



# Public Services

128 North Second Street · Fourth Floor Courthouse · Yakima, Washington 98901  
(509) 574-2300 · 1-800-572-7354 · FAX (509) 574-2301 · [www.co.yakima.wa.us](http://www.co.yakima.wa.us)  
VERN M. REDIFER, P.E., Director

July 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 Second Quarter Report (IAA No. C 1200235)

Dear Charlie:

Enclosed please find one (1) copy of Yakima County's second 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 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 – 2nd Quarter 2014 Report**  
**Lower Yakima Valley GWMA**  
**June 30, 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 final GWAC meeting summaries of February 20, 2014 and April 17, 2014; the draft meeting summary of June 19, 2014; the Education and Public Outreach (EPO) Working Group summaries of April 2 and May 28, 2014; the Livestock/CAFO Working Group summary of May 8, 2014; the Irrigated Ag Working Group summary of June 19, 2014; the Residential, Commercial, Industrial, and Municipal (RCIM) Working Group summaries of April 24, May 22 and June 26, 2014; the Data Collection, Characterization and Monitoring Working Group summary of May 8, 2014; and the Regulatory Framework Working Group teleconference summary of April 17, 2014.

**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 provided input on the following documents in the second quarter:

- Deep Soil Sampling Plan – dated March 28, 2014
- Deep Soil Sampling Questionnaire
- Nitrate Education PowerPoint Slides
- New Mom Educational Flyer

The GWAC learned how nitrates standards were developed and how its own GWMA program would be staged through two educational presentations:

- Nitrate Maximum Contamination Level (MCL) Standards - Fredianne Gray, US EPA, April 17, 2014
- GWMA Program Development Presentation - Kirk Cook and GWAC Chairs, June 19, 2014

The GWAC educational presentations can be viewed at:  
[http://www.yakimacounty.us/gwma/meeting\\_presentations.php](http://www.yakimacounty.us/gwma/meeting_presentations.php)

In other activities, consultants PGG continued work on the Draft Groundwater Monitoring Plan, responding to comments made by the GWAC in the second quarter. PGG released the "GWMA Interim Final Groundwater Monitoring Plan" to the Data Working Group on June 30, 2014 (version 6). As the GWAC has not yet reviewed the plan, it will be included in the third quarter report.

The GWAC comments and PGG responses to the Draft Groundwater Monitoring Plan are included as Attachment (B)

The Yakima Health District continued conducting the High Risk Well Assessment on-site surveys. As of June 30, 151 well samples (150 surveys) were completed. The results will be included in the third quarter report.

### **Deep Soil Sampling Program - Status**

Led by the Irrigated Ag Working Group (IAWG), the GWAC reviewed and approved the Deep Soil Sampling plan (DSS) and landowner questionnaire. At its April meeting the GWAC was advised of the draft agreement between the South Yakima Conservation District (SYCD) and Yakima County. The agreement's purpose was to authorize SYCD to administer the DSS plan on behalf of the GWAC. The Board of County Commissioners will sign the ILA on July 15, 2014.

Outreach for the voluntary sampling program kicked off in May with a direct-mail invitation to approximately 6600 landowners in the Sunnyside Valley Irrigation District (SVID) and RID. An announcement was also published in the SVID newsletter. Bid documents for the lab and sample collector were completed in June and the first of two advertisements was published on June 29. The bid opening was slated for July 18 with an anticipated award date of July 25. The program remains on schedule to begin in September.

The Deep Soil Sampling Plan, questionnaire, invitation to growers and the *Yakima Herald Republic* June 29 advertisement are included as Attachment (C)

### **GWMA Program Development**

In April the working group chairs conferred and agreed that confusion among the GWAC members about the GWMA's purpose and plan development was hindering the group's ability to hold productive meetings and to move forward with the plan. Kirk Cook offered to develop a presentation that would educate the GWAC about the GWMA development process. The presentation was created in partnership with the working group chairs and was presented to the GWAC at its June 19 meeting.

The working group chairs also concluded that the time and resources needed to guide and develop the program were beyond the capacity of volunteer chairmen. They requested that the County assume a stronger guiding role in developing the plan. Accordingly, on June 17, 2014, the County entered into an agreement with consultant James Davenport to coordinate the GWMA program development.

The agreement is included as Attachment (E)

## **Working Group Activities:**

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

The EPO met on April 2 and May 28 to complete its New Mom flyer concept, review the Nitrate Education slides and review the High Risk Well Survey outreach efforts.

### **New Mom Educational Flyer/PEHSU Partnership**

The EPO partnered with the University of Washington's Northwest Pediatric Environmental Health Specialty Unit (PEHSU) to complete its New Mom flyer concept. The flyer's purpose was to explain the importance of testing well water for nitrate and how to protect infants from elevated nitrates. The simple one-page flyer (English/Spanish) was a stand-alone document that could be posted on the web, handed out at events or at meetings with potential new mothers. Following PEHSU review, the document was reviewed and approved by the GWAC on June 19.

Inspired by the EPO initiative, PEHSU developed its own brochure and technical training for health care providers in the Lower Yakima Valley. The brochure's message was identical to the New Mom flyer but written for a technical audience. The training's purpose was to raise local healthcare providers' awareness of the health impacts of drinking water with elevated nitrates: who's at risk, how to recognize symptoms in patients and how to treat patients who exhibit symptoms of methemoglobinemia. The training would be conducted by pediatricians and was scheduled to begin later this summer.

PEHSU intends to work closely with EPO to coordinate the outreach; however, its technical training is a separate EPA/PEHSU initiative independent of the GWAC. Training dates and clinician feedback will be communicated with the EPO to enhance both outreach efforts.

### **Nitrate Education Slides**

The EPO edited the nitrate education slides as requested by the GWAC at its February 20 meeting. The purpose of the slides was to create a template that GWAC members could use in their own outreach to community groups. The slides would also be posted on the web. Following minor GWAC edits, the slides were approved by the GWAC at its June 19 meeting.

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

An English/Spanish news release was issued on May 1, 2014 reminding households of the May 31 deadline to participate in the free well testing. Anticipating ongoing demand, Yakima County continued to take names of households that expressed interest in participating after the contract expired. The EPO will work with the Health District to pursue another contract to continue the well testing.

New Mom flyer, Nitrate Education slides and High Risk Well Assessment English/Spanish news release are included as Attachment (D)

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

The Livestock/CAFO Working Group met on May 8 to discuss the EPA findings associated with the dairy cluster in the Lower Yakima Valley as the committee is still interested in obtaining data from this project. Some reports include a Field Application Management Plan, Quality

Assurance Project Plan for groundwater monitoring, and Lagoon Assessment Plans. The group also discussed the 2014 Task List charged to them by the GWAC. The Chair recapped the main nitrate sources that need to be addressed per the task list, and noted that most things were scheduled to be addressed; however, research on a corral and pen sampling strategy needed to be developed.

The working group developed no products or GWAC action items in the second quarter.

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

The Irrigated Agriculture working group met on June 19 to continue its work related to the DSS start up: contracting with a laboratory, finalizing bid documents, (the group reviewed the number of boring sites, boring depths, whether bid and performance bonds would be included in the package). Several working group members will be recruited to review bids on July 21 – 24. The group reviewed the SVID newsletter article inviting participation in deep soil sampling. SYCD reported that they have received at least 20 calls from growers interested in participating. Additional outreach is planned with the assistance of the EPO Working Group, including a booth during the August Grandview Fair. The final ILA between SYCD and Yakima County was also discussed.

Tom Tebb challenged the group to start thinking about the budget beyond 2015. In response to a question about Deep Soil Sampling Plan data analysis, the group learned that Pacific Groundwater Group is developing the nitrate database as part of its contract. SYCD will enter the information collected from the deep soil sampling program in the database. The EPO's High Risk Well Assessment data, HDR's data and others are also being compiled in the database. Ultimately the Data Working Group will need to analyze the nitrate database.

On June 25, the sub-group tasked with preparing the bid documents finalized the documents and confirmed the legal ad publication dates. The ads were published on June 29 and July 6 in the *Yakima Herald Republic*. The bid opening date was scheduled for July 18, with an award date of July 25. Participation in the bid review panel was also discussed.

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

The RCIM working group met on April 24, May 22, and June 26. During the April meeting, the group continued its discussion of the *Steps in Developing a Marketing Plan* document provided by the EPO Working Group. The group focused on target audiences, which led to multiple target audiences being identified. Non-permitted audiences were identified as the most important, as they do not have regulatory authorities monitoring their actions. Avenues for public information were discussed, including the creation of a nitrate referral line. Such a hotline would benefit residents for further information on outreach materials or education.

Abandoned/improperly decommissioned wells were discussed, and the group felt that it must pursue these potential sources of nitrate contamination. It was suggested that the GWMA set aside funds for a pilot program that would allow landowners to submit information on wells of this type, and allow for proper decommissioning without financial burden to the landowner. One participant inquired about identifying compliance actions or status of compliance actions taken by the Department of Ecology associated with known or specific nitrate plumes or spill locations. The Department of Ecology representative in attendance could not comment on those actions at that time.

At the May meeting Ecology (ECY) addressed the issue of known nitrate plumes or nitrogen spills within the LYV GWMA boundary. The Ecology representative identified two CY programs that deal with such discharges to the environment: the Toxics Release Inventory (TRI), and the Environmental Report Tracking System (ERTS). Ecology stated that in order to extract useful information from these databases for the GWMA, a lot of information must be reviewed. Many reports turn out to be non-releases after investigation. Ecology will attempt to determine the best way to filter information that is relevant to the GWAC. It was also suggested that it would be useful if Ecology could provide information concerning the effect that their actions have had on spills and plumes.

In June the working group focused on developing a budget for 2014 Task List projects that would support the GWMA Plan development. Jim Davenport introduced himself and explained that he had been hired by the County to help coordinate the GWMA program development. An abandoned/improperly decommissioned well identification program was discussed. The goal of this program would be to allow residents within the GWMA boundary to submit information about potentially abandoned or improperly decommissioned wells without the fear of being held legally or financially responsible. The group agreed to move forward with the concept and propose it to the GWAC at its August meeting.

The group also returned to the nitrate source referral line concept. The referral line would be available to citizens who might have questions regarding nitrate sources. The scope of the hotline and the end product were discussed; the group thought it might be more like a GWMA resource directory. For example, one could call the hotline with a question about septic systems, and the directory could refer them to the Department of Health. Along with the support of the EPO Working Group, the RCIM reached consensus that they will need to make a list of potential sources and contacts to incorporate into the phone tree.

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

The Data Collection Working Group met on May 8. The Chair explained that he would be giving a presentation during the next GWAC meeting on the GWMA process and how all of the elements relate to building a comprehensive approach to nitrate in the LYV GWMA. It was his hope that this presentation would also help tie together all of the loose ends and uncertainties some members may be experiencing. The Chair then moved on to discuss Pacific Groundwater Group's Draft Groundwater Monitoring Plan document. Discussion focused on the reasons and need for purpose-built monitoring wells, the characterization plan, short- and long-term monitoring, number of wells, and data quality objectives. Kirk asked the group to submit their comments to him which he will compile and submit to the County. The draft scope of work for the Nutrient Loading Assessment was discussed. Kirk explained that the nutrient loading assessment would be a comprehensive assessment for all nutrient sources within the LYV GWMA. Most comments centered on the granularity or resolution of the assessment, and what data types would be present. Members were asked to submit comments to Kirk which he would compile and relay to the County. Finally, dedicated or purpose-built monitoring wells were discussed. The members agreed that they need to start discussing the scope of the wells, numbers and locations. Some agreement needs to be reached on concept and what information needs to be collected.

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

The Regulatory Framework Working Group held one meeting via teleconference on April 17. Phyllis Barney, Assistant Attorney General on Water Quality Law and Regulation provided an overview of water quality law and regulation. Topics of interest were the 1972 Federal Clean Water Act, 1945 RCW 90.48, EPA CAFO Rule, Washington Regulatory Scheme, RCW 90.64 Dairy Nutrient Management Act, RCW 90.54.020(3)(b) – Antidegradation Policy, and the Groundwater Management Areas WAC 173-100. Proposed next steps included the continue review of Technical Memo #1 Regulatory Review Database from HDR, conduct Regulatory Program Analysis, review and update the 2014 Task List, refine Regulatory Framework webpage content, and develop an Information Sheet on LYV GWMA and what is applicable to WAC 173-100.

The working group developed no action items or products in the second quarter.

**GWMA Website**

The County continued to explore ways to provide a member-only portal for posting draft GWAC documents. The GWMA calendar was 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:**

JHDavenport LLC (June 17, 2014)

The agreement is included as Attachment (E)

## Attachment A

- GWAC Attendance Records, Agendas and Public Meeting Notices for April 17 and June 19, 2014
- Final GWAC Meeting Summaries of February 20, 2014 and April 17, 2014; Draft GWAC Meeting Summary of June 19, 2014
- Education and Public Outreach Working Group Summaries of April 2 and May 28, 2014
- Livestock/CAFO Working Group Summary of May 8, 2014
- Irrigated Ag Working Group Summary of June 19, 2014
- Residential, Commercial, Industrial and Municipal Working Group Summaries of April 24, May 22 and June 26, 2014
- Data Collection, Characterization and Monitoring Working Group Summary of May 8, 2014
- Regulatory Framework Working Group Teleconference Summary of April 17, 2014

# Lower Yakima Valley GWAC Meetings

## Attendance

GWAC Meetings			
PRIMARY (ALTERNATE)	17-Apr-2014	19-Jun-2014	
Elliott, Rand	absent	absent	
(Redifer, Vern)	attended	attended	
Sanchez, Elizabeth	attended	absent	
(Ring, Tom)	absent	absent	
George, Steve	attended	attended	
(Waddington, Justin )	absent	absent	
Sheehan, Jason	absent	absent	
(DeGroot, Dan)	attended	absent	
Turner, Stuart	attended	attended	
(Dursey Chelsea)	absent	attended	
Reddout, Helen	absent	absent	
(Hannigan, Wendell)	absent	absent	
- ALT/Alt Rep: Fendell, Larry		attended	
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	attended	attended	
(Van Wingerden, John)	attended	absent	
Cook, Kirk	attended	attended	
(Prest, Ginny)	absent	attended	
Cervantes, Andy	attended	attended	
(Stern, Ginny)	absent	attended	
McKinney, Charlie	absent	attended	
(Tebb, Tom)	attended	attended	
Eaton, Tom	absent	attended	
(Jennings, Marie)	absent	absent	
Kelly, Gordon	absent	attended	
Desta, Dr. Kefy	absent	absent	
(Peters, Dr. Troy)	attended	absent	
Frans, Lonna	absent	absent	
(Bachmann, Matt)(Barbash,- Jack)	absent	attended	
Trull, Jim	absent	attended	
(Cowin, Ron)	absent	absent	
Guerra, Lino	absent	absent	
(Perez, Rick)	absent	absent	
Simpson, Doug	attended	absent	
Rogers, Kathleen	absent	attended	
(Rogers, Bud)	absent	attended	
Newhouse, Patricia	attended	absent	
(Wedam, Sue)	absent	attended	
Davenport, Jim		attended	

**Meeting Time and Location****Thursday, April 17, 2014, 5:00 – 7:00 p.m.**

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

**Purpose of the Meeting:**

- Learn about nitrates standards and their origin
- Review Irrigated Agriculture Working Group Deep Soil Sampling scope of work
- 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
5:20 – 5:35 p.m.	Committee Business	<ul style="list-style-type: none"> <li>• Approve February 20 meeting summary</li> <li>• Discuss committee information needs for future work</li> </ul>	Penny Mabie
5:35 – 5:50 p.m.	Deep Soil Sampling	Review proposed scope of work from Irrigated Agriculture Working Group	Jim Trull
5:50 – 6:20 p.m.	Nitrate standards	<ul style="list-style-type: none"> <li>• Hear presentation from EPA on nitrate standards and how they were developed</li> <li>• Committee questions</li> <li>• Hear from working groups</li> </ul>	TBD, EPA
6:20 – 6:45 p.m.	Working Group Report Out		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: August 21, 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

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

**Meeting Materials**

Name	Date Provided	From
2014_0220_GWAC_FEB_DraftMtgSummary	March 17, 2014	Email from Pmabie@enviroissues.com
2014_0317_GWAC_WorkGroupsTaskList	March 17, 2014	Email from Pmabie@enviroissues.com
RCIM Workgroup_February_27_2014_final	April 10, 2014	Email from Pmabie@enviroissues.com
RCIM Workgroup_March_27_2014_final	April 10, 2014	Email from Pmabie@enviroissues.com
IAWG Meeting Notes_2014_02-20_final	April 10, 2014	Email from Pmabie@enviroissues.com
2014_0402_EPO_Summary_FINAL	April 10, 2014	Email from Pmabie@enviroissues.com
3-16-14 Joint Data_Livestock_IrrigatedAg_RCIM_MeetingNotes Final	April 10, 2014	Email from Pmabie@enviroissues.com

**Meeting Time and Location****Thursday, June 19, 2014, 5:00 – 7:00 p.m.**Radio KDNA in Granger  
121 Sunnyside AveConference rooms 1 & 2  
Granger, Washington**Purpose of the Meeting:**

- Gain a better understanding of how the GWAC's work will inform the GWMA program
- Review and approve Irrigated Agriculture Working Group Deep Soil Sampling scope of work and farmer survey
- 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
5:20 – 5:35 p.m.	Committee Business	• Approve April 17 meeting summary	Penny Mabie
5:35 – 6:20 p.m.	GWAC work and development of the GWMA Program	Hear from the chairs of the working groups about how committee and working group work, proposed studies, and other efforts will lead to GWMA program	Working Group Leads
6:20 p.m.	Break		
6:30 – 6:45 p.m.	Working Group Actions	<ul style="list-style-type: none"> <li>• Approve EPO products (PowerPoint slides and New Mom flier)</li> <li>• Approve Deep Soil Sampling scope of work and farmer survey</li> <li>• Report out from other working groups</li> </ul>	Tom Eaton Andy Cervantes Jim Trull Other 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 (GWAC budget)	Penny Mabie
7:00 p.m.	Adjourn		

**Next Meeting: August 21, 2014**

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Tom Eaton, Marie Jennings (alternate)	U.S. Environmental Protection Agency
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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

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- Listen actively
- Participate actively
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April 17	August 21	December 18 (TBD based on need)

**Meeting Materials**

Name	Date Provided	From
Regulatory Framework 2-12-14 Final Meeting Notes_final	April 29, 2014	Email from Pmabie@enviroissues.com
Deep Soil Sampling Questionnaire 03-24-2014	April 29, 2014	Email from Pmabie@enviroissues.com
2014 03 28 Deep Soil Sampling Plan – VERSION 6 clean	April 29, 2014	Email from Pmabie@enviroissues.com
PGG Response to Comments on March 6 Presentation	May 8, 2014	Email from Pmabie@enviroissues.com
PGG Response to Comments Table	May 8, 2014	Email from Pmabie@enviroissues.com
2014_0417_mtg3_DraftMtgSummary_v1	May 8, 2014	Email from Pmabie@enviroissues.com
Regulatory Framework 4-17-14 Meeting Notes_final	May 8, 2014	Email from Pmabie@enviroissues.com

**Groundwater Management Area (GWMA):**

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

2014_0528_EPO mtg summary_FINAL	June 5, 2014	Email from Pmabie@enviroissues.com
NewMomNitratesFActSheetFinal (2)	June 5, 2014	Email from Pmabie@enviroissues.com
2GWAC Presentation_Add In Slides_NITRATE ED WHO's AT RISK_EPO response to GWAC_2014_0604_v5lf)	June 5, 2014	Email from Pmabie@enviroissues.com



## 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, April 17, 2014**  
**at 5:00 PM at Radio KDNE**  
**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  
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 Administra-  
tive Manager at 574-2300.  
Dated this Wednesday, April  
9, 2014

(424091) April 10, 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.

Date:	04/09/14
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 04/10/14  
YakimaHerald.com 04/10/14

Ad ID:	424091
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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.

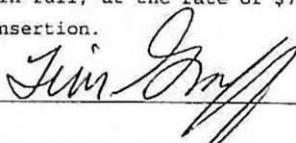
That said newspaper is a legal newspaper and it is now and has been for more than six months prior to the date of publications hereinafter referred to, published in the English language continually as a daily newspaper in the city of Sunnyside, YAKIMA County, Washington, and it is now and during all 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.

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Yakima County Public Services

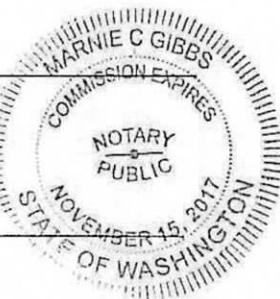
Groundwater Mtg 4-17-14

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Subscribed and sworn to before me, 04/10/14

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



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, April 17, 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, April 9, 2014

PUBLISH: DAILY SUN NEWS  
April 10, 2014



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,  
June 19, 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 Man-  
ager at 574-2300.  
Dated this Wednesday, June  
11, 2014

(443313) June 12, 2014

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

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by contacting your  
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Date: 06/11/14  
  
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 06/12/14  
YakimaHerald.com 06/12/14

Ad ID: 443313  
  
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Total Cost: \$67.70  
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Email: ssizer@yakimaherald.com

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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  
Groundwater Mtg 6-19-14  
published in regular issues (and not in supplemental forms) of said newspaper once each week for a period of 1 consecutive issue(s) commencing 06/12/14 and ending on 06/12/14, 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 \$ 33.75, amount has been paid in full, at the rate of \$7.50 per column inch per insertion.

Subscribed and sworn to before me 06/12/14

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

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Lower Yakima Valley Groundwater  
Advisory Committee

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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, June 11, 2014

PUBLISH: DAILY SUN NEWS  
June 12, 2014



1  
2  
3  
4

## LOWER YAKIMA VALLEY GROUNDWATER MANAGEMENT AREA ADVISORY COMMITTEE (GWAC)

8 MEETING SUMMARY

10 Thursday, February 20, 201

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

## 15 I. Call to Order

17 **Roll Call:** The meeting was called to order at 5:01 pm by Penny Mabie,  
18 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)		✓
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 Dyjak	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 will  
46 always go back to the guidelines and will keep redirecting the group to keep  
47 them focused by asking how discussion items support the program. "How does  
48 [this issue] help promote the outcomes we're charged to accomplish?"  
49

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

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

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

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

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

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

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

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

78  
79 Bob presented an amendment to a contract for consulting services with HDR.  
80 The objective of the amendment is to have HDR "create a spatial database of  
81 residential, commercial, industrial, and municipal (RCIM) nitrogen sources in the  
82 Lower Yakima Valley."

83  
84 Source data will be compiled from Yakima County to identify septic systems,  
85 fertilizer applied to lawns and gardens, pet waste and hobby farms. Department  
86 of Ecology records will be used to identify sites with NPDES or State Waste  
87 Discharge Permits. Department of Ecology's Underground Injection Control (UIC)  
88 database and local municipalities will be used to "identify features that may act  
89 as conduits allowing surface water (and potentially contaminants within it) to  
90 more easily enter groundwater." The information gathered will be used to  
91 estimate nitrate loads to groundwater.

92  
93 Comments were made that the database could be expanded to include cattle  
94 sources and irrigated croplands. Vern stated the database would be  
95 expandable but it doesn't mean that we would use the same methodology that  
96 RCIM used. It was also stated that biosolids application areas, injection wells,  
97 and loading from sources would be estimated. Questions were raised where the  
98 critical recharge areas are in relation to underground injection control wells.  
99 Vern stated he has maps of critical recharge areas but will find out what the  
100 data source is for these. RCIM believes this is a necessary way to locate the  
101 sources.

102  
103 It was suggested that data from other agencies and projects might be added to  
104 this but this option was not discussed by the RCIM. Vern stated if we look at  
105 other methodology we are looking for something that is appropriate for our  
106 project and in the middle. Bob will take this suggestion back to the RCIM group  
107 for discussion.

108  
109 Concerns were raised about determining how many septic systems are in the  
110 county. Vern stated that we already know where municipal sewers are so we  
111 know that everyone outside those boundaries are using septic systems. There is  
112 data from the census that shows household size and dwelling units. We can pull  
113 the information together to give us a meaningful range of calculations.

114  
115 When the data is compiled it will be used to disseminate the information to the  
116 public to make them aware of the importance of maintaining their septic  
117 systems and to monitor their application of fertilizer to their lawns and gardens as  
118 these sources add to the load to the aquifer.

119  
120 Vern stated that WAC 173-100 states that we must look at all sources, quantify  
121 them, make recommendations and educate the public.

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

125  
126 The GWAC agreed to approve the amendment with HDR and to forward it to  
127 the County for execution.

128  
129

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

131  
132 Penny reviewed Elements of the GWMA Program flow chart with the group  
133 and described how the work done tonight fits into problem identification  
134 element.

135  
136 **VIII. GWAC and 2014 Working Group Task List/Schedule: Penny Mabie**

137  
138 Penny presented the 2014 Working Group Task List spreadsheet that she had  
139 compiled from five of the seven working groups. The spreadsheet identifies what  
140 each working group intends to accomplish for each month of 2014, and when  
141 they anticipate presenting information or seeking approval from the full GWAC  
142 committee. She noted that the task list illustrates that most work belongs at the  
143 working group level, not at the GWAC committee level. A member suggested  
144 that if the GWAC met less frequently, it would free up time for the working groups  
145 to complete their tasks. Members voiced agreement that this was the right idea  
146 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 **IX. Working Group Reports:**

154  
155 **EPO:** Lisa Freund presented two slideshows and a flyer for the committee's  
156 approval: The "Nitrate Education" and "Nitrogen Cycle" slideshows and a High  
157 Risk Well Assessment flyer. The three materials support the High Risk Well  
158 Assessment survey currently underway. Slideshows are intended to be used by  
159 the GWAC members when they make presentations to peer groups, constituents  
160 and others. They will also be made available at Worksource in Sunnyside. The  
161 flyers will be distributed at Worksource, Lower Valley Solid Waste facilities and  
162 other Lower Valley locations.

163  
164 The Nitrogen Cycle slides were considered confusing. It was stated that instead  
165 of an EPA conceptual model we should just stick to the facts and we want to  
166 make sure that it is clear. Issue was taken with some of the facts on the slides  
167 and the conceptual model that was illustrated. Several members asked for

168 additional time to review the slides, make edits and to bring back the revisions at  
169 the next GWAC meeting.

170  
171 Lisa observed that with meetings being only every two months, the delay could  
172 put outreach behind schedule for the EPO and other working groups. Penny  
173 stated that we do not have time to be wordsmiths at the GWAC meetings and  
174 that members need to review the material before meetings, take a good hard  
175 look at it and send comments timely back to the working group.

176  
177 The GWAC agreed that the Nitrogen Cycle slides would not be used as  
178 presented. They agreed that they would review the Nitrate Education slides and  
179 send changes to Lisa by Monday. She will consider the changes and make edits  
180 as she sees appropriate. The resulting version will be used on a limited basis at  
181 Worksource. It will be brought back to the GWAC in April for its consideration and  
182 approval.

183  
184 The GWAC approved the flyer as presented.

185  
186 Lisa also reported that the EPO had considered translating GWAC meeting  
187 summaries into Spanish as requested by a GWAC member. The EPO  
188 recommends that meeting summaries not be translated at this time; however,  
189 this decision will be revisited if the public indicates support for it.

190  
191 **Irrigated Agriculture:** No comment.

192  
193 **Livestock/CAFO:** Charlie McKinney noted that the Livestock/CAFO group listed  
194 potential sources for nitrates such as field application of manure, corrals and  
195 pens, compost yard and storage areas, solid manure storage areas and  
196 seepage from manure storage lagoons. Seepage from manure storage lagoons  
197 will have fairly good data from about 28 different lagoons.

198  
199 **Data Collection, Characterization, Monitoring:** No comment.

200  
201 **Regulatory Framework:** Charlie McKinney laid out work plans to take policies  
202 and regulations to groups done through a standardized questionnaire. They will  
203 brainstorm any ideas for changes in regulations and will bring information back  
204 for larger discussion. They will work through categories by the end of the year.

205  
206 **X. Next Steps:**

- 207 Action items:  
208  
209
  - Penny will add the Regulatory Framework task list to the spreadsheet  
210 and will resend it to members.
  - Send slide edits to Lisa by Monday. She will make the edits and use  
211 the slides at Worksource.
  - County will make a holding area on the web site for monthly  
212 handouts from Penny.  
213

- 214           • No full committee meeting in March.  
215           • Create a "new handout" list and post on the GWAC Meeting  
216           Agenda.

217

218

219       **XI. 2014 Meeting Calendar:**

- 220           • April 17, 2014  
221           • June 19, 2014  
222           • August 21, 2014  
223           • October 16, 2014  
224           • December 18, 2014 (as needed)

225

226

227       The meeting was adjourned at 7:13 pm.

228

229

230       Meeting summary approved by the GWAC on April 17, 2014

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

4                   **MEETING SUMMARY**

6                   **Thursday, April 17, 2014**

8                   Radio KDNA  
 9                   121 Sunnyside Ave, Granger, WA 98932

11                  **I. Call to Order**

13                  **Roll Call:** The meeting was called to order at 5:09 pm by Penny Mabie,  
 14                  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)		✓
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 Dyjak	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 Sanchey	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)		✓

16  
17

## II. Welcome & Meeting Overview

18  
19  
20  
21

Moment of silence.

22  
23

Introductions.

24  
25

## III. Committee Business: Penny Mabie

26  
27

The February 20, 2014 Meeting Summary was approved by the committee.

28  
29  
30

Penny noted that there is a new section on Page 3 of the Agenda which is titled "Meeting Materials." This is in response to a GWAC member's request to provide a list of meeting materials distributed prior to each meeting.

31  
32  
33

The Regulatory Framework Working Group's February Meeting Summary will be sent out shortly.

34

35 Penny opened a discussion on information the committee needs to complete its  
36 future work.

37  
38 Vern Redifer and Kirk Cook proposed getting all the working group chairs  
39 together to discuss how all the GWMA pieces fit together in context and as a  
40 whole. It seems that not everyone understands how each piece complements  
41 the other pieces. The committee needs to educate themselves internally. When  
42 the group started talking about a nitrate study, it seemed like everyone was  
43 dealing with little pieces without recognition on how they're all connected. A  
44 proposal was made to have a group get together, composed primarily of the  
45 working group chairs and interested GWAC members, to discuss the big picture  
46 and how all the work currently underway by the working groups and consultants  
47 fits together. Now is the right time as the committee is talking about the larger  
48 scale studies; the committee may find some things are not necessary. The group  
49 will develop the concept and present to the GWAC for a discussion/ question/  
50 answer session. Consensus was reached to move forward and the chairs will  
51 meet at the conclusion of the GWAC meeting to set a date.  
52

53 **IV. Deep Soil Sampling: Jim Trull**

54 Jim reviewed the proposed Deep Soil Sampling (DSS) Plan from the Irrigated  
55 Agricultural Working Group.

56 Jim said the workplan is complete but has not been presented to the full  
57 committee for approval. Copies were distributed during the meeting. The  
58 questionnaire is also complete and also has not yet been shared with the  
59 GWAC. The working group has finished its work on the two documents. Next up  
60 will be the agreement between the South Yakima Conservation District (SYCD)  
61 and Yakima County. The GWAC will need to negotiate a contract with a lab to  
62 do tests. A newsletter will be going out in the next 30-45 days looking for  
63 volunteers to participate in soil sampling. The soil sampling effort should be set up  
64 to start in September. The group has been very busy the last couple of months.  
65 Penny will receive the documents electronically and distribute to the GWAC for  
66 review. The budget was brought up and Jim stated that he thought the funding  
67 was already settled. He was advised there was a slight adjustment but it was not  
68 worrisome. Laurie explained that the budget plan has changed a bit because of  
69 liability concerns and now it needs to be revised. Jim, Laurie Crowe and Vern will  
70 get together on this. Stu Turner added that there has been a lot of input during  
71 committee and working group meetings including lots of back and forth on the  
72 technical side. He thinks the DSS plan is ready to move forward. He is pleased  
73 with the latest editions of the two documents.  
74

75 **V. Nitrate Standards: Fredianne Gray, EPA**

76 Fredianne Gray with the US EPA Region 10 gave a presentation on Nitrate  
77 Maximum Contamination Level (MCL) standards and how EPA developed them.  
78

- 81        Fredianne explained that the GWAC asked how the 10 mg/L (ppm) standard  
82        was set. There were two main questions asked of EPA:  
83  
84        1. How was the 10 ppm decided to be the threshold for safe drinking water?  
85  
86        2. What are the health risks of drinking water containing nitrate at  
87        concentrations greater than the MCL?  
88

89        Fredianne said that the levels that were proposed in 1985 were applicable at 10  
90        mg/L (ppm), and were again proposed in 1989. Regulations went into effect in  
91        1991. She went on to explain that the basis of the standard is epidemiological  
92        survey studies of infant methemoglobinemia in populations exposed to nitrate-  
93        contaminated drinking water. This data was derived from human studies, in  
94        particular infants as they are the most sensitive and most vulnerable population  
95        because their body is not fully developed. They drink more water per body  
96        weight, have different hemoglobin levels, and nitrate causes decreased oxygen-  
97        carrying capacity of hemoglobin which can result in blue baby syndrome or  
98        even lead to death. Studies have shown that under 10 percent of  
99        methemoglobin, none to minimal adverse effects are found. Symptoms greater  
100       than 10 percent methemoglobinemia were found in infants 0-3 months of ages.  
101       There were 214 documented cases of methemoglobinemia. Most cases of infant  
102       methemoglobinemia occur at 20 mg/L or higher.  
103

104       Discussion followed on the threshold for adults. EPA has not done a study on  
105       health-compromised adults. Studies are normally focused on the most vulnerable  
106       populations. Fredianne will get back to the group with additional information on  
107       that question.  
108

109       Fredianne suggested committee members visit EPA's Integrated Risk Information  
110       System (IRIS) database, where information is kept for all EPA studies including  
111       nitrate studies.  
112

#### 113       **Committee Questions:**

114       Vern asked if nitrate is carried from mother's breast milk to infant. Fredianne said  
115       although it was likely not, that they cannot say absolutely not; so, it is still a  
116       concern. She said they will look at that when they re-do health assessments in  
117       future studies.  
118

119       A member asked whether the quality of bottled water is taken into consideration  
120       at all when parents are purchasing bottled water and infant formula. Fredianne  
121       answered that EPA does not regulate bottled water. There are no guarantees  
122       that bottled water complies with the nitrate standard since testing is not  
123       required. The decision depends on the level of nitrate in your tap water – EPA  
124       can't say bottled water would be recommended.  
125  
126  
127  
128

129 A member asked how to eliminate nitrates in drinking water if the source has  
130 high levels. Fredianne explained that over the counter water filtration systems  
131 such as Brita® or Pur® don't work on nitrates. Vern noted that the Nitrate  
132 Treatment Program installed a lot of reverse osmosis filters. Fredianne said the  
133 reverse osmosis filters work and are a good method in a home.  
134

135 There was a discussion about whether there are any adverse health effects to  
136 anyone other than infants and what is the threshold? Concern was expressed  
137 about being able to have clear messaging for people so as not to scare people.  
138 Fredianne said that it will be a while for the EPA to get back to the group as that  
139 will not be an easy answer. She will talk to EPA HQ to see if there are other studies  
140 that can be shared that address adult effects. She suggested reviewing the  
141 federal registers to seek additional references. Typically standards are set to  
142 protect the most vulnerable population. Vern added that the Nitrate Treatment  
143 Program was geared towards infants less than 6 months old, pregnant women  
144 and nursing mothers. Fredianne commented that was very a good target or  
145 focus group. Andy Cervantes suggested the committee shouldn't try to  
146 distinguish who is vulnerable, rather just use 10 ppm as the bottom line. Stuart  
147 added that even health foods are high in nitrates, such as spinach and there are  
148 reported cases of infants being affected by this.  
149

150 **VI. Working Group Reports:** Penny reminded the committee that part of the reason  
151 why full committee meetings have been spaced out was so that working groups  
152 could get their work done.  
153

154 **Education and Public Outreach (EPO):** Andy reported that they met and went  
155 over the talking point slides but due to vacations and other issues, the slides  
156 didn't get finalized. They will be sent out to the committee soon. He explained  
157 that these were the slides that were presented previously to the GWAC and as  
158 the revised versions are reviewed, people will see how comments were  
159 addressed. With regard to the High Risk Assessment Survey, the survey has been  
160 extended to May 31. Andy, Ignacio Marquez, and Kathleen Rogers have been  
161 getting the message out to the public. Andy noted that he has flyers available if  
162 anyone wants to distribute them. Out of the 98 surveys done, about 20-25%  
163 tested for some level of nitrates. Andy will put a placeholder on the EPO's work  
164 plan to work with the Irrigated Agriculture work group to find out what kind of  
165 outreach they want to do in association with the Deep Soil Sampling. Andy  
166 wanted the work groups to know that the EPO group is available to assist with  
167 outreach and review work groups' work for outreach implications. The new mom  
168 brochure is being worked on. Gretchen with the EPA looked at it and sent  
169 it to a peer for review.  
170

171 Vern added that the Health District completed 98 onsite surveys, 17 tests came  
172 back higher than 10 ppm; on the bacteria results, 21 came back positive – 17%  
173 nitrate and 21% bacteria but no e-coli. Vern said he created a chart to compare  
174 and he plans to put it on the website.  
175

176 A member observed that anencephaly (children born without a skull) is a big  
177 topic in the Yakima Valley. Jean added that nitrates could be a part of the  
178 problem. Andy noted that he couldn't comment on the subject as his employer,  
179 the Washington Department of Health, is currently studying it.

180  
181 **Irrigated Agriculture:** Nothing to add from the earlier report of deep soil sampling  
182 and the survey. They have been busy the last couple of months.

183  
184 **Livestock/CAFO:** Charlie reported that there was a joint working group meeting  
185 on March 6. He anticipates another meeting in May. Their task is to come up with  
186 a plan on sampling various livestock facilities and how that would fit in with soil  
187 sampling.

188  
189 **Data Collection, Characterization, and Monitoring:** The working group hasn't  
190 met officially since November as there have been a lot of products under  
191 development that have not ripened. One of this group's duties is to evaluate  
192 those products and comment on them. They recently received the monitoring  
193 plan from Pacific Groundwater Group (PGG) and will distribute it to members of  
194 the working group and schedule a May meeting. They will also address some of  
195 the issues that Vern brought up. They've been discussing ideas around the nitrate  
196 loading study and had several presentations back in November, but now is the  
197 time to re-engage in the scope of work and draft something for the county to  
198 consider and present to the group. The group will be going at a faster pace by  
199 the first of May. Kirk noted that the Department of Agriculture has just hired a  
200 hydrogeologist who will be able to help the working group and the GWAC.

201  
202 **Residential, Commercial, Industrial and Municipal (RCIM):** Bob reported that the  
203 group has had two meetings since February. They presented a proposed  
204 amendment #2 to the consultants. Supplemental Task X has been discussed. The  
205 status is that the consultants are still working on modifications and the fee.  
206 Gordon Kelly of the Yakima Health District (YHD) provided the work group with  
207 database queries for septic systems and found slightly fewer than 17,000 permits  
208 have been issued, but cautioned that more than one permit may be issued for a  
209 single septic system if additional work is needed on it. Sanjay of Ecology  
210 provided a list of National Pollutant Discharge Elimination System (NPDES) permits  
211 and a list of Underground Injection Control (UIC) wells in Yakima County. The  
212 information from YHD and Ecology covers all the information requested from  
213 members and they are now coordinating with EPO on how to communicate to  
214 the public how to reduce nitrate in groundwater in residential, commercial and  
215 industrial development. Lisa provided a document to focus on how to devise a  
216 strategy and this will be discussed next week. Bob anticipates a meeting in April  
217 with EPO.

218  
219 One member pointed out there could be additional sources that have not been  
220 considered. Bob responded that he has not been able to coordinate with  
221 Ecology yet regarding locating abandoned wells that may not have been  
222 identified as a source. There was a question about liquid fertilizer on farms and

223 containment for fertilizer as an additional source. Stuart noted that bulk stored  
224 liquid fertilizer is generally the property of fertilizer companies and they would be  
225 responsible.  
226

227 There was a question about secondary containments and the recommendation  
228 was to check with the Department of Agriculture for information.  
229

230 Vern commented that now that the RCIM group got this far, it seems that the  
231 supplemental Task X being discussed should be the data working group's job. He  
232 expressed appreciation for what the RCIM group has done to date. Now the  
233 committee needs to figure out how everyone is going to tag on to this. He noted  
234 that this task is an example of needing to identify how the GWMA plan pieces fit  
235 together.  
236

237 **Regulatory Framework:** Tom Eaton reported that the working group met before  
238 the GWAC meeting. Phyllis Barney with the State Attorney General's office gave  
239 an overview of RCW 90.48, RCW 90.64 (Dairy Nutrient Management Act) and  
240 also reviewed the regulations that are the basis for setting up groundwater  
241 standards. It was a good presentation. Now the group's intention is to finalize the  
242 set of questions that are being drafted and walk through them with the working  
243 group to identify regulatory areas that might be improved so we can bring  
244 material back to GWAC. There is still an outstanding request to add an attorney  
245 to this group.  
246

247 **Funding:** Vern reported that he's still waiting on recommendations from the  
248 working groups and the GWAC on how to spend money.  
249

#### 250 **VII. Public Comments:**

251 A comment was made that it's ironic that everyone drinks bottled water, yet the  
252 EPA won't certify that it is healthy. The GWAC may want to bring someone from  
253 Department of Health to see if it's safe.  
254

255 Vern: Reminder for the working group chairs to stick around after the GWAC  
256 meeting to compare calendars for a meeting.  
257

#### 258 **VIII. Next Steps**

259 Action items:

- 260 • Provide copies of the deep soil sampling plan & questionnaire for  
261 distribution to the GWAC
- 262 • Provide copies of the February Regulatory working group meeting  
263 notes to the GWAC
- 264 • Email the EPA PowerPoint presentation so that it can be posted on the  
265 GWMA website
- 266 • The working group chairs will review the different tasks being done by  
267 the working groups and piece them together  
268

#### 269 **IX. 2014 Meeting Calendar:**

- 270 • June 19, 2014

- 271           •    August 21, 2014  
272           •    October 16, 2014  
273           •    December 18, 2014 (as needed)

275           The meeting was adjourned at 6:45pm.

276           Meeting summary approved by the GWAC on June 19, 2014.

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

3                   **MEETING SUMMARY**

4                   **Thursday, June 19, 2014**

5                   **Radio KDNA**

6                   **121 Sunnyside Ave, Granger, WA 98932**

7

8                   **I. Call to Order**

9

10

11                   **Roll Call:** The meeting was called to order at 5:01pm by Penny Mabie,  
 12                   Facilitator.

13

14

15

<b>Member</b>	<b>Seat</b>	<b>Present</b>	<b>Absent</b>
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 Dyjak	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

16  
17  
18 **II. Welcome & Meeting Overview**19  
20 Moment of silence.  
2122  
23 Introductions.24  
25 **III. Committee Business: Penny Mabie**26  
27 The April 17, 2014 Meeting Summary was approved by the committee.28  
29 Penny reminded the group that there is a section on the Agenda which is titled  
30 "Meeting Materials." This is a list of all the documents that have been emailed as  
well as the dates that they were sent.31  
32 Penny stated that the primary topic for discussion would be the GWAC Work and  
33 Development of the GWMA Program and how it all comes together.  
34

35 Penny went over the ground rules and reminded the committee that they should  
36 speak to interests and not positions so that we could get to a deeper dialogue.  
37

38 Vern introduced Jim Davenport of Buena. He's an attorney with expertise in  
39 writing documents and coordinating activities and has worked on water issues  
40 across the west. Jim has been contracted by the County to help coordinate the  
41 working groups but not direct them.  
42

43 **IV. Development of a Groundwater Management Area Plan for the Lower Yakima  
44 Valley: Kirk Cook, WA Department of Agriculture**  
45

46 Kirk stated that the GWAC has been together for about two years now and he  
47 felt that from the questions at the last couple of meetings, it appeared that  
48 things were getting lost so he put together a presentation explaining the GWMA  
49 Development process: what the GWAC is doing, what the timelines are, and  
50 how each step builds towards the next in the process. The presentation should  
51 give the group a better understanding of how we want to proceed and hence  
52 lead to a better discussion.  
53

54 Kirk noted that the major goal we've been focused on is land use management  
55 activities and not remediation. We want to get a handle on the amount of  
56 nitrate that is supplied, how much is utilized and how much is left over. Matt  
57 asked if we will be measuring loading to groundwater and are we accounting  
58 for consumption. Kirk answered yes.  
59

60 Vern added that the deep soil sampling serves multiple purposes: It can identify  
61 how/what is being applied and identify what is happening in the groundwater. We  
62 hope that it will provide a quantitative way to evaluate the BMPs.  
63

64 Lisa explained the Education and Outreach's role in program development. She  
65 said it spans the whole process and that there is a fluid give and take between  
66 each GWAC step, the EPO and the public. The public needs to be informed  
67 about what we are doing, why it's important and why we need their  
68 participation. Then, when the public participates (in the deep soil sampling, for  
69 example), their data will come back to inform and educate the GWAC. In this  
70 way each step builds on the previous step and is influenced by previous  
71 outreach and data results. Until now the public has been our silent partner. That  
72 will change when they begin to participate in the DSS and other outreach and  
73 become active participants.  
74

75 Kirk said that the first step is area characterization and there are several elements  
76 included. We then identify what the potential sources are. One of the goals is to  
77 provide basic framework to satisfy the area characterization. We knew from the  
78 beginning that the information we had was not enough to make any decisions.  
79 We are currently about 70 percent of the way to completing the  
80 characterization. Vern added that we have to develop the entire program. As  
81 we begin to understand, we need to start the book. We're the first drafters of this.

82

83 Kirk explained that defining the extent of the problem from each source will be  
84 informed by the Deep Soil Sampling survey, the agricultural nitrogen loading  
85 assessment, RCIM loading assessment, and Health District well assessments. This  
86 will set the stage for the alternatives. Then we are allowed a more surgical  
87 evaluation of groundwater management area.

88

89 Discussion followed regarding whether there would be enough DSS participation  
90 to get a good statistical sample. A member stated that she felt that 50 survey site  
91 samples would not be a big enough; Laurie explained that it would be 50 per  
92 season for a total of 200 samples. Kirk added that the survey will be offered to  
93 farmers outside of the sampling area in the hope that two or three times the  
94 initial 50 will also take the survey so that we can acquire a typical use pattern  
95 regarding crops, rotation and irrigation. The member repeated it does not  
96 include enough samples for useful analysis. When asked, "How many samples  
97 are enough?" the member cited WSDA crop data, noting that "50 samples  
98 might be enough for the County's 600 cornfields," later adding that the survey  
99 should be sent to all of the producers.

100

101 Kirk responded that the concern about an adequate population is a shared  
102 concern. The member replied that by expecting people to volunteer and not  
103 targeting areas where the problems are, we may not get the parties that are  
104 actually contributing to the problem. Kirk pointed out that we don't know how  
105 many will participate and we may arrive at a number that will reach a  
106 statistically valid level. If that doesn't happen, however, we'd have to go to Plan  
107 B, using book values, which would be less useful.

108

109 Kirk explained that we are gauging improvement of the entire watershed. We  
110 need to get away from focusing on specific hotspots and make an assessment  
111 of how the aquifer is doing.

112

113 Kirk reviewed alternative evaluations. He stated that HDR created a good  
114 database of BMPs and that provides the skeleton to accomplish some of the  
115 requirements. He pointed out that the Department of Agriculture is considering  
116 looking at the economics for digesters so they can remove some of the animal  
117 waste or move the waste to other parts of the state that need it. Kirk said there  
118 could be alternatives out there for us and not just BMPs; the results from the  
119 problem identification and goals sections will help guide the alternatives.  
120 Alternatives need to address feasibility, effectiveness, cost, difficulty to  
121 implement and consistency with local comprehensive plans.

122

123 Tom Eaton stated that he didn't think the group with its diversity would ever  
124 reach consensus as analysis is subjective and there's a lot of strong opinions in  
125 the group. He can't see the GWAC as a body doing that. A member countered  
126 that the group can reach consensus. Industry understands the scope, scale and

127 seriousness of the problem, adding that it's important to keep the program  
128 voluntary.

130 A member noted that if we identify a regulatory gap it would be a state or  
131 federal-level responsibility, not the responsibility the GWAC. Kirk agreed. Vern  
132 added that if the County believed there's a necessary change, the County  
133 would do it.

135 A member stated that the group was jumping to conclusions. We haven't even  
136 gathered the data yet so this is a premature discussion. Vern added that he  
137 hopes we get statistically relevant data and start education but as Kirk said, we  
138 can't start effectiveness evaluation until we get that data.

140 Kirk described adaptive management. It offers the option to "tweak" the plan if,  
141 for example, an adopted BMP is not effective. Finally, Kirk defined prescriptive  
142 versus adaptive approach noting the adaptive is voluntary where prescriptive is  
143 mandatory.

## V. Working Groups Actions

147 **Funding:** A member asked if we have more people signed up for Deep Soil  
148 Sampling than what we're funded for, could we get more money for sampling.  
149 Vern said yes, we have \$2.3m, of which \$880k is encumbered. There have been  
150 no discussions on where to spend the rest of the \$1.6m. He pointed out that he'd  
151 asked the chairs to identify projects that we should take on so that we can see  
152 what we need. Vern said only EPO responded. A member stated that we can't  
153 start talking about how to spend the money until we get a budget in front of us.  
154 Vern agreed, stating that the budget discussion will be on the August agenda. A  
155 member asked if the GWMA expenditures could be posted quarterly on the  
156 website. Vern said yes. Matt added that USGS had offered the GWAC \$300k six  
157 months ago and that the GWAC declined. While that money is gone, there  
158 might be future opportunities for the GWAC to pursue funding from USGS.

160 **Education & Public Outreach:** The Nitrate Education Slides were approved,  
161 pending two edits to slide #3 (change "Livestock Waste" to "Animal Manure"  
162 and delete "Pesticides"). New Mom flier approved as presented. Tom Eaton  
163 discussed the University of Washington's Northwest Pediatric Environmental  
164 Health Specialty Unit (PEHSU) initiative in the GWMA. PEHSU will be providing  
165 nitrate education to clinicians in the Lower Yakima Valley beginning this summer.  
166 Training will be supported by EPO's New Mom flier and outreach.

168 **Data Collection, Characterization, Monitoring:** Kirk stated that his group has  
169 submitted a preliminary scope of work and hopefully the consultant will bring it  
170 back by August.

172       **Irrigated Agriculture:** Jim advised that there is a questionnaire for the producers  
173       practices included in the newsletter that will tell us what crops are grown, root  
174       zone, uptake in nitrates, then soil sampling down to 6 feet and then the group will  
175       learn about the nitrates and concentration. Will get a lot of information and he  
176       believes that they will get a lot of participation. This working group plans to work  
177       with EPO for publicity. They've put a notice in the Daily Sunnyside News and plan  
178       to get one in the Yakima-Herald Republic, Farm Bureau and out as far as  
179       possible. They'd also sent a letter to all the landowners in the Roza/Sunnyside  
180       Irrigation Districts inviting their participation. Jim said that the bid documents for  
181       the lab and sample collector are just about done and should be completed in a  
182       couple of days. Will advertise for Deep Soil Sampling on June 29<sup>th</sup> and July 6<sup>th</sup>.  
183       Bids will open on July 18<sup>th</sup> and awarded on July 25<sup>th</sup>. They plan to start the DSS  
184       program in September.

185  
186       **Committee Comments/Questions:**

188       Kathleen Rogers reported that in a phone conference she learned that nitrates  
189       were eliminated as a potential source of anencephaly. The majority of women  
190       affected were Hispanic, obese and ate a lot of corn tortillas (could be a mold in  
191       the corn). None of the babies born with this were from the hotspot areas in the  
192       County.

193  
194       Vern noted that SIED funding has been awarded for a digester transmission pipe  
195       on Dekker Road. The County will own the pipeline and lease it to the gas carriers.  
196       He added that the digesters don't eliminate the nitrate but remove and  
197       concentrate it which makes it a marketable, exportable product. The company  
198       is looking to add four more.

199       **VI. Public Comments:**

201       A member of the public suggested that this might be self-selected group that  
202       would be undergoing the DSS survey. He recommended that the GWAC move  
203       forward with their work.

204       **VII. Next Steps**

206       Action items (August meeting):

- 207       • Working Groups will develop their budget requests and submit them to  
208       Vern at least one week before the August meeting. Working groups  
209       should be prepared to identify how their proposed projects move the  
210       GWMA process forward.
- 211       • Vern will compile the numbers into a report for the August meeting.
- 212       • The GWAC will review its attendance policy and determine what  
213       action should be taken regarding inactive members.
- 214       • Penny will check with Ecology regarding letters that were to be sent to  
215       inactive members.
- 216       • Jean will bring hand out to next meeting re: What will happen to  
217       aquifer if we do nothing.

219    **VIII. 2014 Meeting Calendar:**

- 220    •    August 21, 2014  
221    •    October 16, 2014  
222    •    December 18, 2014 (as needed)  
223

224    The meeting was adjourned at 7:04pm.  
225

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

DRY DRAFT

## Education and Public Outreach Working Group

### Charge from Groundwater Management Area Advisory Committee

Edit the Nitrogen Cycle and Nitrate Education talking points as requested by the GWAC. Bring back the edited version to the GWAC's April meeting for final approval.

### 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), Ignacio Marquez (AGR)

### Meetings/Calls Dates

Meeting: Wednesday, April 2, 2014 1:30 PM – 3:30 PM

### Participants

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

\*via phone

\*\*skype

### Key Discussion Points

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

**Feedback from the GWAC:** EPO presented the Nitrogen Education and Nitrogen Cycle slides to the GWAC at its February meeting. The GWAC requested edits to the Nitrogen Education slides, and they vetoed the Nitrogen Cycle slides as presented. They requested simpler graphics, better vetted materials and less confusing messages. They would also like to have both the intended presenter and intended audience identified for each presentation.

Following this feedback, Andy Cervantes, Gretchen Stewart and Lisa Freund edited both slideshows and placed the standardized messages in a spreadsheet that identifies the

requested GWAC edits and how the EPO addressed it. Gretchen Stewart is currently compiling the final version.

**ACTION:** Gretchen will send the edited version to the EPO group. Comments must be sent to Andy as soon as possible, as the final version needs to be submitted to the GWAC no later than April 10. The GWAC will be tasked to provide comments back to the EPO before April 17, with the understanding that unless the GWAC responds with additional edits, the EPO version will be approved at the April 17 meeting.

**Outreach for High Risk Well Assessment Survey:** as of March 31, 85 High Risk Well Assessment Surveys had been completed. Lisa reported that the contract with the Yakima Health District was extended to May 31, 2014. EPO and the GWAC have 60 days to solicit participation in the surveying; however, with the exception of about \$400, the entire \$7000 budget has been spent. The group has funds left for a final mailing and flyers.

Ignacio reported that he has made approximately 5 presentations in English and Spanish to 60-75 people at Work Source in Sunnyside. He has also made presentations to the administration and clinic staff at the Yakima Neighborhood Health Services; to Migrant Head Start and OIC of Washington; and at Casa Nuestra.

He noted that about two out of 10-12 (20%) WorkSource audience members at each presentation had heard about the GWMA or GWAC. He added that he had good response to the presentations with people asking questions and forwarding the information about free well testing to friends and relatives. Both Ignacio and Patricia have given out flyers to a variety of organizations including school districts, banks, gas stations etc. Kathleen Rogers has also helped distribute information to healthcare agencies and businesses. 500 flyers were distributed to customers at the Cheyne landfill and the Lower Valley Transfer Station. Approximately 1,000 flyers have been disturbed so far.

The EPO agreed that a "last chance to participate" well assessment news release will be sent to the media. The 85 participants will also be sent a letter asking them to invite friends and neighbors to participate in the survey. A lower valley calendar of community events will be prepared for one last push for participants before the May 31<sup>st</sup> deadline.

**ACTION:** Lisa will issue a "last chance" news release and prepare a postcard that will be mailed to survey participants, asking them to share the free well testing information with friends and neighbors.

**ACTION:** Flyers will be offered to GWAC members on April 17 with a request to help with outreach.

**ACTION:** Ignacio will continue to do presentations at WorkSource and other community meetings.

**ACTION:** Patricia will prepare a calendar of April-May lower valley events with contact information. Members who have contacts with specific events will inquire about distributing flyers at those events.

**ACTION:** Dean will make arrangements to present the flyers at the Zillah Day's event in early May.

**Public Questionnaire Survey Analysis:** Jean presented an analysis document of the public questionnaire survey that she created and Andy edited. The group discussed how best to present the 23-page document to the GWAC. The EPO decided that Jean/Andy should write an executive summary with a paragraph that explains the intent of the survey, and shorten the document to no more than eight pages. The purpose of the analysis should also be made clear to the GWAC.

**ACTION:** Patricia will provide Jean with input as to what the most important points should be in the summary from a first-time reader's (GWAC) perspective.

**ACTION:** Andy and Jean will create a summary version of the analysis of no more than eight pages and bring it back to the EPO for final approval.

**GWAC Task List:** Lisa provided the EPO group with the GWAC's compiled 2014 Task List. She pointed out that two working groups -RCIM and Irrigated Ag—will be seeking EPO support in the coming months.

**ACTION:** Residential, Commercial and Industrial (RCIM) will be attending the May EPO meeting to discuss their outreach proposal regarding proper septic system maintenance.

**New Mom Brochure Campaign:** Lisa reported that the technical language was still being reviewed by the pediatricians at PEHSU. When EPO receives their feedback, we can move ahead with the campaign.

### **Resources Requested**

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None.

### **Recommendations for GWAC**

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Approve edited standardized talking point slides.

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

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- RCIM Outreach Request (Bob Farrell, Chair)
- High Risk Well Assessment Status (Ignacio, Andy, Lisa)
- Review Public Questionnaire Executive Summary (Jean & Andy)

- New Mom Campaign update (Jean, Dean and Gretchen)
- [placeholder] Irrigated Ag Outreach Request (Jim Trull, Chair)
- [placeholder] Mid-course review: EPO goals and objectives status (Jean)

Next meeting Wednesday, May 7, 2014 at 1:30 PM, Yakima County Courthouse Room 419  
(phone: 509-574-2353 [PIN# 2353#])

## Education and Public Outreach Working Group

### Charge from Groundwater Management Area Advisory Committee

Edit the Nitrogen Cycle and Nitrate Education talking points as requested at the GWAC's February meeting. Bring back the edited version to the GWAC's April June meeting for final approval.

### 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), Ignacio Marquez (AGR)

### Meetings/Calls Dates

Meeting: Wednesday, May 28, 2014 1:30 PM – 4:00 PM

### Participants

Lisa Freund (EPO Chair -Yakima County), Jean Mendoza (GWAC-FOTC), Patricia Newhouse (GWAC-Citizen Rep Position #2), Andres Cervantes (GWAC-DOH), Ignacio Marquez (AGR), Gretchen Stewart (EPA), Karri Espinoza (Yakima County staff), Vern Redifer (Director of Yakima County Public Services), \*Nieves Negrete (Citizen)

\*via phone

### Key Discussion Points

**Welcome & Meeting Overview:** Lisa Freund welcomed the group and reviewed the meeting agenda. She noted that Vern Redifer would be speaking to the group about the EPO budget in response to a request from Jean Mendoza.

Vern reviewed the GWMA's State funding allocations. He stated that each working group is responsible for developing its work plan and proposed budget and making a recommendation to the GWAC. Working groups make budget recommendations; the GWAC determines how to prioritize the money. Vern added that the EPO should identify their needs and make its budget proposal to the GWAC. He also provided Jean with a budget handout she had requested.

**ACTION:** Lisa F. will put the budget discussion on the July 2<sup>nd</sup> EPO agenda.

Lisa F. announced that Joye Redfield-Wilder (Ecology) will be taking a break from the EPO. She will be checking in with the group and is still available to provide feedback or offer outreach guidance.

**New Mom Brochure Campaign:** Gretchen Stewart presented the group with two documents that the Northwest PEHSU (Pediatric Environmental Health Specialty Unit) had created in response to EPO's New Mom initiative. The first was a two-page educational piece directed at health care providers. It explained what nitrate is, the sources, the health impacts of high nitrate in patients and how to recognize symptoms.

The second piece was a one-page flyer that was based on the provider version, but in a simplified version written at a lower reading level. It would be a stand-alone document that could be translated and distributed to new moms, play groups, community groups or made available at healthcare provider offices and at public events. A discussion of whether a map should be printed on the flyer ensued. The group decided to put a link to a map to save space for more pertinent information. Other edits and additions were suggested. It was noted that, pending GWAC approval, the final version will be translated and printed double-sided (English/Spanish). Gretchen offered to make the final edits discussed today and to have the document formatted. The group agreed that after final EPO review, it will be forwarded to the GWAC.

Jean asked if the flyer could include information about a link between anencephaly and high nitrates. Gretchen replied that EPA has been studying possible connections, but at this time it is too premature to make a statement until further study has been done.

**ACTION:** Gretchen will make the suggested edits and format the flyer, forward it to Lisa on Monday, June 2, and brief Tom Eaton before the June GWAC meeting.

**ACTION:** Lisa will forward the edited flyer to the EPO, then to GWAC facilitator Penny Mabie for distribution to the GWAC.

**ACTION:** Tom Eaton will present the two-page healthcare provider document and the one-page New Mom flyer at the GWAC's June 19<sup>th</sup> meeting. He will ask the GWAC to approve the one-page flyer.

**Outreach for High Risk Well Assessment Survey:** Ignacio reported that in addition to WorkSource presentations, he had distributed Free Well Testing flyers to the Migrant Seasonal Farmworker Advocacy Group INSPIRE and at a KDNA community event. Patricia noted that she distributed more than 100 flyers at businesses and agencies; she added that a banner identifying our effort would be helpful at booths we are staffing. It was also noted that Dean Effler distributed nearly 100 flyers at Zillah Community Days. In all, over 1000 flyers were distributed since January.

Lisa observed that the May 30<sup>th</sup> participation deadline is this Friday. Nieves asked if the GWAC could pressure the health district to continue surveying. Lisa noted that summer

is the health district's busy season (why they were unwilling to extend the contract); but Gordon Kelly had suggested the possibility of a contract at the end of the summer to survey homes that had missed the first opportunity. A lengthy conversation ensued regarding sampling quality standards and barriers to participation.

**ACTION:** Patricia will provide Lisa F. a list of where she distributed flyers.

**ACTION:** Lisa will investigate the cost of a banner that can be displayed at public events and bring back options to the EPO.

**EPO Talking Points:** The group reviewed and edited the slide presentation. Gretchen observed that the slides are intended as a "Train the Trainer" tool. It is one tool in a toolkit of outreach options. Related resources will be developed provided the GWAC approves the "Train the Trainer" concept.

**ACTION:** Andy will edit the text and get it back to Gretchen by end of the day Friday May 30, 2014. Gretchen will make the format changes and send it to Lisa, who will distribute it to the group for one last review by end of the day on Monday June 2, 2014.

#### **Resources Requested**

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None.

#### **Recommendations for GWAC**

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Approve PEHSU New Mom One-Page Flyer

Approve edited "Train the Trainer" Talking Point Slides

#### **Proposed Next Steps – July Meeting Topics**

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- Budget discussion
- Distribution of the New Mom Flyer
- [placeholder] EPO goals and objectives status

Next meeting Wednesday, July 2, 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**

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2014 Task List Items

### **Working Group Members**

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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**

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Meeting: Thursday, May 8, 2014 3:00-3:30 pm

Conference Call: 360.407.3780, PIN-766639#

### **Participants**

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Charlie McKinney (Ecology), Steve George (Farm Bureau), Jason Sheehan (Dairy Federation), Jean Mendoza (FOTC), Laurie Crowe (SYCD), and Troy Ross-Havens (Yakima County Staff Support)

### **Key Discussion Points**

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**Welcome & Meeting Overview:** Charlie McKinney welcomed the group and presented an overview of the agenda. This consisted of outlining current status in the 2014 Task List.

### **Action follow-up from last committee meeting:**

Charlie mentioned that he talked with Tom Eaton and Eric Winiecki regarding EPA findings associated with the dairy cluster in the Lower Yakima Valley. It was noted that at least 30 lagoons and settling ponds were covered by the project, and that the Livestock/CAFO committee is still interested in obtaining the data from the project. The lagoons and settling ponds are believed to portray a wide range of ages and construction designs. He noted that Tom Eaton sent an email showing that EPA had updated their Lower Yakima Valley Groundwater webpage with new data reports, which are expected to be followed up with additional reports as data gathering continues. Some reports include a Field Application Management Plan, Quality Assurance Project Plan (QAPP) for groundwater monitoring, and Lagoon Assessment Plans. Charlie believes that the lagoon assessment report would be very beneficial to the Livestock/CAFO working group. Charlie mentioned that since the data is being made public on the website, there shouldn't be any issue for the committee to use the data. Charlie stated that if there is any information that needs to be withheld, EPA will let the committee know.

**ACTION:** Charlie M. to forward EPA email and/or website URL to the committee.

**2014 Task List:**

Charlie recapped the main nitrate sources that need to be addressed per the 2014 Task List which included field application of manure, corrals and pens, and manure storage and lagoon seepage, and public outreach. Charlie explained that the Deep Soil Sampling Plan should cover field application of manure.

Regarding livestock corrals and pens, there was some discussion about how much participation or volunteer activity will be experienced. A few participants stated that they doubted any dairy operator would consider volunteering for this program due to the situation with the dairy cluster and the EPA, and the ongoing litigation that is occurring at the moment. These participants felt that the group will ultimately resort to researching literature on this subject and applying it to the LYV GWMA. The Chair felt that it would be beneficial to try and recruit volunteers, by combining this scope of work with the Deep Soil Sampling Plan. As a plan B, the committee would entertain exploring any other sources of data available with the consultants if volunteer participation is not adequate. A cost would need to be identified for feasibility.

**ACTION:** Charlie M. to pursue corral and pen sampling strategy with the County and get back to the group with findings.

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**Resources Requested**

None at this time.

**Recommendations for GWAC**

None at this time.

**Deliverables/Products Status**

Working on developing strategy for livestock corral and pen area potential sources

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**Proposed Next Steps**

Complete milestones from tasks identified during this meeting

Discuss corral and pen sampling strategy with Yakima County

Forward EPA website to committee members

## 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), Rosario Brambila (Farm Manager)

#### Meeting/Call Date

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

When: 3:00 PM – 5:00 PM Thursday, June 19, 2014

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

#### Participants

Jim Trull (Chair), Dan McCarty, Don Jameson, Ginny Prest, Jean Mendoza, Ralph Fisher (by phone), Tom Tebb, Stuart Turner, Don Gatchalian (Yakima County staff support)

#### Key Discussion Points

##### **Agenda:**

1. Review Irrigated Ag Work Group Schedule
  2. Review and Edit Bid Documents for Deep Soil Sampling
  3. Review for Information Newsletter Inviting Participation in Deep Soil Sampling
  4. Review for Information Growers Questionnaire
  5. Review for Information Interlocal Agreement Between South Yakima Conservation District and Yakima County
  6. Other Items to be Brought Before the Workgroup
- 
1. Review Irrigated Ag Work Group Schedule

The working group discussed the schedule for 2014. Key dates are as follows:

- June 29 - SYCD advertises for bids for testing lab and sampler

- July 6 – SYCD advertises for bids for testing lab and sampler
- July 9 – SYCD signs Interlocal agreement (ILA) with YC
- July 18 – Bid opening at 1:30 PM at SYCD Office
- July 21-24 - Review bids for accuracy and competency
- July 22 – Yakima County BOCC signs ILA
- July 25 – SYCD Board Meeting and Award of Bid
- September 1 – Begin Sampling as harvest allows

ACTION: SYCD and YC to sign the ILA. SYCD will start the sampling in September.

2. Review and Edit Bid Documents for Deep Soil Sampling

The working group reviewed the Bid Documents. There was discussion about the adequacy of the number of samples and boring sites not being adequate. For budget and bid purposes, 50 boring sites per season for 4 seasons (total of 200 for two years) was a compromised number and will be adjusted if the grower response is higher. Soil samples will be taken at every foot up to 6 feet deep (6 samples per boring site). There was also discussion about bid and performance bond not in the bid package. YC and SYCD will look at this and make appropriate changes to the Bid Documents.

ACTION: Don will provide Laurie a template of Yakima County's personal services contract for reference.

3. Review for Information Newsletter Inviting Participation in Deep Soil Sampling

The newsletter was sent out several weeks ago and SYCD received many calls inquiring about the program. Between the three SYCD employees, they estimated more than 20 calls were received. Additional public outreach is planned with the assistance of the EPO Working Group. Laurie reported that they will have a booth during the August Grandview Fair on the Deep Soil Sampling Program.

ACTION: Laurie and Jim will contact Lisa Freund for public outreach assistance.

4. Review for Information Growers Questionnaire

Jim thanked all the people who assisted in developing and reviewing the grower questionnaire.

ACTION: None

5. Review for Information Interlocal Agreement (ILA) Between South Yakima Conservation District and Yakima County

The ILA has been finalized and has been through legal review by Yakima County's legal office. The budget estimate is \$245,025.00 which includes SYCD administration costs, advertising, travel, sampling and lab costs.

ACTION: None. The document is final and ready for signatures by SYCD and YC.

**6. Other Items:**

- a. Ontario Study - The working group discussed the relevance of the Ontario (Groundwater Canada) news article provided by Kirk Cook to the efforts of GWAC and IAWG. Tom Tebb commented that the article showed promise that behavior can be changed if you know what you are doing. Tom also thanked the working group for their hard work to get the deep soil sampling program implemented.
- b. 2015-16 State Biennium Budget – Tom Tebb challenged the group to start thinking about the budget beyond 2015. The legislature meets every January and is it not too early to think about additional budget needs.
- c. Bid Opening – Laurie will solicit a couple of working group members to help in reviewing the bids on July 21-24
- d. Data Analysis - Jean Mendoza asked who will analyze the data that is being gathered. The response was PgG is developed the nitrate database as part of their contract. SYCD will enter the information collected from the deep soil sampling program in the database. All the efforts being done by the EPO, HD and others are being collected in the database. Ultimately the Data Working Group chaired by Kirk Cook who will need to look at the database for analysis.

**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, August 21, 2014, KDNA Granger

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

### Charge from Groundwater Management Area Advisory Committee

2014 Task List Items

### 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), Dan DeGroot (representative of Yakima Dairy Federation), Donald Gatchalian (Yakima County)

### Meetings/Calls Dates

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

When: 10:00am – 11:30am Thursday, April 24, 2014

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

### Participants

Robert Farrell (Chair), Gordon Kelly, Dan Degroot, Kathleen Rogers, \*Sanjay Barik, 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**

The group picked up where they left off at the last working group meeting, which involved discussing the *“Steps in Developing a Marketing Plan”* document provided by the EPO Working Group. The group focused on selecting a target audience, which led to the fact that due to the purview of the working group, multiple target audiences should be identified to target various sources such as septic systems, abandoned wells, residential fertilizer use, etc.

Avenues for public information were discussed and one participant suggested creating or revitalizing an existing telephone hotline similar to the 211 Washington Information Network information referral line that local residents could call for more information on further outreach materials or education. Such a hotline would be included on education and public outreach materials associated with RCIM sources, or could be expanded to the purview of other working group sources such as Livestock/CAFO or Irrigated Agriculture.

**ACTION:** Bob F. to discuss such a referral line with EPO that could be developed for RCIM sources, or perhaps all sources relating to the LYV GWMA.

Regarding target audiences, the group felt that focusing on non-permitted audiences would be better suited for public outreach, due to the fact that they are not being monitored or overseen by any local, state, or federal authority, besides some installation permits relating to septic systems and domestic wells. It was expressed that sub-audiences should be identified and approached separately as to not overwhelm a distinct audience with a large amount of education material to ensure the various sub-audiences get the information that is most appropriate for them. A Department of Ecology staff stated that DOE permits that lapse are being reauthorized, reissued and monitored as necessary, further reducing the need to target permitted facilities, as these types of permits are operating permits, and not a onetime installation permit. The group reached general consensus that the residential purview of RCIM would be the most beneficial audience for education and public outreach targeting.

One participant inquired about identifying Department of Ecology compliance actions associated with known or specific nitrate plumes or spill locations. The department of Ecology staff participating in the discussion could not comment on providing such information.

Abandoned wells outreach was discussed during the meeting. The group agreed that if the GWAC was going to pursue locating abandoned or improperly decommissioned wells, it would be ideal to ensure that whoever is bringing forth any information associated with locations or history of an abandoned well on their property, that they should be under no financial liability in properly decommissioning the well. The group believes that there should be no cost to the informant as to encourage people to relinquish information, and not scare them into withholding any information they might have. It was suggested that the GWAC explore this idea, as well as possibly setting funds aside for such purposes, or seeking additional funding for an abandoned well locating and decommissioning project. In addition, such a program may need proper legislative action for implementation.

**ACTION:** Bob F. to bring forth abandoned wells topic to the GWAC during the June meeting.

**ACTION:** Bob F. to inquire the Regulatory Framework Working Group about protocol for beginning such a program, if GWAC feels it would be necessary.

**ACTION:** Sanjay B. to research abandoned wells within the LYV GWMA boundary and report findings during the May RCIM meeting.

### **Resources Requested**

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None at this time

### **Recommendations for GWAC**

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- Discuss the possibility of providing funds for an abandoned or improperly decommissioned well locating project and properly decommissioning them.

### **Deliverables/Products Status**

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- Internally developing education and outreach strategy, and moving towards a meeting with the EPO Working Group to hone and deliver such a campaign.

### **Proposed Next Steps**

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- Raise the groups concern for an abandoned or improperly decommissioned well outreach program to the GWAC

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

### **Charge from Groundwater Management Area Advisory Committee**

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2014 Task List Items

### **Working Group Members**

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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), Dan DeGroot (Yakima Dairy Federation), Donald Gatchalian (Yakima County)

### **Meetings/Calls Dates**

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

When: 10:00am – 11:30am Thursday, May 22, 2014

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

### **Participants**

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Robert Farrell (Chair), Charlie McKinney (Dept of Ecology), Dan Degroot, and Kathleen Rogers

### **Key Discussion Points**

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#### **Welcome and Meeting Overview**

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

#### Agenda:

#### **Ecology Addresses Known Nitrate Plume Concern Raised in Last Month's RCIM Meeting**

The purpose of the Working Group meeting was to provide Ecology the opportunity to address the issue of known nitrate plumes or nitrogen spills within the GWMA. A Work Group member had inquired about the information the Department could provide to the GWAC at the April 24th RCIM Work Group meeting.

Ecology noted that there are two programs within the Department which deal with these sorts of discharges to the environment: The Toxics Release Inventory (TRI), and the Environmental Report Tracking System (ERTS). Ecology stated that the ERTS database began in 1995. The Department cautioned, however, that gleaning useful information from either of these databases may require delving into follow-up reports. The initial report to Ecology may appear as though a release to the environment occurred that would be important for the GWAC to know. The follow-up investigation by the Department, however, may have determined that if any release actually occurred, it was not properly characterized. A discussion among the various programs of Ecology will attempt to determine the best way to access information that is relevant to the GWAC.

A participant wondered if the GWAC should be focusing on wells that are in the vicinity of known nitrate plumes. This participant suggested that the GWAC should not be attempting to identify or develop BMPs for the affected area since the source of the plume would not respond to the sorts of best management practices that the GWAC has been considering. It was also suggested that it would be useful if Ecology could provide information concerning the effect that its actions has had on spills and plumes.

### **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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- Internally developing education and outreach strategy, and moving towards a meeting with the EPO Working Group to hone and deliver such a campaign.

### **Proposed Next Steps**

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- Raise the groups concern for an abandoned or improperly decommissioned well outreach program to the GWAC
- Ecology will work on tracking down actions the Department has taken, spills, etc. that could affect nitrate levels in nearby wells

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

### Charge from Groundwater Management Area Advisory Committee

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Budget for upcoming or proposed tasks as well as a justification on how proposed tasks or activities promote progress of the GWMA process.

### Working Group Members

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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), Dan DeGroot (Yakima Dairy Federation), Donald Gatchalian (Yakima County)

### Meetings/Calls Dates

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

When: 10:00am – 11:40am Thursday, June 26, 2014

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

### Participants

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Robert Farrell (Chair), Gordon Kelly, Dan DeGroot, Jim Davenport, Carolyn DeGroot, Danica DeGroot, Lisa Freund (by telephone), and Troy Ross-Havens (Yakima County staff support)

### Key Discussion Points

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#### Welcome and Meeting Overview

The Chair of the working group welcomed the members and provided a brief overview of the agenda. He introduced Jim Davenport, who explained that he has been hired by Yakima County to help coordinate the GWMA program development. He is a retired attorney with extensive experience with water law.

#### Agenda:

##### **1. Abandoned/Improperly Decommissioned Wells Identification Program: Justification and Budget**

The group discussed the proposed effort for a system to locate and identify abandoned and improperly decommissioned wells within the LYV GWMA area. The goal of this program

would be to allow residents within the GWMA boundary to submit information of potentially abandoned or improperly decommissioned wells that they might know about, without the fear of being held legally or financially responsible. The data collected would inform both the Area Characterization and Problems and Causes by identifying how many abandoned wells there are and where they are located. It is a big unknown at this time. The group discussed how they would reach out to the public to engage them in reporting these wells, and what data they would try to collect. Jim observed that the program should be developed first, followed by the outreach effort. He noted that a rough budget should be drafted to include identification/characterization of reported wells. Once the extent of the issue has been identified, the GWAC could apply for grant funds to properly decommission the wells.

It was mentioned that information and education on private wells, septic systems and nitrates in groundwater already exist on the GWMA website; however, concern was raised that not everyone has convenient access to the internet. The conversation turned to a telephone resource hotline as another means to assist and educate the public. The group reached consensus that they will need to work on outlining an approach to the program in addition to the budget to present to the GWAC during the August meeting, and that the need for a funding source does exist.

In addition to the RCIM's proposed budget, the Chair of the EPO asked the group to identify the desired outcomes of their programs (well decommissioning and telephone referral line): who they want to reach, what the messages are, and what criteria or questions they want to ask of the public so the EPO can develop its budget estimate accordingly. Under the proposal, the EPO Working Group would design the outreach campaign to support the RCIM goals and objectives.

**ACTION:** Gordon K. to research current cost of properly decommissioning an abandoned or improperly decommissioned well.

## **2. Nitrate Source Pollution Referral Line**

Discussion was held on furthering the idea of a nitrate referral line that would be available to citizens who might have questions regarding nitrate sources. The scope of the hotline was discussed, and how it might look like as an end result. The group thought it might be more like a GWMA resource directory. For example, one could call the hotline with a question about septic systems, and the directory could refer them to the Department of Health. The EPO Chair observed that sometimes the caller might not know exactly what they would like to know or how to ask the question to get the answer they are looking for. Accordingly, the hotline representative would need to know what questions to ask in order to elicit the caller's actual need, as opposed to their perceived need. The representative should have some technical knowledge of the nature of nitrate sources to accurately dispatch them to the correct entity to help them further answer their technical concern while avoiding connecting to several entities. Along with the support of the EPO Working Group, the RCIM reached

consensus that they will need to make a list of potential sources and contacts to incorporate into the phone tree. As the proposal stands now, EPO's involvement would include the creation and implementation of the phone tree, while RCIM would supply all of the technical inputs needed.

### **3. Ecology Progress on Identified Nitrate Source Spills and Plumes**

The RCIM member from Ecology was not present at today's meeting, therefor no update was provided.

**ACTION:** Bob F. to follow up with Sanjay on Ecology progress.

### **4. Education and Public Outreach**

Education and public outreach was discussed concurrent with agenda items 1 and 2. Lisa Freund (EPO Chair) joined the meeting to provide comment on suggested items. At this point, EPO has been notified of RCIM's outreach needs related to the abandoned wells and the telephone resource hotline programs. At this point EPO is waiting on further program scope development for abandoned/improperly decommissioned wells program and the nitrate source referral line.

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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**

- Developing budget and justification for next GWAC meeting.
- No progress report from Ecology regarding known nitrate plumes/releases and departmental actions.

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#### **Proposed Next Steps**

- Develop budget and justification for abandoned/improperly decommissioned wells program during the next RCIM meeting for proposal to the GWAC during the next meeting in August
- Develop budget and justification for referral line during the next RCIM meeting for proposal to the GWAC during the next meeting in August

- Provide EPO with sufficient content for the abandoned wells and telephone outreach programs for it to develop outreach strategies and budget.
- Bob F. to follow up with Sanjay Barik (Ecology) regarding progress on known nitrate releases or plumes within the LYV GWMA.

## Data Collection, Characterization, Monitoring Working Group

### Charge from Groundwater Management Area Advisory Committee

#### Working Group Members

Kirk Cook - Chair (Dept of Ag), Andres Cervantes (Dept of Health), Dr. Kefy Desta (WSU), Jan Whitefoot (CCYR), Jim Trull (SVID), Kevin Lindsey (GSI - Consultant), Laurie Crowe (South Yakima Conservation District), Lonna Frans (USGS), Matt Bachmann (USGS), Lorraine Edmond (Citizen), Mark Nielson (Benton County Conservation District), Steve Swope (PGG - Consultant), Stuart Turner (Turner & Co.), Thomas Tebb (Dept of Ecology)

#### Meetings/Calls Dates

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Conference Call: 100 PM – 2:40 PM, Thursday, May 8, 2014

Call Number: 509-574-2353 PIN# 2353

#### Participants

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Kirk Cook, Steve Swope (PgG), Pony Ellingson (PgG), Mike Murray (HDR), Jean Mendoza, Bob Farrell, and Troy Ross-Havens (Yakima County staff support)

#### Key Discussion Points

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##### Welcome & Meeting Overview:

Kirk welcomed the group and provided an overview of the agenda, which was to allow the group to express comments on Pacific Groundwater Group's (PgG) draft groundwater monitoring plan as well as the draft scope of work for nitrate loading assessment composed by Kirk, and to discuss a pre-scope of work involving a groundwater well monitoring network.

##### Proposed Presentation to GWAC:

Kirk explained to the group that Yakima County requested Kirk's boss to have a few weeks of Kirk's time to allow him to put together a presentation that will link all of the proposed LYV GWMA (GWMA) products and projects and how they fit together with the big picture and goal of the GWMA. At this point Kirk is hoping to address all of the questions that have been submitted to the GWMA by members and interested parties alike. It is intended that this presentation will help show how all of the items relate to building a comprehensive approach to Nitrate in the GWMA, and help tie together all of the loose ends and uncertainties some members may be experiencing.

**PgG's Draft Groundwater Monitoring Plan:**

Kirk began by asking everyone if they had a chance to look through the document; which they agreed that they had. The document is intended to set the stage for a long term monitoring plan that will ultimately assist the GWAC in characterization of the GWMA, as it is one element of the characterization but focused more on long term monitoring.

A discussion on characterization was held. Ali Sedighi (Yakima County Senior Hydrogeologist) originally developed the draft characterization plan for the GWMA and was going to assist in the characterization report; however he has left the county as of last year. As of now, the topic of who will be leading the characterization report is under discussion between the County and others. The scope and level of detail the characterization report still needs to be decided. Pony suggested that existing analyses by other parties contain a lot of useful information, and that it might be beneficial to reference and extract a lot of this information in order to avoid recreating information that is already available.

Purpose built groundwater monitoring wells were discussed, and the group generally agreed that these wells will be of high importance to the GWMA project, as long as they are carefully thought out in regards to the purpose and benefit of them prior to installation.

One member suggested that the consultant develop the ideal plan that would benefit the GWMA if there were no funding constraints, and from there develop a few monitoring plans of lesser extent and identify what is lost or gained by adopting a plan of lesser extent. Perhaps one plan would cost significantly less than the ideal plan, but the advantages would not be significantly diminished. This would allow the GWAC to see the differences in approaches and how they might affect the outcome of the characterization report.

Data quality objectives associated with results precision, number of samples, and number of wells has yet to be finalized as domestic well volunteers are still being recruited. This parameter of the document would need to be tabled until a known number of domestic well volunteers is established, allowing the group to determine how many purpose built wells would need to be implemented, and how often to sample to achieve the data quality objectives. The group reached consensus on the importance of establishing a background concentration in the wells prior to the implementation of potential land use changes or BMPs. More sampling upfront would be beneficial in identifying seasonal changes as well as establishing a tighter background level. Basin wide sampling vs. BMP effectiveness monitoring was discussed.

One consultant mentioned that the document seems incomplete without establishing the network and which wells will be monitored. Marking the document as an interim final for now would be ideal pending finalization of the monitoring well network. This consultant

also suggested adding chloride to the analyzed list, as this will help identify the source of nitrate (manure vs. chemical).

Kirk asked the group to send him all of their comments via email within two weeks.

**ACTION:** Group members are to submit comments to Kirk via Email within two weeks. He will incorporate comments and send back to group for verification. Once finalized, this will be sent to the County.

#### **Draft Scope of Work for Nutrient Loading Assessment:**

Kirk began the discussion by mentioning that criticism came out of RCIM's scope of work proposed by the consultant for a nutrient loading database due to the fact that RCIM has been shown to be a relatively minor source of nitrates to groundwater compared to Livestock/CAFO and Irrigated Cropland based on recent studies, and that this could lead to spending more funding on a source that has less potential to be contributing to nitrates in groundwater. Following this, the County asked Kirk to develop a proposal for a more comprehensive assessment for all nutrient sources. This proposal was discussed by the group, with the caveat that as it was distributed, was drafted prior to the RCIMs scope of work from PgG. Kirk solicited information from the group that could be passed on to the County to allow for a proposal or consultant search to get GWAC approval on such an assessment.

Most of the comments made were directed to the granularity or resolution of the assessment, and what data types or formats would be expected. The consultant mentioned that in the essence of time, it would be most beneficial to determine what resolution the GWAC desires, as well as to anticipate or sample what data types or forms the data inputs would be in, to allow consistency between the different sources and minimize the potential of abandoning progress due to database incompatibility.

Some discussion was held on the method anticipated for the nutrient loading assessment, such as a modeling or an accounting exercise. Kirk explained that the purpose of the nutrient loading assessment is to account for the nitrogen activities in the GWMA to determine if or what amount of nutrients are migrating passed the root zone (gain, loss, or equal). It was mentioned that the Deep Soil Sampling Program and shallow groundwater monitoring will help in verifying or rejecting some of the assumptions in the assessment, and will be useful in comparing and contrasting findings from the nutrient loading assessment.

It was mentioned that agronomic rates recommended by NRCS are expected to change in the near future, and it is important for the GWAC to stay up-to-date with potential changes such as these that may impact nutrient application.

Kirk Cook concluded this agenda item by requesting that the working group members send their comments to him via email within the next two weeks. Kirk will compile the comments; send back for working group review for consistency and completeness. Once the scope has been approved he will send to the County for GWAC approval.

**ACTION:** Group members are to submit comments to Kirk via Email within two weeks. He will incorporate comments and send back to group for verification. Once finalized, this will be sent to the County.

### **Dedicated Monitoring Wells**

Dedicated or purpose built monitoring wells were discussed at the end of the meeting. There was general consensus that the members need to start discussing the scope of the wells, such as number needed and locations to be selected. The group would like to get these discussions and plans started as early as possible, as establishing a background nitrate concentration is important for the determination of BMP effectiveness. Discussion should include what is the intended use for the wells, what criteria are they going to be based on and where are the BMPs going to be implemented. Some agreement needs to be reached on concept and what information needs to be collected.

### **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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- Presentation to be finalized prior to June GWAC meeting
- Mark Groundwater Monitoring Plan as Interim Final pending on well survey results and participation levels

### **Proposed Next Steps**

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- Working Group members to provide comments on the documents discussed today to Kirk Cook, and expect to review and approve the updated documents prior to submitting to the County or GWAC
- Discuss monitoring well locations, purpose, and criteria

## Regulatory Framework Working Group

### Charge from Groundwater Management Area Advisory Committee

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#### Working Group Members

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Tom Eaton – Chair (Environmental Protection Agency), Andres Cervantes (Department of Health), Charlie McKinney (Department of Ecology), Chelsea Durfey (Turner and Co.), 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

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

When: 3:00 PM – 5:00 PM Thursday, April 17, 2014

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

#### Participants

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Present: Tom Eaton (Chair), Andy Cervantes, Charlie McKinney, Dan Degroot, Jason Sheehan, Jean Mendoza, Laurie Crowe, Vern Redifer,

Absent: Chelsea Durfey, Nick Peak

Other Attendees: Larry Fendell, Jim Dyjak, Steven Rowe, Steve George, Phyllis Barney, Don Gatchalian (Yakima County support staff)

#### Key Discussion Points

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##### Welcome & Meeting Overview

Tom Eaton welcomed the working group and outlined the Meeting Agenda. He introduced Phyllis Barney from the Washington Attorney General's Office.

##### **Presentation by Phyllis Barney, Assistant Attorney General on Water Quality Law and Regulation**

Phyllis provided an overview of water quality law and regulation (copy of presentation is attached):

- **The 1972 Federal Clean Water Act** and its intent. The Act makes it unlawful to discharge pollutant from a point source to surface water of the United States, unless you have a permit to do so.

- CWA allows authority to enforce and manage NPDES program to be delegated to a state which is the case for the State of Washington
  - RCW 90.48.260 authorizes Ecology to establish and administer NPDES permit program
  - CWA also delegated authority for non-point source pollution control to Ecology
- **1945 RCW 90.48 - Water Pollution Control Act**
    - Grant Ecology broad authority to control and prevent pollution of the waters of the state
    - "Water of the state" in Washington state has broad meaning, includes all surface waters, underground waters, waters in manmade ditches (including irrigation ditches), wetlands, and isolated bodies of water
    - Ecology is authorized to administer a state permit program to protect both surface water and groundwater.
  - **EPA CAFO Rule**
    - First – to be a CAFO you have to be an AFO
    - To be an AFO, you have to have:
      - Animals must be confined for 45 days or more, and
      - No crops are grown in the confinement area
    - Categorized by size
    - Difference requirements for size and species of animals
    - NPDES permit is required only if CAFO discharges to surface water
    - Dairies can request to be covered by the NPDES permit
  - **Washington Regulatory Scheme**
    - Ecology is delegated NPDES agency and issues CAFO permits
    - WSDA is regulatory agency for dairies
  - **RCW 90.64 Dairy Nutrient Management Act**
    - Establishes an inspection and technical assistance program for dairies
    - Requires dairies to have a nutrient management plan
    - Makes discharges of pollutants into water of the state a violation, with exceptions
    - WSDA conducts inspection program for dairies, investigate complaints, and issue enforcement orders and penalties for violations of RCW 90.64 and RCW 90.48, operates under an MOA with Ecology
    - Ecology acts if dairy discharges and/or found to be significant contributors of pollution, designates dairy as CAFO, issues CAFO permit, issues and regulates NPDES permits, operates under an MOA with WSDA
    - Washington State Conservation Commission develop elements of the dairy nutrient management plans, assist and provide coordination for conservation districts

- Conservation Districts apply nutrient management plan technologies and BMPs, approves NMP, certify implementation of NMP, and provide technical assistance
- **RCW 90.54.020(3)(b) – Antidegradation Policy**
  - All wastes shall be provide with AKART prior to entry of waste materials into state waters
  - Wastes and other materials shall not be allowed to enter such water which will reduce the existing quality of the waters
  - Applies to surface water (WAC 173-201A-260 through 410)
  - Applies to groundwater (WAC 173-200-300)
- **Groundwater Management Areas (WAC 173-100)**
  - Lead Agency (WAC 173-100-800)
  - GWAC (WAC 173-100-090)

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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**

None at this time

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### **Proposed Next Steps**

#### **1. Continue review of TM #1 Regulatory Review Database from HDR**

Vern has provided the initial categorization of regulations identified in Technical Memorandum No. 1. This was distributed to the committee for information and review. Any comments should be sent to Tom, otherwise this will be used to guide the future work of the workgroup

#### **2. Conduct Regulatory Program Analysis**

A draft of the Regulatory Analysis template was sent from Vern but not received by Tom. Vern will send another copy to Tom for review and distribution to the workgroup.

#### **3. Review and update the Task List**

The task list with associated milestones was not discussed at this meeting to allow time for the guest speaker.

#### **4. Other Items (Discuss at future meetings)**

- 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.
- WAC 173-100 and LYV GWMA- Develop an Information Sheet on LYV GWMA and what is applicable to WAC 173-100

## **Attachment B**

- GWAC Comments and PGG Responses to the Draft Groundwater Monitoring Plan

Draft Groundwater Monitoring Plan  
 Yakima Groundwater Management Area  
 Response to Comments  
 June 2014

Issue #	Organization	Commenter	Text	Category	Response
01a	PGG	Charles Ellingson	Current draft does not include the stations to be sampled because that information is not known at this time. Domestic wells are being field-inventoried by the HD, and dedicated monitoring wells have not been drilled. Because the schedule depends in part on the number of wells available to monitor, the schedule is also not determined at this time. I question whether this document should be finalized prior to definition of the monitoring network and schedule.		After incorporation of these comments, the Monitoring Plan will be released as Interim Final.
01b	Turner and Company	Stu Turner	Please do not rule out existing wells where we have combination of strategic location and details sufficient on construction to be confident of a good surface seal, nearby hotspots (septic) etc. Having worked on the other GWMA, I found domestic and irrigation wells to be a valued resource, and at a much, much more modest cost than installed purpose specific monitoring wells.		Domestic and Irrigation wells will be used as part of the monitoring plan where appropriate.
02a	PGG	Charles Ellingson	We should consider adding chloride to the monitoring parameters		Chloride is often elevated in groundwater below fields fertilized with manure. It is also concentrated by use of potassium chloride mineral fertilizer but not mineral nitrate fertilizers. It does not react with plants or soil but may be concentrated through evaporation. Chloride, and the chloride/bromide ratio, have been used in other areas as part of studies of the sources, fate, and transport of agriculture chemicals in groundwater, including nitrate. These constituents may have a role in future sampling by the GWMA on an as-needed basis. They will not be added to the current monitoring plan.
02b	Turner and Company	Stu Turner	On adding Chloride to monitored parameters: What is the specific purpose? Chlorides are associated with both synthetic fertilizers and animal nutrients....we already know fundamentally the math here is we need both combined to be equal to (with normal losses) field crop uptake/removal, mediated by careful irrigation (the hammer). We already know there has been historic over application in places of both....what does including Chloride bring to the party?		See response above.
03	Department of Ecology	Melanie Redding	Dissolved oxygen should be measured in the field along with temperature, pH, and electrical conductivity. As the most sensitive field parameter, dissolved oxygen is the best indicator of stable conditions and when representative groundwater is present.		Accurate measurement of dissolved oxygen in the field requires the use of a flow through cell to isolate the sample from the atmosphere until the analysis is completed. While this is practical for monitoring wells, it becomes complicated for domestic and irrigation wells because of the unknown fittings that may be

					required. As a compromise we propose to monitor dissolved oxygen where practical based on field conditions and will include flow-through cells and CHEMetrics CHEMets™ ampoules as alternative field methods to measure DO.
04	PGG	Charles Ellingson	Add field parameters to Table 1.		Field parameters will be added.
05	PGG	Charles Ellingson	Are there passive samplers (eg: diffusion samplers) that might be used for this project? Would they reduce cost?		Passive samplers require insertion into the well, which risks potential damage to the well and lodging of the sampler within the well.
06	Department of Agriculture	Jaclyn Hancock	Overall: I think the monitoring plan looks great. I look forward to seeing the results of the field verification survey and the development of a well network		
07	Department of Agriculture	Jaclyn Hancock	Appendix B, Section 2.1: The seal information is part of the Data Gap and Trend Analysis DQO according to Figure 2. The discussion in Section 2.1 lists it only as a Long Term Monitoring DQO.		The text in Appendix B, Section 2.1 will be revised to be consistent with Figure 2, that seal information is part of the Data Gap and Trend Analysis DQO.
08	Department of Ecology	Melanie Redding	Overall, the plan supports the objectives		
09a	Department of Ecology	Melanie Redding	Eliminating monitoring locations from the dairy cluster may be a wise political decision. However, from a technical perspective of characterizing the GWMA basin, it leaves a big hole in a highly impacted area. It will be difficult to meet the plan objectives to: identify nitrate hotspots, calculate basin-wide nitrate concentrations and evaluate groundwater trends. I recommend trying to find a way to include some groundwater samples from this area.		Sample collection within the dairy cluster would need to be discussed at the GWAC level. Inclusion of data collected by the EPA within the dairy cluster in any water quality summary reports might be a good compromise.
09b	Turner and Company	Stu Turner	This presumes there are no other means of monitoring the "dairy cluster" area. This presumption is false. There are wells there of proper construction and location for use in monitoring. Some of the newly installed EPA wells would not qualify since they were installed in the wrong area/incorrectly sited and susceptible to contamination.		See response above
10a	Department of Ecology	Melanie Redding	All data must be uploaded into Ecology's EIM (Environmental Information Management System).		Environmental data collected as part of the GWMA will be loaded into the EIM
10b	Department of Ecology	Stu Turner	I don't understand why the data should be separately represented in the DOE realm. They have computers there able to access the data on the main (Yakima County) GWMA website. DOE could put a simple link on their site if typing in the address is too laborious.		Uploading to the EIM is a Department of Ecology requirement.
11	Department of Ecology	Melanie Redding	Dissolved oxygen should be measured in the field along with temperature, pH, and electrical conductivity. As the most sensitive field parameter, dissolved oxygen is the best indicator of stable conditions and when representative groundwater is present.		See the response to Comment 03.
12	Department of Ecology	Melanie Redding	All wells should be purged solely by using the following stabilization criteria. This criteria will assure that stagnant water will not be sampled. Purging three bore volumes is not recommended. The stabilization criteria will assure that the aquifer is not over-pumped (stressed) by over-purging the well. Recommended stabilization criteria:  pH ± 0.1 standard units Specific Conductance ± 10.0 µmhos/cm for values < 1000 µmhos/cm		These stabilization criteria will be added to the monitoring plan in Sections 3.1 and 3.2.

			<p><math>\pm 20.0 \mu\text{mhos}/\text{cm}</math> for values <math>&gt; 1000 \mu\text{mhos}/\text{cm}</math></p> <p>Dissolved Oxygen</p> <p><math>\pm 0.05 \text{ mg/L}</math> for values <math>&lt; 1 \text{ mg/L}</math></p> <p><math>\pm 0.2 \text{ mg/L}</math> for values <math>&gt; 1 \text{ mg/L}</math></p> <p>Temperature <math>\pm 0.1^\circ \text{ Celsius}</math></p>		
13a	Department of Ecology	Melanie Redding	An in-line filter (0.45 $\mu\text{m}$ ) should be used during sample collection.		Field filtering reduces bias in analytical results caused by parameters of concern that may sorb to particulates, for example metals. Nitrate and nitrite do not strongly sorb to particulate matter and therefore filtering should not be necessary to obtain accurate analytical results. Ammonium can sorb to particulates; however, filtering samples for ammonium analysis is not typical and at approximately \$15 per filter, would add considerable expense to the project. PGG does not recommend field filtering. It is our understanding that groundwater samples collected for the EPA nitrate investigations were not filtered.
13b	Turner and Company	Stu Turner	This probably makes sense, is this a listed parameter in an existing well adapted, industry and regulatory agency protocol, why not just reference such protocol?		PGG is not aware of an established protocol that recommends field filtering for nitrate, nitrite, ammonia, or TKN. By definition TKN is not filtered for analysis and becomes DKN (Dissolved Kjeldahl Nitrogen) if it is.
14	Department of Ecology	Melanie Redding	Sulfuric acid preservation is also required for nitrate+nitrite samples. The sulfuric acid should already be added to the sample bottles by the lab		This note will be added to the monitoring plan.
15	Department of Ecology	Melanie Redding	All samples should be chilled to $6^\circ \text{C}$ and transported in coolers with ice until they are shipped to the lab.		This requirement will be added to Sections 3.1 step #10 and Section 3.2 step #12 in the monitoring plan.
16	Department of Ecology	Melanie Redding	Decontamination procedures should be described.		Decontamination procedures will be added to the monitoring plan.
17a	Department of Ecology	Melanie Redding	On page 2 of the Groundwater Monitoring QA/QC Plan it discusses that water quality standards have not been set for ammonia, organic nitrogen, or ammonium. I think it would be good to highlight that all of the nitrogen species should be sampled to quantify the total nitrogen that is present. Since nitrogen naturally transforms in the environment, it is important to know not just the nitrate concentration.		TKN and ammonia are being sampled for in addition to nitrate and nitrite, which allows total nitrogen to be quantified.
17b	Department of Ecology	Melanie Redding	This is a complex area, N does cycle in different forms, depending on the environment. Do we need to know all about ammonia, ammonium, nitrite, or is a singular focus on $\text{NO}_3^-$ simple and effective for this program?		See comment 17a above
18a	Department of Ecology	Melanie Redding	Table 1 list different analytical methods for each parameter. These methods may have different requirements (such as holding times) and they may have different reporting limits. In order to promote consistency and to make sure that the values reported will meet the needs of the study objectives, these analytical methods should be reviewed and the most appropriate method specified in the table.		Differences in method reporting limits (MDLs) between analytical methods is acknowledged. There are also differences in practical quantitation limits (PQLs) between analytical labs. Because the labs have not been selected, PQLs cannot be presented in Table

					1. There is a footnote in Table 1 stating lab PQs for nitrate and nitrite must be 10-percent of project MCLs or lower. Threshold limits for ammonia and TKN will be added to Table 1. Also, because the labs have not been selected, single analytical methods have not been identified. The methods in Table 1 are consistent with Ecology's Methods and Analytes.
18b	Turner and Company	Stu Turner	I would like to hear about this from the SAMPLING PROTOCOL and from the Analytical Lab side.		Analytical protocols are not typically included in monitoring plans and are outside of the scope of this document.
19	Department of Ecology	Melanie Redding	Once the document is close to being final, it can be sent to Bill Kammin (Ecology QA Officer) for approval. Including Bill Kammin in the review/approval process is important to assure credibility and consistency.		The Interim Final will be provided to Bill Kammin for approval.
20a	Friends of Toppenish Creek	Jean Mendoza	<p>I support strategically placed dedicated monitoring wells, but the general audience needs to know:</p> <ul style="list-style-type: none"> <li>• Difference between characterization and long term monitoring</li> <li>• Menu for characterization</li> <li>• Water table contaminants are the first to change with changes in activities</li> <li>• Shallow wells give the biggest bang for the buck</li> <li>• Different sampling options. I think a min-lesson on sampling is appropriate</li> <li>• What is background monitoring and why a lot of samples are needed up front</li> <li>• We are talking about two levels of sampling – Basin wide characterization and monitoring &amp; BMP effectiveness</li> <li>• It doesn't make sense to complete the document until the monitoring network is chosen</li> <li>• We should add chloride to the analyte list. It is helpful in distinguishing between effects from chemical fertilizers and manure</li> <li>• The options of data resolution – at the parcel level, quarter section level or square mile.</li> <li>• It takes time to scope out the number and location of monitoring wells</li> <li>• For BMPs dedicated wells should be in place and have background data before implementation</li> <li>• We need to select BMPs for evaluation. We cannot evaluate them all.</li> <li>• People need to start thinking about the cost of monitoring, monitoring wells and what we want to study</li> <li>• How many years of monitoring are proposed</li> </ul>		Monitoring wells have not been scoped or approved by the GWAC at this time. However, these comments will be helpful in shaping the conversation in the future.
20b	Turner and Company	Stu Turner	I agree with most of this, but question the use of Chloride to segregate animal source nutrients from commercial/synthetic fertilizers. For BMP's it will be easier to "select" than you think; while hundreds are available overall, within a given cropping system there are often a dozen or less COMMONLY EMPLOYED BMP's....Just one BMP, water (irrigation) management is huge, and overshadows almost everything else, so that's a easy focus. The rest can be split into categories like conventional vs no till or minimum till farming, double cropping, etc. I am not sure how many years we should monitor. I suspect it will be driven by how productive we are		This document does not address selection of BMPs. Refer to prior responses regarding chloride.

		with resources already dedicated; if we do well, we'll get more to work with. If we squander....everything will be shortened up.		
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## Attachment C

- Deep Soil Sampling Plan
- Deep Soil Sampling Questionnaire
- Invitation to Growers
- *Yakima Herald Republic* June 29 Advertisement for Bids for Deep Soil Sampling

**DEEP SOIL SAMPLING PLAN  
LOWER YAKIMA VALLEY  
GROUNDWATER MANAGEMENT AREA**

**March 28, 2014**

**DEEP SOIL SAMPLING PLAN  
LOWER YAKIMA VALLEY  
GROUNDWATER MANAGEMENT AREA**

*Prepared for:*  
**Lower Yakima Valley GWMA  
Yakima County, Administrator**

*Prepared by:*  
**Irrigated Agriculture Working Group**

*March 28, 2014*  
*2014 03 28 Deep Soil Sampling Plan -VERSION 6 clean.docx*

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## ATTACHMENTS

- A. Grower Survey Questionnaire
- B. Key Personnel
- C. Boring Log
- D. Soil Sample Field Form

## 1.0 INTRODUCTION

The GWMA project is a multi-agency, citizen-based, coordinated effort to reduce groundwater nitrate concentrations in the Lower Yakima Valley (LYV) to below Washington State drinking water standard. This project will identify activities contributing to nitrate groundwater contamination based on scientific data and evaluation.

Nitrate is added to soil by natural processes and human activities. Human activities include growing crops, and managing animal waste, human waste, and waste waters. Nitrate within the plant root zone may be utilized by the plants and if managed properly, leaching to groundwater can be minimized.

Nitrate in soil results primarily from land use at that location over time. Measuring deep soil nitrate may therefore help identify activities that contribute to nitrate groundwater contamination. Looking at nitrate concentrations in soil samples can provide relatively quick feedback on the effectiveness of changes to management practices designed to reduce groundwater contamination.

Initial deep soil sampling should be conducted for the purposes of:

- 1) Providing baseline data regarding the nitrogen content (nitrate, ammonium, and organic matter) of soils underlying a variety of soil, crop, and irrigation systems that represent a cross-section of agricultural activities.
- 2) Provide an initial assessment of current nitrogen and water management practices in place today and in the past.
- 3) Provide information regarding availability of soil nitrogen to crops.
- 4) Provide the foundation for a technically based education program.
- 5) Provide information about project design, practical realities, time requirements and costs that can be used in developing subsequent project scopes.

This deep soil sampling may not be sufficient to address future technical questions that may arise during the course of data collection and assessment conducted by current and future consultants tasked by the LYV GWMA Executive Committee (GWAC). Deep soil sampling will be conducted initially for two years to collect baseline information. Deep soil sampling may be repeated in future years to allow analysis of the effects of changing management practices. The timing and budget of future sampling will be coordinated with the pace of change in nitrogen application and irrigation water management practices, as determined by the GWAC.

This deep soil sampling plan will be implemented by South Yakima Conservation District (SYCD) and is summarized below.

1. Grower participation will be solicited by general mailings and outreach by SYCD and other participants of the GWAC.
2. Beginning in 2014, SYCD will distribute a unique identification number (UIN) to be retained by the grower only. The UIN will be translated into a bar code that will be used by the grower to identify their survey, the field and soil samples.
  - a. The Deep Soil Sampling Program Questionnaire will include information specific to an individual field such as pertinent management information including cropping systems,

nitrogen sources and amounts, historical yields, irrigation practices and application methods (Attachment A).

3. Soil sampling and analysis will begin in Fall 2014:
  - a. After crop harvest but prior to nitrogen applications where possible.
  - b. Soil samples will be collected at 1-foot increments from 0 to a depth not exceeding 6 feet, or to the depth of refusal as basalt, gravel or caliche that define the limits of a shallower potential root zone.
  - c. The 0-1 foot sample will be analyzed for nitrate, ammonium and organic matter content.
  - d. Deeper soil samples will be analyzed for nitrate only.
  - e. Soil descriptions will be recorded in the field, and the NRCS Soil Series will be identified and documented.
4. Sampling and analysis will be performed by qualified firms contracted to SYCD. Funding to SYCD will be from the LYV GWMA budget.
5. SYCD will use results from soil sampling to identify risk of nitrate leaching posed by the various soil/cropping/irrigation systems.
6. Data will be available on the GWAC Web site and available at SYCD. Data will be identified using a Unique Identification Number (UIN) and kept confidential using bar codes supplied to the grower. Only the participating grower will be able to identify his/her sample(s).
7. The GWAC will retain technical data for analysis.

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## 2.0 DEEP SOIL SAMPLING PROGRAM

### 2.1 PROJECT ADMINISTRATION

The program will be administered by SYCD under the direction of the GWAC and this plan. Attachment B contains contact information for key project personnel.

SYCD will perform the following tasks:

- Recruit growers for the sampling program with assistance from the GWAC and the Irrigated Agriculture Working Group (IAWG). Effort will be made to get as diversified participation as possible considering crop type and areal distribution.
- Distribute UIN and labels with bar codes for soil samples and grower surveys.
- Contract firms to collect and analyze soil samples.

- Maintain records of sampling and analysis results.
- Record sampling data, analytical results, and quality assurance/quality control (QA/QC) results in a computer database (database design provided by GWMA).
- Provide the county with data to be published on the county web site.
- Report to the GWAC.

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## 2.2 SELECTION OF SAMPLING SITES

The goal in field selection will be to involve as many growers and field conditions as possible for the established budget.

### 2.2.1 Outreach to Growers

Grower participation will be solicited by general mailings and outreach by SYCD and others participating in the GWAC. Growers will be encouraged to propose fields for sampling by contacting SYCD. In preparation for sampling, outreach should begin during spring/summer 2014.

### 2.2.2 Sites Identified by Other GWAC Work Groups

Sites other than irrigated agricultural fields may be sampled using the methods of this plan. Such sites may be proposed by the RCIM (residential-commercial-industrial-municipal) or Livestock-CAFO work groups. For application to sites other than agricultural fields, the method should be reviewed and modified if necessary to conform to site conditions. For instance:

- The number of boreholes and the radius within which boreholes are drilled may need to be reduced if a site with a small footprint is investigated.
- The depth of sampling should be coordinated around land cover, and water and waste management specific to the site.
- Analytes should be reviewed.

If the RCIM and Livestock-CAFO work groups propose sites for sampling, they will produce addenda to this plan indicating the sampling sites and necessary modifications to methods. Sites should be proposed prior to SYCD contracting for the work.

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## 2.3 SAMPLING REQUIREMENTS

### 2.3.1 Expected Variability

The LYV GWAC understands that it would be cost prohibitive to characterize each field to a level of detail necessary to identify all the variability within a field or to accurately quantify field-level leaching estimates. Sampling sites will therefore be selected to measure effects of management practices for the predominant field conditions. The GWAC will evaluate the deep soil sampling program to determine whether the sample requirements and evaluation criteria should be modified during future sampling events.

**Generic Variability:** Generic conditions exist which create variability in all fields. Examples include field border effects, cultivation patterns, and position relative to an irrigation system. Figures 1 through 12 provide sampling schemes to be used for common field conditions that will be encountered by the program<sup>1</sup>. These figures provide minimum setback distances to avoid field border and cultivation effects. They also suggest sampling locations and transect directions relative to irrigation systems so that known differences in irrigation uniformity can be avoided or incorporated appropriately.

**Field Specific Variability:** Factors that cause field specific variability include soil type, topography, and management practices. Selecting a sample site with relatively uniform conditions will be the responsibility of the grower. While resources are available to aid the grower, most growers have intimate knowledge of their fields and are best suited to select the locations of average field conditions.

### 2.3.2 Definitions

Based on the discussion above and for use in this document, the following definitions have been developed.

**Sampling Setbacks:** Those areas of the field that are automatically determined to be not representative of the average field condition and therefore inappropriate for sampling (Figures 1 – 12). Examples include field borders, first span of a center pivot, and known lap areas.

**Sampling Zone:** The field area available for sampling after the setbacks described in Figures 1 - 12 are taken into account.

**Sampling Site:** A sixty-foot diameter circle within the Sampling Zone where samples will be collected from at least four boreholes. The same sampling site will be used year-to-year if possible.

**Borehole:** A borehole where discrete soil samples are collected to contribute to the composite samples. Boreholes may be advanced by any method capable of collecting discrete samples of sufficient volume over 1-ft intervals – mechanized sampling devices are recommended.

**Discrete Sample:** A soil sample from a borehole, prior to compositing.

**Composited One-foot Sample:** The soil sample that will be analyzed to represent concentrations in a given one-foot depth increment within a sampling site. This soil will come from a composite mixture of discrete samples from the same depth from all boreholes.

### 2.3.3 Sampling Method Requirements

Samplers and laboratories will be contracted by SYCD to perform the field and laboratory work. SYCD will establish terms of the contract including minimum qualifications, and hardware and software to be employed. Samplers shall use GPS-based field location equipment coupled to soil survey maps for working with the grower on site selection and field orientation. The contracts will reference this plan as the basis for sampling and analysis requirements.

<sup>1</sup> Figures 3 and 4 apply to dryland sites which are not currently proposed for sampling. These figures are included for possible future reference.

Samples will be collected within a 60 foot diameter sampling site identified by the grower in conjunction with the sampler. The latitude and longitude at the center of the sampling site will be measured with a global positioning system device (GPS) provided by the sampler. The sampler will provide the coordinates to the grower for future reference. Latitude and longitude coordinates will be based on the datum WGS84 and measured/recorded to a precision of four decimal places ( $\pm 10^{-4}$  decimal degrees). Example: 46.3874, -120.1408. This level of precision results in the coordinate being rounded to  $\pm 12$  ft East-West and  $\pm 18$  ft North-South. The accuracy of the coordinates will depend on the type of GPS device & the alignment of satellites or the scale of the basemap. Care should be taken to make sure the GPS device is working properly and recording the locations as accurately as possible.

A minimum of four boreholes are required within each sampling site. A mechanized sampling tool (eg: Giddings, AMS, GeoProbe) is recommended that can collect soil from discrete one-foot increments to a depth of 6 feet below ground. The minimum nominal diameter of the standard cores shall be 2-inches; however, below a depth where a sampler is unable to advance a 2-inch core, as small as a 1-inch diameter core may be used. The pattern and location of the boreholes within the sample site will be conducted per the guidelines found in Figures 1 - 12. Portions of the sampling tools that contact soil must be cleaned between sample runs to minimize cross contamination of samples.

The soil from each borehole will be collected at one foot increments and placed temporarily in clean plastic buckets (one for each depth interval) in preparation for composite mixing. Buckets shall be cleaned at least between each sampling site. Each discrete soil sample will be described by the sampler in terms of consistency, moisture content, color, grain size, and other observations such as odor. The sampler will record soil descriptions on Boring Logs (Attachment C). In addition, the sampler will fill out one Soil Sample Field Form (Attachment D) for each site to document the soil sample compositing and lab-submittal process. The Boring Logs, Soil Sample Field Form, and Grower Survey Questionnaire will be returned to the SYCD by the sampler.

Boreholes will be advanced to a maximum depth of 6 feet or until refusal, whichever is shallower. If boreholes terminate at different depths, composite samples will be created by compositing available discrete samples (which may number less than four). During boring and soil collection, care should be taken to avoid mixing the soil from discrete one-foot depth increments with soils from shallower or deeper depths.

After all boreholes have been dug and the soil from each individual depth increment has been placed in the plastic buckets, the soil will be mixed thoroughly in the buckets to form a composite one-foot sample. After compositing, a portion of soil in each quadrant of the bucket will be transferred to a lab-prepared sample container. Tools used to mix and transfer samples must be clean to minimize cross contamination of samples.

Boreholes will be backfilled by the sampler using tamped native soil to prevent creation of a vertical conduit.

#### **2.3.4 Safety and Liability**

Because of the proposed sample depths, samplers should use mechanized sampling equipment, which is inherently dangerous. In addition to physical hazards of the equipment itself, there is the potential to intersect power and other utility lines that may lie above or beneath a sampling site.

The sampler must call the utility notification center (information at <http://www.callbeforeyoudig.org>) and leave sufficient time for their response prior to field work. The grower must identify and record the location of utilities on private land during orientation with SYCD and flag/stake any underground utilities in the field that are within 200 ft of the agreed sample site.

Responsibility for personnel safety will reside with the sampling company.

The GWMA project will repair damage to property of the cooperating grower caused by field sampling except for that caused by the negligence of the sampler. Property damage caused by negligence on the part of the sampler will be repaired by the sampler.

#### **2.3.5 Sampling Schedule**

Each sampling site will be sampled for baseline purposes once, unless additional soil sampling is requested based on review of data by GWMA workgroups.

When possible, samples will be collected after crop harvest but prior to any nitrogen amendments. Recent crop, nutrient, and irrigation actions will be recorded by SYCD.

#### **2.3.6 Handling and Custody**

A Soil Sample Field Form (Attachment D) will be filled-out by the grower/sampler for each field to be sampled. The UIN will be distributed by the SYCD. The UIN will be used to identify each composited soil sample. Grower identification information will not be included on the Deep Soil Sampling Questionnaire, Soil Sample Field Form, Boring Logs, or sample container labels.

Soil samples will be delivered by contracted samplers to contracted commercial laboratories. For delivery to the lab, samples shall be placed in a cooler with reusable ice substitutes or with ice. If ice is used, sample containers must be placed inside a waterproof bag to prevent contact with melting ice. At no time shall the sampler store samples for more than 48 hours. Samplers may dry samples using methods acceptable to the laboratories and consistent with analytical methods. If the laboratory cannot analyze the sample within 48 hours of sample collection the laboratory must preserve the samples by methods acceptable for the analytical method and standard practice.

The sampler and lab must complete a Chain of Custody form for each batch of samples delivered. The COC must contain the Date, Time, Sampler Name, Bar Code for the UIN, and Sample Depth for each sample submitted. The sampler relinquishing the samples and the laboratory receiving the samples must sign the COC. The "owner" and "client" information on the COC shall be the SYCD, not the grower.

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### **2.4 ANALYTICAL METHODS**

The following analytes are required for this program.

- nitrate-nitrogen
- ammonium-nitrogen
- organic matter

The sample from the upper one-foot will be analyzed for all three analytes. Samples below the first foot will be analyzed solely for nitrate-nitrogen. The following subsections specify the laboratory analysis methods.

SYCD will contract with one laboratory to perform the work. Only laboratories that participate in the North American Laboratory Proficiency Testing Program (NAPT) and NAPT's Proficiency Assessment Program (PAP) for the methods listed in this plan will be eligible.

The laboratory shall be instructed to report nitrate concentrations in parts per million (ppm) or milligrams per kilogram (mg/kg) and as pounds per acre (lbs/acre) for each one-foot layer. All reporting values shall be on a dry weight basis. Laboratories shall report assumptions used in conversion from ppm (mg/Kg) to lbs/acre.

The analytical lab report (including QA/QC results) will be submitted to SYCD within three weeks from the date of the analysis. The lab report must indicate the date and time of the analysis for each sample.

#### **2.4.1 Nitrate-Nitrogen**

Either of the two analytical methods below are acceptable for measuring nitrate-nitrogen.

**Method:** Cadmium Reduction

**Reporting limit:** 1 mg/Kg or lower

**Method Reference:** Cadmium Reduction Method, S-3.10, Western States Laboratory Proficiency Testing Program: Soil and Plant Analytical Methods, 3<sup>rd</sup> Edition, 2005, From: Plant, Soil, and Water Reference Methods for the Western Region. 1994, R.G: Gavlak, D.A. Horneck, and R.O. Miller, WREP 125.

**Method:** Automated Cadmium Reduction (with extraction step added for application to soil samples)

**Reporting Limit:** 1 mg/Kg or lower

**Method Reference:** 4500-NO3. F, 1987. Annual Book of ASTM Standards, Vol. 11.01. American Soc. Testing & Materials, Philadelphia, Pa.

#### **2.4.2 Ammonium-Nitrogen**

**Method:** KCL Extraction / Exchangeable ammonium

**Reporting Limit:** 1 mg/Kg or lower

**Method Reference:** KCL Extraction / Exchangeable ammonium Method; S-3.50; Western States Laboratory Proficiency Testing Program: Soil and Plant Analytical Methods, 3<sup>rd</sup> Edition, 2005, From: Plant, Soil, and Water Reference Methods for the Western Region. 1994, R.G: Gavlak, D.A. Horneck, and R.O. Miller, WREP 125.

#### **2.4.3 Organic Matter**

**Method:** Walkley-Black Titration

**Reporting Limit:** 0.1 percent

**Method Reference:** Walkley-Black ; S-9.10; Western States Laboratory Proficiency Testing Program: Soil and Plant Analytical Methods, 3<sup>rd</sup> Edition, 2005, From: Plant, Soil, and Water Reference Methods for the Western Region. 1994, R.G. Gavlak, D.A. Horneck, and R.O. Miller, WREP 125.

## **2.5 QUALITY CONTROL AND DATA QUALITY OBJECTIVES**

Adherence to this plan will maintain quality control for the project. Quality assurance samples shall be analyzed and the results reported to SYCD. The SYCD contract with samplers and laboratories will allow for the GWMA project to discuss results with the samplers and laboratories to determine the cause of problems and arrange for changes in procedure to achieve the data quality objectives.

Laboratories shall perform laboratory blank measurements, calibration measurements, method detection limit determinations, duplicate analyses and performance evaluation samples according to standard laboratory and method-specific procedures. In addition, SYCD will submit performance evaluation samples to the labs. Quality assurance data must be reported with each analytical report submitted to SYCD.

### **2.5.1 Quality Control Requirements**

#### **2.5.1.1 Instrument and Equipment Testing, Inspection, Calibration, and Maintenance**

The participating laboratories will follow their standard operating procedures for maintenance and calibration of instruments or systems used for this project. The frequency of calibration will also be consistent with their standard operating procedures.

#### **2.5.1.2 Inspection/Acceptance of Supplies and Consumables**

Soil sampling tools shall be supplied by the participating samplers and they will assure the tools are clean and in proper operating condition. Laboratories will inspect and accept supplies per their standard operating procedures. Samplers will obtain sampling containers from the participating laboratories. Samplers shall only accept new (not used) sample containers that are clean.

#### **2.5.1.3 Data to Support Repeat Sampling**

To promote consistency and avoid confusion where sites are sampled repeatedly, SYCD and the grower shall refer to the prior Soil Sample Field Form and the latitude and longitude of the sampling site retained by the grower so that the same sites can be revisited. In repeat sampling, growers shall reuse previous UIN and any remaining bar-code labels (grower/sampler can hand-write the UIN on forms and samples as necessary). Growers shall fill out a new Deep Soil Sampling Questionnaire to reflect field conditions since the last sample round. For data analysis, SYCD shall use the combination of common UIN but different sample dates to match sites that are resampled.

#### **2.5.1.4 Specialized training**

Labs and sampling firms are responsible for providing personnel who are qualified to perform the work.

## 2.5.2 Quality Control Samples and Data Quality Objectives

Requirements to assess accuracy, representativeness, comparability and completeness are summarized below. Data Quality Objectives (DQOs) have been established to help the GWMA project meet its overall objectives. Project DQOs may be revised by GWAC approval in the future.

### 2.5.2.1 Accuracy

Accuracy is a measure of confidence that describes how close a measurement is to its "true" value. In this program, accuracy will be measured by analysis of performance evaluation (PE) samples provided by a third party and by evaluation of internal lab control samples where such samples are standard to the lab practice.

PE samples (soil with known nitrate concentration) will be obtained by SYCD and submitted blind to prospective laboratories prior to contracting with SYCD. These samples will be obtained from a source used by the North American Laboratory Proficiency Testing program. Two concentrations of PE samples will be used and will represent medium (10-15 mg/kg) and high (>50 mg/kg) soil nitrate values. In addition, SYCD will provide the contracted laboratory blind samples from the medium and high PE samples at least twice during the project time period each year. The RPD between the known value and the reported value from each laboratory will be calculated. A RPD of 20% will be acceptable for this project. If the RPD for individual laboratories regularly falls outside this range, the GMWA project will take corrective action which may include denying the laboratory further participation in the GWMA program.

### 2.5.2.2 Representativeness

Representativeness is the degree to which data from the project accurately represent a particular characteristic of the environmental matrix which is being tested. Representativeness of samples is ensured by adherence to the field sampling protocols and standard laboratory protocols. The design of the sampling scheme and number of samples should provide a representativeness of the soil matrix being sampled.

### 2.5.2.3 Comparability

Comparability is the degree to which data can be compared directly to similar studies. Using standardized sampling, analytical methods and units of reporting with comparable sensitivity helps ensure comparability. The GWMA project is using sampling and analysis methods that are currently being employed by the agricultural industry for nutrient management decisions. The Columbia Basin Deep Soil Sampling Program was conducted using similar procedures.

### 2.5.2.4 Completeness

Completeness is the percentage of valid results obtained compared to the total number of samples taken for a parameter. A complete or valid result will include full completion of the Deep Soil Sampling Questionnaire, Soil Sample Field Form, Boring Logs, and a laboratory analysis report, all linked through the UIN. Percent completeness may be calculated using the following formula. A DQO of 80% is established for this parameter.

$$\% \text{ Completeness} = \frac{\# \text{ of valid results}}{\# \text{ of samples taken}} \times 100$$

## 2.6 INFORMATION MANAGEMENT

### 2.6.1 Soil Sampling

Documentation of field and laboratory work for each soil sampling site will consist of submittal of the following documents to SYCD:

- Completed Deep Soil Sampling Questionnaire
- Completed Soil Sample Field Form
- Completed Boring Logs
- A completed Chain of Custody Form
- A copy of the analytical results, including QA/QC results

Forms shall be submitted to the SYCD who will retain the minimum records necessary for technical analysis of the data, documentation to facilitate repeat sampling, and possible audit of financial data.

### 2.6.2 Computerization of Technical Information

SYCD will enter sample and analytical data into a computer database. The GWMA project will provide the SYCD the database entry form. Computerized data will include technical data necessary for interpretation of the results by the GWMA project. Such data will include sample ID; sampling date; nitrate, ammonium, and OM concentrations; and depth; field information including nitrogen sources and amounts, historical yields, and irrigation practices. The sampling and analytical data will be linked to the soil type, nitrate leaching potential (per NRCS), irrigation type, crop, and other data provided by the grower and recorded by SYCD. SYCD will provide the GWMA the computer database within 90 days of the close of the sampling season (eg: by mid August assuming a mid-May end of sampling season).

SYCD will provide the county with data and copies of the documents listed in section 2.6.1 above identified only by the UIN.

The county will publish data on the LYV GWMA website. Growers will access data from the website or from SYCD.

## 3.0 TARGETED SAMPLING

Analysis of initial Deep Soil Sampling data collected in 2014 will likely reveal uneven coverage of geographic areas, soil types, crop types, irrigation types, and nitrogen sources. Uneven coverage is expected and may be acceptable; however, extreme bias or uneven coverage could jeopardize fulfillment of GWMA project goals. The GWMA project will analyze distribution of the 2014 data across the field conditions, and identify possible unacceptable bias or gaps in coverage. If unacceptable bias or gaps are present, the GWMA project will reach-out to growers in uncovered areas and

request participation in the deep soil sampling program. Outreach should occur in winter of 2014-15, and sampling to fill data gaps will occur in early 2015.

Targeted sampling may also include sampling of the following sites not accessible through the 2014 program. Note these locations may involve locations that are not irrigated agricultural fields, and would be identified through work of appropriate GWMA subcommittees (eg: livestock-CAFO or residential-commercial-industrial-municipal).

- control sites without intentional nitrogen application
- industrial and commercial sites managing nitrogen fertilizers or wastes
- point sources of possible nitrogen contamination
- private fields in close proximity to wells

## FIGURES

Figure 1. Sampling scheme for center pivot irrigation system.

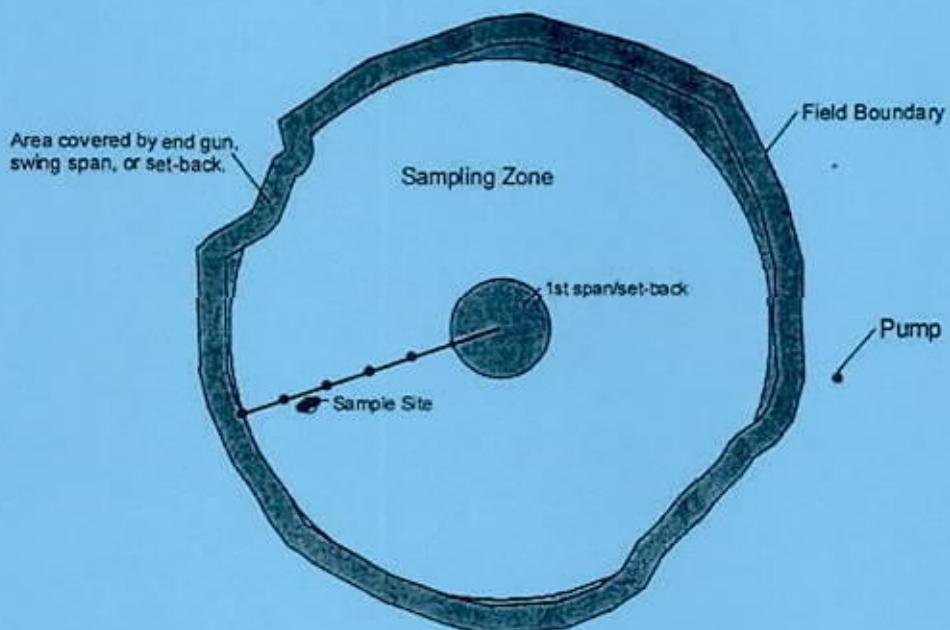


Figure 2. Sample site detail for center pivot irrigation.

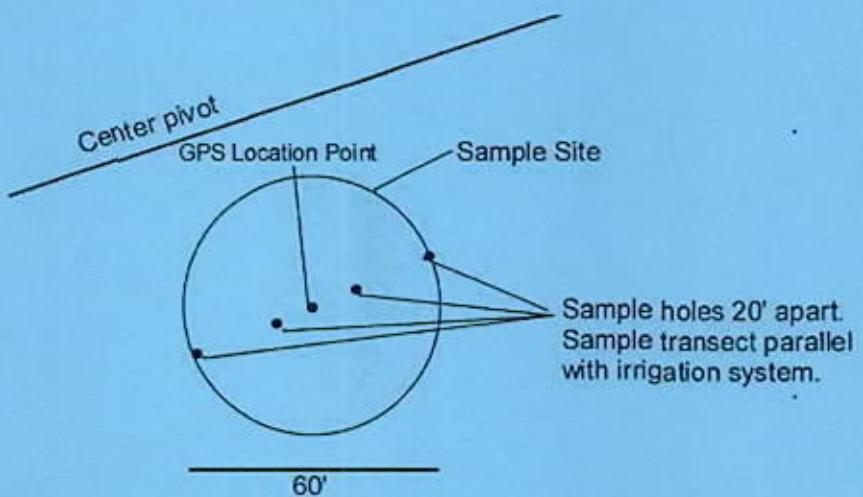


Figure 3. Sampling scheme for dryland fields.

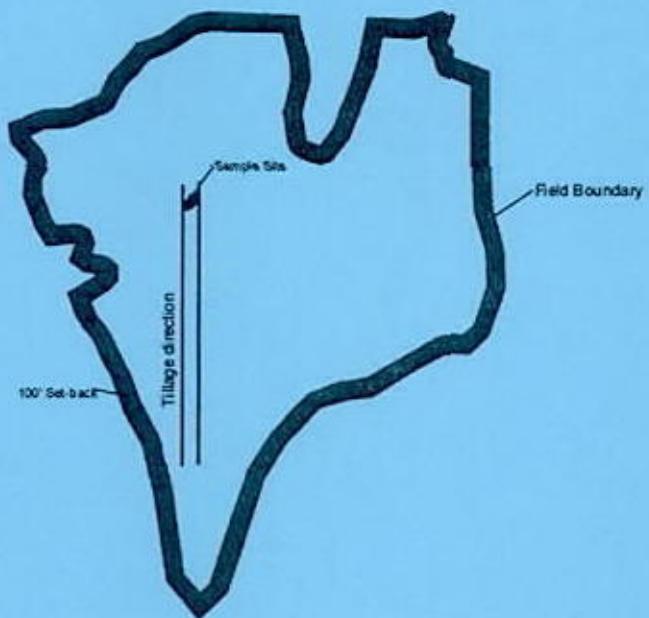


Figure 4. Sample site detail for dryland fields.

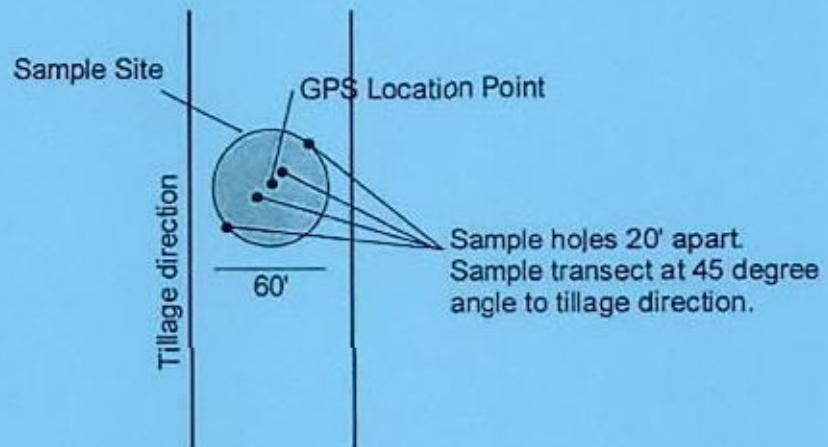


Figure 5. Sampling scheme for handline, wheelline, or solid set (row crop) irrigation systems.

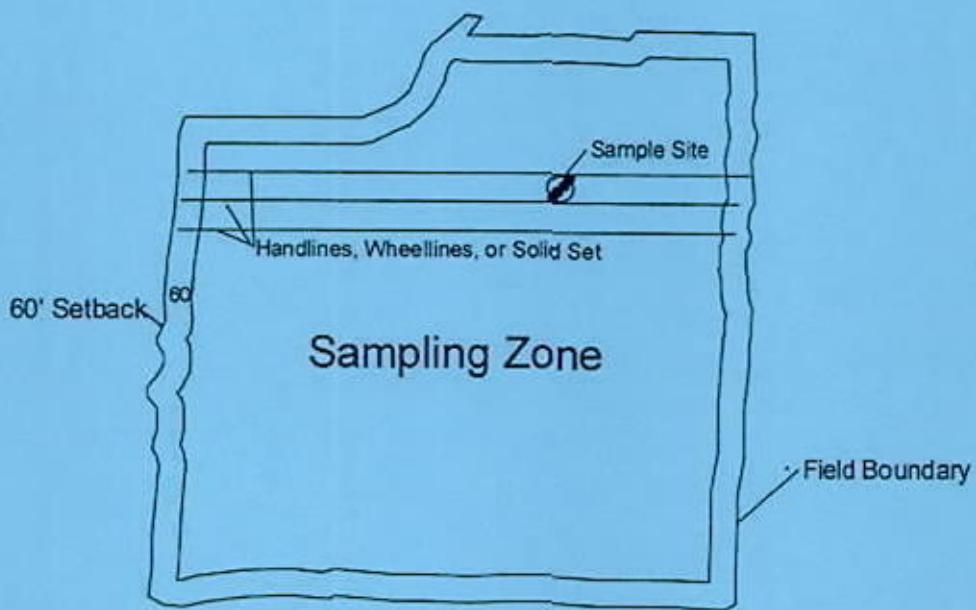


Figure 6. Sample site detail for handline, wheelline, or solid set (row crop) irrigation systems.

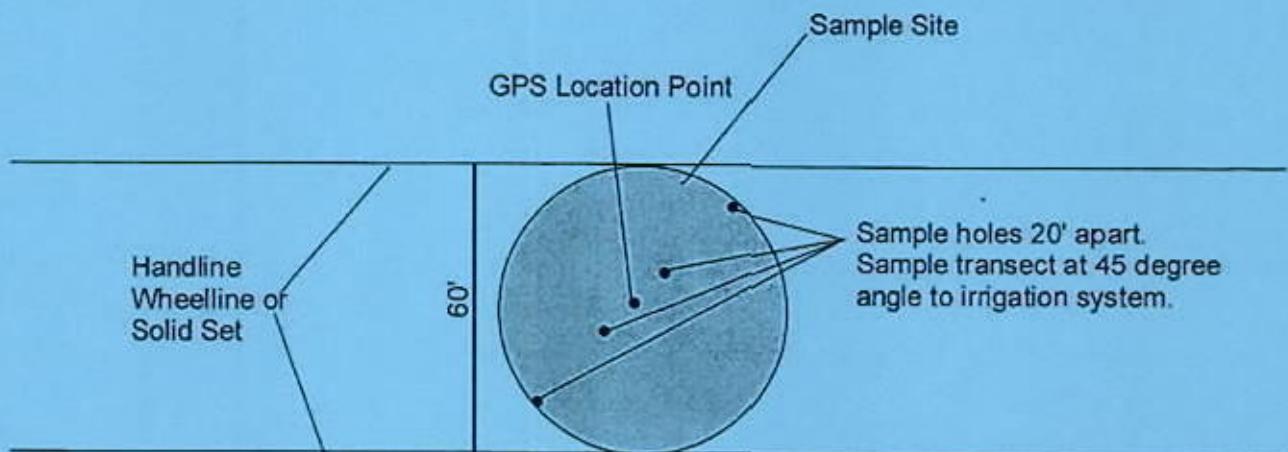


Figure 7. Sampling scheme for rill irrigation systems.

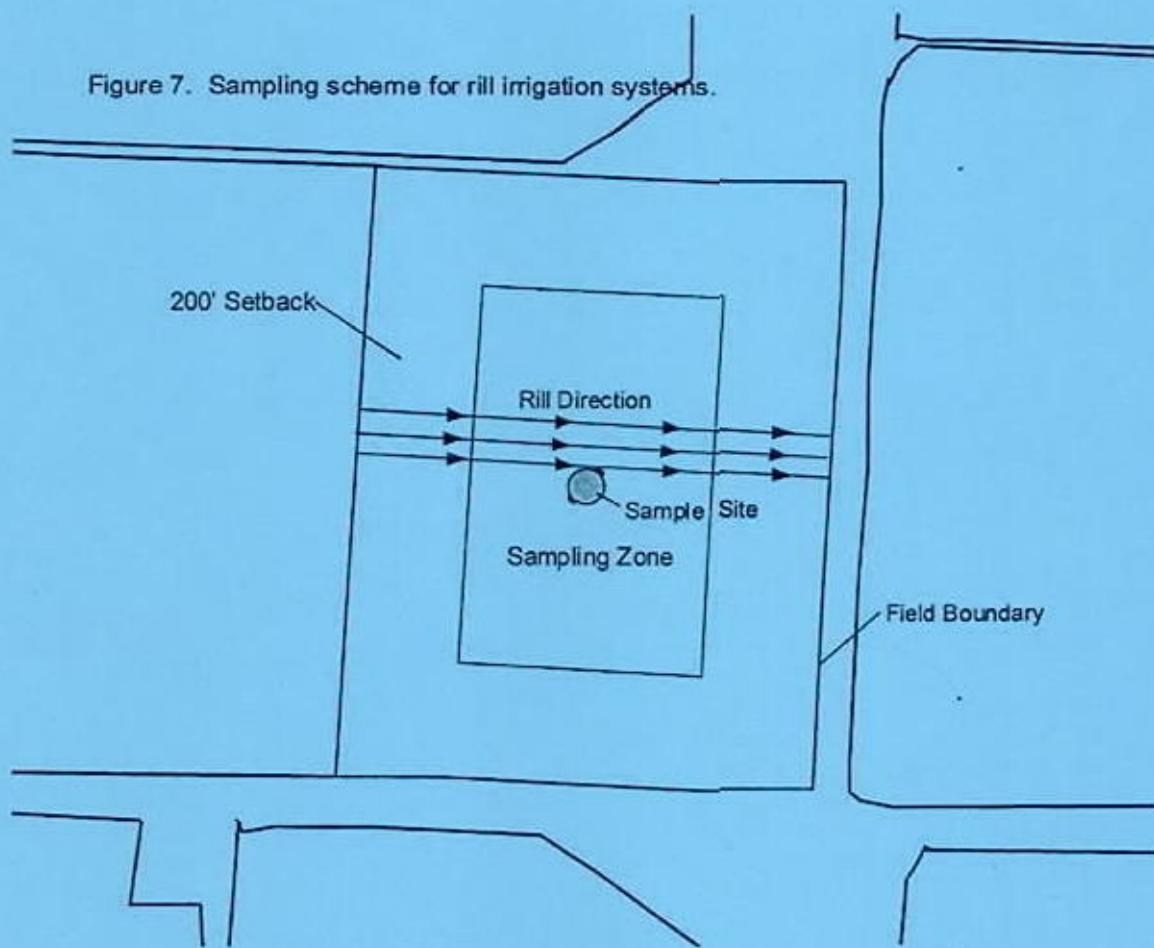


Figure 8. Sample site detail for rill irrigation systems.

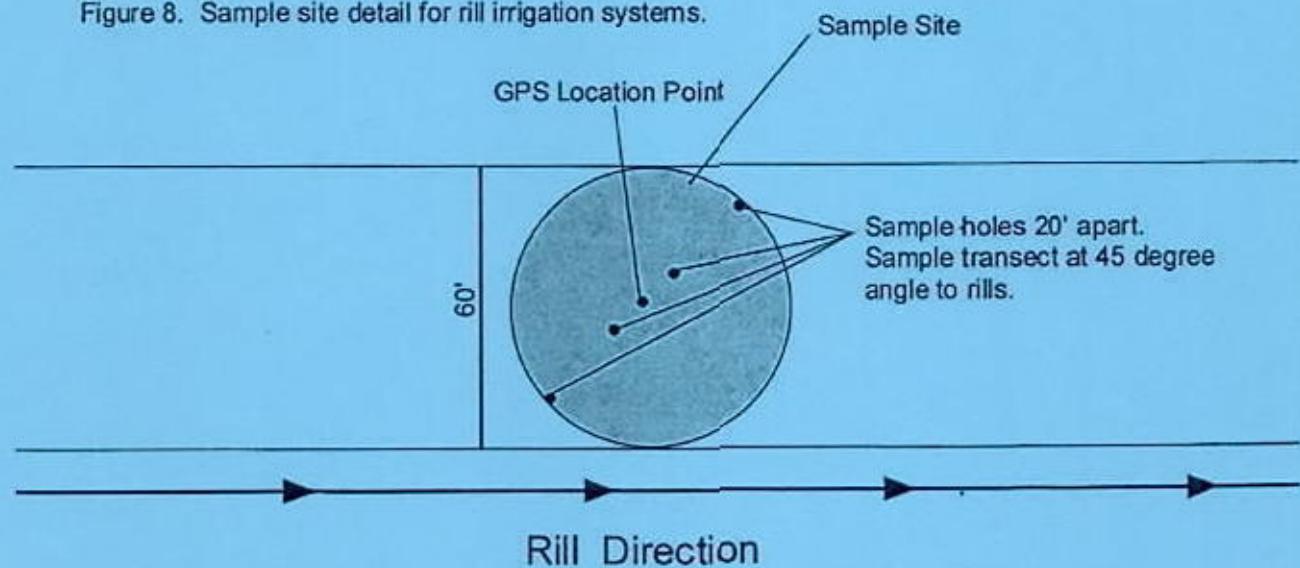


Figure 9. Sampling scheme for solid set or micro-spray (orchards & vineyards) irrigation systems.

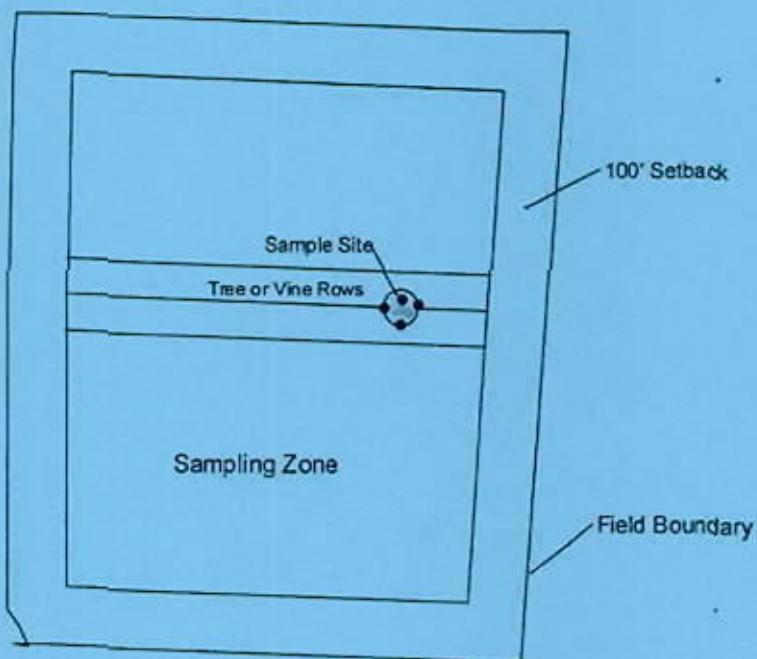


Figure 10. Sample site detail for orchard and vineyards with solid-set or drip irrigation systems.

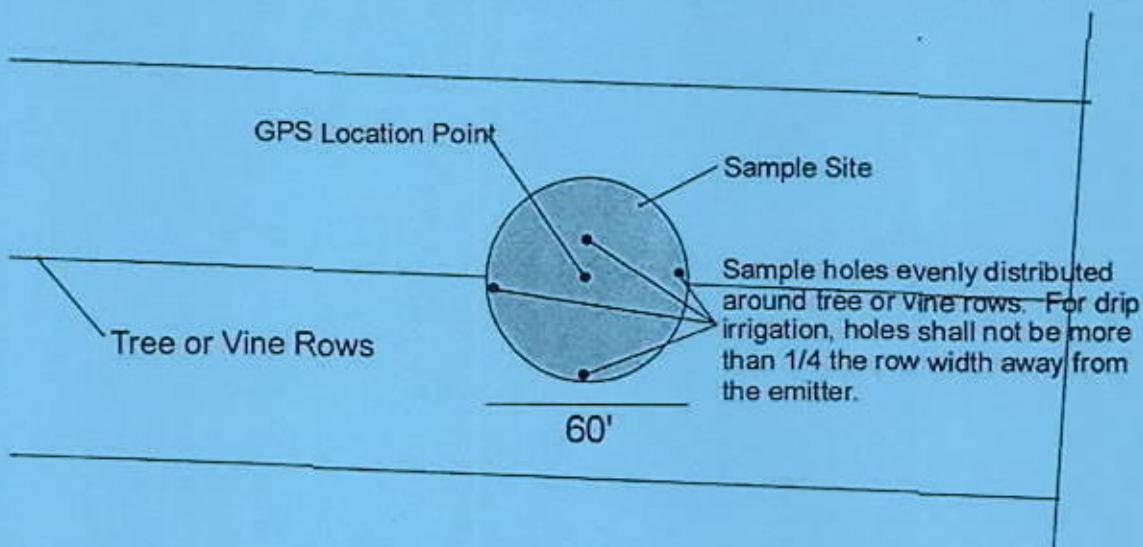


Figure 11. Sampling scheme for linear move irrigation systems.

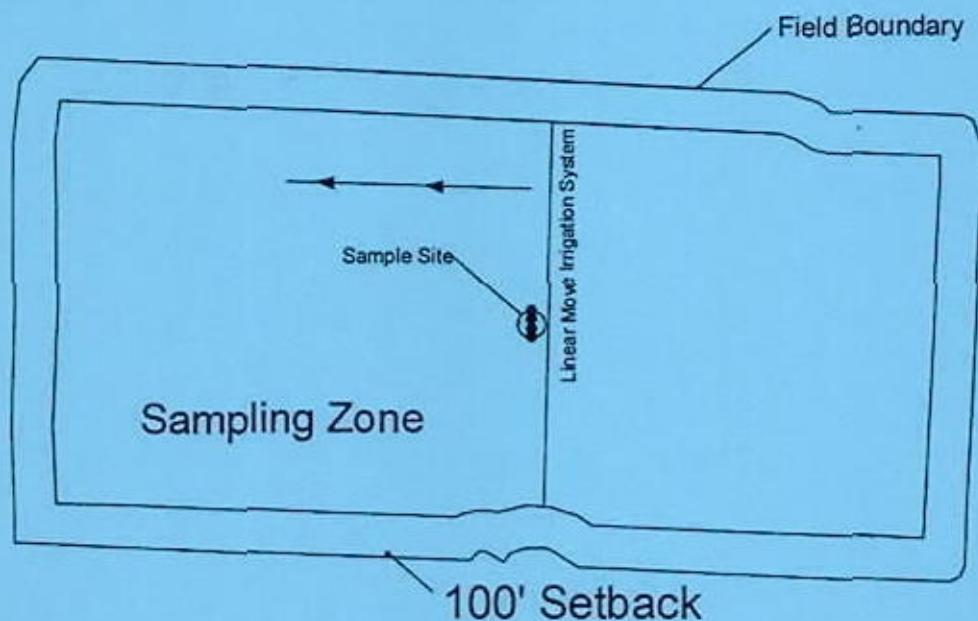
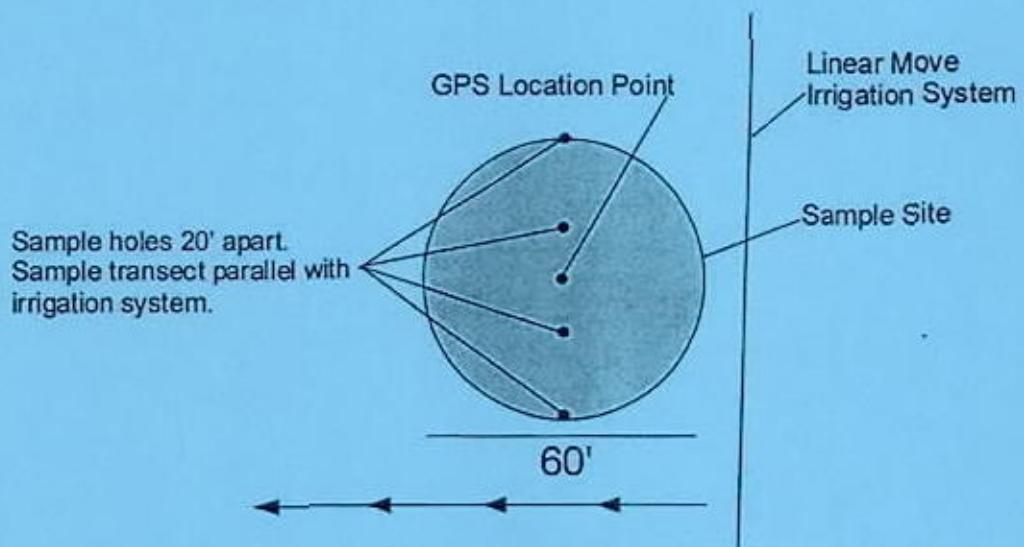


Figure 12. Sample site detail for linear move irrigation systems.



**ATTACHMENT A**  
**DEEP SOIL SAMPLING PROGRAM QUESTIONNAIRE**

## Deep Soil Sampling Program Questionnaire

### General:

As you may know, the aquifer in the Lower Yakima Valley has been shown to have groundwater nitrate concerns. Nitrogen that has migrated below the root zone is useless to crops and can be damaging to water quality. The Lower Yakima Valley Groundwater Advisory Committee (GWAC) designed this grower survey to help everyone better understand current production methods and provide guidance to improve farming practices to assist in improved farming practices. The correlation of the questionnaire with the Deep Soil Sampling Program is an attempt to understand the relationships between the amount and form of nitrogen applied, the application method and timing, the irrigation method, the amount of nitrogen required for plant growth based on cropping patterns, and the quantity of nitrogen that has migrated below the root zone. Participation will be anonymously structured as explained below.

The LOWER YAKIMA VALLEY Groundwater Advisory Committee (GWAC) is encouraging broad producer participation in the Deep Soil Sampling Program – at no cost to the grower. Nitrogen is an expensive input and once it migrates below the root zone it becomes an expensive loss. The results of your soil samples can help guide your input decisions and potentially reduce your nutrient expenses. A grower survey has been designed to better understand current production methods and assist in improved farming practices, where they may be needed to reduce nitrates in groundwater. For those producers who, for whatever reason chose not to participate in the Deep Soil Sampling Program, the GWAC would still encourage participation through completion of the landowner survey to help us understand current production practices. This questionnaire is intended for either growers who participate in the soil sampling project and those growers who choose not to participate.

We are thanking you in advance for agreeing to participate in the Lower Yakima Valley Groundwater Management Area Deep Soil Sampling Program and for completing the questionnaire. As mentioned above, samples will be taken on your property and analyzed at no cost to you, if you participate in the soil sampling program. We are also interested in knowing your agricultural practices such as crops grown, plant nutrients applied, irrigation practices, and soil type. While information gathered in the study will be summarized, your specific data will be confidential. Site specific information asked for on the questionnaire will not be public information. It will be summarized and used in a collective manner to help describe farming operations in the resulting report.

We have developed a procedure to protect your identity and the location of the soil sample locations. This protects your identity in your participation on the questionnaire as well. You are welcome to share that information with the South Yakima Conservation District or anyone else, but are under no obligation to do so.

Please keep the number associated with the attached bar code sheet. The bar code is the same number. It should be filed in a safe location so that you can refer to it to review your results of the soil sampling. With this number, you will be the only person that can identify your soil samples. It is not necessary to include all of the fields on your farm. You can select as many fields to include in the study as you feel comfortable with and may be able to add others later. If you decide not to

## Deep Soil Sampling Program Questionnaire

include all fields in the study, be sure and convey that information to the person collecting the samples when they arrive.

Place one bar code sticker on the questionnaire and return it in the envelope addressed to the South Yakima Conservation District and mail it. Do not include your return address. When the samples are collected, give the bar codes to the sampler who will attach them to the sample containers.

When all of the samples have been collected, analyzed, and tabulated they will be posted on a website or published in a format suitable for public access. The results from your farm will be identified by the number only you will know.

Participation in the Deep Soil Sampling Program can benefit you economically, as the analytical results will help determine whether or not expensive nitrogen is being applied in excess of what your crop can utilize.

Thanks for your participation.

Note to SYCD: Among other specifications for the samplers, the successful sampler must have an application on a portable device that will pull up the soil information from the NRCS site.

# Deep Soil Sampling Program Questionnaire

## WORKSHEET FOR IRRIGATED CROPLAND

Bar Code (Place Bar Code Here)

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

### Field History

Years Owned/Farmed \_\_\_\_\_ Soil Type (if known): \_\_\_\_\_

Currently Soil Testing  Yes  No If yes, how often? \_\_\_\_\_

Number of Acres: \_\_\_\_\_

Tillage Practices For Crop Cycle

Current Crop (2014) \_\_\_\_\_ Crop condition:  Poor  Fair  Good  
Tons/Bushels/Bins/Acre \_\_\_\_\_ actual or planned (circle one)

### Cropping History (Include Double Crossing)

Crop Rotation:

2011 Crop 1 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_; Crop 2 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_

2012 Crop 1 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_; Crop 2 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_

2013 Crop 1 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_; Crop 2 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_

2014 Crop 1 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_; Crop 2 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_

### Current method of scheduling irrigation:

ET;  soil moisture sensors;  Routine  hr. sets; Weather Stations \_\_\_\_\_

Current Irrigation System:  Years of use on crop? \_\_\_\_\_

Flood Irrigation

Rill Irrigation

Solid Set above canopy -  Impact Sprinklers,  Micro spray  Rotators

Solid Set below canopy -  Impact Sprinklers,  Micro spray  Rotators

Wheel lines  Impact Sprinklers  Rotators

Hand lines  Impact Sprinklers  Rotators

Linear move  Impact Sprinklers,  Micro spray  Rotators

Drip  tube,  tape,  bury line  above ground line

Pivot  Impact Sprinklers,  Micro spray  Rotators

# Deep Soil Sampling Program Questionnaire

Pod line  Impact Sprinklers  Rotators

Other: \_\_\_\_\_

**Previous Irrigation System:**  **Years of use on crop?** \_\_\_\_\_

Flood Irrigation

Rill Irrigation

Solid Set above canopy -  Impact Sprinklers,  Micro spray  Rotators

Solid Set below canopy -  Impact Sprinklers,  Micro spray  Rotators

Wheel lines  Impact Sprinklers  Rotators

Hand lines  Impact Sprinklers  Rotators

Linear move  Impact Sprinklers,  Micro spray  Rotators

Drip  tube,  tape,  bury line  above ground line

Pivot  Impact Sprinklers,  Micro spray  Rotators

Pod line  Impact Sprinklers  Rotators

Other: \_\_\_\_\_

## Nitrogen applications

### Manure - Liquid

Year	Gallons/Acre applied	#N/1000 gal	How applied	Hours to incorporation	notes
2014					
2013					
2012					
2011					

### Manure - Solid

Year	Tons/Acre applied	#N/ton	How applied	Hours to incorporation	notes
2014					
2013					
2012					
2011					

### Commercial Fertilizer

Year	Material type?	#N/Acre applied	How applied	Hours to incorporation	notes
2014					
2013					

## Deep Soil Sampling Program Questionnaire

2012					
2011					

### Biosolids

Year	Tons/Acre applied	#N/ton	How applied	Hours to incorporation	notes
2014					
2013					
2012					
2011					

### Compost

Year	Tons/Acre applied	#N/ton	How applied	Hours to incorporation	notes
2014					
2013					
2012					
2011					

### Other

Year	Tons applied	#/ton	How applied	Hours to incorporation	notes
2014					
2013					
2012					
2011					

Please provide additional information if appropriate such as split applications, starter, side dress, etc.

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Comments:

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**ATTACHMENT B**  
**KEY PERSONNEL**

**Attachment B - Key Personnel****Deep Soil Sampling****Lower Yakima Valley Groundwater Management Area**

<b>Deep Soil Sampling Program Role</b>	<b>Person</b>
Deep Soil Sampling Project Manager	To be determined
SYCD Project Administrator	Laurie Crowe, SYCD, (509) 829-9025
Groundwater Advisory Committee Alternate Chair	Vern Redifer, Yakima County, (509) 574-2300
Irrigated Agriculture Committee Chair	Jim Trull, SVID, (509) 837-8611
Livestock / Confined Animal Feeding Operation Committee Chair	Charlie McKinney, Dept. Ecology, 509-457-7107
Data Committee Chair	Kirk Cook, WSDA, (360) 902-1936
Education and Public Outreach Committee Chair	Lisa Freund, Yakima County, (509) 574-2300

**ATTACHMENT C**  
**BORING LOG**

# Soil Boring Log



4/2012  
MAY 2012  
4/1/12

Return this form, filled out, to South Yakima Conservation District  
PO Box 1766 (or 200 Chenye Rd), Zillah, WA 98953  
Fax: (509) 829-9027

Bar Code (Place Bar Code Here)

Boring Number: \_\_\_\_\_

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

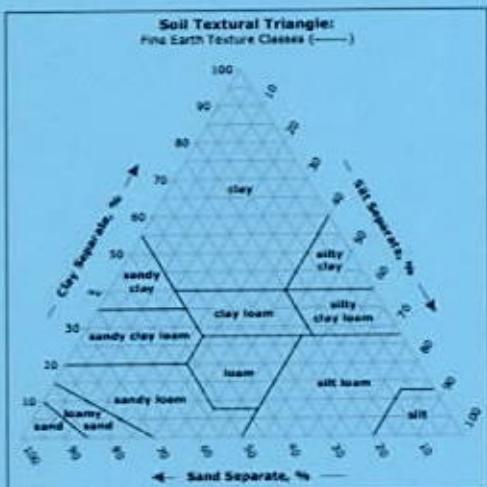
Boring Logged by: \_\_\_\_\_

Boring and Sampling Device (example: AMS 9100 Ag Probe with 2-inch tube sampler) \_\_\_\_\_

NRCS Soil Series (soil type) \_\_\_\_\_

Describe each soil sample.

Depth in ft	Munsell color	Consistence	Moisture	Texture	Other
0-1					
1-2					
2-3					
3-4					
4-5					
5-6					
6-7					
7-8					



**TEXTURE MODIFIERS** - Conventions for using "Rock Fragment Texture Modifiers" and for using textural adjectives that convey the "% volume" ranges for Rock Fragments - Size and Quantity.

Fragment Content % by Volume	Rock Fragment Modifier Usage
< 15	No texture adjective is used (noun only; e.g., loam).
15 to < 35	Use adjective for appropriate size; e.g., gravelly.
35 to < 60	Use "very" with the appropriate size adjective; e.g., very gravelly.
60 to < 90	Use "extremely" with the appropriate size adjective; e.g., extremely gravelly.

Moisture options: D=dry  
M=moist  
Dp=damp  
W=wet

Consistence options:  
L=loose, S=soft, SH=slightly hard, HA=hard, EH=extremely hard, FR=friable,  
FI=firm; VFI=very firm; C=cemented.  
See Field Book for Describing and Sampling Soils, NRCS, August 2011.

**ATTACHMENT D**  
**SOIL SAMPLE FIELD FORM**

# Soil Sample Field Form



Return this form, filled out, to South Yakima Conservation District  
PO Box 1766 (or 200 Chenye Rd), Zillah, WA 98953  
Fax: (509) 829-9027

Bar Code (Place Bar Code Here)

Sample Collection Date: \_\_\_\_\_ Sampled by: \_\_\_\_\_

Check depths sampled in each borehole, and samples submitted to lab:

Depth in ft	Borehole 1	Borehole 2	Borehole 3	Borehole 4	Composite Submitted
0-1					
1-2					
2-3					
3-4					
4-5					
5-6					
6-7					
7-8					

## Sampling Site Sketch:

Draw sampling site and borings in relation to irrigation system and other features.

Provide GPS coordinates to owner (to 0.0001 decimal degree precision).



North

## Deep Soil Sampling Program Questionnaire

### General:

As you may know, the aquifer in the Lower Yakima Valley has been shown to have groundwater nitrate concerns. Nitrogen that has migrated below the root zone is useless to crops and can be damaging to water quality. The Lower Yakima Valley Groundwater Advisory Committee (GWAC) designed this grower survey to help everyone better understand current production methods and provide guidance to improve farming practices to assist in improved farming practices. The correlation of the questionnaire with the Deep Soil Sampling Program is an attempt to understand the relationships between the amount and form of nitrogen applied, the application method and timing, the irrigation method, the amount of nitrogen required for plant growth based on cropping patterns, and the quantity of nitrogen that has migrated below the root zone. Participation will be anonymously structured as explained below.

The LOWER YAKIMA VALLEY Groundwater Advisory Committee (GWAC) is encouraging broad producer participation in the Deep Soil Sampling Program – at no cost to the grower. Nitrogen is an expensive input and once it migrates below the root zone it becomes an expensive loss. The results of your soil samples can help guide your input decisions and potentially reduce your nutrient expenses. A grower survey has been designed to better understand current production methods and assist in improved farming practices, where they may be needed to reduce nitrates in groundwater. For those producers who, for whatever reason chose not to participate in the Deep Soil Sampling Program, the GWAC would still encourage participation through completion of the landowner survey to help us understand current production practices. This questionnaire is intended for either growers who participate in the soil sampling project and those growers who choose not to participate.

We are thanking you in advance for agreeing to participate in the Lower Yakima Valley Groundwater Management Area Deep Soil Sampling Program and for completing the questionnaire. As mentioned above, samples will be taken on your property and analyzed at no cost to you, if you participate in the soil sampling program. We are also interested in knowing your agricultural practices such as crops grown, plant nutrients applied, irrigation practices, and soil type. While information gathered in the study will be summarized, your specific data will be confidential. Site specific information asked for on the questionnaire will not be public information. It will be summarized and used in a collective manner to help describe farming operations in the resulting report.

We have developed a procedure to protect your identity and the location of the soil sample locations. This protects your identity in your participation on the questionnaire as well. You are welcome to share that information with the South Yakima Conservation District or anyone else, but are under no obligation to do so.

Please keep the number associated with the attached bar code sheet. The bar code is the same number. It should be filed in a safe location so that you can refer to it to review your results of the soil sampling. With this number, you will be the only person that can identify your soil samples. It is not necessary to include all of the fields on your farm. You can select as many fields to include in the study as you feel comfortable with and may be able to add others later. If you decide not to

## Deep Soil Sampling Program Questionnaire

include all fields in the study, be sure and convey that information to the person collecting the samples when they arrive.

Place one bar code sticker on the questionnaire and return it in the envelope addressed to the South Yakima Conservation District and mail it. Do not include your return address. When the samples are collected, give the bar codes to the sampler who will attach them to the sample containers.

When all of the samples have been collected, analyzed, and tabulated they will be posted on a website or published in a format suitable for public access. The results from your farm will be identified by the number only you will know.

Participation in the Deep Soil Sampling Program can benefit you economically, as the analytical results will help determine whether or not expensive nitrogen is being applied in excess of what your crop can utilize.

Thanks for your participation.

Note to SYCD: Among other specifications for the samplers, the successful sampler must have an application on a portable device that will pull up the soil information from the NRCS site.

# Deep Soil Sampling Program Questionnaire

## WORKSHEET FOR IRRIGATED CROPLAND

Bar Code (Place Bar Code Here)

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

### Field History

Years Owned/Farmed \_\_\_\_\_ Soil Type (if known): \_\_\_\_\_

Currently Soil Testing  Yes  No If yes, how often? \_\_\_\_\_

Number of Acres: \_\_\_\_\_

Tillage Practices For Crop Cycle

Current Crop (2014) \_\_\_\_\_ Crop condition:  Poor  Fair  Good  
Tons/Bushels/Bins/Acre \_\_\_\_\_ actual or planned (circle one)

### Cropping History (Include Double Crossing)

Crop Rotation:

2011 Crop 1 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_; Crop 2 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_

2012 Crop 1 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_; Crop 2 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_

2013 Crop 1 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_; Crop 2 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_

2014 Crop 1 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_; Crop 2 \_\_\_\_\_ Tons/Bushels/Bins/Acre \_\_\_\_\_

### Current method of scheduling irrigation:

ET;  soil moisture sensors;  Routine  hr. sets; Weather Stations \_\_\_\_\_

Current Irrigation System:  Years of use on crop? \_\_\_\_\_

Flood Irrigation

Rill Irrigation

Solid Set above canopy -  Impact Sprinklers,  Micro spray  Rotators

Solid Set below canopy -  Impact Sprinklers,  Micro spray  Rotators

Wheel lines  Impact Sprinklers  Rotators

Hand lines  Impact Sprinklers  Rotators

Linear move  Impact Sprinklers,  Micro spray  Rotators

Drip  tube,  tape,  bury line  above ground line

Pivot  Impact Sprinklers,  Micro spray  Rotators

# Deep Soil Sampling Program Questionnaire

Pod line  Impact Sprinklers  Rotators

Other: \_\_\_\_\_

**Previous Irrigation System:**

**Years of use on crop?** \_\_\_\_\_

Flood Irrigation

Rill Irrigation

Solid Set above canopy -  Impact Sprinklers,  Micro spray  Rotators

Solid Set below canopy -  Impact Sprinklers,  Micro spray  Rotators

Wheel lines  Impact Sprinklers  Rotators

Hand lines  Impact Sprinklers  Rotators

Linear move  Impact Sprinklers,  Micro spray  Rotators

Drip  tube,  tape,  bury line  above ground line

Pivot  Impact Sprinklers,  Micro spray  Rotators

Pod line  Impact Sprinklers  Rotators

Other: \_\_\_\_\_

## Nitrogen applications

### Manure - Liquid

Year	Gallons/Acre applied	#N/1000 gal	How applied	Hours to incorporation	notes
2014					
2013					
2012					
2011					

### Manure - Solid

Year	Tons/Acre applied	#N/ton	How applied	Hours to incorporation	notes
2014					
2013					
2012					
2011					

### Commercial Fertilizer

Year	Material type?	#N/Acre applied	How applied	Hours to incorporation	notes
2014					
2013					

## Deep Soil Sampling Program Questionnaire

2012					
2011					

### Biosolids

Year	Tons/Acre applied	#N/ton	How applied	Hours to incorporation	notes
2014					
2013					
2012					
2011					

### Compost

Year	Tons/Acre applied	#N/ton	How applied	Hours to incorporation	notes
2014					
2013					
2012					
2011					

### Other

Year	Tons applied	#/ton	How applied	Hours to incorporation	notes
2014					
2013					
2012					
2011					

Please provide additional information if appropriate such as split applications, starter, side dress, etc.

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Comments:

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## Free Deep Soil Sampling Available

### Confidential Program Assists Growers and Lower Valley Groundwater Committee

The Lower Yakima Valley Groundwater Advisory Committee (\*GWAC) in partnership with the South Yakima Conservation District is offering a free deep soil sampling program for farmers in the Lower Yakima Valley Groundwater Management Area.

The GWAC is seeking volunteers to participate in the deep soil sampling program. The program is designed to help producers like you evaluate the effectiveness of your nutrient and irrigation water management application program. It is similar to the very successful Columbia Basin Groundwater Management Area program used by hundreds of producers in that area. Results of the program will be confidential; only you will know the results. The sampling is scheduled to take place in the September / October period after harvest.

Deep soil testing will be performed to determine the extent of travel of nitrates below the root zone and into the groundwater. The soil will be tested in one foot increments to a depth of 6 feet. This is important information to growers because nitrates migrating past the root zone provide no economic value and, in fact, increase the cost of crop production.

Growers are also encouraged to fill out questionnaires on their agricultural practices such as crops grown, plant nutrients applied, irrigation practices, and soil type. Obtaining this information together with the soil tests will help the Irrigated Ag Workgroup that reports to the Groundwater Advisory Committee to formulate plans to provide education and incentives to encourage farming practices which will reduce the transport of nitrates past the root zone. Participating growers gain both free soil testing and valuable

education while assisting the GWAC to understand what is happening in the soil and water in the Valley.

Interested landowners can pick up information packets from the South Yakima Conservation District. The packets will contain an identification number known only to the landowner. The packet will also contain barcodes containing the landowner's identification number which will be attached to the soil samples and to the questionnaire.

The results of the soil testing will be tied to the identification number known only to the participating grower. The grower is welcome to share that information with the South Yakima Conservation District or anyone else to receive technical assistance but is under no obligation to do so.

To participate or for more information on the deep soil testing program, please contact Laurie or Landon at the South Yakima Conservation District (509) 829-9025.

\*The Lower Yakima Valley Groundwater Management Area Committee (GWAC) is a multi-agency and citizen-based group coordinating the effort to reduce nitrate contamination in the groundwater within the Lower Yakima Valley. Its primary goal is to reduce concentrations of nitrate in groundwater to below Washington State drinking water standards. For more information, please go to: <http://www.yakimacounty.us/gwma/>.

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# YARD & GARAGE SALES

The City of Yakima reminds you...

Yard or garage sales shall be permitted as an accessory use to a dwelling provided all of the following provisions are met:

1. Only 2 yard sales per dwelling unit per year shall be allowed; and
2. Each yard sale shall not exceed 3 days in duration. (Ord. 2947 part, 1986).

**ALSO...**  
Signs are not to be attached to utility, street-light, and traffic control standard poles.

## Moxee



Garage Sale  
Saturday and Sunday 9 to 4  
461 E Duffield Rd Moxee  
Furniture, knick-knacks, etc  
and a man with too much stuff.

We have it. 509.452.7355

## Yakima 16th Ave to 40th

3 FAMILY SALE  
Sunday, June 29  
Hours 8:00 to 3:00 pm  
2907 McKinley Ave  
Infant to Adult Items.  
Clothes, Toys, etc.

## Yakima 16th Ave to 40th

BIG YARD SALE!  
Sat. June 28th and Sun.  
June 29th 7am to 4pm  
From tools to toys, '99 Dodge  
Ram 1500, bed trans, &  
motor, little treasures for  
everyone, new and used!  
407 S. 34th Ave.

**MULTI-FAMILY SALE**  
6/27-6/29, 8:00-4:00PM  
105 N 26th Ave, Fri-Sun  
Collectibles, Antiques,  
Furn., Housewares, Quality  
Infant thru Adult Clothing/  
Shoes, Mini Fridge, Toys,  
Books, Plants, Bike, & More!  
"Cheaper than the Goodwill!"

**MULTI-FAMILY SALE**  
Sat. & Sun 8:30-3:30  
No Early Birds  
325 N. 25th Ave., Yakima  
DOWNSIZING BIG TIME  
Household, yard and  
garage stuff; furniture and  
clothes. Too much to list.  
Park on N. 25th Ave. only.

## Yakima West of 40th

MOVING IN TO AN RV SALE!  
No clothing, hunting, fishing,  
tools, guy stuff, dressers,  
household items, ladders,  
hand blown chimney, classi-  
cal 78's, and more!

4803 W. VIOLA  
Saturday & Sunday 8-5

**WOW**  
Huge multi family quality  
yard sale under the BIG  
TENT rain or shine!  
Fri., Sat., 8-8 pm  
& Sun., 9-2 pm.  
Lots of everything, old &  
new. Come See!  
Cherries .90 c lb.  
631 Young Grade.

## Employment

Professional  
DSHS-SOLA YAKIMA AREA  
**Developmental Disabilities Administrator**

The Department of Social and Health Services (DSHS) Developmental Disabilities Administration (DDA) State Operated Living Alternative (SOLA) is seeking a Developmental Disabilities Administrator. This is a permanent position. The primary purpose of this position is to ensure that residential services are delivered per Washington Administrative Code (WAC) and administration policy, ensuring the health and welfare needs of SOLA clients are safeguarded. This is a fast paced environment that is responsible for Program and Standard Operating Procedures development, quality assurance and compliance with certification required for the SOLA program. Provide programmatic direction in conjunction with the management team to all staff in Region 1 SOLA. To qualify you must meet the required qualifications and meet or exceed the desired qualifications. A full job description of duties/qualifications/salary/benefits are listed at the below website. Application and all requirements will be accepted electronically until July 7, 2014 at [www.careers.wa.gov](http://www.careers.wa.gov).



Find your dream home.

**Classifieds**  
POWERED BY THE YAKIMA HERALD-REPUBLIC

## PSYCHIATRIST

Community Mental Health Center is seeking to contract with a physician who is licensed to practice and is board certified or board eligible in psychiatry. This contracted position would provide Psychiatric medication services one day a month in our Othello Office and provide occasional phone consultations on an as need basis. Psychiatric medication services are a variety of activities related to prescribing and/or administering medication, including monitoring an individual for side effect and changes as needed. Our agency is a progressive Mental Health Center with counselors carrying a diverse caseload including children, adults and geriatric clients. Compensation is negotiable. Send resume, letter of interest and 3 references to: Integrated Health Care Services 425 E Main Suite 600 Othello, WA 99344, 509-488-4074. Adams County is an Equal Opportunity Employer. Open until filled

## Employment

Receptionist  
Yakima's premier Insurance Brokerage is looking for a full-time Receptionist. Applicant should possess, excellent problem solving skills, a winning and professional attitude and outstanding written and oral communication skills. Insurance experience desired but not required. Benefits include 401(k), vacation, sick days, medical, disability, and life insurance. All inquiries held in strict confidence. Forward resume to [roberts@argusinsurance.com](mailto:roberts@argusinsurance.com).

**Avail**  
Home Health, Inc.

**RN / LPN**  
NEW GRADS WELCOME  
Looking for a change of pace?  
**Variety of Shifts**  
in the Yakima Area  
Ask About Our Benefits  
& Hiring Bonus  
966-8000  
4706 W. Nob Hill, Yakima  
[inquire@availhome.com](mailto:inquire@availhome.com) EOE

**Sales**  
C.M. Holtzinger Fruit Co., LLC is seeking a Sales Representative to provide a high level of sales, service, and product knowledge to our customers as well as seeking new accounts to grow our business within designated areas. Qualified applicants will be highly motivated, self-starters who possess excellent communication skills and excellent planning and follow-through skills. Send resume and letter of interest to PO Box 169, Yakima Wa 98907 or email at [jobs@holtzingerfruit.com](mailto:jobs@holtzingerfruit.com).

**We have it.** 509.452.7355  
**Classifieds**

## Technical

**TREE TOP**

**Tree Top, Inc**  
Prosser Plant  
Tree Top Prosser Plant is currently looking for a Maintenance Mechanic to work in our industrial production facility. A basic electrical background with experience in steam boiler/ammonia refrigeration would be a plus. Must be available to work all shifts and weekends. Pay range \$19.74 to \$23.42, DOO.

**PLEASE APPLY ON LINE:**  
<http://www.treetop.com/JobSearch.aspx>

Tree Top is an EEO/Affirmative Action employer, and all qualified applicants will receive consideration for employment without regard to race, sex, national origin, disability, veteran status, or any other status in accordance with law.

## INSTRUCTION



## Trade Schools

**Tired of Your Boring, Dead-End Job???**  
Power Your Career with WIND!  
**Six Month Turbine Technician Program FREE SEMINAR**  
Tuesday, July 1st 2:00PM OR 7:00PM  
Hilton Garden Inn 401 E. Yakima Ave. Yakima, WA 800-868-1816 [www.nw-rei.com](http://www.nw-rei.com)



## ANNOUNCEMENTS

**Lost & Found**  
Found German female dog on Fruitvale Blvd. Call to identify. (509) 945-4498  
Found old Basset Hound off Lookout Point Rd. Selah, call to identify 930-8894 or 930-1227  
Found older dog on 36th Ave. Call to identify 961-6938

## LOST PET?

**Be sure to check with the Humane Society.**  
(509) 457-6854  
For All lost pets!  
(Cats, dogs, ferrets, Rabbits, etc.)

## Personals & Notices

**AMERICA BLESS GOD!**  
**We have it.** 509.452.7355  
**Classifieds**

**DID YOU KNOW** 144 million U.S. Adults read a Newspaper print copy each week? Discover the Power of PRINT Newspaper Advertising in Alaska, Idaho, Montana, Oregon, Utah and Washington with just one phone call. For a FREE advertising network brochure call 916-288-6011 or email [cecilia@cnpa.com](mailto:cecilia@cnpa.com) (PNDC)

**DID YOU KNOW** Newspaper-generated content is so valuable it's taken and repeated, condensed, broadcast, tweeted, discussed, posted, copied, edited, and emailed countless times throughout the day by others? Discover the Power of Newspaper Advertising in SIX STATES with just one phone call. For free Pacific Northwest Newspaper brochures call 916-288-6011 or email [cecilia@cnpa.com](mailto:cecilia@cnpa.com) (PNDC)

**DID YOU KNOW** Newspaper-generated content is so valuable it's taken and repeated, condensed, broadcast, tweeted, discussed, posted, copied, edited, and emailed countless times throughout the day by others? Discover the Power of Newspaper Advertising in six states-AK, ID, MT, OR, UT, WA. For a free rate brochure call 916-288-6011 or email [cecilia@cnpa.com](mailto:cecilia@cnpa.com) (PNDC)

**DID YOU KNOW** that not only does newspaper media reach a HUGE Audience, they also reach an ENGAGED AUDIENCE. Discover the Power of Newspaper Advertising in six states-AK, ID, MT, OR, UT, WA. For a free rate brochure call 916-288-6011 or email [cecilia@cnpa.com](mailto:cecilia@cnpa.com) (PNDC)

Dated this 26th day of June 2014.

/s/ David Kelly,  
City of Selah City Administrator/SEPA Responsible Official

(447830) June 29, 2014

## Public Notice

Union Gap Irrigation District and Fowler Ditch Association will have the herbicides acrolein, Captain (Copper Carbonate) and Nautique (Copper Carbonate) applied to canal waters during the 2014 irrigation season. The purpose of these applications is control of filamentous algae growth and aquatic grasses.

The canal is the western canal in the Moxee area and it lies east of the Yakima river. It continues through Union Gap and it serves the area between SVID and Roza ID to its end at Cheyne Rd. north of Zillah.

Injection locations are as follows: At the fish screen on Marsh Rd., the Moxee drain spill on Beuchene Rd. intersection; north of the I-82/Yakima Valley Hwy. overpass; Doornink Skimmer at E. Parker Heights Rd., Roza Spill and Lombard Loop, at 180 Clark Rd. and Gilbert Spill at 31 Gilbert Rd., Wapato.

Single, Bilingual, female looking for friendship! Male or female, between the age of 40-55. Call (509) 379-5671

Scheduled treatment dates are as follows: April 29-30, May

## Legal Notices

Call for Bids

South Yakima Conservation District  
200 Cheyne Road PO Box 1766  
Zillah, WA 98953  
509-829-9025

South Yakima Conservation District (SYCD) is seeking bid proposals (proposals must be submitted as one entity) for soil sample collection and laboratory analysis for the Deep Soil Sampling Program within the boundaries of the Lower Yakima Valley Ground Water Management Area. SYCD will receive sealed bids at the SYCD Field Office, 200 Cheyne Road, Mailing Address - PO Box 1766, Zillah, WA 98953, until 1:30 p.m. on July 18, 2014. Bids will then be opened and publicly read aloud. Proposals received after this time will not be considered.

**Project Description:** The Deep Soil Sampling Plan will consist of four seasonal samplings and analysis. It is estimated that 50 fields will be sampled per season (fall of 2014, spring and fall of 2015 and in the spring of 2016). Composite soil samples will be collected at each site from four bore holes at 1-foot increments from 0 to a depth not to exceed 6 feet, or to the depth of refusal. The 0-1 foot sample will be analyzed for nitrate, ammonium, and organic matter content. Deeper soil samples will be analyzed for nitrate only.

**Expected Time Period:** September 1, 2014 - June 30, 2016.

Contract documents, including information about deep soil sampling program requirements, request for proposal, etc. can be obtained by contacting the SYCD Field Office at 200 Cheyne Road, Zillah, WA, Office (509) 829-7911 or email [lc@sycd.us](mailto:lc@sycd.us). Addenda will be e-mailed or by postal mail to bidders who have signed for or requested contract documents through this office.

Laurie Crowe  
District Coordinator  
South Yakima Conservation District

(448650) June 29 and July 6, 2014

**We have it.** 509.452.7355  
**Classifieds**

**Yakima County Public Services**  
Planning Division  
Threshold Determination - Mitigated Determination of Non-Significance (MDNS)  
Notice of Open Record Public Hearing

File No.: ZON2014-00003/SEP2014-00026 - Pendleton Rezone

**Description of Proposal:** The Yakima County Planning Division has received a request to rezone the subject property from Valley Rural (VR) to Industrial (I). Contingent upon approval of the rezone, the applicant has submitted intention to develop the subject property for heavy equipment storage, maintenance, repair, and contracting services. The future development will consist of approximately 5,700 cubic yards of fill, a 6,500 square foot combination shop/office, and an outside gravel storage area for heavy equipment. The project area would be enclosed by a 6-foot chain link fence. **Location of Proposal:** 551 Elton Road. On the east side of Elton Road; approximately one half mile north of the intersection of Elton Road and East Selah Road; approximately one mile east of the City of Selah. (Parcel Nos. 191431-42006 and 191431-42007)

**Determination:** The lead agency for this proposal has determined that it will not have a probable significant adverse impact on the environment and an Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(c), provided the measures listed below are taken to mitigate potential adverse impacts. This decision was made after a careful review of the completed environmental checklist, and other information on file with the lead agency. This information (including all environmental documentation) is available to the public on request and can be examined in our offices during regular business hours. Environmental documents include the SEPA checklist, this threshold determination, and submittal materials

**An open record public hearing** is scheduled before the Yakima County Hearing Examiner on **Thursday, August 7, 2014 at 1:30 pm** at the Yakima City Hall Hearing Room, 129 N. 2nd Street Yakima, WA. Written comments for the hearing may be submitted to the Planning Division prior to the hearing, or provided at the hearing. Interested parties may participate in the hearing. A Planning Division staff report on the project will be available about a week before the hearing.

**Comment and Appeal Information:** This MDNS is issued under WAC 197-11-340(2). The Lead Agency will not act on this proposal for 14 days from the date of issuance. You may submit comments on this proposal to the address below before 4:00 p.m. on **July 11, 2014**. Agencies and those providing comments will receive a copy of the final decision. Appeal information will be provided with the final decision. For information on the comment or appeal processes, or on other issues relating to this proposal, contact Byron Gumz, Senior Project Planner, at (509) 574-2300. Dated this 26th day of June, 2014.

(448527) June 29, 2014

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## YAKIMA HERALD

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## Legal Notices

21-22: June 11-13; July 1-3 &  
22-24: Aug 12-14 & 26-28 Sept  
16-18; and Oct 1-4

Keep off posted canal right of ways; keep out of canal waters; do NOT drink canal water. Canal water is safe to use on crops during the application period; growers should not turn off any delivery if they are using water during the week of the application. Access to the canal will be posted with Danger placards one mile upstream and one mile downstream of the injection site.

Applicants can be contact at 930-5407; 930-5479; or 930-5489. The Regional Dept. of Ecology No. is 575-2490.

UGID has permit number WAG-99103A; and Aquatic Weed Control NPDES General Permit WAG-991000.

(413756) March 8 and June 29, 2014

## ITEMS FOR SALE



## **Attachment D**

- New Mom Flyer
- Nitrate Education Slides
- High Risk Well Assessment (EN/SP) News Release

# How to Keep Your Baby Safe from Nitrates in Drinking Water

## **Groundwater Management Area (GWMA):**

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

Nitrates are chemicals that occur naturally in drinking water and also result from human activities. Some private wells in the Yakima Valley are contaminated with nitrates. Nitrates can cause babies less than one year old to become sick. A symptom of nitrate exposure is your baby's skin turning brown or blue. You might see this inside the nose or mouth, the lips, or the fingernail and toenail beds. Contact a doctor immediately if you see these changes in a baby.

### **Tips to Reduce Exposure**

- Test your well water for nitrates and bacteria to ensure it is safe to drink for your baby. Information on testing well water is offered below.
- Do not use nitrate-contaminated well water to make baby formula.
- Do not let baby drink nitrate-contaminated water.
- If you have city water it should be safe to use for baby, or use well water that has been tested and is safe, or bottled water for baby.
- Nitrates can be a problem in some vegetables. Try to choose commercially prepared vegetable baby foods until the baby is 7 months old. Doctors recommend no solid foods before 4-6 months old.
- If you are pregnant, or plan to get pregnant, do not drink nitrate-contaminated well water
- Breast milk is safe for baby even if the mother drinks water contaminated with nitrates.

**Children over one year old** have the ability to break down nitrates so they're not at risk. To keep babies safe, women who are pregnant or thinking of getting pregnant should not drink water with elevated nitrates.

**Test your drinking water.** All private wells should be tested before use and once per year for nitrates and bacteria. Nitrate concentrations change randomly throughout the year in the Yakima Valley. If nitrates are present in well water, other contaminants may also be present such as pesticides or bacteria.

Certified laboratories in the Yakima area that will test well drinking water for nitrates and bacteria:

- Cascade Analytical, Inc., 1008 W. Ahtanum, Yakima, WA 98903, (509) 452-7707
- Valley Environmental Laboratory, 201 E. "D" St., Yakima, WA 98901, (509) 575-3999
- Ag Health Laboratories, 445 Barnard Blvd, Sunnyside, WA 98944, (509) 836-2020

The total cost for nitrates and bacteria tests is between \$52 and \$70. Follow the directions provided by the laboratory – this is important to get good test results.

If a nitrate water test result is 10 mg/L or less the drinking water is safe. This means the water is safe for infants to drink and the water can be used to make formula for infants. The water is also safe for women who are pregnant or thinking about getting pregnant.

For more information about nitrates contact: Yakima Health District Help Line at (509)249-6508.

For clinician diagnosis and treatment guidance or other health effects: University of Washington (UW) PEHSU (Pediatric Environmental Health Specialty Unit) at 1-800-543-2436.

For more children's health information: [www.epa.gov/children](http://www.epa.gov/children) and

ATSDR at <http://www.atsdr.cdc.gov/csem/csem.asp?csem=28&po=0>

Benton County: Benton Franklin Health District (509) 460-4200

Yakama Nation: Indian Health Services - Environmental Health (509) 865-1776

Map: [http://www.yakimacounty.us/gwma/documents/GWMA\\_Boundary.pdf](http://www.yakimacounty.us/gwma/documents/GWMA_Boundary.pdf)

# LOWER YAKIMA VALLEY GROUND WATER

## NITRATE EDUCATION

TALKING POINTS



Groundwater  
Management Area  
(GWMA)

# BACKGROUND

- In 2011, the Lower Yakima Valley Groundwater Management Area (LYVGWMA) was formed to address nitrate contamination in groundwater.
- The GWMA is a response to the elevated nitrate levels found in the Lower Yakima Valley. These levels, found in some of the wells tested, exceeded the state standard or the Maximum Contaminant Level (MCL) for Nitrate of 10.0 mg/L.
- Nitrate is considered an acute contaminant, which can affect only those residents who are at a higher risk from exposure to nitrate. These residents can show symptoms rather quickly from a single exposure.



Groundwater  
Management Area  
(GWMA)

# WHERE DOES NITRATE COME FROM?



The potential health risk to the public is dependent on the contaminant source as well as the distance between the contaminant source and the well. In some cases, the condition, age, construction, or all of these characteristics of the well can contribute to the contamination of the groundwater, or increase the health risk to the public, or both.

Common contaminant sources for nitrate are fertilizers, animal manure and household septic systems, particularly if any of these are managed or maintained inadequately. Additional information is available on the fact sheet (shown above) on the website listed below:

<http://www.doh.wa.gov/Portals/1/Documents/Pubs/331-453.pdf>



Groundwater  
Management Area  
(GWMA)

# HOW CAN NITRATE REACH THE GROUNDWATER?

- ▶ Nitrate can reach and contaminate the groundwater from a contaminant source:
  - ▶ By being carried by irrigation or rain water down through the soils.
  - ▶ Through a short circuit created by wells that are either:
    - ▶ Poorly constructed
    - ▶ Improperly decommissioned, or
    - ▶ Neglected, forgotten or abandoned
  - ▶ Discharges from poorly designed and failing septic tanks and lagoons

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



Groundwater  
Management Area  
(GWMA)

# YAKIMA COUNTY PAST STUDIES

## 2011 Nitrate Treatment Pilot Program:

### Findings:

- Roughly 7,600 households within the LYVGWMA target area and on the Yakama Nation were determined to be served by private wells.
- Of the information packets sent to these households, 1,870 responded and returned nitrate test strips for possible further testing.
- Overall 9% of those who responded were over the MCL for Nitrate

#### Source:

<http://www.yakimacounty.us/gwma/documents/library/Yakima%20County%20Nitrate%20Treatment%20Pilot%20Program%20Final%20Report%202011.pdf>

## 2010 3-Phase study started by EPA:

### Findings:

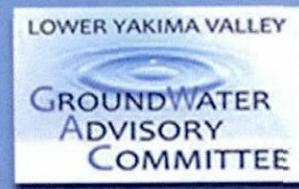
- 20% of the wells in the Lower Yakima Valley were estimated to exceed the nitrate MCL.

Source: [http://www.yakimacounty.us/gwma/documents/background/Lower\\_Yakima\\_County\\_Groundwater\\_Assessment\\_Feb\\_2010.pdf](http://www.yakimacounty.us/gwma/documents/background/Lower_Yakima_County_Groundwater_Assessment_Feb_2010.pdf)

# WHAT DOES IT DO?

It reduces the ability of red blood cells to carry oxygen.

- In most adults and children these red blood cells rapidly return to normal. However, in infants it can take much longer for the blood cells to return to normal.*



Groundwater  
Management Area  
(GWMA)

# WHO IS AT RISK?

Those considered at high risk from exposure to elevated or high levels of nitrate include:

- Children less than 1-yr of age,
- Pregnant women,
- Women who may become pregnant.
- Individuals with certain blood disorders, such as
  - Lack of enzyme that converts affected red blood cells back to normal, or
  - Low stomach acids.

Infants who drink water with high levels of nitrate (or eat foods made with nitrate-contaminated water) may develop a serious health condition due to the lack of oxygen.

This condition if left untreated may cause death.

This condition is known as Methemoglobinemia or “blue baby syndrome.”

# **“BLUE BABY SYNDROME”**

## Methemoglobinemia

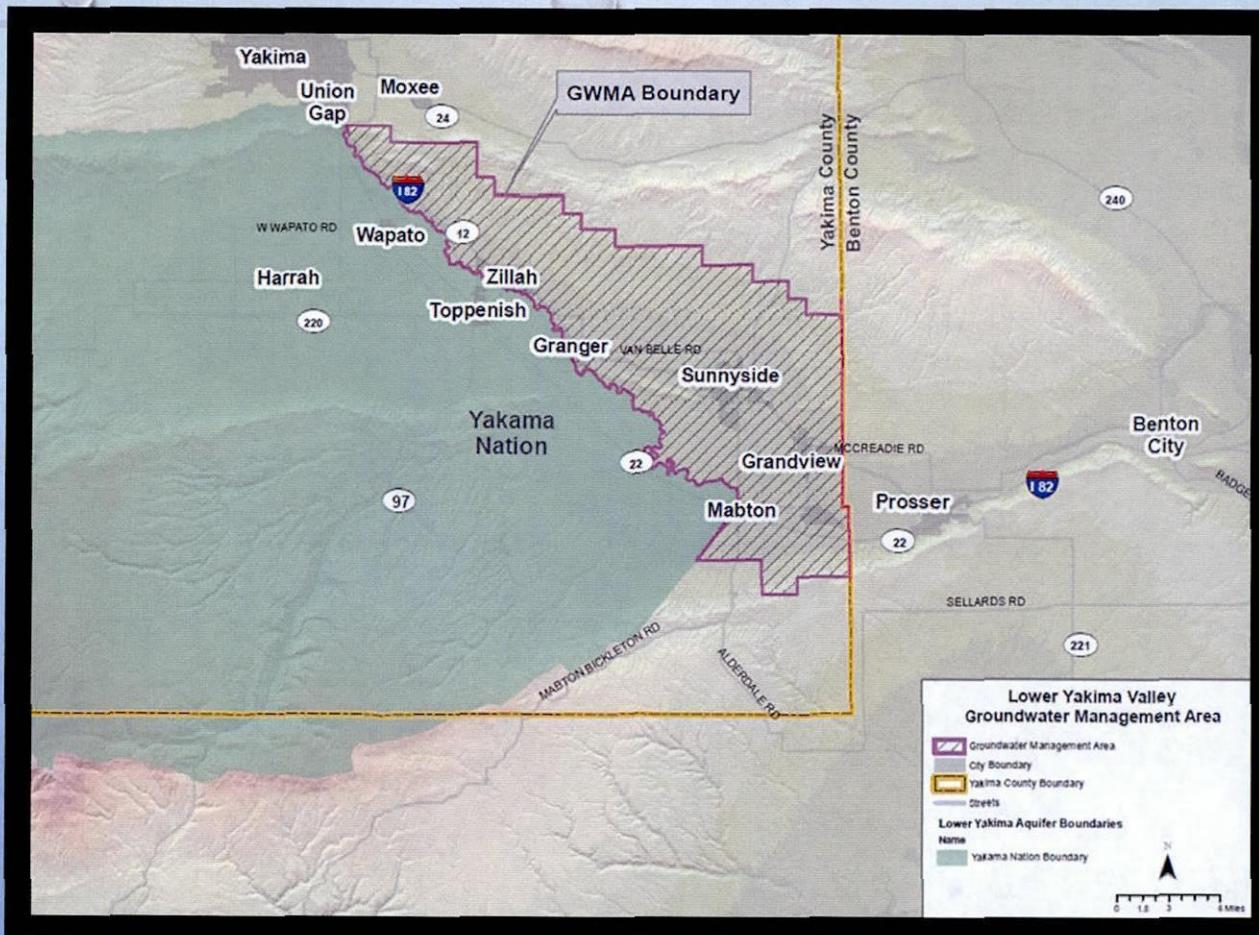
### **MODERATE TO SERIOUS**

- Lethargic
- Mental Status Changes
- Respiratory Distress
- Blue color, especially around mouth, lips & nail beds
- Rapid Heart Rate
- Chocolate Colored Blood
- Shock-Seizures-Coma-Death



Groundwater  
Management Area  
(GWMA)

# GWMA BOUNDARY

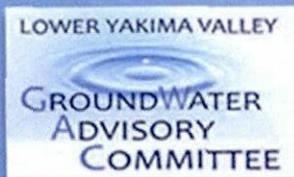


Groundwater  
Management Area  
(GWMA)

# TESTING



Link to the GWMA Certified Laboratory List:  
[http://yakimacounty.us/GWMA/documents/3D\\_Updated\\_Certified\\_Laboratories\\_7-23-13.pdf](http://yakimacounty.us/GWMA/documents/3D_Updated_Certified_Laboratories_7-23-13.pdf)



Groundwater Management Area (GWMA)

## DOES THE STATE REGULATE NITRATE IN DRINKING WATER?

The safe drinking water standard for nitrate is 10 milligrams per liter (mg/L) or MCL.

Yes:

State and federally regulated public water systems.

Includes routine sampling and install treatment if necessary.

No:

Private or shared wells, which includes the farm exempt wells.

Not required to sample or install treatment.

Property owners are responsible for ensuring safe drinking water is provided to their homes.

# AVAILABLE RESOURCES

## LOWER YAKIMA VALLEY GROUNDWATER MANAGEMENT AREA (LYVGWMA)

- The purpose of the LYVGWMA is to reduce the nitrate contamination concentrations in groundwater below the state drinking water standards
- Current standard is a Maximum Contaminant Level of 10.0 mg/L
- The Groundwater Advisory Committee provides a website where the public can:
  - Observe the committee's progress,
  - View the documents, studies, and presentations approved by the committee,
  - Obtain nitrate education materials and private well owners' guidance (technical assistance),
  - Find out about upcoming meetings, activities and public events and how to get involved.
  - <http://www.yakimacounty.us/gwma/>



Groundwater  
Management Area  
(GWMA)

# AVAILABLE RESOURCES

**Education and outreach materials developed during the Nitrate Treatment Program:**

<http://www.yakimacounty.us/nitrateprogram/english/default.htm>

**Materials identify:**

- **Vulnerable population** – Those most at risk from health effects associated with elevated nitrate.
- **State certified water quality sampling labs** – Coliform (Bacteria) and nitrate.
- **Technical assistance for private well owners.**



**Groundwater  
Management Area  
(GWMA)**

# THANK YOU



Groundwater  
Management Area  
(GWMA)

## Lower Valley Groundwater Citizens Group Extends Free Private Well Testing Offer May 30<sup>th</sup> Deadline

**FOR IMMEDIATE RELEASE: THURSDAY, MAY 1, 2014**

**CONTACT:** Lisa Freund, Yakima County Public Services Administrative Manager  
Office: 509-574-2300  
Cell: 509-961-0470

Yakima – Lower Yakima Valley residents who are served by a private or shared well still have time to receive free nitrate and coliform well testing. The free testing, offered by the Yakima Health District in partnership with the Lower Yakima Valley Groundwater Advisory Committee (GWAC), has been extended to Friday, May 30, to ensure all interested households may participate.

To qualify, households must be served by a private or shared well within the Lower Yakima Valley Groundwater Management Area (GWMA) boundaries and be willing to take part in a well assessment survey. An environmental health specialist from the Yakima Health District will complete both the well assessment survey and take the samples from the wells. The visit will take about 30 minutes at most, and all of the information, including well water test results, will be made available to the households.

The information collected will help the GWAC understand the conditions that exist around the wells and how to best help the residents. The survey is not intended to collect personal data for any other purpose.

To participate in this limited time offer, please call the Yakima Health District Help Desk at 509-249-6508 to schedule an appointment. Any concerns about water quality, sample results or the site survey will be explained to the participants, with sample results expected to be completed in June.

To learn more about the GWAC and to view the GWMA boundaries, please visit:  
<http://www.yakimacounty.us/gwma/>.

###

**El Comité Asesor del Área de Manejo de Agua Subterránea del  
Valle Bajo de Yakima extiende el periodo de oferta de pruebas  
gratis a pozos privados  
El plazo es el 30 de mayo del 2014**

**PARA PUBLICACIÓN INMEDIATA: JUEVES 1º DE MAYO, 2014**

**CONTACTO:** Lisa Freund, Yakima County Public Services Administrative Manager  
Oficina: 509-574-2300  
Celular: 509-961-0470

**Yakima –** Los residentes del Valle Bajo de Yakima que obtienen su agua de un pozo privado o compartido todavía tienen tiempo para solicitar su prueba gratis por nitrato y bacteria coliforme para su pozo. El plazo para estas pruebas gratis, ofrecidas por el Distrito de Salud de Yakima en asociación con el Comité Asesor del Área de Manejo de Agua Subterránea del Valle Bajo de Yakima (GWAC), ha sido extendido para el viernes 30 de mayo de 2014, para asegurar que las personas interesadas tengan la oportunidad de participar.

Para cumplir con los requisitos, la vivienda debe ser servida por un pozo privado o compartido dentro de los límites del Área de Manejo de Agua Subterránea del Valle Bajo de Yakima (GWMA) y estar dispuestos a tomar parte en la evaluación del pozo. Un especialista en salud ambiental del Distrito de Salud de Yakima hará las dos cosas, tomará la encuesta de la evaluación y las muestras de los pozos. La visita tomará aproximadamente 30 minutos y toda la información, incluyendo los resultados de la prueba del agua del pozo, estará disponible para los residentes de la vivienda.

La información recolectada ayudará a GWAC a entender las condiciones que existen alrededor de los pozos y la mejor manera de ayudar a los residentes. La encuesta no tiene la intención de recolectar datos personales para cualquier otro propósito.

Para participar en esta oferta de tiempo limitado, por favor llame al Distrito de Salud de Yakima para hacer una cita al teléfono de información 509-249-6508. A los participantes se les responderá cualquier pregunta que tengan relacionada con la calidad del agua, los resultados de las muestras o con la encuesta. Se espera que para junio de 2014 se tengan los resultados completos y disponibles.

Para más información sobre GWAC o para ver los límites GWMA, por favor visite:  
<http://www.yakimacounty.us/gwma/>.

###

## **Attachment E**

- Signed Agreement with JH Davenport LLC of June 17, 2014

**CONSULTANT AGREEMENT  
FOR PROFESSIONAL SERVICES**

This *Consultant Agreement for Professional Services* ("Agreement") is entered into as of May 27, 2014, between Yakima County Department of Public Services, 128th North 2nd Street, Room 408 Courthouse, Yakima, Washington 98901-2614 ("Client"), and JHDavenport LLC, P.O. Box 297, Buena, Washington 98921 ("Consultant"). The parties agree as follows:

**I. PROJECT.** Client desires to engage the services of Consultant to provide required professional services, as more specifically described below ("Project"). Consultant has the necessary experience and qualifications to perform the required services.

**II. SCOPE OF SERVICES.** Consultant's owner and principle employee, James H. Davenport, shall assist the Director of the Department of Public Services in the performance of the County's activities as Lead Agency in the Lower Yakima Valley Groundwater Management Area (LYV GWMA), management and coordination of the Lower Yakima Valley Groundwater Management Committee (LYV GWMC), and preparation of the Lower Yakima Valley Groundwater Management Program (LYV GWMP). Consultant shall act as Yakima County's "project director" of the LYV GWMA, GWMC and GWMP.

**III. PAYMENT.** Client shall pay Consultant as compensation for the Services at the rate of \$4,500.00 per month. Client shall reimburse Consultant's actual out-of-pocket expenses related to the work, including, but not limited to technical, professional and clerical services and all costs of transportation, meals and lodging, laboratory tests and analysis, telephone, printing, copying and binding, postage, filing and service fees, or other expenses related to meetings or conferences. County shall pay all governmental fees, permits and charges. Consultant will clear any sizable and anticipatable expense with Client in advance. Monthly invoices shall be issued for all Services performed under this *Agreement*.

**IV. INDEPENDENT CONTRACT.** This contract is independent from, and in addition to, any other contract between Yakima County, its officers or employees, and Consultant.

**V. TERMINATION.** This *Agreement* may be terminated at will by Client or Consultant upon 30 days notice one to the other.

**CONTRACTOR / CONSULTANT**

By JHDavenport  
Title James H. Davenport  
Date 6/12/14

Attest: Tiera L. Girard  
Clerk of the Board

APPROVED AS TO FORM:

Keene M. Wilhite  
Deputy Prosecuting Attorney

BOCC231-2014

June 17, 2014

**BOARD OF YAKIMA COUNTY COMMISSIONERS**

Kevin J. Bouchey  
Kevin J. Bouchey, Chairman

J. Rand Elliott, Commissioner

Excused

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

