

## 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), Rosalio Brambila (interested party), Vern Redifer, Jim Davenport.

#### Meetings/Calls Dates

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

When: June 28, 2016, from 1:30 pm to 3:30 pm.

Call: (509) 574-2353 – Pin # 2353

#### Participants

Troy Peters (Chair), Jean Mendoza, Scott Stephen, Ben Sullivan, Ron Cowin, Dan McCarty, Anthony Dorsett, Jim Davenport, Laurie Crowe, Frank Lyall, Stuart Crane, Eric Weber, Ben Lee, Ralph Fisher\*, Chris Saunders (Yakima County support staff)

\*via telephone

#### Key Discussion Points

Chair Troy Peters opened the meeting at 1:35 PM. After the customary introductions, the group listened to a presentation from Eric Weber and Ben Lee of Landau Associates, the geotechnical firm the South Yakima Conservation District (SYCD) had sub-contracted with to conduct deep soil sampling in the GWMA.

#### **Landau Associates – Deep Soil Sampling Presentation**

After noting at the outset that everything contained in their presentation should be considered still in draft stage, Eric and Ben outlined their methodology. Four rounds of sampling were conducted: fall 2014, spring 2015, fall 2015, and spring 2016. Each one was timed to correspond with the beginning and end of harvest season. Sample sizes would vary, from a low of 163 fields

sampled in fall of 2014, to a high of 324 in the fall of 2015. The same crew and the same lab was used in each round of sampling. The crew's field notes contain information regarding the weather, crop type, irrigation technique, comments made by the farmer, whether two samples were taken nearby each other, whether the farm was adjacent to a dairy, and generic maps of the premises. Specific details about locations were not recorded. Fields sampled in one season were not resampled in another.

The data Landau collected was sliced in various ways. Four histograms, one for each season, showed similar results. The highest bars, in regards to number of fields, were all located at the lowest end of the graph, in terms of nitrate concentration in the soil. As nitrate concentration increased, the number of farms associated with them declined, sharply at first, and then slowly levelling off. Broken down by percentiles, a nitrate concentration of 20.6 mg/kg was associated with the 50<sup>th</sup> percentile.

Each field was also broken down by depth. Shallow: 0-1 ft., Medium: 1-3 ft., Deep: 3-6 ft. Most of the nitrates were consistently located in the shallow to medium depths. Nitrates were especially strong in the shallow layers in the fall. In the spring results, the shallow layers showed lower concentrations of nitrates, and there were significantly more outliers in the medium-to-deep layers. Eric was careful to note that it would take more work to determine causation of these trends.

Broken down by crop type, asparagus, hops, and barley were the top three in terms of highest nitrate concentrations of the fields that were sampled. Cherries, pears, mint, and pasture grass had the lowest concentrations. Corn and triticale crops produced the largest number of outlier results. The highest median value of nitrate concentration was in wheat crops. There were some limitations to the study, with most of the tree fruit farmers at the north end of the GWMA unwilling to participate. Eric replied, in response to a question from a group member, that he felt pretty confident they would see similar trends if they sampled in another year. One of the group members involved with the testing noted that many longtime non-dairy farmers who had high nitrate levels in their soil, such as hop growers, were "shocked" at the results, and many had been converted to drip irrigation, which cuts down on fertilizer, as a result.

Eric then showed the group nitrate concentration levels broken down by irrigation type. Rill irrigation tested high in the spring of 2016. Wheel lines tested low.

In summary, Eric and Ben thought this was a good data set to work with, but that more work would need to be done to estimate background conditions, causation factors, and recommend best management practices. In their opinion, it would take about ten years before people in the Lower Valley would see nitrate levels go down.

Landau's contract with the SYCD expires on the 30<sup>th</sup> of June, with \$50,000 left unspent. Moving forward, the firm would like to prepare a summary report, more descriptive than analytic in nature, to gather expert input on determining some of the factors listed above, and to lay the basis for further evaluations of some of the same fields five years from now. This would necessarily involve deep soil sampling.

As of the meeting, such a summary report had not been discussed with Vern Redifer. Under GWMA procedure, the Irrigated Ag group would have to make a recommendation to the GWAC

to authorize the expenditure of funds towards this purpose, the GWAC would have to agree to recommend it to Vern, and Vern would then make the final decision. Troy expressed caution at using the word “causation” with reference to high nitrate levels, noting that certain factors may only indicate correlation. Troy also noted that in past meetings, he had offered to take a look at statistics and write up results, and that he wanted to work with Landau to come up with a format that could be submitted for peer review. Jim Davenport stated that Vern was in possession of the Landau database, including field logs, although not the field notes. The spring 2016 questions were not all in yet.

Jim asked the group whether they thought the self-selecting nature of the participants was a fatal defect in the report. Troy believed that caveat should be clearly stated upfront. While acknowledging that self-selection was a problem, (a subject of discussion in other working groups as well) this was the best the group could do, since non-dairy farmers are not required to conduct soil sampling, and there is no existing legal authority to compel them to do so. Therefore, any sampling would, by necessity, have to be voluntary in nature.

### **Potential Solutions to High Nitrates in Groundwater (IAWG Purview)**

The group revisited the list of potential solutions formulated at the April 19<sup>th</sup> meeting, and discussed at the May 17<sup>th</sup> meeting.

*Irrigation Management Education:* Jim wanted to know who specifically needed this kind of education and outreach. Such knowledge would be necessary in order to keep costs reasonable.

*Giant database:* A member of the group wanted to make sure that any database kept track of long-term trends to determine whether GWMA’s efforts were making any difference regarding groundwater, deep soil sampling results, or both.

*Subsidize soil sampling and analysis to ensure that the right amount of nutrients are being applied:* A member of the group had submitted a funding request for various items totaling \$1.5 million to Senator Honeyford. The funding request, if authorized, would not kick in until the start of the 2017 fiscal year at the earliest. The money involved in the request would not be GWMA funds.

*Education and outreach:* Jim believed that this was the best route to go. Other members agreed, arguing that it provided the best bang for the taxpayers’ buck. A number of possibilities were suggested as to who would conduct the outreach efforts to irrigated agriculture - the South Yakima Conservation District, the WSU Extension Office, or commodity commissions.

*Evidence of annual soil testing required for water delivery:* Jim had discussed this with SVID, and was told that enforcement would be a non-starter from their perspective. A member added that the Farm Bureau would hold the same view. Jim brought up a suggestion raised in a different working group that perhaps farmers should be required to present evidence of soil sampling before they could purchase nitrogen-rich products for use on their fields. Members raised concerns about the workability of this approach, such as the potential for a conflict-of-

interest if the fertilizer dealers are conducting the tests, as well as the perception of regulatory over-reach on the part of the government.

*Crop mix – regulated crop acres for different crops:* Troy recalled that this idea had taken a lot of fire the last time he brought it up. Growers would widely see it as overreach for the government to attempt to determine crop mixtures on their acreage.

Troy brought up the efforts of the Columbia Basin GWMA to manage nitrate concentration in its area. While it was unclear where the Columbia GWMA had gotten the funds to carry out their efforts – or whether the group was still active as their website, [www.cbgwma.org](http://www.cbgwma.org), was last updated on November 14, 2013 – they had a number of suggestions that could be useful, if the funds could be found to support them.

Some of the ideas included:

- 1) A Deep Soil Sampling program, where growers could sign up for five-year period to have their soil tested, at a limit of \$150 per-composite sample, and \$1,000 per property owner.
- 2) A GIS Database Mapping project, making available to the public overlay maps describing crop types, irrigation methods, soil sample results, etc. The GIS project also gives farmers a formula to calculate their vulnerability to penetration by nitrates.
- 3) An Irrigation Water Management Cost-Share program, wherein growers would work out a management plan with the Conservation District. The Columbia Basin GWMA funds 50 percent of the program cost for each grower at a rate of up to \$7.50 per-acre, and a maximum limit of \$5,000 per-grower.
- 4) An ongoing water sampling project, along the lines of the soil sampling already done.
- 5) Water on Wheels (WOW), an educational program aimed at K-12 students about groundwater and best management practices. A truck with a trailer would visit schools and community events, and distribute grade-appropriate material.

Ralph Fisher notified the group that he had to sign off at this point.

The items on the list that involved a direct subsidy to growers prompted the most discussion from the group, especially #1 and #3. Some members felt that subsidizing growers on a per-acre basis would not be as fair or cost-effective as other methods, since most of the money could wind up going to the largest growers who didn't need it. Another member felt that any public subsidy for an ongoing deep soil sampling program should be contingent upon the property owners sharing their results on a public database. It was their opinion that if the public is helping to pay the bills, they should get to see the results. Other members saw the potential for a participation problem. In the words of one member, "the threat of litigation hangs over many people's heads" in the Lower Valley. In their view, growers would be very reluctant to join any program that could result in their getting sued if the results came back high.

Jim Davenport brought up the idea of creating an Aquifer Protection Area, which would charge a per-acre fee to do education and outreach programs to the public. Creating such an area would require the Yakima County Board of Commissioners to refer the matter to the ballot, where it

would need the approval of a majority of Yakima County voters. (See RCW 36.36; <http://app.leg.wa.gov/rcw/default.aspx?cite=36.36&full=true> for details.) [*While this was not discussed during the meeting, Spokane County has had one since 1985. See [www.spokanecounty.org/1009/Aquifer-Protection-Area](http://www.spokanecounty.org/1009/Aquifer-Protection-Area) for details.*] Most members preferred to let existing organizations like the Conservation District or the WSU Extension office do the work.

### **Discuss and prioritize recommendations to the GWAC.**

Education and public outreach efforts had the strongest support from the group, including potentially the Water on Wheels idea. Troy would contact the EPO working group to coordinate any proposals that go before the GWAC asking for funds.

### **Conclusions. Review of Action Items.**

The group ended the final minutes of the meeting discussing the over-application of nitrogen-rich products on fields, the effectiveness or ineffectiveness of the state's Nutrient Management Plans, whether market conditions and shrinking profit margins would force down the application of nitrogen products on their own, the Department of Ecology's proposed draft CAFO permits, still in the public comment phase, and the challenge of differentiating between dairy producers, who are required to conduct soil sampling, and other agricultural producers, who are not. Everyone agreed it was a big challenge for anyone to get their arms around, with many members reiterating that education and public outreach was the best approach.

The meeting was adjourned at 3:40 PM.

### **Recommendations for GWAC**

#### **Resources Requested**

#### **Deliverables/Products Status**

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Landau Associates will make copies of their presentation available to the working group.

#### **Proposed Next Steps**

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Troy will contact the EPO working group and inform them of their recommendations as to public education and outreach efforts, and develop a proposal to bring to the GWAC at a future date.

Troy will keep in touch with Landau Associates about writing up a summary report of their deep soil sampling results to present to the public.