



# Public Services

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VERNM REDIFER, P.E., Director

April 9, 2014

Charles McKinney  
Department of Ecology, Central Region Office  
15 W. Yakima Ave. Suite 200  
Yakima, WA 98902-3452

Re: Lower Yakima Valley GWMA - 2014 First-Quarter Report (IAA No. C 1200235)

Dear Charlie:

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 under separate cover.

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 – 1st Quarter 2014 Report**  
**Lower Yakima Valley GWMA**  
**March 31, 2014**

**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 GWAC meeting summaries of November 21 and December 19, 2013 (final versions) and the meeting records of January 16, 2014 and February 20, 2014 (draft); the Joint Data, Livestock/CAFO, Irrigated Ag, and RCIM Working Group Meeting (Workshop #1) of March 6, 2014; the Chairmen's conference call summary of February 12, 2014; the Education and Public Outreach (EPO) Working Group summary of February 5, 2014; the Livestock/CAFO Working Group summary of February 6, 2014; the Irrigated Ag Working Group summaries of January 16 and February 20, 2014; the Residential, Commercial, Industrial, and Municipal (RCIM) Working Group summaries of January 23, February 27 and March 27, 2014; and the Regulatory Framework Working Group summary of February 12, 2014.

**1.4 Meeting Schedule**

At its December 2013 meeting, the GWAC agreed to continue to hold its monthly meetings on the third Thursday of each month from 5:00 p.m. - 7:00 p.m. at Radio KDNA, 121 Sunnyside Avenue in Granger. In February 2014, the committee revised the schedule to an every-other-month meeting beginning on April 17, 2014. As a result, meeting dates for 2014 are January 16, February 20, April 17, June 19, August 21, October 16, and December 18.

**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.*

**Work Plans and Products**

The GWAC reviewed, discussed, and was asked to provide input on the following documents in the first quarter:

- 2014 Working Group Task List
- Draft Best Management Practices (BMP) Effectiveness Evaluation Summary (Technical Memorandum #2) dated February 27, 2014
- Potential Groundwater Monitoring Stations document, dated December 3, 2013

In addition, 85 High Risk Well Assessment surveys were completed in the first quarter.

At its January meeting, the GWAC heard presentations on the Non-Predictive Modeling approach, the Dairy Nutrient Management Program, Concentrated Animal Feeding Operation (CAFO) permits as well as the Clean Water and Safe Drinking Water acts. The GWAC agreed to continue its discussion on predictive modeling while simultaneously moving forward with the deep soil sampling concept. Facilitator Penny Mabie introduced the 2014 Task List project assigned to all working groups. The purpose of the task list was to create a clear picture of the GWAC's 2014 working group tasks and when each working group needs to advise, report to or seek approval from the GWAC.

The consolidated 2014 Working Group Task List spreadsheet was presented to the GWAC at its February 20 meeting. The task list illustrated that most GWMA work belongs at the working group level, not at the GWAC level. The GWAC agreed that if the full committee met less frequently, it would free up time for the working groups to complete their tasks. Consensus was reached that the full GWAC meetings would be scheduled on an every other month basis beginning immediately.

The GWAC also approved the deep soil sampling confidentiality concept. When producers participate in the sampling program, samples will be taken on their property and analyzed at no cost to them. They will be given a sheet of bar codes with a number at the top and a questionnaire. This number is known only to the participant and he/she can use it to review his/her sampling results online. The program will be administered through the South Yakima Conservation District. The GWAC further agreed that the Irrigated Ag Working Group will work with the EPO to publicize the sampling effort.

The GWAC agreed to approve an amendment with HDR consultants to create a spatial database of residential, commercial, industrial and municipal (RCIM) nitrogen sources in the Lower Yakima Valley.

The 2014 Task List, Draft Best Management Practices (BMP) Effectiveness Evaluation Summary (Technical Memorandum #2), and Potential Groundwater Monitoring Stations document are included as Attachment (B)

#### **Joint Data, Livestock/CAFO, Irrigated Ag, RCIM Working Group Meeting (Workshop #1)**

On March 6, program consultants HDR/PGG held a joint workshop for the technical working groups to present the Draft BMP Effectiveness Evaluation Summary document and the Draft Groundwater Monitoring Locations document. Mike Murray of HDR reviewed the tasks completed to date for the GWAC, went over the BMP Effectiveness Evaluation Summary, provided a methodology overview of the document and the associated hierachal approach provided as a tool to organize the associated objectives, management targets, and BMPs. Mike gave some examples of the evaluation criteria for BMPs, and charged the working group chairs and their members to review the proposed evaluation criteria shown on Table 2, evaluate the criteria for sufficiency and completeness, and provide comments by March 20, 2014.

Steve Swope with Pacific Groundwater Group (PGG) reviewed the Potential Groundwater Monitoring Stations document and its content. Steve advised the group that PGG's next step is to select wells for long term monitoring. PGG proposed locations which will monitor or address spatial data gaps, hot spots, increasing trends, basin-wide monitoring, water supply aquifers,

BMP effectiveness, and health risks within the LYV GWMA. Discussion followed the presentation regarding well construction, groundwater flow directions, Yakima Health District well survey data, potential bias, and sampling strategies.

### **Joint Working Group Chairmen's Meeting**

The Working Group Chairs held a teleconference on February 12 to review the grower participation confidentiality concept identified by the Irrigated Ag Working Group for the Deep Soil Sampling Program (DSSP) Questionnaire. Jim Trull explained how participants would complete the questionnaire. He outlined the South Yakima Conservation District's (SYCD) role in working with the growers if the participants choose to seek help in decreasing nitrate leaching from their crop(s). The meeting participants agreed that the proposed approach would gain growers' trust. Jim added that the Deep Soil Sampling Plan is near completion; with the confidentiality issue resolved, the Irrigated Ag Working Group recommends completing the DSSP and submitting it to the consultants to be finalized and presented to the GWAC for review and funding approval.

The outreach campaign for the DSSP survey was also discussed. The Roza and Sunnyside Valley Irrigation Districts, and possibly SYCD, will include an announcement and invitation to participate in their upcoming newsletters.

Bob Farrell presented the proposed scope of work for a spatial database that RCIM is recommending. The database, to be created by the consultants, would encompass septic tank systems, NPDES point sources, and other potential RCIM sources expandable to capture Irrigated Ag and Livestock/CAFO nutrient-related sources. The Chairs agreed to present the proposal to the GWAC at its next meeting. Finally, the Chairs discussed the feasibility of reducing the frequency of the GWAC meetings in order to allow working groups more time to focus on their tasks. Consensus was reached to bring this issue to the GWAC for discussion. [See 1.4 Meeting Schedule]

### **Working Group Activities:**

#### **Education and Public Outreach (Lisa Freund, Chair)**

The EPO prepared and issued a news release in January announcing the GWAC's accomplishments through 2013. The release also guided readers to the quarterly status reports to Ecology posted on the GWAC website.

#### **High Risk Well Assessment Survey Outreach Campaign**

At its February 5, 2014 meeting, the group agreed to continue the previously-approved outreach campaign:

1. Schedule and participate in KDNA's public affairs program
2. Draft and launch PSAs (paid and public service) English/Spanish radio ads
3. Finalize and distribute English/Spanish church bulletin notice
4. Promote the campaign on KIT Radio's afternoon show

Campaign highlights included the Spanish and English paid radio advertisements and talk radio interviews (Chairman Rand Elliott spoke on KIT; Andy Cervantes (DOH) and Ignacio Marquez (AG) were interviewed on Spanish-language KDNA). 1000 flyers advertising the free well testing were distributed to Lower Valley solid waste facilities, Sunnyside and Mabton city halls,

Farmworkers and other health clinics, Casa Nuestra, Fiesta Foods stores, WorkSource Sunnyside, OIC and to applicants for Yakima County's HOME program and at the Central Washington Home Builders Home Show in March.

As of March 31, Yakima Health District surveyors had completed 85 sampling surveys. As the contract with the Health District calls for a minimum of 225 completed surveys, the contract was extended to May 31, 2014.

The EPO also developed and submitted its 2014 task list.

The accomplishments news release, radio schedules, and Free Well Testing flyer are included as Attachment (C)

**Livestock/CAFO (Charlie McKinney, Chair)**

The working group met on February 6 to develop its 2014 Task List, to review the Potential Groundwater Monitoring Stations and draft Best Management Practices Evaluation documents, and to discuss the possibility of holding a workshop to present both documents to the working groups.

The group identified five tasks for 2014 relating to potential nitrate sources from Livestock/CAFO operations. The group agreed that sources related to manure and compost spread on irrigated cropland would fall under the purview of the Irrigated Agriculture Working Group. A discussion was held on lagoons and data regarding EPA's efforts on lagoons within the dairy cluster in the LYV GWMA. One member suggested that the working group recruit the Hydrogeologist who participated in the EPA study to give a presentation on findings related to the dairy cluster. A presentation about composting and how it would be best to sample compost sites was also proposed. After the Potential Groundwater Monitoring Stations Document was introduced and reviewed, staff proposed that the consultants hold a workshop with the GWAC to present this document and the Draft Best Management Practices Evaluation document. That workshop was subsequently scheduled for March 6, 2014.

**Irrigated Ag (Jim Trull, Chair)**

The Irrigated Agriculture working group met on January 16 and February 20 to complete its 2014 task list and to complete the Deep Soil Sampling Program concept and resolve the confidentiality issue. The group also reviewed the BMP list for the database incorporation.

During the January meeting the group explored a numeric code and/or barcode system to provide anonymity for Deep Soil Sampling Program participants. Jim Trull incorporated the concept into the Deep Soil Sampling Plan (DSSP) and brought it back to the group in February for review. In addition, South Yakima Conservation District's role in the project, its scope of services and budget was discussed. The group determined that the South Yakima Conservation District should select one testing laboratory for soil samples.

Outreach and grower recruitment was evaluated; the group reviewed the Deep Soil Sampling Questionnaire and its draft cover letter. The group generally agreed that, pending edits, these documents will fulfill the intent of the questionnaire. The group agreed to adopt the barcode system and requested Jim to present the proposal to GWAC.

The group also conducted a final review of the BMP list for database incorporation developed by the consultants. The relationship between the working group chair, consultants, and Yakima County was discussed. The group agreed that the decision to allow work groups some flexibility with the consultants to obtain data support (and remain within the scope of the contract) was a good idea.

During the group's 2014 task list discussion, the group agreed that the DSSP education and public outreach should be implemented sooner than originally anticipated. Outreach would need to be done several times for effectiveness. After further review and editing, the 2014 task list was submitted for GWAC review.

**Residential, Commercial, Industrial, and Municipal (RCIM) (Robert Farrell, Chair)**

The RCIM working group met on January 23, February 27, and March 27. During the January meeting, members worked on its 2014 task list task, which included mapping and developing a database for "other sources" in the LYV GWMA. The database (a consultant project), would include septic systems, wastewater treatment systems, industrial wastewater treatment systems, and underground injection control (UIC) wells. The task list also included a joint public outreach campaign with the Education and Public Outreach Working Group.

Working Group members from the Yakima Health District and the Department of Ecology volunteered to procure septic system and UIC data, respectively. The group proposed that the spatial database work be conducted by the consultant, and planned to coordinate with Yakima County to request a contract amendment to include the consultant's task.

During the February meeting, the group reviewed the proposed consultant work contract amendment (Amendment #2) for the proposed spatial database for RCIM that would be expandable to the Livestock/CAFO and Irrigated Agriculture Working Groups. The proposed changes were to be incorporated by the consultant who participated via telephone. A proposed Supplemental Task X was discussed which stemmed from the previous GWAC meeting. This task is to establish a background level of understanding and expectation to come out of the various nitrogen balance tasks. The group reached consensus that the proposed Supplemental Task X be moved forward and Scope of Services be drafted by the consultants to be approved by the GWAC.

In March the group discussed coordinating with the EPO to develop an RCIM outreach campaign. It was agreed that the Chair will work with the EPO to pursue the discussion. The group also discussed Ecology's permitted facilities and requirements of the GWMA under WAC173-100 (waste disposal, improperly constructed or abandoned wells, mining activities, etc.). The group also discussed the possibility of cross referencing well logs with home construction dates to pinpoint parcels that may have abandoned wells.

**Data Collection, Characterization and Monitoring (Kirk Cook, Chair)**

Did not meet. The group will meet on an as-needed basis.

**Regulatory Framework (Tom Eaton, Chair)**

The Regulatory Framework Working Group held one meeting via teleconference on February 12 to finalize the group's purpose statement, discuss Technical Memorandum #1 and complete its 2014 task list.

The Memorandum included a technical review of regulations associated with nitrate sources in the LYV GWMA. The group decided that these regulations should be sorted by respective working group such as Livestock/CAFO, Irrigated Ag, and RCIM. The group proposed a Regulatory Program Analysis that would include a survey of regulatory programs and their associated policies.

The group reviewed the draft 2014 task list Tom Eaton had created and modeled on the GWAC's adopted work plan and agreed to have Tom complete the task list and associated milestones for the GWAC's review. The group also discussed adding GWMA webpage content which would include a list, library, or links that would refer to regulations, policies, and guidelines placed within the LYV GWMA.

#### **GWMA Website**

The GWMA website was redesigned in February to create more user-friendly navigation. As of this writing, the County is exploring ways to provide a member-only portal for posting draft GWAC documents. The GWMA calendar continued to be updated in real-time to provide a "go-to" location that lists both the upcoming working group meetings and monthly GWAC meetings. The website may be viewed at: <http://yakimacounty.us/GWMA/>

#### **Contracts and Interlocal Agreements:**

1. Department of Ecology Amendment 2 (March 4, 2014)
2. Enviroissues Professional Services - Amendment 2 (January 21, 2014)
3. HDR Amendment 1 (February 5, 2014)
4. KDNA – 2014 Conference Room Contract (February 5, 2014)
5. KDNA – Public Affairs Underwriting Agreement - Draft (January 23, 2014)
6. Yakima Health District Contract Amendment 2 (March 25, 2014)

The contracts and amendments are included as Attachment (D)

## **Attachment A**

### **GWAC Meeting Summaries of November 21, 2013, December 19, 2013; GWAC Meeting Records of January 16, 2014 and February 20, 2014 (draft)**

- Joint Data, Livestock/CAFO, Irrigated Ag, and RCIM Working Group Meeting Summary (Workshop #1) - March 6, 2014
- Chairmen's Conference Call Summary of February 12, 2014
- Education and Public Outreach (EPO) Working Group Summary - February 5, 2014
- Livestock/CAFO Working Group Summary - February 6, 2014
- Irrigated Ag Working Group Summaries - January 16, February 20, 2014
- Residential, Commercial, Industrial, and Municipal (RCIM) Working Group Summaries - January 23, February 27 and March 27, 2014
- Regulatory Framework Working Group Summary - February 12, 2014

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

3           **MEETING SUMMARY**

4           **Thursday, November 21, 2013**

5           **Radio KDNE**  
6           **121 Sunnyside Ave, Granger WA 98932**

10

11           **I. Call to Order:**

12           **Roll Call:** The meeting was called to order at 5:05 p.m. by Penny Mabie,  
13           Facilitator.

Member	Seat	Present	Absent
Stuart Turner	Agronomist, Turner and Co.	✓	
Chelsey Durfey	Agronomist, Turner and Co. (alternate)	✓	
Helen Reddout	Community Association for Restoration of the Environment	✓	
Wendell Hannigan	Community Association for Restoration of the Environment (alternate)		✓
Jan Whitefoot	Concerned Citizens of the Yakama Reservation		✓
Jim Dyjak	Concerned Citizens of the Yakama Reservation (alternate)	✓	
Jean Mendoza	Friends of Toppenish Creek	✓	
Eric Anderson	Friends of Toppenish Creek (alternate)		✓
Larry Fendell	Friends of Toppenish Creek (Stand in)		✓
Lino Guerra	Hispanic Community Representative	✓	
Rick Perez	Hispanic Community Representative (alternate)		✓
Robert Farrell	Port of Sunnyside	✓	
John Van Wingerden	Port of Sunnyside (alternate)		✓
Jim Trull	Roza-Sunnyside Joint Board of Control	✓	
Ron Cowin	Roza-Sunnyside Joint Board of Control (alternate)		✓
Laurie Crowe	South Yakima Conservation District	✓	
Jim Newhouse	South Yakima Conservation District (alternate)		✓
Tom Eaton	U.S. EPA	✓	
Marie Jennings	U.S. EPA (alternate)		✓

Lonna Frans	USGS Washington Water Science Center		✓
Matt Bachmann	USGS Washington Water Science Center (alternate)	✓	
Kirk Cook	WA Department of Agriculture	✓	
Ginny Prest	WA Department of Agriculture (alternate)	✓	
Charlie McKinney	WA Department of Ecology	✓	
Tom Tebb	WA Department of Ecology (alternate)		✓
Andy Cervantes	WA Department of Health	✓	
Ginny Stern	WA Department of Health (alternate)	✓	
Dr. Kefy Desta	WSU Irrigated Agriculture Research and Extension Center		✓
Dr. Troy Peters	WSU Irrigated Agriculture Research and Extension Center (alternate)	✓	
Elizabeth Sanchez	Yakama Nation	✓	
Tom Ring	Yakama Nation (alternate)	✓	
Rand Elliott	Yakima County Board of Commissioners		✓
Vern Redifer	Yakima County Board of Commissioners (alternate)	✓	
Steve George	Yakima County Farm Bureau	✓	
Justin Waddington	Yakima County Farm Bureau (alternate)		✓
Gordon Kelly	Yakima County Health District	✓	
Jasan Sheehan	Yakima Dairy Federation	✓	
Dan DeGroot	Yakima Dairy Federation (alternate)	✓	
Kathleen Rogers	Lower Valley Community Representative Position 1	✓	
Bud 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	✓	

14

**15 II. Welcome and Meeting Overview**

16      Introductions

17      Moment of Silence

18

**19 III. Committee Business:**

21  
22       October 17, 2013 Meeting Summary was approved with no changes.

24 December meeting date is confirmed for Thursday, December 19, 2013.

GWMA Groundwater Advisory Committee (GWAC) Self Assessment Survey

Penny Mabie explained that she would be sending an email to all group members with a link to an online survey. The GWMA Groundwater Advisory Committee (GWAC) Self Assessment is a tool that will calculate how well the group is doing. The two-page survey involves rating the statements with 1 = Strongly Disagree; 2 = Don't Feel Strongly or 5 = Strongly Agree. At the end of this survey is a field for comments. Those taking the survey do not have to submit their name. There is a two week deadline for this to be completed. Due date is December 6, 2013.

Facilitation Contract Renewal – Vern Redifer

Vern Redifer reminded the group that as it's the end of the year, the committee needs to decide whether or not to continue the contract with Penny Mabie of EnviroIssues. A discussion followed and the end consensus was to continue the contract for 2014 as the group is making good progress, the budget is healthy and the group likes Penny facilitating the meetings. A request was made for receiving the meeting materials in a more timely fashion. Penny noted that often materials await working group meeting review, which affects the schedule, but agreed to send out as much as she could earlier.

#### IV. Outstanding Committee Decisions

Finalize GWMA Program Goals and Objectives – Penny Mabie

Penny stated as she has not received any comments on the working product that it is ready for now. She noted the caveat "For Now" as the group is still in a very early stage (gathering information) so they can consider these as guiding goals but it will remain a working document – it's not locked down. It's reflective as to where the committee is at this point.

Discussion followed regarding the timeline for finalizing the GWMA program, as goal dates were removed from the current draft of the goals and objectives. The optimistic goal stated to Ecology was five years as there was a need for a timeline to demonstrate some progress. Penny asked if the committee wants to have a timeline in the document. Concerns were voiced in regard to putting timeframes in without knowing what all is involved in collecting the information to make the goal. It was suggested that deadlines, targets and a schedule are needed to keep the GWAC on task. The workgroups are doing the majority of the work and it would be beneficial for them to have a deadline. Vern reminded all that if they review the formation of this group and the RCW, the task of this group is to develop a program to achieve a way of reducing nitrates. Timeframes should be associated with the tasks, instead of the objectives. Once the program is developed, the GWAC will pass on this program to other agencies, users, etc. He reminded the committee that Yakima County has not

68 yet signed a contract with Ecology to free up the \$1.6m. When the County does  
69 sign a contract, there will be dates for a completed program. Ecology will  
70 decide on the program due date. Decision makers in Olympia have lots of  
71 expectations that this group will deliver. The goals and objectives discussion was  
72 tabled until December. It was suggested that Matt Bachmann and Jean  
73 Mendoza get together and utilizing the last draft, write up proposed language  
74 associated with timelines and the group can review their proposal at the next  
75 meeting.

76  
77 A request was made that the County issue a press release at the end of the year  
78 so that the public will know what the GWAC has accomplished. Vern explained  
79 that the workplan that we submitted to Ecology has a list where we agreed we  
80 would give the public information. He pointed out that the quarterly reports that  
81 we produce for Ecology are on the County's website for the public to access.  
82 The County will use those quarterly reports and develop an end-of-year report to  
83 distribute to the media.

84  
85 **Consider Including Agricultural History of Yakima in GWAC Materials – Penny**  
86 The GWAC decided the report provided to them for review should be posted on  
87 the GWMA website, but with a "draft" stamp on it. A committee member  
88 suggested the document does need to expand information on irrigation and  
89 canals but that can be added later; others agreed.

90  
91 **V. Nutrient Budget and Data Modeling Options – Kirk Cook**

92 Kirk Cook opened by stating that a tremendous amount of work was put into the  
93 comparisons of methods to analyze nitrogen loading to groundwater for the  
94 Lower Yakima Valley Groundwater Management Area and thanked all who  
95 contributed. He explained the GWAC needs to decide on an option of either  
96 looking at what's occurring at the top of the water table or after the nitrate has  
97 gone into the water. Kirk said that the Yakima Valley has pretty good fluctuation  
98 in the water table which affects the vadose zone and that it moves during each  
99 season.

100  
101 He then examined the three proposals presented: 1) USGS Proposal; 2) USGS  
102 Yakima GW Model coupled with N Balance and 3) Hybrid Approach. Kirk  
103 recommended the USGS Model with N Loading (\$150k) as it is technically solid,  
104 addresses GWMA's goal and USGS will match half the cost.

105  
106 Discussion followed with some suggesting that modeling is not needed; rather all  
107 that is needed is to make changes on the ground instead of working on  
108 answering questions for which we already know the answers. The group will  
109 consider a no modeling option. Penny observed that it might be useful to the  
110 GWAC to have a better sense of the context of the modeling conversations –  
111 how they relate to the GWMA program, the purposes for the various technical  
112 work, etc. Many GWAC members agreed. She will work with Kirk, Vern, Troy  
113 Peters, Charlie McKinney and Matt to frame this in a context so there can be a

114 better conversation next month. Vern pointed out that there is a need to create  
115 a plan/program as we do have a deadline with money to spend.  
116

117 **VI. Deep Soil Sampling – Jim Trull**

118 Jim noted that participation and cooperation by the landowners is absolutely  
119 necessary to make the GWMA effective and functional. The sticking point in  
120 finalizing the deep soil sampling plan is the issue of confidentiality. Landowners  
121 would like to know if they have high nitrate levels but they are not willing to risk  
122 their family and livelihood if high levels are discovered and they are subsequently  
123 sued for polluting. Yakima County's prosecuting attorney has reviewed all of the  
124 state's statutes and says that information provided through Farm Plans is not  
125 discoverable under the Freedom of Information Act. Landowners countered that  
126 they could be sued for something else and once in the court system, there could  
127 be a disclosure request that would show if their land did have issues with nitrates.  
128

129 It was decided that Laurie Crow,, Jim, Vern, a Yakima County Prosecuting  
130 Attorney and the Sunnyside-Roza Joint Board of Control's attorney would meet  
131 and discuss the confidentiality issue.  
132

133 **VII. Standardized Talking Points – Lisa Freund**

134 Lisa presented the 14 talking points slides for the group's review and approval.  
135 EPO's charge is the public education component and the group created some  
136 very simple, basic slides and a slide template for the working groups and the  
137 GWAC to use as a foundation for public presentations. The 14 slides explain what  
138 the GWMA is, why it was formed, what the group is doing and how the public  
139 can participate. Feedback from the committee suggested that more work  
140 needs to be done. Concerns were voiced about the use of "enforcement  
141 strategies"; they would like to see more emphasis on identifying the problems, as  
142 the GWMA mission is to help producers improve practices. Stuart and Charlie  
143 agreed to send Lisa their proposed edits. Penny suggested that Jason and Stuart  
144 work together to draft their edits and then send them to Lisa.  
145  
146

147 **VIII. Working Group Report Outs**

148 As the meeting was exceeding its timeframe, Penny suggested the committee  
149 skip the working group report outs unless the working groups had urgent items to  
150 address. There were no urgent items.  
151

152 **IX. Committee Member Inquiry**

153 Kathleen Rogers asked what is being done to provide alternate water sources for  
154 the people in the valley with contaminated wells. Vern answered that the  
155 County was successful in a Department of Health request in securing \$150,000 for  
156 a clean drinking water program. This is not part of the GWMA funding. This  
157 program has not begun yet, but the people that were provided with a reverse  
158 osmosis system have been surveyed and the County is hoping that a group  
159 could be created with all the agencies together to get some matching money.  
160

161

162 **X. Public Comment:**

163 Chelsea Durfey suggested that the group waits until the GWMA Groundwater  
164 Advisory Committee (GWAC) Self Assessment Survey results come in before  
165 renewing Penny's contract. Vern noted that the committee had already  
166 decided to move forward with the contract. He queried the committee if they  
167 wanted to reconsider their decision; they did not.

168

169 Pony Ellington pointed out that the group needs hard groundwater data so the  
170 consultant team is developing concrete recommendations for sampling, drilling  
171 of shallow water wells and a budget discussion.

172

173 **XI. Next Steps:**

174     • Penny, Vern, Matt, Kirk and Dr. Troy Peters will discuss how to frame the  
175       Data Modeling concept in context with the work of other working groups.  
176     • Edit Standardized Talking Points.  
177     • Pursue confidentiality issue.  
178     • Further consider modeling options.

179

180 **XII. Next Meeting:**

181     • Review edits to Goals and Objectives.  
182     • Identify modeling option.  
183     • Approve edited Standardized Talking Points.

184

185 **XIII. 2013 Meeting Calendar**

186     • December 19

187

188       Meeting calendar will be reassessed at the end of the year.

189

190       The meeting was adjourned at 7:48 pm.

191

192       Meeting summary approved by the Lower Yakima Valley Groundwater Advisory  
193       Committee on January 16, 2014

194

195

## LOWER YAKIMA VALLEY



## GROUNDWATER ADVISORY COMMITTEE

**Groundwater Management Area (GWMA):**  
The purpose of the GWMA is to reduce nitrate contamination concentrations in groundwater below state drinking water standards

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

## MEETING SUMMARY

Thursday, December 19, 2013

*Radio KDNA*  
121 Sunnyside Ave, Granger WA 98932

## I. Call to Order:

12           **Roll Call:** The meeting was called to order at 5:04 p.m. by Penny Mabie,  
13           Facilitator.

Member	Seat	Present	Absent
Stuart Turner	Agronomist, Turner and Co.	✓	
Chelsey Durfey	Agronomist, Turner and Co. (alternate)	✓	
Helen Reddout	Community Association for Restoration of the Environment	✓	
Wendell Hannigan	Community Association for Restoration of the Environment (alternate)		✓
Jan Whitefoot	Concerned Citizens of the Yakama Reservation		✓
Jim Dijak	Concerned Citizens of the Yakama Reservation (alternate)	✓	
Jean Mendoza	Friends of Toppenish Creek	✓	
Eric Anderson	Friends of Toppenish Creek (alternate)		✓
Larry Fendell	Friends of Toppenish Creek (Stand in)		✓
Lino Guerra	Hispanic Community Representative		✓
Rick Perez	Hispanic Community Representative (alternate)		✓
Robert Farrell	Port of Sunnyside		✓
John Van Wingerden	Port of Sunnyside (alternate)		✓
Jim Trull	Roza-Sunnyside Joint Board of Control	✓	
Ron Cowin	Roza-Sunnyside Joint Board of Control (alternate)		✓
Laurie Crowe	South Yakima Conservation District		✓
Jim Newhouse	South Yakima Conservation District (alternate)		✓
Tom Eaton	U.S. EPA		✓
Marie Jennings	U.S. EPA (alternate)	✓	

Lonna Frans	USGS Washington Water Science Center		✓
Matt Bachmann	USGS Washington Water Science Center (alternate)	✓	
Kirk Cook	WA Department of Agriculture		✓
Ginny Prest	WA Department of Agriculture (alternate)		✓
Charlie McKinney	WA Department of Ecology	✓	
Tam Tebb	WA Department of Ecology (alternate)	✓	
Andy Cervantes	WA Department of Health		✓
Ginny Stern	WA Department of Health (alternate)	✓	
Dr. Kefy Desta	WSU Irrigated Agriculture Research and Extension Center		✓
Dr. Troy Peters	WSU Irrigated Agriculture Research and Extension Center (alternate)	✓	
Elizabeth Sanchez	Yakama Nation		✓
Tom Ring	Yakama Nation (alternate)	✓	
Rand Elliott	Yakima County Board of Commissioners	✓	
Vern Redifer	Yakima County Board of Commissioners (alternate)	✓	
Steve George	Yakima County Farm Bureau	✓	
Justin Waddington	Yakima County Farm Bureau (alternate)		✓
Gordon Kelly	Yakima County Health District	✓	
Jason Sheehan	Yakima Dairy Federation	✓	
Dan DeGroot	Yakima Dairy Federation (alternate)	✓	
Kathleen Rogers	Lower Valley Community Representative Position 1	✓	
Bud 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	✓	

14

**II. Welcome and Meeting Overview**

15

Moment of Silence

16

17

18

19

**III. Committee Business:**

20

21        November 2013 Meeting Summary will be up for approval in January 2014.

22

23        January meeting date is confirmed for Thursday, January 16<sup>th</sup>, 2014.

24

25        **Committee Self-Evaluation Survey Results**

26        Penny Mabie explained that as some members of the committee didn't receive

27        the survey results until today she would briefly review the results for the

28        committee.

29

30        The Self Assessment Survey is a tool that helps determine how well the advisory

31        committee is doing. It can be used as an opportunity to reflect, to think about

32        what work the GWAC wants to do, and if the group wants to make any changes

33        to the way they work together and talk together.

34

35        Discussion followed with comments mostly concerned with the lack of trust the

36        survey revealed. Penny noted that there are some polarized opinions and the

37        philosophies are varied but that the members of the committee are not enemies.

38        She pointed out that the group is here to engage and contribute. She noted that

39        if the current process isn't working, the committee should figure out another way.

40

41        Some members were concerned that the discussion at November's GWAC

42        meeting about the seeming stalemate in the issue of confidentiality for deep soil

43        sampling indicated a larger problem. Some questioned if the GWAC could go

44        any further with the apparent deep lack of trust. Penny agreed that it was a very

45        legitimate concern. She suggested that committee members attempt to put

46        differences aside and reminded the group that one of the ground rules is to

47        speak from interests not positions. She noted that only when members are

48        talking at the interest/values level can trust can begin to be built. Penny says she

49        can work harder to ensure that members are talking about interests and have

50        people make clearer interest or value statements so that more common ground

51        could be found.

52

53        Penny recommended that the group do the evaluation annually and asked if

54        anyone had any suggestions, to please send them her way.

55

56        **2014 GWAC Meeting Schedule**

57        The group agreed that the third Thursday of each month was good. It was

58        suggested that GWAC skip the December meeting as it's a very hard time to

59        meet and to find a meeting facility with holiday parties having booked already.

60        Penny noted the Sunnyside School District location is always a consideration

61        however there is no telephone or internet.

62

63        Penny made a couple of process reminders for the committee. She noted that

64        alternates should not use the public comment period to make comments to the

65        committee. They should work through their primary member at the table to have

66        them communicate their issue, or ask their member to give them a time at the

67        table, replacing their primary member, if they wanted to address the committee.

68        The public comment period is provided for the public's opportunity.

69  
70       She had a second reminder that for formal discussions with the media regarding  
71       the work or the opinions of the GWAC, the spokesperson for the group is Rand or  
72       his alternate, Vern. It was noted that Lisa Freund had spoken to the media about  
73       a Yakima County issue concerning groundwater. Was that not allowed? Penny  
74       said the distinction is regarding whether a person is speaking with the media as a  
75       member of the GWAC or is speaking with the media about their own business,  
76       organization, etc. For example, if Jason Sheehan is asked by the media about  
77       issues with groundwater quality at his farm, that is not conflict with the GWMA  
78       committee's work.

79  
80       The committee was updated on the issue of confidentiality regarding private  
81       property owners participating in soil sampling. Jim Trull, Vern Redifer and three  
82       attorneys met for a very productive meeting. While progress was made, Jim  
83       noted the need to slow down a bit and postpone deep soil sampling until fall so  
84       that the confidentiality issue is spelled out so that everyone clearly understands it.  
85       There is still a lot of work that needs to go into this but Vern was very optimistic  
86       that they've found a way that is legal, simple, and gets the GWAC everything  
87       that is needed and will not put any farmers at risk.

88  
89       A brief discussion followed about a suggestion made by a committee member  
90       for a legislative fix through a bill that could be written that states the data  
91       gathered for this program may not be released to any other entity as it is only for  
92       GWMA. After some committee members expressed concern with this approach,  
93       Jim noted that was simply a suggestion made at a previous meeting that had  
94       not been vetted by the committee and it should be tabled for a future time if  
95       needed.

96  
97       A suggestion was made that since the Deep Soil Sampling will likely be delayed  
98       at least to Fall 2014, the committee should take time to address the highest  
99       nitrates wells (wells with over 50 ppm) that are already known about, do a  
100       thorough examination of them and see if any actions can be taken to improve  
101       water quality in the short term. This could make sure they are not a point source  
102       that could skew program actions in the future. This could also give the GWMA  
103       some progress to point to and may increase public awareness of the GWAC's  
104       work.

105  
106       Penny asked for clarification on why the Deep Soil Sampling needed to be  
107       delayed. The reason given was that if the testing needs to take place in  
108       February/early March, there were too many details to work out before that, with  
109       the most difficult being the confidentiality issue. That then means the sampling  
110       would not be able to take place until in the fall after the next growing season.

111  
112       Penny tasked the working groups, in January, to go through their work plans and  
113       lay out what other work can be done ahead of the soil sampling to present in  
114       January. Then in February, the working groups could identify what work needs to  
115       be done and move on to implementing that work.

117 Vern added that at the last legislative session, Senator Honeyford acquired  
118 \$1.6m for GWMA and \$150k for providing drinking water to those with  
119 contaminated wells. The drinking water funding is separate from GWMA funding.  
120 Vern noted that he is working with the Department of Health and the  
121 Conservation Districts to develop the plan for how to use that funding. He also  
122 noted it was prudent to wait until results from the ongoing well testing are  
123 available so that the funding will be able to help as many people as possible. He  
124 said the plan is in the works, not today, but coming right on the heels of the  
125 water sampling.  
126

#### 127 **IV. Outstanding Committee Decisions**

##### 128 **Proposed Changes and Finalize Provisional GWMA Program Goals and** 129 **Objectives**

130 Penny reminded the group that the Goals and Objectives are a living document  
131 and that until the GWAC has received more information about the status of the  
132 problems, proposed solutions, etc. it doesn't make sense to make the goals and  
133 objectives final. Some in the group wanted to include deadlines in the  
134 document. There was some concern that the latest draft didn't include any  
135 concrete dates. It was suggested to assign a target date of achieving the goal  
136 within five years. Others suggested 2017 would be more concrete.  
137

138 The committee considered draft edits submitted by Jean Mendoza. Some  
139 thought it was ambitious of the group to state that loads will be reduced since  
140 measuring loads hasn't been completed. There was general agreement that the  
141 GWAC is behind on the timeline and it was suggested that the committee start  
142 with the completion of the analysis as the baseline point and compare to that. It  
143 was suggested that with working on the nutrients, control simply equals bringing  
144 drinking water to drinking water standards. Another member agreed that the  
145 GWMA needs a measurable goal/objective, and said that it should be the goal  
146 will not be achieved until the Lower Valley water meets state drinking water  
147 standards.  
148

149 Penny proposed that the committee retain this draft as their provisional goal and  
150 then set objectives based on the stated goal. Another member noted a goal  
151 should be high, lofty and challenging – to build a strategic success the GWAC  
152 needs to figure out what to do to work towards that goal – those are the  
153 objectives. For example, in five years there are some things that the GWAC  
154 wants the people to know – from the health side, they want folks to know what  
155 to do and by then producers would know what works. Penny noted that  
156 objectives are where the specifics start to be stated and that objectives should  
157 be SMART - Specific, Measurable, Achievable, Relevant and Timely.  
158

##### 159 **Review and Finalize Revised Standardized Talking Points – Lisa Freund**

160 Lisa reviewed for the GWAC the changes that the Education and Public  
161 Outreach working group (EPO) had made to the presentation template. These  
162 were the only concerns voiced at the prior meeting. A suggestion was made to  
163 change the word "Purpose" on the first and last slide to "Goal." That change

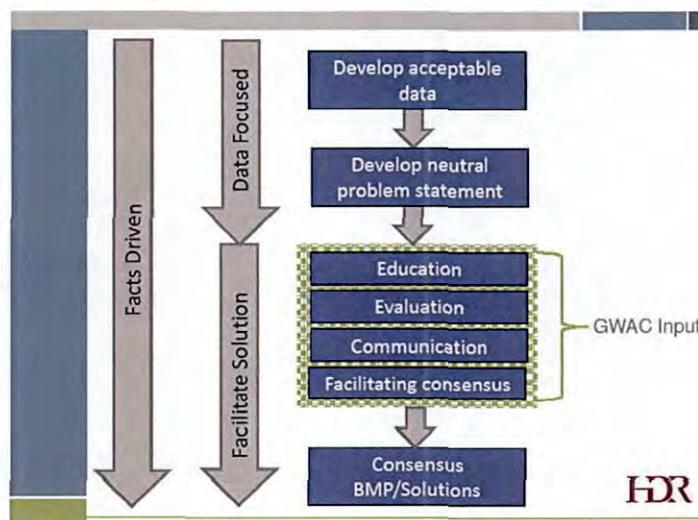
164        was approved. The GWAC reached consensus agreement to make the  
165        presentation/talking points final.

166  
167        **Additional Committee Requests:** Jean Mendoza requested the GWAC consider  
168        re-testing wells that were tested in the 1992 Groundwater Quality Assessment  
169        Hornby Dairy Lagoon Study, and the 1990 Washington State Agricultural  
170        Chemicals Pilot Study.

171  
172        A suggestion was made that the GWAC get educated on how 10 ppm was set  
173        as the threshold for safe drinking water, and what the health implications are for  
174        drinking water that was higher than 10 ppm. This question has been asked of  
175        committee members in the following manner: "Is it safe to drink water if it's  
176        between 10 – 20 ppm? Or 20 – 30 ppm, etc." Marie Jennings, EPA and Ginny  
177        Prest, Department of Health, both suggested they could provide informational  
178        presentations on these topics. The committee generally agreed to add this topic  
179        to a future meeting.

180  
181        **V. GWMA Workplan, Technical and Working Groups – Kirk Cook, Charlie  
182        McKinney, Vern Redifer, Jim Trull**

183  
184        **Review GWMA Workplan and Set Context for Work Being Discussed**  
185        Penny presented a slideshow depicting the GWAC's work plan, the work of  
186        working groups and the relationship to the elements of the GWMA program. She  
187        noted that at previous GWAC meetings, work items such as deep soil sampling,  
188        monitoring programs, data modeling and other topics were being discussed, but  
189        that it seemed there wasn't a clear understanding of how those items fit into the  
190        GWMA program. She shared a figure from a previous meeting that showed the  
191        GWAC developing their work plan in 2012, in 2013 and 2014 developing the  
192        GWMA program, and moving into program implementation in 2015. She  
193        suggested that the committee think about the elements of the GWMA program  
194        that drives the work plan. Penny reviewed a slide from HDR (GWAC technical  
195        consultants) that represents a model for how the GWAC gets to a GWMA  
196        program.



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Using this model and the elements of the GWMA program, she reviewed how the GWAC needs information to develop the GWMA program. The Introduction and Background elements will come from existing/known information. The Problem Statement will rely on results from Deep Soil Sampling, Groundwater Monitoring, the Nitrogen Budget and the Regulatory Review. This will all contribute to the "Acceptable data" shown in the HDR figure. Goals and objectives will be based on the Request for Identification document and will be refined based on the Problem Identification. The Outreach and Education element will be informed by data and knowledge gleaned from the community, and will support focus on specific areas and/or practices and specific segments of the community. Strategies will include best management practices and education and outreach, again informed by data and community assessment. Implementation will lay out how BMPs, education and other strategies will be used. And finally, evaluation will need to be tied to objectives, be data driven, rely on ground water monitoring, and support adaptive management. (Refer to the WorkPlan Context presentation on the GWMA website.)

217

## VI. Working Group Report Outs

218

### **Irrigated Agriculture:**

219

Already reported re: deep soil sampling

220

221

### **CAFO/Livestock:**

222

Did not meet. Have meeting scheduled for January 2<sup>nd</sup> but will send out email to reschedule.

223

224

225

### **Residential, Commercial, Industrial and Municipal:**

226

Did not meet. Meeting was scheduled for day after Christmas, but has been canceled.

227

228

229       **Education and Outreach:**  
230       Lisa Freund announced that the High Risk Well Assessment survey is launched.  
231       There were several press releases issued in addition to the 600 piece mailing. The  
232       Health District is conducting the surveys. They have done almost 30 surveys so far.  
233       Rand presented to the El Proyecto Bienestar (Project Well-being) Advisory Board  
234       and he put in a plug about the survey. Hopefully it will be covered on TV next  
235       week. Next month, there will be English/Spanish radio ads on Spanish stations  
236       that will be targeting the Lower Valley. EPO's goal is to get a minimum of 250  
237       surveys completed by the end of March. She urged GWAC members to help to  
238       spread the word, invitations to participate, etc.  
239

240       **Regulatory:**  
241       Did not meet as the chair is out of town.  
242  
243       Vern requested that the next time the work group chairs get together, to please  
244       invite him as he has some ideas to share. He noted some confusion between the  
245       work groups and especially the consultants. He noted the County is the  
246       contracting entity for the consultants and needs to be sure they are used  
247       appropriately and given clear direction. He said he wanted to share some ideas  
248       for some protocols as to how the work groups interact with the consultants.  
249

250       **VII. Public Comment:**

251       None  
252

253       **VIII. Next Steps:**

254       • Penny will send out a reminder that the working groups are expected to  
255       come back in February with their task lists for 2014.  
256       • EPO will make the requested change to the talking points.  
257

258       **IX. Next Meeting:**

259       • Matt Bachmann's proposal – Kirk Cook will speak to Troy Peters about a  
260       no modeling option.  
261       • Review action items and next steps.  
262       • Discuss 2014 Task list.  
263       • Review and approve November summary at January 2014 meeting.  
264

265       **X. 2014 Meeting Calendar**

266       • January 16, 2014.  
267

268       The meeting was adjourned at 6:56 pm.  
269

270       Meeting summary approved by the Lower Yakima Valley Groundwater Advisory  
271       Committee on January 16, 2014

## Lower Yakima Valley GWAC Meetings

### Attendance

GWAC Meetings				
PRIMARY (ALTERNATE)	16-Jan-2014	20-Feb-2014		
Elliott, Rand	absent	absent		
(Redifer, Vern)	attended	attended		
Sanchez, Elizabeth	absent	absent		
(Ring, Tom)	absent	absent		
George, Steve	absent	attended		
(Waddington, Justin )	absent	absent		
Sheehan, Jason	attended	absent		
(DeGroot, Dan)	attended	attended		
Turner, Stuart	attended	attended		
(Dursey Chelsea)	absent	attended		
Reddout, Helen	absent	absent		
(Hannigan, Wendell)	absent	absent		
- ALT/Alt Rep: Fendell, Larry				
Mendoza, Jean	attended	attended		
(Anderson, Eric)	absent	absent		
Whitefoot, Jan	absent	absent		
(Dyjak, Jim)	attended	attended		
Crowe, Laurie	attended	attended		
(Newhouse, Jim)	absent	absent		
Farrell, Robert	absent	attended		
(Van Wingerden, John)	attended	attended		
Cook, Kirk	attended	attended		
(Prest, Ginny)	attended	absent		
Cervantes, Andy	attended	attended		
(Stern, Ginny)	attended	attended		
McKinney, Charlie	attended	attended		
(Tebb, Tom)	absent	attended		
Eaton, Tom	attended	attended		
(Jennings, Marie)	absent	absent		
Kelly, Gordon	attended	attended		
Desta, Dr. Kefy	absent	absent		
(Peters, Dr. Troy)	absent	attended		
Frans, Lonna	absent	absent		

## Lower Yakima Valley GWAC Meetings Attendance



## Ad Proof

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, January 16, 2014  
at 5:00 PM at Radio KDNA,  
Conference Rooms 1 & 2, 121  
Sunnyside Ave. in Granger  
WA 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://](http://www.yakimacounty.us/gwma/)  
[www.yakimacounty.us/gwma/](http://www.yakimacounty.us/gwma/)

For more information about the  
meeting, please contact Lisa  
Freund, Yakima County Public  
Services Administrative Manager  
at 574-2300.  
Dated this Wednesday, January  
8, 2014

(396727) January 9, 2014

This is the proof of your ad scheduled to run on the  
dates indicated below.

Please confirm placement prior to deadline,  
by contacting your  
account rep at (509) 577-7740.

Date:	01/08/14
Account #:	110536
Company Name:	YAKIMA COUNTY SURFACE WATER MGT DIV
Contact:	LISA FREUND
Address:	128 NORTH 2ND STREET ROOM 408 YAKIMA, WA 98901
Telephone:	(509) 574-2343

Run Dates:  
Yakima Herald-Republic 01/09/14  
YakimaHerald.com 01/09/14

Ad ID:	396727
Start:	01/09/14
Stop:	01/09/14
Total Cost:	\$67.70
Agate Lines:	39
# of Inserts:	2
Ad Class:	6021
Account Rep:	Simon Sizer
Phone #	(509) 577-7740
Email:	ssizer@yakimaherald.com

Affidavit of Publication

STATE OF WASHINGTON  
COUNTY OF YAKIMA SS

Timothy J. Graff, 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  
January 16, 2014 Mtg.

published in regular issues (and not in supplemental forms) of said newspaper once each week for a period of 1 consecutive issue(s) commencing 01/09/14 and ending on 01/09/14, 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 \$ 35.00. amount has been paid in full, at the rate of \$7.00 per column inch per insertion.

Subscribed and sworn to before me 01/09/14

Notary Public in and for  
the State of Washington  
030110-00000

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

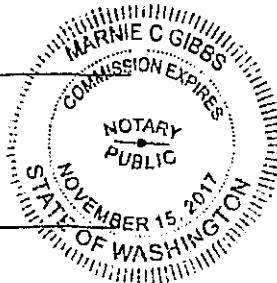
NOTICE IS HEREBY GIVEN that Yakima County is holding a public meeting of the Lower Yakima Valley Groundwater Advisory Committee on Thursday, January 16, 2014 at 5:00 PM at Radio KDNA Conference Rooms 1 & 2, 121 Sunnyside Ave. in Granger WA pursuant to Chapter 173-100-080 WAC Ground Water Management Areas and Programs.

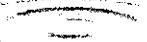
For Additional Information  
To learn more about the Lower Yakima Valley Groundwater Management Area, the Groundwater Advisory Committee, and its goals and objectives, please see the Lower Yakima Valley Groundwater Management Area on the County webpage at: <http://www.yakimacounty.us/gwma/>

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

Dated this Wednesday, January 8, 2014

PUBLISH: DAILY SUN NEWS  
January 9, 2014




**GROUNDWATER  
ADVISORY  
COMMITTEE**
**Groundwater Management Area (GWMA):**

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

**Meeting Time and Location**

**Thursday, January 16, 2014, 5:00 – 7:00 p.m.**

Radio KDNA in Granger  
121 Sunnyside Ave  
Conference rooms 1 & 2  
Granger, Washington

**Purpose of the Meeting:**

- Hear from Data Work Group regarding modeling discussion
- Learn about the Dairy Nutrient Management Program
- Hear from Working Groups

**Agenda**

Time	Topic	Purpose	Lead
5:00 – 5:10 p.m.	Welcome & Meeting Overview	Introduction, meeting overview, confirm agenda	Penny Mabie, facilitator
5:10 – 5:15 p.m.	Committee Business	<ul style="list-style-type: none"> <li>• Approve November 21 and December 19 meeting summaries</li> </ul>	Penny Mabie
5:15 – 5:30 p.m.	Data collection planning	<ul style="list-style-type: none"> <li>• Continue discussion about needs for data gathering and consider an approach that does not include modeling</li> </ul>	Kirk Cook
5:30 – 6:25 p.m.	Overview of the Dairy Nutrient Management Program	<ul style="list-style-type: none"> <li>• Dairy Nutrient Management Program 101</li> <li>• CAFO permitting</li> <li>• Clean Water Act and Safe Drinking Water Act</li> <li>• Questions and discussion</li> </ul>	Ginny Prest Charlie McKinney Tom Eaton
6:25 – 6:30 p.m.	BREAK		
6:30 – 6:45 p.m.	Working Group Report Out	<ul style="list-style-type: none"> <li>• Hear from working groups</li> <li>• Discuss assignment for February meeting (Task List and Schedule)</li> </ul>	Penny Mabie Working group leads
6:45 – 6:55 p.m.	Public Comment	Opportunity for members of the public to make comments to the committee	
6:55 – 7:00 p.m.	Next Steps	<ul style="list-style-type: none"> <li>• Review action items, next steps, and next meeting topics</li> </ul>	Penny Mabie
7:00 p.m.	Adjourn		


**GROUNDWATER  
ADVISORY  
COMMITTEE**
**Groundwater Management Area (GWMA):**

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

**Next Meeting: February 20, 2014**
**Committee Members**

Stuart Turner, agronomist, Chelsea Durfey (alternate)	Turner and Co.
Helen Reddout, Wendell Hannigan (alternate)	Community Association for Restoration of the Environment
Kathleen Rogers, Bud Rogers (alternate)	Lower Valley Community Representative Position 1
Patricia Newhouse, Sue Wedam (alternate)	Lower Valley Community Representative Position 2
Doug Simpson	Irrigated Crop Producer
Jean Mendoza, Eric Anderson (alternate)	Friends of Toppenish Creek
Jan Whitefoot, Jim Dyjak (alternate)	Concerned Citizens of the Yakama Reservation
Steve George, Justin Waddington (alternate)	Yakima County Farm Bureau
Jason Sheehan, Dan DeGroot (alternate)	Yakima Dairy Federation
Jim Trull, Ron Cowin (alternate)	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
Gordon Kelly	Yakima County Health District
Kefyalew Desta, Dr. Troy Peters (alternate)	WSU Irrigated Agriculture Research and Extension Center
Tom Eaton, Marie Jennings (alternate)	U.S. Environmental Protection Agency
Elizabeth Sanchez, Tom Ring (alternate)	Yakama Nation
Lonna Frans, Matt Bachmann (alternate)	U.S. Geological Survey
Kirk Cook, Virginia "Ginny" Prest (alternate)	Washington Department of Agriculture
Andy Cervantes, Ginny Stern (alternate)	Washington Department of Health
Charlie McKinney, Tom Tebb (alternate)	Washington Department of Ecology
Lino Guerra, Rick Perez (alternate)	Hispanic Community Representative

**Groundwater Management Area (GWMA):**

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

**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.

**2014 Meeting Dates:**

January 16  
February 20  
March 20  
April 17

May 15  
June 19  
July 17  
August 21

September 18  
October 16  
November 20  
December 18 (*TBD*  
*based on need*)

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

3      **MEETING SUMMARY**

4      **Thursday, January 16, 2014**

5      **Radio KDNA**  
6      **121 Sunnyside Ave, Granger WA 98932**

7      **I. Call to Order:**

8      **Roll Call:** The meeting was called to order at 5:05 p.m. by Penny Mable,  
9      Facilitator.

Member	Seat	Present	Absent
Stuart Turner	Agronomist, Turner and Co.	✓	
Chelsey Durfey	Agronomist, Turner and Co. (alternate)		✓
Helen Reddout	Community Association for Restoration of the Environment		✓
Wendell Hannigan	Community Association for Restoration of the Environment (alternate)		✓
Jan Whitefoot	Concerned Citizens of the Yakama Reservation		✓
Jim Dyjak	Concerned Citizens of the Yakama Reservation (alternate)	✓	
Jean Mendoza	Friends of Toppenish Creek	✓	
Eric Anderson	Friends of Toppenish Creek (alternate)		✓
Lino Guerra	Hispanic Community Representative	✓	
Rick Perez	Hispanic Community Representative (alternate)		✓
Robert Farrell	Port of Sunnyside		✓
John Van Wingerden	Port of Sunnyside (alternate)	✓	
Jim Trull	Roza-Sunnyside Joint Board of Control	✓	
Ron Cowin	Roza-Sunnyside Joint Board of Control (alternate)		✓
Laurie Crowe	South Yakima Conservation District	✓	
Jim Newhouse	South Yakima Conservation District (alternate)		✓
Tom Eaton	U.S. EPA	✓	
Marie Jennings	U.S. EPA (alternate)		✓
Lonna Frans	USGS Washington Water Science Center		✓

Matt Bachmann	USGS Washington Water Science Center (alternate)		✓
Kirk Cook	WA Department of Agriculture	✓	
Ginny Prest	WA Department of Agriculture (alternate)	✓	
Charlie McKinney	WA Department of Ecology	✓	
Tom Tebb	WA Department of Ecology (alternate)		✓
Andy Cervantes	WA Department of Health	✓	
Ginny Stern	WA Department of Health (alternate)	✓ *	
Dr. Kefy Desta	WSU Irrigated Agriculture Research and Extension Center		✓
Dr. Troy Peters	WSU Irrigated Agriculture Research and Extension Center (alternate)		✓
Elizabeth Sanchez	Yakama Nation		✓
Tom Ring	Yakama Nation (alternate)		✓
Rand Elliott	Yakima County Board of Commissioners		✓
Vern Redifer	Yakima County Board of Commissioners (alternate)	✓	
Steve George	Yakima County Farm Bureau		✓
Justin Waddington	Yakima County Farm Bureau (alternate)		✓
Gordon Kelly	Yakima County Health District	✓	
Jason Sheehan	Yakima Dairy Federation	✓	
Dan DeGroot	Yakima Dairy Federation (alternate)	✓	
Kathleen Rogers	Lower Valley Community Representative Position 1	✓	
Bud 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	✓	

\* Via Phone

14

15

16

17     **II. Welcome and Meeting Overview**

18

19     Moment of Silence

20

21     **III. Committee Business:**

22



23 **Approve November 21 and December 19 Meeting Summaries**  
24 The November Summary needs to include that Kathleen is a member of GWAC.  
25 A member suggested adding to the December Summary some key points  
26 including addressing the highest nitrate wells and to see what can be done to  
27 improve them.

With the suggested changes, the committee approved both summaries. Penny will edit and finalize both November and December meeting summaries and have them posted to the website.

33 Vern asked the group to let him know of any challenges or what is lacking when  
34 using the GWAC website. The website's purpose is to educate the public.

#### IV. Data Collection Planning – Kirk Cook

## Non-Predictive Modeling Approach

Kirk said he was focusing on some of the discussions at the end of the last meeting regarding whether or not to use a predictive model understand the Nitrate problem better. He noted that it was important to make the distinction that there is a non-predictive and a predictive model.

Kirk suggested that the group could carry out a Mass Balance Equation which can be done without additional data being collected. Fertilizer application guides, crops and acreage of crops, and nitrogen intake assumptions as to how much water is being applied, etc. are available to use so a general number could be produced. This would give the committee a gross idea of the mass balance, but would not include any time reference or help the committee figure out what's happening from Point A to Point B. As the equation would not include actual loading data, Kirk noted he did not think it would really tell the committee a lot.

Discussion followed as to whether this approach would provide the information needed to help the program satisfy GWMA's goals. It was pointed out that the US Natural Resources Conservation Service (NRCS) did some nitrogen studies around 2000; however, Kirk said that their studies didn't have the data resolution that is available now (field-by-field crop data). Kirk noted that if they could get field-by-field fertilizer application rates, the results would be much more accurate mass balance result than the NRCS study produced. A committee member asked if anything changed as a result of the NRCS study; no one had a specific response. He also noted there is the ability to go back and plug in all the numbers for the equation to get an improved estimation as more data becomes available.

The WSU application rate recommendations were brought up as good and reliable for crops and it was suggested that the GWMA should use that. However, some doubts were raised as to the utility since WSU no longer updates their Washington-specific recommendations; instead they participate in a broader western states consortium to generate application recommendations.

70                   In the end, Kirk noted, both models require data collection to build a foundation.  
71                   The pathway would be the same for all of the work groups for the next 6 months.  
72                   This would be a sequential process, complementary to the survey. For the non-  
73                   predictive model approach, sampling would have to be done about every 5  
74                   years to capture changes to the groundwater. A committee expressed concern  
75                   that the cost of the study plus the ongoing monitoring would equal the cost of  
76                   the predictive model estimate from USGS. Kirk replied that, very roughly, he  
77                   didn't anticipate the additional sampling would add more than about 5-10  
78                   percent of the total cost. He said the cost of the modeling is already included in  
79                   the funding for the GWMA program. There was a concern that funding for  
80                   monitoring every five years would be challenging to sustain.  
81

82                   The discussion continued as to how the data would be collected. Abandoned  
83                   wells, aquifers, etc. need to be addressed. The equation must consider the  
84                   amount of nitrogen applied, when it was applied, how much water is put on it to  
85                   push it down. The group noted a need to know how to collect the data. Penny  
86                   queried the committee about their desired path forward. Generally, the  
87                   consensus was since the committee needs to do sampling in order to collect the  
88                   needed data, why delay the sampling while they continue to discuss predictive  
89                   modeling; get on with the sampling. It was noted that deferring a decision on  
90                   whether to pursue predictive modeling was not a delay; in fact it would allow  
91                   the committee to be more informed when the decision point for pursuing  
92                   predictive modeling arrives. Kirk said the next step is to figure out how to collect  
93                   the needed data. Jean stated she needs more information before she can  
94                   support moving forward without having made the decision whether to do  
95                   predictive modeling or not. Penny suggested she speak with Kirk offline to get  
96                   her questions answered.  
97

## 98                   V. Overview of the Dairy Nutrient Management Program

### 100                   Dairy Nutrient Management Program 101– Ginny Prest

101                   Ginny explained that all dairies must have a Nutrient Management Plan (NMP)  
102                   which includes collections, conveyance, discharge and storage of all wastes,  
103                   land application, and record keeping. Dairies are to register with the program,  
104                   operate in a way that there is no discharge to the waters of the state, and are  
105                   tasked with maintaining records that show agronomic applications of all  
106                   nutrients. They are routinely inspected by the Washington State Department of  
107                   Agriculture to see how they divert manure, record keeping, land application  
108                   areas, storage, collecting manure and to consider if any improvements are  
109                   needed. 88% of dairies in the Yakima Valley are in compliance with a 38% ppm  
110                   standard. A committee member asked what the acceptable compliance rate  
111                   should be – should the committee be seeking perfection?  
112

113                   A member questioned whether this was just a paperwork drill, since as long as  
114                   dairies have a nutrient plan, they're complying with the law. Beyond the  
115                   existence of a plan, the Department of Agriculture has no enforcement authority  
116

117 with whether dairies are meeting the requirements in the nutrient plan. Ginny  
118 said the Department of Agriculture does have enforcement authority if dairies  
119 discharge to surface waters of the state or if they don't maintain records. It was  
120 mentioned that two newer, larger dairies also have Yakima County-issued  
121 Conditional Use Permits that require them to comply with the nutrient  
122 management plan and enforcement is done by the County.  
123

124 A statement was made by a group member that the agronomic rate information  
125 is old and not useful, so how would one write an adequate nutrient  
126 management plan with outdated data. Tom Eaton advised that NRCS has  
127 several websites with details on crops, stage, etc., and it has a list of all the  
128 nutrients. A question was raised as to why other agriculture industries don't have  
129 to complete nutrient management plans but the dairies do. A member noted  
130 that dairies are required to test their soil every year and are constantly  
131 comparing results to the previous year in an effort to stay way below acceptable  
132 nitrate rates. Once the dairymen were made aware of what was acceptable,  
133 they complied. Vern asked how the manure that is exported from the dairies is  
134 accounted for. It was noted that approximately 40% is going out of the county  
135 via third parties to soil amendment companies and the third party accepting the  
136 manure has to sign an agreement that requires them to follow the rules of  
137 nutrient management.  
138

#### 139 **Concentrated Animal Feeding Operation (CAFO) Permit – Charlie McKinney**

140 Charlie explained that under federal law, dairies are considered point sources for  
141 pollution. Per the Clean Water Act of 1972, the CAFO Permit is really a National  
142 Pollutant Discharge Elimination System Permit (NPDES) type of permit and only  
143 differs in size and location. Criteria for a CAFO is that the facility must, for 45 days  
144 or more in a 12 month period, operate with confined animals and not crops.  
145 CAFOs are permitted by either voluntary application or are required if a CAFO  
146 proposes to or does discharge to waters of the state. Charlie explained the  
147 results of a litigation regarding who is required to have CAFO permits. The Court  
148 of Appeals said that only dairies that discharge into Washington waters had to  
149 have a CAFO permit. The permit works much the same as the Department of  
150 Agriculture's Nutrient Management Plan (NMP).  
151

#### 152 **Clean Water Act and Safe Drinking Water Act – Tom Eaton**

153 The Safe Drinking Water Act does not have a special provision for dairies but it  
154 does permit the Environmental Protection Agency to take action if warranted.  
155 EPA did utilize this action against some dairies in the Valley. In December 2012, at  
156 the Departments of Ecology and Agriculture request, EPA provided their  
157 perspective on protection of groundwater as the agencies considered  
158 modifications to the requirements for livestock operations. EPA advised  
159 prohibiting construction of manure lagoons on sites that have a significant risk of  
160 nitrate transportation to the ground. Second, EPA's recommended requiring  
161 additional steps to ensure manure application fields are not a source of nitrate to  
162 the groundwater, especially third party applicators that are not currently regulated.  
163 He explained EPA thinks of manure as a waste, not a product, so extra care  
164 needs to be taken. Third, EPA recommended imposing groundwater monitoring

165 requirements on large livestock operations that are potential significant sources  
166 of nitrates to a drinking water aquifer. When asked about what parts per million  
167 (ppm) of nitrate in the soil should not be exceeded to assure protection of  
168 groundwater, Ginny noted she is not sure if 45 is the right number or not. A study  
169 on the west side of the state said the rate should be 15 and Idaho has a limit of  
170 10. Collecting groundwater data will help inform what the right level should be.  
171 Copies of the letter from EPA to Department of Ecology and Department of  
172 Agriculture regarding Groundwater are available to the GWAC.

173  
174 Penny suggested that the discussion be brought back at the next meeting. A last  
175 comment was that most of the current construction has the contractor following  
176 all sorts of requirements.

## 177 VI. Working Group Report Outs

178  
179  
180 **Irrigated Agriculture:**  
181 The group met today and is making excellent progress on deep soil sampling.  
182 Confidentiality is still a big issue, but the discussion has moved away from  
183 client/attorney confidentiality. Instead, the group is exploring a way to use  
184 absentee-type ballots without disclosing the sampling address. South Yakima  
185 District's role will change in this. It is important to continue publicity and  
186 education outreach, and determine how to get grower participation. There are  
187 some concerns about what to do before we get to the deep soil sampling in the  
188 Fall; the 2014 task list is required by February and it members of the group are  
189 committed to meeting that deadline.

190  
191 A member expressed caution about if the bar code system is used, would the  
192 hard copy afterwards end up as a public record. It was suggested that the  
193 landowner would keep that part of the questionnaire so it would not be part of a  
194 public record.

195  
196 In addition, a Committee Chair's Conference call was held earlier in the week.  
197 One of the discussion items was how to formalize a process that would allow  
198 working group chairs to request additional tasks from the consultants. Requests  
199 would be made to Vern, who would review and determine if it was an  
200 appropriate task (within the scope and budget) for the consultants. Vern noted  
201 he was not making decisions on where the GWMA spends their money as he is  
202 only the auditor. Vern advised that through 2013, the GWAC has spent around  
203 \$320,000.

204  
205  
206 **Data Collection:**  
207 The group did not meet. This group is working with Vern and Jim on the  
208 confidentiality issue. They have no plans yet for their February meeting.

209  
210 **CAFO/Livestock:**  
211 The group did not meet. They have a meeting scheduled for February 6<sup>th</sup>.

212

213

**214 Residential, Commercial, Industrial and Municipal:**

215 They did not meet in December but will meet next Thursday. This working group  
216 would like more people to join them as they are a small group.

217

**218 Education and Outreach:**

219 Lisa Freund noted that the GWAC had tasked the EPO with creating a 2013 year-  
220 end report and a news release from Rand Elliott identifying the GWAC's  
221 accomplishments. Those items are done and the latest quarterly report is on the  
222 GWMA website in addition to the five previous quarterly reports. The high risk well  
223 assessment survey continues to move forward. The group sent out 600 direct  
224 mailings and submitted news releases to the newspapers. Gordon Kelly, with the  
225 Yakima Health District, added that the first results came from the initial pilot  
226 testing in November and December. They are currently in the middle of the  
227 second phase with 57 contacts, 18 sample collections and 29 more surveys that  
228 are yet to be scheduled. The Health District is getting feedback from residents  
229 that are not in the GWMA area (The Nation, West Valley & Moxee). Gordon feels  
230 this second phase will have a higher success rate. The EPO will continue to work  
231 with Gordon to evaluate the results. Next week there will be paid radio spots on  
232 KIT and KDNA regarding well surveys and inviting participation. Gordon will also  
233 monitor how people are hearing about the GWAC and/or the survey so that EPO  
234 will be able to evaluate outreach efforts.

235

**236 Funding Group:**

237 Vern stated that this group has not met.

238

**239 Regulatory:**

240 The group had a conference call with the intent to go over their purpose. They  
241 did not reach consensus. The group is currently discussing if they should limit their  
242 work to get knowledge and educate the GWMA or brainstorming. They will need  
243 another meeting to clarify what their intention is. Penny suggested that the  
244 group refer to the adopted GWAC work plan for guidance.

245

246 Vern said that 18 fifty-question High Risk Well Assessment surveys have been  
247 completed and the information has been entered into a database. Once he  
248 analyzes the data, he will share the information with the group. Of the 18  
249 completed surveys, there have been 2 samples that exceeded the MCL for  
250 Nitrates. The other 16 were below 10 ppm, some close to 10 and some very low.  
251 Three samples tested positive for bacteria but none for fecal. He said the GWAC  
252 will learn a lot and will then be able to educate the public.

253

**254 2014 Task Lists and Scheduling:**

255 Penny went back to the work plan and asked that all working groups finish their  
256 2014 work items. She reviewed a task list work sheet that she emailed to each of  
257 the group chairs. She showed an example of what she's looking for from each of  
258 the working groups. Penny would like this work sheet completed and returned to  
259 her before February's GWAC meeting. That way, the committee can answer

260        "What is the GWAC Doing?" She will combine all the task lists into an overarching  
261        GWAC task list. The worksheet will note any task that requires the committee's  
262        approval will be brought back to the group. Penny is on a mission to keep all the  
263        groups thinking of what needs to be done to develop the GWMA program.  
264

265        **VII. Public Comment:**

266        If the GWMA is going to have some sort of data gathering, what is the point of a  
267        model?  
268  
269

270        **VIII. Next Steps:**

271        • Each working group will complete their 2014 task list  
272

273        **IX. Next Meeting:**

274        Topics for next meeting

275        • Discuss / Review 2014 Task List for each Working Group.  
276        • Continue soil monitoring discussion from January Meeting.  
277        • Jean made a recommendation for a presentation for the GWAC. An  
278        attorney at the University of Washington who specializes in Environmental  
279        Law would like to talk to the group about environmental issues. Jean  
280        believes it would be a great opportunity for the group to hear from  
281        experts on this subject. A discussion about when the presentation would  
282        take place, what it would cover and how/if it applies to the group's  
283        mission took place. The group also expressed concern about using regular  
284        GWAC meeting time for this type of presentation, and whether it would  
285        be setting a precedent. Vern suggested getting a synopsis or abstract of  
286        the presentation and bringing it back for the committee to review.  
287

288        **X. 2014 Meeting Calendar**

289	February 20	June 19	October 16
290	March 20	July 17	November 20
291	April 17	August 21	December 18 (TBD
292	May 15	September 18	based on need)

293  
294        The meeting was adjourned at 7:18 pm.  
295

296        Meeting summary approved by the Lower Yakima Valley Groundwater Advisory  
297        Committee on February 20, 2014.



## -Ad Proof-

This is the proof of your ad scheduled to run on the dates indicated below.

Please confirm placement prior to deadline,  
by contacting your  
account rep at (509) 577-7740.

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Address:	128 NORTH 2ND STREET ROOM 408 YAKIMA, WA 98901
Telephone:	(509) 574-2343

Run Dates:  
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## Ad Proof

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 20, 2014 at 5:00 PM at Radio KDWA Conference Rooms 1 & 2, 121 Sunnyside Ave. in Granger WA 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. Dated this Wednesday, February 12, 2014

(407561) February 13, 2014

Affidavit of Publication

STATE OF WASHINGTON  
COUNTY OF YAKIMA SS

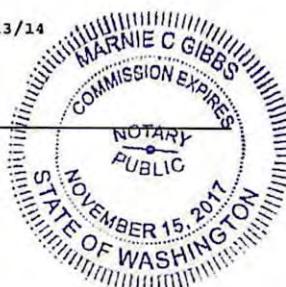
Timothy J. Graff, being first duly sworn on oath deposes and says that he is the Publisher of the DAILY SUN NEWS, a daily newspaper.

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  
February 20, 2014 Mtg.  
published in regular issues (and not in supplemental forms) of said newspaper once each week for a period of 1 consecutive issue(s) commencing 02/13/14 and ending on 02/13/14, 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 \$ 35.00, amount has been paid in full, at the rate of \$7.00 per column inch per insertion.

Subscribed and sworn to before me 02/13/14

*Marnie C. Gibbs*  
Notary Public in and for  
the State of Washington  
030110-00000



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

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

Dated this Wednesday, February 12, 2014

PUBLISH: DAILY SUN NEWS  
February 13, 2014

**Meeting Time and Location**

| **Thursday, February 20, 2014, 5:00 – 7:00 p.m.** |

Radio KDNA in Granger  
121 Sunnyside Ave  
Conference rooms 1 & 2  
Granger, Washington

**Purpose of the Meeting:**

- Review Irrigated Agriculture Working Group Deep Soil Sampling draft materials
- Review proposed amendment to technical consultant scope of work
- Discuss 2014 GWAC and working group activities and schedule
- Approve Education and Public Outreach Working Group products
- Hear from working groups

**Agenda**

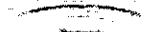
Time	Topic	Purpose	Lead
5:00 – 5:10 p.m.	Welcome & Meeting Overview	Introduction, meeting overview, confirm agenda	Penny Mabie, facilitator
5:10 – 5:20 p.m.	GWMA Program Development	Perspective from Ecology on GWAC progress	Tom Tebb, Ecology
5:20 – 5:30 p.m.	Committee Business	<ul style="list-style-type: none"> <li>• Approve January 16 meeting summary</li> <li>• Review GWAC purpose and goal from GWAC Operating Guidelines</li> </ul>	Penny Mabie
5:30 – 5:45 p.m.	Deep Soil Sampling	Review proposed approach and materials from Irrigated Agriculture Working Group	Jim Trull
5:45 – 6:00 p.m.	Technical Consultant Contract Amendment	Review draft amendment adding additional scope to consultant contract regarding residential, commercial, industrial and municipal nitrates	Bob Farrell
6:00 – 6:30 p.m.	GWAC and Working Group Task/Schedule	<ul style="list-style-type: none"> <li>• Review consolidated working group task lists</li> <li>• Identify key GWAC meeting needs for working group products</li> <li>• Discuss GWAC meeting schedule/format</li> </ul>	

**LOWER YAKIMA VALLEY****GROUNDWATER  
ADVISORY  
COMMITTEE****Groundwater Management Area (GWMA):***The purpose of the GWMA is to reduce nitrate contamination concentrations in groundwater below state drinking water standards*

Time	Topic	Purpose	Lead
6:30 – 6:45 p.m.	Working Group Report Out	<ul style="list-style-type: none"> <li>• Hear from working groups</li> <li>• Approve Education and Public Outreach Working Group products for distribution</li> </ul>	Working Group Leads
6:45 – 6:55 p.m.	Public Comment	Opportunity for members of the public to make comments to the committee	
6:55 – 7:00 p.m.	Next Steps	Review action items, next steps, and next meeting topics	Penny Mabie
7:00 p.m.	Adjourn		

**Next Meeting: March 20, 2014****Committee Members**

Stuart Turner, agronomist, Chelsea Durfey (alternate)	Turner and Co.
Helen Reddout, Wendell Hannigan (alternate)	Community Association for Restoration of the Environment
Kathleen Rogers, Bud Rogers (alternate)	Lower Valley Community Representative Position 1
Patricia Newhouse, Sue Wedam (alternate)	Lower Valley Community Representative Position 2
Doug Simpson	Irrigated Crop Producer
Jean Mendoza, Eric Anderson (alternate)	Friends of Toppenish Creek
Jan Whitefoot, Jim Dyjak (alternate)	Concerned Citizens of the Yakama Reservation
Steve George, Justin Waddington (alternate)	Yakima County Farm Bureau
Jason Sheehan, Dan DeGroot (alternate)	Yakima Dairy Federation
Jim Trull, Ron Cowin (alternate)	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
Gordon Kelly	Yakima County Health District
Kefyalew Desta, Dr. Troy Peters (alternate)	WSU Irrigated Agriculture Research and Extension Center
Tom Eaton, Marie Jennings (alternate)	U.S. Environmental Protection Agency


**GROUNDWATER  
ADVISORY  
COMMITTEE**
*Groundwater Management Area (GWMA):**The purpose of the GWMA is to reduce nitrate contamination concentrations in groundwater below state drinking water standards*

Elizabeth Sanchey, Tom Ring (alternate)	Yakama Nation
Lonna Frans, Matt Bachmann (alternate)	U.S. Geological Survey
Kirk Cook, Virginia "Ginny" Prest (alternate)	Washington Department of Agriculture
Andy Cervantes, Ginny Stern (alternate)	Washington Department of Health
Charlie McKinney, Tom Tebb (alternate)	Washington Department of Ecology
Lino Guerra, Rick Perez (alternate)	Hispanic Community Representative

**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.

**2014 Meeting Dates:**

January 16  
February 20  
March 20  
April 17

May 15  
June 19  
July 17  
August 21

September 18  
October 16  
November 20  
December 18 (TBD  
based on need)

1  
2  
3  
45 LOWER YAKIMA VALLEY GROUNDWATER MANAGEMENT AREA ADVISORY  
6 COMMITTEE (GWAC)7  
8

## MEETING SUMMARY

9

10 Thursday, February 20, 2014

11

12 Radio KDNE  
13 121 Sunnyside Ave, Granger, WA 98932

14

## 15 I. Call to Order

16

17 Roll Call: The meeting was called to order at 5:01 pm by Penny Mabie,  
18 Facilitator.

19

Member	Seat	Present	Absent
Stuart Turner	Agronomist, Turner and Co.	✓	
Chelsey Durfey	Agronomist, Turner and Co. (alternate)	✓	
Helen Reddout	Community Association for Restoration of the Environment		✓
Wendell Hannigan	Community Association for Restoration of the Environment (alternate)		✓
Kathleen Rogers	Lower Valley Community Representative Position 1		✓
Bud 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 Djak	Concerned Citizens of the Yakama Reservation (alternate)	✓	
Steve George	Yakima County Farm Bureau	✓	
Justin Waddington	Yakima County Farm Bureau (alternate)		✓
Jason Sheehan	Yakima Dairy Federation		✓
Dan DeGroot	Yakima Dairy Federation (alternate)	✓	

Jim Trull	Roza-Sunnyside Joint Board of Control	✓	
Ron Cowin	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)	✓	
Gordon Kelly	Yakima County Health District	✓	
Dr. Kefy Desta	WSU Irrigated Agriculture Research and Extension Center		✓
Dr. Troy Peters	WSU Irrigated Agriculture Research and Extension Center (alternate)	✓	
Tom Eaton	U.S. EPA	*✓	
Marie Jennings	U.S. EPA (alternate)		✓
Elizabeth Sanchez	Yakama Nation		✓
Tom Ring	Yakama Nation (alternate)		✓
Lonna Frans	U.S. Geological Survey		✓
Matt Bachmann	U.S. Geologic Survey (alternate)		✓
Kirk Cook	WA Department of Agriculture	*✓	
Virginia "Ginny" Prest	WA Department of Agriculture (alternate)		✓
Andy Cervantes	WA Department of Health	✓	
Ginny Stern	WA Department of Health (alternate)	*✓	
Charlie McKinney	WA Department of Ecology	✓	
Tom Tebb	WA Department of Ecology (alternate)	✓	
Lino Guerra	Hispanic Community Representative	✓	
Rick Perez	Hispanic Community Representative (alternate)		✓

\*by phone

20

21

22

23 **II. Welcome & Meeting Overview**

24

25 Moment of silence.

26

27 Introductions.

28

29 **III. GWMA Program Development**

30

31 Tom Tebb reviewed the committee's purpose and process, and reminded the  
32 group to leave their differences at the door. He urged the group to consider its  
33 incredible opportunity to address the nitrate problem locally and successfully. "It  
34 is a wonderful opportunity to leave a legacy that we can all be proud of." He  
35 requested that the group focus on its goal "to reduce nitrate in groundwater to  
36 below state drinking water standards" and recommit to its purpose, concluding,  
37 "the Department of Ecology is all in and I hope you are, too."

38

39 **IV. Committee Business: Penny Mabie**

40

41 January 16, 2014 Meeting Summary was approved.

42

43 Penny reviewed the GWAC purpose and goals from the GWAC Operating  
44 Guidelines. She reminded the group that the purpose of the GWAC is to chart  
45 the direction and actions needed to reduce nitrates in groundwater. She noted  
46 she will always go back to the guidelines and will keep redirecting the group to  
47 keep them focused by asking how discussion items support the program. She  
48 said the question will always be, how does (this issue) help promote the  
49 outcomes you are charged to accomplish?

50

51 **V. Deep Soil Sampling: Jim Trull**

52

53 Jim reviewed the Deep Soil Sampling (DSS) proposal for maintaining  
54 confidentiality. He noted that the Irrigated Agriculture Working group proposal  
55 protects the confidentiality of participants in the DSS program. When producers  
56 participate, samples will be taken on their property and analyzed at no cost to  
57 them. They will be given a sheet of bar codes with a number at the top and a  
58 questionnaire. This number is known only to the participant and can be used by  
59 them to review the results of the sampling on line. Public education will be  
60 pursued to encourage participants to sign up for the Deep Soil Sampling.

61

62 The Education and Public Education (EPO) working group will be asked to  
63 publicize the Deep Soil Sampling Program. The Irrigated Ag group plans to  
64 target Roza Irrigation and Sunnyside Valley Irrigation users using newsletters,  
65 working groups, newspapers, radios and mailing lists.

66

67 In response to a question concerning where people will get the packets, they will  
68 be at the South Yakima Conservation District office.

69

70 Jim requested GWAC approval of the sampling concept in order to move  
71 forward.

72

73 By consensus, the GWAC approved finalizing the proposal and working with the  
74 EPO to conduct outreach.

75

76 Penny complimented the group, noting they had overcome a seemingly  
77 insurmountable problem and had reached a solution together.

78

79 **VI. Technical Consultant Contract Amendment: Bob Farrell**

80

81 Bob presented an amendment to a contract for consulting services with HDR.  
82 The objective of the amendment is to have HDR create a spatial database of  
83 residential, commercial, industrial, and municipal (RCIM) nitrogen sources in the  
84 Lower Yakima Valley.

85

86 Source data will be compiled from Yakima County to identify septic systems,  
87 fertilizer applied to lawns and gardens, pet waste and hobby farms. Department  
88 of Ecology records will be used to identify sites with National Pollutant Discharge  
89 Elimination System (NPDES) or State Waste Discharge Permits. Department of  
90 Ecology's Underground Injection Control (UIC) database and local municipalities  
91 will be used to identify features that may act as conduits allowing surface water  
92 (and potentially contaminants within it) to more easily enter groundwater. The  
93 information gathered will be used to estimate nitrate loads to groundwater.

94

95 Comments were made that the database could be expanded to include cattle  
96 sources and irrigated croplands. Vern stated the database would be  
97 expandable but it doesn't mean that we would use the same methodology that  
98 RCIM used. It was also stated that biosolids application areas, injection wells,  
99 and loading from sources would be estimated. Questions were raised about  
100 where the critical recharge areas are in relation to underground injection control  
101 wells. Vern stated he has maps of critical recharge areas but will find out what  
102 the data source is for these. RCIM believes this is a necessary way to locate the  
103 sources.

104

105 It was suggested that data from other agencies and projects might be added to  
106 this but this option was not discussed by the RCIM. Vern stated if we look at  
107 other methodology we are looking for something that is appropriate for our  
108 project. Bob will take this suggestion back to the RCIM group for discussion.

109

110 Concerns were raised about determining how many septic systems are in the  
111 county. Vern stated that the County already knows where municipal sewers are  
112 so we know that everyone outside those boundaries is using septic systems.  
113 There is data from the census that shows household size and dwelling units. The  
114 information can be pulled together to give a meaningful range of calculations.

115

116 When the data is compiled it will be used to disseminate the information to the  
117 public to make them aware of the importance of maintaining their septic  
118 systems and to monitor their application of fertilizer to their lawns and gardens as  
119 these sources add to the nitrate load to the aquifer.

121 Vern stated that WAC 173-100 states that the GWMA program must look at all  
122 sources, quantify them, make recommendations and educate the public.

123  
124 It was noted that the database structure should be approved by all groups not  
125 just the RCIM.

126  
127 The GWAC agreed by consensus to approve the amendment with HDR and to  
128 forward it to the County for execution.

129

130

131 **VII. Elements of GWMA Program: Penny Mabie**

132

133 Penny reviewed the Elements of the GWMA Program flow chart with the group  
134 and described how the discussions and decisions about DSS and the RCIM  
135 loading scope of work fits into the problem identification element.

136

137 **VIII. GWAC and 2014 Working Group Task List/Schedule: Penny Mabie**

138

139 Penny presented the 2014 Working Group Task List spreadsheet that she had  
140 compiled from four of the seven working groups. The spreadsheet identifies what  
141 each working group intends to accomplish for each month of 2014, and when  
142 they anticipate presenting information or seeking approval from the full GWAC.  
143 She noted that the task list illustrates that most work belongs at the working group  
144 level, not at the GWAC level. A member suggested that if the GWAC met less  
145 frequently, it would free up time for the working groups to complete their tasks.  
146 Members voiced agreement that this was the right idea at the right time.

147

148 Consensus was reached that the full GWAC meetings will be scheduled on an  
149 every other month basis beginning immediately. The next committee meeting  
150 will be held on April 17. The 2014 meeting calendar will be revised to reflect this  
151 new schedule.

152

153 It was noted that the Regulatory working group had also submitted their task list  
154 and it wasn't included in the combined spreadsheet. Penny will revise the  
155 spreadsheet to include that input.

156

157 **IX. Working Group Reports:**

158

159 **EPO:** Lisa Freund presented two slideshows and a flyer for the committee's  
160 approval: The "Nitrate Education" and "Nitrogen Cycle" slideshows and a High  
161 Risk Well Assessment flyer. The three materials support the High Risk Well  
162 Assessment survey currently underway. Slideshows are intended to be used by  
163 the GWAC members when they make presentations to peer groups, constituents  
164 and others. They will also be made available at WorkSource in Sunnyside. The  
165 flyers will be distributed at WorkSource, Lower Valley Solid Waste facilities and  
166 other Lower Valley locations.

167  
168 The Nitrogen Cycle slides were considered confusing. It was stated that instead  
169 of an EPA conceptual model the slides should just stick to the facts and be real  
170 clear. Issue was taken with some of the facts on the slides and the conceptual  
171 model that was illustrated. Several members asked for additional time to review  
172 the slides, make edits and to bring back the revisions at the next GWAC meeting.  
173

174 Lisa observed that with meetings being only every two months, the delay could  
175 put outreach behind schedule for the EPO and other working groups. Penny  
176 stated that there is not time to be wordsmiths at the GWAC meetings and that  
177 members need to review the material before meetings, take a good hard look  
178 at it and send timely comments back to the working group.  
179

180 The GWAC agreed that the Nitrogen Cycle slides would not be used as  
181 presented. They agreed that they would review the Nitrate Education slides and  
182 send changes to Lisa by Monday. She will consider the changes and make edits  
183 as she sees appropriate. The resulting version will be used on a limited basis at  
184 WorkSource. It will be brought back to the GWAC in April for its consideration  
185 and approval.  
186

187 The GWAC approved the flyer as presented.  
188

189 Lisa also reported that the EPO had considered translating GWAC meeting  
190 summaries into Spanish as requested by a GWAC member. The EPO  
191 recommends that meeting summaries not be translated at this time; however,  
192 this decision will be revisited if the public indicates support for it.  
193

194 **Irrigated Agriculture:** No comment.  
195

196 **Livestock/CAFO:** Charlie McKinney noted that the Livestock/CAFO group listed  
197 potential sources for nitrates such as field application of manure, corrals and  
198 pens, compost yard and storage areas, solid manure storage areas and  
199 seepage from manure storage lagoons. Seepage from manure storage lagoons  
200 will have fairly good data from about 28 different lagoons.  
201

202 **Data Collection, Characterization, Monitoring:** No comment.  
203

204 **Regulatory Framework:** Tom Eaton laid out work plans to take policies and  
205 regulations to groups done through a standardized questionnaire. They will  
206 brainstorm any ideas for changes in regulations and will bring information back  
207 for larger discussion. They will work through categories by the end of the year.  
208

209 **X. Next Steps:**

210 Action items:  
211

- 212 • Penny will add the Regulatory work group task list to the spreadsheet  
and will resend it to members.

213           • Send slide edits to Lisa by Monday. She will make the edits and use  
214           the slides at WorkSource.  
215           • County will make a holding area on the web site for monthly  
216           committee products and handouts.  
217           • No full committee meeting in March.  
218           • Create a "new handout" list and post on the GWAC meeting  
219           agenda so members know what materials they should review prior to  
220           the meeting.

221

222

223       **XI. 2014 Meeting Calendar:**

224           • April 17, 2014  
225           • June 19, 2014  
226           • August 21, 2014  
227           • October 16, 2014  
228           • December 18, 2014 (as needed)

229

230

231       The meeting was adjourned at 7:13 pm.

232

233

234       Meeting summary approved by the GWAC on \_\_\_\_\_

## Joint Data, Livestock, Irrigated Ag, RCIM, Working Group Meeting with Presentation (Workshop) from HDR and PGG

### Charge from Groundwater Management Area Advisory Committee

None at this time

### Working Group Members

Jim Trull (Chair, Irrigated Ag), Kirk Cook (Chair, Data), Charlie McKinney (Chair, Livestock/CAFO), Bob Farrell (Chair, Residential, Commercial, Industrial, Municipal)

### Meetings/Calls Dates

Location: Radio KDWA Granger

Date/Time: Thursday, March 6, 2014 / 5:00pm – 7:00pm

Phone Line: (509) 574-2353 – PIN 2353#

### Participants

Jim Trull (Roza-Sunnyside Joint Board of Control), Kirk Cook (WSDA), Charlie McKinney (Department of Ecology), Bob Farrell (Port of Sunnyside), Vern Redifer (Yakima County), Steve Swope (PGG), Jay Decker (HDR), Jean Mendoza (Friends of Toppenish Creek), Jim Dyjak (Concerned Citizens of the Yakama Reservation), Troy Peters (WSU), Dan McCarty (WSDA DNMP), Steve George (Yakima County Farm Bureau), Kathleen Rogers (Lower Valley Representative), Stuart Turner (Tuner & Co. Inc.), Gordon Kelly (Yakima Health District), Stuart Crane (Yakama Nation), Tom Ring (Yakama Nation), Bob Stevens (Citizen), Larry Fendell (Citizen), Dan DeGroot (Dairy Commission), Jason Sheehan (Yakima Valley Dairy), Kevin Lindsey (GSI Water Solutions), Mike Shuttleworth (Benton County), Andres Cervantes (DOH), \*Tom Eaton (EPA), Penny Mabie (Facilitator, EnviroIssues), Don Gatchalian (Yakima County Staff Support), and Troy Ross-Havens (Yakima County Staff Support)

\*Participated by telephone

### Key Discussion Points

#### **Welcome & Meeting Overview**

Penny welcomed the group and gave an overview of the meeting agenda.

**BMP Effectiveness Workshop – Mike Murray, HDR (90 minutes)**

- Mike Murray reviewed the HDR tasks completed to date to set a context for this presentation.
- Mike went over the Draft BMP Effectiveness Evaluation Summary (Technical Memorandum #2) dated February 27, 2014 and provided a methodology overview of the document and the associated hierachal approach provided as a tool to organize the associated objectives, management targets, and BMPs.
- The purpose of the BMP Effectiveness Evaluation is to create a tool for the GWAC to use. HDR defined the proposed evaluation criteria framework for the BMPs shown on Table 2 (page 7 of February 27, 2014 report), as well as working through several examples drafted by HDR.
- Following the examples, Mike proposed the next task for the working groups:

**ACTION for Working Groups:**

Each individual technical working group will review the proposed evaluation criteria shown on Table 2 of the Draft BMP Effectiveness Evaluation Summary, Technical Memorandum #2, dated February 27, 2014 and evaluate for sufficiency or completeness. If not complete or sufficient, the working groups are to strike, add, or modify evaluation criteria as they see fit. HDR expects comments to be provided to Don Gatchalian ([donald.gatchalian@co.yakima.wa.us](mailto:donald.gatchalian@co.yakima.wa.us)) by March 20, 2014

- After HDR receives the comments on the proposed evaluation criteria, HDR will then populate the form using the criteria established. The next workshop will discuss what HDR has filled in which will have incomplete information. The technical working groups will then complete the form, and if necessary prioritize the BMPs.
- Members of the working groups added that the BMP Database should be a flexible tool not to be set in stone, but to be modified as more data is collected or evaluated.
- General agreement within the group centered around the addition of counter effects of BMPs or noting that certain BMPs should be used with others (synergisms)

**Data Gaps and Potential Groundwater Monitoring – Presentation of Report Findings by Steve Swope, PGG (30 minutes)**

Steve Swope introduced himself to the participants and began discussing the Potential Groundwater Monitoring Stations document prepared by PGG for the LYV GWAC dated December 3, 2013.

Steve discussed the following points presented in the report:

- Available data sources and related dates
- Nitrate concentration hot spots (2X MCL or 20 mg/L)
- Concentration distributions
- Nitrate background levels and locations
- Average well depth
- Nitrate trends for municipal wells

Steve updated the group on PGG's next step on selecting wells for long term monitoring. PGG's potential monitoring well locations are proposed to monitor or address spatial data gaps, hot spots, increasing trends, basin-wide monitoring, water supply aquifers, BMP effectiveness, and health risks within the LYV GWMA. Regarding the amount of potential monitoring wells, Steve explained that 667 well locations were sent to the Yakima Health District, 320 of which are contracted by the County for the Health District to complete well surveys. PGG is expecting a positive response rate of about 15% of these 320, or roughly 50 potential monitoring wells.

Discussions followed the presentation regarding well construction, groundwater flow directions, Yakima Health District well survey data, potential bias, and sampling strategies.

### **Other Topics**

Vern R. stated that at the GWAC's request, the County has not been posting draft documents on the GWMA website (<http://www.yakimacounty.us/gwma/>) without GWAC approval. The inadequacy to the current website is that it does not provide a central location for GWAC members to reference draft documents they are working on yet to be approved by the GWAC. Vern mentioned that the County is exploring options on how to provide a central electronic location for the draft documents to be referenced or downloaded. One idea being explored is to have two sources on the web – one for public viewing (documents presented to and agreed by the GWAC for posting) and the other for draft working documents.

### **Resources Requested**

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None at this time

### **Recommendations for GWAC**

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None at this time

**Deliverables/Products Status**

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None at this time

**Proposed Next Steps**

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- Working groups will provide comments on the evaluation criteria framework proposed by HDR to evaluate BMPs applicable to the LYV GWMA. Members will submit comments to Yakima County, Attention: Don Gatchalian ([donald.gatchalian@co.yakima.wa.us](mailto:donald.gatchalian@co.yakima.wa.us)) by March 20, 2014. Don will consolidate the comments and forward to the consultant.
- After HDR receives the comments, HDR will incorporate them, finalize the evaluation criteria, populate the form with BMP information and prepare a draft for the working groups to review. At that time, workshop # 2 will be scheduled.

## Joint Data, Livestock, Irrigated Ag, RCIM, EPO Workgroup Chairs Conference Call

### Charge from Groundwater Management Area Advisory Committee

None at this time

### Working Group Members

Jim Trull (Chair, Irrigated Ag), Kirk Cook (Chair, Data), Charlie McKinney (Chair, Livestock/CAFO), Lisa Freund (Chair, Education and Public Outreach), Bob Farrell (Chair, Residential, Commercial, Industrial, Municipal)

### Meetings/Calls Dates

Date/Time: Wednesday, February 12, 2014 / 10:00am - 11:30am

Phone Line: (509) 574-2353 - PIN 2353#

### Participants

Jim Trull (Chair, Irrigated Ag), Kirk Cook (Chair, Data), Charlie McKinney (Chair, Livestock/CAFO), Lisa Freund (Chair, Education and Public Outreach), Bob Farrell (Chair, Residential, Commercial, Industrial, Municipal), Vern Redifer (Director, Yakima County Public Services), Don Gatchalian (Yakima County Staff Support), and Troy Ross-Havens (Yakima County Staff Support)

### Key Discussion Points

#### **Welcome & Meeting Overview**

Jim Trull welcomed the group and presented an overview of the agenda, as Jim convened the meeting to discuss the status and work products of Irrigated Ag Working Group and how it might relate to the other working groups, as well as to coordinate with the Chairs of the working groups.

#### **Grower Participation Confidentiality**

Jim began by referencing the 3-4 page paragraph document and attachment distributed to the Chairs prior to the meeting regarding grower participation confidentiality. He summarized the documents content detailing the grower participation summary, and how the confidentiality would be established. This would be implemented by an attachment the grower would receive that includes a random barcode distribution to the

grower, and the number associated with that barcode to be known only to the grower for confidentiality purposes. It is the intent that growers would fill out the grower questionnaire and place their barcode on a designated location on the questionnaire. When it came time for soil sampling, these same barcodes would be placed on soil samples and analyzed at the lab. After analysis, a summary of findings would be available to the growers with their unique barcode numbers on the County website. Each assigned barcode or set of numbers would be only recognizable by the grower, and no one else. After this has occurred, growers could consult with the South Yakima Conservation District (SYCD) to procure strategies to manage nutrients more efficiently, or approach the SYCD for generic information on better nutrient management practices if they discounted the soil analysis. Jim noted that the questionnaire has been modeled after the Columbia Basin GWMA, and is a conceptual document yet to be refined by the Irrigated Ag Working Group (IAWG) members, so it might look a little different in its final state than it does now in its conceptual state. The meeting participants agreed that this would be an approach worthy of securing grower confidentiality.

A few questions regarding specificity of the crop arose, and it was proposed that the intent in the final document is to provide enough identification of farming practices and soil types to allow the GWAC to focus future efforts on particular parameters that show, through sampling, potential nitrate leaching to groundwater. The intent is to determine effectiveness of farm practices and to what extent nitrate in the ground is being utilized by the crop.

#### **Deep Soil Sampling Strategy**

Under HDR's contract with the LYV GWMA through Yakima County, PGG developed the draft Deep Soil Sampling Plan and implementation strategy, which led to the IAWG along with the SYCD, refining this strategy to best fit the needs and practicalities present within their capabilities. Just before the SYCD and the IAWG thought they had a good product to turn over to PGG, the issue of confidentiality arose and stalled the finalization of the Deep Soil Sampling Plan. Now that the confidentiality has been resolved, the IAWG desires to complete the Deep Soil Sampling Plan and turn it over to the consultants for finalization of the Plan, at which point it would be then presented to the GWAC for review and funding approval. Then, the County would draft an agreement with the SYCD to carry out the scope of the Deep Soil Sampling Plan.

#### **Growers Survey**

The Roza and Sunnyside Valley Irrigation Districts, and possibly the SYCD intend to include an announcement to contact growers to participate in the program in their next newsletter distribution. Some support from the Education and Public Outreach Working Group (EPO) with the content of the announcement would be appreciated, including any supporting background information procured through the LYV GWMA program. The County and EPO would consider any other ways to contact growers such as billboards, mailer packets, etc.

Jim solicited the participants' opinion on presenting this information to the GWAC during the next meeting. The participants believed that this would be acceptable, as long as it is presented as a conceptual draft, so that the GWAC members do not feel obligated to comment on the content as if it were a final draft.

Charlie mentioned that the Livestock/CAFO Working Group planned to utilize the deep soil sampling project to obtain samples from corrals, pens, solid manure and compost storage areas. They would expect the procedures to be tweaked or added to as necessary by the Livestock/CAFO members to accommodate those sampling needs. Charlie mentioned that he would urge Livestock/CAFO members to assist in developing participant contact/cooperation similar to the IAWG's approach.

#### **Other Topics**

##### ***RCIM Scope of Work to be Completed by HDR/PGG***

The RCIM Chair presented to the group the proposed scope of work that RCIM requested from the consultant. This includes a spatial database of septic tank systems, NPDES point sources, and other potential RCIM sources. The RCIM Chair requested specifically the other Chairs to review Task 1 - Develop Nitrate Source Database Structure, and its applicability to Livestock/CAFO and Irrigated Ag. The proposal includes a database of RCIM sources that could be expanded to include Livestock/CAFO sources as well as Irrigated Ag. Bob requested input from the Chairs if next GWAC meeting would be a good opportunity to present this Scope of Work. Conversations ensued leading to the decision that it would be a good idea to present the Scope of Work, and that it might spark further conversation/verification within the GWAC regarding data needs and the Nutrient Loading Budget. RCIM will present the Scope of Work to the GWAC, so that the RCIM sources can begin to be developed, if approved, which will allow time for Irrigated Ag and Livestock/CAFO to collect data for the database through the Deep Soil Sampling Plan, as data collection associated with these sources has not yet began. The Chairs

discussed that instead of just developing a spatial database for RCIM, they may want to expand that to include Irrigated Ag and Livestock/CAFO.

#### *GWAC/Working Group Monthly Meetings*

One participant requested the Chairs' opinion on reducing the frequency of the GWAC meetings, which currently occur during the third Thursday of each month. The advantage of this proposal would be to allocate more time for the working groups to work on their task lists; all Chairs agreed that this would be beneficial to the efforts of their individual working groups, as well as the LYV GWMA. Reducing the frequency of GWAC meetings to some degree will be brought up during the February 20 GWAC meeting.

The Data Chair mentioned that the need for an expansive Data working group meeting every month isn't productive. The Chair suggested that the working group exist continually with core membership, while other members participate ad-hoc, meaning bigger data collection and monitoring issues would draw out more participants as needed. The Data working group does not have ongoing issues as the other working groups.

#### *Keeping GWAC on Track*

One participant brought up a conversation that occurred yesterday involving distractions occurring recently during the GWAC meetings. The discussion involved strategies to help keep the GWAC on track, and how the facilitator might help in moving the GWMA forward in an efficient manner.

---

#### **Resources Requested**

None at this time

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#### **Recommendations for GWAC**

None at this time

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

None at this time

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#### **Proposed Next Steps**

- Next Joint Chairs meeting scheduled for March 6th at Radio KDNA in Granger from 5:00pm-7:00pm

## Education and Public Outreach Working Group

### Charge from Groundwater Management Area Advisory Committee

Create the 2014 Outreach Task List

### Working Group Members

Andres Cervantes (GWAC-DOH), Jean Mendoza (GWAC-Friends of Toppenish Creek), Tom Tebb (GWAC-Ecology), Elizabeth Torres (Citizen), Gretchen Stewart (EPA), Nieves Negrete (Citizen), Patricia Newhouse (GWAC-Citizen Rep Position #2), Tom Eaton (GWAC-EPA), Dean Effler (Citizen), Joye Redfield-Wilder (Ecology), Wendell Hannigan (GWAC-Alternate), Stuart Turner (GWAC-Turner & Co)

### Meetings/Calls Dates

Meeting: Wednesday, February 5, 2014 1:30 PM – 3:30 PM

### Participants

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

\*via phone

### Key Discussion Points

**Welcome & Meeting Overview:** Lisa Freund welcomed the group and presented an overview of the meeting agenda.

**Request to Translate GWAC Meeting Summaries:** Jean requested that the EPO consider translating the monthly GWAC meeting summaries into Spanish, noting that the meeting summaries are an important outreach tool for her constituents and others. After lengthy discussion, the group agreed that there is no data to indicate that translating meeting summaries is a cost-effective use of the outreach budget. Data from the website indicates that meeting summaries are not a popular hit, and most people do not rely on meeting summaries as their primary source of information.

EPO's Outreach Plan seeks audience inclusion by a number of means, including translating all outreach campaign materials (surveys, handouts, PSA's news releases, etc). Evaluations will also be conducted to determine how audiences prefer to receive their information. If evaluation results indicate a demand for meeting summaries, the group

will revisit the issue. All members were in agreement with this decision except Jean Mendoza, who asked that her minority opinion be noted.

**ACTION:** No further action will be taken at this time. Requests for document translation will be considered on a case-by-case basis.

**2014 Outreach Task List:** The group reviewed and approved the draft 2014 Outreach Task List created by Lisa Freund and Andy Cervantes. All seven GWAC working groups were assigned this task. The lists will be compiled by the GWAC facilitator into a 2014 working document for the GWAC. Residential, Commercial and Industrial (RCIM) has already submitted a draft list that identifies outreach in its 2014 plans. Other working groups may also submit EPO requests, and placeholders have been inserted in the spreadsheet for this possibility.

The group agreed to the task list as written. Lisa noted that if members had additional items for the task list after today's meeting, to please forward them to her by Friday, February 7.

**ACTION:** Lisa Freund will forward the task list to Penny Mabie on Friday, February 7.

**ACTION:** RCIM will be invited to the March 5, 2014 EPO meeting to discuss their outreach needs.

**Outreach for High Risk Well Assessment Survey:** The County has currently received 18 completed Well Assessment surveys from the Yakima Health District and 32 more will be submitted shortly. 32 additional surveys are in process. The goal is 250 completed surveys and samples by March 31. That deadline may need to be extended as the radio ads did not start until the end of January on KIT and KDNA. The group discussed waiting several weeks before launching the final Spanish-language commercial ads in order to evaluate the effectiveness of the current radio campaign. After discussion, the group agreed to adhere to the radio schedule it had approved in December.

**Church Outreach.** Patricia Newhouse reported that she submitted the High Risk Well Assessment PSA information for consideration by the Sunnyside Association of Churches. There has been no feedback from the churches in the Association; however, her own church decided not to distribute it to their members or post it on their bulletin board because of the divisiveness of the subject. Church leaders noted that there are other means for people to receive information about the program.

**Flyer and Additional Lower Valley Outreach.** Lisa Freund distributed a copy of a draft Well Assessment flyer which will be presented to the GWAC for approval at its February meeting. Once approved, it will be translated and printed for distribution at Sunnyside WorkSource, the Cheyne landfill and lower Valley transfer stations and other lower valley

venues. Patricia Newhouse offered to distribute the well assessment flier to other agencies in the lower valley.

**ACTION:** Ignacio Marquez will contact KZTA, *La Familia* and The Bull to start running the PSA's as previously scheduled.

**ACTION:** Lisa Freund will check with Rand Elliott to see if the Town Square Media spot will be rescheduled.

**ACTION:** Andy Cervantes and Ignacio Marquez will participate in KDNA's live public affairs program on February 14, 2014 at 4pm to talk about nitrates, the Well Assessment Survey, and the GWAC.

**ACTION:** Lisa Freund will present the High Risk Well Assessment flier to the GWAC for approval at the February 20, 2014 meeting. The reference to the boundaries will be changed to "Not Available on Yakama Reservation."

**ACTION:** Lisa Freund will send Ignacio Marquez the Public Questionnaire and handouts which he will use to create a questionnaire for the Work Source presentations.

**ACTION:** Ignacio Marquez will move forward on scheduling the presentation at Work Source and preparing the hand-outs.

**ACTION:** Andy Cervantes will work with Jean Mendoza to evaluate the data from the Heritage Questionnaire

**New Mom's Brochure:** Jean Mendoza presented two versions of the New Mom's Brochure: one complex and one simple. She explained that she and Dean Effler propose to distribute the brochure through hospitals (maternity nursing units) throughout the County. Nurses in turn may distribute it to new moms at the time of delivery, if the mom obtains her drinking water from a private well.

Joye Redfield-Wilder submitted edits to the simplified version of the brochure prior to the meeting. Gretchen Stewart noted that she forwarded both versions to the Northwest Pediatric Environmental Health Specialty Unit (PEHSU) and Margo Young for review and input. She hopes to hear back from them in the next few weeks. Ignacio Marquez suggested a few graphics would make it more attractive. Joye suggested the group should also reach out to the Yakima Valley Farm Workers Clinic.

**ACTION:** Gretchen Stewart will report back to Jean on the feedback from PEHSU and Margo Young and assist with developing next steps.

**ACTION:** Joye Redfield-Wilder will contact the Communications Department at Yakima Valley Memorial Hospital to explore the best means of obtaining approval for the New Mom campaign.

**ACTION:** Dean Effler will make contact with the Directors of Nursing at the Sunnyside, Toppenish, Prosser and Yakima hospitals and Farmworkers Clinics to determine interest in and feasibility of this outreach.

**2014 Meeting Schedule:** The group agreed that the first Wednesday of the month meeting schedule is still workable. Dean Effler will join the next two meetings via Skype.

**ACTION:** Lisa Freund will arrange for Skype to be set up for the March and April meetings.

#### **Resources Requested**

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None.

#### **Recommendations for GWAC**

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Spanish-language translation of GWAC meeting summaries is not recommended at this time.

Approve talking point slides and well assessment flier as presented.

Clarify that once GWAC has approved basic messaging, the delivery formats (flyers, slides, presentations/speeches, PSAs) do not need GWAC reapproval.

#### **Proposed Next Steps - March Meeting Topics**

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- RCIM Outreach Request (Bob Farrell, Chair)
- High Risk Well Assessment Status (Ignacio, Andy, Lisa)
- New Mom Campaign update (Jean, Dean and Gretchen)
- Analysis of the Public Questionnaire results (Jean & Andy)
- Placeholders-
  - Website
  - Schools Outreach

The meeting was adjourned at 3:30 PM.

Next meeting Wednesday, March 5, 2014 at 1:30 PM, Yakima County Courthouse Room 419 (phone: 509-574-2353 [PIN# 2353#])

## Livestock/CAFO Working Group

### Charge from Groundwater Management Area Advisory Committee

Create the 2014 Livestock/CAFO Task List

### Working Group Members

Charlie McKinney, Chair (Department of Ecology), Kirk Cook (Department of Agriculture), Dr. Kefy Desta(WSU), Elizabeth Sanchez (Yakama Nation), Helen Reddout (CARE), Jason Sheehan (Dairy Federation), Jim Newhouse (South Yakima Conservation District), Laurie Crowe (South Yakima Conservation District), Patricia Newhouse (Citizen), Steve George (Yakima County Farm Bureau), Stuart Turner (Turner & Co., Inc.)

### Meetings/Calls Dates

Meeting: Thursday, February 6, 2014 5:00-7:00 pm

Location: Radio KDNA – Granger, Washington

### Participants

Charlie McKinney (Ecology) Steve George (Farm Bureau), Sue Wedam (YVCC-Lower Valley), Jason Sheehan (Dairy Federation), Larry Fendell (Citizen), Jean Mendoza (FOTC), Donald Gatchalian (Yakima County Staff Support), and Troy Ross-Havens (Yakima County Staff Support)

### Key Discussion Points

**Welcome & Meeting Overview:** Charlie McKinney welcomed the group and presented an overview of the agenda. This consisted of lining out tasks by next meeting for their contribution to the GWAC.

### **Task List from 2013 Work Plan:**

Charlie referenced upcoming tasks from Work Plan items 2.1.1a. and 2.1.1b to spark group discussion. The group identified the following 5 tasks for 2014 relating to potential nitrate sources from Livestock/CAFO operations:

- Field application of manure
- Corrals and pens
- Seepage from manure storage lagoons
- Compost yard and storage areas
- Solid manure storage areas

The group identified that it would be best to start out by collecting any existing information or data from previous studies to develop a background on the aforementioned potential nitrate sources from which the group could expand on. Group members discussed that each location in the LYV GWMA would be different for each potential source, meaning that site specific conditions would play a large role on how samples would be collected or sources would be categorized. It would not be feasible to sample each location from each Livestock/CAFO due to funds and timing. The group intends to pursue relevant conditions that would contribute to nitrate leaching in each of the five potential sources to consider in the deep soil sampling plan.

**ACTION:** Charlie McKinney to determine milestones on tasks identified in the 2014 Task List prior to the next GWAC meeting.

Regarding manure and compost spread onto irrigated cropland, the group felt that this source would be under the Irrigated Agriculture Working Group's (IAWG) purview. Jean Mendoza mentioned that as part of the IAWG, she noted that nitrogen source and application rate has not been at the top of IAWG's priority list when considering the deep soil sampling plan guidelines.

**ACTION:** Charlie McKinney to coordinate with Jim Trull on the purview of compost application to irrigated croplands.

Charlie McKinney mentioned that the EPA will soon have data regarding EPA's efforts on lagoons within the dairy cluster. The group is hoping that EPA will share this data with the GWAC in helping determine existing conditions and current nitrate transport occurring within the dairy cluster, and how it might relate to the LYV GWMA.

The group made it very clear that when the GWMA has conducted its research and developed a GWMA plan, that the GWAC needs to be able to say that all of the important sources have been addressed, and no bias or misrepresentation has occurred.

A discussion was held on lagoons, which led to questions pertaining to lagoon parameters. Through the efforts of data collection the GWAC intends to conduct, the group would like to identify certain lagoon parameters that may lead to elevated concentrations of nitrate in groundwater, and how they can be fixed over time.

Steve George suggested that the working group recruit the hydrologist that participated in the EPA study to give a presentation on findings related to the Roza dairy cluster, if in fact said hydrologist was legally able and willing to do so. This might bring light to identifying potential similarities and differences within the Roza area and the LYV GWMA, as well as potentially give insight on what might be occurring in the LYV GWMA.

**ACTION:** Charlie McKinney to follow up with Tom on data and confidentiality of such a partnership.

The group thought it might be a valuable tool to have a presentation about composting, and how it would be best to sample compost sites.

**ACTION:** Charlie McKinney to check on composting requirements relating to testing and/or monitoring and a possible presentation on composting and applicable regulations.

**Potential Groundwater Monitoring Stations Document from PGG:**

Charlie introduced to the group the Potential Groundwater Monitoring Stations Document from PGG, and applauded it's completeness. Charlie mentioned that the document has identified and plotted a vast amount of data relating to previous nitrate groundwater testing efforts from various entities, as well as identifying 5 areas that have data gaps in nitrate testing. The goal of the document is to guide in establishing a groundwater monitoring network that can be used over time.

Donald Gatchalian mentioned that under HDR's contract with Yakima County, they are responsible for one workshop with the GWAC, and suggested that the review of the Best Management Practices summary, as well as the Potential Groundwater Monitoring Stations document to be examined and reviewed during a joint working group meeting to include Livestock/CAFO, Irrigated Agriculture, and the Data Collection and Monitoring Working Group.

**ACTION:** Donald G. to contact HDR regarding this joint meeting, proposed for March 6<sup>th</sup>.

**Resources Requested**

None at this time.

**Recommendations for GWAC**

None at this time.

**Deliverables/Products Status**

Task Spread Sheet will be submitted to Penny by 2/13.

**Proposed Next Steps**

Complete milestones from tasks identified during this meeting

Coordinate with Irrigated Ag on composting practices

Coordinate with EPA on dairy data

Research composting facility monitoring requirements

Coordinate with HDR and other working groups for the proposed workshop

## Irrigated Ag Working Group

### Charge from Groundwater Management Area Advisory Committee

#### Working Group Members

Dr. Troy Peters (WSU), Jean Mendoza (Friends of Toppenish Creek), Jim Trull (Roza-Sunnyside Joint Board of Control), Ralph Fisher (EPA), Ron Cowin (SVID), Stuart Turner (Turner & Co.), Tom Tebb (Department of Ecology), Ginny Prest (Dept of Ag), Laurie Crowe (South Yakima Conservation District), Dave Fraser (Simplot Agronomist), Scott Stephen (Citizen), Donald Jameson (Citizen), Mike Shuttleworth (Citizen), Chelsea Durfey (Citizen), Doug Simpson (Farmer), Rosalio Brambila (Farm Manager)

#### Meetings/Calls Dates

Where: KDNA Granger – 121 Sunnyside Avenue, Granger, Washington

When: 3:00 PM – 5:00 PM Thursday, January 16, 2014

Call: (509) 574-2353 - PIN# 2353

#### Participants

Jim Trull (Chair), Dan McCarty, Ginny Prest, Frank Lyall, Jean Mendoza, Doug Simpson, Scott Stephen, Laure Crowe, Donald Jameson, Ralph Fisher (by phone), Tom Tebb, Rosalio Brambila, Mike Shuttleworth, Stuart Turner, Kirk Cook, Don Gatchalian (Yakima County staff support)

#### Key Discussion Points

##### Agenda

###### 1. Deep Soil Sampling and Nitrogen Assessment

The group discussed the two letters from Kirk Cook to deal with confidentiality using alphanumeric code and/or using bar code system. The concept is similar to election ballot system – names and locations not recorded; only interested in the information obtained to determine effectiveness of nutrient application.

ACTION: Jim T. will work with Laurie C. to incorporate the concept in drafting the Deep Soil Sampling Plan.

## 2. South Yakima Conservation District's Role in Deep Soil Sampling (DSS)

The group discussed the role of SYCD in implementing the DSS Plan. Scope of Services will include doing the sampling, working with the producer, how to recruit growers for sampling, etc. The scope of services and budget will be finalized after the confidentiality is included in the DSS Plan. There was discussion of getting the EPO Working Group's help in public outreach including the media. The sampling protocol established by EPA and Ecology will provide representative samples. Question was asked on who will develop the questionnaires and address confidentiality issue.

ACTION: Jim T. and Laurie C. will develop the questionnaire and present at the next IAWG meeting.

## 3. Grower Education – Newsletters/Workshops

There was discussion on how to provide public outreach on deep soil sampling (nutrient management and irrigation water management). EPO may be able to assist. In the meantime, there are other information that can be done like nutrient management, BMP, etc. Public information is an ongoing process.

ACTION: Jim T. will communicate with the EPO Working Group Chair of the request and report back at the next meeting.

## 4. Final Review of Irrigated Ag Best Management Practices

Jim T. thanked the working group for providing comments to the BMP list developed by the consultant. There was discussion on what was remaining of HDR task regarding review of BMP database and BMP effectiveness study. Don G. reported that HDR still needs to provide a technical memorandum on BMP effectiveness.

ACTION: Don G. will follow up with HDR on status of BMP Effectiveness Technical Memo.

## 5. Work Plan Submittal to the GWAC

Jim T. informed the working group of Penny's request to develop the 2014 tasks list and timelines. A draft task list was presented as a starting point. Comments are requested to Jim T. and Don G. by January 30<sup>th</sup>. Final draft will be presented to the working group by e-mail by February 5<sup>th</sup>, review comments to Jim T. and Don G. by February 7<sup>th</sup> and to Penny by February 10<sup>th</sup> deadline for GWAC distribution.

ACTION: Comments to draft task list to be provided to Jim T. and Don G. by January 30<sup>th</sup>.

**6. Relationship between the Working Group Chair, Consultant and Yakima County**

Jim T. briefed that the working group chairs had a conference call and discussed how to compensate the consultant for extra work requested and/or when proposing changes to the existing contract. This is to make sure that the consultant is compensated for any extra work done.

**ACTION:** Don G. will investigate on a form.

**Resources Requested**

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**Recommendations for GWAC**

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**Deliverables/Products Status**

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**Next Meeting**

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3:00 PM – 5:00 PM, Thursday, February 20, 2014, KDNA Granger

## Irrigated Ag Working Group (IAWG)

### Charge from Groundwater Management Area Advisory Committee

#### Working Group Members

Dr. Troy Peters (WSU), Jean Mendoza (Friends of Toppenish Creek), Jim Trull (Roza-Sunnyside Joint Board of Control), Ralph Fisher (EPA), Ron Cowin (SVID), Stuart Turner (Turner & Co.), Tom Tebb (Department of Ecology), Ginny Prest (Dept of Ag), Laurie Crowe (South Yakima Conservation District), Dave Fraser (Simplot Agronomist), Scott Stephen (Citizen), Donald Jameson (Citizen), Mike Shuttleworth (Citizen), Chelsea Durfey (Citizen), Doug Simpson (Farmer), Rosalio Brambila (Farm Manager)

#### Meeting/Call Date

Where: KDNA Granger – 121 Sunnyside Avenue, Granger, Washington

When: 3:00 PM – 5:00 PM Thursday, February 20, 2014

Call: (509) 574-2353 - PIN# 2353

#### Participants

Jim Trull (Chair), Dan McCarty, Jean Mendoza, Doug Simpson, Scott Stephen, Laurie Crowe, Donald Jameson, Dr. Troy Peters, Rosalio Brambila, Mike Shuttleworth, Stuart Turner, Ginny Prest (by phone), Ralph Fisher (by phone), David Cowan (Farmer), Chelsea Durfey (Farmer), Pony Ellingson (PGG), Don Gatchalian (Yakima County staff support)

#### Key Discussion Points

**Agenda:**

1. Confidentiality Issue
2. Grower Notice / Invitation
3. Growers' Survey
4. Task List and Schedule
5. Deep Soil Sampling Plan
6. Other business

#### 1. Confidentiality Issue

The confidentiality issue has been resolved by using the bar code system. Survey questions will have assigned numbering system and only the volunteer grower will know

the assigned bar code. No names or locations will be taken. Information on the survey will be used to determine the effectiveness of nutrient application. A question was asked on a case study and the response to the question was surveys and results of the deep soil sampling study will be the case studies. The working group agreed to move forward and requested Jim T. to present the proposal to GWAC for approval.

ACTION: Jim T. will present the confidentiality issue proposal to GWAC for approval.

## 2. Grower Notice/Invitation

Jim T. presented the draft letter that will go with grower survey questions. Aside from some edits, the working group agreed in principle that the letter is satisfactory. They also agreed that more grower participation will provide better results.

ACTION: Jim T. and Laurie C. will finalize the letter.

## 3. Grower Survey/Questionnaire

The working group reviewed the Deep Soil Sampling Questionnaire and provided feedback such as adding an "Other" section for comments, providing example of cropping pattern, TKN, soil type, etc. There was discussion to include soil type as part of the survey and whoever is collecting it should be able to determine the soil type using NRCS soil information and iPhone application. Cost to test the soil type and TKN should be added to the budget being prepared by South Yakima Conservation District to implement the Deep Soil Sampling Plan. A question was asked if there will be report at the end of the survey and the response was affirmative. Findings and summary will be included in the report.

ACTION: Jim T., Ginny P., and Laurie C. will finalize the questionnaire.

## 4. Task List and Schedule

The working group reviewed the task list and schedule presented by Jim T. September 2014 start date looks reasonable but public outreach needs to happen sooner than what is shown. There was consensus that public outreach to growers need to be done several times for effectiveness. Recommendation was to use the Roza-Sunnyside Board of Joint Control newsletter since it has wider dissemination, including media blitz - newspapers and radio. One recommendation was to add this to Commissioner Elliott's radio spot.

ACTION:

- a. Jim T. will incorporate comments received and finalize the Task List and Schedule and submit to Penny.
- b. Jim T. will draft public services announcement (PSA) and/or insert flyer in the newsletter and will be reviewed at the next IAWG meeting.

- c. Jim T. requested the working group for public outreach ideas to be discussed at the next IAWG meeting to include assistance needed from the EPO Working Group.

**5. Deep Soil Sampling Plan (DSSP) and Scope of Work**

The working group worked on the draft October 3, 2013 DSSP and identified certain areas that need be edited to include resolution of the confidentiality issue. There was consensus that SYCD should use one testing laboratory for samples. Once another draft document is completed, this will be presented to the working group and to be discussed at the next IAWG meeting

**ACTION:** Jim T., Ginny P., Laurie C. and Don G. will work on the DSSP document.

**6. Others****Resources Requested****Recommendations for GWAC****Deliverables/Products Status****Next Meeting**

3:00 PM – 5:00 PM, Thursday, March 20, 2014, KDNA Granger

## Residential, Commercial, Industrial, Municipal Working Group

### Charge from Groundwater Management Area Advisory Committee

None at this time

### Working Group Members

Robert Farrell – Chair (Port of Sunnyside), Dr. Kefy Desta (WSU), Elizabeth Sanchez (Yakama Nation), Gordon Kelly (Yakima Health District), Jan Whitefoot (Concerned Citizens of Yakama Reservation), John Van Wingerden (Port of Sunnyside), Stuart Turner (Turner & Co), Tom Ring (Yakama Nation), Kathleen Rogers (Citizen), Sanjay Barik (Ecology), Donald Gatchalian (Yakima County)

### Meetings/Calls Dates

Where: KDNA Granger Conference Room – 121 Sunnyside Avenue, Granger, Washington

When: 10:00 PM – 11:23 PM Thursday, January 23, 2014

Call: (509) 574-2353 - PIN# 2353

### Participants

Robert Farrell (Chair), Gordon Kelly, Steve George, \*Sanjay Barik, \*Traci Jefferis, \*Don Gatchalian (Yakima County support staff) and Troy Ross-Havens (Yakima County support staff)

\* Participated by telephone

### Key Discussion Points

Agenda:

#### 1. 2014 Task List

During the last GWAC meeting, Penny suggested that the working groups compose a task list with milestones and schedule to keep them on track. The group began by stating that groundwater wells are currently being mapped, however septic systems, permitted outfalls,

and Underground Injection Controls (UIC's) are not being mapped under the LYV GWMA. The group, backed by Ecology believes it will be very important to map these as well as collect data to be included in the Nutrient Loading Study. It is believed that if RCIM, or "other sources" are not identified in the plan, a possibility exists that the plan will be somewhat biased towards irrigated agriculture or livestock/CAFO/AFO. In addition to developing the database for the aforementioned nitrate sources, the group also desired to include education and public outreach in the task list.

ACTION: Don G. to draft 2014 task list for RCIM approval.

2. Discuss mapping of septic systems, wastewater treatment systems, industrial wastewater treatment systems, etc. in the lower valley

As mentioned above, the group noted the importance of mapping "other sources" in the LYV GWMA during the working group meeting. One member present at the meeting, also employed by the Yakima Health District stated that the District has an extensive electronic file of septic systems within Yakima County. District staff should be able to call up documents within the LYV GWMA boundary related to septic systems. This will allow for a quantity of septic systems within the GWMA boundary. It was noted that the District's system reaches back to the mid 1970's, and no further. With this data, it would be possible to multiply the quantity of septic systems by a loss factor, which would allow for a nitrate loading quantity due to septic systems. In addition, one member present from the Department of Ecology retouched on his efforts pertaining to the USGS SPaRROW model. This model should have inputs that the GWAC can expand on and update/incorporate as necessary.

ACTION: Gordon K. to provide septic system data by March 20.  
Sanjay B. to procure USGS SPARROW dataset.

Permitted dischargers such as municipal wastewater treatment plants and industrial wastewater treatment plants are permitted through either the National Pollutant Discharge Elimination System or through State Waste Discharge permits, issued by the Department of Ecology. Monitoring data can be collected through the Department of Health's Sentry Internet. The Department of Ecology can filter inputs by entities required to monitor for nitrate within the LYV GWMA boundary. UIC's could also be searched for in the same way, however data associated with each facility is not expected to be as expansive.

ACTION: Sanjay Barik/Traci Jefferis to procure Ecology NPDES point source data by end of First Quarter.

3. Other topics

Biosolids were once again brought up during the working group meeting, and it was identified that biosolids are a land applied material for the purposes of fertilizing cropland; therefore, the material would fall under the Irrigated Agriculture Working Group's purview.

#### **Resources Requested**

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None at this time

#### **Recommendations for GWAC**

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None at this time

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

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None at this time

#### **Proposed Next Steps**

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Carry out tasks outlined in Agenda items 1 and 2.

## Residential, Commercial, Industrial, Municipal Working Group

### Charge from Groundwater Management Area Advisory Committee

None at this time

### Working Group Members

Robert Farrell – Chair (Port of Sunnyside), Dr. Kefy Desta (WSU), Elizabeth Sanchez (Yakama Nation), Gordon Kelly (Yakima Health District), Jan Whitefoot (Concerned Citizens of Yakama Reservation), John Van Wingerden (Port of Sunnyside), Stuart Turner (Turner & Co), Tom Ring (Yakama Nation), Kathleen Rogers (Citizen), Sanjay Barik (Ecology), Donald Gatchalian (Yakima County)

### Meetings/Calls Dates

Where: KDNA Granger Conference Room – 121 Sunnyside Avenue, Granger, Washington

When: 10:00am – 11:30am Thursday, February 27, 2014

Call: (509) 574-2353 - PIN# 2353

### Participants

Robert Farrell (Chair), Gordon Kelly, Dan Degroot, Kathleen Rogers, \*Pony Ellingson, \*Don Gatchalian (Yakima County support staff), and Troy Ross-Havens (Yakima County support staff)

\* Participated by telephone

### Key Discussion Points

Agenda:

#### **1. Consultant Contract Amendment 2 Scope of Services**

During the last GWAC meeting (2/20/14) the RCIM chair proposed for consultant work to create a spatial database of residential, commercial, industrial, and municipal nitrogen sources in the LYV GWMA that could also be expanded to include other LYV GWMA nitrogen

sources such Irrigated Ag and the Livestock/CAFO. This was ultimately approved by the GWAC to develop a final scope for approval. The RCIM group discussed the *Consulting Services for the Lower Yakima Valley GWAC Amendment No. 2* drafted by HDR that includes *Attachment 1: PGG RCIM Nitrate Database and Loading Calculation Scope of Services Amendment No. 2*.

The working group went through the document and made changes as they saw fit. Pony with PGG participated via conference line and acknowledged the changes, and stated that the changes would be incorporated in the final Scope of Services Amendment. In particular, it was requested that the Data Collection and Monitoring Chair be involved in reviewing/approving the Nitrate Database structure, as this database would fall under the Purview of the Data Working Group. In addition, the sentence generally stating that RCIM sources contributing to nitrates in groundwater is likely minor is to be omitted. RCIM will not draw any conclusions before analysis has been completed.

**ACTION:** Pony E. to draft final Technical Memorandum regarding the Revised Nitrate Database and Loading Calculation Scope.

It was noted that the Nitrate Database would be a dynamic document not to be set in stone, but rather have the capability to be expanded as requested by the other working groups.

Concern was raised regarding the fee associated with Amendment No. 2 proposed by HDR and PGG. Don G. acknowledged this concern and dedicated himself to reviewing details not presented in the Amendment.

**ACTION:** Don G. to coordinate with consultants on fees associated with Amendment No. 2, as well as development of the final scope.

Regarding fertilizer calculations to be included in the Nitrate Database and Loading Calculation Scope of Services Amendment, local and/or regional data would be favored over nationally published data. Don suggested to the consultant that local fertilizer specialist(s) that participate(s) in the Irrigated Agriculture Working Group be contacted for further information.

**ACTION:** Don G. to forward contact information for the aforementioned fertilizer specialist(s).

One member mentioned their concern for abandoned or poorly constructed wells' potential to pollute. How do we calculate or quantify the risk or potential risk these facilities present? The Department of Ecology obtains data from wells constructed generally beginning in the early 1970's, but information on wells prior to this era is limited or unknown. The Health District's current well survey has the potential to shed light on questions of this nature. The potential pollution by a septic system near a poorly constructed or abandoned well should

also be considered. The group felt it might be important to consider researching the offset distance of local septic systems with wells containing high nitrates.

It was suggested by a working group member that well locations could be incorporated into the database. The consultant replied that the geographic scales associated with data used in loading calculations is broad (down to fields and parcels) whereas the scale required to assess the relation between a particular septic field and a well is very fine (feet) and that level of detail is not available without field work. The current Scope of Services is only for the loading calculations.

## **2. Supplemental Task X**

A supplemental Task X was brought up during the last GWAC meeting regarding a review and summary of recent nitrogen balance projects. The intent of this task is two-fold. It is expected that this task will establish a background level of understanding and expectation to come out of the various nitrogen balance tasks. This will provide background on different approaches used recently in characterizing nitrogen balance within GWMA. The deliverable is identified as a PowerPoint slide presentation of calculations and explanations on nitrogen balance methods. Secondly, the PowerPoint slide presentation would be followed by a group discussion either through a joint working group meeting or GWAC setting, where a working group chair would lead the discussion to begin gathering thoughts and developing a strategy on how the nitrogen balance should be conducted in the LYV GWMA. The working group reached a consensus that the proposed Supplemental Task X on nutrient budget should be discussed in the Data Collection and Monitoring Working Group because the proposal affects the other nitrate source working groups – Irrigated Ag and Livestock/CAFO.

It was suggested that the GWMA areas studied under this task be similar in characteristic as the LYV GWMA. Pony stated that a background on economy and climate will be included in the review. Demographics were noted as an important qualifier for GWMA study areas to be consistent with the LYV GWMA.

One group member brought up the potential task to characterize or identify how smaller unincorporated areas handle water supply and sewage treatment. Pony replied by suggesting that the scope remain as it was approved by the GWAC, and that other tasks can be considered at a later date.

The group reached consensus that the proposed Supplemental Task X be moved forward and Scope of Services to be drafted by the consultants to be approved by the GWAC.

**ACTION:** Don G. to coordinate with PGG and HDR to obtain final revision of this task to be included in the Contract Amendment.

### **3. Discuss Ecology and Health District data collection efforts**

Gordon K. presented his findings on last meetings action item of researching Yakima Health District's septic database. He reported identifying 16,826 file records for permits with the identifier of "septic" which generally date back to 1975. It is important to note that the 16,826 file records have the potential to present multiple hits on the same septic system as permits to modify or alter the same system could have occurred in addition to the original permit to install. In addition, these files were generated at the range, township and in some cases; section scale. The group felt that this milestone is complete, and the data should be disseminated as necessary.

**ACTION:** Troy R-H. to distribute Gordon's findings as necessary.

Gordon also presented recently completed results of on-site sewage nitrogen removal technologies projects conducted by the Department of Health. Average removal of these systems ranged from 69% to 92% total nitrogen removal. Summary sheets for these three projects can be accessed by internet at the following addresses:

<http://www.doh.wa.gov/Portals/1/Documents/4450/337-117-VRGF.pdf>  
<http://www.doh.wa.gov/Portals/1/Documents/4450/337-115-ERGF.pdf>  
<http://www.doh.wa.gov/Portals/1/Documents/4450/337-116-RGFW.pdf>

The participating representative from the Department of Ecology was not present during this meeting. It is assumed that Ecology data is being collected, but Bob F. stated that he would check on Sanjay and Traci's efforts.

**ACTION:** Bob F. to inquire the status of Department of Ecology data collection efforts.

### **4. Other Items**

RCIM will participate in next week's Education and Public Outreach Working Group's meeting. The intent of this meeting is to begin to identify public outreach needs associated with RCIM sources. Although the RCIM has very limited data to consider for public outreach, suggestions for potential outreach included septic tank maintenance, abandoned wells, and fertilizer applications for golf/school/church fields.

## **Resources Requested**

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None at this time

## **Recommendations for GWAC**

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- Task X to be presented to the GWAC
- RCIM approves the Scope of Services subject to some minor changes.

## **Deliverables/Products Status**

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- Health District data collection complete
- Department of Ecology data expected next month

## **Proposed Next Steps**

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- Next RCIM meeting to occur on March 27, 2014 @ 10:00am  
– KDNA Granger Facility
- Carry out action items identified through the course of today's RCIM meeting

## Residential, Commercial, Industrial, Municipal (RCIM) Working Group

### Charge from Groundwater Management Area Advisory Committee

None at this time

### Working Group Members

Robert Farrell – Chair (Port of Sunnyside), Dr. Kefy Desta (WSU), Elizabeth Sanchez (Yakama Nation), Gordon Kelly (Yakima Health District), Jan Whitefoot (Concerned Citizens of Yakama Reservation), John Van Wingerden (Port of Sunnyside), Stuart Turner (Turner & Co), Tom Ring (Yakama Nation), Kathleen Rogers (Citizen), Sanjay Barik (Ecology), Donald Gatchalian (Yakima County)

### Meetings/Calls Dates

Where: KDNA Granger Conference Room – 121 Sunnyside Avenue, Granger, Washington

When: 10:00am – 11:00am Thursday, March 27, 2014

Call: (509) 574-2353 - PIN# 2353

### Participants

Robert Farrell (Chair), Gordon Kelly, Dan Degroot, \*Kathleen Rogers, and Troy Ross-Havens (Yakima County support staff)

\* Participated by telephone

### Key Discussion Points

#### Welcome and Meeting Overview

The Chair of the working group welcomed the members and provided a brief overview of the agenda.

#### Agenda:

##### **1. Needs for Education and Public Outreach**

In an effort to complete the next tasks on the 2014 task list for the RCIM's scope of work, the group had an open discussion on their needs for the Education and Public Outreach (EPO) campaign. Bob passed out a document titled, *"Steps in Developing a Marketing Plan"* from the EPO Working Group. The document asks a suite of baseline questions regarding topics such as program description, purpose, situation assessment, target audience, marketing strategy, promotional strategies, and evaluation measures. The group began addressing some of these

topics, however Bob suggested that the working group members submit their answers to the document individually to Troy Ross-Havens prior to the next RCIM meeting, at which point the answers will be reviewed by the working group.

**ACTION:** Working group members to review the *“Steps in Developing a Marketing Plan”* document and submit their answers or suggestions to Troy Ross-Havens via email at [troy.ross-havens@co.yakima.wa.us](mailto:troy.ross-havens@co.yakima.wa.us) prior to the next working group meeting scheduled for April 24.

Coordination with the EPO Working Group was discussed. The group reached consensus that a joint face-to-face meeting should occur within the next few months, as soon as the group addresses content relevant to the marketing plan document. Bob Farrell volunteered for the task of coordinating with the EPO Working Group.

**ACTION:** Bob Farrell to coordinate with the EPO Working Group for a future face-to-face joint meeting with RCIM to discuss public outreach efforts as they pertain to the RCIM’s scope of work.

## 2. Review Ecology Data Collected

Bob noted that as of March 17th, Sanjay Barik has submitted the list of permitted facilities that Ecology has on file for the Lower Yakima Valley GWMA boundary. This database was submitted to the County and the consultants.

## 3. Other Items

### *WAC 173-100*

One group member brought up the WAC 173-100 document and referenced items that are required of the LYV GWMA by law. It was emphasized that activities such as waste disposal, improperly constructed or abandoned wells, mining activities, accidental spills, and application and storage of roadway deicing chemicals have not been discussed, or have been discussed in minor detail within the LYV GWMA. The group member stated that we are required to cover these by law, and perhaps in doing so we can learn more about the LYV GWMA.

**ACTION:** Bob Farrell to converse with Sanjay about these actions and their associated permits, if applicable.

This discussion led to the suggestion that locating abandoned wells could be included in the education and public outreach campaign, and that perhaps funds be set aside for properly

decommissioning these wells at no cost to the landowner, under the assumption that some landowners might not want to let the LYV GWMA know about a potentially abandoned well, which could consequently lead to a financial burden if they were required to decommission the well themselves.

It was suggested that well logs could be cross-referenced with home construction dates to see if there is a gap from when the home was constructed and when the well was installed, implying that if a home was constructed in 1955, and the well log was dated 1975, there could be a well somewhere on the property that served prior to the 1975 well.

#### *Fertilizer Companies Delivering to Farms*

Another group member inquired about fertilizer deliveries to farms, citing that often you see large fertilizer drums on farms that may or may not be protected by secondary containment. Some members reacted by stating that the drums might only be there for a few days, however Bob volunteered to follow up with Ecology about these actions and any associated permits.

**ACTION:** Bob Farrell to converse with Sanjay about these actions and their associated permits, if applicable.

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#### **Resources Requested**

None at this time

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#### **Recommendations for GWAC**

None at this time

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

Deliverables for Task List 2014 for February and March complete.

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#### **Proposed Next Steps**

- Carry out action items identified through the course of today's RCIM meeting
- Incorporate data into nitrate database being developed by HDR/PGG and Yakima County

## Regulatory Framework Working Group

### Charge from Groundwater Management Area Advisory Committee

#### 2014 Task List

### Working Group Members

Tom Eaton – Chair (Environmental Protection Agency), Andres Cervantes (Department of Health), Charlie McKinney (Department of Ecology), Dan Degroot (Yakima Dairy Federation), Jason Sheehan (Yakima Dairy Federation), Jean Mendoza (Friends of Toppenish Creek), Laurie Crowe (South Yakima Conservation District) Nick Peak (Environmental Protection Agency), Vern Redifer (Yakima County Public Services)

### Meetings/Calls Dates

Conference Call: (509) 574-2353 - PIN# 2353

When: 2:00 pm – 3:30 pm Thursday, February 12, 2014

### Participants

Tom Eaton (Chair), Laurie Crowe, Jean Mendoza, Larry Fendell, Ginny Prest, Dan Degroot, Charlie McKinney, Vern Redifer, Andy Cervantes, Dan McCarty, Don Gatchalian (Yakima County support staff) and Troy Ross-Havens (Yakima County support staff)

### Key Discussion Points

#### Welcome & Meeting Overview

Tom Eaton began by welcoming the group and outlining the purpose and Agenda for the meeting.

#### Regulatory Framework Purpose Statement

The participants of the meeting discussed the working group's purpose statement; which led to the finalization and adoption of the following statement:

*To educate the GWAC on the existing regulations, policies and guidelines in regards to all uses and sources of nitrates in the GWMA. 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 programs; Identify and evaluate alternative regulatory and non-regulatory strategies and programs that will support the GWMA goals.*

### **Technical Memorandum #1 from HDR**

The group discussed Technical Memorandum #1 (TM#1) composed by HDR for the LYV GWMA, which included a technical review of regulations associated with nitrate sources pertaining to the LYV GWMA. It was decided that these regulations should be sorted into their respecting working group purviews such as livestock/CAFO, irrigated agriculture, residential, commercial, industrial, and municipal.

Some discussion occurred regarding regulations on mines and abandoned wells, and how they were not included in TM#1; which the group thought would be necessary to include. WAC 173-160 covers requirements on decommissioning abandoned wells, specifically WAC 173-160-381.

In addition, the group thought it would be beneficial to include a background of each law with additional information such as legislative intent, date enacted, etc.

**ACTION:** Vern R. to draft the initial categorization of regulations identified in TM#1

### **Regulatory Program Analysis**

In order to get a better feel on the effectiveness of regulations, policies, and guidelines pertaining to the LYV GWMA, the group decided to create an analysis or questionnaire to be submitted to regulating agency's inquiring on how these regulations, policies, and guidelines are working, or aren't working. Some key points in the questionnaire might include adequacy of funding for implementation, guidance needs, potential areas of improvement, process effectiveness, enforcement effectiveness, compliance issues, adequacy of staffing level, etc. This questionnaire will also provide guidance for speakers that may address the working group/GWAC on specific regulations, policies, and/or guidelines.

**ACTION:** Vern R. to draft the initial agency questionnaire

### **Task List**

The task list was modeled off of the work plan for the working group. The task list presented by Tom was nearly complete, although it was still needing milestone dates. Tom offered the group on if they wanted to do it together or not. One participant suggested that Tom complete it by himself as it would be expected to take less time this way.

**ACTION:** Tom E. to finalize the task list with associated milestones

## **Other Items**

### *Regulatory Framework Webpage Content*

It was suggested that a library of regulations, policies and guidelines be placed within the LYV GWMA website. In addition, the website would include the working group's task list, and notes from previous working group meetings.

### *Satisfaction with WAC 173-100*

One participant inquired the working group on whether or not they fully understood WAC 173-100 and whether or not all of the laws presented within WAC 173-100 applied to the LYV GWMA. It was mentioned that the code was written as a tool with a lot of flexibility which is up to the local group to define the goals of the GWMA. Members generally agreed that they did fully understand it and the laws applied; however some content of the law would not necessarily be germane to the LYV GWMA, as areas around Washington State vary immensely in many aspects such as hydrology, geology, hydrogeology, etc. For example the LYV GWMA should not need to address coastal estuaries and marine life.

## **Resources Requested**

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None at this time

## **Recommendations for GWAC**

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None at this time

## **Deliverables/Products Status**

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None at this time

## **Proposed Next Steps**

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Carry out action items described above

## **Attachment B**

- 2014 Task List
- Draft Best Management Practices (BMP) Effectiveness Evaluation Summary (Technical Memorandum #2) – February 27, 2014
- Potential Groundwater Monitoring Stations document – December 3, 2013

Committee/Work	Unassigned	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2015	
GWAC													IAWG and CA/LS - Bring DSS findings to GWAC. Regulatory - bring findings and recommendations to GWAC for regulatory gaps, recommendations and strategies.	
	IAWG - DSS confidentiality proposal for approval	DATA - 1. HDR incorporates IAWG, LCWG and DMWG comments on the BMP Effectiveness Study and submit to GWAC	IAWG - DSS Bring Scope of Work (SOW) and Budget to GWAC for review. DATA - HDR submits Draft No. 2 BMP study to GWAC for comments. EPO - GWAC approval of GWMA map and information.			IAWG - DSS Bring final SOW and Budget to GWAC for approval. RCIM Present residential sewer draft report to GWAC. - Present draft NPDES report to GWAC. Present draft UIC report to GWAC. DATA - HDR submits Final BMP Effectiveness Study Report to GWAC. EPO - Report back to GWAC - effectiveness of strategies. Make Recommendations as needed. Make Q3 outreach recommendations to GWAC.		EPOWG - Report to GWAC on Q2 outreach evaluation.						
Irrigated Ag		1. Develop Deep Soil Sampling (DSS) Plan. Develop confidentiality process proposal	1. DSS Develop revised DSS scope of work. Request technical review by HDR (Review is in HDR's contract)		1. DSS Revise SOW and Budget incorporating GWAC comments 3. Develop IAWG education and public outreach (EPO) strategy. Develop strategy (how, when, where, who) - select target audience	1. DSS Provide SOW to County for contracting 2. Implement Deep Soil Sampling Plan. Draft Agreement with South Yakima Conservation District. Provide GWAC copy of Agreement 3. Develop strategy (how, when, where, who) - select target audience	2. Implement Deep Soil Sampling Plan. Draft Agreement with South Yakima Conservation District. Provide GWAC copy of Agreement 3. Develop strategy (how, when, where, who) - select target audience	2. DSS Implementation: Sign Agreement between Yakima Conservation District on behalf of GWAC. 3. Conduct EPO campaign to selected target audience. Determine effectiveness of education and public outreach campaign.	2. Implement DSS Plan. 3. Conduct EPO campaign to selected target audience.	2. Implement DSS Plan. 3. Conduct EPO campaign to selected target audience.	2. Implement DSS Plan. 3. Conduct EPO campaign to selected target audience.	2. Provide Draft DSS Findings and Report to GWAC. Finalize Report incorporating GWAC comments?		
C/LWG		1. Field application of manure: Investigated as part of DSS program. (IAWG. See DSS work schedule. 3. Seepage from manure storage lagoons. Request lagoon data from EPA (dairy cluster).)	1. See DSS work schedule. 2. Corrals & pens, solid manure storage areas, compost yards & storage areas: Include sampling sites in DSS program.	1. See DSS work schedule. 2. Provide data sheet and procedures for incorporation into scope of work. 3. Request lagoon data from EPA (dairy cluster).	1. See DSS work schedule. 2. Assist with revision of SOW & budget incorporating GWAC comments. 3. Consult existing studies on relevant lagoon risk characteristics.	1. See DSS work schedule. 3. Consult existing studies on relevant lagoon risk characteristics.	1. See DSS work schedule.	1. See DSS work schedule. 3. Obtain lagoon data from EPA.	1. See DSS work schedule. 2. Assist with implementation of the DSS plan. Plan & schedule presentation on compost Regulations & policy. 3. Bring in EPA sampling contractor to help explain data. 4. Develop C/LWG education & public outreach (EPO) strategy.	1. See DSS work schedule. 2. Assist with implementation of the DSS plan. Plan & schedule presentation on compost Regulations & policy. 3. Identify how to obtain data on additional lagoons if needed. 4. Develop C/LWG education & public outreach (EPO) strategy.	1. See DSS work schedule. 2. Assist with implementation of the DSS plan. 3. Identify how to obtain data on additional lagoons if needed. 4. Develop C/LWG education & public outreach (EPO) strategy.	2. Assist with implementation of the DSS plan. Assist with draft DSS findings and report to GWAC. Assist with finalizing report & incorporating GWAC. 3. Implement additional studies if needed. comments. 4. Develop C/LWG education & public outreach (EPO) strategy.		
RCIM		1. Develop residential septic system database and mapping. Get information from Yakima Health District, Dept of Ecology and other sources. 2. Develop NPDES (Stormwater, Wastewater and Industrial) permit point sources database. Get information from Dept of Ecology. 3. Develop Underground Injection Control (UIC) database and mapping. Get information from Dept of Ecology. 3. Get information from Dept of Ecology. 4. Develop RCIM education and public outreach (EPO) strategy. Collect information on septic system, NPDES, UIC for public information from numerous sources.	1. Get information from Yakima Health District, Dept of Ecology and other sources. 2. Get information from Dept of Ecology. 3. Get information from Dept of Ecology. 4. Collect information on septic system, NPDES, UIC for public information from numerous sources.	1. Incorporate data into the nitrate database being developed by Yakima County and HDR/PGG. 2. Incorporate data into the nitrate database being developed by Yakima County and HDR/PGG. 3. Incorporate data into the nitrate database being developed by Yakima County and HDR/PGG. 4. Discuss with EPO Working Group - target audience, approach, strategy to communicate to the public and affected groups.	1. Analyze and prepare report on findings to RCIM working group for discussion. 2. Analyze and prepare report on findings to RCIM working group for discussion. 3. Analyze and prepare report on findings to RCIM working group for discussion. 4. Conduct EPO campaign to selected target audience.	1. Incorporate RCIM Working Group comments. 2. Incorporate RCIM Working Group comments. 3. Incorporate RCIM Working Group comments. 4. Conduct EPO campaign to selected target audience.	1. Incorporate GWAC comments and finalize report; 2. Incorporate GWAC comments and finalize report; 3. Incorporate GWAC comments and finalize report; 4. Determine effectiveness of education and public outreach campaign.	EPO - Make Q4 outreach recommendations to GWAC.	EPO - Report to GWAC on Q3 outreach.	EPO - Report to GWAC on Q4 outreach.				
DATA	Unscheduled: 5. Develop education and public outreach (EPO) strategy.	1. Complete the Nitrate BMP Effectiveness Study. Review and provide comments to HDR's Draft No. 1 BMP Effectiveness Study. 3. Nitrate Baseline Study (Non-predictive approach). Develop request for county to consider scope of work development.	2. Address the Data Gap Analysis in PGG December 2013 Report. Review and provide comments to PGG Gap Analysis. 3. Develop scope of work (in conjunction with county and workgroups) to conduct NQ-3 assessment.	1. HDR incorporates GWAC comments and finalize BMP Effectiveness Study Report. 3. Provide input into development of limited shallow groundwater monitoring and data gap analysis.	2. Review Final Report regarding GW monitoring and data gap analysis	4. USGS Nitrate Study (Predictive approach). This will be decided upon by GWAC at later date.								
EPO		1. Develop outreach strategy/evaluate/update. Evaluate High Risk Well Assessment Survey - Seek GWAC approval for messaging [placeholder]. Incorporate Data Requests from working groups [placeholder]. Public Questionnaire Evaluation - Complete evaluation. V. Monitor/Evaluate/Update Website. Evaluate/update as indicated. VI. Monitor/Evaluate/Update EPO Strategy. Incorporate Working Group requests [placeholder]. Evaluate sites for leaving / providing general information on GWAC (medical, workforce, etc.). Evaluate/Implement additional GWAC requests [placeholder] - Stakeholders. Develop / prepare simple survey to determine effectiveness of outreach, site, handouts, strategy/evaluate/update.		I. Continue outreach strategy/evaluate/update. III. Support RCIM's Q2 Outreach. Develop strategy. II. Review evaluation outcomes. 4. Prepare initial details for map of GWMA and information.	I. Continue outreach strategy/evaluate/update. III. Support RCIM's Q2 Outreach. Develop strategy. II. Review evaluation outcomes. VI. Periodic report backs to GWAC. Make recommendations/seek approval for messaging, strategy, budget.	II. Continue outreach strategy/evaluate/update. Compare Public Questionnaire and High Risk Well Assessment Results. II. Assist/monitor RCIM's outreach. 4. Upload map to website. VI. Periodic report backs to GWAC. Make recommendations/seek approval for messaging, strategy, budget.	II. Evaluate Q2 Outreach. Report to GWAC. IV. - Implement/Monitor Q3 outreach. V. Request information for additional layers/data from workgroups for map to upload. VI. Periodic report backs to GWAC. Make recommendations/seek approval for messaging, strategy, budget.	II. Outreach and contact potential Nitrate sampling points for ongoing source (well) monitoring. III. - Implement/Monitor Q3 outreach. V. Request information for additional layers/data from workgroups for map to upload. VI. Periodic report backs to GWAC. Make recommendations/seek approval for messaging, strategy, budget.	II. Outreach and contact potential Nitrate sampling points for ongoing source (well) monitoring. III. - Implement/Monitor Q3 outreach. V. Request information for additional layers/data from workgroups for map to upload. VI. Periodic report backs to GWAC. Make recommendations/seek approval for messaging, strategy, budget.	II. Outreach and contact potential Nitrate sampling points for ongoing source (well) monitoring. III. - Implement/Monitor Q3 outreach. V. Request information for additional layers/data from workgroups for map to upload. VI. Periodic report backs to GWAC. Make recommendations/seek approval for messaging, strategy, budget.	II. Outreach and contact potential Nitrate sampling points for ongoing source (well) monitoring. III. - Implement/Monitor Q3 outreach. V. Request information for additional layers/data from workgroups for map to upload. VI. Periodic report backs to GWAC. Make recommendations/seek approval for messaging, strategy, budget.	IV. Implement/monitor Q4. VI. Periodic report backs to GWAC. Make recommendations/seek approval for messaging, strategy, budget.	IV. Implement/monitor Q4. VI. Periodic report backs to GWAC. Make recommendations/seek approval for messaging, strategy, budget.	
Regulatory		1. Regroup the regulatory framework matrix prepared by HDR into the workgroup categories of the GWMA - Livestock, Irrigated Ag, and Residential, Commercial, Industrial. There may also be an "other" category for items such as abandoned wells. 2. Develop a template that will be used by agencies briefing the workgroup on the law, regulation, policy or guideline that they implement. 3. Select a category (e.g. Irrigated Agriculture), review the list of laws, regulations, policies and guidelines and decide which ones the workgroup will explore.	Contact agencies and set up briefings for the workgroup using the template. Complete the laws, regulations, policies and guidelines for one category, discuss our work with the appropriate workgroup. If we have enough information, evaluate alternative strategies for improving the effectiveness of the program in preventing nitrate contamination of groundwater.		Complete the laws, regulations, policies and guidelines for one category, discuss our work with the appropriate workgroup. If we have enough information, evaluate alternative strategies for improving the effectiveness of the program in preventing nitrate contamination of groundwater.		Complete the laws, regulations, policies and guidelines for one category, discuss our work with the appropriate workgroup. If we have enough information, evaluate alternative strategies for improving the effectiveness of the program in preventing nitrate contamination of groundwater.	Complete the laws, regulations, policies and guidelines for one category, discuss our work with the appropriate workgroup. If we have enough information, evaluate alternative strategies for improving the effectiveness of the program in preventing nitrate contamination of groundwater.	Complete the laws, regulations, policies and guidelines for one category, discuss our work with the appropriate workgroup. If we have enough information, evaluate alternative strategies for improving the effectiveness of the program in preventing nitrate contamination of groundwater.	Complete the laws, regulations, policies and guidelines for one category, discuss our work with the appropriate workgroup. If we have enough information, evaluate alternative strategies for improving the effectiveness of the program in preventing nitrate contamination of groundwater.	Complete the laws, regulations, policies and guidelines for one category, discuss our work with the appropriate workgroup. If we have enough information, evaluate alternative strategies for improving the effectiveness of the program in preventing nitrate contamination of groundwater.	Complete the laws, regulations, policies and guidelines for one category, discuss our work with the appropriate workgroup. If we have enough information, evaluate alternative strategies for improving the effectiveness of the program in preventing nitrate contamination of groundwater.	Complete the laws, regulations, policies and guidelines for one category, discuss our work with the appropriate workgroup. If we have enough information, evaluate alternative strategies for improving the effectiveness of the program in preventing nitrate contamination of groundwater.	

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# **Draft BMP Effectiveness Evaluation Summary**

## **Technical Memorandum #2**

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**To:** Don Gatchalian (Yakima County)

**From:** Mike Murray (HDR)  
David Kuhns (HDR)  
Jay Decker (HDR)

**Date:** February 27, 2014

**Subject:** Scope 1, Task 4 – BMP Effectiveness Evaluation Summary

The Lower Yakima Valley Groundwater Advisory Committee (GWAC), through Yakima County Public Services, selected HDR Engineering, Inc. (HDR) and Pacific Groundwater Group (PGG) to assist in accomplishing two scopes of work related to nitrates in groundwater. The first scope (lead by HDR) is a study to identify applicable local, state, and federal regulatory requirements that control and manage nitrates in groundwater, identify Best Management Practices (BMPs) for reducing nitrate impacts, and evaluate the effectiveness of these BMPs. The second scope (lead by PGG) focuses on completing the initial site assessment activities associated with nitrates in soils and groundwater begun by the GWAC and other agencies.

As part of its scope, HDR initiated the development of a BMP database that included a hierarchical approach for organizing BMPs based on nitrate source, management objectives, and management targets. The general approach for the hierarchical database, along with identified sources, objectives, targets, and BMPs have been reviewed and commented on by the GWAC (HDR 2014). As a next step in the development of this database, BMPs must be evaluated for their effectiveness for meeting the overall GWAC objective of reducing nitrate concentrations in groundwater beneath the Lower Yakima Valley.

## **Objectives**

The objectives of this technical memorandum are as follows:

- Re-familiarize the GWAC with the database and its hierarchical format
- Describe HDR's approach toward evaluating BMP effectiveness
- Provide examples of BMP effectiveness evaluations
- Describe the GWAC's role in the BMP effectiveness evaluation and request input from the GWAC on BMP effectiveness table input parameters

## **1.0 BMP Database Overview**

As presented in the technical memorandum *Initial Best Management Practices Database Summary* (HDR 2013), six potential nitrogen sources are identified for the Lower Yakima Valley Groundwater Management Area (GWMA):

- Irrigated cropland (includes solid and liquid manure cropland application)
- Livestock operations (storage and handling of manure)
- Turfgrass and Other Urban Landscaping
- Municipal and industrial land application of wastewater (including storage and handling)
- Sewer leakage
- Septic systems

The GWAC is evaluating source contribution to nitrate loading to groundwater. In order to identify and assess BMPs that address nitrates in groundwater (direct and indirect practices), a hierarchical classification system was used for development of the database. The hierarchical classification system is illustrated in Figure 1.

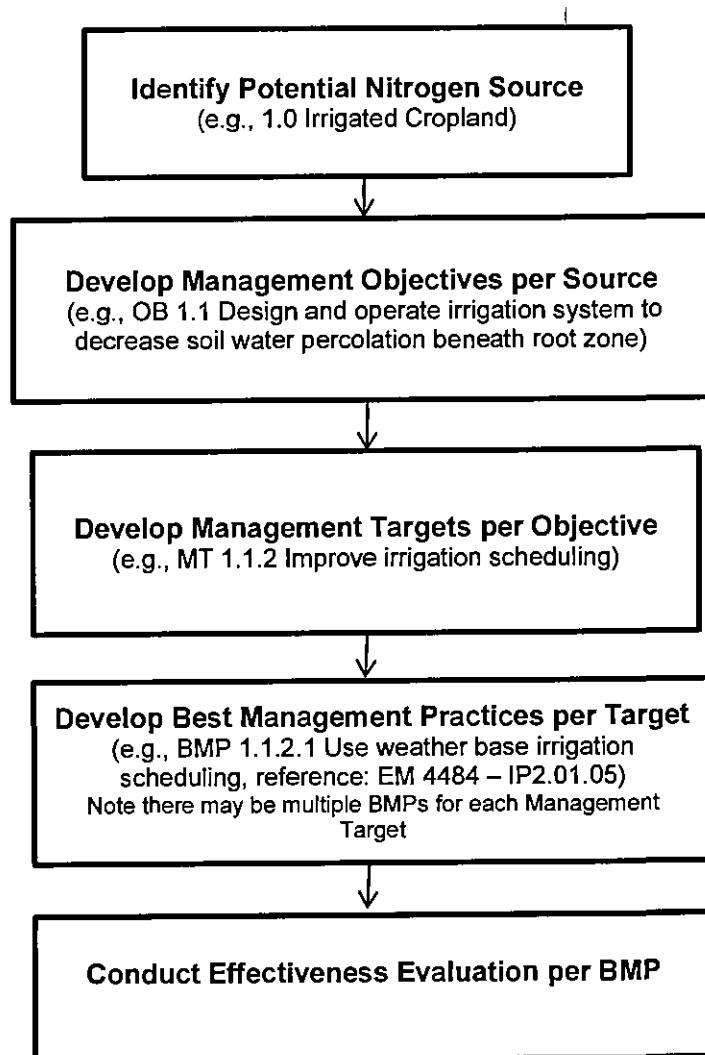
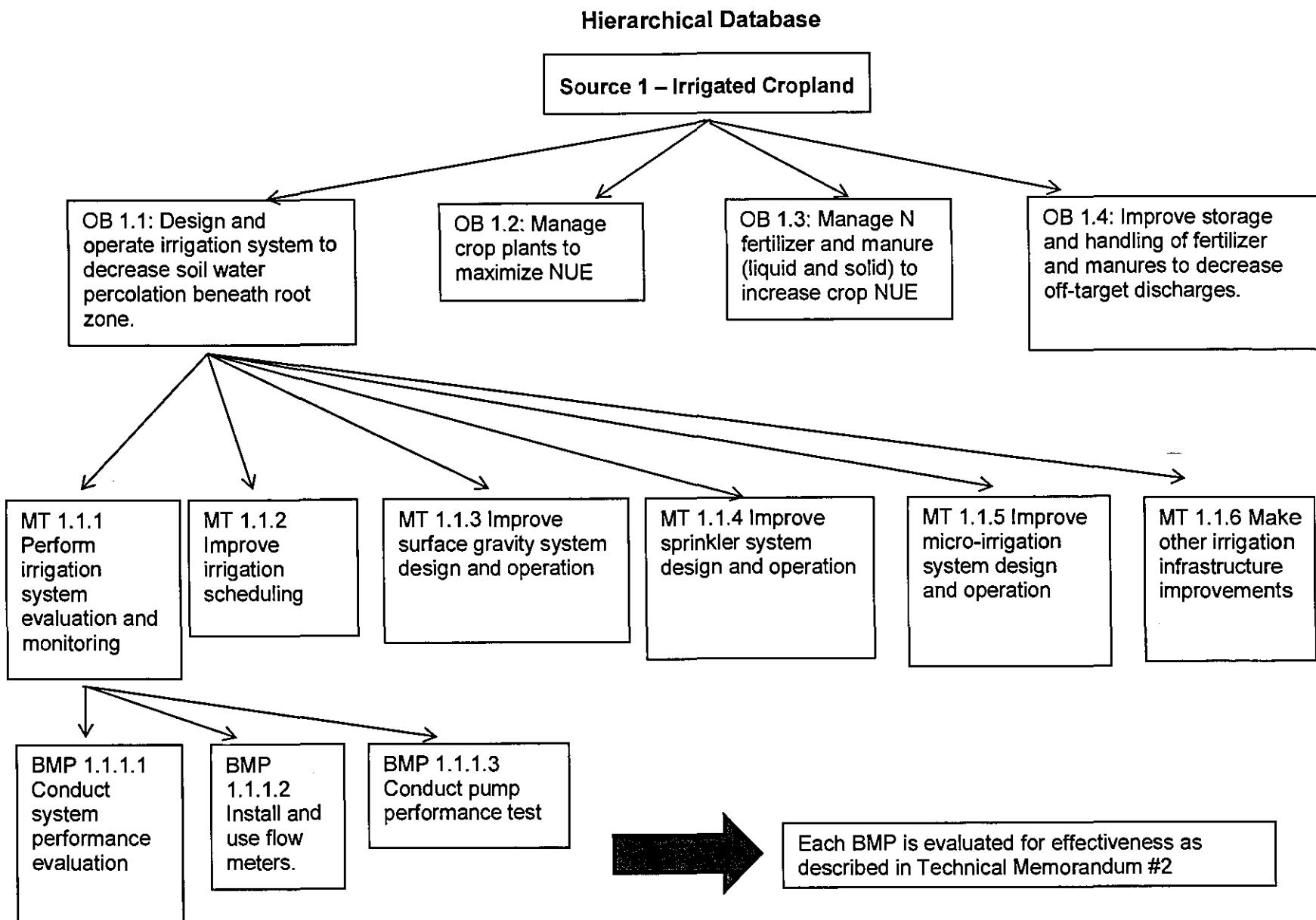


Figure 1. BMP Database Hierarchical Outline

This hierarchical approach provides for a selection of BMPs that address a nitrogen source and meets a specified management target and management objective. In addition, for each BMP the database provides information on the BMP's effectiveness (see Section 2.0). The goal is to select a suite of BMPs that meet specific land users' needs and constraints. The database hierarchical approach uses a numerical system to track all results to a specific source.

A practical example of implementing the hierarchical approach is illustrated in Figure 2, using the parameters noted below:

- Source: Irrigated cropland
- Management Objectives (OB): Focus on objectives for reducing nitrate loading to groundwater from croplands. Four OBs were identified for irrigated cropland and labeled OB 1.1 through OB1.4.
- Management Targets (MT): Focus on actions to meet each individual OB. In the Figure 2 example, six MTs were identified under OB1.1 and labeled MT 1.1.1 through MT 1.1.6.
- BMPs: Assigned to each MT. In the Figure 2 example, three BMPs were assigned to MT 1.1.1. These BMPs were labeled BMP 1.1.1.1 through BMP 1.1.1.3).
- BMP Effectiveness: Each BMP is evaluated, which is further described in Section 2.0.



**Figure 2. Hierarchical Database Approach**

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## 2.0 BMP Effectiveness Evaluation

The next step in the database development process is to evaluate each BMP for effectiveness for meeting the overall project objective of reducing nitrates to groundwater and for meeting management objectives and management targets. To support this evaluation, a form was developed that contains a series of parameters on each BMP that support the overall effectiveness evaluation. Table 1 presents the input parameters and provides a description of the parameter and how it is addressed for each BMP.

Table 2 presents a completed form for BMP 1.1.1.1 *Conduct Irrigation System Performance Evaluation*. The form starts with identifying in order the source, objective, management target, and BMP. The remaining parameters are identified in Table 2. HDR has completed the input for the parameters except for the criteria "Implementation and Prioritization" and "Acceptability." These two criteria require direct GWAC input and will be a focus of a workshop with GWAC and HDR.

**Table 1. BMP Effectiveness Data Sheet Input Parameters**

		<b>Directions on Completing Forms</b>
1	<b>Source:</b>	<i>List nitrate source identified for BMP in database. Sources are: irrigated cropland; livestock operations; turfgrass and other urban landscaping; municipal and industrial application of wastewater; sewer leakage; septic system.</i>
2	<b>Objective:</b>	<i>List the management objective for the BMP from the database.</i>
3	<b>Management Target:</b>	<i>List the management target for the BMP from the database.</i>
4	<b>BMP Name and number</b>	<i>Name the title of the BMP and provide the identification number from the database.</i>
5	<b>Watershed Location:</b>	<i>Indicate current location (or land class) of BMP in LYV. Example may be "all pivot irrigation systems in LYV" or could be specific location.</i>
6	<b>Current level of implementation:</b>	<i>Indicate the current level of BMP implementation in the LYV. This may be quantitative based on agency or local government information. If quantitative data is not available, use a qualitative statement on implementation based on best professional judgment. If not known, state "unknown."</i>
7	<b>Capital and O&amp;M costs:</b>	<i>Provide range of potential costs for BMP implementation on a per unit basis (e.g. \$/acre). Discuss direct and indirect costs. Provide information on operation and maintenance. Provide assumptions. Costs are conceptual level only, thus a range with assumptions is appropriate.</i>
8	<b>Implementability</b>	<i>Provide qualitative statement of: easy, moderate, difficult based on the technical and economic considerations. Provide justification. Item 14 below considers socio-economic considerations based on opinion of GWAC.</i>
9	<b>Maintenance</b>	<i>Describe necessary maintenance and potential issues and/or concerns. (O&amp;M costs given above).</i>
10	<b>Monitoring/performance:</b>	<i>Provide information on BMP performance. This could include findings in literature, specific LYV monitoring data, and professional opinion on performance.</i>
11	<b>Limitations:</b>	<i>Describe the limitations of the BMP and relate to other BMPs.</i>
12	<b>Comment:</b>	<i>Provide statement if BMP meets management objectives and management target. Include GWAC input.</i>
13	<b>Regulatory Framework</b>	<i>Identify existing regulations (local, state, federal) that requires the BMP or regulates the BMP. If there is no regulation indicate if such BMP is currently implemented voluntarily.</i>
14	<b>Implementation and Prioritization</b>	<i>GWAC input. May consider ranking system for BMPs.</i>
15	<b>Acceptability</b>	<i>GWAC input – focus on acceptability by users. Will there be resistance to BMP and why?</i>
16	<b>Technical Assistance</b>	<i>List agency that would provide technical assistance for implementing the BMP</i>
17	<b>Financial Assistance</b>	<i>List potential funding available to help implement BMP.</i>

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**Table 2. Example BMP Effectiveness Data Sheet.**

Source:	Source 1: Cropland Irrigation
Objective:	OB: 1.1 Design and operate irrigation system to decrease soil water percolation beneath the root zone
Management Target:	MT 1.1.1 Perform irrigation system evaluation and monitoring
BMP 1.1.1.1 Conduct Irrigation system performance evaluation	
Watershed Location:	Applicable to all irrigated crop land in LYV-GWMA
Current level of implementation:	Unknown (need to check with SWCD and ID)
Capital and O&M costs:	Generally, less than \$300 for monitoring equipment. Can be performed by farmer. Agencies may be willing to conduct evaluation at no cost when requested by farmer. O&M cost: N/A The evaluation could reveal need for capital improvements and O&M costs for irrigator.
Implementability and maintenance:	Easy to implement Maintenance: N/L
Monitoring/performance:	No data; recognized by experts as important to ensure even application, and for efficient system.
Limitations:	This BMP helps identify system limitations and areas that could be improved. This BMP itself does not implement an improvement.
Comment:	GWAC goal is for all irrigated cropland have system performance performed to identify areas where system management can be improved so that distribution uniformity and overall potential application efficiency is increased.
Regulatory framework:	No direct regulatory requirement identified, could be part of Dairy Management Plan (WSDA, RCW 90.64) for dairy operations; could be part of Nutrient Management Plan for sites receiving NRCS assistance.
Implementation and Prioritization (GWAC):	<i>To discuss with GWAC</i>
Acceptability (GWAC):	<i>To discuss with GWAC</i>
Technical Assistance:	SWCD, WSDA, or NRCS
Financial Assistance:	None identified.

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## **3.0 Next Steps**

A workshop is planned for March 6, 2014 between HDR and the GWAC. At the workshop, HDR will discuss and seek input on the approach for conducting BMP effectiveness evaluations. In addition, HDR will introduce the electronic database and work through several examples. Following the workshop, HDR will make modifications to the database based on GWAC input and then complete the database by populating the effectiveness criteria (except for the criterion of implementation and prioritization, and acceptability) for each BMP and submit the updated database to the GWAC as draft for further review, input, and comment.

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## **Attachments**

Attached are three BMP data sheets to be discussed with GWAC on March 6, 2014.

<b>Source:</b>	1.0 Cropland Irrigation
<b>Objective:</b>	1.1 Design and operate irrigation system to decrease soil water percolation beneath root zone
<b>Management Target:</b>	1.1.2 Improve irrigation scheduling
BMP 1.1.2.1 Use Weather Based Irrigation Scheduling	
<b>Watershed Location:</b>	Applicable to all irrigated crop land in LYV-GWMA
<b>Current level of implementation:</b>	Unknown (need input from SWCD, ID, GWAC)
<b>Capital and O&amp;M costs:</b>	Two approaches: Use of web-based weather irrigation scheduling program (Agweather.net). Capital cost is minimal. Second approach is on-site weather station that provides ET information. On-site weather station with datalogger typically ranges from \$500 to \$2000. O&M minimal.
<b>Implementability:</b>	Easy to implement (requires some training and computer knowledge).
<b>Maintenance</b>	For on-site weather station, follow manufacturer's recommendations for system O&M. Manufacturer service packages are offered for some units.
<b>Monitoring/performance:</b>	Recognized by experts as reliable and accurate for irrigation scheduling. Common practice.
<b>Limitations:</b>	This BMP provides input on when to irrigate based on predicted ET and provides near "real-time" information based on weather patterns. Does not account for field soil moisture conditions. Thus, limitation is that BMP could indicate need for irrigation when field specific field soil conditions may not warrant irrigation.
<b>Comment:</b>	Helps meet GWAC goal of minimizing soil water percolation beneath root zone.
<b>Regulatory framework:</b>	No direct regulatory requirement identified, could be part of Dairy Management Plan (WSDA, RCW 90.64) for dairy operations; could be part of Nutrient Management Plan for sites receiving NRCS assistance and CAFOs.
<b>Implementation and Prioritization (GWAC):</b>	
<b>Acceptability (GWAC):</b>	
<b>Technical Assistance:</b>	SWCD, WSDA, NRCS, WSU; consulting agronomist.
<b>Financial Assistance:</b>	

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<b>Source:</b>	2.0 Livestock Operations
<b>Objective:</b>	2.1 Manage manure and liquid waste (e.g. in corrals and drylots) to minimize the direct and indirect leaching of nitrate to groundwater
<b>Management Target:</b>	2.1.2 Improve surface management of uncovered animal holding area
BMP 2.2.2.5	Divert clean stormwater runoff away from uncovered animal holding areas
<b>Watershed Location:</b>	Applicable to all livestock operations with uncovered animal holding areas in LYV-GWMA
<b>Current level of implementation:</b>	Unknown (need input from SWCD, ID, GWAC)
<b>Capital and O&amp;M costs:</b>	Costs are site specific and generally involve re-grading and/or creating ditches or berms to divert upstream stormwater around animal holding areas. Costs includes heavy equipment such as a grader, backhoe, and/or front end loader (some operations may benefit from a land survey to support re-grading). Many livestock operations have farm equipment that can be used for these activities, thus costs is associated with labor and fuel.
<b>Implementability:</b>	Moderate to implement in that it requires potential earth moving and disruption to livestock operation.
<b>Maintenance</b>	Stormwater ditches, berms, and other measures require routine inspection and maintenance, especially after large storm events.
<b>Monitoring/performance:</b>	Recognized by experts as reliable methods for diverting clean stormwater away from uncovered animal holding areas.
<b>Limitations:</b>	This BMP addresses management of stormwater in uncovered animal holding areas only.
<b>Comment:</b>	This BMP addresses the management target of improving surface management of uncovered animal holding areas. The objective is to manage manure to minimize direct and indirect leaching of nitrate to groundwater. By diverting stormwater, there is less water to interact with manure and potential leaching.
<b>Regulatory framework:</b>	Stormwater management is addressed in the Dairy Management Plan (WSDA, RCW 90.64) for dairy operations and is also part of the Water Pollution Control Act (RCW 90.48) and NPDES CAFOs permits (for facilities that discharge to surface water).
<b>Implementation and Prioritization (GWAC):</b>	
<b>Acceptability (GWAC):</b>	
<b>Technical Assistance:</b>	SWCD, WSDA, NRCS, WSU; consulting agronomist.
<b>Financial Assistance:</b>	None, expect operations to cover finances. Local agencies can provide technical assistance at no costs to operations. Operations may consider consulting engineer at operations expense.

<b>Source:</b>	3.0 Urban Landscaping.
<b>Objective:</b>	3.2 Make effective use of fertilizer and fertilizer alternatives to maximize plant uptake.
<b>Management Target:</b>	3.2.1. Improve rate, timing, and placement of nitrogen fertilizer and fertilizer alternatives.
BMP 3.2.1.5 Make and use compost or buy compost as an alternative to using commercial synthetic fertilizers.	
<b>Watershed Location:</b>	BMP located throughout the GWMA in any urban landscaped areas.
<b>Current level of implementation:</b>	Unknown, only implemented by individuals proactive in compost use.
<b>Capital and O&amp;M costs:</b>	For homeowners who want to create their own compost, equipment ranges from \$50 to \$300. To buy bulk compost, typical range is \$35 to \$65 per cubic yard for truck delivery (typically 8 to 12 cubic yard minimal). Bagged compost from home improvement centers range from \$65 to \$85 per cubic yard (bags typically come in 1.5 cubic feet at \$3 to \$6 per bag)
<b>Implementability:</b>	Easy to implement by public, not overly costly.
<b>Maintenance</b>	Minimal maintenance, compost may need replenishment every few years but at smaller volumes than original application. Public needs to be aware of types of compost, as some compost are very high in salts, which if not blended with soils can create salt concerns with some types of vegetation.
<b>Monitoring/performance:</b>	Benefits of compost are well established in literature. Compost provides for a slow nitrogen release and also improves soil tilth.
<b>Limitations:</b>	BMP addresses an alternative to synthetic fertilizers which may help reduce the amount of nitrate formation in soils. This BMP does not address fertilizer management or water management. Thus, other BMPs should be implemented under Urban Landscaping to ensure proper nitrogen management.
<b>Comment:</b>	Compost use can be implemented using a variety of methods: (1) Implementation of public outreach educating on how to make and use compost (2) Hold composting work shops for the public (3) Provide compost bins to the public at nominal cost (4) Implement yard waste collection that goes to a central composting facility. Compost is then available to the public for free or a fee.
<b>Regulatory framework:</b>	No existing regulatory framework.
<b>Implementation and Prioritization (GWAC):</b>	
<b>Acceptability (GWAC):</b>	
<b>Technical Assistance:</b>	WSU Extension, WSU Master Gardeners
<b>Financial Assistance:</b>	

**PACIFIC GROUNDWATER GROUP**

**POTENTIAL GROUNDWATER MONITORING STATIONS**  
**YAKIMA GROUNDWATER MANAGEMENT AREA**

**DECEMBER 3, 2013**

## **POTENTIAL GROUNDWATER MONITORING STATIONS YAKIMA GROUNDWATER MANAGEMENT AREA**

*Prepared for:*

**HDR Inc., Yakima County, and  
Lower Yakima Valley Groundwater Advisory Committee**

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*December 3, 2013  
JE1302*

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## SIGNATURE

This report, and Pacific Groundwater Group's work contributing to this report, were reviewed by the undersigned and approved for release.



Stephen P. Swope

A handwritten signature in black ink that reads "Stephen Swope".

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Stephen Swope  
Principal Hydrogeologist  
Washington State Hydrogeologist No. 1003

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## 1.0 EXECUTIVE SUMMARY

The purpose of this report is to present analysis of water quality trends, evaluation of spatial data gaps, and selection of monitoring stations for long term groundwater monitoring.

Nitrate data were provided to Pacific Groundwater Group (PGG) by Yakima County, who compiled data from the United States Geologic Survey (USGS), Yakima Health District, Valley Institute for Research and Education (VIRE), and Yakima County's own nitrate survey database. Additional data from the United States Environmental Protection Agency (EPA) were added by PGG but data from the area covered by the consent order between EPA and several dairies were not included. Data were imported into a consistently formatted water quality database to be submitted as an electronic deliverable to Yakima County. The WQ database contains nitrate results from 2,532 samples.

The WQ database includes geographic locations and a unique well ID for all nitrate samples, although the geographic locations are often approximate. Most nitrate samples also contain address locations.

Well depths are available for 63 percent of the samples and range from 1.17 feet in alluvium to 2,715 feet below ground surface in basalt. Half of the well depths are shallower than 136 feet. Nitrate concentrations are at or below the natural background level of 0.3 mg/L in 14.3 percent of samples. Nitrate concentrations exceed the GWMA-adopted water quality goal of 10 mg/L in 12.9 percent of samples. PGG evaluated the database, including use of statistics, to identify the number and distribution of monitoring stations, and the numbers of samples that are necessary to meet several of the GWMA monitoring objectives listed below:

- Fill spatial data gaps
- Monitor hot spots
- Track increasing concentration trends
- Measure basin-wide average concentration
- Monitor common water supply aquifers
- Measure effects of current and future practices
- Address health risks

Yakima County will visit the wells recommended by PGG through this evaluation, and verify conditions at the prospective monitoring stations. These visits will be combined with the Education and Outreach Committee's High Risk Well Assessment Survey. Wells that meet accessibility and construction criteria will be used as monitoring stations to meet each objective. Final design of the sampling programs to meet these objectives will be contained in a future deliverable scheduled for February 2014. The following paragraphs summarize analysis and recommendations for each objective:

**Spatial Data Gaps:** The largest five areas without nitrate data were identified as spatial data gaps. The areas range from 4.7 to 12.9 square miles. Existing wells were identified in those areas for field verification with the goal of identifying a single well in each area to serve as a monitoring station.

**Hot Spots:** PGG identified 71 “hot spots” with maximum nitrate concentrations in excess of 20 mg/L. Assuming an acceptance rate of 15 percent (owner acceptance, good physical conditions, etc.) to be verified by field visits, we expect to monitor approximately 15 percent of these hot spots (10 monitoring stations).

**Increasing Trends:** Of the 46 wells with at least 10 samples that have been collected over time, seven had a statistically significant increasing trend in nitrate concentrations, and nine had a statistically significant decreasing trend. The sample locations with increasing trends warrant monitoring because they are likely most sensitive to land use changes, and may also pose a health risk if the increase is rapid enough. PGG thus recommends field verification and monitoring of the seven wells with increasing trend. All these wells are public water supply wells that are sampled for nitrate to meet WDOH requirements. As part of final evaluation of these stations, the GWMA will consider the frequency of monitoring conducted to meet WDOH requirements, frequency of monitoring necessary to meet GWMA objectives, and whether special QA/QC requirements imposed by the GWMA project dictate that the GWMA project collect its own samples.

**Basin-Wide Average:** PGG used the simple random approach to identify the number of monitoring stations that need to be sampled to measure the basin-wide-average at a level of confidence that supports use of the data for GWMA purposes. Those purposes include comparison of a current average to past and future averages, and comparison of averages to the GWMA-adopted water quality goal of 10 mg/L nitrate. The largest number of samples is required for a comparison of averages collected at different times. On the order of 1,000 samples appear to be necessary to confidently identify differences in basin-wide averages over time. That number of samples could be generated by a range of strategies; including sampling each of 170 to 250 stations four to six times over a year. PGG has provided Yakima County a list of wells to be field evaluated for use as future monitoring stations. Owner acceptance and physical conditions, to be confirmed through field verification, may limit the number of stations available to address this objective.

**Common Water Supply Aquifers:** The random sample set developed for the basin-wide average will likely include representative samples from common water supply aquifers. In addition, public water supply wells (sampled for WDOH) will be concentrated in these zones. Thus no separate set of wells was developed to address this objective. The ability of the basin-wide data set and WDOH water supply wells to monitor common water supply aquifers will be verified after the monitoring stations are selected.

**Measure Effects of Current and Future Practices:** Wells in the existing database are typically designed to supply drinking water not to reflect the effects of current or future nitrogen management practices. Many years or even decades of monitoring will be required to confidently distinguish changes in groundwater nitrate concentrations using existing wells. Thus quickly measuring the effects of current and future practices should not rely solely on wells in the existing database. Nitrate concentrations in specially designed water table monitoring wells (shallow wells) will currently reflect the effects of existing BMPs, and will respond much more quickly to future changes. Thus such wells are recommended to help meet this objective.

Specially designed shallow wells are recommended where BMPs are known to be changing. The number of wells and locations should be specified in a work plan

generated at a time coordinated with changes to nitrogen management changes. To allow the wells to reflect recent historic practices as well as future practices, the wells should be installed as soon as appropriate locations can be identified. We therefore recommend allocation of budget to this work, and laying the groundwork for implementation.

**Health Risks:** Drinking water wells causing human health risks will be identified by Yakima County under a separate GWMA task. Based on that work, an unknown number of monitoring stations will be added to the monitoring network.

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## 2.0 PURPOSE

The Lower Yakima Valley Groundwater Advisory Committee (GWAC), through Yakima County Public Services, selected HDR Engineering (HDR) and Pacific Groundwater Group (PGG) to perform two Scopes of Work under HDR contract #CON0082545. The first scope (led by HDR) is a study to identify applicable local, state, and federal regulatory requirements that control and manage nitrates in groundwater, identify Best Management Practices (BMPs), and evaluate the effectiveness of these BMPs. The second scope (led by PGG) focuses on development of a monitoring plan to evaluate changes in nitrate concentrations in groundwater.

This report describes methods used to select potential monitoring stations to be visited and inspected by Yakima Health District (YHD). The purpose of these YHD site visits is to complete the High Risk Well Assessment Survey and to verify the accessibility and suitability of the locations for long term monitoring (Field Verification).

In order to prepare a list of potential monitoring stations, PGG used the groundwater quality database developed for the Lower Yakima Valley Groundwater Management Area (GWMA) to characterize existing data, hereafter referred to as the WQ database (Section 3.2). Nitrate concentration trends are described in Section 5.0. In Section 6, PGG identifies existing wells for proposed for YHD field verification and future nitrate monitoring using well selection criteria listed in HDR contract #CON0082545. These wells are provided to the GWAC in an electronic database that is not reproduced as a table in this report. Specific tasks under the HDR contract covered in this report include:

- Task 1b (partial): Select potential monitoring stations for field verification; develop draft Field Verification Work Plan
- Task 2a: Water quality trend analysis
- Task 2b: Evaluate data gaps and provide recommendations on new sampling stations

This work was performed, and this report prepared, in accordance with hydrogeologic practices generally accepted at this time in this area. The resulting report is for the exclusive use of the Lower Yakima Valley Groundwater Advisory Committee, Yakima County, and HDR, for specific application to the Lower Yakima Valley.

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## 3.0 DATA SOURCES

The following subsections describe three databases referenced in this report. The databases are linked through common data fields.

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### 3.1 NITRATE WATER QUALITY DATABASE

A database was developed as part of this study to gather all groundwater nitrate data that had been collected to date. Sources of nitrate data provided by Yakima County (County) included the United States Geologic Survey (USGS), Yakima Health District (YHD), the Valley Institute for Research and Education (VIRE), and Yakima County's own nitrate survey database. Additional nitrate data from the United States Environmental Protection Agency (EPA) were added by PGG, but data from the area covered by the consent order between EPA and several dairies were not included. All data were imported into a consistently formatted water quality database.

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### 3.2 WELL LOCATION DATABASE

A database of 7,790 domestic and public well locations and ownership information was developed as part of this study. This Well Location Database is used to propose potential monitoring stations (Section 6). Well location and ownership information for 7,695 domestic wells was provided by Yakima County, and was generated as part of the County's Nitrate Treatment Pilot Program. Well location and ownership information for 95 public water system wells were collected and added by PGG. PGG also supplemented the database with well depths from well logs where available.

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### 3.3 INFORMATIONAL PUBLIC QUESTIONNAIRE, SURVEY #2

The Education and Public Outreach Working Group under the direction of the LYV GWAC created a 19-question survey to find out what residents served by private wells know about:

- Their drinking water and their opinion of its safety,
- Nitrate in groundwater, and
- The GWAC meetings.

The survey, conducted by Heritage University students during August and September of 2013, targeted eight areas and 300 households in the LYV GWMA (Lisa Freund, Yakima County, personal communication, 2013). The areas chosen were known to either have high nitrate in groundwater or were in areas where little data on nitrate levels exist.

Of the 300 households, 136 households responded to the survey, and 45 respondents (15 percent) agreed to be part of the more in-depth survey that includes water quality sampling for nitrate. These results will help determine where a second, more in-depth study of private wells in the Lower Yakima Valley should occur and the response percentages that could be expected from future surveys. The follow-up survey, which will

include visits to proposed monitoring stations as described in section 5, is scheduled to take place later this year.

## 4.0 NITRATE CONCENTRATIONS IN THE LYV GWMA

The following table presents summary statistics for nitrate concentrations in the LYV GWMA, with non-detect values included at a value of half the detection limit. All nitrate concentrations in this report are milligrams nitrogen per liter (mg/L). A map showing monitoring well locations and sample locations is presented in Figure 1. Sample collection dates range from October 16, 1978 to March 5, 2013, although 85 percent of the samples were collected since 2000.

Statistic	Value
n(samples)	2,532
non-detect	375 (14.8%)
n(locations)	678
Minimum	0.03
Maximum	98.1
Mean	5.815
Median	4.7
Variance	51.78
Standard Deviation	7.196

Well depths are available for 428 of 678 locations (63 percent). Well depths range from 1.17<sup>1</sup> feet in alluvium to 2,715 feet below ground surface in basalt. Half of the well depths are shallower than 136 feet. Figure 2 indicates the distribution of well depths follows an approximately lognormal distribution.

Quality Assurance and Quality Control (QA/QC) data were not available for any of the data included in the WQ database, and 25 samples were excluded due to incomplete nitrate concentration values. The Groundwater Monitoring Quality Assurance/Quality Control Plan (PGG, 2013) indicates that data without associated QA/QC information not included in long-term monitoring data. However, the WQ data may be used for long-term monitoring point selection. The following sections characterize the nitrate data available for long-term monitoring point selection:

**Data Distribution** - The nitrate data with or without non-detect values do not follow a normal, lognormal, or gamma distribution and are therefore treated as non-parametric.

**Comparison to Natural Background** - According to the Ecology Preliminary Assessment (2010), "Concentrations above 0.3 mg/L indicate some process is leading to increased nitrogen in groundwater beyond what would be observed in a pristine watershed." A total of 363 of 2532 (14.3 percent) nitrate concentrations were detected or non-detect at or below the natural background level of 0.3 mg/L. Well locations where

<sup>1</sup> This well depth comes from the USGS NWIS database, and is listed as a well, not a spring, completed in alluvium. The information in the USGS NWIS database is generally considered to be of good quality.

the maximum value was at or below 0.3 mg/L are shown on Figure 3. Most of these wells cluster towards the edges of the GWMA.

**Comparison to Ground Water Quality Criterion** - The Washington State Groundwater Quality Criterion (GWQC) for nitrate is 10 mg/L. A total of 327 of 2,532 (12.9 percent) nitrate concentrations were detected above the GWQC of 10 mg/L.

**Variability with Depth** – Maximum nitrate concentration data are plotted in Figure 4 by three depth intervals: 0 to 100 feet, 100 to 200 feet, and greater than 200 feet. Geologic analysis to divide the dataset by aquifer was not performed. Where well depths are known, the three depth intervals generally divide the dataset into three equally-sized groups. Figure 4 shows that the wells where the maximum nitrate concentrations were at or below 0.3 mg/L tend to be completed at depths greater than 200 feet, with a cluster of wells with depths of 0 to 100 feet between Mabton and Sunnyside.

A boxplot of maximum nitrate concentration for each well location by well completion depth interval is presented in Figure 5. The boxplot shows that the mean and median nitrate concentration values generally decrease with depth up to 1,000 feet<sup>2</sup>.

Depth Interval (feet below ground surface)	Number of Wells (n)	Mean <sup>1</sup>	Median <sup>1</sup>	Standard Deviation <sup>1</sup>
0 to 100	123	9.38	5.32	11.56
100 to 200	119	8.15	5.11	8.27
200 to 500	79	6.10	4.73	5.84
500 to 1000	19	3.88	1.30	4.39
Greater than 1000	22	3.92	1.50	6.16

nitrate mg/L

Of the 22 sampled wells that are deeper than 1,000 feet, eight have maximum concentrations below 0.3 mg/L, 10 have maximum concentrations between 0.3 and 10 mg/L, and four have maximum concentrations above the GWQC of 10 mg/L.

## 5.0 NITRATE CONCENTRATION TRENDS

Concentration trends were evaluated on the entire nitrate data set over time, and for individual wells where time series data are available.

### 5.1 TREND FOR COMBINED DATASET

We evaluated the apparent long-term nitrate trend in the combined dataset by grouping maximum nitrate results per well location from the WQ database into five year periods (e.g. 1980 to 1984, 1985 to 1989), and making comparison between the groups. A list of statistics for each five year period is presented below. The median and number of high nitrate concentration values have increased over time; however, a bias toward an

<sup>2</sup> Possible outliers were not identified or removed prior to calculating these statistics.

increasing trend could be as a result of more recent sampling programs targeting shallower wells that are more subject to nitrate contamination; whereas older data tends to be from deeper water supply wells that were routinely sampled to meet WDOH drinking water monitoring requirements. Evaluations using data from individual wells, discussed in the following subsection, are not subject to this bias and should be favored as a measure of trend in the GWMA.

Date Range of Well Samples	Number of Wells (n)	Mean Nitrate <sup>1</sup>	Median Nitrate <sup>1</sup>	Standard Deviation <sup>1</sup>
1975 to 1979	4	1.45	1.10	1.66
1980 to 1984	51	3.48	1.70	4.10
1985 to 1989	40	3.33	1.80	3.63
1990 to 1994	76	3.52	2.60	3.89
1995 to 1999	69	4.06	3.90	3.29
2000 to 2004	295	6.36	4.00	8.56
2005 to 2009	90	4.74	4.44	3.60
2010 to 2014	323	13.51	11.50	11.17

<sup>1</sup>nitrate mg/L

## 5.2 MANN-KENDALL TREND TEST FOR INDIVIDUAL WELLS

Forty-six wells had more than 10 samples over time and were therefore evaluated for individual trends (Figures 6 through 15). All sample locations were public water system wells with data from the WDOH Sentry database. Quality Assurance and Quality Control (QA/QC) information was not available for the WDOH dataset, but cursory inspection suggests there are QA/QC issues with these data. For example, on Figure 10, Station 2897016 shows anomalously high variability in nitrate concentrations between samples.

The wells for which time-series data are available tend to be deeper than average, with a median depth of 342 feet compared to 136 feet for all wells. Therefore, although free of the type of bias that may be present in the grouped data discussed in Section 5.1, they may not reflect trends in shallower wells.

PGG identified wells with statistically significant trends using the Mann-Kendall trend test (Table 1). The Mann-Kendall test is a nonparametric trend test which uses ranks instead of concentration values. The Mann-Kendall trend test results for wells with upward trends are presented below. Statistical significance can be affected by outlier values; outliers were not identified or removed as part of this analysis.

Results show 16 statistically significant trends, 7 upward and 9 downward. Locations where statistically significant upward trends occur are listed below and are shown in Figure 17. An upward trend is indicated by a positive tau and a significant trend is indicated by a p of less than 0.05. Wells with upward trends are widely spread through the GWMA, although 3 wells cluster near Grandview. The similarity in number of upward and downward trends suggests an absence of strong uniform trend throughout the GWMA.

Well ID	number of samples (n)	Std dev	p	tau	Up/ Down	Location
2897001	32	3.63	7.0E-03	0.34	Up	Grandview
2897010	139	4.67	1.1E-06	0.28	Up	Grandview
2897011	29	1.24	2.8E-02	0.29	Up	Grandview
6494002	21	1.62	3.4E-03	0.47	Up	Outlook Elem School
6591901	37	3.37	2.7E-02	0.26	Up	Panorama Place Water Assn
8540005	12	0.98	1.9E-02	0.53	Up	City of Sunnyside
AB70001	10	4.34	1.2E-02	0.64	Up	Wineglass Cellars

std dev = standard deviation; p = statistical significance; Tau = test statistic; Trend considered significant for  $p \leq 5.0E-02$  (0.05)

## 6.0 IDENTIFICATION OF POTENTIAL SAMPLING STATIONS

PGG developed a list of potential monitoring stations (provided to Yakima County electronically as a database) using well selection criteria listed in HDR contract #CON0082545. PGG used two databases, the nitrate WQ database and the Well Location database described above to select stations using the criteria listed below and further described in Subsections 6.1 through 6.7:

1. Spatial data gaps – Investigating spatial data gaps will identify whether additional hot spots exist. Monitoring stations are proposed for the largest 5 areas where no existing nitrate information is available. Spatial data gaps were selected by measuring the distance between all known nitrate concentrations.
2. Hot spots - Monitoring well stations are proposed at or near wells with maximum nitrate concentrations equal or greater than 20 mg/L (or twice the GWCL of 10 mg/L) to achieve the objective of monitoring groundwater quality and change over time.
3. Increasing concentration trends – Monitoring well stations are proposed at or near wells with statistically significant increasing nitrate trends. These wells will likely be among the first to show changes in nitrate concentration.
4. Basin-wide monitoring - Monitoring well stations are proposed using a simple random selection process with sample size large enough to achieve a confident comparison of baseline average to future average nitrate concentration.
5. Common water supply aquifers - Monitoring well stations proposed for the basin-wide monitoring will likely include representative samples in common water supply aquifers. This will be verified by comparing the depth profile of the basin-wide monitoring locations to the depth profile of all wells.
6. Measure Effects of Current and Future Practices (Best Management Practice (BMP) effectiveness) - Monitoring is recommended in water table (shallow) wells constructed specifically for this purpose. Specifics should be proposed in a subsequent work product.

7. Health risks- Drinking water wells causing human health risks will be identified by Yakima County under a separate GWMA task.

Several of the subsections below refer to “field verification.” Yakima County will evaluate numerous possible wells identified by PGG for possible future use as a GWMA monitoring station. Those wells that are made accessible by owners and are physically accessible to field staff will be used for future monitoring. We anticipate additional well depth information will be gathered during field verification. A single well may be used to meet more than one objective.

This report identifies numbers of wells targeted for sampling but does not propose specific sampling strategies to meet the objectives. Sampling strategy will be provided in the Monitoring Plan that will be submitted to the GWAC as a subsequent task.

---

## 6.1 SPATIAL DATA GAPS

PGG identified the 5 largest areas within the GWMA without nitrate data, but where wells are available for monitoring. Using ArcGIS software, we mapped the distance from every point in the LYV to existing wells with nitrate sample data or the GWMA boundary, whichever was closer; then used the minimum distance map to find the five largest areas (Figure 16). The areas range from 4.7 to 12.9 square miles.

Only the five largest areas were selected because there appeared to be a break in size between the next smallest data gap area. Due to the low response rate and incomplete well depth information, well depth was not accounted for in the spatial data gaps analysis.

Within the five areas there are 215 possible monitoring wells. Based on a response rate of 15 percent (as achieved by the YHD Health Survey), there should be a sufficient number of wells to select one monitoring well for each spatial data gap. For the purpose of the upcoming survey, wells were ranked for each of the 5 areas based on proximity to the centroid of the spatial data gaps. And for each of the 5 areas, 10 wells were provided to the LYV GWAC for field surveying.

---

## 6.2 HOT SPOTS

PGG identified 71 wells with maximum nitrate concentrations equal or greater than 20 mg/L, a concentration twice the GWCL of 10 mg/L (chosen to define a “hot spot”). See Figure 4 for nitrate concentrations by well depth and Figure 17 for a summary of well locations where maximum nitrate is greater than 20 mg/L.

Those wells that are made accessible by owners and are physically accessible to field staff will be used for future monitoring. Assuming an acceptance rate of 15 percent, approximately 10 of these wells may be available as future monitoring stations.

---

### 6.3 INCREASING CONCENTRATION TRENDS

PGG identified 7 wells with upward trends using the Mann-Kendall trend test as described in Section 5. Despite some irregularities in the data for some of these 7 wells, all 7 wells will be retained as future monitoring stations if they remain available.

As noted above, none of the existing data include QA/QC data, however, the Groundwater Monitoring Quality Assurance/Quality Control Plan (PGG, 2013) allowed for continued use of WDOH data. WDOH requires that Group A and B public water supply systems sample for nitrate, regardless of sampling performed to meet the GWMA objectives. Thus the GWMA may continue to rely on data gathered within the WDOH program.

Many years to decades may be necessary to confidently detect changes in nitrate concentration in wells typical of the existing database, and additional supply wells added through field verification. The long time frames are caused by slow groundwater flow rates and variability which obscures actual change (signal to noise). For these and other reasons, monitoring for BMP effectiveness should not rely solely on water supply wells. Monitoring of specially designed and sited water table monitoring wells (shallow wells) is recommended to determine levels and trends in nitrate concentrations. They will respond much more quickly to local land use change than deeper and more variable wells in the WQ database and Well Location database.

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### 6.4 BASIN-WIDE MONITORING

PGG used the simple random approach to identify the number of monitoring stations that would need to be sampled to measure the basin-wide-average at a level of confidence that supports use of the data for future GWMA purposes. Those purposes include comparison of a current average to past and future averages, and comparison of averages to the GWMA-adopted water quality goal of 10 mg/L nitrate. The largest number of samples are required for a comparison of averages collected at different times. To meet that objective, PGG estimates on the order of 1,000 samples would be required. That number of samples could be generated by a range of strategies – including sampling each of 170 to 250 stations four to six times over a year. Owner acceptance and physical conditions, to be confirmed through field verification, may limit the number of stations available to address this objective.

Target well locations for field verification were identified using a simple random sampling plan. Simple random sampling means that each of the 7,790 well locations has an equal chance of being one of the selected measurements a future monitoring station. This method is used for estimating means, medians, and trends when the population does not in general contain major trends, cycles, or patterns, which appears to be a valid assumption in this case. With this sampling method, a large number of samples are necessary to confidently identify changes in the basin-wide average nitrate concentration between baseline and data sets collected after land use change.

The simple random method assumes that the sampling frame, which is our master list of well locations in the Well Location database, is a complete list for the GWMA or is representative of the entire population of wells in the GWMA. If the sampling frame is

grossly incomplete or biased, a random sample of wells from the Well Location database may be biased relative to the entire population of wells.

Only 15 percent of well owners agreed to have their wells sampled when approached by YHD (Section 3.1). A high nonresponse rate may result in a biased well monitoring network if the nonrespondent wells differ systematically from the respondent wells. For example, if private well owners are highly nonresponsive, but public water system well owners are responsive, the resultant monitoring network could be biased as to location, depth, or nitrate concentration. Since the response rate is expected to be low, the final monitoring well network will be compared to the simple random sample target well list to evaluate for bias in well owner type, well depth, or well location.

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## **6.5 COMMON WATER SUPPLY AQUIFERS**

The simple random sampling plan as described above will also be used to identify stations to monitor common water supply aquifers. The random sample will likely include a representative sample of well depths, and a representative sample of common water supply aquifers. This assumption will be verified after the final monitoring stations are selected.

---

## **6.6 MEASURE EFFECTS OF CURRENT AND FUTURE PRACTICES (BMP EFFECTIVENESS)**

Wells in the existing database are typically designed to supply drinking water not to reflect the effects of current or future nitrogen management practices. Many years or even decades of monitoring will be required to confidently distinguish changes in groundwater nitrate concentrations using existing wells. Thus quickly measuring the effects of current and future practices should not rely solely on wells in the existing database. Nitrate concentrations in specially designed water table monitoring wells (shallow wells) will currently reflect the effects of existing BMPs, and will respond much more quickly to future changes. Thus such wells are recommended to help meet this objective.

Specially designed shallow wells are recommended where BMPs are known to be changing<sup>3</sup>. The number of wells and locations should be specified in a work plan generated at a time coordinated with changes to nitrogen management changes. To allow the wells to reflect recent historic practices as well as future practices, the wells should be installed as soon as appropriate locations can be identified.

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## **6.7 HEALTH RISKS**

Areas of elevated human health risk will be identified using results of the Education and Outreach Committee's High Risk Well Assessment Survey. Factors such as presence of a seal, number of affected population served, nitrate concentration will be used to evaluate

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<sup>3</sup> In future phases of this project, changes to BMPs will be made to reduce the release of nitrate to groundwater. The shallow water table below locations where these changes are made will likely show the most rapid changes in nitrate concentration.

human health risk. This evaluation will be performed in association with the WDOH. The number of wells monitored will depend on the number of responses to the survey.

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## 7.0 REFERENCES

Pacific Groundwater Group. June 2011. Request For Identification, Lower Yakima Valley Groundwater Management Area.

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Sell, R., Knutson, L., 2002, Quality of Ground Water in Private Wells in the Lower Yakima Valley, 2001-02, Valley Institute for Research and Education (VIRE).

USEPA. March 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. EPA Document Number 530-R-09-007.

USEPA. 2010. Summary of EPA Sampling Activities, June 2010. Accessed at <http://yosemite.epa.gov/R10/WATER.NSF/GWPU/lyakimagw> on May 30, 2011.

USEPA. Lower Yakima Valley Groundwater. Accessed at <http://yosemite.epa.gov/R10/WATER.NSF/GWPU/lyakimagw> on May 30, 2011.

US Geological Survey. 2008, Distribution of Elevated Nitrate concentrations in Ground Water in Washington State, Fact Sheet 2008-3063.

Washington State Department of Ecology et al, February 2010, Lower Yakima Groundwater Quality – Preliminary Assessment and Recommendations Document, Ecology Publication No. 10-10-00

**Table 1. Mann-Kendall Trend Test Results**

Well ID	n	Standard Deviation	p, Statistical Significance	Tau	Significant Trend? (Up/Down)
4965001	158	3.757434616	2.36E-15	-0.44383	Down
4965004	78	1.89009415	5.65E-07	-0.4372	Down
628702	55	4.538235117	2.37E-06	-0.43898	Down
9980003	17	0.922267825	0.001970103	-0.56298	Down
AA43202	56	3.188313314	0.014880689	-0.22617	Down
2897008	17	2.190488295	0.018875547	-0.42647	Down
415701	18	0.953212148	0.025326289	-0.39344	Down
2897016	102	5.180332219	0.042952381	-0.13641	Down
1624202	17	3.084524942	0.043545581	-0.36765	Down
2897010	139	4.66576742	1.09E-06	0.280523	Up
6494002	21	1.621034502	0.003399434	0.466667	Up
2897001	32	3.630838346	0.007041277	0.339095	Up
AB70001	10	4.343853896	0.012266059	0.644444	Up
8540005	12	0.97557287	0.019440878	0.534367	Up
6591901	37	3.371602995	0.027055988	0.255639	Up
2897011	29	1.242397174	0.0281302	0.291359	Up
8540008	19	1.206685083	0.057831056	0.327433	
3035001	10	2.545829705	0.063697524	0.50128	
9980001	28	1.436279871	0.065804727	-0.25067	
4965002	21	3.665686709	0.074193016	0.288475	
2241801	12	1.617658943	0.080057926	0.413167	
8512101	17	0.673063125	0.083351925	0.317345	
2897017	12	9.085462372	0.086471118	0.393939	
6618501	14	0.994219833	0.188887477	-0.27473	
4965003	95	3.14459843	0.197246656	0.090287	
3430101	16	0.825814497	0.206981122	0.24268	
8540009	21	1.239719054	0.213335901	0.218521	
359401	11	0.421730202	0.241476879	-0.29359	
1624201	20	3.620006397	0.269223869	0.185682	
2897007	110	3.727389015	0.29422757	-0.06812	
6990001	23	1.6916734	0.340254098	0.148011	
2897012	13	1.680576061	0.360121638	-0.20513	
9191301	46	4.239114351	0.399168849	0.087337	
2897014	22	0.09500057	0.472785711	-0.1341	
2897003	30	0.664776257	0.475308478	-0.09447	
2959701	18	0.562694556	0.517352164	0.140028	
628701	23	1.12963739	0.52119571	0.102968	
AA48401	13	3.627026754	0.624854445	-0.11613	
8540006	23	0.305602496	0.631960332	-0.08802	
2897013	80	2.64923693	0.644453287	-0.03751	
2897002	34	2.18098009	0.667067051	-0.05372	
8540007	25	1.154570627	0.766732275	-0.05238	
430201	15	1.544543391	0.804336071	-0.05742	
477601	16	5.74453969	1	-0.00837	
2900001	21	0	1	1	
9980002	17	0.764660632	1	0.015401	

*stdev = standard deviation**p = statistical significance**Tau = test statistic**Trend considered significant for p<=0.05*

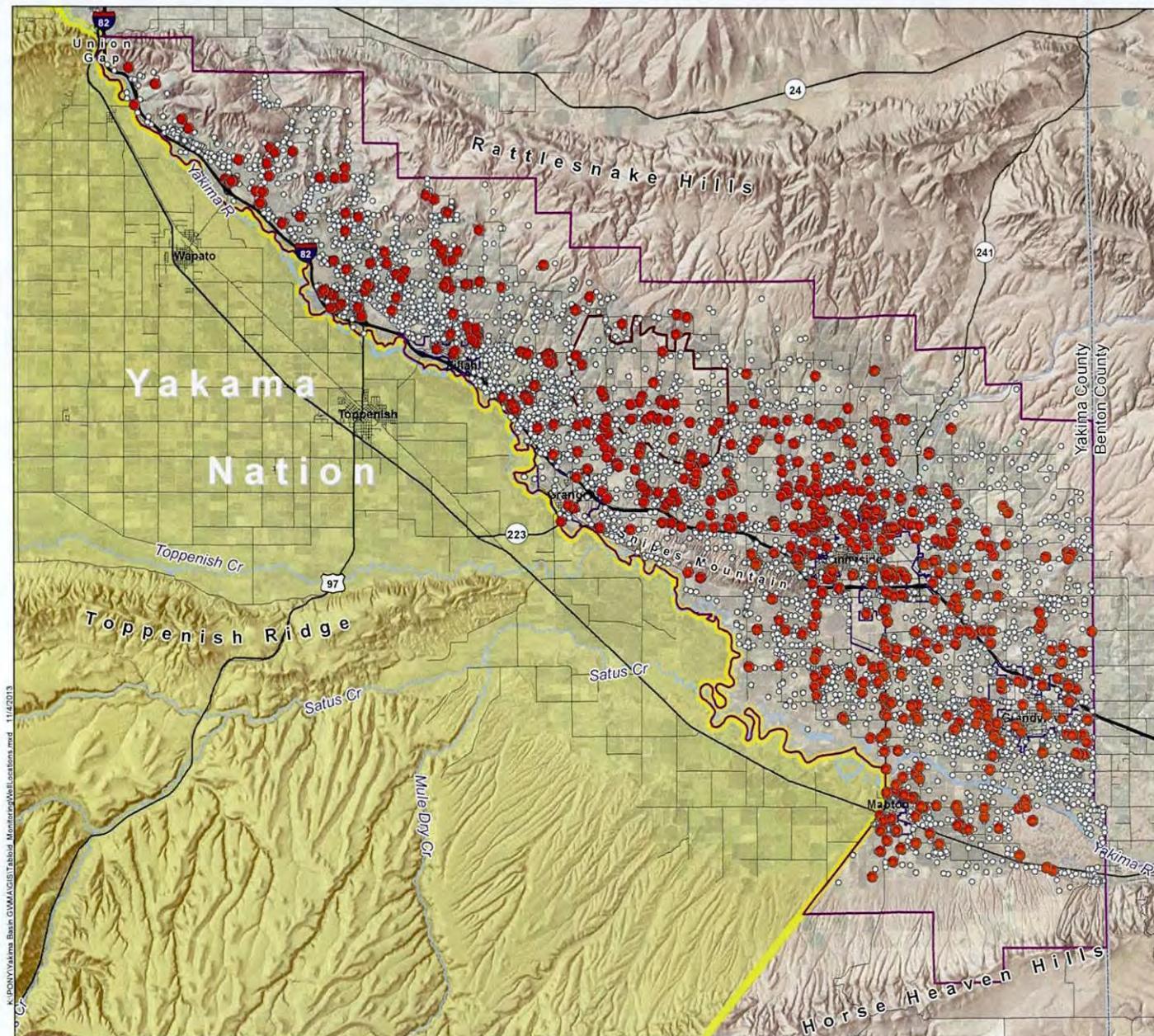
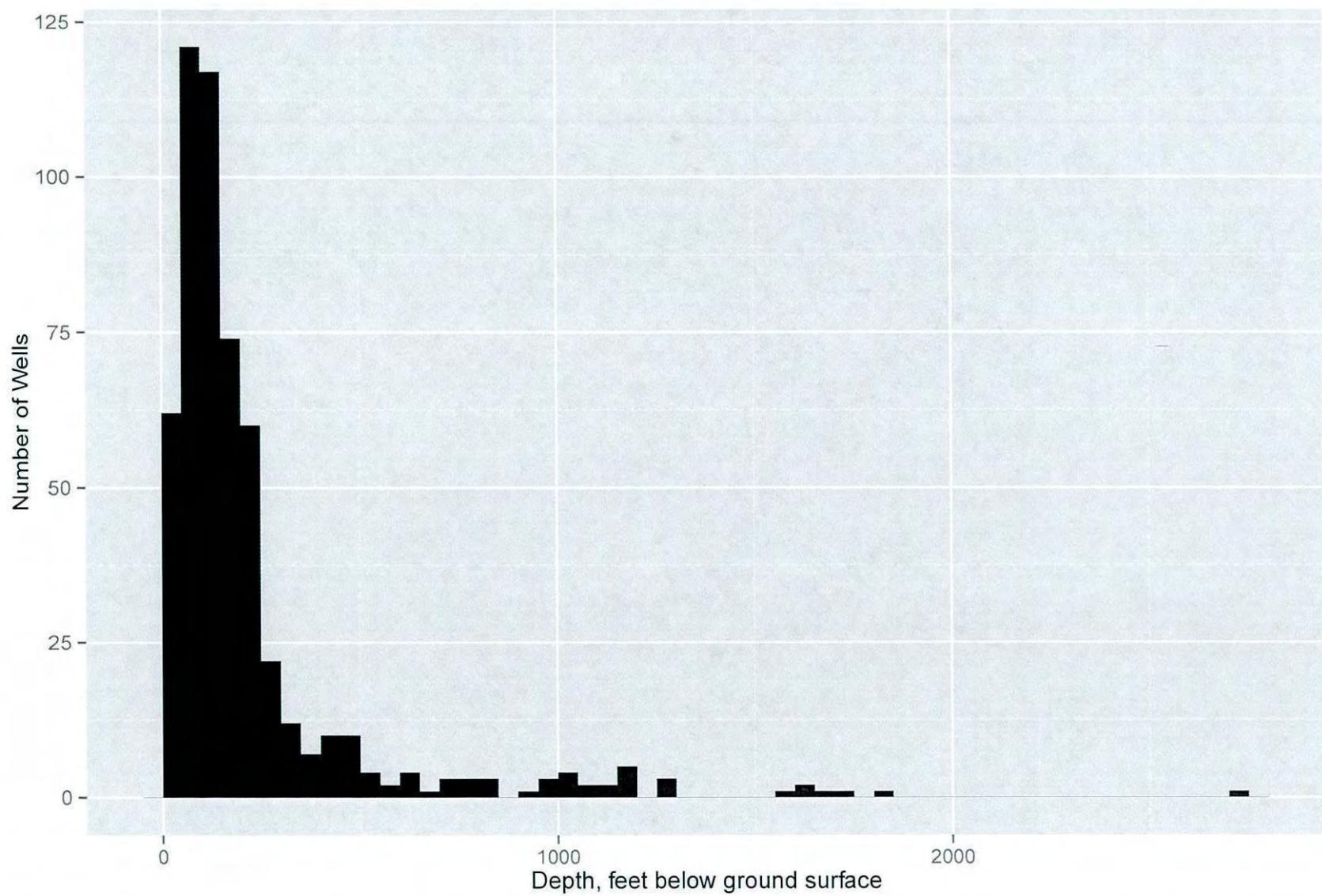


Figure 1  
Monitoring Well Locations

PgG



**Figure 2. Well Depth Histogram**

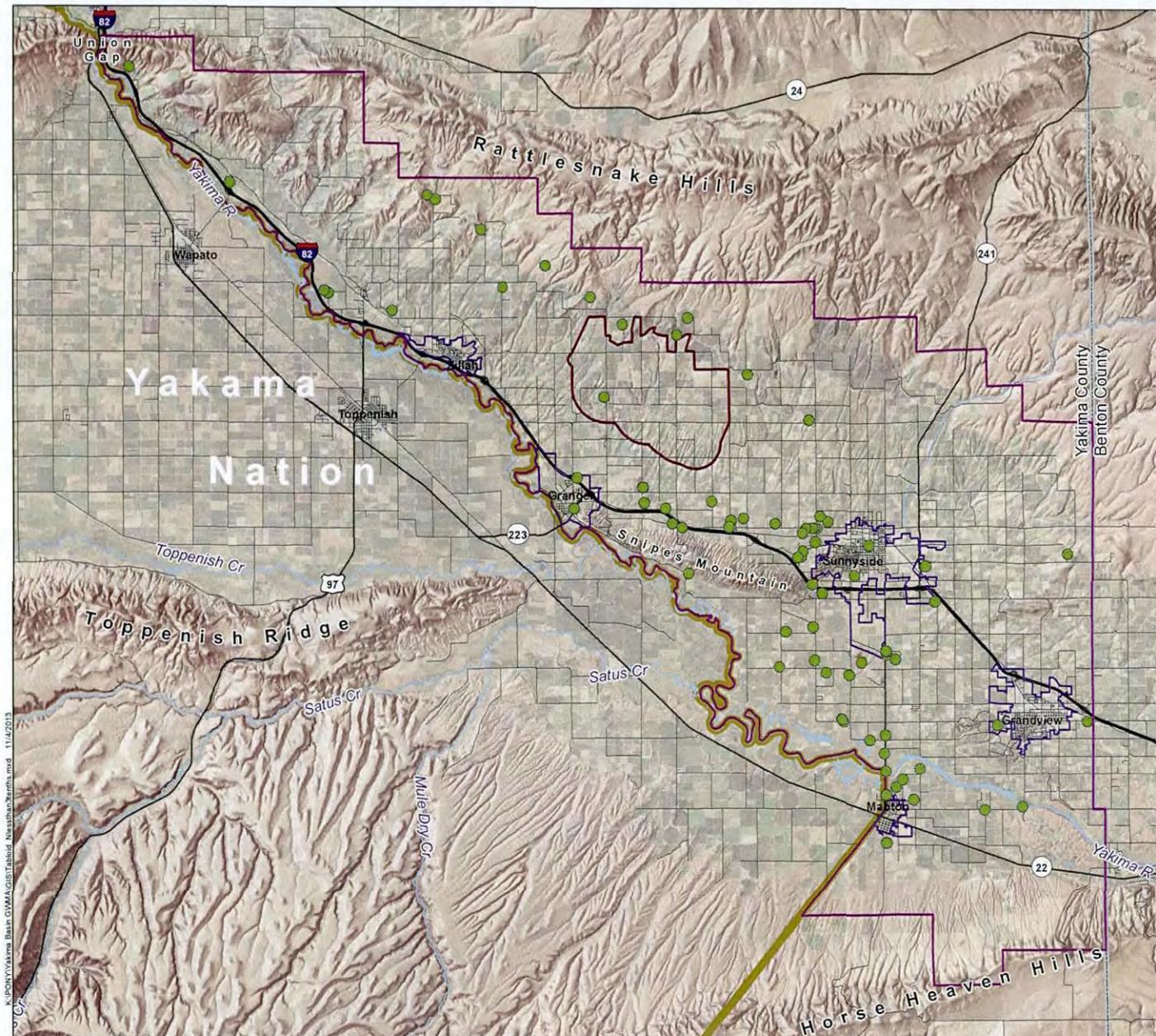


Figure 3  
Nitrate Concentrations  
less than 0.3 mg/L

PgG

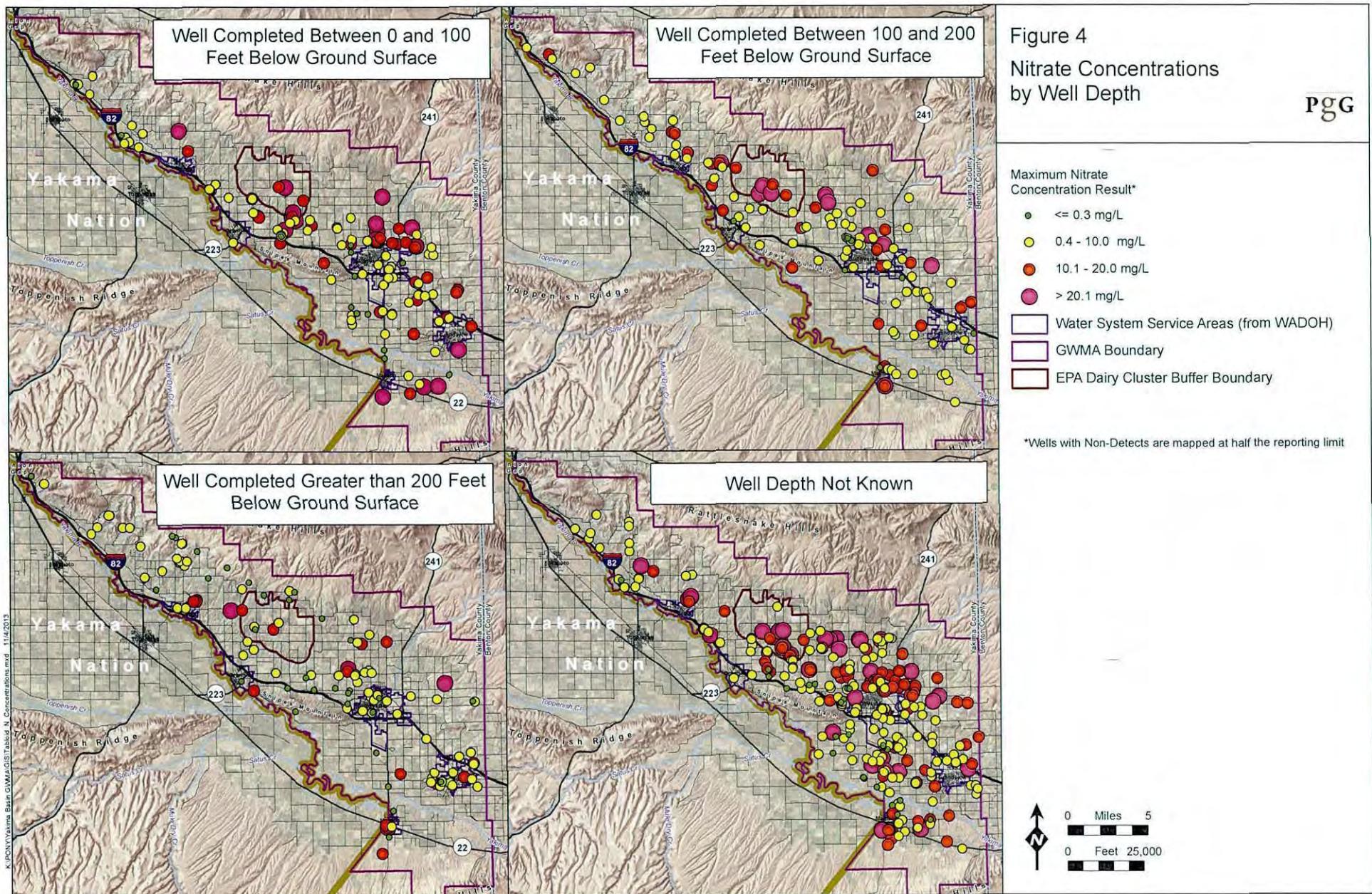
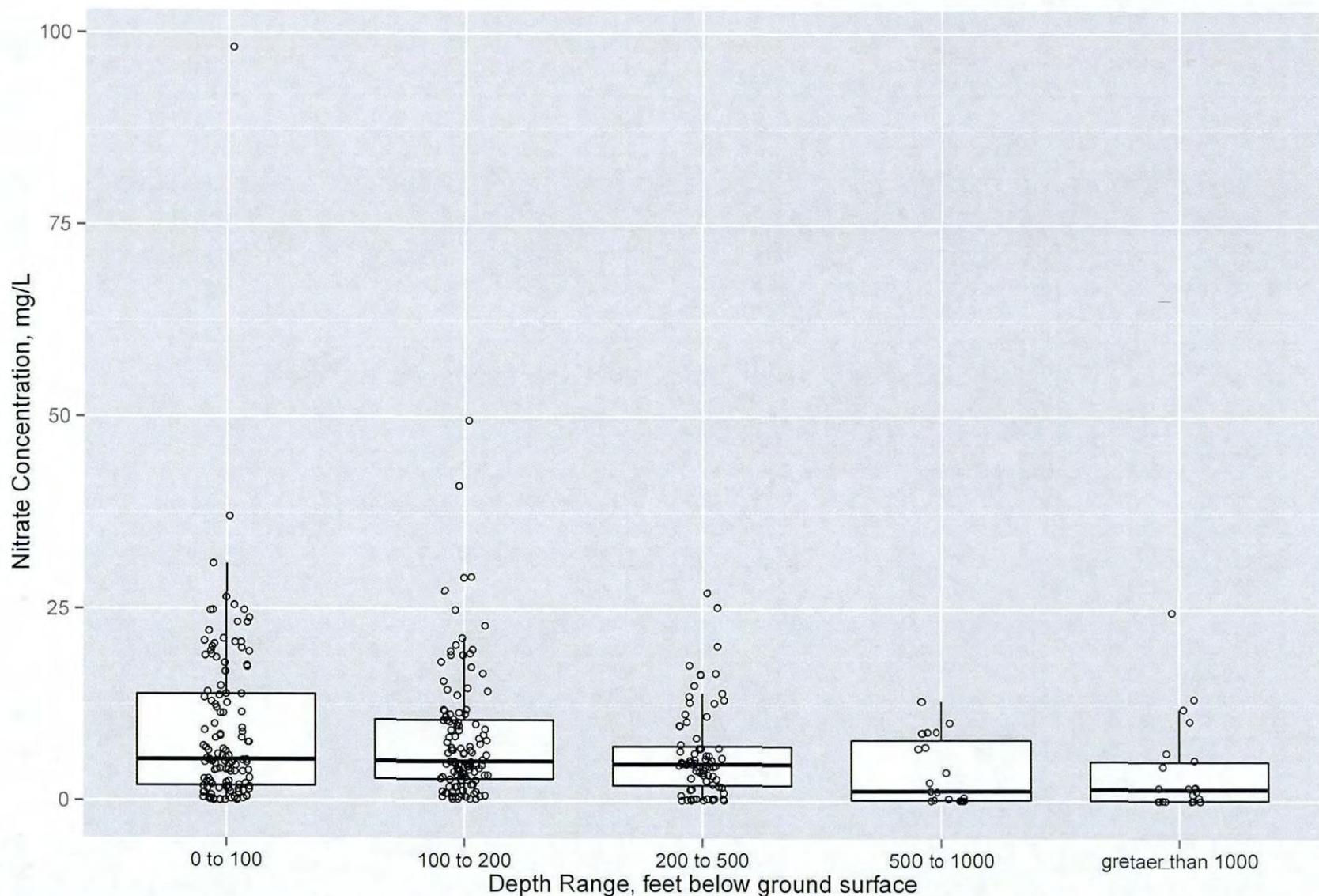


Figure 4  
Nitrate Concentrations  
by Well Depth

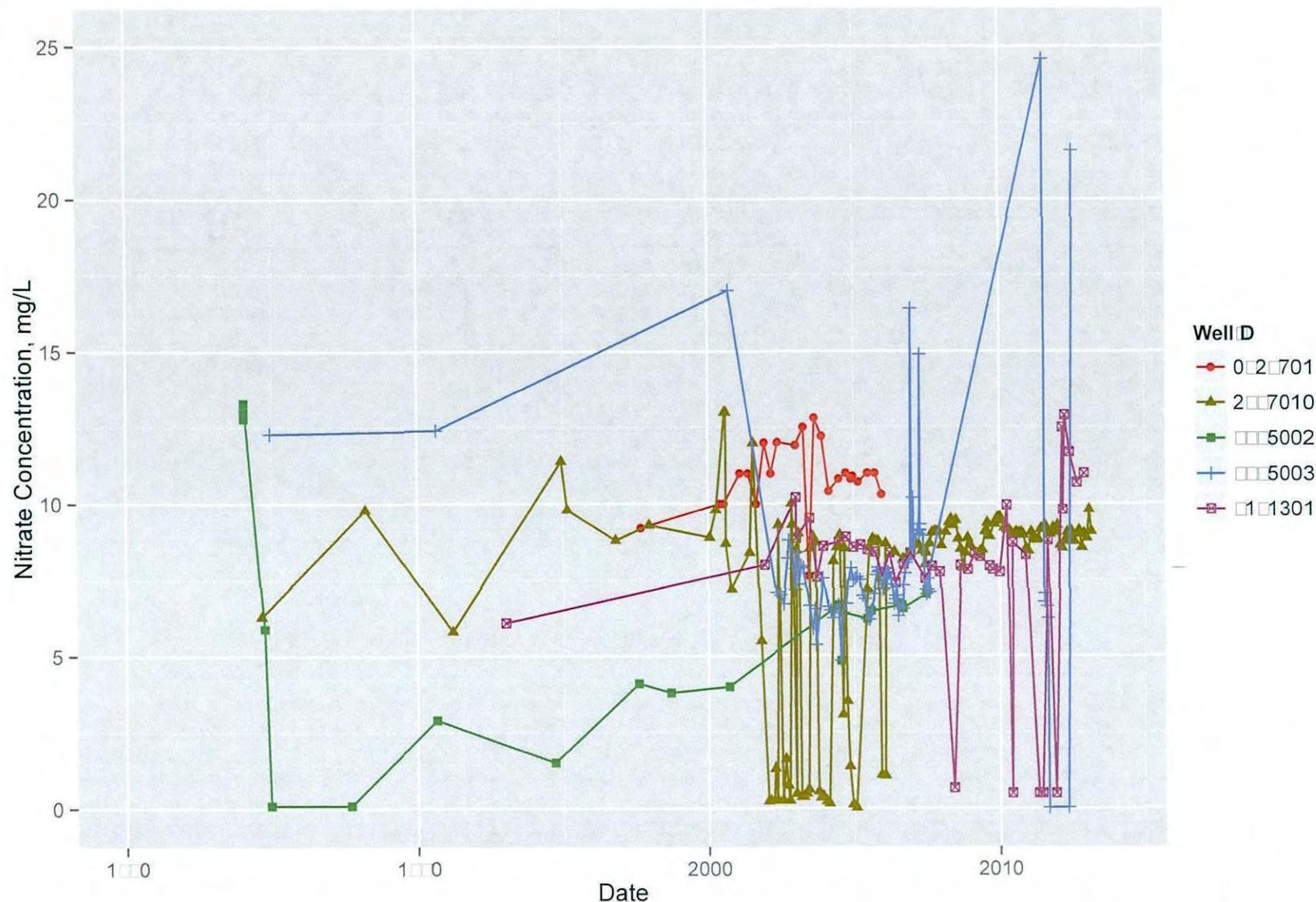
PgG



Non-detect values plotted at half the Method Reporting Limit value  
 black open circles represent actual data points, shifted in position to avoid directly overplotting other points  
 Maximum value selected for each well location

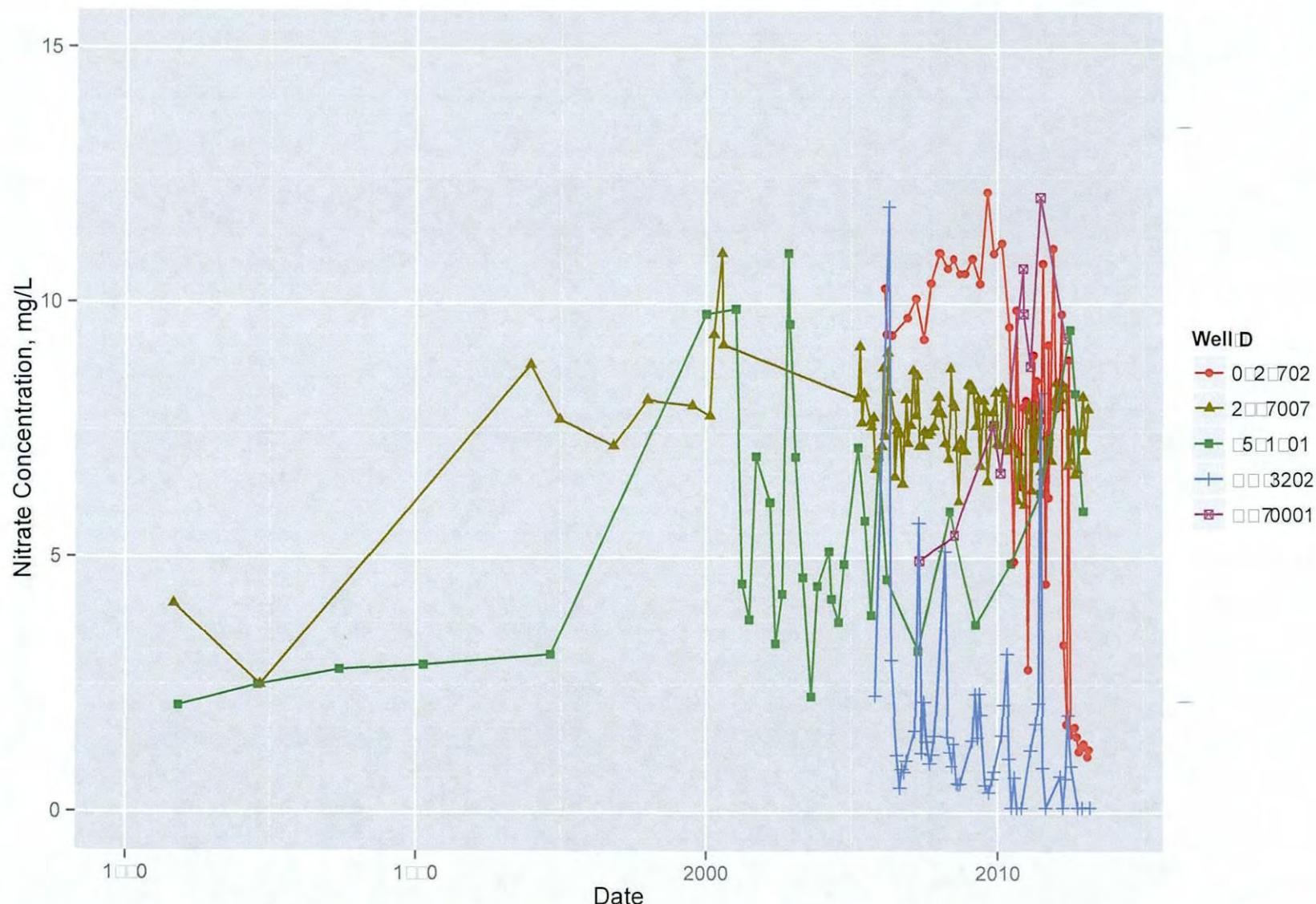
- Max (<1.5\*IQR)  
 - 75th Percentile  
 - Median  
 - 25th Percentile  
 - Min (<1.5\*IQR)  
 IQR = Interquartile Range

**Figure 5. Boxplot of Max Nitrate by Well Depth**



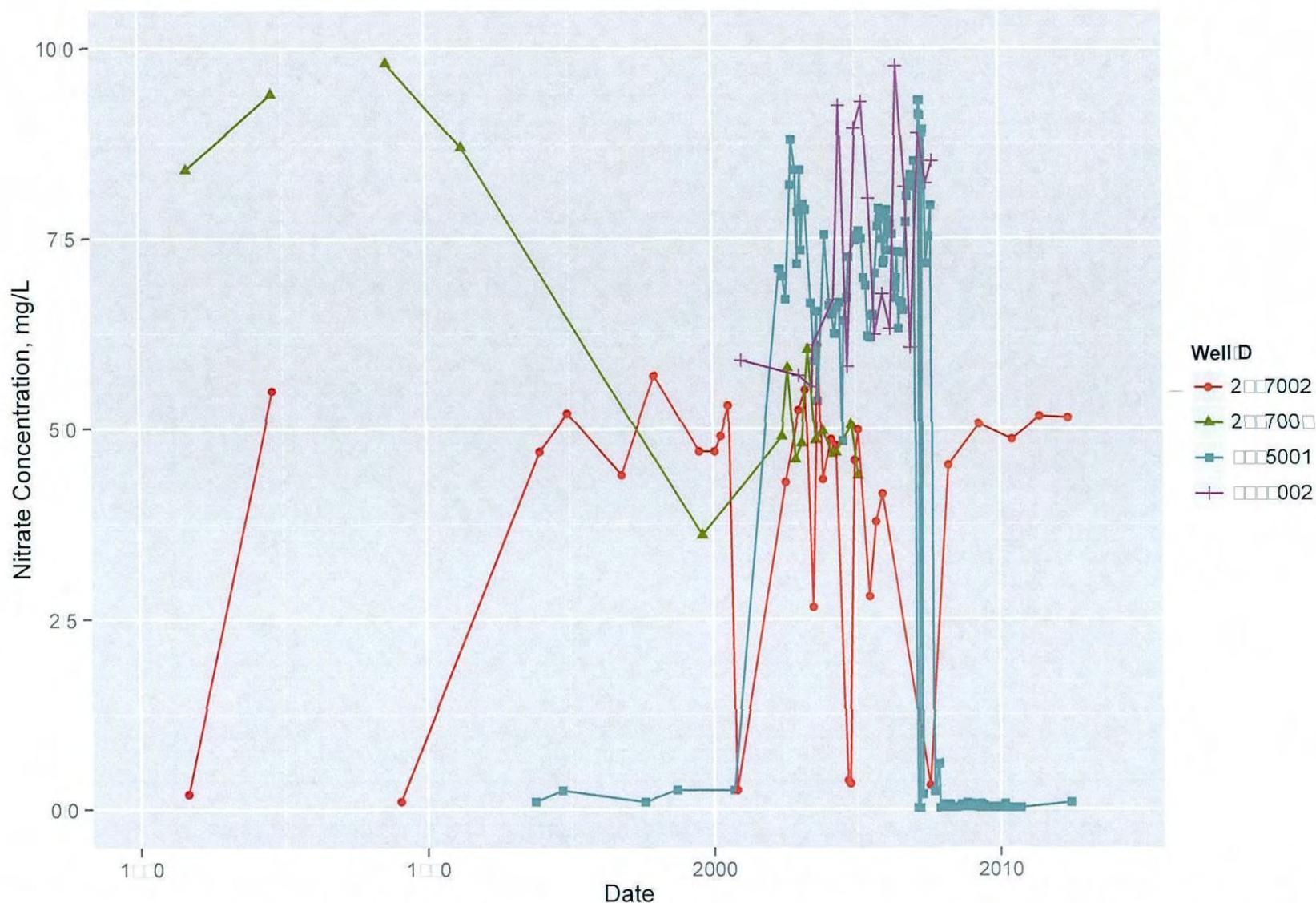
Non-detect values plotted at half the Method Reporting Limit value

**Figure □ Nitrate □i□e□erie□**  
**Max Nitrate □□□.5 □g□□**



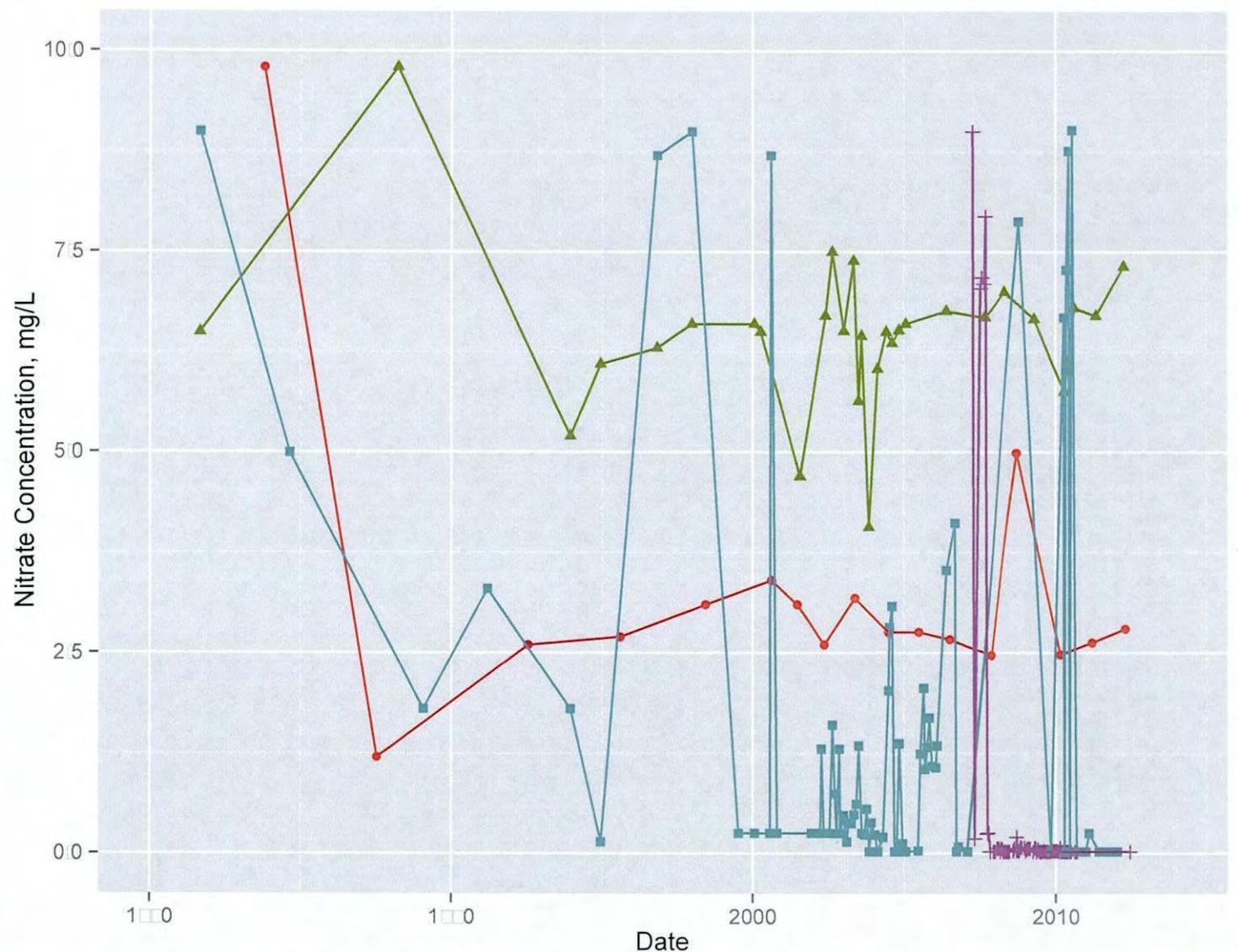
Non-detect values plotted at half the Method Reporting Limit value

Figure Nitrate Series  
Max Nitrate to 5.5 g/L



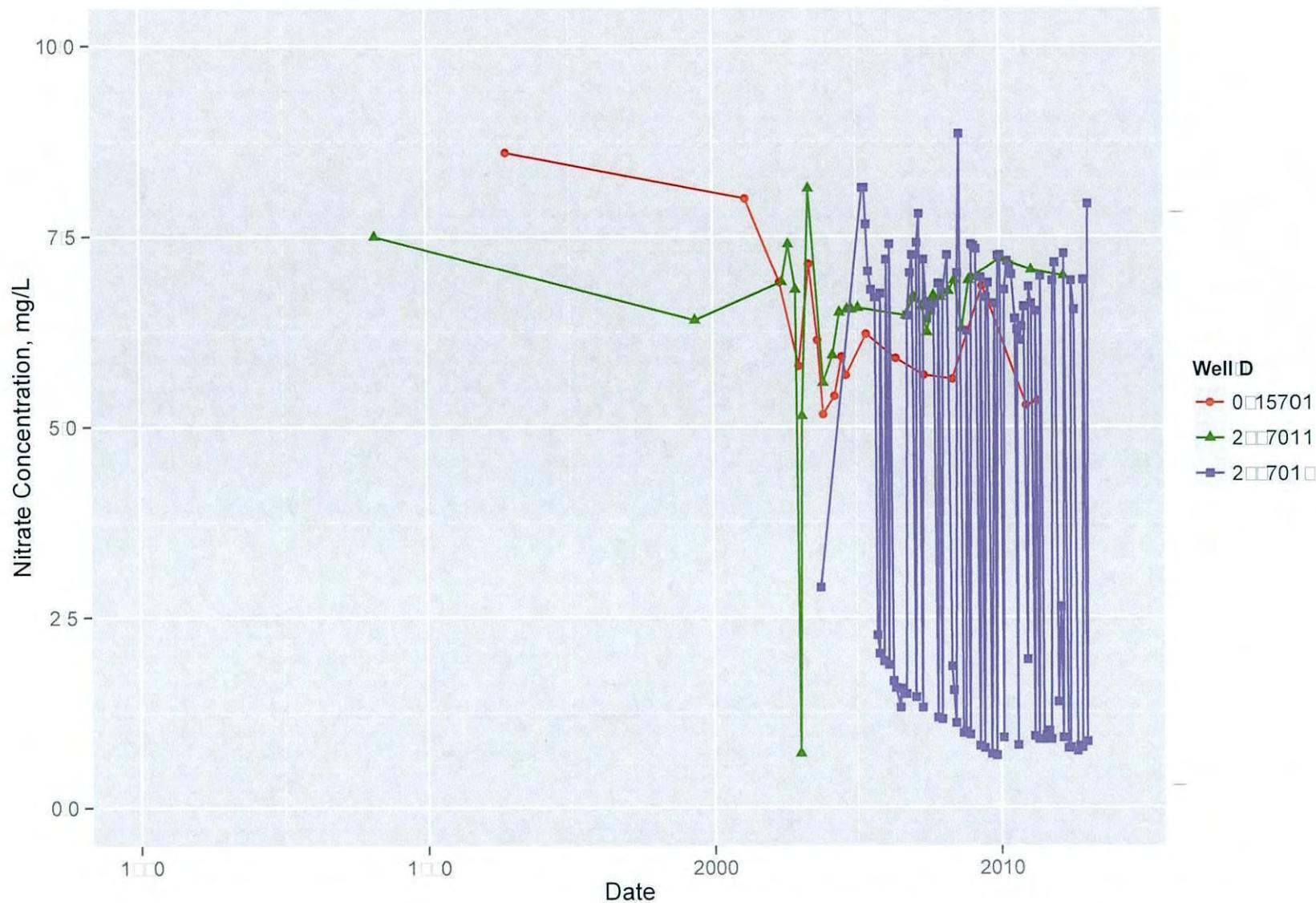
Non-detect values plotted at half the Method Reporting Limit value

Figure □ Nitrate □ i□ e□ erie□  
Max Nitrate □□ to □□ □ g□



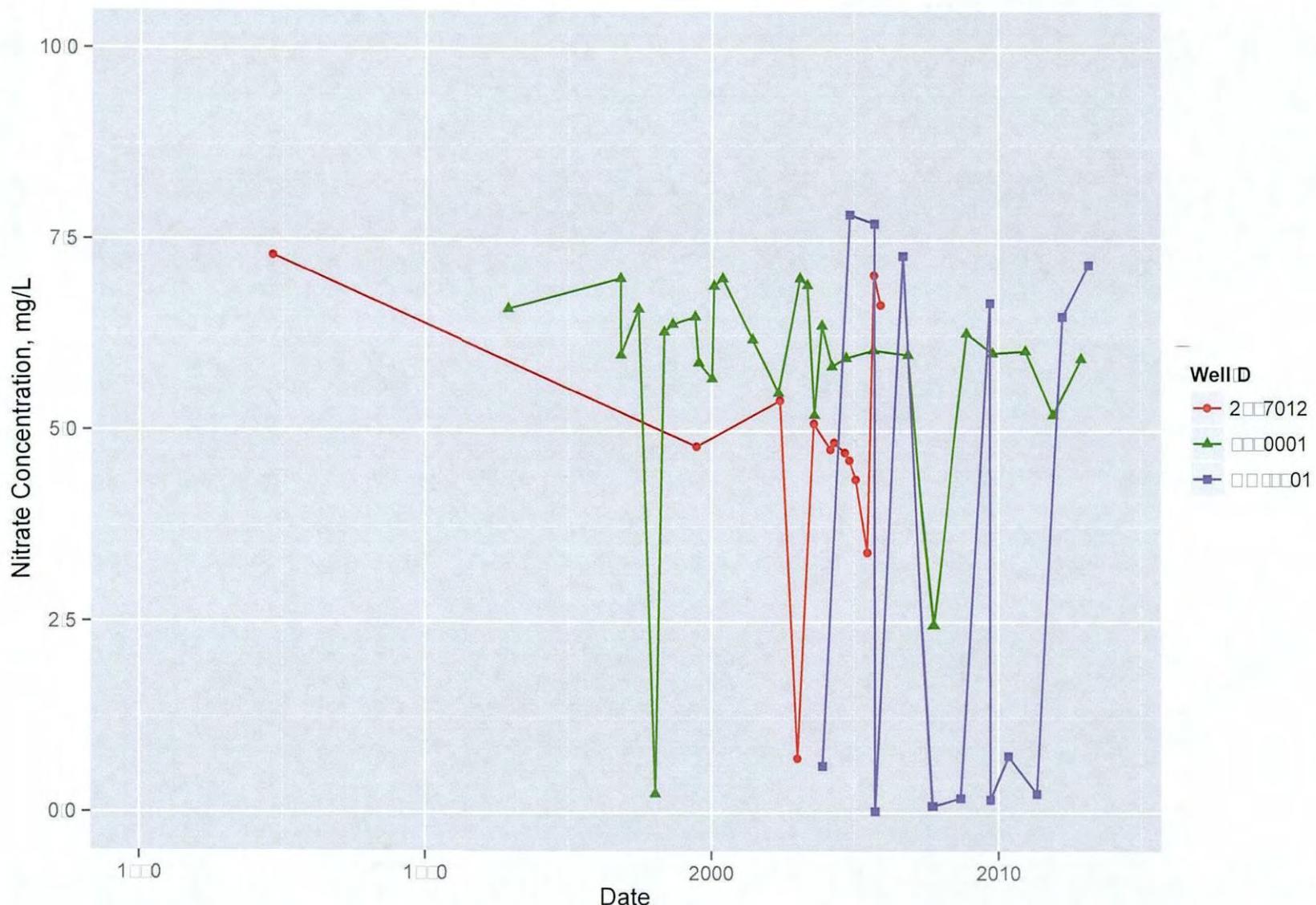
Non-detect values plotted at half the Method Reporting Limit value

Figure □ Nitrate □ in □ e □ erie □  
Max Nitrate □ to □ 000 g □



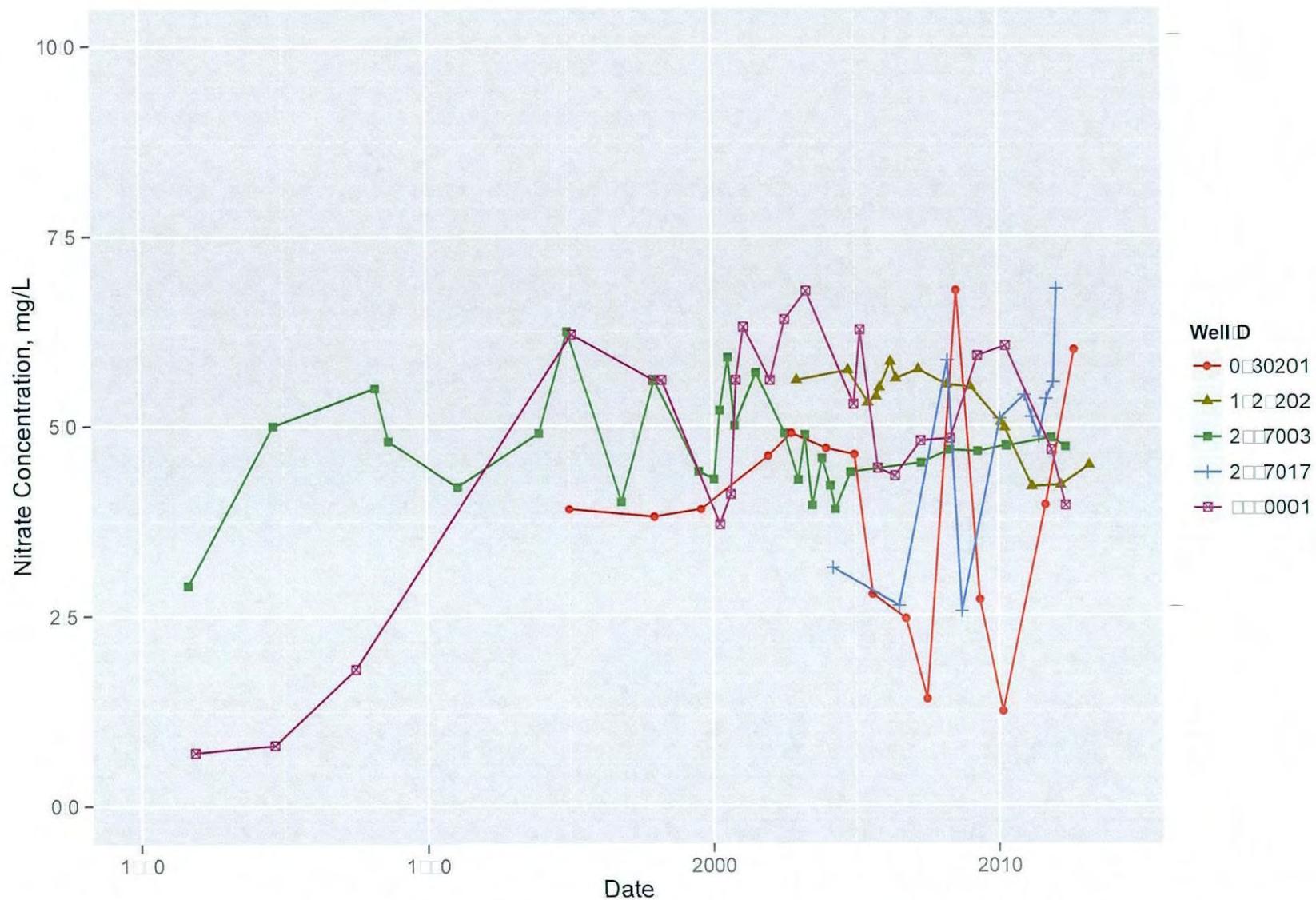
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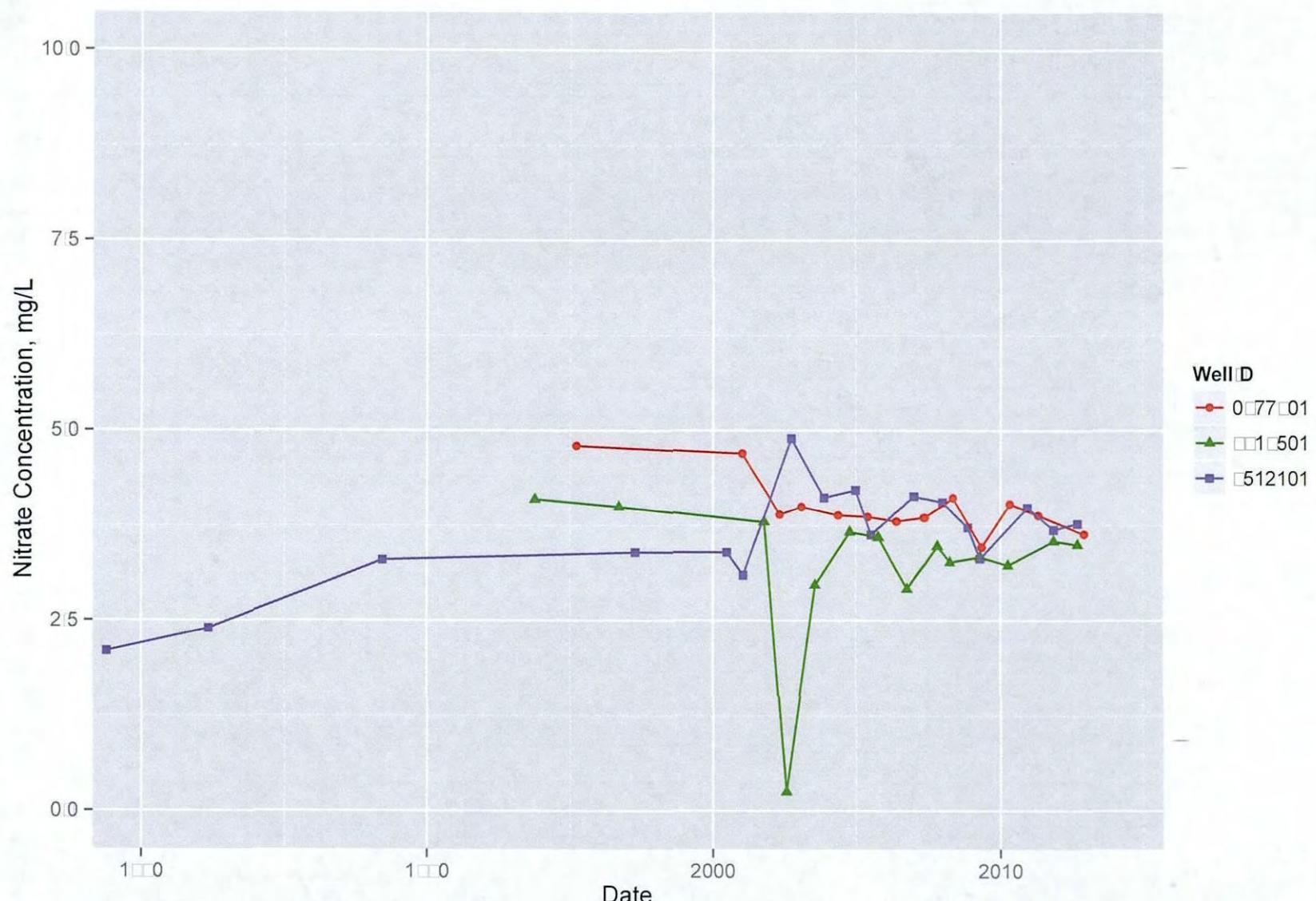
Figure Nitrate Series  
Max Nitrate to mg/L



Non-detect values plotted at half the Method Reporting Limit value

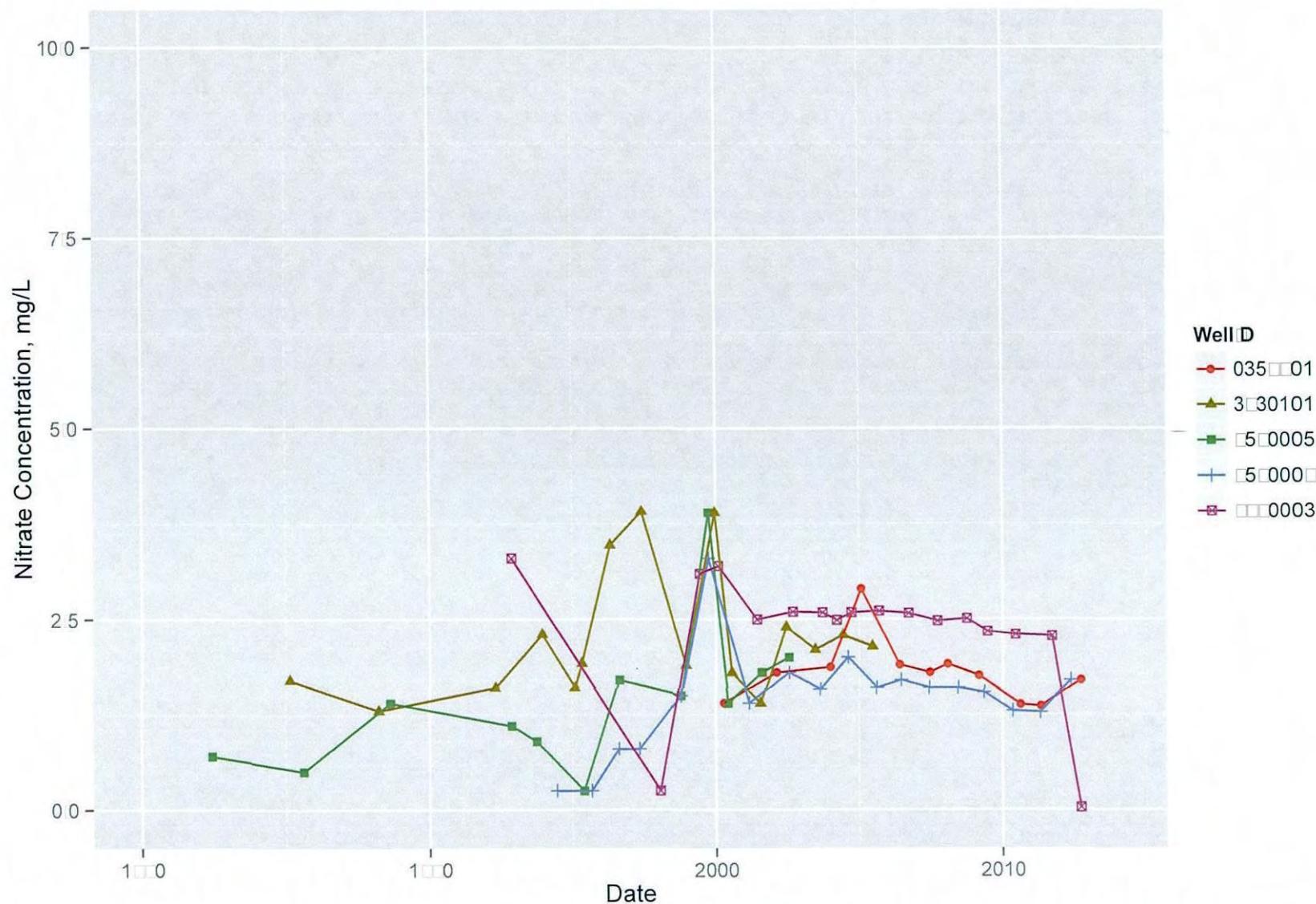
Figure Nitrate Series  
Max Nitrate to g





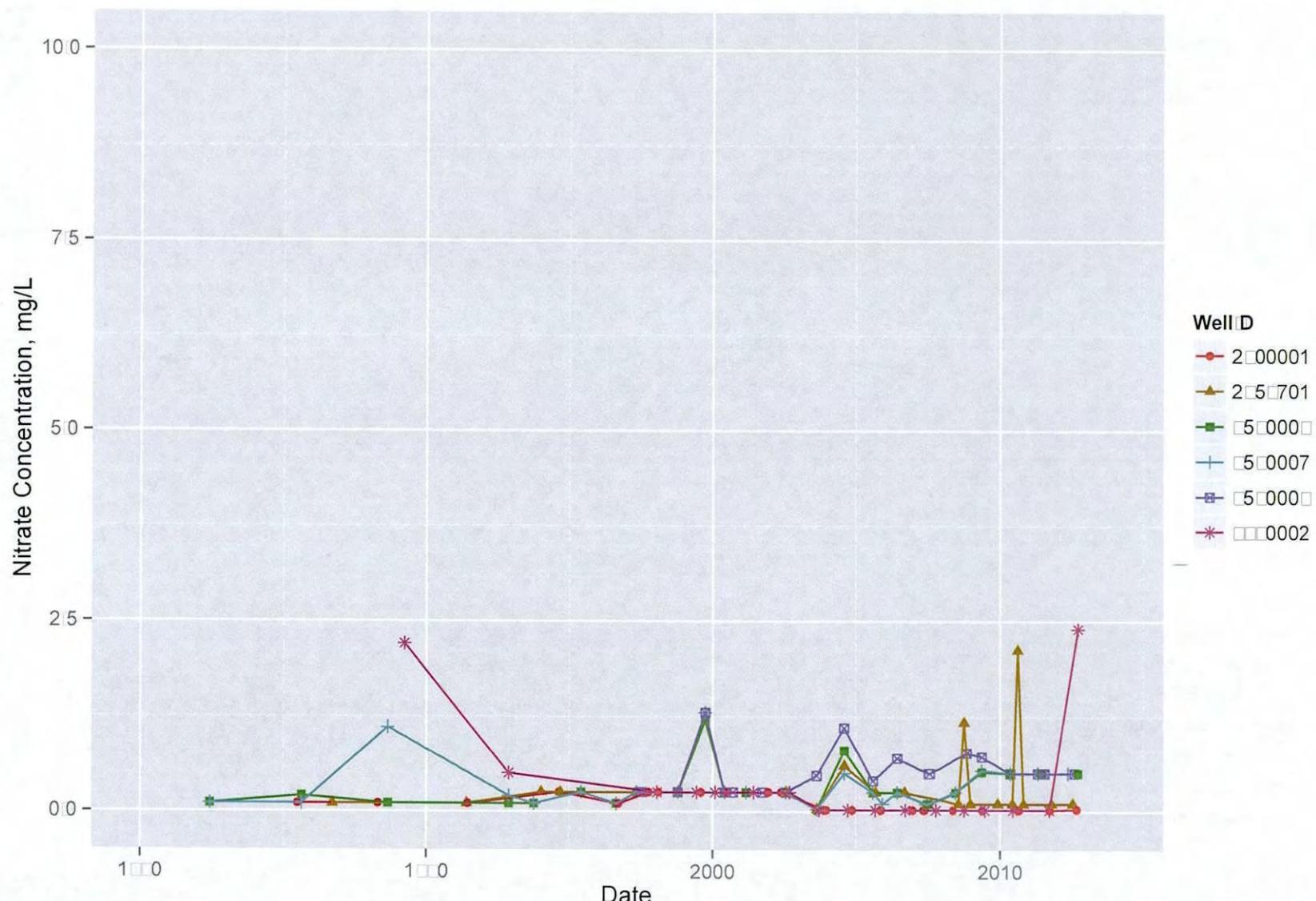
Non-detect values plotted at half the Method Reporting Limit value

Figure Nitrate Series  
Max Nitrate to 5 g



Non-detect values plotted at half the Method Reporting Limit value

**Figure 1. Nitrate in Erie**  
**Max Nitrate to 100 g**



Non-detect values plotted at half the Method Reporting Limit value

**Figure 5. Nitrate Series**  
**Max Nitrate 20 mg/L**

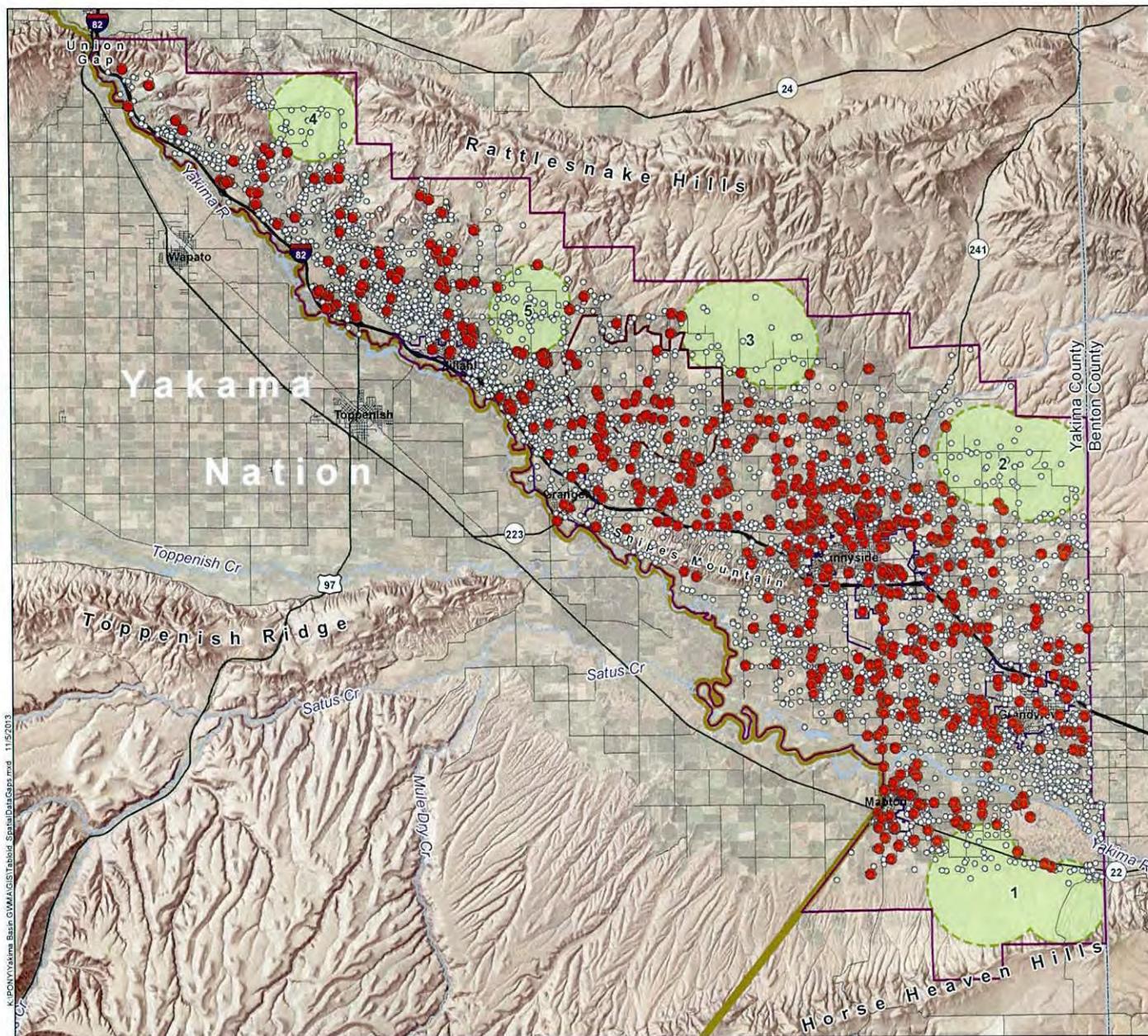


Figure 16  
Spatial Data  
Gaps in Nitrate Data

PgG

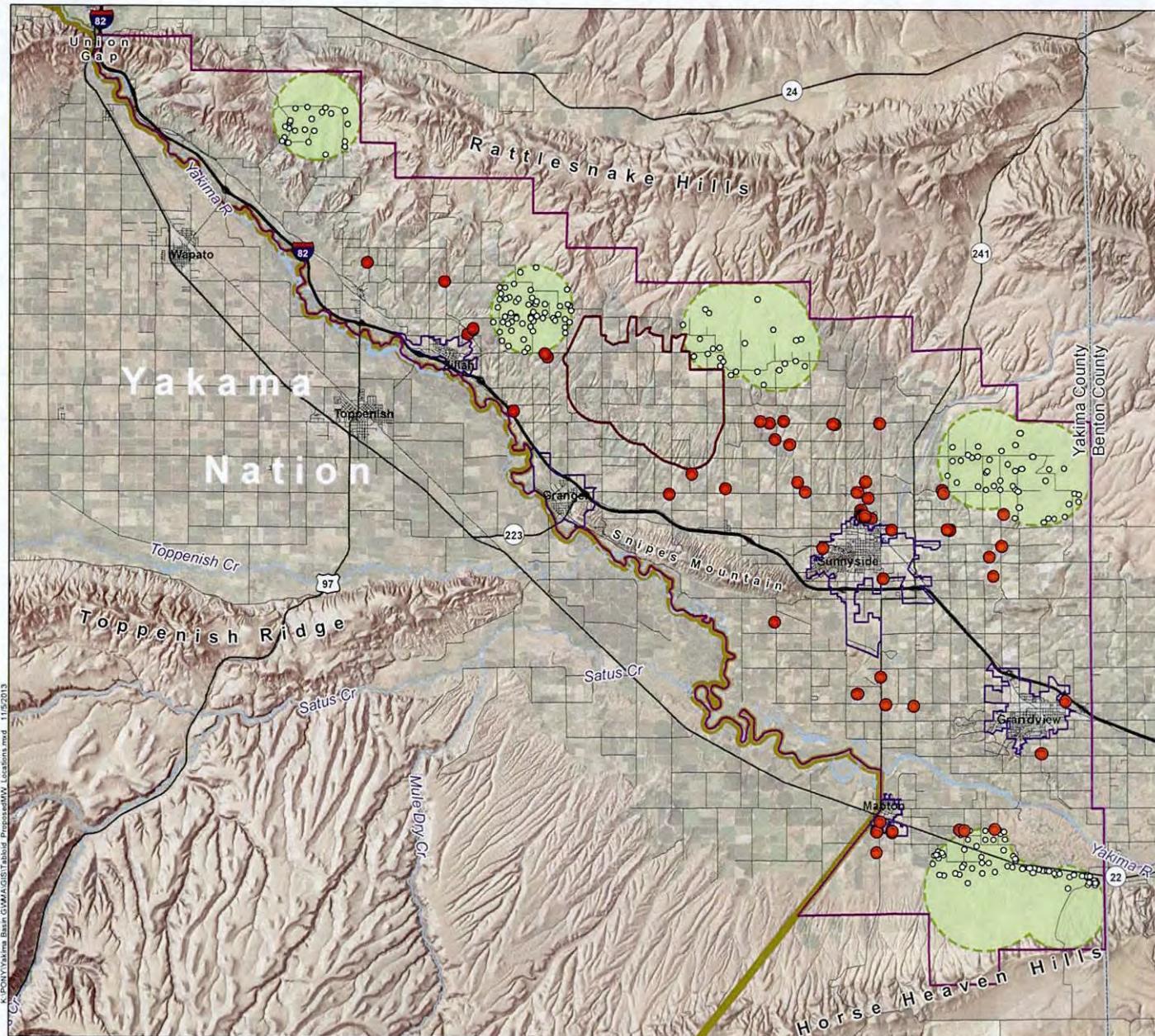


Figure 17

Proposed Monitoring Locations  
for Spatial Data Gaps,  
Trends and Hot Spots

PgG

**Proposed Monitoring Locations**

- Wells Located in Spatial Data Gaps
- Wells with Maximum Nitrate Concentration >20.0 mg/L (Hotspots)

 Spatial Data Gaps

- ◻ Water System Service Areas (from WADOH)
- ◻ GWMA Boundary
- ◻ EPA Dairy Cluster Buffer Boundary
- ◻ Yakama Nation Boundary (from Yakima County)

0 Miles 3  
0 Feet 15,000

P 206.329.0141 | F 206.329.6968

2377 Eastlake Avenue East | Seattle, WA 98102

P 360.570.8244 | F 360.570.0064

1627 Linwood Avenue SW | Tumwater, WA 98512

[www.pwg.com](http://www.pwg.com)

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## **Attachment C**

- GWAC Accomplishments News Release – January 16, 2014
- Sample Radio Schedules
- Free Well Testing Flyer (English/Spanish)

**From:** Lisa Freund  
**Sent:** Thursday, January 16, 2014 3:41 PM  
**Subject:** Lower Valley Groundwater Advisory Group Announces Progress Report

## **Lower Valley Groundwater Advisory Group**

### **Reports on its Accomplishments**

**FOR IMMEDIATE RELEASE: THURSDAY, JANUARY 16, 2014**

**CONTACT:** Commissioner Rand Elliott, Groundwater Advisory Committee Chair  
509-574-1500

Yakima – 19 months into a multi-year project to reduce nitrates in groundwater, the Lower Yakima Valley Groundwater Advisory Committee (GWAC) has released a report highlighting its progress to date.

The 22-member advisory board has been meeting monthly since June 2012 to tackle elevated nitrates in groundwater and drinking water in the Lower Yakima Valley. It is responsible for developing a Groundwater Management Area (GWMA) plan that will ultimately reduce nitrates in groundwater to meet state drinking water standards.

To work towards that goal, the committee has completed a variety of tasks that are summarized in a series of reports to the Department of Ecology. Highlights include:

#### **Work Plan**

- Creation of a two-year work plan, schedule and budget that establishes how the GWMA program will be developed.

#### **Research and Data Collection**

- Gathered information on data pertaining to federal, state and local agency regulatory requirements regarding nitrates in the GWMA
- Developed a Best Management Practices Scope of Work
- Developed a Draft Deep Soil Sampling Plan
- Identified Potential Groundwater Monitoring Stations

#### **Education and Outreach**

- Completed 136 door-to-door surveys in the GWMA aimed at gauging awareness of the nitrate issue and its potential health impacts
- Distributed nitrate-related health literature to over 200 healthcare providers
- Conducted presentations to healthcare providers, local community groups and on a statewide radio talk show to increase awareness about the GWMA
- Launched an in-depth well assessment survey that may include up to 350 homes in the target area
- Developed a community website that offers information about the committee, its meetings and information on nitrate-related topics

To view the GWAC's Progress Reports or to learn more about the GWAC, please visit:

<http://www.yakimacounty.us/gwma/>.

####

Lisa H. Freund, Administrative Manager  
Yakima County Public Services  
128 N. 2nd St  
Yakima, WA 98902  
voice: 509.574.2300 FAX: 509.574.2301





**KDBL-FM****Electronic Order**

Prepared with TrafficLink v3.2.0.13

**Client:** TOWNSQUARE RADIO SALES      **Description:** FLOOD CONTROL-PUB SERVICE  
**Agency:**      **Estimate #:**  
**Salesperson:** Gary Myhre      **Product:**  
**Start/End Dates:** 2/17/2014 to 4/18/2014

**KDBL-FM**

Daypart	Spots	Len	ROT	M	T	W	T	F	S	S	Rate	Cost	Break Type
<b>Week 1 (2/17/2014 - 2/23/2014)</b>													
M-F 6A-9A	5	30	0	1	1	1	1	1	--	--	\$22.00	\$110.00	Commercial
Totals	5		0	1	1	1	1	1	0	0	\$22.00	\$110.00	
<b>Week 2 (2/24/2014 - 3/2/2014)</b>													
M-F 6A-9A	5	30	0	1	1	1	1	1	--	--	\$22.00	\$110.00	Commercial
Totals	5		0	1	1	1	1	1	0	0	\$22.00	\$110.00	
<b>Week 3 (3/3/2014 - 3/9/2014)</b>													
M-F 6A-9A	5	30	0	1	1	1	1	1	--	--	\$22.00	\$110.00	Commercial
Totals	5		0	1	1	1	1	1	0	0	\$22.00	\$110.00	
<b>Week 4 (3/10/2014 - 3/16/2014)</b>													
M-F 6A-9A	5	30	0	1	1	1	1	1	--	--	\$22.00	\$110.00	Commercial
Totals	5		0	1	1	1	1	1	0	0	\$22.00	\$110.00	
<b>Week 5 (3/17/2014 - 3/23/2014)</b>													
M-F 6A-9A	5	30	0	1	1	1	1	1	--	--	\$22.00	\$110.00	Commercial
Totals	5		0	1	1	1	1	1	0	0	\$22.00	\$110.00	
<b>Week 6 (3/24/2014 - 3/30/2014)</b>													
M-F 6A-9A	5	30	0	1	1	1	1	1	--	--	\$22.00	\$110.00	Commercial
Totals	5		0	1	1	1	1	1	0	0	\$22.00	\$110.00	
<b>Week 7 (3/31/2014 - 4/6/2014)</b>													
M-F 6A-9A	5	30	0	1	1	1	1	1	--	--	\$22.00	\$110.00	Commercial
Totals	5		0	1	1	1	1	1	0	0	\$22.00	\$110.00	
<b>Week 8 (4/7/2014 - 4/13/2014)</b>													
M-F 6A-9A	4	30	1	1	1	--	1	--	--	--	\$22.00	\$88.00	Commercial
Totals	4		1	1	1	0	1	0	0	0	\$22.00	\$88.00	

# Electronic Order

Prepared with TrafficLink v3.2.0.13

Schedule Totals													
Totals	Spots		ROT	M	T	W	T	F	S	S	Rate	Cost	
	39		1	8	8	7	8	7	0	0	\$22.00	\$858.00	

Prepared with TrafficLink v3.2.0.13 on 2/10/2014 10:51:58 AM. © 2004 Arbitron Inc.

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Data © Arbitron Inc. Subject to the limitations and restrictions stated in the original report.



**Groundwater Management Area (GWMA):**  
The purpose of the GWMA is to reduce nitrate contamination concentrations in groundwater below state drinking water standards

# Attention LOWER VALLEY Residents!

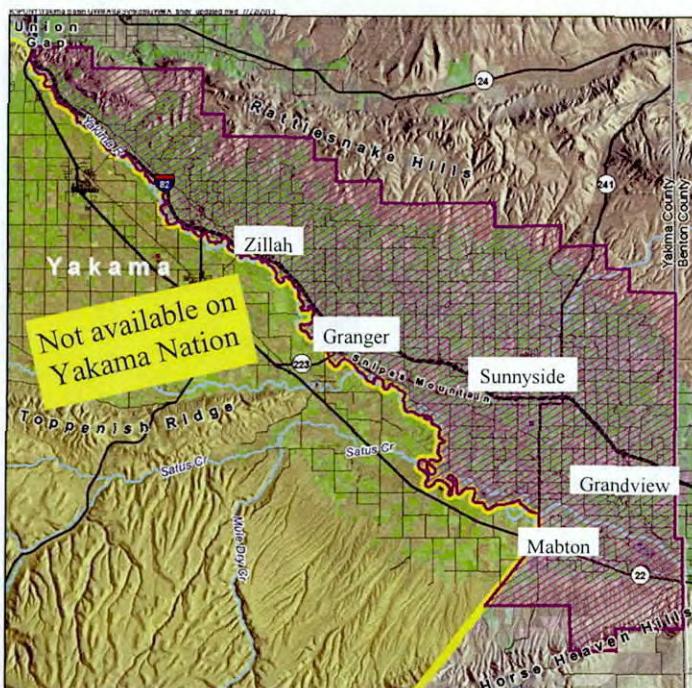


**Does your drinking water  
come from a private well?**

**For a LIMITED TIME ONLY you may be eligible for  
FREE WELL WATER TESTING**

through the  
Lower Yakima Valley Groundwater Advisory Committee (GWAC)

**What's involved?** Drinking water wells will be sampled for nitrate and bacteria. A Yakima Health District employee will sample your well and invite you to participate in a short survey. You can discuss any concerns you have about your well water and all testing results will be made available to you.



**How can I be considered for free testing?**

To be considered, you must live in the Lower Yakima Valley and obtain your drinking water from a private or shared well.

For more information or to participate, please call  
The Yakima Health District Help Desk

**509.249.6508**

This sampling is made possible by the GWAC. Your participation will help the committee to better understand and help find some solutions to possible contamination in drinking water wells. For more information, please visit:  
<http://www.yakimacounty.us/gwma/>



Comité Asesor del Área de Manejo de Agua Subterránea (GWMA):

El propósito de GWMA es reducir la concentración de contaminación por nitrato en el agua subterránea por debajo del estándar estatal para el agua potable.

# ¡Atención Residentes del VALLE BAJO!



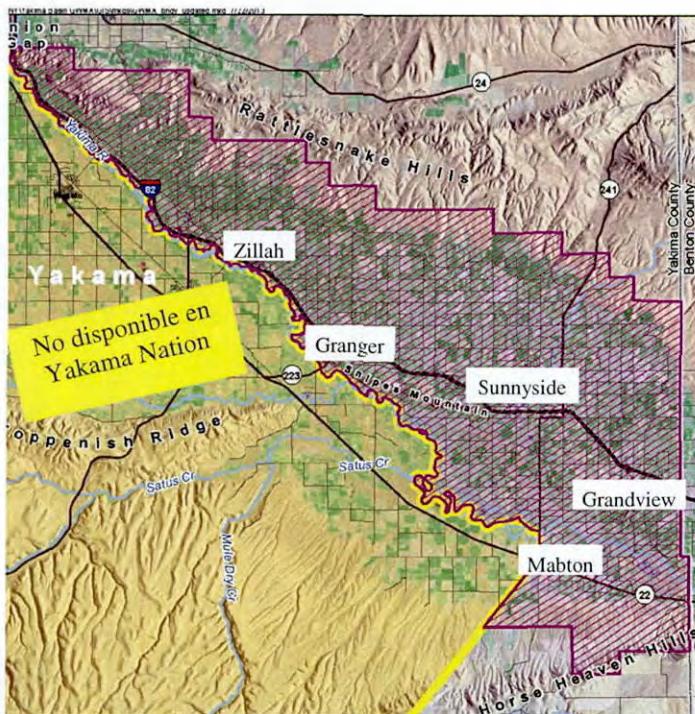
¿El agua que usted bebe  
viene de un pozo privado?

**SÓLO POR TIEMPO LIMITADO** usted puede ser elegible para una  
**PRUEBA GRATIS DEL AGUA DE SU POZO**

a través del

Comité Asesor de Agua Subterránea del Valle Bajo de Yakima (GWAC)

**¿De qué se trata?** Se evaluará por nitrato y bacteria a pozos de agua potable. Un empleado del Departamento de Salud de Yakima tomará la muestra de su pozo y se le invitará a participar en una encuesta corta. Usted puede consultar sobre cualquier preocupación que tenga del agua de su pozo y los resultados de las prueba estarán disponibles.



**¿Qué puedo hacer para ser considerado para la prueba gratis?**

Para ser considerado, usted debe vivir en el Valle Bajo de Yakima y obtener el agua que bebe de un pozo privado o de un pozo compartido.

Para más información o para participar, llame a la Línea de información del Departamento de Salud de Yakima

**509.249.6508**

Estas pruebas son posibles gracias a GWAC. Su participación ayudará al comité a entender mejor y a ayudar a encontrar soluciones a la posible contaminación en los pozos de agua potable. Para más información, visite: <http://www.yakimacounty.us/gwma/>

## **Attachment D**

### **Contracts and Interlocal Agreements:**

- Department of Ecology Amendment 2 - March 4, 2014
- Envirolssues Professional Services - Amendment 2 - January 21, 2014
- HDR Amendment 1 - February 5, 2014
- KDNA – 2014 Conference Room Contract - February 5, 2014
- KDNA – Draft Public Affairs Underwriting Agreement – January 23, 2014
- Yakima Health District Contract Amendment 2 - March 25, 2014



**AMENDMENT NO. 2 TO**

**ECOLOGY AGREEMENT NO. C1200235**

**BETWEEN THE**

**STATE OF WASHINGTON DEPARTMENT OF ECOLOGY**

**AND YAKIMA COUNTY**

**PROJECT TITLE: Yakima Ground Water Management Area (GWMA)**

**PURPOSE:** To increase the budget by \$450,000 and to add several components and deliverables to the current work plan and contributing to the development of a Groundwater Management Program for the lower Yakima Valley, and to extend the term of this agreement.

**WHEREAS:** Additional funding is needed to accomplish the project. Therefore, it is necessary to increase Ecology's share of the budget for the Agreement above the original \$300,000. Increasing this amendment by \$450,000 (via Capitol Grant from the Legislature) brings the amended agreement total to \$750,000.

**IT IS MUTUALLY AGREED** the agreement is amended as follows:

- 1) The total agreement not to exceed amount is now \$750,000 (Attachment B).
- 2) The period of performance of the Agreement shall be extended from April 1, 2014 to June 30, 2015
- 3) Additional Functions and Deliverables with due dates are highlighted within the attached amended Statement of Work (Attachment A).

All other terms and conditions of the original Agreement including any subsequent Amendments remain in full force and effect.

This Amendment is signed by persons who represent that they have the authority to execute this Amendment and bind their respective organizations to this Amendment.

IN WITNESS WHEREOF: the parties have executed this Amendment.

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

BOARD OF YAKIMA COUNTY COMMISSIONERS

Signature

Polly Zehm, Deputy Director      Date

*[Signature]*  
Kevin J. Bouchey, Chairman

3/4/14  
Date

*[Signature]*  
J. Rand Elliott, Commissioner

n/a  
Date

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

3/4/14  
Date

APPROVED AS TO FORM ONLY:

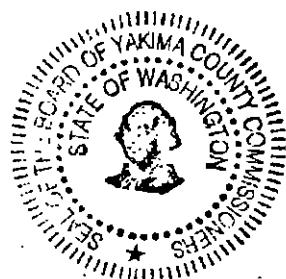
ASSISTANT ATTORNEY GENERAL

Attest:

*[Signature]*  
Tiera L. Girard, Clerk of the Board

Approved as to form:

*[Signature]*  
Deputy Prosecuting Attorney



As Approved by SRRTTF, June 26, 2013

BOCC58-2014  
March 4, 2014

Page 2 of 4

# Attachment A: Statement of Work

## Statement of Work (modified by Amendments 1 & 2)

**BACKGROUIND:** The Lower Yakima Valley Groundwater Management Area (GWMA) was activated in accordance with WAC 173-100 by Order of the Director of Ecology on November 15, 2011 designating Yakima County as the Lead Agency. The purpose of the GWMA is to reduce nitrate contamination concentrations in groundwater below state drinking water standards.

**GENERAL DESCRIPTION:** Add the following to the current statement of work. Ecology is now contracting with Yakima County to undertake the Lead Agency activities necessary for the development of the groundwater management program by the Groundwater Advisory Committee (GWAC or Committee) in accordance with WAC 173-100. These on-going activities will include administrative, program, and technical functions. In addition, the new dollars will support technical functions and deliverables indicated within the below paragraphs:

### 3. Technical Functions

3.1 *(New Section)* Working in conjunction with the GWAC and its Work Groups, retain subcontractors as needed, conduct studies, collect and analyze data, draw conclusions, and draft reports for GWAC review.

- a. Identify needs for additional data on nitrate sources, develop plans such as a Quality Assurance Project Plan (QAPP) which must be completed and approved by Ecology, prior to the collection or analysis of water quality data (applies to sub contractor QAPPs also), carry out studies such as deep soil sampling, irrigation water management and manure lagoon assessment; analyze and interpret results.
- b. Design and establish long-term effectiveness monitoring program.
- c. Identify and evaluate controls and practices currently in place for reducing nitrate contamination of groundwater by identified sources, identify gaps and needed improvements.
- d. Develop list of potential management strategies, evaluate, and recommend final strategies for implementation.

3.2 Coordinate SEPA review once GWMA Program has been developed.

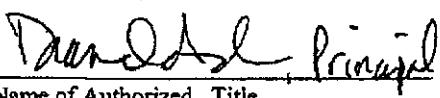
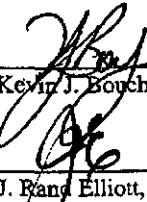
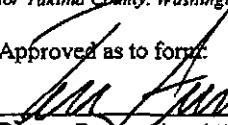
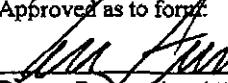
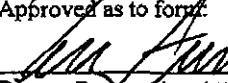
3.3 Other activities as appropriate.

## DELIVERABLES

### 4. By end of final quarter: June 30, 2015

- 4.1 *(New Section)* Submit the completed Groundwater Management Program report which conforms to the general guidelines set forth in WAC 197-100-100. SEPA Review must be performed as part of completion of the development of the Program.
- 4.2 *(Revised)* The final quarterly status report shall contain a description of the current status of the GWMA, the anticipated continuing role of Yakima County, and the projected timeline, funding source and budget for completion, review, revision, and implementation.

**PROFESSIONAL SERVICES AGREEMENT  
FACE SHEET**

CONTRACTOR IS A <input type="checkbox"/> SUBRECIPIENT <input checked="" type="checkbox"/> VENDOR		CONTRACT NUMBER:	
<b>1. NAME/ADDRESS:</b> EnviroIssues 101 Stewart Street, Ste 1200, Seattle 98101	<b>2. ORIGINAL CONTRACT AMOUNT:</b> \$46,134.00	<b>5. PREVIOUS CONTRACT AMOUNT: #1</b> \$80,980.00	
	<b>3. CASH MATCH REQUIREMENT:</b> \$0	<b>6. MODIFICATION AMOUNT: #2</b> \$50,527.00	
	<b>4. TOTAL CONTRACT AMOUNT: Original</b> \$46,134.00	<b>7. NEW TOTAL CONTRACT AMOUNT:</b> \$131,507.00	
<b>8. CONTACT INFO:</b> Penny Mabie (206)269-5041 <a href="http://www.enviroissues.com">www.enviroissues.com</a> <a href="mailto:pmabie@enviroissues.com">pmabie@enviroissues.com</a>	<b>9. COUNTY PROGRAM CONTACT INFO:</b> Name, Title – Lisa Freund Dept. – Public Services Address – 128 N. Second Street City, State Zip – Yakima, WA 98901 Phone – (509) 574-2300 Email – lisa.freund@co.yakima.wa.us	<b>10. COUNTY FISCAL CONTACT INFO:</b> Name, Title – Carmen Hayter Dept. – Public Services Accounting Address – 128 N. Second Street City, State Zip – Yakima, WA 98901 Phone – (509) 574-2280 Email – <a href="mailto:Carmen.hayter@co.yakima.wa.us">Carmen.hayter@co.yakima.wa.us</a>	
	<b>11. CONTRACT START DATE:</b> May 29, 2012	<b>12. CONTRACT END DATE:</b> December 31, 2014	
<b>13. FUNDING AUTHORITY:</b> Washington State Dept of Ecology – 100% State Toxics Control Account			
<b>14. CFDA NUMBERS(S):</b> N/A	<b>15. CFDA TITLE(S):</b> N/A		
<b>16. PURPOSE:</b> The Contractor shall perform professional services as defined by the Statement of Work incorporated herein.			
<b>EXHIBITS:</b> When the box below is marked with an X, the following Exhibits are attached and are incorporated into this Contract by reference:			
<input checked="" type="checkbox"/> Exhibits (specify): EXHIBIT A – Scope of Work & Budget, Amendment No. 2			
This Contract contains all of the terms and conditions agreed upon by the parties and all documents attached or incorporated by reference, include Basic Interagency Agreement or its successor. No other understandings or representations, oral or otherwise, regarding the subject matter of this Contract shall be deemed to exist or bind the parties. The parties signing below warrant that they have read and understand this Contract and have authority to enter into this Contract.			
<b>NAME OF CONTRACTOR</b>  Name of Authorized, Title		<b>BOARD OF YAKIMA COUNTY COMMISSIONERS</b>  Kevin J. Bouchey, Chairman	
 Date 1/14/14		 J. Rand Elliott, Commissioner	
 Attest:  Tiera L. Girard, Clerk of the Board		 Michael D. Leita, Commissioner  Constituting the Board of County Commissioners for Yakima County, Washington	
 Approved as to form:  Deputy Prosecuting Attorney		 Michael D. Leita, Commissioner  Constituting the Board of County Commissioners for Yakima County, Washington	

BOCC21-2014  
 January 21, 2014

## EXHIBIT A

### SCOPE OF WORK – AMENDMENT NO. 2

Amendment Number 2 extends the contract to December 31, 2014. With the exception of the new contract amount, revised scope of work, budget and contract completion date, all conditions in the Original Agreement remain the same.

EnviroIssues will support Yakima County and the Lower Yakima Valley Groundwater Management Area by providing facilitation services for the GWAC. This support will include the following services:

**Task: GWAC meeting planning and facilitation**

- Participate in up to three preparatory conference calls prior to advisory committee meetings to discuss meeting strategy, objectives, agenda and information needs
- Review and provide input and advice on informational materials prepared by technical team to support advisory committee agenda items
- Develop committee deliberation products (i.e. charter, workplan, decision matrices, etc.)
- Develop GWAC meeting agendas (one draft and one final) (up to 12 agendas)
- Check in with committee members between meetings as needed
- Facilitate three-hour committee meetings (up to 12 meetings)
- Assist the GWAC in a self-assessment of their processes and operations

*Deliverables:*

- Miscellaneous process tools (charter, workplan, matrices, etc.)
- Draft and final agendas (up to 12)
- GWAC self-evaluation instrument and analysis

*Direct expenses:*

- Includes printing of agendas and process tools, mileage, lodging and meeting supplies

*Assumptions:*

- GWMA staff provide note-taking and meeting summaries
- GWMA staff organize meeting rooms, meeting notifications and other logistics.
- GWMA and technical team provide technical report / other information copying and distribution

	Labor	Expenses	Total Cost
Per Meeting	\$3,858.33	\$352.25	\$4,210.58
For 12 Meetings	\$46,300.00	\$4,227.00	\$50,527.00

## **A/E CONSULTANT AGREEMENT FOR PROFESSIONAL SERVICES (AMENDMENT NO. 1)**

This Consultant Agreement for Professional Services ("Agreement") is entered into as of February 4, 2014 between Yakima County Public Services, of 128th North 2nd Street, Room 408 Courthouse, Yakima, Washington 98901-2614 ("Client"), and HDR Engineering, Inc. of 2805 Saint Andrews Loop, Suite A, Pasco, Washington 99301-6121 ("Consultant"). The parties agree as follows:

**I. PROJECT.** Client, as administrator for the Lower Yakima Valley Groundwater Advisory Committee ("GWAC"), desires to engage the services of Consultant to perform certain consulting, design, advisory, and/or surveying services for the Consulting Services for the Lower Yakima Valley Groundwater Management Area ("GWMA") Program ("Project").

**II. OBJECTIVES AND SCOPE OF SERVICES.** Consultant shall perform additional services for the Project Nitrate Regulatory Framework and Best Management Practices and Initial Characterization Assessment for the Lower Yakima Valley GWAC ("Services") as described in Exhibit "A". All other provisions in the Original Contract remain the same.

**III. PAYMENT.** Client shall pay Consultant as compensation for the Services at hourly rates according to the *Schedule of Billing Rates in the Original Contract*. Amendment No. 1 is for \$30,489. The new total amount is for \$296,891.00.

**IV. STANDARD PROVISIONS.** The standard provisions for this *Agreement remain the same as the Original Contract*.

**V. ADDITIONAL PROVISIONS.** The following additional provisions shall apply to this *Agreement*:

HDR Engineering, Inc. shall transfer all digital and paper materials, including, without limitations, files, records, and maps, regarding the Project to Client or Client's designee within 30 days of termination of this Agreement under this Additional Provision. Transfer of materials does not include proprietary records or property.

### **CONTRACTOR / CONSULTANT**

By Kevin Bouchey  
Title Senior Vice President  
Date January 24, 2014

Mandy Burkett  
Attest: Tiera L. Girard  
Clerk of the Board

Mandy Burkett

Deputy Clerk of the Board

APPROVED AS TO FORM:

Jeff Foster  
Deputy Prosecuting Attorney

BOCC36-2014  
February 5, 2014

### **BOARD OF YAKIMA COUNTY COMMISSIONERS**

Kevin J. Bouchey, Chairman

J. Rand Elliott, Commissioner

Excused

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



**Exhibit A - HDR Scope of Services – Amendment No. 1**

Description of Services	Labor	Expenses	Subtotal	Description
Supplement to Task 10.4a – Additional GWAC/Data Committee Communication	\$14,966	\$440	\$15,406	<p>This proposed amendment task increases budget to attend additional GWAC meetings and participate in Workgroups as requested by the Workgroup Chairs and support the efforts in project planning by Workgroup Chairs. Specific items include the following:</p> <ul style="list-style-type: none"> <li>• Prepare for and attend 2 additional GWMA and subcommittee meetings.</li> <li>• Develop nitrate balance white paper and discuss with Kirk Cook</li> <li>• Evaluate USGS modeling proposal</li> <li>• Develop 2 lower cost alternatives to USGS proposal</li> <li>• Assist Kirk Cook to develop presentation to GWAC</li> </ul>
Supplement to Task 7.3 - Project Management	\$11,684	\$0	\$11,684	<p>This proposed task change accommodates additional project management and project communication between PGG, the County, and the GWAC outside of GWAC meetings.</p> <ul style="list-style-type: none"> <li>• Develop draft and final scope diagrams</li> <li>• Develop deliverable review lookup table</li> <li>• Develop draft and final Gantt schedule charts</li> <li>• Progress reports</li> </ul>
Task A.1-1 – Develop EPO Committee Database	\$3,399	\$0	\$3,399	<p>This amendment task will compensate PGG for additional work performed to develop input forms and a database as requested by the EPO Workgroup.</p> <ul style="list-style-type: none"> <li>• Develop data entry database for Survey #2, Public Questionnaire. Revise to incorporate County edits.</li> <li>• Develop data entry database for Survey #1, Health Risk Assessment. Revise to incorporate County and DOH edits within scope.</li> <li>• Preload data for Survey #1.</li> <li>• Expand Health Risk Assessment survey form and database for additional PGG required data for Field Verification task.</li> <li>• Provide example private well access request letter.</li> </ul>
<b>Amendment 1 Total:</b>	<b>\$30,049</b>	<b>\$440</b>	<b>\$30,489</b>	
<b>Original Contract Total</b>			<b>\$266,402</b>	
<b>New Contract Amount</b>			<b>\$296,891</b>	

**Agreement between  
Yakima County  
and  
Radio KDNA**

**THIS AGREEMENT** is entered into by and between Yakima County Public Services, located at 128 North Second Street, Yakima, WA 98901, in behalf of the Lower Yakima Valley Groundwater Management Area Committee (GWAC), herein referred to as the "County," and Radio KDNA, located at 121 Sunnyside Avenue, Granger, WA 98932, herein referred to as "KDNa", for use of meeting room services.

**WHEREAS**, the County and the KDNa desire to execute an agreement for usage of conference rooms and other amenities, and providing funding for such use at established rates; and,

**NOW, THEREFORE**, in consideration of the mutual covenants, conditions, and promises contained herein, the parties hereto mutually agree as follows:

1. **Duration.** The duration of this Agreement shall be until December 31, 2014, and shall be renewable on that date unless mutually terminated by a written agreement.
2. **Purpose.** The purpose of this Agreement is to establish an arrangement under which the County and the KDNa will cooperate in the use of the KDNa facilities such as conference rooms and other amenities at agreed rates attached hereto as Exhibit "A", and reimburse KDNa for its use.
3. KDNa will schedule the conference rooms at the request of Yakima County. Any request for a meeting or a schedule change shall be in writing and shall be submitted to the KDNa by Yakima County.
4. Yakima County will provide meeting schedules at least 30 calendar days in advance for large conference rooms, and two weeks in advance for small conference rooms.
5. Cancellation of room reservation shall be made at least 7 calendar days in advance. If the 7-day notice is not provided by the County, KDNa shall have the authority to seek compensation for the date scheduled at the agreed rental rate.
6. KDNa agrees to defend, indemnify and hold the County, its officers, officials, employees and volunteers harmless from any and all claims, injuries, damages, losses or suits including attorney fees, arising out of or resulting from the acts, errors or omissions of the [contractor/consultant/agency] in performance of this Agreement, except for injuries and damages caused by the sole negligence of the County. Should a court of competent jurisdiction determine that this Agreement is subject to RCW 4.24.115, then, in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of KDNa and the County, its officers, officials, employees, and volunteers, KDNa's liability, including the duty and cost to defend, hereunder shall be only to the extent of KDNa's negligence. It is further specifically and expressly understood that the indemnification provided herein constitutes the KDNa's waiver of immunity under Industrial Insurance, Title 51 RCW, solely for the purposes of this indemnification. This waiver has been

## Agreement for Meeting Room Services

mutually negotiated by the parties. The provisions of this section shall survive the expiration or termination of this Agreement.

7. Nothing contained in this Section of this Agreement shall be construed to create a right of indemnification to any third party.
8. **IMPLEMENTATION.** The County and the KDNA shall be jointly responsible for implementation and proper administration of this Agreement and will refer problems of implementation to the governing bodies for resolution if necessary.
9. **TERMINATION.** Termination of this Agreement by either party may be accomplished on ninety (90) calendar days written notice to the other party. All costs that have been incurred to the date of termination shall be allocated according to the terms of this agreement.
10. **DURATION OF AGREEMENT.** The duration of this Agreement shall be from the date of execution of this document through December 31, 2014 unless otherwise terminated in accordance with Section 11 of this Agreement.
11. **PROPERTY.** It is not anticipated that any real or personal property will be acquired or purchased by the parties solely because of this Agreement.
12. **EQUAL OPPORTUNITY.** Neither party shall discriminate against any person on the grounds of race, creed, color, religion, national origin, sex, sexual orientation, age, marital status, political affiliation or belief, or the presence of any sensory, mental or physical handicap in violation of the Washington State Law Against Discrimination (RCW chapter 49.60) or the Americans with Disabilities Act (42 U.S.C. 12101 et seq.) or any other applicable state, federal or local law, rule or regulation.

In the event of the violation of this provision, the other party may terminate this Agreement immediately.
13. **ASSIGNMENT.** This Agreement, or any interest herein, or claim hereunder, shall not be assigned or transferred in whole or in part by the County or the KDNA to any other person or entity without the prior written consent of the County or the KDNA. In the event that such prior written consent to an assignment is granted, then the assignee shall assume all duties, obligations, and liabilities as stated herein.
14. **NON-WAIVER.** The failure of either party to insist upon strict performance of any provision of this Agreement or to exercise any right based upon a breach thereof or the acceptance of any performance during such breach shall not constitute a waiver of any right under this Agreement.
15. **SEVERABILITY.** If any portion of this Agreement is changed per mutual Agreement or any portion is held invalid, the remainder of the Agreement shall remain in full force and effect.
16. **INTEGRATION.** This written document constitutes the entire Agreement between the KDNA and the County. There are no other oral or written Agreements between the parties as to the subjects covered herein. No changes or additions to this Agreement shall be valid or binding upon either party unless such change or addition are in writing and executed by both parties.

Agreement for Meeting Room Services

**17. NOTICES.** Unless stated otherwise herein, all notices and demands shall be in writing and sent or hand-delivered to the parties to their addresses as follows:

Yakima County	<b>Lisa Freund, Administrative Manager</b> Yakima County Public Services 128 N. Second Street Yakima WA 98901 Ph: 509-574-2200 FAX: 509-574-2301 E-mail: <a href="mailto:lisa.freund@co.yakima.wa.us">lisa.freund@co.yakima.wa.us</a>
KDNA	Name <u>Juan Ozuna</u> 121 Sunnyside Avenue P.O. Box 800 Granger, WA 98932 Ph: 509-854-1900 or 509-854-2222 FAX: 509-854-2223 E-mail <u><a href="mailto:jozuna@kdna.org">jozuna@kdna.org</a></u>

Or, to such other addresses as the parties may hereafter designate in writing. Notices and/or demands shall be sent by registered or certified mail, postage prepaid, or hand-delivered. Such notices shall be deemed effective when mailed or hand-delivered at the addresses specified above.

- a) **GOVERNING LAW.** This Agreement shall be governed by and construed in accordance with the laws of the State of Washington.
- b) **APPROVAL AND FILING.** Each party shall approve this Agreement by resolution, ordinance or otherwise pursuant to the laws of the governing body of each party. The attested signatures of the County and the KDNA below shall constitute a presumption that such approval was properly obtained. A copy of this Agreement shall be filed with the Yakima County Auditor's Office pursuant to RCW 39.34.040.

Agreement for Meeting Room Services

(Agreement name & number)

Done THIS 23 DAY OF January 2014

RADIO KDNA, GRANGER, WA

Signature: 

Name: Ivan Ozung

Title: General Manager

Date: 1/23/14

BOARD OF YAKIMA COUNTY  
COMMISSIONERS

 Kevin Bouchey, Chairman  
 J. Rand Elliott, Commissioner

Excused

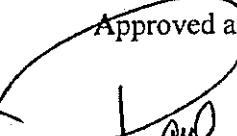
Michael D. Leita, Commissioner  
*Constituting the Board of County Commissioners for  
Yakima County, Washington*

  
Attest: Tiera Gerard  
Clerk of the Board

BOCC37-2014  
February 5, 2014

Mandy Burkett  
Deputy Clerk of the Board

Approved as to form:

  
Paul E. McIlrath  
Senior Deputy Prosecuting Attorney



Agreement for Meeting Room Services

**Attachment A**

**Northwest Communities' Education Center**

**Facility Use Request Form**

## Agreement for Meeting Room Services

### Northwest Communities Education Center Facility Use Agreement

It is Northwest Communities' Education Center (NCEC) desire that all patrons who periodically use the NCEC Facility are able to enjoy the Facility. This agreement has been set in place to achieve that goal.

The person signing this agreement and the organization on whose behalf the Facility is being requested are responsible for compliance with this agreement. All Organizations utilizing the Facility are required to read and sign the Facility Use Agreement. Please read carefully, and sign in the signature page at the end of this document.

#### 1. CONDITIONS OF USE

##### A. RESERVATIONS

1. Organizations desirous of reserving space in the Facility should make reservations by completing the Facility Use Request Form.
2. The space is not considered rented until (1) Renter delivers to NCEC the Facility Use Agreement, certificate of insurance, written evidence of permits and licenses, and any other items deemed necessary by NCEC; and (2) NCEC, in its sole discretion, approves such rental in writing.
3. Renter shall be responsible for securing all required permits and licenses.
4. The facility shall be used for the purpose stated in the Facility Use Request Form and no other use will be permitted.
5. Renter shall permit any NCEC officers, employees, or agents to visit the event described in this agreement.
6. Renter shall be responsible for picking up the keys to the Facility, if any, from NCEC prior to the event. Renter shall return keys immediately following the event or the next business day to NCEC.
7. After hours, the Renter shall be responsible to secure the Facility after the event. Making sure that the doors are locked and the security alarm system is on.
8. Under no circumstances shall Renter sublease or allow any other organization or individual to use the Facility for the period for which Renter has contracted. Renter is an independent contractor and not the agent or employee of NCEC.

##### B. FEES

1. NCEC may require a rental fee and/or a deposit from Renter.
2. Any person or agency holding a reservation for the use of NCEC facilities and desiring to cancel such reservation may be subject to the withholding of a portion of or the entire rental fee for the Facility.
3. In the event the Facility is left damaged, Renter shall be charged for any and all janitorial and/or repair fees incurred by NCEC as a result of same and these fees shall be billed to Renter.

##### C. SECURITY

1. NCEC, at its sole discretion, may require a certain number of security officers for the event. Renter shall be responsible for procuring and paying for security.

## Agreement for Meeting Room Services

2. Renter is solely responsible for supervising all individuals at the Facility and adjoining property during the event. NCEC is not responsible for providing this supervision. However, NCEC may evict individuals from the Facility during the event if their conduct is not in the best interest of the public or is deemed to be detrimental in any way.

### D. SET UP / CLEAN UP / DECORATIONS

1. Renter shall not drive or permit to be driven nails, hooks, tacks, screws, poles, stakes or other forms of fasteners into any part of the Facility and shall not make or allow to be made any alterations of any kind therein.
2. Renter shall be responsible for all clean up of the Facility, including adjacent grounds, at the end of the rental. Renter shall pick up, bag, and remove all trash generated by all activity in any way connected with its use of the Facility, leaving the Facility clean and free of all trash and litter. Renter shall also leave all fixtures, if any, in good working condition.
3. Renter shall not store any equipment or materials at the Facility or adjoining property without the prior written approval of NCEC Manager or his/her designee.
4. Renter shall be responsible for any and all damage to the Facility and/or its contents during use. In the event damage occurs or excessive cleaning is necessary, Renter shall be charged for any and all janitorial and/or repair fees incurred by NCEC as a result.

### E. MISCELLANEOUS

1. Renter shall comply with all local, state, and federal laws and regulations related to the use of the Facility.
2. Renter shall not admit a larger number of individuals than can lawfully, safely, and freely move about the Facility.
3. Smoking is not permitted at the Facility.
4. No animals are permitted at the Facility, with the exception of guide dogs.
5. If any provision of this agreement is held to be invalid or unenforceable, the remaining provisions shall remain in full force and effect.

I am an authorized agent of the organization submitting this agreement. The information provided in this agreement is true and correct. I have read and understand this agreement and agree to all of the aforementioned rules, regulations and conditions of use.

Signature



Print name Kevin J. Bouchey, Chairman

Organization

Yakima County

Address 128 N. 2nd St. Yakima  
WA 98901

Agreement for Meeting Room Services

Telephone: Home \_\_\_\_\_ Work \_\_\_\_\_

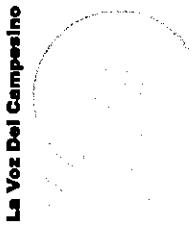
OFFICE USE ONLY

Application Approved by: \_\_\_\_\_ Date Approved: \_\_\_\_\_

Confirmed Application with Applicant by: \_\_\_\_\_

Price agreed between NCEC and Applicant: \$ \_\_\_\_\_

NCEC FACILITY RENTAL PRICES	Non-Profits (with 11 or more employees)	Non-Profits (with 10 or less employees)	State Institutions or Agencies	For-Profit Business	Churches	Individual / Social Events	City of Granger, Student & Support Groups
1 Meeting Room, Video Conference Room, or Computer Lab Less than $\frac{1}{2}$ Day	\$25/hr	\$20/hr	\$25/hr	\$25/hr	\$20/hr	\$15/hr	n/c
1 Meeting Room, Video Conference Room, or Computer Lab $\frac{1}{2}$ Day (5 hours)	\$80	\$60	\$80	\$80	\$60	\$40	n/c
1 Meeting Room, Video Conference Room, or Computer Lab Full Day (6 to 10 hours)	\$160	\$100	\$160	\$160	\$100	\$80	n/c
2 Meeting Rooms Less than $\frac{1}{2}$ Day	\$50/hr	\$40/hr	\$50/hr	\$50/hr	\$40/hr	\$30/hr	n/c
2 Meeting Rooms $\frac{1}{2}$ Day (5 hours)	\$160	\$100	\$160	\$160	\$100	\$100	n/c
2 Meeting rooms Full Day (6 to 10 hours)	\$280	\$160	\$280	\$280	\$160	\$160	n/c
3 Meeting Rooms Less than $\frac{1}{2}$ Day	\$75/hr	\$60	\$75/hr	\$75/hr	\$60/hr	\$45/hr	n/c
3 Meeting Rooms $\frac{1}{2}$ Day (5 hours)	\$240	\$150	\$240	\$240	\$150	\$150	Discount Negotiated
3 Meeting Rooms Full Day (6 to 10)	\$380	\$260	\$380	\$380	\$260	\$260	Discount Negotiated
Full Center - 4 meeting rooms $\frac{1}{2}$ Day (5 hours)	\$320	\$200	\$320	\$320	\$200	\$200	Discount Negotiated
Full Center Full Day (6 to 10 hours)	\$480	\$320	\$480	\$480	\$320	\$320	Discount Negotiated



# Northwest Communities Education Center

## Radio KDNA

P. O. Box 800 Granger, Washington 98932  
(509) 854-2222 Fax (509) 854-2223

**KDNA 91.9 FM**

### Radio KDNA Underwriting Agreement

This Underwriting Agreement is made this January of 23, 2014 Between KDNA, 121 Sunnyside Avenue, Granger, WA 98932 and

Underwriter: Yakima County  
Contact name: Lisa Freund/Ignacio Marquez  
Address: 128 N. 2<sup>nd</sup> Street Yakima, WA 98902  
Telephone/Fax/Email: \_\_\_\_\_ desires to support KDNA general operations by providing Underwriter's name, GROUND WATER funding in the amount of \$1,000.00 in the form of an unrestricted operating grant. GROUND WATER agrees to pay such funds in accordance with the Underwriter's name.

Payment schedule below:      88 announcements at \$11.3636 each  
Production of announcement In-Kind (\$200)  
One hour Public Affairs Program on 2/14/14 In-Kind (\$400)

Payment schedule:      (monthly billing option)

KDNA desires to acknowledge underwriter's public interest support in accordance with Federal Communications Commission, Internal Revenue Code, Public Broadcasting Service, National Public Radio and KDNA's local Underwriting Guidelines. KDNA acknowledgement of underwriter's support of programs will begin on 1/23/14 and will continue for 6 weeks, ending on 2/25/14. KDNA's acknowledgement will be in the manner set forth in the Underwriting Airing Schedule.

KDNA reserves the right to schedule, pre-empt, and/or reschedule said programs as the station deems necessary in order to provide the most significant service to its listening audience.

KDNA retains the right to interrupt or pre-empt any underwriting announcement covered by this Agreement at any time in case of emergency, or to broadcast other announcement or programs, if in its editorial discretion, to do so would best advance the Station's public interest responsibilities.

This agreement shall be governed by, and construed and enforced in accordance with the laws of the State of Washington and shall be performable in Yakima County, Washington.

KDNA:

Signature: \_\_\_\_\_

Print Name: Carolina E. Montes

Underwriter:

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Date: \_\_\_\_\_

AMENDMENT # 2  
AGREEMENT BETWEEN YAKIMA HEALTH DISTRICT AND YAKIMA COUNTY PUBLIC SERVICES  
DEPARTMENT

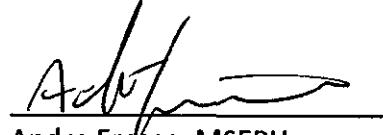
THIS AMENDMENT is made to the agreement dated June 25, 2013 between the County of Yakima, Washington (hereinafter called the "County") whose address is Yakima County Courthouse, 128 N. 2nd St., fourth floor, Yakima, WA 98901 and the Yakima Health District (hereinafter referred to as the "Health District") 1210 Ahtanum Ridge Dr., Yakima, WA 98903.

It is mutually agreed that the above referenced Agreement shall be revised to extend the term of this Agreement to May 31, 2014. All other provisions remain unchanged.

IN WITNESS THEREOF, the County and the Health District have executed this amendment as of the date and year last written below.

DONE this 14 day of MARCH 2014

YAKIMA HEALTH DISTRICT

  
Andre Fresco, MSEPH  
Administrator, Yakima Health District

  
Attest: Tiera L. Girard

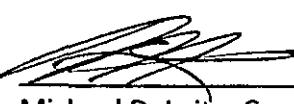
Clerk of the Board

  
Approved as to form:  
Deputy Prosecuting Attorney

BOARD OF YAKIMA COUNTY COMMISSIONERS

  
Kevin J. Bouchey, Chairman

  
J. Rand Elliott, Commissioner

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

BOCC86-2014  
March 25, 2014