

## Joint Data Collection and Livestock/CAFO Meeting

### Charge from Groundwater Management Area Advisory Committee

#### Working Group Members

See working group memberships for Data Collection and Livestock/CAFO

#### Meetings/Calls Dates

Meeting: Department of Ecology, Seafoam Conference Room, 15 West Yakima Ave., Yakima

When: June 11, 2015 from 1:00 pm to 3:00 pm.

Call: (360) 407-3780 Pin #147221

#### Participants

Kirk Cook (Chair, Data Collection), Charlie McKinney (Chair, Livestock/CAFO), Jason Sheehan (GWAC), Jim Dyjak (GWAC), Jim Trull (GWAC), Ginny Stern (GWAC)\*, Jaclyn Hancock (AGR), Jean Mendoza (GWAC), Kevin Lindsey (interested party), Larry Fendell (interested party), Laurie Crowe (GWAC)\*, Melanie Redding (Ecology), Patricia Newhouse (GWAC), Steve George (GWAC), Stuart Turner (GWAC); Vern Redifer, Jim Davenport, Lee Murdock, Mike Martian (GIS), and Lisa Freund (Yakima County)

\*via telephone

#### Key Discussion Points

##### **Preliminary Evaluation of Livestock Facility Contribution to Nitrate Levels in Groundwater-Lower Yakima Valley GWMA -Kirk Cook, Washington State Department of Agriculture**

Kirk Cook stated that the purpose of today's presentation- *Preliminary Evaluation of Livestock Facility Contribution to Nitrate Levels* – was to provide the group with three methodologies he and Jaclyn Hancock are proposing to evaluate Livestock Facility contribution to nitrate levels in groundwater. The three methodologies are the UC Davis Study; USGS/Ecology Study, and Darcy's Analysis. The group was asked to provide input and come to agreement on 1-2 methodologies best suited to conditions in Yakima County.

Kirk noted that the presentation and discussion will focus on concept and methodology, not on the specifics. The methodologies focus on estimating nitrogen loading from lagoons/ponds and nitrogen contributions from livestock corrals/pens.

Kirk explained each methodology in broad terms:

**UC Davis.** Generally the most rudimentary approach of the three methodologies. Aside from surface area, all other data is derived from other sources.

**USGS/Ecology.** Has more input parameters than the UC Davis approach, but still relies on assumptions and other publications.

**Darcy's Equation.** Relies on much more local data to derive loading estimates than the other two options.

#### **Estimating Nitrogen Loading from Lagoons/Ponds (Discussion)**

Based on 2014 aerial photography, it is estimated that there are approximately 200 active lagoons/ponds in the GWMA. A member observed that due to rapid technology advances, the number of active lagoons may be considerably less. The number may continue to drop, in part due to changes in practices coming out of the Dairy Consent Order. Kirk clarified that the estimate was a static snapshot from 2013-2014.

General discussion ensued regarding conditions in California's Central Valley (UC Davis study) versus Yakima County and lagoon conditions today versus five years ago. It was observed that permeability estimates used for the formulas may need to be modified and that there are likely fewer lagoons in use than the source data indicate.

#### **Estimating Lagoon Leakage Using Darcy's Equation (Slide #12)**

EPA Range for N concentration of the lagoon contents (Calculated total N) 290-1800 mg/L Avg: 1211.8 Median: 1210.4 mg/L

Kirk noted that the estimated nitrogen loading numbers from lagoon leakage rely on EPA's 2010 Final Report data. This data may be higher than actual conditions; however, it is currently the most defensible data available. He stated that the numbers used should reflect local conditions. Accordingly, he queried the group if they had more current data. Two members noted they might have access to data samples from lagoons. Kirk asked that if they had local data to please provide it to him.

Jim Davenport noted that any change to the range (i.e., median 1210.4 mg/L) will equate to an equal change to the loading rate percentage. Accordingly, the number is very important in calculating lagoon leakage.

Vern explained the mapping overlay being used to estimate septic system N loading to groundwater in the GWMA. He observed that the same type of calculations could be used for mapping the lagoons.

A member asked if various sources could be overlaid (lagoons, septic systems, fertilizer application). Vern responded, "Yes."

Jim Davenport asked if we have the ability to change the numbers later (response – yes). Any methodology can be rejected or accepted.

A member asked if additional methodologies (e.g., David Erickson) could be considered. (Response – yes). Today's presentation does not preclude Livestock/CAFO from stating it wants a different methodology.

Another member stated he is not ready to make a decision today. The group needs time to review the information; if another methodology is presented, it will require additional time to absorb the information and to reach a decision.

Jim Davenport asked Laurie Crowe if the South Yakima Conservation District (SYCD) has a source of local information (pond samples) that could be used in the formulas. Laurie responded yes, but sampling only occurs once annually. When asked if she had access to previous years' records, she said yes. Stu Turner stated he also has access to data records. Steve George agreed to work on obtaining data (yearly average).

DECISION: The group agreed that David Erickson's methodology will be reviewed at the next meeting.

Action: Laurie Crowe, Stuart Turner and Steve George will investigate obtaining and providing lagoon and pond data.

A member asked where manure composting is addressed. (Response-under corrals/pens).

#### **Estimating N Contribution from Livestock Corrals/Pens**

There was broad discussion around impacts of animal density, moisture and design differences. Members clarified that under "Items to Consider," pens are harrowed, not scraped. This clarification of a practice could result in a variable. For purposes of analysis, Kirk observed that the point is to arrive at a general happy medium people can live with. Charlie offered to develop a list of variables.

ACTION: Charlie McKinney will develop a list of variabilities for the next discussion.

The participants agreed to convene this joint working group in two weeks to continue the methodology discussion.

Mike Martian, Yakima County Geographic Information Systems (GIS), presented maps with overlays his department has created to identify septic systems in the lower Yakima Valley, with the ultimate goal of identifying nitrogen loading from that source. He noted GIS is using local census data for household numbers (3.8 persons per household). GIS is also assisting the RCIM identify lawn fertilization rates. He concluded that GIS uses models, which offers flexibility: numbers can be changed.

Meeting was adjourned at 3:15 pm.

#### **Resources Requested**

- N/A

**Recommendations for GWAC**

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- N/A

**Deliverables/Products Status****Proposed Next Steps**

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David Erickson's methodology will be forwarded to the working group for its review.

Charlie McKinney will develop a list of variabilities for the joint meeting on June 25.

Members with access to local lagoon and pond data will provide it to Kirk Cook.

Next Meeting: Thursday, June 25, 2015 from 1:00 PM-3:00 PM Location: Yakima County's First Street Conference Center (old Pizza Hut), 223 N. 1<sup>st</sup> St., Yakima

Proposed agenda:

Issues and Variables

Present other methodologies