well.

David added that the Department of Ecology is increasing their communication efforts in the wake of the Livestock/CAFO permit. A member asked if she could weigh in on the problems with the permit interface. David reminded her that these comments were not applicable to the Livestock/CAFO group and it needed to finish its assignment before moving on to other issues.

Renaming the category Bad Actors (Poorly Managed Facilities, PMF's?) – how to bring them in without penalizing the rest (cost of customer): David reminded the group that it had not been pleased with the term "bad actors" and wanted to consider an alternative without penalizing the majority in the process. Several members said that the term must be generic and not focus in on a single industry. There was concern expressed that the term "poorly managed facility" was subjective and after a great deal of discussion a member suggested the term "facilities not following management practices." The group agreed it would function well as a term applicable to all industries. The group also discussed the legitimacy of data collected from a compliant driven system and other comments from the handout. David then summarized the discussion: perhaps there needed to be additional Department of Agriculture staffing in the GWMA and some changes in processes and protocols that would require personnel to visit the person who filed the complaint should be considered as well.

A member asked how the industry and associations representing the industry felt about policing their own to improve compliance and reduce potential damage to water supplies. A visitor responded that he is hearing many of the concerns members had expressed in forums throughout the area. Producers following guidelines and trying to do the right thing are expressing their frustration with and discussing various options available to persuade others into compliance.

Tracking Manure and Commercial Fertilizer – volume and location: The group discussed tracking where manure is exported. One member felt there were gaps in the process; others felt everything was tracked not necessarily as a regulation, but as a business practice. The group also discussed the percentage of nutrients that are exported. Stu Turner agreed to provide: 1) the average and range data for Yakima Valley dairies; 2) a separate delineation of liquid numbers and solid numbers; 3) a summarization of the data; and, 4) the number of samples used to compile the data supplied

Vern wondered if the Department of Agriculture could summarize the DNMP reporting and provide information that would disclose the amount of manure the CAFO's in the GWMA created and where it was distributed. A member was concerned that this kind of reporting would only reveal a small piece of the whole picture which could be taken out of context as it wouldn't contain the amount of use for example. Vern felt it was important to come up with some way to talk from the same set of facts. David mentioned that there had been no discussion about tracking commercial fertilizer. A member reminded everyone that land application was not within the committee's purview but belonged to the Irrigated Ag Working Group.

AKART (All Known, Available and Reasonable Technology – Methods of Prevention, Control and Treatment): David asked the members who supported AKART to explain their support and those opposed to explain their opposition in order to facilitate discussion.

A member in support explained that AKART was required by law and deserved discussion. Another member had found AKART (from personal experience) to be site specific and dependent on the size of the facility. A member said that if a business had 30 cows per acre they should be required to conduct business using modern technology and if they couldn't afford modern technology they shouldn't have 30 cows.

Members in opposition were concerned about the technology dairies would be required to buy because AKART required known and available technology. There was also concern as to who would define known and reasonable. A member added that not everyone's business model can afford a \$300,000 piece of equipment. Vern read the definition of AKART found in WAC 173-218-030 (Department of Ecology, Underground Injection Control Program, Definitions) and related that the County is required to follow AKART for its NPDES permit for stormwater discharges. AKART requires the County to agree to do things as it pertains to stormwater without knowing what they are and requires them to use the most up-to-date equipment. His concern was flexibility and the definition of reasonable. Another member felt that AKART was ridiculous to apply to businesses and wondered where a cost benefit analysis would come into play. Vern added that having found technology that works for controlling storm water pollution there is still an expectation that if new technology comes along the County has to make the change even though existing technology was already working. He emphasized that he was not saying there shouldn't be an expectation for good technology, but that he had a concern that there was a premise requiring the purchase of the latest thing even if the technology that was already in place was working. Another member felt it would help if the group could define the goal and its measurement so an enterprise would not need to replace their current technology if they were meeting their goals. She added that the group would need to consider that the ultimate goal of a drinking water standard was years out and therefore an interim goal would need to be established. Vern agreed that performance should be the driver. Another member noted said this would require a good monitoring program.

A member (who had not been at the December meeting) voiced a concern about "Technology Investment" found on the Key Discussion Points 12/1/2016 David handed out with the agenda as the member wasn't sure what it meant. Vern provided an illustration from a recent County transaction where Yakima County invested \$1.5 million (less than 10 percent) and industry (an energy company) will pick up \$20 million. The technology will convert methane from dairies into natural gas that will feed the Williams Pipeline. Vern noted that the project will create a new industry in the County and provide a solution for some manure as the back hand of the plan recovers nutrients out of the water into a more concentrated form.

David concluded the discussion and informed the group that it was his goal to get a draft of the Livestock/CAFO report for the GWAC to the group by January 20th for the group's review and adjourned the meeting at 7:06 PM.

Resources Requested

Recommendations for GWAC

Deliverables/Products Status

Proposed Next Steps

- Stu Turner agreed to provide: 1) the average and range data for Yakima Valley dairies; 2) a separate delineation of liquid numbers and solid numbers; 3) a summarization of the data; and, 4) the number of samples used to compile the data supplied.
- David's goal to get a draft of the Livestock/CAFO report for the GWAC to the group by January 20th for the group's review.

Livestock/CAFO Working Group

Charge from Groundwater Management Area Advisory Committee

Discussion of data sources and remaining Work Plan Items

Working Group Members

David Bowen, Chair (Department of Ecology), Gary Bahr (Department of Agriculture), Elizabeth Sanchez (Yakama Nation), Jason Sheehan (Dairy Federation), Jim Newhouse (South Yakima Conservation District), Laurie Crowe (South Yakima Conservation District), Sue Wedam (LV Community Rep.), Patricia Newhouse (Community Rep Position #2), Steve George (Yakima County Farm Bureau), Stuart Turner (Turner & Co., Inc.), Jean Mendoza (Friends of Toppenish Creek), Jim Dyjak (Concerned Citizens of the Yakama reservation)

Meetings/Calls Dates

Meeting: Thursday, March 2, 2017, 5:00 – 7:00 PM

Participants

David Bowen, Jean Mendoza, Larry Fendell, Sue Wedam, Stuart Crane, Dan McCarty, Kathleen Rogers, Bud Rogers, Steve George, Jim Davenport, Vern Redifer and Bobbie Brady (Yakima County Support Services).

Key Discussion Points

David Bowen opened the meeting at 5:04 PM and made one revision to the agenda - the group's discussion/completion of the EPO questionnaire would be moved up to follow updates from previous agenda items and both David and Dan McCarty had items for the group that would be shared immediately.

David Bowen referred to the notes he had written on the whiteboard and reminded the group of their focus - pens/barns, corals, lagoons/ponds, composting, feed structure and animal mortality. He pointed out that the Safe Drinking Water Act (SDWA), Section 1431 includes a three part test: 1) does an issue exist; 2) is human health in jeopardy; and, 3) has local government not acted to protect human health. In this case local government chose the GWMA process because the potential existed that 12 to 15 percent of domestic wells were impacted with +10.0 mg/l (PGG estimate) within the GWMA boundaries. 459 of these wells were high risk. The GWAC then decided they were not going to mask the problem.

It was David's suggestion that the group could propose a short term solution while it addresses nitrates as follows: There are 5,800 wells in the GWMA and 15 percent or 870 wells are potentially impacted. If the group purchased a three stage whole house filter system for each of the 870 homes at \$1,800 to \$2,500 each the cost would be about \$2 million. The annual maintenance for each would be \$200-250 or \$200,000 per year. The approximate cost for this over five years would be \$3 million. Over the short-term this would address the human health issue associated with water quality,

however, over the long-term this solution doesn't address the environmental issue. One member added that another option the group could consider was to drill deeper wells. Jim Davenport asked David if he envisioned a write up of this short-term recommendation and thought it would be good for people to see as they might think it better to look at a short-term solution to a long-term problem. A member asked if the proper venue for this discussion was in the GWAC not the Livestock/CAFO Working Group. Vern mentioned several other options: a water purifier on one faucet in the house (\$600) with a yearly maintenance plan with Culligan which they had negotiated down to \$100 annually. He indicated that they couldn't give them away when offered, but thought that might be because the homeowner would have to pick up the yearly maintenance cost. Vern also said that in Fairway Estates near the Black Rock Golf Course every house has an osmosis system which the County owns because of high nitrates in the groundwater. The discussion concluded and David said he would figure out where to send this information. He asked the group to be respectful to each other as the discussions would include sensitive topics.

Dan McCarty explained that he wanted to respond to two committee members' complaints made during the meeting in January – one member had stated that he called in 10,000 complaints, while the other said 100's of complaints. Dan handed out a copy of an email to/from the Department of Ecology (Ecology) and several pages of their Environmental Report Tracking System (ERTS). When asked, Ecology could only find one complaint from August 1, 2010 (when Dan began his employment) to February 1, 2017 reported by these individuals. The complaint was received the afternoon of 12/21/2011 and entered by Ecology staff and referred to Dan on 12/22/2011. The record reflected that on 12/23/2011 at 9:00 AM Dan contacted the dairyman. Dan explained he was the only WSDA-DNMP investigator on the east side of the Cascades and went on to outline the WSDA response procedures and timeline. Dan provided additional information on other entities to be called. He was concerned that the members had made false accusations, felt they were disruptive and destructive to the GWMA process and shouldn't be tolerated. One member responded and said some calls were made prior to Dan's employment and other calls weren't made to Ecology's ERTS system, but to Dan directly. David was concerned that Ecology was losing something. He encouraged people to call in to Ecology's ERTS system so that a record could be kept. Several other members indicated that they had not had problems.

David updated the group on the CAFO General Permit which will go into effect Friday, March 3 even though several lawsuits have been filed and litigation is expected to last 18 to 24 months. David outlined both parties' disputes. David added that he would feel comfortable including excerpts of the CAFO General Permit in this group's report to the legislature since the permit was now in effect.

EPO Questionnaire: David will provide the group's mission purpose, and as for the group's accomplishments, David will make a list including the group's consensus on BMPs. As for discoveries or findings David pointed out that the group has had a philosophical disagreement on most issues – David will draft Nos. 3 and 4 (anticipated products or recommendations) as well. The group agreed that the dairy/animal industry were target audiences for BMP work along with third party applicators (where nutrients are going besides dairies). The group felt three take-away messages/recommendations could be: 1) use of nutrients need to be managed no matter who is using them; 2) there are operators of poorly managed facilities who are not necessarily following the BMPs; and 3) there is no one fix all BMP – you can't apply the same one and get the same result at every location. You must first look at the goal and choose BMPs to reach the goal. Vern explained

that it was the goal of the EPO to take these questionnaires from each group and develop a program to educate people on what the GWMA is doing. A member said this group may gather more insight once they see the Nitrogen Loading Assessment (if they agree with and how it was done). David will draft the questionnaire, give it to Bobbie and have her distribute it to the group for final approval.

Draft Livestock/CAFO Work Group Report: David had sent out his working group report for the group's review and several members had commented. Jim Davenport had written a report as well in an attempt to generate material for the group to consider and to facilitate completion of this important component. Jim will send his draft to Bobbie and suggested that his and David's drafts could be integrated as David saw fit.

The group began to review the draft and members' comments. Discussion ensued and the following is a brief summary: 1A) Steve said his comment about not including Jean's organization as a bona fide environmental organization was his opinion; 1B) Vern indicated that the nitrogen loading assessment (NLA) will evaluate contributions from CAFO's and it may be premature to answer this. David indicated that the CAFO permit addresses these comments; 2A) Concern was expressed about including the results of one study and not all of the studies on the topic which would allow the reader to evaluate and reach a conclusion. Members said that those that wrote reviews of the EPA study disagreed with its conclusions because the EPA didn't look at or take into account well construction techniques and presumed that all wells were in the same place in the aquifer. Another member was concerned about including a reference to studies by Tebbutt Law Firm. He felt it would alienate the group this report addresses and their review and cooperation was important to future success. Vern felt the problem definition was too general and should be more focused on the issues related specifically to this work group, e.g., lagoons leak too much. David thought this suggestion made sense; 2B) There was discussion as to whether five years meant from the time the plan was complete (12/2017) or earlier as it had been written in the Request for Identification. Vern pointed out that this language had not been used in the Department of Ecology request and thought the group had learned enough over the years to know that the original statement was naïve. Several members agreed that it would make sense to look at trends five years from the time the ambient monitoring network (AMN) and well monitoring were in place and then decide what, if anything else, can be done. 2c) Vern suggested that the group recommend regular check in periods and suggested the entity charged with oversight stay on top of this. He did not recommend setting a required level of nitrogen or required levels of reduction. Vern felt this recommendation was germane to the working group charge. An example he gave was "all farmers educated in proper nutrient management by "x" date." David agreed that the AMN would allow the group to see trends faster.

David added that he hoped to avoid a minority report and indicated the group would continue its discussion of the draft reports at the next meeting. Jim Davenport will send a Word version of his draft which Bobbie will send out to the group so that it could determine where it belongs or where it doesn't. A member asked that comments be made with the track changes/comments in Word as opposed to the comment feature Jean had used.

A copy of a letter Jean wrote to Commissioner Elliott on alternative solutions was furnished to the group. Jean suggested that the Regulatory group could provide an evaluation and summary of

possible alternative solutions. A member thought that the Regulatory group had already been through this process and there weren't any - he thought it would be inappropriate for the group to do this again. Vern pointed out that Jean has raised the issue of alternative solutions in numerous work groups and it didn't gain any traction - no group was ever interested. David added that this group had talked about alternatives - a County Ordinance and the idea of limiting the number of animals per acre were a few examples. These ideas hadn't gone anywhere because the group didn't buy into them. On the other hand, David said the group had reached a consensus about using the NRCS best management practices. David also thought analysis of testing results of the AMN and BMPs at five years would inform the community of the need for implementation of additional or alternative solutions.

David reiterated his desire was to do his best to get a document drafted that everyone could agree upon, but if he had to he would do a minority report. The meeting concluded at 7:10 PM.

Resources Requested

Recommendations for GWAC

Deliverables/Products Status

Proposed Next Steps

Jim Davenport will provide his draft report in Word format to Bobbie and she will forward it on to the group. All member edits should be done in track changes.

[Education and Public Outreach]

Charge from Groundwater Management Area Advisory Committee

Working Group Members

Andres Cervantes (GWAC-DOH), Jean Mendoza (GWAC-Friends of Toppenish Creek), Elizabeth Torres (Citizen), Gretchen Stewart (EPA), Patricia Newhouse (GWAC-Citizen Rep Position #2), Joye Redfield-Wilder (Ecology), Stuart Turner (GWAC-Turner & Co), Ignacio Marquez (AGR), Jessica Black (GWAC); Lisa Freund (Yakima County-Chair)

Meetings/Calls Dates

Meeting: Wednesday, January 5, 2017 from 1:30 p.m. to 3:30 p.m.

Participants

Lisa Freund (Chair-Yakima County), Jean Mendoza (GWAC-Friends of Toppenish Creek), Patricia Newhouse (GWAC-Citizen Rep Position #2), Ignacio Marquez (AGR), Joye Redfield-Wilder (Ecology), Vern Redifer (Yakima County), Karri Espinoza (Yakima County), *Andres Cervantes (GWAC-DOH), *Jessica Black (GWAC), *Gretchen Stewart (EPA)

*Via phone

Key Discussion Points

The meeting was called to order at 1:30 p.m. Lisa reviewed the agenda, no additional items were added.

2017 Outreach

The group brainstormed a 2017 EPO outreach plan. Lisa reminded the group that 2017 is the final year of the Ecology grant funding; that the GWAC has approved approximately \$90,000 for EPO outreach; and that the EPO has been asked to pursue both Abandoned Well outreach and Septic System Maintenance outreach.

For purposes of 2017 messaging, the group decided that each GWMA working group will be asked to provide a bullet-point summary of their mission, their accomplishments, discoveries, and their anticipated products. The EPO will review the summaries and identify key outreach messages from them, and will use the summary data to inform its outreach messages and materials.

The group's discussion, a preliminary timeline calendar, and action items are summarized below.

2017 Outreach:

What We Know:

- Funding: Approximately \$90,000 for EPO Projects
- 2017 – Final year of plan (Ecology grant concludes December 2017)

GWAC/Joint Working Group Requests:

- Abandoned Well Outreach – ASAP (Joint Abandoned Wells Working Group request)
- Septic System Maintenance Outreach (GWAC)

I. GWAC Work Status:

- What's been accomplished - What's coming up/left to do?

For example:

- Nitrogen Loading Assessment
- Deep Soil Sampling
- Ambient Monitoring Program
 - Drinking Water Monitoring Network
 - Pursue Contract to build purpose-built wells
- High-Risk Well Assessments (Phase I & II)
 - PSA's
 - Live Radio Shows
 - Mailings, etc.
 - Agency Presentations (INSPIRE)
- Five 2016 Health Fairs
- Door-to-Door surveys (2013)
- Flyers
- "Test Your Well" English/Spanish billboards
- PEHSU Partnership Products
 - New Mom Flyer (English/Spanish)
 - Medical Provider Fact Sheet
 - Grand Rounds
- Regulatory Framework Summary
 - Laws
 - Regulations

II. Communication - Prospective Thinking:

- What we know -

- Water (Irrigated Ag) Management
- Nutrient Management
- Best Management Practices (BMP's) recommendations from:
 - IAWG

- Livestock/CAFO

- Website:
 - Primary outreach vehicle

III. Discovery:

- What outreach vehicles do we want to use to inform the public? For example:
 - Open houses
 - Public Hearings (under the WAC, Ecology holds the hearings)
 - Elected Official Briefings

IV. What We Need from Each Working Group:

- Working Group Mission
- Accomplishments
- Discoveries
- Future products/recommendations
- Audiences

EPO's 2017 Q1 Calendar

January	<p>Working Group Input</p> <ul style="list-style-type: none"> ○ Make pitch to working groups in person (Vern) <ul style="list-style-type: none"> ○ Request for summaries – who is your audience? ○ Create EPO Summary (Lisa F.) <p>Prepare draft abandoned wells bullet points (Andy & Joye) Circulate draft abandoned wells bullet points to EPO via e-mail (Lisa) Reach EPO decision on abandoned wells bullet points (all)</p>
February	<p>Deadline for Working Groups summaries Introduce roll-out at February 16 GWAC meeting. Provide materials for Ignacio to distribute at the Feb 22nd – Agriculture Safety Conference</p>
March	Compile/Evaluate Working Group Messages

ACTION: Joye will send Lisa a sample questionnaire that she has created and used at the Department of Ecology. Lisa will create the EPO's Work Group summary. Vern will make the pitch to the remaining Working Groups to create their progress summaries.

Abandoned Wells

The group discussed the next steps for abandoned well outreach. A member observed that this has been discussed previously and determined to be very difficult, if not impossible. (If it could be

Lower Yakima Valley Groundwater Management Area Advisory Committee

[January 5,

2017]

done, Ecology would have done it already). Another member observed that they believe there is solid proof that dairies contribute to elevated nitrates in groundwater, but the contribution from abandoned wells is speculative. Another member observed that state agencies are required to provide materials in formats and languages that the audience can understand. The group agreed that they need to establish priorities for each initiative.

A discussion followed regarding who the target audiences are within the GWMA, their various education levels, and the outreach vehicles that might be used to communicate effectively with each audience.

It was decided that Joye and Andy will compile the message points and information using existing materials that focus on well protection ("Twelve Simple Things You Can Do to Protect Your Well Water" and the "Oregon State University Well Water Program") and create a document for the EPO's review by January 19, 2017. Once the message points are approved by the EPO it will be translated into Spanish.

ACTION: Joye and Andy will have the draft of the message points e-mailed to EPO member by January 19, 2017.

The EPO will review the draft message points via email with the intent to reach agreement.

Subject to EPO approval, the final product will be presented to the GWAC at the February 16, 2017 meeting.

Lisa F. will send out a link of the Questions and Answer's section on the Yakima County website to the EPO.

Spanish-Language Outreach (Jean) & Well Testing Poster (Gretchen-PEHSU)

These topics were tabled to the next meeting; however, handouts were distributed for members' review. Informally, the group had no changes to PEHSU's "Should I Test My Private Well Water?" poster.

The meeting adjourned at 3:45 pm.

Resources Requested

None

Deliverables/Products Status

Working Group Summaries

- Joye will send Lisa a sample summary
- Lisa will create the EPO's summary
- Vern will make the pitch to the GWAC working groups for their summaries

Abandoned Wells

- Joye and Andy will work together to create an abandoned well message point draft to be e-mailed to all EPO members by January 19, 2017
- EPO members will review the proposed well message points and return comments by January 31.
- Subject to EPO approval, the final abandoned well message points will be presented to the GWAC at the February 16, 2017 meeting.
- Lisa F. will send a link of the Q&A section on the Yakima County website to the EPO members

Proposed Next Steps

1. Present the working group summaries (proposed messaging) at its February GWAC meeting.
2. Present the abandoned well talking points to the GWAC at its February meeting.

The next EPO meeting is scheduled for Wednesday, February 15, 2017 at 1:30 PM, Yakima County Courthouse Room 419.

[Education and Public Outreach]

Charge from Groundwater Management Area Advisory Committee

Working Group Members

Andres Cervantes (GWAC-DOH), Jean Mendoza (GWAC-Friends of Toppenish Creek), Elizabeth Torres (Citizen), Gretchen Stewart (EPA), Patricia Newhouse (GWAC-Citizen Rep Position #2), Joye Redfield-Wilder (Ecology), Stuart Turner (GWAC-Turner & Co), Ignacio Marquez (AGR), Jessica Black (GWAC); Lisa Freund (Yakima County-Chair)

Meetings/Calls Dates

Meeting: Wednesday, March 15, 2017 from 1:30 to 3:30 PM.

Participants

Lisa Freund (Chair-Yakima County), Patricia Newhouse (GWAC-Citizen Rep Position #2), Ignacio Marquez (AGR), Joye Redfield-Wilder (Ecology), Andres Cervantes (GWAC-DOH), Dave Cole (Yakima Health District) *Jessica Black (GWAC), *Gretchen Stewart (EPA). *Via phone

Key Discussion Points

The meeting was called to order at 1:32 PM. Lisa introduced Dave Cole from the Yakima Health District and reviewed the agenda. Lisa explained that Gretchen Stewart would attend the meeting by phone but was only available for a short while so the group would discuss the PEHSU Well Assessment Poster at that time. Lisa had several updates and also wanted to allow time for members to talk about the well testing/flooding in the Outlook area before proceeding with the agenda.

Updates: Lisa thanked Joye and Andy for the work they had done to draft and complete the four "What Can You Do" brochures which were previously approved. They are now on the GWMA website in English and Spanish and the brochure entitled "What you can do to protect well water" was distributed last Friday in Outlook.

Outlook/Flooding Response: Dave advised that many agencies were involved in responding to the flooding in Outlook. The Washington State Department of Agriculture (WSDA) was reaching out to farms and the Department of Health was reaching out to community water systems, but because private wells are exempt there was no applicable government agency. Dave said that the Office of Emergency Management was going door-to-door to homeowners and the Yakima Health District (YHD) and Department of Ecology (Ecology) have had a presence. Some attorneys are getting involved in the situation now as well. The community water system

appeared to affect approximately 56 homes and there were about 50-60 private wells involved. The GWMA (through Yakima County) had provided YHD with the remainder of its nitrate testing strips on Friday. The EPO "What You Can do to Protect Well Water" flyer was passed out as well as the EPA studies. Two wells tested positive for nitrates but did not exceed acceptable amounts and also were not as high as the Dobbs property (outside Outlook) which tested at 10.0. It was noted that 10.0 is not considered to be above the state standard for nitrate.

Ignacio added that he had fielded calls from the Governor and Commission on Hispanic Affairs (CHA). State Senator Honeyford and U.S. Senator Patty Murray had reached out as well. Ignacio indicated that CHA was interested in the GWMA outreach and was not convinced that this had been done well previously. Ignacio responded citing the GWMA's many outreach activities: 466 completed high risk well assessment surveys; mailings, live radio shows, flyers, PSA's, agency presentations, presence at five community health fairs, "test your well" billboards currently up in Sunnyside (there are no billboards in Outlook) and the PEHSU Partnership – new mom flyers and clinician training. However, many people were still saying "why don't we know." Ignacio felt that this would be an opportune time to move forward with some specific outreach, education and testing – others agreed. Lisa reminded the group that \$90,000 had been budgeted to the EPO by the GWAC for promoting the work of the GWAC pre-plan and post-plan adoption.

The group discussed the value of offering free well testing. Lisa reminded everyone that the County had contracted with YHD previously; 466 wells in two rounds had been tested and surveys completed at a cost of \$100,000. Dave indicated that YHD was moving forward cautiously (not stepping out of their scope and/or jurisdiction) due to the potential of litigation in Outlook by providing educational instruction on health and safety. In the meantime the WSDA and Ecology are doing their own investigations. The group discussed how the GWMA could tie into what is going on to further educate the public and also noted that any outreach must involve the entire GWMA area not just Outlook.

After a lengthy discussion the group decided: 1) Ignacio and Andy will go on Radio KDNA with the GWMA message and open up the telephone call-in lines to answer any questions people might have; 2) the "What You Can do to Protect Well Water" flyer in English and Spanish will be added as an insert in the Daily Sun News and El Sol; 3) distribute the flyer at Sunnyside Fiesta Foods, Walmart and perhaps the library – the group will work with Jessica Black for a volunteer base to help with this project. Pat Newhouse will check in with these locations to gain their approval. The group agreed to look at March 25, 26, April 1 or 2 as possible outreach dates at Fiesta Foods and Walmart. Jessica asked that the group provide specific dates to her as soon as possible. Dave suggested that it would be good to have representatives of the GWMA present in addition to the volunteers. Ignacio felt he could volunteer at one date and the group agreed to ask Jessica Black if she could be present at one as well. Ignacio will contact KDNA to get radio dates. Lisa will contact KIT and see if perhaps Vern or a County Commissioner could be interviewed. Ignacio will also check to see if the Spanish television station in the area and KIMA could do local interviews.

The group continued their discussions on additional well testing. Both Andy and Ignacio said that while the test strips had been useful there was a lot of variability; testing had to be done

precisely in accordance with the directions. Some members felt it was important to offer additional well testing as this would tie in with the radio presence. Lisa felt Vern could make the decision about spending additional funds on well testing. Lisa said the County would need to negotiate a contract with YHD to perform the tests and complete the surveys as was done in the past. Dave noted this would be difficult to do immediately as YHD was entering its busy season. Members believed that the radio time would be enhanced if free testing was made available. They also thought it was important to do it sooner rather than later as residents of the GWMA were focused on the health of their wells as a result of the flooding. The group agreed to have Lisa ask Vern to spend \$20,000 of the EPO budget for further well testing and \$5,000 for the flyer distribution and radio time referred to previously.

Dave suggested the group investigate YV Tech media and put together a demonstration video that could be posted on You Tube or various websites. Dave believed they had a grant for community outreach so the work may be free; they provide the equipment. The group thought the Groundwater Primer done prior to one of the GWAC meetings might be good option to pursue for this. Dave will check into this.

PEHSU Flyer: Gretchen explained the history and purpose of the flyer. Her inquiry of the committee was: 1) could the flyer be translated into Spanish; 2) would EPO provide a \$200 budget to print (although she may be able to procure this funding from the EPA); and, 3) can the flyer be put on the GWMA website? The group agreed to all of the requests and felt the flyer was timely. Lisa will provide the GWMA logo and website information to Gretchen; Gretchen's graphic artist will incorporate it. Dave suggested that she also include YHD contact information so that people could connect with them as well. Dave will email the information to Gretchen directly. Lisa will provide the Spanish translation of the flyer within the next week.

2017 Outreach - Working Groups: Lisa asked the group to refer to the Working Group Questionnaire Summary and explained that she had not received a response from the Data Collection Working Group but hoped it would be forthcoming. She thought the group might want to wait to discuss this agenda item at the next meeting and also pointed out that it might be important to wait and see what the Nitrogen Loading Assessment would say as well (it is due to the groups by the end of March with a Joint Working Group meeting currently scheduled for April 13). In the interim Lisa wanted the group to read the summary and: 1) identify immediate actions that the EPO could move forward with to inform the public about the GWAC and what it is doing; 2) identify long range/post adoption messages; 3) evaluate the groups' responses for overlap or similar ideas; and, 4) suggest venues for immediate outreach and distribution. The group also made a few suggestions about the format of the summary which would make it easier to review at the next meeting. Joye will send out an email to everyone not present letting them know what the group decided. Joye added that she has been publishing information directly to ancillary group's Facebook pages or other social media/website venues. This allows her to get information out directly to advocacy groups rather than expect that they will come to her for information. She thought this might be something the group could consider and will bring a list of the groups she works with next time. The group agreed that in the meantime meeting participants could work independently on the present outreach plan.

Next Meeting and Next Steps: The next EPO meeting is scheduled for Wednesday, April 5, 2017 at 1:30 PM, Yakima County Courthouse Room 419. The following items were suggested for the groups' agenda:

- Identify immediate, long-range and post-adoption outreach messages.
- Discuss where the "what you can do" flyers can be distributed and who the EPO might partner with. Dave suggested they could be made available at YHD. Pat is going to talk to the Sunnyside Community Hospital Foundation to find out if flyers could be posted there. She will also ask them for their ideas on the best way to get this information out to the community.
- Discuss other social media/website venues for distribution of these materials as well.

The meeting was adjourned at 3:30 PM.

Resources Requested

Recommendations for GWAC

Deliverables/Products Status

The "What You Can Do" flyer series has been translated and posted to the website.

Proposed Next Steps (Summary of ACTION STEPS)

Ignacio: Contact KDNA about radio time; go on the radio with the GWMA message and answer questions. Distribute flyers on one occasion at either Walmart or Fiesta Foods in Sunnyside. Check to see if the Spanish television station in the area could do local interviews and also KIMA.

Andy: Join Ignacio on Radio KDNA.

Pat: Check with Walmart, Fiesta Foods and the library about distributing flyers either March 25, 26, April 1 or 2. Talk to the Sunnyside Community Hospital Foundation to find out if flyers could be distributed at their facility. Ask them for their ideas on the best way to get this information out to the community.

Joye: Send out an email to everyone not present at the meeting letting them know what the group decided. Bring a list of the groups you are working with via social media and website venues.

Lisa: Put the "What You Can do to Protect Well Water" flyer in English and Spanish as an insert in the Daily Sun and El Sol. Communicate outreach dates to Jessica Black. Talk to Vern/Commissioners about radio time on KIT to share the GWMA message. Contact KIT to see if they would be willing to interview them. Ask Vern to authorize \$20,000 of the EPO budget for additional well testing and \$5,000 for the flyer distribution and radio time. Get the PEHSU flyer translated into Spanish and return to Gretchen for graphic artist. Put the PEHSU flyer in English and Spanish on the GWMA website when completed.

Jessica: Recruit student volunteers to hand out flyers at Walmart and Fiesta Foods. Volunteer on one occasion at either location.

Gretchen: Finalize the PEHSU flyer with GWMA logo and website and YHD contact information.

Dave: Email Gretchen YHD contact information including helpline for PEHSU flyer. Check in with YV Tech about producing informational videos for the GWMA.

Group: Read the Working Group Questionnaire Summary and: 1) identify immediate actions that EPO could move forward with to inform the public about the GWAC and what it is doing; 2) identify long range/post adoption messages; 3) evaluate the groups' responses for overlap or similar ideas; and, 4) suggest venues for immediate outreach and distribution.

Attachment B

EPO Questionnaire Summary

EPO QUESTIONNAIRE SUMMARY

QUESTION NO.	EPO	LIVESTOCK/CAFO	REGULATORY FRAMEWORK	IRRIGATED AGRICULTURE	RCIM	DATA COLLECTION
1. Briefly state the mission/purpose of your working group.	<ul style="list-style-type: none"> 1. To inform and educate the public about nitrate groundwater contamination and its health and environmental impacts. 2. Promote GWMA activities and GWMA Plan process. 3. Develop outreach plan based on GWMA Plan implementation. 	Provide recommendations for activities associated with the operation of livestock and CAFO facilities that would assist in reducing nitrate contamination concentrations in ground water below state drinking water standards.	<p>To educate the GWAC on the existing regulations, policies and guidelines in regards to all uses and sources of nitrates in the GWMA.</p> <p>To determine the level of compliance of all regulations, policies and guidelines through contact with the agencies that have regulatory authority and educate the GWAC on the levels of compliance. Identify overlaps and alternative management strategies in current regulatory and non-regulatory strategies and programs that will support GWMA goals.</p>	Help solve the high nitrates in the groundwater issue as it relates to irrigated agriculture.	Examine residential, commercial, industrial and municipal operations and their contributions to N loading in the aquifer.	The original intent of the Data Collections Workgroup was to be an "information hub" for the GWMA. The workgroup evaluates and assures that that all data generated and used by the GWAC meets credible data standards.
2. What has your working group accomplished to date?	<ul style="list-style-type: none"> 1. 466 completed high-risk well assessment surveys. 2. Mailings, live radio shows, flyers, PSA's, agency presentations. 3. Presence at 5 community health fairs. 4. "Test Your Well" Billboards. 5. PEHSU Partnership: New Mom flyers and clinician training. 	<ul style="list-style-type: none"> 1. BMP identification. 2. Review of regulatory framework. 3. Discussion of recommendations. 4. Draft of findings out for discussion. 	<p>1. Review and approved Technical Report No. 1, Regulatory Review, compiled by HDR Engineering in 2013.</p> <p>2. Listened to 17 presentations from agencies regarding how rules and regulations impact their goals regarding nitrates in groundwater. Agencies described how they do their work and were asked for recommendations for regulatory improvement.</p> <p>3. Created an "Effectiveness" document that summarizes how well rules and regulations address release of nitrates to groundwater.</p> <p>4. Presented the "Effectiveness" document to the CAFO/Livestock, Irrigated Ag and RCIM Working Groups in 2016.</p>	<ul style="list-style-type: none"> 1. Completed the deep soil sampling survey. 2. Completed a review of the available BMPs related to irrigated agriculture and provided feedback to each of these and "bang-for-the-buck" review. 3. Have done a lot of discussing to identify potential areas of impact. 	<ul style="list-style-type: none"> 1. Significant research on onsite sewage systems; listed large onsite sewage systems. 2. Ecology explained its NPDES permitting system to the group. 3. Defined hobby farms and their contributions. 4. Determination of residential and commercial application of fertilizers – information was conveyed to the Nitrogen Loading Assessment. 5. Assessment of golf courses, port districts, and fertilizer distribution facilities. 	<ul style="list-style-type: none"> 1. Potential Groundwater Monitoring Stations (PGG) 2. Interim Final Groundwater Monitoring Plan, Initial Characterization (PGG) 3. Ambient Groundwater Monitoring Network (PGG) 4. Draft Nitrogen Loading Assessment (WSDA/Yakima County)

QUESTION NO.	EPO	LIVESTOCK/CAFO	REGULATORY FRAMEWORK	IRRIGATED AGRICULTURE	RCIM	DATA COLLECTION
3. What discoveries or findings has your group identified?	Private well owners are unaware of responsibilities associated with wells (well testing, maintenance, well logs, etc.).	<ul style="list-style-type: none"> 1. Not just one fix – site specific variables. 2. Nitrogen Loading Assessment will provide needed insight. 3. Composting facilities can leak. 4. Disagree on many items, but have some common ground. 5. Some philosophical standoffs. 	<ul style="list-style-type: none"> 1. There may be changes to the Clean Water Act in the near future. 2. The new WA State CAFO Permit went into effect on March 3, 2017. 3. Washington State is working on new ways to address non-point source pollution, for example pollution due to over-application of manures and fertilizers to cropland. 4. There is likely insufficient funding for many voluntary BMP and educational programs that would help reduce the possibility of nitrates reaching groundwater. 5. There may be insufficient regulation of composting operations. 6. There is currently no regulation of nitrogen emissions to the atmosphere. There is a need for more analysis of the impact from atmospheric deposition of reactive nitrogen. 7. There are currently no regulations that require agronomic application of fertilizers or manures to cropland that is not controlled by dairies. 	<ul style="list-style-type: none"> 1. The deep soil sampling survey showed that some irrigated agriculture practices contribute at least partially to elevated nitrates in the groundwater. The extent of this is dependent on many variables including crop type, rooting zone depth, drainage, field slope, rainfall, soil type, plant vigor, source of nitrogen, depth to groundwater, crop yields, and irrigation management practices which make it difficult to attribute nitrogen to particular sources. 2. Growers don't want to over-irrigate and definitely have financial disincentives to over-applying commercial fertilizers, bio-solids, or manure, compost, or organic fertilizers. 3. Education and incentives to take in-field water and nutrient sampling and help with interpreting these measurements could reduce the amount of water and nutrients applied to many fields. 4. Fertilizer companies make many of the recommendations on how much fertilizer to apply. Engaging with this group will be key to affecting changes in the future. 5. Educational institutions and crop consultants also make many of the fertilizer, dry and liquid manure and compost recommendations. Engaging with this group will also be important to affecting changes. 6. Additional regulations on irrigated agriculture have the potential to affect change depending on what regulations were implemented and how, but these would cause economic harm to growers, especially smaller and medium sized growers, and rural economies as a whole and are therefore not recommended by the committee. 	<ul style="list-style-type: none"> 1. The NPDES permitting system through Ecology covers the commercial, industrial and municipal sections of this group's purview. 2. Onsite sewage systems are a direct source to groundwater as they are systems with no uptake. The full load goes directly to groundwater. 3. Hobby farms, golf courses, municipal, commercial and residential areas need to know not to overload fertilizer or water applications and remember that mulch is fertilizer. 4. Hobby farms should be aware of where their onsite sewage system is located and should not build a corral over a well or on top of drain field. 	<ul style="list-style-type: none"> 1. There is a lot of data that has been collected by different entities for different purposes. By making sure that all data that is presented to the GWAC meets credible data standards, we are making sure that the GWAC is using scientifically sound information to make informed decisions. 2. There are a lot of questions that are unanswered. Unfortunately we do not have the resources to adequately answer everything we'd like to know. This has forced us to prioritize and make hard decisions.

QUESTION NO.	EPO	LIVESTOCK/CAFO	REGULATORY FRAMEWORK	IRRIGATED AGRICULTURE	RCIM	DATA COLLECTION
4. What are your group's anticipated products or recommendations?	Focused outreach on products and recommendations coming out of other working groups/GWAC.	Will provide consensus recommendations, summary of areas without consensus and consensus BMP's to the EPO in May or June.	1. The group is prepared to research and answer questions that may be raised by the CAFO/Livestock, Irrigated Ag, RCIM and EPO Working Groups. 2. Further discussion of Item No. 6 below with clarifying information.	1. Increase funding to state conservation districts and WSU extension for nutrient management and irrigation water management in the Yakima Valley. 2. 1.0 FTE at CD office. Soil sampling and soil moisture monitoring. 3. Increase funding for cost share of irrigation water management and education of these programs. 100% covering of costs is not recommended. 4. Increase funding for cost share of soil sampling and analysis (irrigation water management) and education of these programs.	1. Community wells (outside urban growth areas) where there is rural density and a greater nitrate concentration is present. 2. Extension of municipal sewer systems within the urban growth areas. 3. Development of an operations and maintenance plan by Yakima Health District as prescribed by WAC 246 272A focusing on education first and then enforcement if testing data declines. 4. Ecology to do a trend analysis of nitrate data (actually charting the numbers) on NPDES permits.	1. Install monitoring wells. 2. Begin sampling (monitoring wells, private domestic wells, and drains). 3. Quality Assurance Project Plan. 4. Data analysis protocols for all data collected. 5. Prepare one comprehensive groundwater assessment and monitoring document. 6. Identify long term home for continued sampling and analysis.
5. Who are your target audiences?	1. Private well users and at-risk populations in the GWMA. 2. TBD (see No. 3).	1. Ag Industry – dairy and animal feeding. 2. Ag Industry – composting. 3. Nutrient end users – third part applicators.	1. CAFO Livestock, Irrigated Ag, RCIM and EPO Working Groups. 2. The GWAC. 3. Public, stakeholders and government agencies – although the Regulatory Working Group does not make formal presentations to these entities, our meetings are open to anyone who wants to participate, listen and observe. GWMA Regulatory meetings are broadcast on public television.	1. Washington State Legislature. 2. Irrigated agricultural producers. 3. Crop and farm and livestock management consultants. 4. Fertilizer sales companies, manure, compost, and bio-solid providers. 5. Universities and educational institutions including WSU and conservation districts. 6. Environmental movement.	1. Hobby farms, golf courses, municipal, commercial and residential properties with lawns. 2. Homeowners and renters of properties with onsite sewage systems.	1. GWAC. 2. Working group members. 3. Public. 4. Vern.
6. What are your key messages or top three take-away messages or recommendations?	1. Private well users: test your wells. 2. To be determined (working group recommendations).	1. Use of nutrients needs to be managed more effectively. 2. Education and outreach is a priority – generators and end users. 3. Identify and educate facilities not using best practices.	1. In general agencies are under-resourced. 2. There are many laws with some duplication making it difficult for both regulators and the regulated to stay current with the laws. 3. Some laws are not adequately implemented. 4. Coordination/communication between agencies is important. 5. There is a different paradigm/perception of enforcement for the public and for agencies. 6. Most of the presentations have reported that the regulated communities have seen continuous improvement in compliance.	1. Increase education and outreach efforts to help growers do a better job of nutrient and water management. This should be an ongoing effort and likely associated with, or lead by WSU extension and/or state conservation districts. 2. Increase the financial incentives and education related to irrigation water management. This could take the form of cost share for irrigation management services, or education workshops and/or mobile irrigation lab that would come do irrigation system evaluations and education. Growers don't have incentives to over-irrigate. 3. Increase the financial incentives and education related to nutrient management. This might take the form of cost share for soil sampling or nutrient management services. Possibly a service that would spot-check, or give a second opinion of fertilizer recommendations from other companies, who might then be asked to justify their recommendations. 4. Outreach to fertilizer companies to solicit their help in doing a better and more conservative job of nutrient applications and management.	The group felt that the new EPO brochures generally provided this information although some items that can disturb the function of onsite sewage systems were not addressed in detail, e.g., garbage disposals, feminine products, leaky faucets and toilets.	1. All groundwater monitoring initiatives implemented should support the GWMA's goal of reducing nitrate concentrations in groundwater. 2. Nitrogen sources are numerous, extensive and challenging to distinguish specific sources. 3. Multiple groundwater monitoring efforts are necessary since there are multiple questions we'd like answered and therefore multiple goals. Each initiative is designed to support a different objective. It is not possible for one sampling program to address all questions and goals. 4. Only credible data should be used to make scientifically based policy decisions.

Attachment C

“What You Can Do” English/Spanish Outreach Flyers:

- Steps to Assure You Have Safe Drinking Water
- Failing Septic Systems
- Small Farms: What You Can Do (Manure Management)
- What You Can Do: Well Safety

What you can do to protect well water

Groundwater Management Area (GWMA):

The purpose of the GWMA is to reduce nitrate contamination concentrations in groundwater below state drinking water standards

Steps to assure you have safe drinking water

Things to consider if you are a private household well owner:

Have your water tested – at least once a year for nitrates and coliform bacteria. High nitrates can harm pregnant women, newborn babies and the elderly, and high bacteria counts can cause illnesses. More information on Lower Yakima Valley Groundwater Management Area at <http://www.yakimacounty.us/1617/Ground-Water-Management-Area>. A list of certified labs and information on water testing are available online at <http://www.yakimacounty.us/344/Drinking-Water-Testing>.

Locate all wells on your property, both active and inactive. Make sure to cap your wells securely with manufactured or welded caps to prevent pollution and objects from entering your well.

Have your septic pumped – Neglecting septic system maintenance can result in backed-up sewage, expensive repairs and surface seepage that can pollute your well. A system for a four-person household should be pumped every three years.

Use less water – Not only does your septic system function better with less water, pumping more water from your well can pull nearby pollution toward your home.

Manage fertilizers and chemicals – Excess fertilizer moves easily through the soil and contributes to high nitrate levels. Spilled chemicals can reach your well water. Recycle household and hazardous wastes at the County collection facility. Never dump these items on your property or pour them down the drain.

Shield animal waste – Animal yards and piles of composting manure are sources for nitrates and bacteria. Take steps to prevent runoff and soil seepage.

Install backflow preventers – on all your outdoor faucets. Sometimes water can siphon backwards through a hose and down your well. Be very careful when you attach a chemical sprayer to your hose.

Do your part to keep groundwater safe and clean.

GROUNDWATER MANAGEMENT AREA



The purpose of the Lower Yakima Valley Groundwater Management Area is to reduce nitrate contamination where concentrations do not meet drinking water standards.

GWAC

Working Groups

- Data Collection, Characterization, Monitoring
- Education and Public Outreach
- Funding
- Irrigated Agriculture
- Livestock/CAFO
- Regulatory Framework
- Residential, Commercial, Industrial and Municipal

To get involved, call
(509) 574-2300

More information at:
www.yakimacounty.us

Qué puede hacer para proteger el agua de pozo

Área de Manejo de Aguas Subterráneas (GWMA):

El propósito de GWMA es reducir concentraciones de contaminación de nitratos en aguas subterráneas por debajo de los estándares de agua potable del estado.

Pasos para asegurar que tenga agua potable

Cosas a considerar si tiene una vivienda con pozo privado:

Haga pruebas a su agua – Al menos una vez al año para nitratos y bacterias coliformes. Los altos niveles de nitratos pueden afectar a mujeres embarazadas, a los recién nacidos y a los ancianos, y las altas concentraciones de bacterias pueden causar enfermedades. Más información sobre el Área de Manejo de Aguas Subterráneas del Valle Bajo de Yakima en:

<http://www.yakimacounty.us/1617/Ground-Water-Management-Area>. Una lista de laboratorios certificados e información sobre pruebas de agua está disponible en línea en:

<http://www.yakimacounty.us/344/Drinking-Water-Testing>.

Localice todos los pozos en su propiedad, activos e inactivos. Asegúrese de tapar sus pozos de forma segura con tapas prefabricadas o soldadas para evitar que contaminación y objetos caigan a su pozo.

Haga un bombeo a su fosa séptica – Descuidar el mantenimiento de su sistema séptico puede resultar en que se regresen las aguas residuales, reparaciones costosas y filtración superficial que puede contaminar su pozo. Un sistema para un hogar de cuatro personas debe bombearse cada tres años.

Utilice menos agua – No solo su sistema séptico funciona mejor con menos agua, sino también el bombeo más agua de su pozo puede atraer contaminación cercana hacia su hogar.

Maneje los fertilizantes y productos químicos – El exceso de fertilizante se mueve fácilmente a través del suelo y contribuye a altos niveles de nitrato. Productos químicos derramados pueden alcanzar el agua de su pozo. Recicle los residuos domésticos y peligrosos en los centros de recolección del Condado. Nunca tire estos productos en su propiedad ni los vierta en el drenaje.

Aíslle los residuos animales – Los corrales de animales y los montones de estiércol son fuentes de nitratos y bacterias. Tome medidas para evitar el escorrimiento y la filtración del suelo.

Instale válvulas preventivas de reflujo – en todas sus llaves de agua fuera de la casa. A veces, el agua puede sifonar de regreso a través de una manguera y hacia su pozo. Tenga cuidado cuando conecte rociadores de químicos a su manguera.

Haga su parte para mantener las aguas subterráneas limpias y seguras.

ÁREA DE MANEJO DE AGUAS SUBTERRÁNEAS



El propósito del Área de Manejo de Aguas Subterráneas del Valle Bajo de Yakima es reducir la contaminación de nitratos donde la concentración no cumplen con standares de Agua potable.

Grupos de trabajo GWAC

- Recolección de datos, caracterización, monitoreo
- Educación y divulgación al público
- Financiación
- Agricultura de riego
- Ganado/CAFO
- Marco Regulatorio
- Residencial, comercial, industrial y municipal

Para participar, llame al: (509) 574-2300

Para más información visite: www.yakimacounty.us

Septic Safety: What you can do

Groundwater Management Area (GWMA):

The purpose of the GWMA is to reduce nitrate contamination concentrations in groundwater below state drinking water standards

Failing septic systems can pollute drinking water wells

Check it, fix it, maintain it:

Bacteria, viruses and other pollutants from the sewage of a failing septic system, may contaminate drinking water wells, groundwater aquifers, lakes, rivers and streams.

A septic system doesn't have to be a problem.

- Get regular inspections and maintenance. Choose a date or time of the year that's easy to remember for the inspection. Mark it on the calendar.
- Regularly pump your system. Typically, once every three years for a four-person household.
- Learn how to keep your system working properly. Be careful what you flush or pour down the drain. No pet waste, medications, grease, or toxic chemicals.
- Watch for clues that your tank is nearing capacity or your system is failing. Got odors? Get someone to check it out right away. Then fix it, if needed.
- Keep trees at least 30 feet from edge of drain field to keep their roots from invading. Never drive over the system.
- Conserve water. Too much can cause solids to escape your tank and plug your drain field.
- Repair or replace your system when it fails or is otherwise inadequate.

Locate your septic tank and drain field:

- Use your property map or follow discharge pipe from your house. Probe the ground with a rod to determine the location of your septic tank.
- Underground pipes distribute wastewater in a drain field. Wet spots can indicate a failing drain field that needs professional attention.

Do your part to keep groundwater safe and clean.

For more information:

<http://www.ecy.wa.gov/programs/wq/wqguide/septic.html>

<http://www.yakimacounty.us/335/Septic-Systems>

**GROUNDWATER
MANAGEMENT AREA**



The purpose of the Lower Yakima Valley Groundwater Management Area is to reduce nitrate contamination where concentrations do not meet drinking water standards.

GWAC
Working Groups

- Data Collection, Characterization, Monitoring
- Education and Public Outreach
- Funding
- Irrigated Agriculture
- Livestock/CAFO
- Regulatory Framework
- Residential, Commercial, Industrial and Municipal

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More information at: www.yakimacounty.us

Área de Manejo de Aguas Subterráneas (GWMA):
es reducir concentraciones de contaminación de nitratos en aguas subterráneas por debajo de los estándares de agua potable del estado

Los sistemas sépticos que fallan pueden contaminar los pozos de agua potable

Revíselo, arréglelo y dele mantenimiento:

La bacteria, los virus y otros contaminantes de las aguas residuales de un sistema séptico que falla pueden contaminar pozos de agua potable, acuíferos subterráneos, lagos, ríos y arroyos.

Un sistema séptico no tiene que ser un problema.

- Obtenga inspección y mantenimiento regular. Elija una fecha o una época del año que sea fácil de recordar para tener la inspección. Anótelo en su calendario.
- Bombee regularmente su sistema. Normalmente, una vez cada tres años para un hogar de cuatro personas.
- Aprenda a mantener su sistema funcionando correctamente. Tenga cuidado con lo que vierte por el desagüe. No desechos de mascotas, medicamentos, grasas ni químicos tóxicos.
- Esté atento a las señales de que su tanque está cerca de la capacidad o de que su sistema está fallando. ¿Tiene olores? Pídale a alguien que lo revise inmediatamente. Luego, arréglelo si es necesario.
- Mantenga los árboles por lo menos a 30 pies del borde del campo de drenaje para evitar que las raíces lo invadan. Nunca conduzca sobre el sistema.
- Conserve agua. Demasiada agua puede causar que los sólidos escapen del tanque y que tapen las líneas del campo de drenaje.
- Repare o reemplace el sistema cuando falle o cuando sea inadecuado.

Localice el tanque séptico y el campo de drenaje:

- Utilice el plano de su propiedad o siga la línea de descarga de su casa. Pruebe el suelo con una barra para determinar la ubicación del su tanque séptico.
- Las tuberías subterráneas distribuyen las aguas residuales en el campo de drenaje. Las áreas húmedas pueden indicar un campo de drenaje defectuoso que necesita atención profesional.

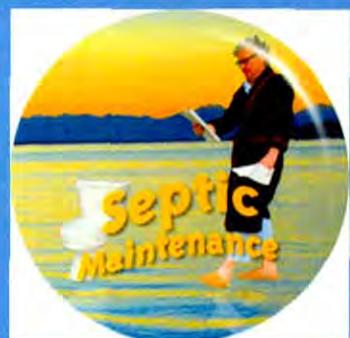
Haga su parte para mantener las aguas subterráneas limpias y seguras.

Para más información visite:

<http://www.ecy.wa.gov/programs/wq/wqguide/septic.html>

<http://www.yakimacounty.us/335/Septic-Systems>

ÁREA DE MANEJO DE AGUAS SUBTERRÁNEAS



El propósito del Área de Manejo de Aguas Subterráneas del Valle Bajo de Yakima es reducir la contaminación de nitratos donde la concentración no cumplen con standares de Agua potable.

Grupos de trabajo

GWAC

- Recolección de datos, caracterización, monitoreo
- Educación y divulgacion al publico
- Financiación
- Agricultura de riego
- Ganado/CAFO
- Marco Regulatorio
- Residencial, comercial, industrial y municipal

Para participar, llame al:
(509) 574-2300

Para más información visite:
www.yakimacounty.us

Small Farms: What you can do

Groundwater Management Area (GWMA):

The purpose of the GWMA is to reduce nitrate contamination concentrations in groundwater below state drinking water standards

Poor manure management can threaten drinking water wells

Collect, cover and compost:

Livestock manure can be great fertilizer. It may also be a source of water pollution when exposed to the weather. If you keep livestock, even just one or two, you have a special role to play in protecting drinking water, groundwater aquifers, rivers and streams.

What can you do to help?

- Use downspouts to direct runoff away from manure.
- Pick up manure from farm yards and paddocks at least every three days.
- Store manure under cover in a convenient site that's sheltered from heavy winds.
- When you use a tarp for a cover, secure it well. The tarp should be durable, heavy-weight and large enough to fully cover the pile.
- Work with the local conservation district office to make a plan and learn how to best handle your manure.
- Build a compost system or have an off-site compost facility collect the manure.

Washington's [Dairy Nutrient Management Act](#) requires all licensed dairies to develop and implement [nutrient management plans](#). Large livestock operations must follow confined animal feeding operation (CAFO) regulations to protect water quality.

Good manure management also helps you:

- Prevent parasite re-infestation.
- Keep groundwater clean.
- Build goodwill with your neighbors.
- Support a healthy watershed.

Do your part to keep groundwater safe and clean.

For more information:

http://www.ecy.wa.gov/washington_waters/farms.html

**GROUNDWATER
MANAGEMENT AREA**



The purpose of the Lower Yakima Valley Groundwater Management Area is to reduce nitrate contamination where concentrations do not meet drinking water standards.

GWAC

Working Groups

- Data Collection, Characterization, Monitoring
- Education and Public Outreach
- Funding
- Irrigated Agriculture
- Livestock/CAFO
- Regulatory Framework
- Residential, Commercial, Industrial and Municipal

To get involved, call (509) 574-2300

More information at: www.yakimacounty.us

Granjas pequeñas: Lo que usted puede hacer

Área de Manejo de Aguas Subterráneas (GWMA):

El propósito de GWMA es reducir concentraciones de contaminación de nitratos en aguas subterráneas por debajo de los estándares de agua potable del estado.

Un mal manejo del estiércol puede amenazar los pozos de agua potable

Recoja, cubra y haga compost:

El estiércol de ganado puede ser un gran fertilizante. También puede ser una fuente de contaminación del agua cuando se expone al clima. Si tiene ganado, incluso solo uno o dos, usted tiene un papel especial que desempeñar en la protección del agua potable, los acuíferos subterráneos, los ríos y arroyos.

Qué puede hacer para ayudar?

- Use canalones para dirigir el escurrimiento de agua lejos del estiércol.
- Recoja el estiércol de los corrales y potreros por lo menos cada tres días.
- Almacene el estiércol bajo cubierta en un sitio conveniente que esté al abrigo de vientos fuertes.
- Cuando utilice una lona como cubierta, asegúrela bien. La lona debe ser durable, pesada y lo suficientemente grande para cubrir totalmente el montón.
- Trabaje con la oficina local de conservación del distrito para hacer un plan y aprender a manejar mejor su estiércol.
- Construya un sistema de compostaje o busque una planta de compostaje para que recoja su estiércol.

La Ley de Manejo de Nutrientes de Leche de Washington [Dairy Nutrient Management Act](#) requiere que todas las lecherías con licencia desarrolleen e implementen planes de manejo de nutrientes [nutrient management plans](#). Las operaciones mayores de ganado deben seguir las regulaciones de operación de animales confinados (CAFO) para proteger la calidad del agua.

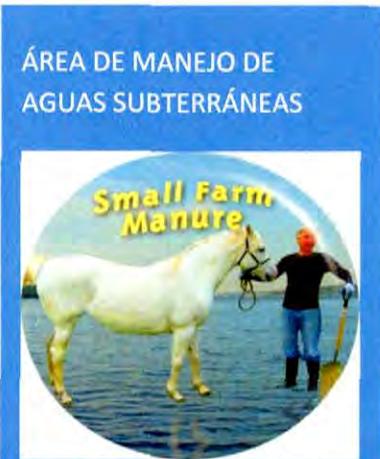
El buen manejo del estiércol también lo ayuda a:

- La prevención de reinfestación de parásitos.
- Mantener el agua subterránea limpia.
- Desarrollar buena voluntad con sus vecinos.
- Apoyar una cuenca acuífera saludable.

Haga su parte para mantener las aguas subterráneas limpias y seguras.

Para más información viste:

http://www.ecy.wa.gov/washington_waters/farms.html



El propósito del Área de Manejo de Aguas Subterráneas del Valle Bajo de Yakima es reducir la contaminación de nitratos donde la concentración no cumplen con standares de Agua potable.

Grupos de trabajo

GWAC

- Recolección de datos, caracterización, monitoreo
- Educación y divulgacion al publico
- Financiacion
- Agricultura de riego
- Ganado/CAFO
- Marco Regulatorio
- Residencial, comercial, industrial y municipal

Para participar, llame al:
(509) 574-2300

Para más información visite:
www.yakimacounty.us

Well Safety: What you can do

Groundwater Management Area (GWMA):

The purpose of the GWMA is to reduce nitrate contamination concentrations in groundwater below state drinking water standards

The dangers of uncapped, abandoned or hand dug wells

Capping prevents pollution, serious injuries:

All wells must be securely capped, including those that are not in use, temporarily out of service, or not yet decommissioned, to protect the drinking water and the aquifer from contamination. Proper capping also prevents objects, animals and people from falling into the well.

Common methods of capping wells, include using:

- Manufactured well caps.
- Metal plates welded to the top of the well casing.
- A well-seal/artsian style cap for wells in vaults or located in areas where surface water ponds.

These can be found at pump and water supply stores. Securely attach the cap so that it prevents contamination and unpermitted access to the wells. Don't use an overturned bucket or loose plate to cover the well casing.

What to look for when searching for an abandoned well:

Landowners who don't know the history of wells on their property should look for the following when searching for abandoned wells:

- Pipes sticking out of the ground.
- Old well houses.
- Depressions.
- Concrete vaults, pits or tile.
- Metal plates, or old plywood lying on the ground or over concrete tile or vaults.

Do your part to keep groundwater safe and clean.

For more information:

<http://www.ecy.wa.gov/programs/wr/wells/abandon-wells.html>

<https://fortress.wa.gov/ecy/publications/publications/96br097.pdf>

GROUNDWATER MANAGEMENT AREA



The purpose of the Lower Yakima Valley Groundwater Management Area is to reduce nitrate contamination where concentrations do not meet drinking water standards.

GWAC

Working Groups

- Data Collection, Characterization, Monitoring
- Education and Public Outreach
- Funding
- Irrigated Agriculture
- Livestock/CAFO
- Regulatory Framework
- Residential, Commercial, Industrial, and Municipal

To get involved, call
(509) 574-2300

More information at:
www.yakimacounty.us

Seguridad en pozos: Lo que usted puede hacer

Área de Manejo de Aguas Subterráneas (GWMA):
El propósito de GWMA es reducir concentraciones de contaminación de nitratos en aguas subterráneas por debajo de los estándares de agua potable del estado.

Los peligros de pozos destapados, abandonados o excavados a mano.

Las tapas evitan la contaminación y lesiones graves:

Todos los pozos deben estar tapados, incluyendo los que no están en uso, temporalmente fuera de servicio o que todavía no están retirados de servicio para proteger el agua potable y el acuífero de la contaminación. Una cubierta adecuada también impide que objetos, animales y personas caigan en el pozo.

Los métodos comunes de tapado de pozos, incluyen el uso de:

- Tapas para pozo prefabricadas.
- Placa de metal soldada a la parte superior del revestimiento del pozo.
- Una tapa de sello para pozo estilo artesiano en bóvedas o localizados en áreas donde el agua superficial se acumula.

Estos pueden encontrarse en tiendas de materiales para irrigación y bombas de agua. Fije la tapa para evitar la contaminación y el acceso no permitido al pozo. No utilice solo un balde volteado o una placa suelta para cubrir el pozo.

En qué debe fijarse durante la búsqueda de un pozo abandonado:

Los propietarios que no saben la historia de los pozos en su propiedad deben fijarse en lo siguiente durante la búsqueda de pozos abandonados:

- Tuberías que salen de la tierra.
- Estructuras y cobertizos para pozos.
- Depresiones en el suelo.
- Bóvedas de hormigón, hoyos, o Azulejo.
- Placas de metal o madera en el suelo o sobre revestimientos o bóvedas de concreto.

Haga su parte para mantener las aguas subterráneas limpias y seguras.

Para más información viste:

<http://www.ecy.wa.gov/programs/wr/wells/abandon-wells.html>

<https://fortress.wa.gov/ecy/publications/publications/96br097.pdf>

ÁREA DE MANEJO DE AGUAS SUBTERRÁNEAS



El propósito del Área de Manejo de Aguas Subterráneas del Valle Bajo de Yakima es reducir la contaminación de nitratos donde la concentración no cumplen con standares de Agua potable.

Grupos de trabajo

GWAC

- Recolección de datos, caracterización, monitoreo
- Educación y divulgacion al publico
- Financiacion
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Para participar, llame al:
(509) 574-2300

Para más información visite:
www.yakimacounty.us

Attachment D

Contract with US Geological Survey, United States Department of the Interior, in the amount of \$491,320 was executed on March 7, 2017.

Amendment #1 between Paul's Properties LLC and Yakima County in the amount of \$550 executed on February 21, 2107.

Form 9-1368
(April 2015)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #: 6000005745
Agreement #: 17WNWA30054
Project #: YG00EH7
TIN #: 91-6001375
Fixed Cost
Agreement Yes No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 16th day of February 2017, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the County of Yakima, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation a fixed-cost agreement to collect sufficient nitrate concentration data from the Lower Yakima Valley Groundwater Management area, herein called the program. The USGS legal authority is 43 USC 38C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of \$N/A.

by the party of the first part during the period

(a) \$0 FEBRUARY 16, 2017 to FEBRUARY 28, 2018

by the party of the second part during the period

(b) \$491,320 FEBRUARY 16, 2017 to FEBRUARY 28, 2018

(c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of :

\$

Description of the USGS regional/nations program:

- (d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties..
3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon

request, copies of the original records will be provided to the office of the other party.

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.

9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered QUARTERLY charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

Name of Customer

**U.S. Geological Survey
United States
Department of the Interior**

Yakima County

USGS Point of Contact

Name: Richard Dinicola
Address: 934 Broadway St, STE 300
Tacoma, WA 98402

Telephone: (253) 552-1603
Email: Dinicola@usgs.gov

Customer Point of Contact

Name: Vern Redifer
Address: 128 N. 2nd Street
4th Floor
Yakima, WA 98901

Telephone: 509-574-2300
Email: Vern.redifer@co.yakima.wa.us

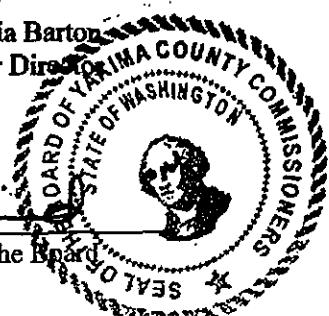
Signatures

By Cynthia Barton Date 2-15-17

Name: Cynthia Barton
Title: Center Director

Attest:

Tiera L. Girard
Tiera L. Girard, Clerk of the Board



Approved as to form:

Michael D. Leita

Deputy Prosecuting Attorney

Signatures

BOARD OF YAKIMA COUNTY COMMISSIONERS

J. Rand Elliott
J. Rand Elliott, Chairman

Ron Anderson
Ron Anderson, Commissioner

Michael D. Leita
Michael D. Leita, Commissioner
*Constituting the Board of County Commissioners
for Yakima County, Washington*

BOCC41-2017
March 7, 2017

Analysis of Nitrate in Groundwater of the Yakima River Basin

A proposal prepared by the U.S. Geological Survey

for Yakima County

February 15, 2017

Background —

Several water-quality investigations over the last 30 years have found nitrate levels above the U.S. Environmental Protection Agency (EPA) Drinking Water Standard (10 mg/L) in 12 to 21 percent of private drinking-water wells in the lower Yakima River basin in central Washington State. The contaminated wells tend to be shallow and are primarily used to supply private residences.

Elevated levels of nitrate in drinking water in the Yakima basin are a high priority concern for a variety of governmental agencies and private groups, many of which are involved in the Lower Yakima Basin Groundwater Management Area (GWMA). The GWMA was formed in 2012 to identify ways to reduce nitrate concentrations in groundwater. In support of this goal, the GWMA has agreed to pursue a variety of approaches including public education campaigns to inform people about the problem, soil sampling to help farmers apply nutrients at agronomic rates, and the collection of groundwater nitrate concentrations to document the extent of the problem and provide a baseline against which future improvements can be measured.

Problem —

Nitrate contamination of shallow groundwater supplies in the lower Yakima Valley has recently gained national attention, but the full extent of the problem has not been well documented. No systematic assessment of distributed nitrate concentrations has been performed, complicating the interpretation of localized monitoring efforts that may reflect background values from distant sources or may indicate an immediately local nitrogen source.

Large areas of the GWMA have not been sampled for nitrate at all, creating gaps in our knowledge of nitrate concentrations in drinking water aquifers. Where data do exist, they have not been compared to previous nitrate concentrations measured in the same way to determine if levels are rising or falling over long time scales. The seasonal variation of nitrate concentrations in groundwater, which is likely to reflect agricultural practices such as tillage, fertilization, and irrigation, has not been studied. No basin scale comparison of shallow nitrate concentrations and associated land uses has been made.

Objective —

The primary objective of this data collection effort is to collect sufficient nitrate concentration data from the Lower Yakima Valley Groundwater Management Area to fill identified critical gaps in the current groundwater nitrate inventory. The data collected will be sufficient to document the GWMA's current nitrate conditions and provide a baseline against which future nitrate assessments can be measured.

Relevance and Benefits —

An important part of the U.S. Geological Survey (USGS) mission is to provide scientific information to manage the water resources of the Nation, to enhance and protect our quality of life, and to improve our understanding of the environment and natural resources. The investigation described here closely aligns with the USGS strategic science direction "The Role of Environment and Wildlife in Human Health: A System that Identifies Environmental Risks to Public Health in America" identified in the 2007-17 science strategy of the USGS (U.S. Geological Survey, 2007). The proposed work will provide the USGS with additional nitrate and groundwater information for an important agricultural-intensive basin that has been a decades-long focus for USGS research through the NAWQA and related programs. The study will provide local resource managers with reliable and impartial information for their use in effective management of nutrients in the basin, and will provide the public an improved understanding of potential impacts to their water supply.

Approach —

The study objectives will be met by implementing the following large scale coordinated field sampling effort during the 2017 calendar year. No field sampling will be conducted until Yakima County has approved a data collection Quality Assurance Project Plan, which is to be the first piece of work completed upon the commencement of the project.

Domestic Well Sampling

A well assessment survey conducted by Yakima County in 2015 and 2016 measured nitrate concentrations in domestic wells at 458 sites. Of that list 140 households agreed at that time to participate in a long term monitoring study. By supplementing these wells with previous sampling sites measured by USGS and the Washington State Department of Ecology, we hope to confirm approximately 140 to 160 domestic wells for nitrate sampling, depending on suitability of the well configuration for sampling.

The preferred sampling protocol for the domestic wells will be to sample from the wellhead prior to any water treatment. Wells that do not allow for this type of sampling may be excluded from the network based on suitability of enough preferred wells; decision criteria for selection will be described in the Quality Assurance Project Plan for the study. To avoid sampling static well water or storage-tank water, a nearby faucet will be opened to assure the well is actively pumping and standard field variables (pH,

temperature, and specific conductance) will be monitored to assure that representative aquifer water is being sampled.

Each domestic well will be sampled six times during 2017, for a total of approximately 900 new groundwater measurements. The domestic wells will be divided into four groups of about 35 to 40 wells each, with dedicated field personnel designated to sample those wells six times each at approximately 2 month intervals.

Monitoring Well Sampling

In addition to domestic wells, Yakima County will install and develop between 20 and 30 purpose-built monitoring wells on publicly accessible land.. The depths to water in those new wells is not yet known, but sampling will require the use of a portable peristaltic or submersible pump capable of accessing the ambient water levels, along with purging the well while monitoring standard field variables (pH, temperature, and specific conductance) to assure that representative aquifer water is sampled., The monitoring wells will be more expensive to sample due to the required additional sampling equipment. Each monitoring well is expected to be sampled six times during 2017, for a total of approximately 120 to 150 new groundwater measurements. Because these wells are yet to be installed, the precise number of samples may need to be adjusted to accommodate actual conditions.

Agricultural Drain Sampling

At the request of the Lower Yakima Basin GWMA Advisory Council, the groundwater measurements will be supplemented by surface-water samples from approximately 25 agricultural drain collection points. Each drain location will be sampled six times in 2017, for approximately 150 new surface water measurements. As currently scoped, the requested funding would cover “grab” sampling from the drains rather than using a standard USGS protocol, such as making an accompanying discharge measurement followed by equal-discharge increment (EDI) sampling, or at a minimum sampling equal-width increments (EWI). The suitability of grab samples for meeting data quality objectives will be addressed in the QAPP. If not suitable, fewer drain sites will be samples to allow for the additional expense of the EDI or EWI sampling.

Sample Processing and Laboratory Analyses

All water samples will be filtered in the field, kept refrigerated, and then shipped to the USGS National Water Quality Laboratory in Denver, Colorado for analysis of total nitrate as Nitrogen. Stabilized field parameters (pH, temperature and specific conductance) will be recorded in the field for each groundwater sample. All data will be quality assured and entered into the publicly accessible USGS National Water Information System (NWIS) database. Details of the field sampling procedures, analytical procedures, quality assurance and control, and data management will be described in the project QAPP.

Budget —

The total cost of the study is \$491,320, to be paid by Yakima County.

Task	Budget
Collection of approximately 960 domestic well samples:	\$285,000
Collection of approximately 150 monitoring well samples:	\$76,000
Collection of approximately 150 surface drain samples:	\$43,800
Analytic costs and field supplies	\$19,520
Support Costs (QAPP, site creation, data management):	\$67,000
Total:	\$491,320

Timelines and Report Products —

Approximately two hundred unique site files will be created in the USGS NWIS site database before full scale sample collection can begin. While this work is already underway, some sites may not yet be created by the targeted date for the end of the first round of sampling. Field samples will be collected from new sites as they are identified, researched, and created in the database. Additional samples will be collected later in the year to reach the targeted number of new nitrate measurements within the project timeline.

Laboratory analysis schedules may delay immediate reporting of submitted samples, but nitrate concentration measurements will be made available to Yakima County as they are available to USGS, and then publicly available after appropriate QA/QC before January 2018. Reported values will include sample dates, sample nitrate concentration, analytic methods used, and any field parameters measured (typically temperature, specific conductance, and pH).

To facilitate ready access to the data, it is highly preferred that all data be published online as a USGS Data Release in Science Base. The additional cost of doing this with quality assured data is marginal, although it would require at least an additional month (preferably two months) to assemble, review, and publish all the associated data and metadata. The Data Release would be a citable one-stop reference for all of the subsequent analyses that are expected to be generated from these data. This finalized public data release does not preclude or replace ongoing data sharing with the cooperator by any other avenue.

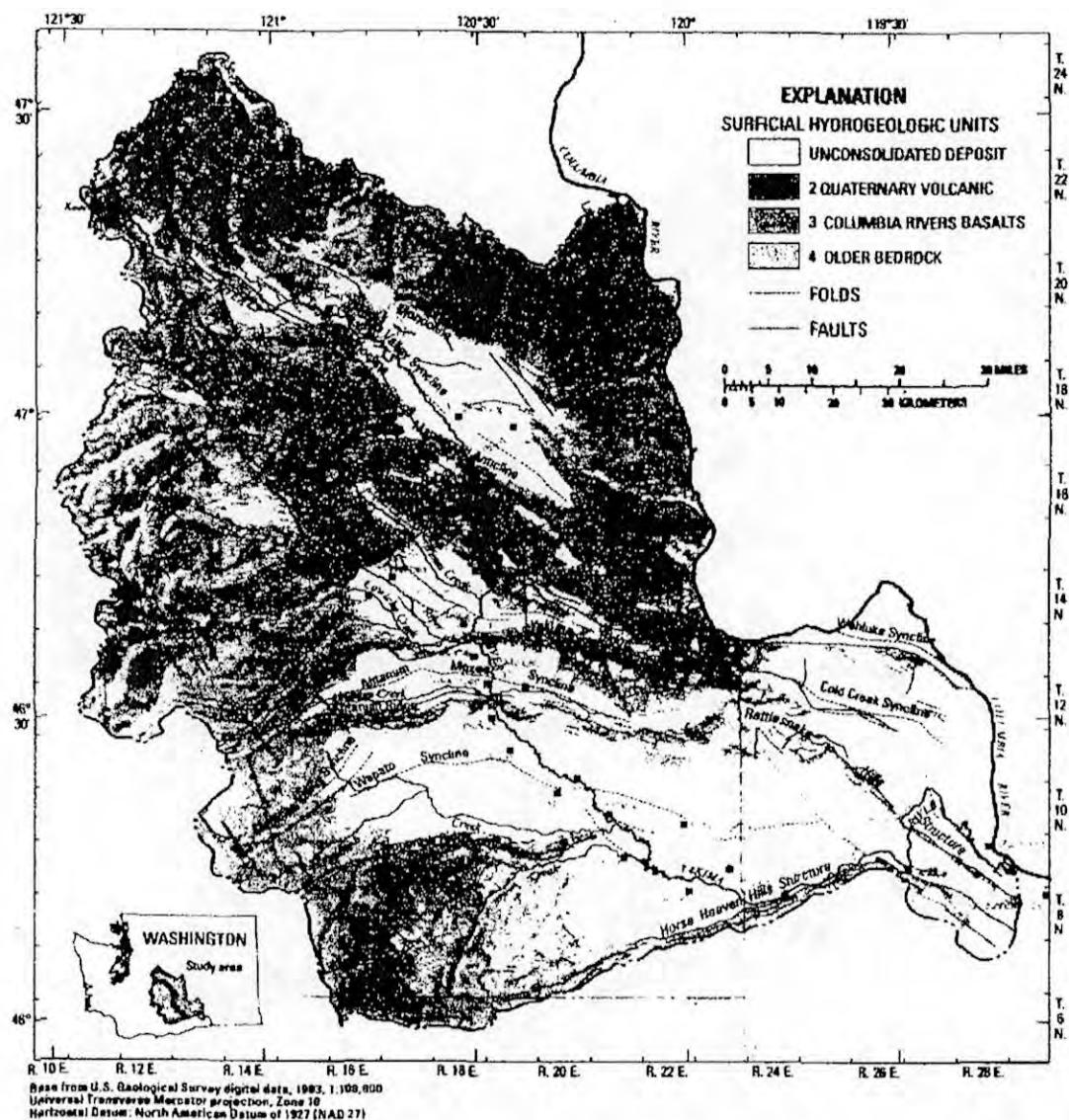


Figure 1. Location map and surface geology of the Yakima River basin (Vaccaro et al., 2009).

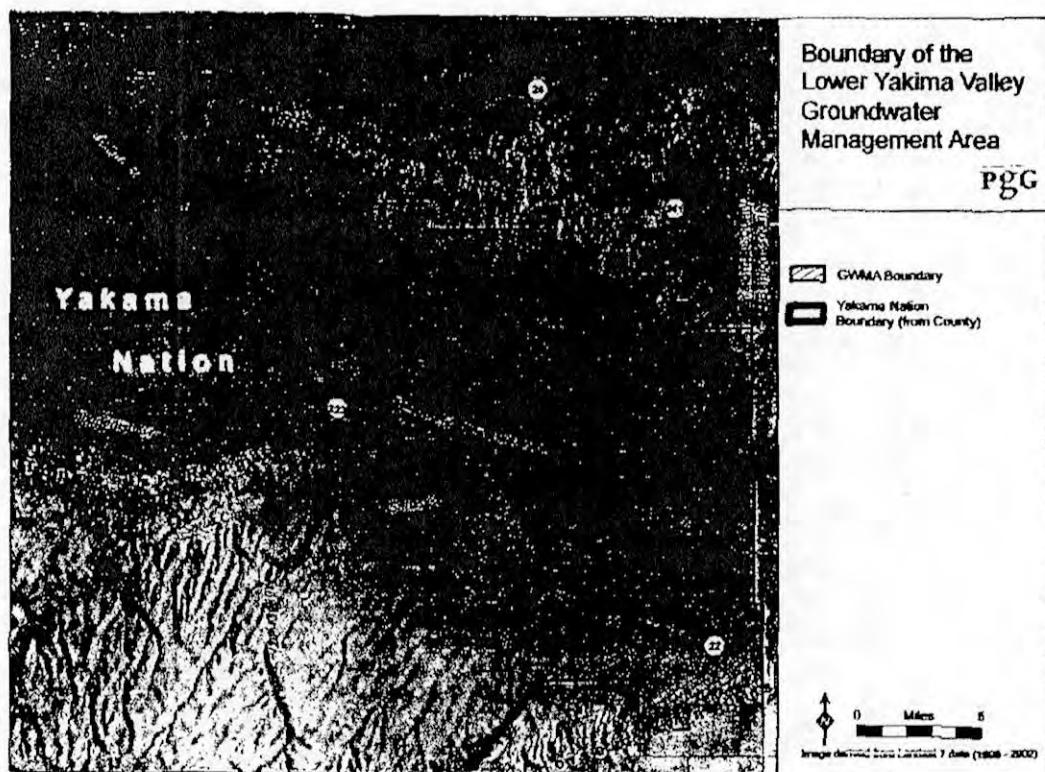


Figure 2. Boundary of the Lower Yakima Valley Groundwater Management Area. The GWMA is wholly contained with Yakima County, adjacent to Benton County to the east and the Yakama Indian Reservation to the south.

AMENDMENT # 1
AGREEMENT BETWEEN PAUL'S PROPERTIES LLC AND YAKIMA COUNTY PUBLIC SERVICES
DEPARTMENT

THIS AMENDMENT No. 1 is entered into this 21st day of February 2017, by and between the County of Yakima, Washington (hereinafter called the "County"), whose address is Yakima County Courthouse, 128 N. 2nd St., Fourth Floor, Yakima, WA 98901, and Paul's Properties, LLC, (hereinafter referred to as the "Landlord") 1441 S. 2nd St., Sunnyside, WA 98944.

WHEREAS, the Agreement dated October 4, 2016 retained the Landlord to provide the south side of a 20' x 8' billboard located at 1600 S. 1st St. in Sunnyside, Washington for six months in the amount of \$1800; and,

WHEREAS, the Agreement stated that the County would provide the cover for the Billboard; and,

WHEREAS, the County subsequently requested that the Landlord provide the cover for the Billboard at a cost of \$550; now, therefore,

IT IS MUTUALLY AGREED that the terms, stipulations and conditions of the Agreement, dated October 4, 2016, shall be binding upon the parties hereto, except for the following modifications:

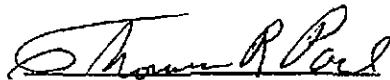
1. Paragraph four of the Agreement is revised as follows: Landlord to provide cover for the Billboard.
2. Paragraph six of the Agreement is revised as follows: Total Cost: \$2393.45 (\$300 per month [\$1800 total for six months] and \$550 for the Billboard cover and to include local and state taxes.

IN WITNESS THEREOF, the parties hereto have executed this Amendment No. 1 by having their representatives affix their signature below.

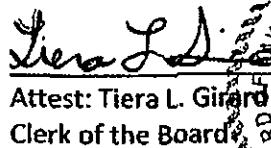
DONE this 21st day of February 2017

Paul's Properties LLC

BOARD OF YAKIMA COUNTY COMMISSIONERS

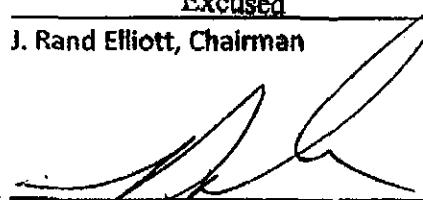


Thomas R. Paul
Manager


Attest: Tiera L. Girard
Clerk of the Board
Approved as to form:
Deputy Prosecuting Attorney

BOCC24-2017
February 21, 2017

Excused
J. Rand Elliott, Chairman


Ron Anderson, Commissioner
Michael D. Leita, Commissioner
*Constituting the Board of County Commissioners
for Yakima County, Washington*