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

VERN M. REDIFER, P.E., Director

October 1, 2013

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

Re: **Lower Yakima Valley GWMA - 2013 Third-Quarter Report (IAA No. C1200235)**

Dear Charlie:

Enclosed please find one (1) copy of Yakima County's third-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

IAA No. C 1200235 – 3rd Quarter 2013 Report

Lower Yakima Valley GWMA

October 1, 2013

IAA No. C 1200235 – 3rd Quarter 2013 Report
Lower Yakima Valley GWMA
October 1, 2013

TASK 1 - ADMINISTRATIVE FUNCTIONS
DELIVERABLES

1.1 Meeting Records

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

Attachment (A) includes the GWAC meeting records of August 15 (draft) and September 19, 2013 (draft); the Livestock/CAFO meeting summaries of July 18 and August 15, 2013; the Irrigated Ag Working Group meeting summaries of July 18, August 1, August 15, September 5, and September 19, 2013; the Residential, Commercial, Industrial, and Municipal (RCIM) Working Group meeting summaries of July 18 and September 26, 2013; the Data Collection, Characterization, and Monitoring Working Group meeting summary of September 5, 2013; the Education and Public Outreach (EPO) Working Group summaries of August 7 and September 4, 2013 and the joint meeting of the Working Group Chairs of August 26 and September 5, 2013.

At its June 20 meeting the GWAC agreed to cancel the July committee meeting. Instead, the July 18 meeting time was used for HDR consultants to make a presentation on their scope of work to interested GWAC members. Following HDR's presentation, the Livestock/CAFO, Irrigated Ag and RCIM working groups held their own breakout sessions.

Meeting of Working Group Chairs – (Charlie McKinney, Kirk Cook, Jim Trull)
The Chairs of Livestock/CAFO (Charlie McKinney), Data Collection (Kirk Cook) and Irrigated Ag (Jim Trull) called a meeting for August 26 to discuss the recent developing confusion regarding the specific charge of these working groups. The chairmen agreed that the Livestock/CAFO working group will focus on activities within the immediate boundaries of animal operations. Irrigated Ag will focus on activities where land is used for crops. The Data Collection and Monitoring Working Group will provide technical guidance and coordination to the working groups to ensure that investigation of data collection is done in a coordinated manner between the working groups. The chairmen agreed to hold regularly scheduled conference calls to discuss ongoing issues, related coordination or joint recommendations to the GWAC.

On September 5, the Chairs held a second meeting and continued their discussion regarding roles and jurisdictions related to the Deep Soil Sampling proposal. It was agreed that the Irrigated Ag Working Group would take the lead on investigations of all crops and fields regardless of whether they were under the control of a dairy or CAFO or not, and regardless of the nutrient source used. The Livestock/CAFO Working Group would take responsibility for investigation of pens, stockpile areas, lagoons, etc; those areas directly related to the dairy or CAFO operation. The content of the Deep Soil Sampling proposal was discussed, and the importance of including the sampling of pens, stockpile areas, lagoons, etc. in the proposal was

emphasized, as well as the importance of obtaining a solid legal basis for maintaining participant confidentiality. Goals and Objectives from the GWAC work plan were reviewed which led to a few minor changes. The Chairs reached consensus that Working Group budgets will be much easier to project future needs for, once a firm cost estimate on the Deep Soil Sampling project has been reached.

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.

GWAC Budget

At the August meeting a draft $2,364,000 budget was shared with the GWAC. The budget total included the $1.6 million allocation approved by the 2013 Legislature. The working groups were asked to evaluate the budget and return recommendations to Vern Redifer by September. It was noted that a scope of work needs to be put together and presented to the Department of Ecology by October in order to amend the current contract.

Technical Memo #1 – Regulatory Review

The purpose of the Regulatory Review was to identify local, state, and federal regulations, policy, and guidance on control and management of nitrates for groundwater protection. Under contract with Yakima County Public Services, HDR initiated the identification and gathering of data pertaining to federal, state, and local agency regulatory requirements regarding nitrates in the GWMA. HDR provided the first draft for GWAC review and comment on July 22, 2013; the final was distributed on August 27, 2013. HDR's Final Technical Memorandum #1 addressed 29 comments raised by the GWAC. The comments were listed in two additional documents to accompany the final memo. The Final Technical Memo #1 is included as Attachment (B).

Draft Deep Soil Sampling Plan (DSSP)

The Deep Soil Sampling Plan (DSSP) is behind schedule to accommodate GWAC concerns and additional work. As of this writing, the technical working groups are still working on the Plan with the consultant. The Irrigated Ag Working Group hopes to provide the draft DSSP including its recommendation(s) at the October GWAC meeting.

1. Outreach Activities - Public Questionnaire (Survey #2):

In September the Heritage University students completed 136 door-to-door surveys in the 300 household sample area, meeting their contractual obligation within the timeframe of the agreement. The 19-question survey identified residents' knowledge of their drinking water, their opinion of its safety, and what they know about nitrate. The survey also asked residents what they knew about the Lower Yakima Valley Groundwater Management Area Advisory Committee (GWAC) and its work. The survey's purpose was to distribute outreach materials, identify where

and how future outreach methods should be focused, and to set the stage for the High Risk Well Assessment Survey.

Outreach Materials

Prior to the door-to-door survey, Yakima County mailed an English/Spanish language postcard to the 300 households in the survey sample announcing that Heritage University students would be coming to their door to conduct the survey. Phone numbers were provided for both English and Spanish callers who had questions. The GWMA website address was also noted on the postcard. All survey materials and results were posted to the website: http://www.yakimacounty.us/gwma/education_public_outreach.php

The student surveyors also distributed a 15-page English/Spanish information packet to the households. The packet explained the purpose of the survey, introduced the GWAC, and provided information on nitrate in drinking water, private well water, and a list of local certified testing laboratories. Over 200 packets were distributed.

A news release announcing the survey was sent out to English/Spanish area media in August, prior to the start of the survey. A second release announcing the results was sent out in September.

The survey, outreach materials, and news releases are included as Attachment (C).

Survey Results

Results indicated that 69 percent (94 households) surveyed are aware of the potential health risks associated with drinking water with high levels of nitrate. Over half of those surveyed have had their private well tested for nitrate. Four percent (six households) believe someone in their home had become ill from drinking their well water. None, however, indicated that high levels of nitrate were the source of the illness. Less than half (42 percent) had heard of the Lower Yakima Valley Groundwater Management Area, while 33 percent (45 households) indicated an interest in participating in a more in-depth high risk well assessment survey.

The 45 households will be contacted in the fourth quarter to participate in the High Risk Well Assessment Survey (Survey #1).

Survey results will be analyzed by the EPO and used to determine future outreach and possibly guide recommendations to the GWAC. The complete survey results are included in Attachment (C).

2. Outreach Presentations:

Central Family Medicine Residency Program - July 18, 2013
Commissioner Rand Elliott and Andy Cervantes of DOH made a presentation to Central Washington Family Medicine Residency Program on July 18 to discuss the GWAC, nitrate, and other health issues. 15 residents attended.

EPA Healthy Homes Presentation - September 6, 2013
The EPA invited the Education & Outreach group to provide power point talking points on the GWMA and the GWAC, which they would incorporate in their presentation at the Yakima Nation event. As of this writing, the EPA has not provided its final report on the event or the final slides.

Hispanic Affairs Commission "Connect with Your Government" Spanish-Language Radio Program - September 24, 2013
Department of Ecology invited GWAC participation in a "Connect with Your Government" radio program. Ecology is partnering with the Hispanic Affairs Commission to provide monthly one-hour Spanish-language radio programs that target the Hispanic community statewide. Andy Cervantes participated in the one-hour radio program and provided information on nitrates, the GWMA and the GWAC. Mr. Cervantes' script is included as Attachment (D).

Working Group Activities:

Livestock/CAFO (Charlie McKinney, Chair)
The Working Group met on July 18, August 15, and September 5, 2013. During the July 18 meeting, the group discussed the funds allocated for GWMA from the 2013 Legislature, focus on HDR/PGG's presentation regarding soil sampling, and soil sampling that occurred in the Columbia Basin GWMA. During the August 15 Working Group meeting, the group identified the need for collaboration with the Irrigated Agriculture Working Group for delineating jurisdictions that each group will focus on, emphasizing the need for a land use-oriented scope. Questions and ideas were proposed on how to get the most out of soil sampling, and how to keep data confidential. Consensus was reached regarding the need for public education regarding water rights and protection of sampling and personal information.

Irrigated Ag (Jim Trull, Chair)
The Working Group met on July 18, August 1, August 15, September 5, and September 19, 2013. In July, Jim Trull was nominated by Troy Peters and accepted by the group as the Chair to replace Benton County Chair Mark Nielsen. The group discussed the future role of the Irrigated Agriculture Working Group and how the group would assist the consultants; they agreed that an integral role of the group is to review deliverables as well as provide comments and suggestions. The group discussed BMPs, the importance of grower relationships and their point of view regarding the GWMA; work that was conducted in the Columbia Basin GWMA by PGG and how it could correlate to the LYV GWMA, and observations of the Department of Agriculture's efforts in the dairy inspection and enforcement program.

During the August 1 Working Group meeting, the group discussed Technical Memorandum #1, the Deep Soil Sampling plan and its role in the GWMA objectives, as well as the need for a

representative from the fertilizer industry and a nutrient specialist. At the second meeting in August they considered further review of the deep soil sampling plan's purpose and scope, as well as participant confidentiality and protection from prosecution.

In the first September Working Group meeting, the group was able to secure new members in the fertilizer and plant nutrient fields. Discussions revolved mainly around the deep soil sampling plan, and the need for rearrangement of tasks to immediately analyze existing agricultural data to determine how to allocate samples for the initial plan. Efforts of the second meeting in September were focused on reviewing and commenting on the deep soil sampling plan.

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

The group met on July 18 and September 26, 2013; July 18 marked the first Working Group meeting. During this meeting, the group discussed the HDR/PGG presentation and talked about potential sources of nitrate related to the Working Group, particularly areas not covered by the other Working Groups that need to be addressed.

During the September meeting, the group reintroduced themselves with regards to current profession and background relating to the goals of the RCIM and GWMA, as a few new members had joined the group since the July meeting. The group focused on the proposed nutrient loading budget for the LYV GWMA and how they can provide the GWAC, or select Working Groups, data and ideas. A representative from Ecology noted a USGS model known as the SPAtially Referenced Regression on Watershed attributes (SPARROW) exists that has data current to 2011 on nutrient loading to the Yakima River basin surface waters. It was suggested that the dataset for this model can be of beneficial use to the GWAC and the Data Collection Working Group, exhibiting that much of the data within the RCIM's scope has already been collected. The group reached consensus on the belief that the USGS's models presented at the September 19 GWAC meeting would be very beneficial and should be pursued for further information. A lively discussion ensued regarding the nitrate cycle and mineralization of nitrogen.

Some nitrogen sources that have not been included in other Working Groups' scope were identified as well as possible additional funding sources for the GWAC. The group thought it would be important to attempt to note all possible nitrogen sources that are not within the scopes of other Working Groups. If some are recognized as insignificant, they should be reported as such in the RCIM report to the GWAC.

Robert Farrell's involvement with the Working Group Chair meetings was brought up and deemed critical to the information flow throughout the study period which would allow for a connection between the progress and needs of each group.

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

The Working Group met on September 5, 2013 via conference call. Pacific Groundwater Group was present during this conference call and proposed reordering of previously scoped tasks associated with long term nitrate monitoring and BMP effectiveness as it fits the budget and scope of the GWMA. It was suggested that the deep soil sampling plan's target selection method needs to consider land use in its formulation, as land use patterns may need to be addressed. The working group also had an open discussion on the merits of the Basin Wide Nitrogen Loading assessment and the need for a baseline to satisfy the goal of correlating

loading amount with activity type. A U.S. Geological Survey employee noted that a preliminary map does exist that was created for the EPA and will be presented during the September GWAC meeting. The Education and Public Outreach chair was present during the conference call and requested coordination with the Data Working Group and PGG to identify potential well sampling locations for the upcoming High Risk Well Assessment survey.

Regulatory Framework (No Chair)

The Regulatory Framework Working Group met for the first time on September 19, 2013 and suggested getting an analysis of programs. The group strongly supports the completion of the Nutrient Plan, and proposes to use it to analyze programs in place in order to evaluate effectiveness, identify potential sources, conduct an analysis, identify gaps and then make recommendations for improvement. The Regulatory Framework Working Group is still in need of a Chair as of September 19, 2013.

Education and Public Outreach (Lisa Freund, Chair)

The group met on August 7 and September 4, 2013. During the August meeting, it was noted that the High Risk Well Assessment Survey (Survey #1) would not be initiated until HDR has completed data QA/QC protocols for collection and entry. As the protocols have not been finalized by the end of September, the survey was pushed back to October. Meanwhile, Heritage University began administering Public Questionnaire (Survey #2) after Lisa Freund and Andy Cervantes trained 13 student surveyors on July 30. The working group decided that they would conduct post-survey quality control by conducting a telephone evaluation with random households who had participated in the survey. A member volunteered to create the quality control survey and bring it back to the group.

In September, the group discussed the completion of Survey #2; the upcoming EPA Health Homes Presentation; the upcoming "Connect with Your Government" Spanish-language Radio broadcast; and the GWMA Program Development Budget. The group was asked to review the GWAC budget and to research and submit budget recommendations with specific line item costs by September 12. Two members volunteered to assist with identifying the costs of radio advertising and the cost of layout and printing for the New Mom brochure. The EPA member volunteered to provide the group with "template" GWAC slides from the Healthy Homes presentation. The template slides would provide a model for developing a series of master slides for future outreach presentations. The group recommended that Commissioner Elliott make the December 2 presentation to the Community Advisory Board for El Proyecto Bienestar.

It was noted that HDR has still not finalized the QA/QC, delaying the High Risk Well Assessment Survey (Survey #1) until October earliest.

GWMA Website

The GWMA calendar was periodically updated to provide a "go-to" location that lists both upcoming working group meetings and monthly GWAC meetings. The website may be viewed at: http://www.yakimacounty.us/gwma/

Funding

Did not meet in the third quarter.

Contracts and Interlocal Agreements:

There were no new contracts or interlocal agreements in the third quarter.

Attachment A

GWAC Meeting Records of August 15 (draft) and September 19, 2013 (draft)

- *Livestock/CAFO Working Group Meeting Summaries – July 18, and August 15, 2013*
- *Irrigated AG Working Group Meeting Summaries – July 18, August 1, August 15, September 5 and September 19, 2013*
- *Residential, Commercial, Industrial and Municipal (RCIM) Working Group Meeting Summaries – July 18 and September 26, 2013*
- *Data Collection, Characterization and Monitoring Working Group Meeting Summary – September 5, 2013*
- *Education and Public Outreach (EPO) Working Group Meeting Summaries – August 7 and September 4, 2013*
- *Joint Meeting of the Working Group Chairs – August 26 and September 5, 2013*

Lower Yakima Valley GWAC Meetings
Attendance

GWAC Meetings										
PRIMARY (ALTERNATE)	7/18/2013 No Meeting	15-Aug-2013	19-Sep-2013							
Elliott, Rand		attended	attended							
(Redifer, Vern)		attended	attended							
Sanchey, Elizabeth		absent	attended							
(Ring, Tom)		absent	absent							
George, Steve		attended	attended							
(Waddington, Justin)		absent	absent							
Sheehan, Jason		attended	attended							
(DeGroot, Dan)		absent	absent							
Turner, Stuart		absent	absent							
(Durfey Chelsea)		attended	attended							
Reddout, Helen		absent	absent							
(Hannigan, Wendell)		absent	absent							
- ALT/Alt Rep: Fendell, Larry		attended	attended							
Mendoza, Jean		attended	attended							
(Anderson, Eric)		absent	absent							
Whitefoot, Jan		absent	absent							
(Dyjak, Jim)		attended	attended							
Crowe, Laurie		absent	attended							
(Newhouse, Jim)		absent	absent							
Farrell, Robert		absent	attended							
(Van Wingerden, John)		absent	attended							
Cook, Kirk		absent	attended							
(Prest, Ginny)		attended	attended							
Cervantes, Andy		attended	attended							
(Stern, Ginny)		attended	attended							
McKinney, Charlie		absent	attended							
(Tebb, Tom)		attended	attended							
Eaton, Tom		attended	attended							
(Jennings, Marie)		absent	absent							
Kelly, Gordon		attended	attended							

Lower Yakima Valley GWAC Meetings
Attendance

GWAC Meetings										
PRIMARY (ALTERNATE)	7/18/2013 No Meeting	15-Aug-2013	19-Sep-2013							
Desta, Dr. Kefy		absent	absent							
(Peters, Dr. Troy)		absent	attended							
Frans, Lonna		absent	absent							
- ALT/Alt Rep: Ely, Matt		absent								
(Bachmann, Matt)~~(Barbash, Jack)~~		attended	attended							
Trull, Jim		attended	attended							
(Cowin, Ron)		absent	absent							
Guerra, Lino		absent	attended							
(Perez, Rick)		attended	absent							
Simpson, Doug		attended	attended							
Rogers, Kathleen		attended	attended							
(Rogers, Bud)		attended	attended							
Newhouse, Patricia		attended	attended							
(Wedam, Sue)		attended	attended							

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, August 15, 2013 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 **Tuesday, August 13, 2013**

Publish: Tuesday, August 13, 2013
Bill: **FC3463-100-1**

YAKIMA HERALD-REPUBLIC

INVOICE

114 N. 4th Street PO Box 9668 Yakima, WA 98909

Date: 08/13/13

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 Fax:
Account Rep: Simon Sizer- Legals - 398
Phone #: (509) 577-7740
Email: ssizer@yakimaherald.com

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Yakima County Notice of Public Meeti

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Yakima County

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Dated this Tuesday, August 13, 2013

(351919) August 13, 2013

COPY

Funding Control FC3463-100-1
Authorized By
Date Authorized 08/22/13

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AUG 21 2013
YAKIMA COUNTY
PUBLIC WORKS ACCOUNTING

YAKIMA HERALD-REPUBLIC

Affidavit of Publication

STATE OF WASHINGTON,)
)
COUNTY OF YAKIMA)

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

That the annexed is a true copy of a:
Yakima County Notice of Public Meeti

it was published in regular issues (and not in supplement form) of said newspaper once each day and for a period of 1 times, the first insertion being on 08/13/2013 and the last insertion being on 08/13/2013

Yakima Herald-Republic 08/13/13
YakimaHerald.com 08/13/13

and the such newspaper was regularly distributed to its subscribers during all of the said period. That the full amount of the fee charged for the foregoing publication is the sum of $67.70

Debbie Martin

Accounting Clerk

Sworn to before me this 19th day of, August 2013

VERONICA RODRIGUEZ NOTARY PUBLIC STATE OF WASHINGTON My Comm. Expires 04/05/2017

Veronica Rodriguez

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

Yakima County

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Dated this Tuesday, August 13, 2013

(351919) August 13, 2013

Daily Sun News

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Sunnyside, WA 98944

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INVOICE

DATE:
August 14, 2013

INVOICE # 13-0814

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Attn: Kelly Rae
128 N. 2nd Street 4th Floor
Yakima, WA 98901

For:
Legal Advertising

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Date Authorized 8/20/13

SUBTOTAL	$	31.50
TAX RATE		7.90%
SALES TAX	$	-
OTHER		-
TOTAL	$	31.50

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If you have any questions regarding this invoice, please call 509-837-4500.

THANK YOU FOR YOUR BUSINESS!

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, nd it is now and during all of said time printed in an office maintained at the afforesaid 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
Mtg 8/15 FC3463-100-1
published in regular issues (and not in supplemental forms) of said newspaper once each week for a period of 1 consecutive issue(s) commencing 08/13/13 and ending on 08/13/13, 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 $ 31.50, amount has been paid in full, at the rate of $7.00 per column inch per insertion.

Tim Graff

Subscribed and sworn to before me 08/14/13

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

NORA HERNANDEZ
Commission Expires
NOTARY PUBLIC
08-20-2015
STATE OF WASHINGTON

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

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

Dated this Tuesday, August 13, 2013

PUBLISH: DAILY SUN NEWS
August 13, 2013

LOWER YAKIMA VALLEY

GROUNDWATER ADVISORY COMMITTEE

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

Meeting Time and Location

Thursday, August 15, 2013, 5:00 – 7:00 p.m.

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

Purpose of the Meeting:

- Discuss milestones for developing the GWMA program
- Hear from working groups on their work

Agenda

Time	Topic	Purpose	Lead
5:00 – 5:10 p.m.	Welcome & Meeting Overview	Introduction, meeting overview, confirm agenda	Angie Thomson, facilitator
5:10 – 5:15 p.m.	Committee Business	• Approve June 20 meeting summary • Membership updates	Angie Thomson Charlie McKinney, Ecology
5:15 – 5:30 p.m.	GWMA Program Goals and Objectives	• Revisit schedule for developing the GWMA Program • Confirm goals and objectives in GWMA Work Plan	Angie Thomson
5:30 – 6:15 p.m.	Working Group Report Out	• Hear from working groups • Provide feedback; plan for future discussions	Angie Thomson Working group leads
6:15 – 6:25 p.m.	Public Comment	Opportunity for members of the public to make comments to the committee	
6:25 – 6:30 p.m.	Next Steps	• September meeting • Review action items, next steps, and next meeting topics	Angie Thomson
6:30 – 7:00 p.m.	Working Group Meetings	Opportunity for Working Groups to meet	Working group leads
7:00 p.m.	Adjourn		

Next Meeting: September 19, 2013

Committee Members

Stuart Turner, agronomist, Chelsea Durfey (alternate)	Turner and Co.
Helen Reddout, Wendell Hannigan (alternate)	Community Association for Restoration of the Environment
	Lower Valley Community Representative
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
Mark Nielson, Heather Wendt (alternate)	Benton Conservation District
	Benton County Commission
Robert Farrell, John Van Wingerden (alternate)	Port of Sunnyside
Rand Elliott, Vern Redifer (alternate)	Yakima County Commission
Gordon Kelly	Yakima County Health District
Rick Dawson	Benton-Franklin 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 Sanchey, Tom Ring (alternate)	Yakama Nation
Lonna Frans, Matt Bachmann (alternate)	U.S. Geological Survey
Kirk Cook, Jaclyn Ford (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.

2013 Meeting Dates:

March 21	July 18	November – tbd
April 18	August 15	(Thanksgiving
May 16	September 19	conflict)
June 20	October 17	December 19

LOWER YAKIMA VALLEY GROUNDWATER MANAGEMENT AREA ADVISORY COMMITTEE (GWAC)

MEETING SUMMARY

Thursday, August 15, 2013

Radio KDNA
121 Sunnyside Ave, Granger, WA 98932

I. Call to Order:

Roll Call: The meeting was called to order at 5:04 p.m. by Angie Thomson, Facilitator.

Member	Seat	Present	Absent
Stuart Turner	Agronomist, Turner and Co.		✓
Chelsey Durfey	Agronomist, Turner and Co. (alternate)	✓	
Helen Reddout	Community Association for Restoration of the Environment		✓
Wendell Hannigan	Community Association for Restoration of the Environment (alternate)		✓
Jan Whitefoot	Concerned Citizens of the Yakama Reservation		✓
Jim Dyjak	Concerned Citizens of the Yakama Reservation (alternate)	✓	
Jean Mendoza	Friends of Toppenish Creek	✓	
Eric Anderson	Friends of Toppenish Creek (alternate)		✓
Larry Fendell	Friends of Toppenish Creek (Stand in)	✓	
Lino Guerra	Hispanic Community Representative		✓
Rick Perez	Hispanic Community Representative (alternate)	✓	
Kathleen Rogers	Lower Yakima Community Representative Position 1	✓	
Bud Rogers	Lower Yakima Community Representative (Position 1 alternate)	✓	
Patricia Newhouse	Lower Yakima Community Representative Position 2	✓	
Sue Wedam	Lower Yakima Community Representative (Position 2 alternate)	✓	
Doug Simpson	Irrigated Crop Producer	✓	
Robert Farrell	Port of Sunnyside		✓
John Van Wingerden	Port of Sunnyside (alternate)		✓
Jim Trull	Roza-Sunnyside Joint Board of Control	✓	
Ron Cowin	Roza-Sunnyside Joint Board of Control (alternate)		✓
Laurie Crowe	South Yakima Conservation District		✓
Jim Newhouse	South Yakima Conservation District		✓

	(alternate)		
Tom Eaton	U.S. EPA	✓	
Marie Jennings	U.S. EPA (alternate)		✓
Lonna Frans	USGS Washington Water Science Center		✓
Matt Bachmann	USGS Washington Water Science Center (alternate)	✓	
Kirk Cook	WA Department of Agriculture		✓
Ginny Prest	WA Department of Agriculture (alternate)	✓	
Charlie McKinney	WA Department of Ecology		✓
Tom Tebb	WA Department of Ecology (alternate)	✓	
Andy Cervantes	WA Department of Health	✓	
Ginny Stern	WA Department of Health (alternate)	✓	
Dr. Kefy Desta	WSU Irrigated Agriculture Research and Extension Center		✓
Dr. Troy Peters	WSU Irrigated Agriculture Research and Extension Center (alternate)		✓
Elizabeth Sanchey	Yakama Nation		✓
Tom Ring	Yakama Nation (alternate)		✓
Rand Elliott	Yakima County Board of Commissioners	✓	
Vern Redifer	Yakima County Board of Commissioners (alternate)	✓	
Steve George	Yakima County Farm Bureau	✓	
Justin Waddington	Yakima County Farm Bureau (alternate)		✓
Gordon Kelly	Yakima County Health District	✓	
Jason Sheehan	Yakima Dairy Federation	✓	
Dan DeGroot	Yakima Dairy Federation (alternate)		✓

II. Committee Business:

Introductions

Moment of Silence

June 20th meeting minutes were approved by the committee with no changes.

III. Membership Updates:

We have had a few new members join. We are trying to keep numbers up since Benton County dropped out. We still have 23 members. Kathleen Rogers, Patricia Newhouse and Doug Simpson have joined the group and we have a few more interested in applying. Ecology will work on the appointment letters by next month.

Reminder:

The GWAC calendar is on the Yakima County website. There is a list of working groups so you can participate in other groups or can change working groups if desired.

IV. Budget:

Vern Redifer presented the budget. A budget request was submitted by Senator Honeyford and was approved at the last legislative session. The budget total is $2,364,000. This is a compilation of the solicited budget requests from everyone's input. Work groups need to evaluate and determine what we should keep and what we need to change. Nothing in the budget is set in stone with the exception of money already spent. We need to think about what is the best way to spend the money.

Question: Is there a time period of budget clarity?

Money needs to be spent by mid 2015, which gives us 2 years.

A scope of work needs to be put together representing what we would like to accomplish to present to the Department of Ecology within the next 2 months.

V. Goals & Objectives:

We need to review the goals and objectives listed in the approved February 2013 Work Plan. Working groups should review the objectives from work plans to see if they are still accurate or if they need to be modified.

VI. Working Group Report Out:

Irrigated Ag:

Irrigated Ag has had two meetings since the last GWAC meeting. The first meeting they elected Jim Trull as chair and discussed deep soil sampling. The second meeting was spent recruiting new members to get more representation. Doug Simpson and Ginny Prest joined the group.

The current scope in deep soil sampling (DSS) plan development calls for 20 samples and the work group feels that the required number of samples will be confirmed in the DSS plan.

The group is wrestling with the issue of confidentiality; there is a general consensus to keep deep soil test results confidential to increase participation. There isn't a recommendation on how to keep results confidential.

A question was raised on whether the NRCS has been contacted to see if they were interested in joining the group.

Livestock/CAFO:

Jason Sheehan reported for the Livestock/CAFO working group. Meeting was held July 18th and they discussed the additional budget that Vern presented. The group discussed the breakdown and constraints. The group discussed deep soil sampling and decided that 20 samples are not adequate. It was discussed that we need to identify the purpose of deep soil sampling so that we can determine

what type of tests to perform. The possibility of a coordinated meeting with the Irrigated Ag group was discussed.
The issues that the group would like to determine:

-What is the effectiveness of deep soil sampling?
-Do we want to know the locations?
-Do we need to know the capacity of the soil?
-Is the information for education or enforcement? – There is a concern about getting growers to participate if it is for enforcement purposes.
-Need to identify outcomes, including how testing should be done
-Need to coordinate with Irrigated Ag

The group will meet next month and possibly tonight if time permits.

Some questions were raised:
Who has the responsibility to determine how soil sampling will be done and when the determination will be made?
The committees will make recommendations and bring those to the large meeting. The work group needs to put a time frame on recommendations. The attorneys have been asked to look into the legality of withholding information (confidentiality) and they are researching it. Whichever decisions get made, it is important that it is done legally.
It would help to know the range of costs for the educational program to help make a determination on how to proceed. Twenty samples may help to build a bigger program and may be determined as trial sampling. The deep soil sampling budget in the HDR contract was based on early budget and the 20 samples identified was a placeholder.

How will landowners be approached? If the testing is confidential, it is unknown how they will be approached.

We need to remember that some of the things we do will impact other farmers, it will impact people and their livelihood. Education and Public Outreach needs to be educating everyone, but they need input from the working groups.

What type of deep soil sampling are we going to do? Costs will be higher for sampling moisture content, though it is fairly simple to add pH content for testing. When you measure how much nitrates are in the water you can see how much is mobile.

A budget breakdown request was suggested for each of the three purposes (education, BMP effectiveness and documenting current conditions) to get clarity for budget scenarios. We need to request analysis of scope for each purpose.

A suggestion was made to sample a variety of soil and crop types.

EPO Work Group:

Andy Cervantes noted that he, Commissioner Rand Elliott, and Tito Rodriguez (DOH) made a presentation to the Central Washington Family Medicine Residency Program in July. They discussed the GWAC, nitrate, and other health issues. Approximately 15 residents (MDs and DO's in training) attended.
-The goal is to get more information out on GWAC and its role in the community.
- Heritage University students are administrative the door-to-door questionnaire. The purpose of the questionnaire is simple public education and outreach: to distribute information and to see what is going on. Heritage University was asked for simple stats as to the outcome of the questionnaire.
-300 parcels were identified for surveying and distributing information packets .The students need to survey up to 160 of those parcels. We received a lot of positive feedback.
-We need to get more info before we can determine where to site wells.
-Parcels for questionnaires were chosen based on (1) where we currently have no data on nitrate or (2) where high nitrate concentrations have been identified. We are going to hold off on well assessment surveys for now.
-Andy will be participating in the Hispanic Commission's "Connect with Your Government" radio program in September. It is an opportunity to talk about the GWMA and the GWAC in an open question forum. Andy and an interviewer will be in attendance.
-If you have materials that you want on the web it needs to be sent to the EPO.
-Yakima County has translation services if needed; contact Lisa Freund or Vern Redifer for more info.

Some concerns were brought up to the group on the overall direction of GWAC. It feels that the regulatory framework is being neglected—the first year of GWMA discussions have been completed and the Regulatory Framework Work Group has not met yet. It was asked to have HDR investigate the rights of private homeowners near neighbors with contaminated wells, the history of environmental legislation in agricultural regions in Washington State, Indian Water Law related to groundwater, case law regarding BMP's, regulations that limit the number of cows in a given geographical area, and regulations that require CAFO owners to prove they have sufficient land for agronomical applications of nutrients. We need to spend as much time talking about rules and regulations as we do the BMPs. There are too many cows for too small of an area. At what point does too many cows become non profitable or the environment becomes compromised. It was stated that 58% of the problem comes from dairy farms.

Regulations are important, however potential regulatory approaches can be discussed at the work group level and then recommendations can be brought to the GWAC and discussed.

The Regulatory Framework Work Group hasn't met and it's a concern. This group needs recommendations from the other work groups to be effective.

There was a recommendation for this regulatory discussion to be tabled until the HDR report was completed. It was a concern that tabling this meant it wouldn't be dealt with again as things have happened in the past. It was promised that this would be brought to the forefront every meeting.

There was a suggestion that the focus needs to be on finding the nitrates at this point. Work groups can decide on their recommendations.

What's the purpose of the Regulatory Group?
The purpose is to find all regulations that pertain to nitrates. Are they being used or enforced, what works and what doesn't, what's being ignored? Once those questions are answered then the gaps can be filled. There was a chart that was sent out that describes more about the Regulatory Framework Work Group. We need to understand what the current regulations are before we can do anything else.

Another member stated that dairy is 60% of the POTENTIAL source, not 60% of the problem.

When will the HDR report be out? The final report will be out in November. The draft has been given to the County and comments were made, so it should be submitted soon. We are almost ready to schedule the Regulatory Framework meeting. Vern volunteered to coordinate the scheduling of the group.

VII. Public Comment:

Doug Moore from the Lower Valley – a dairyman was given ok to dig a ditch across private land without having the owner's permission for the purpose of a lagoon or spray sprinkler. This is a concern because 55,000 calves have been removed from this property and now the dairyman is sending manure back to that property now. SVID said it was ok because it is Federal.

VIII. Next Steps:

-Look at budget numbers.
-Review Goals and Objectives
-Question on scope and budget on deep soil testing.
-Confidentiality
-Talk about the November meeting schedule (falls on Thanksgiving), bring calendars.

RCIM Work Group:
Group met after last meeting and need a new county staff to facilitate that group. The group needs to talk to a consultant about impacts. The group established a meeting schedule.

Adjourn to working groups. EPO not meeting.

Meeting summary approved by the LYV Groundwater Advisory Committee on

YAKIMA HERALD-REPUBLIC

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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, September 19, 2013 at 5:00 PM at the Denny Blaine Board Room, 810 E. Custer Ave. in Sunnyside 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 Groundwaler 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 11 Sept 2013.

(361441) September 12, 2013

Fun FC3467-100-1-4410
Authorized By
Date Authorized 9/17/13

YAKIMA HERALD-REPUBLIC

Affidavit of Publication

STATE OF WASHINGTON,)
)
COUNTY OF YAKIMA)

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

That the annexed is a true copy of a:
Yakima County Notice of Public Meeti

it was published in regular issues (and not in supplement form) of said newspaper once each day and for a period of 1 times, the first insertion being on 09/12/2013 and the last insertion being on 09/12/2013

Yakima Herald-Republic 09/12/13
YakimaHerald.com 09/12/13

and the such newspaper was regularly distributed to its subscribers during all of the said period. That the full amount of the fee charged for the foregoing publication is the sum of $67.70

Debbie Martin

Accounting Clerk

LISA M DRIPPS NOTARY PUBLIC STATE OF WASHINGTON My Comm. Expires 04/05/2017

Sworn to before me this 12th day of September 2013

Lisa M. Dripps

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

Yakima County

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Daily Sun News

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Affidavit of Publication

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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, nd it is now and during all of said time printed in an office maintained at the afforesaid 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
9/19 Mtg FC3463-100-1
published in regular issues (and not in supplemental forms) of said newspaper once each week for a period of 1 consecutive issue(s) commencing 09/12/13 and ending on 09/12/13, 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 $ 31.50, amount has been paid in full, at the rate of $7.00 per column inch per insertion.

Subscribed and sworn to before me 09/12/13

Notary Public in and for
the State of Washington
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Yakima County
Notice of Public Meeting
Lower Yakima Valley Groundwater Advisory Committee

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For more information about the meeting, please contact Lisa Freund, Yakima County Public Services Administrative Manager at 574-2300.
Dated this 11 Sept 2013.
PUBLISH: DAILY SUN NEWS
September 12, 2013

LOWER YAKIMA VALLEY

GROUNDWATER ADVISORY COMMITTEE

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

Meeting Time and Location

Thursday, September 19, 2013, 5:00 – 7:00 p.m.

Denny Blaine Board Room
810 E Custer
Sunnyside, WA 98944

Purpose of the Meeting:

- Discuss scope of work and budget allocations
- Learn about U.S. Geologic Survey's work on nitrates in the Lower Yakima Valley
- Hear from Working Groups

Agenda

Time	Topic	Purpose	Lead
5:00 – 5:10 p.m.	Welcome & Meeting Overview	Introduction, meeting overview, confirm agenda	Penny Mabie, facilitator
5:10 – 5:15 p.m.	Committee Business	• Approve August 15 meeting summary • November meeting date change	Penny Mabie
5:15 – 5:30 p.m.	GWMA Program Goals and Objectives	• Hear from working groups on their review of the proposed objectives. • Determine next steps for completing objectives	Penny Mabie Working Group leads
5:30 – 6:00 p.m.	USGS Presentation	• Hear about USGS' work on nitrates	Matt Bachman, USGS
6:00 – 6:45 p.m.	Working Group Report Out	• Hear from working groups • Provide feedback; plan for future discussions	Penny Mabie Working group leads
6:45 – 6:55 p.m.	Public Comment	Opportunity for members of the public to make comments to the committee	
6:55 – 7:00 p.m.	Next Steps	• October meeting • Review action items, next steps, and next meeting topics	Penny Mabie
7:00 p.m.	Adjourn		

Next Meeting: October 17, 2013

Committee Members

Stuart Turner, agronomist, Chelsea Durfey (alternate)	Turner and Co.
Helen Reddout, Wendell Hannigan	Community Association for Restoration of the Environment

(alternate)	
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 Sanchey, Tom Ring (alternate)	Yakama Nation
Lonna Frans, Matt Bachmann (alternate)	U.S. Geological Survey
Kirk Cook, Jaclyn Ford (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

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- Treat one another with civility
- Respect each other's perspectives
- Listen actively
- Participate actively
- Honor time frames
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- Speak from interests, not positions.

2013 Meeting Dates:

March 21	July 18	November – tbd
April 18	August 15	(Thanksgiving
May 16	September 19	conflict)
June 20	October 17	December 19

LOWER YAKIMA VALLEY GROUNDWATER MANAGEMENT AREA ADVISORY COMMITTEE (GWAC)

MEETING SUMMARY

Thursday, September 19, 2013

Denny Blaine Board Room
810 E. Custer, Sunnyside, WA 98944

I. Call to Order:

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

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

Kirk Cook	WA Department of Agriculture	✓	
Ginny Prest	WA Department of Agriculture (alternate)	✓	
Charlie McKinney	WA Department of Ecology	✓	
Tom Tebb	WA Department of Ecology (alternate)	✓	
Andy Cervantes	WA Department of Health	✓	
Ginny Stern	WA Department of Health (alternate)	✓	
Dr. Kefy Desta	WSU Irrigated Agriculture Research and Extension Center		✓
Dr. Troy Peters	WSU Irrigated Agriculture Research and Extension Center (alternate)	✓	
Elizabeth Sanchey	Yakama Nation	✓	
Tom Ring	Yakama Nation (alternate)		✓
Rand Elliott	Yakima County Board of Commissioners	✓	
Vern Redifer	Yakima County Board of Commissioners (alternate)	✓	
Steve George	Yakima County Farm Bureau	✓	
Justin Waddington	Yakima County Farm Bureau (alternate)		✓
Gordon Kelly	Yakima County Health District	✓	
Jason Sheehan	Yakima Dairy Federation	✓	
Dan DeGroot	Yakima Dairy Federation (alternate)		✓
Kathleen Rogers	Lower Valley Community Representative Position 1	✓	
Bud Rogers	Lower Valley Community Representative Position 1 (alternate)		
Patricia Newhouse	Lower Valley Community Representative Position 2	✓	
Sue Wedam	Lower Valley Community Representative Position 2 (alternate)	✓	
Doug Simpson	Irrigated Crop Producer	✓	

II. Committee Business:

Introductions

Moment of Silence

August 15, 2013 meeting minutes are still being reviewed and unavailable for approval. If there are any additions or corrections please send them to Penny or Daniel.

November meeting date is confirmed for Thursday. November 21.

III. Membership Updates:

Charlie McKinney welcomed new GWAC members Kathleen Rogers, Patricia Newhouse and Doug Simpson.

Reminder:
The GWAC calendar is on the Yakima County website (http://www.yakimacounty.us/gwma/). There is a list of working groups so you can participate in other groups or can change working groups if desired.

IV. Goals & Objectives

Livestock/CAFO working group made some minor suggestions. Under the second bullet, Identify Problems, we should change it to read practices as appropriate, as this will broaden the scope. The second suggestion was on the first bullet, we should develop recommendations for Best Management Practices.

V. USGS Presentation:

Matt Bachmann gave a presentation USGS and its capabilities to address some of the GWMA Objectives.

Group Comments & Questions:

How long will it take to get usable results? - It will take at least 18 months to get the bare bones up and running, with a result of three years being more realistic to get usable results.

One member commented that the model could potentially help to predict what would happen in different scenarios.

Is this a model we want to pursue? Are there alternatives to this model? How do we find out?

We should give other models a chance to report before we make a decision.

We need to focus on the next step if we decide to choose this model.

It was proposed to have Matt meet with the Data Collection working group to have a discussion of the options on a scientific level. Penny asked Data Collection to frame the pros and cons of the different options and bring back a recommendation to the GWAC.

Penny asked for a timeframe on when Data Would return to the GWAC with the recommendation. Kirk Cook stated at the November meeting.

VI. Deliverables from HDR:

Jay Decker from HDR reviewed the Deliverable Table. Sixteen of the deliverables are due by April 15, 2014. It was noted that the deliverables were based on the Scope of Work developed by the County. Some scope changes are being considered and may change the dates. The County has final assessment on reviews.

VII. Working Group Report Out:

Data Collection:

Kirk Cook reported for the Data Collection group. The group is working on re-sequencing field verifications. They are trying to make it as cost effective as possible. There is currently a database with 1,000 wells with a consultant

collecting more information. We need to do an analysis first to reduce field activity and focus on wells that would be in the analysis. The group discussed basin-wide nitrogen assessment. Where should efforts be focused? - Drain fields, Irrigated Ag, Dairy Farms, etc. The group discussed Deep Soil Sampling (DSS) and whether there were contradictions between the working groups. DSS was deferred to the next meeting.

Irrigated Ag:

Jim Trull reported for the Irrigated Ag group. The group recruited new members with technological expertise. Ten people met today to discuss a broader view of the issues. They focused on the Deep Soil Sampling plan. The group should have a plan and hope to have a final draft for review for Deep Soil Sampling at the next meeting.

CAFO/Livestock:

Charlie McKinney reported for the Livestock/CAFO working group. The group discussed roles and jurisdictions of the working groups. As far as Deep Soil Sampling is concerned, the group feels Livestock group should investigate pens, lagoons, stock piles, etc. Irrigated Ag should focus on nutrients. The group agrees that confidentiality should be maintained for those involved with the studies. It was suggested that new GWAC members need to sign up for a working group.

Vern Redifer commented on the legality of confidentiality. Vern has spoken to the County's Corporate Counsel as to the legality of confidentiality with public disclosure a concern. There is a legal way to keep information confidential. That would require the group to work closely with the South Yakima Conservation District and they can generate reports that will keep names and locations confidential.

Regulatory Framework:

Tom Eaton reported for the Regulatory Framework working group. The group met today and suggests getting an analysis of programs. They strongly support the completion of the Nutrient Plan. They propose to use it to look at programs in place in order to evaluate effectiveness, identify potential sources, to conduct an analysis, identify gaps and then make recommendations for improvement. The group still needs a chair.

Residential, Commercial, Industrial & Municipal (RCIM)

The group has not met.

Education and Public Outreach (EPO)

Lisa Freund reported for the EPO group. The group is working on developing materials for talking points - defining the GWAC and GWMA, what are nitrates and how to protect yourself, and how to become involved in the GWMA. Once established they will be brought back to the GWAC for review.

Outreach Summary:

- On September 6th we were invited to partner with the EPA's Healthy Homes Program by providing them with materials on the GWMA, GWAC and Nitrate.
- September 24th – Department of Ecology has invited GWAC participation in the Spanish-language "Connect with Your Government" radio segment, which partners with the Hispanic Affairs Commission. Andy Cervantes will speak on behalf of the Department Of Health and answer any questions related to the GWMA and GWAC. It's a question and answer forum.
- December 2nd El Proyecto Bienstar has invited the GWAC to make a presentation on the GWMA program. As GWAC Chair Commissioner Rand Elliott is unavailable on Dec. 2, the EPO will make a recommendation on who should make the presentation and bring it back to the GWAC next month.

Public Questionnaire Survey:
Heritage University completed the door-to-door surveying on Monday and we are working on inputting the data. The survey's purpose was to develop a baseline to find out what the public knows about Nitrates, GWMA, the GWAC and to assess interest in participating in the High Risk Well Assessment survey.

Out of 300 homes, 136 surveys were completed; 88 were not possible due to dogs or gates; 60 homes declined, and 16 were not attempted. The 300 homes were chosen based on locations where 1) high nitrate concentrations are documented or 2) where we have little data on nitrate levels.

Heritage University was contracted to complete 120-160 surveys. Some unofficial survey results:
Do people know about nitrates? 69% responded yes; 54% indicated their wells had been tested for nitrate. 71% of renters were comfortable asking their landlords to test their well water. The number of people self-identified at high risk to nitrate were extremely low: just one household reported having a child less than 6 months, one household had a pregnant woman, and seven households indicated someone with a chronic illness lived in the house. It was noted that chronic illness was self-defined by the person responding to the survey.

42% of respondents said they had heard about the Lower Yakima Valley GWMA. When asked if they would participate in a high risk well survey, 45 homes (33%) expressed interest in participating in the high risk well assessment survey.

Lisa joined the last Data Collection conference call to ask the group to identify areas where they would like to have the High Risk Well Assessment survey conducted. In the call it was determined that the 45 homes that expressed interest in the in-depth survey would be approached first. Once the QA QC is completed, the remaining households (areas) can be identified.

Heritage University Assistant Professor Jessica Black, who coordinated the students' survey work, was introduced. She was commended for the students' good work. The EPO looks forward to partnering with Heritage University for additional outreach in the future.

VIII. Group discussion:

Penny Mabie felt there may be some confusion as to the operations of the groups, and who is authorized to speak to the media. The charter states that only the Chair may speak publicly to the media; however, the EPO group is a little different in that they aren't speaking "for" the GWAC, they are simply reaching out with public information. The group agrees that they understand the difference and it is not an issue.

It was brought to the attention of the group that Columbia Basin is making progress and doing some heavy work. Should we interface with them to see what they are doing? It was suggested to be mindful of what they are doing and see if it is helpful or hurtful.

IX. Public Comment:

There were no comments from the public.

X. Next Steps:

- Work on Deep Soil Sampling proposals
- Bring recommendations
- Hear from Data Group
- Have Dr. Stevens speak on the basics of Nitrogen - November?
- November - bring back more on USGS modeling.

XI. 2013 Meeting Calendar

- November 21
- December 19

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

The meeting was adjourned at 6:50 pm.

Meeting summary approved by the Lower Yakima Valley Groundwater Advisory Committee on_____

Livestock-CAFO Working Group

Charge from Groundwater Management Area Advisory Committee

Working Group Members

Charlie McKinney, Chair (Department of Ecology), Kirk Cook (Department of Agriculture), Dr. Kefy Desta (WSU), Elizabeth Sanchey (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.), Ali Sedighi (Yakima County Staff Support, non-member)

Meetings/Calls Dates

Meeting: Thursday, July 18, 2013

Participants

Charlie McKinney (Dept of Ecology), Jason Sheehan (Dairy Federation), Steve George (Yakima County Farm Bureau), Lino Guerra, (Hispanic Community Representative), Jack Barbash (USGS), Jim Dyjak (Concerned Citizens of the Yakama Reservation), Larry Fendell (Citizen), Pat Newhouse (Citizen) Dr. Sue Wedam (Citizen) Doug Moore (Sunnyside Citizen), Genny DeRuyter (Citizen), Mike Murray (HDR), Pony Ellingson (PGG), Lisa Freund, (Yakima County Staff)

Key Discussion Points

The $1.6 million GWMA allocation from the 2013 Legislature:

- What are the constraints on the new funds? Need clarification of funding at the next GWAC meeting.

Discussed tonight's HDR/PGG presentation focusing on the soil sampling (why, where, how many samples needed for statistical significance).

- 20 locations for soil sampling is not sufficient. (Response: this is a pilot only)
- Let's ask for an expansion of the soil sampling project. This will provide immediate information on the effectiveness of current practices. It's possible that newer farming practices, implemented over the last 20 years, have already resolve some of the nitrate issues.
- Discussed protocols for water and soil sampling. USGS pointed out that there is no "clean" answer for determining the sample numbers needed for statistical significance. How do we determine how many samples we need?

- First, we need to identify what we want out of the soil sampling study; that drives what type of sampling we want and how it will be done. We need a discussion with the Irrigated Ag working group as they may be seeking the same information.

Columbia Basin GWMA Project Sampling:

- Pony Ellingson of PGG explained the sampling conducted in the Columbia Basin GWMA project. They did 76 samples, then wrote a sampling plan. They budgeted $100,000 for each of five years to fund sampling. They invited growers, et al. to participate; had tremendous interest. 600-700 fields were targeted, they ensured that samples followed protocols. They opted not to make the information public; rather it was used as an educational tool.

Indexing is a potential tool for soil susceptibility. Susceptibility involves many factors; you need to define your purpose.

When all is said and done, we need to ensure we covered our bases; we need to figure out what it is we want then we can ask the questions.

Discussed how to prioritize deep soil sampling. Columbia Basin's priority was to evaluate the effectiveness of BMPs, not to identify the source of the problem.

Mike Murray of HDR queried the group: What is your purpose -- to find the bad guys? Or determine effectiveness of BMPs?

Resources Requested

Additional funding for soil sampling (placeholder; future request)

Recommendations for GWAC

None at this time

Deliverables/Products Status

None at this time

Proposed Next Steps

Request clarification of new funds ($1.6 million), and any constraints, at next GWAC meeting.

Identify desired outcomes of the sampling study, which will determine what type of sampling is needed and how it will be done.

Coordinate with Irrigated Ag Work Group (re: soil sampling); they may be seeking the same information.

Livestock Working Group

Charge from Groundwater Management Area Advisory Committee

Working Group Members

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

Meetings/Calls Dates

Meeting: Thursday, August 15, 2013 6:30-7 pm

Participants

Tom Tebb (Department of Ecology), Steve George (Farm Bureau), Patricia Newhouse (Lower Valley Citizen), Sue Wedam (YVCC-Lower Valley), Douglas Moore, (Lower Valley Citizen), Jim Dyjak (Citizen), Jason Sheehan (Dairy Federation), Heidi Matson (Yakima County Staff)

Key Discussion Points

We need to meet with the Irrigated Ag Work Group to make proposal on how to define the work groups. Sitting in different rooms talking about the same thing isn't effective. Anything related to crops would fall into the Irrigated Ag category and this group will focus on Livestock.

Figure out what each group is going to focus on so we don't work on the same thing.

Discussed looking at Hermiston's Report for a structure to follow as we move forward, but use our own information. Looking at other states' information would be beneficial at building our own framework.

Discussed soil sampling:

- How do we get volunteers?
- Is it confidential or public?
- If someone is willing to allow testing on their property we need to protect them. We need to make sure we are doing the right thing.
- All pieces of land are not equal throughout the valley. There are different soil types. So how do we differentiate when to go deeper?

- Each foot gets tested up to 8-10 feet.
- We need more than 20 samples.
- Do we test all soil types? There may be some people who don't have a proper septic system that are contributing to the problem.
- We need to identify the potential problems, septic system, over fertilization, and do 3 or 4 different types of testing.
- If you test a dairy farm, break up the testing. Don't use just the lagoon; rather, test the barn area, corrals, etc. Test 2 or 3 different places, there may be different results.

Jean Mendoza had some good ideas. We support taking action where needed. We need to remember that we are all working towards the same goals and blaming any certain group would deter them from helping find a solution.

Department of Ecology has stated that they will protect information. It would be easy to test public land, however the data gathered may be compromised based on land use (ex: it may be argued that in the right-of-way commercial vehicles have spilled contaminates).

The general consensus is that the landowners need protection so the testing needs to be confidential.

- How do you categorize the results so no one knows who the sample is from?
- We need to talk about crop type, irrigation type, and soil type.
- What is the source of the nitrogen, manure or commercial?
- We may need to hire a third party so they can talk to farmers about the results but the agency doesn't know who the results belong to so that we can educate the farmers and help find a solution. The farmer has information on the crop type and the history so he can analyze the data and adjust where needed. Many dairymen would like to do the right thing, but they are afraid of no protection.

Nitrate levels depend on the soil type, how far its pushed into the soil with irrigation, how much irrigating is being done, how long they are irrigating and at what times.

We need to look at the BMPs, do they correlate?

One solution could be to switch to a sprinkler system rather than irrigation. Pivots use less water and cannot water as deep.

The Trust Water Right Program will help protect people's water rights. Currently some people may feel that they will lose their water rights so they over water to keep their rights. This pertains only to the off irrigated district farming only. There are some misconceptions because the irrigation districts believe they may lose water rights as well. People need to have more education.

Resources Requested

None at this time.

Recommendations for GWAC

None at this time.

Deliverables/Products Status

None at this time.

Proposed Next Steps

Coordinate with the Irrigated Ag group to set up a meeting to discuss each groups focus.

Identify desired outcome of the deep soil sampling study, this will determine what type of sampling is needed and how much it will cost.

Irrigated Agriculture Working Group

Charge (or Assignment) from Groundwater Management Area Advisory Committee

None at this time

Working Group Members

Dr. Kefy Desta (WSU), Dr. Troy Peters (WSU) Elizabeth Sanchey (Yakama Nation), Jean Mendoza (Friends of Toppenish Creek), Jim Trull (Roza-Sunnyside Joint Board of Control), John Van Wingerden (Port of Sunnyside), Lonna Frans (U.S. Geological Survey), Ralph Fisher (EPA), Ron Cowin (SVID), Stuart Turner (Turner & Co.), Thomas Tebb (Department of Ecology), Ginny Prest (Dept of Ag), Laurie Crowe (South Yakima Conservation District), Scott Stephen (Citizen), Mike Shuttleworth (Citizen), Chelsea Durfey (Citizen), Lino Guerra (Citizen), Doug Simpson (Farmer), Ali Sedighi (Yakima County staff support)

Meetings/Calls Dates

Meeting: Thursday, July 18, 2013 6:00 PM – 7:00 PM
Location: KDNA Granger

Participants

Jim Trull, Stuart Turner, Dr. Troy Peters, Jean Mendoza, Ginny Prest, Pony Ellingson (Pacific Groundwater Group), Don Gatchalian (Yakima County staff support)

Key Discussion Points

- The Work Group met after the consultant HDR/PGG's presentation.
- First item of business was to select a Chairperson to replace Mark Nielsen. Recognized and appreciated Mark Nielson's contribution.
- Jim Trull was nominated to be the Chairperson by Troy Peters. Jim accepted and the Work Group unanimously agreed.
- Conversed on where the Irrigated Ag Work Group was - the last meeting, what was discussed, and what needed to be done.
- Irrigated Ag Work Group had two previous meetings (January and April); contributed to developing the scope of work for deep soil sampling; reviewed and commented on the draft BMP/Regulatory Scope of Work, and; reviewed and commented on the initial characterization assessment developed by the Data Work Group.

- Discussed the future role of the Irrigated Ag Work Group and how to assist the consultant HDR/PGG. The Work Group will have to keep up with the consultant and will need to review and comment on draft documents. Deep soil sampling is important for providing historical trend analysis and time sequence and will be very beneficial analyzing baseline, capacity, etc. Shallower soil sampling will be important to track plant utilization and adherence to nutrient BMPs.
- The BMP effectiveness study should also include economic impacts, buy-in or support from the users, etc. The best way is to define the goal/s of the BMPs, e.g., how to motivate the growers to use the BMP. Discussed using "carrot versus stick" approach.
- Discussed the importance of getting input from the agricultural producers and getting their point of view and potential impacts of GWMA to them. (On this note – Ginny Prest has talked with persons associated with mint production and will be able to provide some information; she has also made a new contact in the corn production world and hope to provide some additional information regarding corn production in Yakima Valley as well.)
- Pony Ellingson of PGG provided Columbia Basin GWMA information on their deep soil sampling over a decade ago. They covered over 100 fields, 600 to 700 sampling locations, at a cost of $100,000 annually for five years. They decided that the data not be made public and used as an educational tool.
- Ginny Prest of Department of Ag presented briefly her observation of the Department of Agriculture's dairy inspection and enforcement program. About 7 years ago, only 35 percent of dairies were meeting established threshold. In the last couple of years 87 percent of dairies are meeting the established threshold. There is significant progress and more still needs to get done.
- The April 2013 meeting recommended Irrigation Water Management and Deep Soil Sampling for early implementation activities. The Deep Soil Sampling is included in the HDR/PGG contract.
- During the April 2013 Work Group meeting, it was agreed to have interaction with the following work groups: (a) CAFO/Livestock, (b) Residential/Commercial/Industrial, and (c) Data

Resources Requested

- None at this time

Recommendations for GWAC

- None at this time

Deliverables/Products Status

- None at this time

Proposed Next Steps

- The next meeting is scheduled as a one-hour conference call on Thursday, August 1st at 3:00 P.M. The call-in number is **(509) 574-2353**. PIN is **2353#**
- Meet or discuss with the consultant and ask what they need from the Irrigated Ag Work Group
- Meet or discuss with other work groups, in particular the Data Work Group and ask what they need from the Irrigated Ag Group
- Prepare agenda for next meeting
- Clean up membership list of the committee (if possible)

Irrigated Agriculture Working Group

Charge (or Assignment) from Groundwater Management Area Advisory Committee

None at this time

Working Group Members

Dr. Kefy Desta (WSU), Dr. Troy Peters (WSU) Elizabeth Sanchey (Yakama Nation), Jean Mendoza (Friends of Toppenish Creek), Jim Trull (Roza-Sunnyside Joint Board of Control), John Van Wingerden (Port of Sunnyside), Lonna Frans (U.S. Geological Survey), Ralph Fisher (EPA), Ron Cowin (SVID), Stuart Turner (Turner & Co.), Thomas Tebb (Department of Ecology), Ginny Prest (Dept of Ag), Laurie Crowe (South Yakima Conservation District), Scott Stephen (Citizen), Mike Shuttleworth (Citizen), Chelsea Durfey (Citizen), Lino Guerra (Citizen), Doug Simpson (Farmer), Ali Sedighi (Yakima County staff support)

Meetings/Calls Dates

Meeting: Thursday, August 1, 2013 3:00 PM – 4:00 PM
Location: Conference Call (509) 574-2353, PIN 2353#

Participants

Jim Trull, Doug Simpson, Laurie Crowe, Ginny Prest, Pony Ellingson and Steve Swope (Pacific Groundwater Group), Ralph Fischer (EPA), Ali Sedighi and Don Gatchalian (Yakima County staff support)

Key Discussion Points

- Jim introduced Doug Simpson as a new work group member.
- Discussed briefly the Draft Technical Memorandum No. 1 and reminder that the deadline for comments was August 2nd. Requested copy of the draft document be provided as a Word document to work group members.
- Reviewed HDR/PGG scope of work and schedule. Steve and Pony provided summary.
- Discussed Deep Soil Sampling study and the adequacy of 20 samples which is in HDR/PGG's contract. The 20 samples will provide a quick snap shot of nitrate contamination and is not intended to be in the same magnitude or scope as Columbia Basin GWMA deep soil sampling study. The Columbia Basin GWMA's deep soil sampling was used to determine BMP effectiveness, primarily for growers' educational purposes, and was not meant to be made public. The consensus was that the subcommittee should investigate ways of accessing the data while not divulging the site

from which the samples were taken. Absent the confidentiality, the members felt that getting producers to allow access would be difficult.

- This initial program is to determine current condition, and to determine size and scope of an expanded program. Discussed the dividing line between the work of Livestock/CAFO and Irrigated Ag workgroups. The consensus was the Livestock/CAFO will address the area within the AFO/CAFO. Once the nutrients leave the site and nutrients are land applied, this becomes Irrigated Ag work group's scope. The proposed dividing line will be suggested to the Livestock/ CAFO Workgroup for their reaction.
- Reviewed the work group's membership and discussed the need for fertilizer industry representation and nutrient scientist. There was consensus to invite Gordon Kenyon from Crop Production Services in Toppenish and a representative from Simplot in Sunnyside. It is anticipated that both representatives will provide input on irrigation water management. It was suggested to ask WSU - Prosser if a nutrient management specialist is available to serve on the Irrigated Agriculture Subcommittee.

Resources Requested

- One-hour monthly meetings by conference call appear to be satisfactory. There was discussion using videoconferencing or GoToMeeting. Yakima County will investigate.
- Ralph Fischer of EPA due to travel restrictions requested phone access during regular GWAC monthly meetings. Yakima County will provide phone access.

Recommendations for GWAC

- None at this time

Deliverables/Products Status

- None at this time

Proposed Next Steps

- Next meeting is tentatively scheduled for 3:00 PM – 4:00 PM, on Thursday, September 5th, by conference call. The call-in number is **(509) 574-2353**. PIN is **2353#**
- Ginny Prest will contact Simplot for a subcommittee representative.
- Jim Trull will contact Gordon Kenyon to serve on the subcommittee and will contact WSU about a plant nutrient specialist.
- Prepare agenda for next meeting. Agenda topics need to be sent to Jim Trull and copy Yakima County.

Irrigated Agriculture Working Group

Charge (or Assignment) from Groundwater Management Area Advisory Committee

Working Group Members

Dr. Kefy Desta (WSU), Dr. Troy Peters (WSU) Elizabeth Sanchey (Yakama Nation), Jean Mendoza (Friends of Toppenish Creek), Jim Trull (Roza-Sunnyside Joint Board of Control), John Van Wingerden (Port of Sunnyside), Lonna Frans (U.S. Geological Survey), Ralph Fisher (EPA), Ron Cowin (SVID), Stuart Turner (Turner & Co.), Thomas Tebb (Department of Ecology), Ginny Prest (Dept of Ag), Laurie Crowe (South Yakima Conservation District), Scott Stephen (Citizen), Mike Shuttleworth (Citizen), Chelsea Durfey (Citizen), Lino Guerra (Citizen), Doug Simpson (Farmer), Don Gatchalian (Yakima County staff support)

Meetings/Calls Dates

Meeting: Thursday, August 15, 2013 6:30 PM – 7:00 PM
Location: KDNA Granger

Participants

Jim Trull (Chairman), Ginny Prest (WSDA-Dairy Nutrient), Pony Ellingson (PGG Consultant), Doug Simpson (Farmer), Kevin Lindsey (GSIWS Consultant), Ginny Stern (DOH Alternate), Jean Mendoza (Friends of Toppenish Creek), Chelsea Durfy (Citizen), Matt Bachmann (USGS), Jim Newhouse (South Yakima Conservation District), Don Gatchalian (Yakima County staff support)

Key Discussion Points

- Pony Ellingson presented Technical Memorandum - Considerations for Further Scoping of Deep Soil Sampling (DSS) dated August 6, 2013. Key points:
    - Three purposes of DSS – (a) education of growers, (b) BMP effectiveness, and (c) current conditions
    - PGG Current Scope of Services – development of DSS Plan. In the Plan, it will have recommended number of samples and locations
    - It will address crop type, soil type, irrigation practices, and nitrogen source types
    - Will prepare a draft DSS Plan prior to September 5th work group conference call meeting

- Discussed confidentiality of participants and sample locations, protection of participants from prosecution. Also discussed when reviewing goals and objective to look at WAC 173-100, Groundwater Management Areas and Programs (copy is attached)

Resources Requested

- Pacific Groundwater Group provide draft Deep Soil Sampling (DSS) Plan prior to September 5th conference call meeting

Recommendations for GWAC

Deliverables/Products Status

Proposed Next Steps

- Next meeting - 3:00 PM – 4:00 PM, Thursday, September 5th, by conference call. The call-in number is **(509) 574-2353**. PIN is **2353#**
- Ginny Prest will contact Simplot for a subcommittee representative.
- Jim Trull will contact Gordon Kenyon to serve on the subcommittee and will contact WSU about a plant nutrient specialist. Completed
- Jim Trull to contact/invite NRCS to be a Work Group member
- Review Draft DSS Plan, discuss or meet with Livestock/CAFO Work Group on DSS scope and budget, then make recommendation to GWAC
- All committee members to review WAC 173-100 GWMA and Programs

Irrigated Ag Working Group

Charge from Groundwater Management Area Advisory Committee

Working Group Members

Dr. Kefy Desta (WSU), Dr. Troy Peters (WSU) Elizabeth Sanchey (Yakama Nation), Jean Mendoza (Friends of Toppenish Creek), Jim Trull (Roza-Sunnyside Joint Board of Control), John Van Wingerden (Port of Sunnyside), Lonna Frans (U.S. Geological Survey), Ralph Fisher (EPA), Ron Cowin (SVID), Stuart Turner (Turner & Co.), Thomas Tebb (Department of Ecology), Ginny Prest (Dept of Ag), Laurie Crowe (South Yakima Conservation District), Scott Stephen (Citizen), Mike Shuttleworth (Citizen), Chelsea Durfey (Citizen), Lino Guerra (Citizen), Doug Simpson (Farmer)

Meetings/Calls Dates

Conference Call: 3:00 PM – 4:00 PM Thursday, September 5, 2013

Participants

Jim Trull, Jean Mendoza, Stephen Swope, Pony Ellingson, Ginny Prest, Don Jameson, Scott Stephen, Dave Frazier, Rosalio Brambila, Ralph Fisher, Laurie Crowe, Frank Lyle, Jim Trull, Doug Simpson, Frank Lyall, and Troy Ross-Havens

Key Discussion Points

Agenda:

- ☐ Discuss Irrigated Ag Working Group membership – New members
  - Status of Dave Frazier as a member or from a fertilizer group
  - Status of Gordon Kenyon as a member
  - Status of a WSU plant nutrient specialist
  - Status of NRCS staff as a member – Leigh Nelson
- ☐ Review Draft Deep Soil Sampling Plan and prepare for discussion
- ☐ Discuss meeting with Livestock/CAFO on Draft Deep Soil Sampling Plan scope and budget, then make recommendation to the GWAC.
- ☐ Review WAC 173-100
- ☐ Decide next meeting

Discuss Irrigated Ag Working Group membership – New members

New members were briefly introduced by name and background/occupation. Next Working Group meeting, the group will meet in person for formal introductions of new and current members.

Review Draft Deep Soil Sampling Plan and prepare for discussion

Pacific Groundwater Group (PGG) went through the plan with the group explaining notable elements of the Draft Deep Soil Sampling Plan (DSSP). The working group discussed the purpose of the plan, its origins, timeline, data attributes, farm selection criteria, nitrate leaching indexes, crop selection matrices, grower reimbursement plans, land use, optimal time for soil sampling, crop rotations within the GWMA, sample quantities and costs, nitrate mobilization, technical soil sampling procedures and locations, and equal opportunity for grower participation.

It was suggested that the DSSP is rearranged to immediately analyze existing agricultural data which consists of geography, soil, irrigation type, crop set, and nitrate source to determine how to allocate samples for the initial plan. That data would be analyzed amongst the different categories to develop a nitrate leaching index, which is critical in deciding on which farms to evaluate during the spring of 2014.

The group proposed to increase level of targeting and upfront samples to allocate for field types. PGG cited 3 or 4 different indexes that use field attributes to generate an index number. Soil and irrigation type is common to all samples. PGG inquired the group's opinion about which leaching index would be most suitable for the GWMA, and will provide an email with links and summaries of each index to the Working Group.

Discuss meeting with LSCAFO on DSS Scope and budget, then make recommendation to GWAC

No discussion

Review Washington Administrative Code 173-100

No discussion

Decide next meeting

The next Irrigated Ag Working Group Meeting will be Thursday, Sept 19 at the Sunnyside Valley Irrigation District Boardroom in Sunnyside, Washington from 2:30-4:30 PM.

Resources Requested

None at this time.

Recommendations for GWAC

None at this time.

Deliverables/Products Status

- ☐ Draft Deep Soil Sampling Plan under review

Proposed Next Steps

- ☐ Submit comments on Draft Deep Soil Sampling Plan to Pacific Groundwater Group
- ☐ Select a Nitrate Leaching Index method

Irrigated Ag Working Group

Charge from Groundwater Management Area Advisory Committee

Working Group Members

Dr. Kefy Desta (WSU), Dr. Troy Peters (WSU) Elizabeth Sanchey (Yakama Nation), Jean Mendoza (Friends of Toppenish Creek), Jim Trull (Roza-Sunnyside Joint Board of Control), John Van Wingerden (Port of Sunnyside), Lonna Frans (U.S. Geological Survey), Ralph Fisher (EPA), Ron Cowin (SVID), Stuart Turner (Turner & Co.), Thomas Tebb (Department of Ecology), Ginny Prest (Dept of Ag), Laurie Crowe (South Yakima Conservation District), Scott Stephen (Citizen), Mike Shuttleworth (Citizen), Chelsea Durfey (Citizen), Lino Guerra (Citizen), Doug Simpson (Farmer)

Meetings/Calls Dates

Meeting: 2:30 PM – 4:30 PM Thursday, September 19, 2013

Participants

Bob Stevens, Chelsea Durfey, Dave Fraser, Don Jameson, Doug Simpson, Frank Lyall, Ginny Prest, Gordon Kenyon, Jim Trull, Laurie Crowe, Rosalio Brambila, Scott Stephen, Dr Troy Peters, Pony Ellingson, Kathleen Rogers, Ralph Fisher

Key Discussion Points

Agenda:

- Introduction of new members – Each member should be prepared to give a 1-2 minute introduction to help the rest of the committee get to know them and to understand what they can provide to the committee.
- Review of Deep Soil Sampling Program provided by PGG.
- Reports of activities.
- Set next meeting date.

Introduction of New Members

New and current members formally introduced themselves and gave a brief description of their background/occupation and what they could contribute to this group.

Review of Draft Deep Soil Sampling Plan provided by PGG

Jim stated that they collected a lot of comments and those were shown in "track changes" in the Draft Deep Soil Sampling Plan (DSSP).

It was suggested that the Title Page be formatted as GWMA letterhead in partnership with PGG as PGG is responsible for facilitating the Plan. Pony responded that the document would have a better life as a GWMA document than PGG. It was decided that they would discuss this with Yakima County.

Discussions followed regarding editing different sections of the Plan. Editing included the addition and omission of select phrases and content throughout the document.

Reports of activities.

No discussion.

Set next meeting date

The next Irrigated Ag Working Group Meeting will be Thursday, Oct 3 at 3:00 PM via phone conference.

Resources Requested

None at this time.

Recommendations for GWAC

None at this time.

Residential, Commercial, Industrial, Municipal Working Group

Charge from Groundwater Management Area Advisory Commitee

None at this time

Working Group Members

Robert Farrell – Chair (Port of Sunnyside), Dr. Kefy Desta (WSU), Elizabeth Sanchey (Yakama Nation), Gordon Kelly (Yakima Health District), Jan Whitetfoot (Concerned Citizens of Yakama Reservation), Jim Dyjak (Citizen), John Van Wingerden (Port of Sunnyside), Stuart Turner (Turner & Co0, Tom Ring (Yakama Nation), Donald Gatchalian (Yakima County), Ali Sedighi (Yakima County staff support)

Meetings/Calls Dates

Meeting: Thursday, July 18, 2013 6:00 PM – 7:00 PM
Location: KDNA Granger

Participants

Robert Farrell (Chair), Gordon Kelly, John Van Wingerden, Ali Sedighi

Key Discussion Points

This was the first meeting of this work group and they met after a presentation by HDR and Pacific Groundwater Group about the work they will be doing for the GWMA. The RCIM group will meet on the 4th Thursday of each month at 10:00 A.M. in *121 Sunnyside Ave, Granger, WA 98932* (Radio KNDA). Yakima County will make necessary arrangements to reserve a room for future meetings. The group discussed the HDR/PgG presentation and talked about potential sources of nitrate related to this work group including septic and sewage tanks, hobby farms, lawns and gardens, golf courses, food processing plants, and wastewater treatment facilities.

Almost everyone in rural areas has septic system. Yakima Health District has data that shows the location of septic tanks along with other information (e.g. size, depth, direction of drainfield, etc). It is important to find out if there is a correlation between high nitrate concentrations and the number of septic tanks in nitrate "*hot spots*". There are rules and regulation for the location of the septic tanks (e.g. septic tanks must be at least 100' away from water wells). However, there are no criteria for the vertical distance of a septic tank relative to groundwater table.

It was discussed that commercial agriculture does a better job than private gardens in nutrient management and education is an important factor to solve this problem.

Resources Requested

None at this time

Recommendations for GWAC

None at this time

Deliverables/Products Status

None at this time

Proposed Next Steps

- Discuss Work Plan progress and milestone for the RCIM work group to make sure progress is being made in developing the work plan
- Discuss other potential sources of nitrate related to this work group
- Coordinate with HDR/PgG to find out what information they might need from this working group (e.g. location and other information about septic tanks, etc)
- Discuss coordination with other work groups

Residential, Commercial, Industrial, Municipal Working Group

Charge from Groundwater Management Area Advisory Committee

None at this time

Working Group Members

Robert Farrell – Chair (Port of Sunnyside), Dr. Kefy Desta (WSU), Elizabeth Sanchey (Yakama Nation), Gordon Kelly (Yakima Health District), Jan Whitetfoot (Concerned Citizens of Yakama Reservation), Jim Dyjak (Citizen), John Van Wingerden (Port of Sunnyside), Stuart Turner (Turner & Co), Tom Ring (Yakama Nation), Donald Gatchalian (Yakima County), Troy Ross-Havens(Yakima County staff support)

Meetings/Calls Dates

Meeting: Thursday, September 26, 2013 11:00 AM – 1:00 PM
Location: KDNA Granger

Participants

Robert Farrell (Chair), Gordon Kelly, John Van Wingerden, Kathleen Rogers, Sanjay Barik, Troy Ross-Havens (County support staff)

Key Discussion Points

The group reintroduced themselves with regards to current profession and background relating to the goals of the RCIM and GWMA.

The group focused on the proposed nitrogen loading budget for the LYV GWMA and how they can provide the GWAC, or select Working Groups, data and ideas. A representative from Ecology noted that a USGS model known as SPARROW (SPAcially Referenced Regression on Watershed attributes) has data current to 2011 on nutrient loading to the Yakima River basin surface waters. It was suggested that the dataset for this model may be of beneficial use to the GWAC and the Data Collection Working Group. Much of the data within the RCIM's scope has already been collected. The group reached consensus on the belief that the USGSs' models presented in the last GWAC meeting would be very beneficial and should be pursued for further information. A lively discussion throughout the group occurred regarding the nitrate cycle and mineralization of nitrogen.

Some nitrogen sources that have not been included in other Working Groups' scopes were identified, as well as possible additional funding sources for the GWAC. The group thought it would be important to attempt to note all potential nitrogen sources that are not within the scopes of other Working Groups., If some are recognized as insignificant, they should be reported as such in the RCIM report to the GWAC.

Robert Farrell's involvement with the Working Group Chair meetings was brought up and deemed critical to the information flow throughout the study period which would allow for a connection between the progress and needs of each group.

The next meeting will be held at KDNA Granger on October 31st at 10:00AM – 12:00PM

Resources Requested

None at this time

Recommendations for GWAC

None at this time

Deliverables/Products Status

None at this time

Proposed Next Steps

- Involvement in Working Group Chair meetings.
- Contact members of the group who did not show up regarding their status and involvement in the group.

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

Conference Call: 1:30 PM – 3:00 PM, Thursday, September 5, 2013

Participants

Kirk Cook, Matt Bachmann, Jim Trull, Kenny Jansen, Ginny Stern, Charlie McKinney, Steve Swope, Lisa Freund, and Troy Ross-Havens

Key Discussion Points

Agenda:

- ☐ Modification of PGG Work Plan Sequencing
- ☐ Draft Deep Soil Sampling Plan
- ☐ Basin Wide Nitrogen Loading Assessment
- ☐ Technical Review discussion on submitted consultant materials
- ☐ Other topics

Modification of PGG Work Plan Sequenced

PGG presented a proposal on reordering tasks, including the locations for long term nitrate monitoring for bmp effectiveness. Plan originally called for field verification of each location, to confirm proper conditions for sampling. Field verification of 1000 locations would be a large task that would impart a large financial and time burden.

PGG proposed the selection of optimal locations with alternates. Sub-bins containing approximately 2-4 wells would be created and then field verified until an ideal sampling location was identified. This approach would reduce the number of locations to field verify for well data characterization, consequently decreasing budget and time. Downside of this approach would be the potential degradation in data quality – furthest points between adjacent sub areas if those are the only ones available. PGG is to contact the County to contractually define what needs are required to address this reordering of two tasks. WG members are to provide a short description of opinions supporting or not supporting the proposed data collection change. PGG will provide a scope description to the Data committee for review within a few days. This will include taking the

current scope as written to reorder and add additional text to describe what is proposed and provide to DATA for comment. After comment from data, PGG will present to the County.

Deep Soil Sampling Plan

The Working Group discussed the deep soil sampling plan's target selection method, and suggested that it may need to consider land use in its formulation, information such as land use changes and land use patterns may need to be addressed.

Basin wide nitrogen loading assessment

The Working Group had an open discussion on merits of the basin wide nitrogen loading assessment. Discussed early on at GWMA meeting, the group identified the need for a baseline. The goal of this assessment is to correlate loading amount with activity type.

A preliminary map already exists from USGS for EPA. The map will be shown during next GWMA meeting, along with a simplified presentation from USGS regarding past efforts.

Technical Review discussion on submitted consultant materials

Issues to be discussed before next meeting include:

Consult with NRCS and SYCD to identify how much education has been provided to growers on nutrient management, and any possible gaps in education. What education is available, and what is being offered to the public.

Other topics

- Chairmen's meeting review on August 26: The three chairpersons of the Irrigated Ag, Data, and Livestock/CAFO held a meeting to confirm understanding of current and future scopes of work. Topics discussed include the following:

  - Jurisdiction between Livestock/CAFO and Irrigated Ag. Proposal was that Livestock/CAFO take jurisdiction over feedlots, milking parlors, lagoons and other operations specific to animal feeding operations. Irrigated Ag would focus on areas where nutrient material is applied for the purpose of growing a crop or other areas of the GWMA. An agreement was reached between the three parties.

  - The Deep Soil Sampling Plan prior to getting the report. Agreement on initial round of deep soil sampling to get a matrix of the different variables. Cropping patterns, application methods, soil types, etc. to identify how many different loading situations the GWMA has. This will provide an initial snapshot of the Deep Soil Sampling Plan and how it might save time and money. This would provide initial assessment of BMPs to move forward with other recommendations and facilitate the launch into technically based education program for growers and general public for nutrient management.

  - The members clarified that as the initial sampling takes place, it may not be sufficient to address all potential future technical questions. The goal is to reach an initial GWMA

characterization to allow for the GWAC to begin implementing procedures to reduce groundwater nitrate contamination, as it is a pilot program.

- **Data/EPO discussion:** The first public survey under EPO's direction was to gather public data and inquire about future well sampling. Second survey is for property owners/occupiers who responded positively to the first survey. EPO requests to coordinate with data to determine next survey sites. A possibility would be to obtain additional potential well sample locations in each sub-bin for EPO to begin requesting access to for long term sampling purposes. PGG will have an additional population of well sites to supplement the large amount of sites that were denied permission to access.

Resources Requested

None at this time

Recommendations for GWAC

None at this time

Deliverables/Products Status

None at this time

Proposed Next Steps

- Next chairpersons meeting not confirmed. Jim Trull will follow up and set next chairperson meeting by phone before next GWAC meeting (within next 10 days).
- Next EPO/Data goal is to extend Department of Health contract to a date when PGG has created sub-bins and is ready for the next survey (approximately mid-October). Educate the Department of Health on how important it is to increase the number of site access permissions.
- Data and EPO to coordinate on where to send the Department of Health to survey the next batch of prospects. The survey should be initiated early to mid-October.
- Consult with NRCS and SYCD to identify how much education has been provided to growers on nutrient management, and any possible gaps in education.

Education and Public Outreach Working Group

Charge from Groundwater Management Area Advisory Committee

Working Group Members

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

Meetings/Calls Dates

Meeting: Wednesday, August 7, 2013 1:30 PM - 3:30 PM

Participants

Andres Cervantes, Joye Redfield-Wilder, Patricia Newhouse; Jean Mendoza - via phone; and Lisa Freund (EPO Chair -Yakima County)

Key Discussion Points

Status Report:

1. The Yakima Health District will not administer the High Risk Well Assessment Survey (Survey #1) until HDR has completed its Quality Assurance/Quality Control (QA QC) protocols for data collection and entry. (Tentatively scheduled for mid-September).

Andy Cervantes explained Quality Assurance/Quality Control (QA QC) to the group.

2. Heritage University began administering Public Questionnaire (survey #2) this week. Contract calls for a minimum of 120 surveys to be completed at the addresses provided by the County.

Lisa Freund, Andy Cervantes, and Gordon Kelly conducted survey training to 13 students surveyors on July 30. Students will conduct training in pairs, with one bilingual student per pair. Each student pair was supplied with a survey kit that included maps, addresses survey instruments and outreach packets. They were instructed to leave an outreach packet at each house surveyed.

QA QC: The County will only accept complete, legible surveys. Students were instructed to ensure quality control by checking that parcel numbers on the maps and surveys matched the household where the survey is being conducted. Surveys will be reviewed for completeness and accuracy by the student volunteer coordinator (Francisco Ramirez) before submitting to Heritage faculty member Jessica Black.

Jessica Black will conduct a second quality control review before submitting the surveys to Yakima County.

Jean Mendoza questioned how the quality of surveying work by Heritage would be assured, noting that she had received feedback that previous Heritage work was inaccurate and incomplete. Is anyone accompanying the students to ensure quality control?

Following extensive conversation about the students' training, and the expectations Yakima County established through the contract with Heritage University, Jean agreed to assist with quality control by conducting a telephone evaluation with households who completed the survey.

August 19, 2013 is the anticipated survey completion date.

3. The Yakima County Health District has faxed out the Healthcare Provider Letter, Questionnaire and Methemoglobinemia Handout to all area physicians several weeks ago.

4. Commissioner Rand Elliott, Andy Cervantes and Tito Rodriguez (DOH) made a presentation to the Central Washington Family Medicine Residency Program on July 18, 2013 on the GWAC, nitrate, and other health issues. Approximately 15 residents (MDs and DO's in training) attended. Rand Elliot provided an overview of the GWAC; Andy Cervantes was invited to provide information on nitrates. There was a lively discussion with a broad range of topics discussed.

5. Talking points need to be developed for September 24 Commission on Hispanic Affairs "Connect with Your Government" broadcast.

How will the $ 1.6 million legislative allocation be spent? The question will be asked, and should be available as part of the talking points.

Resources Requested – N./A

Recommendations for GWAC - Review draft talking points (subject specific and general) at the August 15 GWAC meeting. Return suggestions prior to September 4 EPO meeting.

Deliverables/Products Status

Public Questionnaire (a.k.a. survey #number 2) is currently underway. Heritage University anticipates completion by August 19, 2013

Healthcare Provider Information and Survey (a.k.a. survey #3) is complete.

High Risk Well Assessment Survey (a.k.a. Survey #1) is slated to begin mid-September. Waiting for defined Quality Assurance/Quality Control (QA QC) to be developed by HDR to begin surveying.

Proposed Next Steps

Develop talking points for September 24 Commission on Hispanic Affairs "Connect with Your Government" (Andy Cervantes and Joye Redfield-Wilder)

Develop talking points for the purpose of GWAC and engaging citizens in GMWA development by Friday, August 9 (Lisa Freund)

Consolidate talking points for GWAC Review at August 15 meeting (Joye Redfield Wilder)

Create 15 and 30 second PSAs to be aired during and around the September 24 "Connect with Your Government" broadcast. PSAs will be developed from the approved talking points. (Lisa Freund, Joye Redfield Wilder)

Enter Public Questionnaire results into database when results are received. (Yakima County)

Develop follow-up quality control questionnaire. Conduct follow-up phone calls to ask survey participants for their feedback on the survey and the surveyors (Jean Mendoza)

Follow up with Hispanic EPO members to encourage their participation in the EPO. (Jean Mendoza)

Next meeting Wednesday, September 4 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

Working Group Members

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

Meetings/Calls Dates

Meeting: Wednesday, September 4, 2013 1:30 PM - 3:30 PM

Participants

Andres Cervantes, Joye Redfield-Wilder, Patricia Newhouse, Elizabeth Torres, Nieves Negrete, Dean Edler; Jean Mendoza and Gretchen Stewart - via phone; Lisa Freund (EPO Chair -Yakima County) and Karri Espinoza (Yakima County staff)

Key Discussion Points

Status Report:

1. Public Questionnaire/Heritage University: 120 household surveys have been attempted to date. 28 are completed, 30 households declined, 24 not possible (vacant, dogs and/or gates). The remaining 40 will be re-attempted. The target number is 300 households, leaving 180 still to be attempted. Students made a big push over the Labor Day weekend to complete the surveys. The contract deadline is October 31. The committee discussed how to best evaluate Heritage students' performance.

ACTION: Jean, Dean and Nieves will refine Jean's draft evaluation form and bring it back for EPO approval on October 2. Then they will call 20 random households to administer the evaluation form. Joye will send some of Ecology's survey evaluations to Jean and Nieves as samples.

2. Environmental Protection Agency (EPA) Healthy Homes Presentation – This presentation will be held September 6, 2013 at the Yakama Nation. The agency's mission is to educate and protect households from significant environmental risks.

ACTION: Gretchen will present a 20-30 minute talk about GWAC specifically on nitrates in the drinking water. She will forward the talking points slides for future EPO use to Lisa. She will also give Lisa feedback on who attends and hears the information.

Dean will take the slides and create a "boilerplate" slideshow of talking points.

3. Commission on Hispanic Affairs "Connect with your Government " – Andy's script (English and Spanish) is completed. Andy will make the presentation. It is scheduled for Thursday, September 24 at 6:00 PM. It will be broadcast statewide and locally on Radio KDNA.

4. GWMA Website and Links – Andy noted that the GWAC should be reminded to forward relevant links to the EPO. Periodic reminders are needed as links and information evolve over time.
The group discussed the re-vamp and maintenance of the current website. The County does not currently have the resources to make it appealing and user-friendly to general public audiences. It was discussed to look at outsourcing the task.

ACTION: Lisa is working on getting quotes for the cost of re-vamping the website and has already received a quote of $200 a month to maintain the website.

5. Lower Yakima Valley GWMA Program Development Budget and EPO budget – The group was asked to review the specific allocation for each working group. If they have suggestions/changes, they need to inform Vern by September 11th.

ACTION: Members will forward their comments directly to either Vern or Lisa for the GWAC's consideration.

EPO Budget and Scope of Work

ACTION: Lisa will provide members with the information that was used to create the budget sheets by September 6th.
EPO will review the EPO Budget and Scope of Work. Specific recommendations to the budget for scope of work must be accompanied by an estimated cost line item. Members will forward specific tasks with estimated line item costs to Lisa by September 12.

6. Community Advisory Board (CAB) for El Proyecto Bienestar – This community is made up of 13-14 members of the Hispanic community including but not limited to farmers, educators and medical professionals. It is mostly funded by the University of Washington/National Institutes of Health. A few of the things they target are water testing, air quality/asthma, heat related illness and workplace abuse within the Hispanic community. Elizabeth asked if the EPO would be willing to give a presentation on GWMA at one of the bi-monthly meetings held at KNDA Radio Station.

ACTION: Elizabeth Torres will e-mail Lisa the December meeting date. Lisa agreed to speak to Commissioner Rand Elliott, the GWMA Chair, about giving the presentation.

7. Healthcare Provider Letter, Questionnaire and Methemoglobinemia Handout. Dean noted that the information did not reach all the targeted healthcare providers. In his and Jean's opinion, this particular outreach method failed.

8. New Mother Brochure. In Dean's absence, this outreach tool has not moved forward.

ACTION: place on the October agenda. Dean has offered to coordinate the distribution of the final product to ensure the appropriate audiences receive the materials.

9. High Risk Well Assessment Survey (Survey #1) [placeholder-no update]

Resources Requested – N./A

Recommendations for GWAC - Review and approve draft talking points

Deliverables/Products Status

See status report actions 1-9, above.

Proposed Next Steps

1. Review GWMA budget allocations. Send recommendations (specific allocation changes), to Lisa /or Vern Redifer by Wednesday, September 11.

2. Review EPO Budget. Send budget-specific requests (line item allocations) to Lisa by Thursday, September 12.

3. Complete the Heritage student evaluation form and bring back to the EPO for review and approval. (Jean Mendoza, Dean Effler and Nieves Negrete)

4. Conduct follow-up phone calls to ask survey participants for their feedback on the survey and the surveyors (Jean Mendoza and Nieves Negrete)

5. Enter Public Questionnaire results into database and report back on same. (Yakima County/Lisa Freund)

6. Develop master slide show of GWMA talking points. (Gretchen Stewart, Dean Effler)

Next meeting Wednesday, October 2, at 1:30 PM, Yakima County Courthouse Room 419 (phone: 509-574-2353 [PIN 2353#])

Conference Call Working Group Chairmen Meeting
Groundwater Management Area Advisory Committee

Charge from Groundwater Management Area Advisory Committee

Attendees

Charlie McKinney – Department of Ecology (Livestock/CAFO)
Kirk Cook – Department of Agriculture (Data)
Jim Trull – Sunnyside Irrigation District (Irrigated Ag)

Meetings/Calls Dates

Meeting: Monday, August 26, 2013
Location: By Conference Call

Key Discussion Points

- Work Group Charge
- Deep soil sampling (DSS)
- Need for on-going "Chairman" meetings

The meeting was called to discuss recent developing confusion regarding the specific charge of the Livestock/CAFO, Irrigated Agriculture, and Data and Monitoring workgroups. This confusion has been sparked by discussions revolving actions related to deep soil sampling.

Work Group Charge

The respective chairmen of the workgroups agree that:
1) The Livestock/CAFO workgroup will focus on activities within the immediate boundaries of the animal operations. This includes feedlot areas, milking parlors, storage lagoons, manure land storage and all other areas necessary to carry out the business related to that specific animal operation, with the exception of those areas where nutrient/manure is applied for the purpose of growing a crop or pasture.

2) The Irrigated Agriculture workgroup will focus on activities where land is utilized for the purpose of raising a crop whether that crop is grown for commercial purposes, cover crop, or pasture.

3) The Data and Monitoring workgroup does not have specific charge over any land based agricultural activity, rather this workgroup will provide technical guidance and coordination to the workgroups so

that any environmental investigation of data collection is done so in a coordinated manner between workgroups and adds to the base of knowledge for the GWMA as a whole.

Deep Soil Sampling (DSS)

The Chairmen agree that there is merit to proceeding with an initial round of deep soil sampling. This sampling should be conducted in areas that lay within the charge of the Livestock/CAFO and Irrigated Agriculture workgroup. An initial number of samplings (20) have been proposed by Pacific Groundwater Group. This should be considered an estimate and subject to modification.
Initial deep soil sampling should be conducted as a pilot study for the purposes of:

1) Providing baseline data regarding the nitrogen content of soils underlying major agricultural activities that have significant potential to pollute underlying groundwater (identify general characteristics of agricultural activities with the basin that have the highest potential to pollute)

2) Provide an initial (stress initial) assessment of the adequacy of best management practices currently in place (for areas that have implemented best management practices, deep soil sampling will allow for an assessment of the performance of those practices over the last several years)

3) Provide information regarding current availability and levels of soil nitrogen to crops that should be considered in future nutrient application (information will inform growers as to the level of nutrient application needed for viability of crops while minimizing leaching of nitrogen below the root zone)

4) Provide the foundation for a technically based education program that will be directed to growers, livestock farmers, and the general public who's actions may contribute to nitrogen loading in the soil column that moves below the root zone

5) Provide baseline data on which to develop a technically based nitrogen loading budget for the Lower Yakima Valley Groundwater Management Area, that may ultimately be used to determine acceptable levels of nutrient application for all sectors necessary to meet the goals of the Lower Yakima Valley Groundwater Management Area

6) A pilot project may provide unanticipated information about project design, practical realities, time requirements and costs that can be used in developing the remaining full project scope.

On the issue of deep soil sampling, the Workgroup Chairmen would like to make it clear, that deep soil sampling conducted as part of a pilot project 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 LYVGWMA Executive Committee.

The need for future deep and shallow soil sampling will need to be re-evaluated at several points during the technical study.

Ongoing Chairman Discussions

The Chairmen of the three workgroups agree that a regular conference call or face-to face meeting to discuss on-going issues related to coordination or joint recommendations has merit and should commence on a scheduled basis.

Resources Requested

Recommendations for GWAC

Deliverables/Products Status

Proposed Next Steps

The Chairmen of the three workgroups agree that a regular conference call or face-to face meeting to discuss on-going issues related to coordination or joint recommendations has merit and should commence on a scheduled basis.

Joint Data, Livestock/CAFO, Irrigated Ag Work Group Chairs Conference Call

Charge from Groundwater Management Area Advisory Committee (GWAC)

Working Group Members

Meetings/Calls Dates

Meeting: Conference call, Thursday, September 5, 2013
Location: KDNA Granger

Participants

Jim Trull (Chair, Irrigated Ag), Kirk Cook (Chair, Data) and Charlie McKinney (Chair, Livestock/CAFO)

Key Discussion Points

1. Conference calls between Work Group chairs were discussed. There will be a monthly coordination call between Chairs of the Livestock/CAFO, Irrigated Ag and Data Work Groups.
2. Roles/jurisdictions for the Work Groups, especially in relation to the Deep Soil Sampling proposal were discussed. It was agreed that the Irrigated Ag Workgroup would take the lead on investigations of all crops and fields regardless of whether they were under the control of a dairy or CAFO or not, and regardless of the nutrient source used. The CAFO/Livestock Work Groups would take responsibility for investigations of pens, stockpile areas, lagoons, etc.; those areas directly related to the dairy or CAFO operation.
3. Some further discussion of the Deep Soil Sampling proposal.
    a. We need to see that sampling of pens, stockpile areas, etc. is included in the proposal.
    b. Also the importance of obtaining a solid legal basis for maintaining confidentiality of those participating in the study was emphasized.
4. The Goals and Objectives from the GWAC Work Plan were reviewed. A few minor changes were suggested.
5. Budget for the Work Group – it will be much easier to project needs for the future once we get a firm cost estimate on the Deep Soil Sampling project.

Resources Requested

Recommendations for GWAC

Deliverables/Products Status

Proposed Next Steps

- Monthly coordination calls between all work group chairs

Attachment B

- Final Technical Memo #1
- Consolidated Comments to HDR's Draft Technical Memorandum No. 1 – Nitrate Regulatory Review
- Technical Memorandum #1 - Regulatory Review Comment Issues and Responses August 2013

Technical Memorandum #1

HDR

To:	**Don Gatchalian (Yakima County)**
From:	**Mike Murray (HDR)**
	David Kuhns (HDR)
	Jay Decker (HDR)
Date:	**August 27, 2013**
Subject:	**Scope 1, Task 2 - Regulatory Review**

Purpose

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

The purpose of the Regulatory Review is to identify local, state, and federal regulations, policy, and guidance on control and management of nitrates for groundwater protection. The review is summarized below in this technical memorandum (Technical Memorandum #1).

The baseline document for the review is the Washington State Department of Ecology (Ecology) report "Lower Yakima Valley Groundwater Quality: Preliminary Assessment and Recommendations Document," (Ecology 2010). The report summarizes information regarding nitrates and bacteria pollution in groundwater in the Lower Yakima Valley. A brief overview of existing regulatory framework is given in Table 3 of the report. This table provided a starting point for HDR's regulatory review.

Background

Elevated concentrations of nitrate have been quantified in groundwater in the Lower Yakima Valley. The nitrate concentration levels in groundwater indicate impacts by human activity and levels in some areas of the Valley are a concern to human health. In response to these elevated concentration levels and concerns raised by citizens, regulatory agencies, and others, Yakima County submitted a request to Ecology to designate the Lower Yakima Valley as a groundwater management area (GWMA) under state code pertaining to Groundwater Management Areas and Programs (WAC 173-100). In November 2011, Ecology authorized and provided startup funds for Yakima County to develop a groundwater management program. In April 2012, the GWAC was appointed to oversee management activities with the goal of reducing nitrate concentrations in groundwater to below the Washington State drinking water standards. The GWAC includes a diverse set of individuals representing local, state, and federal agencies, private citizen groups, and local industry.

The area comprising the Lower Yakima Valley GWMA is shown in the figure on page 3. The area spans from Union Gap to Grandview and includes the cities of Sunnyside, Zillah, Granger, Grandview, and Mabton, as well as the small communities of Outlook, Buena, and Crewport.

Regulatory Review

HDR has initiated the identification and gathering of data pertaining to federal, state, and local agency regulatory requirements regarding nitrates in the GWMA. The review includes requirements for 'nitrogen management' not just regulations that specifically address nitrates. This Technical Memorandum is presented to the GWAC with the intent that the committee will provide additional input on regulatory, policy, and guidance from the array of federal, state, and local agencies that have authority on overall nitrogen management in the Valley.

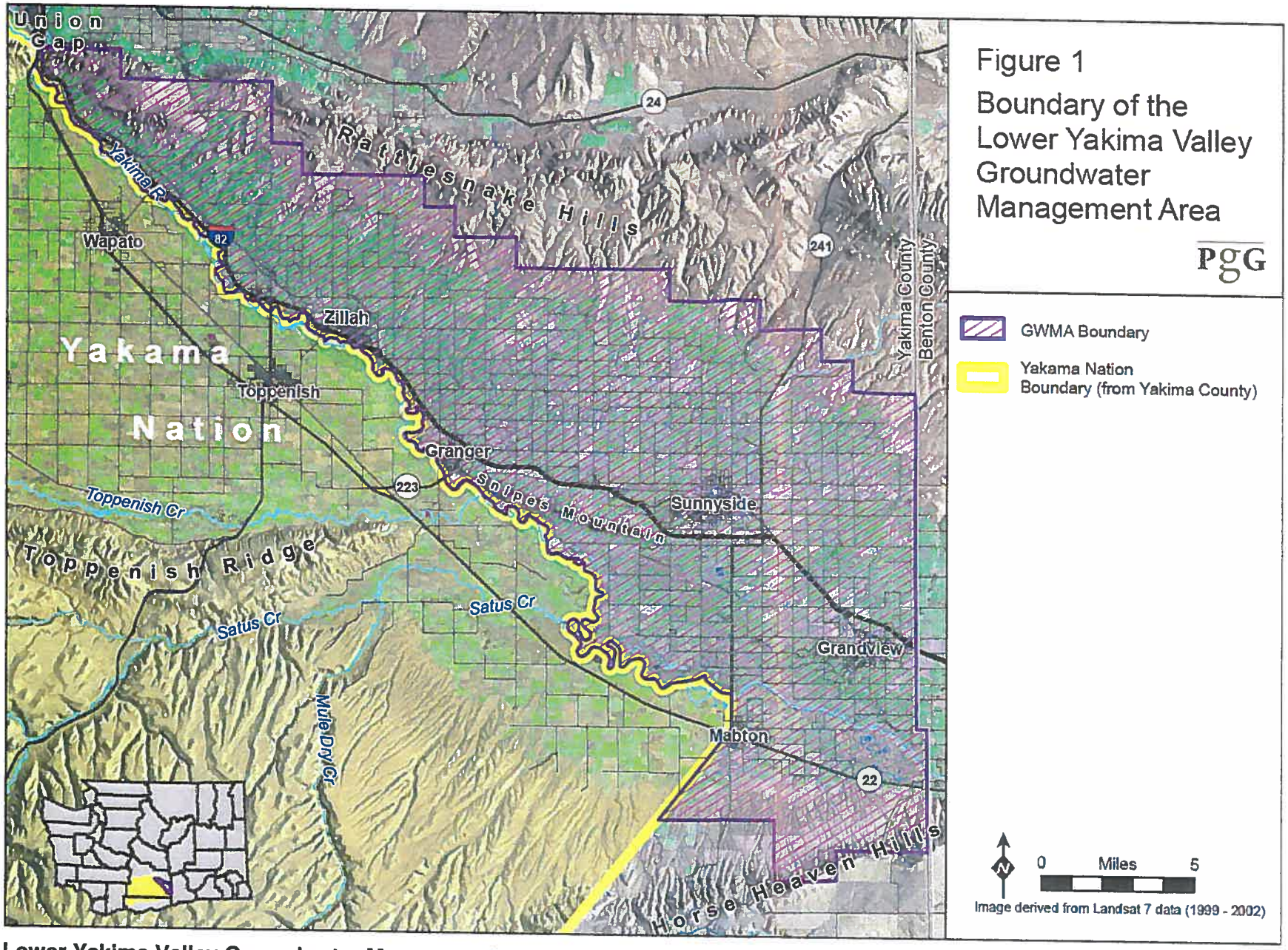
A summary of the review is provided in a table on the following pages. The table is broken into regulations that have local, state, or federal involvement, and is organized by listing the potential source of nitrogen, the regulating agency, a brief description of the regulatory requirement, and the applicable responsibilities of the regulating agency.

Several institutions located outside of the GWMA boundaries are presented in the table along with their applicable regulatory requirements. These institutions, including the City of Toppenish, although located outside of the GWMA, are located within the Lower Yakima Valley and may have a potential connection with the groundwater within the GWMA.

References

Ecology. 2010. Lower Yakima Valley Groundwater Quality, Preliminary Assessment and Recommendations Document. Publication No. 10-10-009. Washington State Department of Agriculture, Washington State Department of Ecology, Washington State Department of Health, Yakima County Public Works Department, and US Environmental Protection Agency. February 2010.

WAC 173-100, Washington State Department of Ecology, "Groundwater Management Areas and Programs," Olympia, Washington.



Lower Yakima Valley Groundwater Management Area Boundary

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Regulatory Framework and Authority

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
Local Agencies				
Private sewage disposal, unlawful wastes disposal	City of Sunnyside	SMC 13.12 - Sewers	Chapter 13.12 primarily addresses discharges and management of municipal and industrial wastewater associated with the publically owned treatment works (POTW). It includes requirements for connection to the POTW. Where a public sewer line is not available, under the provisions of Sunnyside Municipal Code (SMC) 13.12.180 a private sewer and sewage disposal system shall be constructed, in accordance with the specifications and applicable provisions of the Yakima Health District requirements. The type, capacities, location and layout of a private sewage system shall comply with all recommendations and regulations of the Washington State Department of Health and the Uniform Plumbing Code.	• City may issue cease and desist orders on violations • City may issue fines for violations
Illicit stormwater discharges and connections	City of Sunnyside	SMC 13.30A – Stormwater Illicit Discharge	This chapter applies to all water or pollutants entering the municipal separate storm sewer system (MS4) and public Underground Injection Control (UIC) wells generated on any developed and undeveloped lands unless explicitly exempted by the City of Sunnyside Public Works Department. The code provides the City of Sunnyside authority to regulate illicit discharge of pollutants and illicit connections to the stormwater system.	• City may issue cease and desist orders on violations • City may issue fines for violations
Private water wells (not a direct nitrogen source but could provide migration pathway if well not constructed properly and also well restrictions would prevent ingestion of nitrate impacted groundwater)	City of Grandview	GMC 8.32 - Wells	No person shall hereafter drill or install, or cause to be drilled, a private water well within the city.	• City may issue cease and desist orders on violations • City may issue fines for violations may issue fines for violations
Septic tanks, private sewage disposal	City of Grandview	GMC 13.20 –Private Sewage Disposal Systems	Chapter covers the permitting and inspection of private sewage disposal systems (septic tanks). The chapter requires all disposal systems to comply with the county health standards. If a public sewer becomes available, the chapter requires abandonment of private sewage disposal system and connection to public sewer.	• City inspects and issues permits under the direction of the public works director • City may issue fines for violations
Miscellaneous development and use within Critical Aquifer Recharge Areas	City of Grandview	GMC 18.06 – Critical Areas GMC 18.40 – Enforcement and Penalties GMC 18.90 – Critical Aquifer Recharge Areas	Grandview Municipal Code (GMC) 18.06 describes Critical Areas and includes designation and mapping of critical aquifer recharge areas (CARAs) and general requirements if a project is located within a CARA. Developments must be designed and constructed in accordance with surface/stormwater management requirements of the Eastern Washington Stormwater Management Manual as published by Ecology. GMC 18.40 covers enforcement of Chapter 18 of the GMC. GMC 18.90 covers CARAs and states the City's protection of CARAs shall be accomplished through normal project permit review under various city codes, especially the stream protection standards in Chapter 18.60 GMC, Fish and Wildlife Habitat and the Stream Corridor System, including GMC 18.60.100, Prohibited uses; the shoreline use table in GMC 18.100.050; and GMC Title 15, Buildings and Construction, which provides detailed construction, use, and fire/life-safety standards for the storage and handling of dangerous and hazardous substances to a greater extent than most existing state and federal laws.	• City maintains and updates mapping of CARAs • Update/maintain comprehensive plan • City controls development in CARAs through permitting and inspection • City inspects surface/ stormwater management for compliance with the Eastern Washington Stormwater Management Manual • City may issue cease and desist orders on violations • City may issue fines for violations
Animal and human waste, garbage, miscellaneous waste	City of Toppenish	TMC 13.28 – Public Sewers TMC 13.48 – Powers and Authority	It is unlawful for any person to place, deposit, or permit to be deposited in any unsanitary manner on public or private property within the city, any human or animal excrement, garbage, or other objectionable waste.	• City may issue cease and desist orders on violations • City may issue fines for violations
Septic tanks, private sewage disposal	City of Toppenish	TMC 13.30 – Private Sewer Disposal TMC 13.48 – Powers and Authority	TMC 13.30 states that where connection to public sewers is required, but public sewers are more than 400 feet away from a property line, property owner may request a "special private sewage disposal use permit" from the city council. Application for the permit shall be accompanied by proof of compliance of all county health district rules and regulations and approval of State Department of Ecology. The city may require the installation of a public sewer for future use as a condition of issuance of a special private sewage disposal use permit. TMC 13.48 covers enforcement of Chapter 13.	• City inspects and issues permits under the direction of the public works director • City may issue cease and desist orders on violations • City may issue fines for violations

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
Sewer systems, septic tanks, On-site Sewer Systems (OSS)	Yakima County and Yakima Health District	YCC 6.04 YCC 12.05 WAC 246-272A RCW 43.20.050	Yakima County Code (YCC) 12.05 covers sewer systems. It is unlawful to discharge to any natural outlet within the county, or in any area under the jurisdiction of the county, any sewage or other polluted waters, except where suitable treatment has been provided in accordance with county codes. The type, capacities, location and layout of a private sewage disposal system shall comply with all recommendations of the State Department of Health. Washington Administrative Code (WAC) 246-272A is a state code (statutory authority given by Revised Code of Washington (RCW) 43.20.050) with the purpose of protecting the public health by minimizing: (a) The potential for public exposure to sewage from on-site sewage systems (OSS); and (b) Adverse effects to public health that discharges from on-site sewage systems may have on ground and surface waters. OSS are systems handling less than 3,500 gal/day. The chapter includes general requirements, design requirements, required permitting, and enforcement of OSSs. Enforcement is to be carried out by the local health officer which for Yakima County falls under the jurisdiction of the County Health District given authority by RCW 70.05 YCC 6.04 establishes the County Health District which has local authority for the enforcement of OSSs.	• Yakima Health District performs inspection and permitting of on-site sewer systems (<3,500 gal/day) • County may issue cease and desist orders on violations • County may issue fines for violations
Stormwater	Yakima County	YCC 12.10	YCC 12.10 creates a stormwater authority for Yakima County. The purpose of this chapter is to provide for the health, safety, and welfare for Yakima County through the regulation of discharges to county stormwater control facilities and UIC wells consistent with local, federal, and state law. Chapter includes stormwater requirements, stormwater design criteria, prohibition of illicit discharges, violations and enforcement, and civil infractions. Chapter states no person shall discharge or cause to be discharged into county stormwater facilities or a public UIC any materials, including but not limited to pollutants or waters containing any pollutants other than stormwater. (See Yakima County guidance documents listed below relating to stormwater management)	• Maintain county stormwater standards • County may issue cease and desist orders on violations • County may issue fines for violations
Concentrated feeding operations outside of urban growth area zoning	Yakima County	YCC 15.18 YCC 15.12	YCC 15.18 covers permitted land uses within Yakima County. Concentrated animal feeding operations (CAFOs) are permitted in agricultural, remote, and industrial zones as a Type II land use; and are permitted in valley rural zones as a Type III land use. In other zones, CAFOs are not permitted. As a Type II or Type III land use, special conditions may be given for approval as described in YCC 15.12. The application process also includes public notice and a public hearing.	• County maintains zoning and land use maps • Update/maintain comprehensive plan • When a CAFO is requesting a permit, County sends out public notice, holds a public hearing, and conductions a land use review.
Concentrated feeding operations within urban growth area zoning	Yakima County	YCC 15A.04 YCC 15A.15	YCC 15A.04 covers permitted land uses within Yakima County's urban growth area. Concentrated animal feeding operations (CAFOs) are permitted only in suburban residential as a Class (3) land use. As a Class (3) land use, a Type 3 review public hearing is required by the county Hearing Examiner. YCC 15A.15 covers Type (3) reviews. The Type (3) review includes a staff report prepared by the county planning division	• County maintains zoning and land use maps • Update/maintain comprehensive plan • When a concentrated feeding operation is requesting a permit, county sends out public notice, holds a public hearing, and conductions a land use review.
Miscellaneous development and use within Critical Aquifer Recharge Areas	Yakima County	YCC 16C.09 YCC 16C.04	Any development within a CARA is reviewed by Yakima County. Applications for any development activity or division of land which requires review by Yakima County and which is located within a mapped CARA or Wellhead Protection Area shall be reviewed by the Administrative Official to determine whether hazardous materials will be used, stored, transported, or disposed of in connection with the proposed activity. Activities may only be permitted in a CARA if the applicant can show that the proposed activity will not cause contaminants to enter the aquifer and that the proposed activity will not adversely affect the recharging of the aquifer.	• County maintains and updates mapping of CARAs • Update/maintain comprehensive plan • County controls development in CARAs through permitting and inspection • County may issue cease and desist orders on violations • County may issue fines for violations
Fertilizer	Yakima County	YCC 16C.09.06	YCC 16C.09 covers CARAs. YCC 16C.09.06 states that application of household pesticides, herbicides, and fertilizers shall not exceed times and rates specified on the packaging for the residential use of pesticides and nutrients.	• County may issue cease and desist orders on violations • County may issue fines for violations

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
AFOs, CAFOs, agriculture	South Yakima Conservation District	RCW 90.64 RCW 89.08 WAC 16-611	The South Yakima Conservation District is the local conservation district for the Lower Yakima Valley. Conservation districts are created under RCW 89.08. The district serves as a source of management practice technical assistance and can be used as a liaison between the Washington State Department of Agriculture and Ecology and the farmer/ landowner. The management practice technical assistance including helping to evaluate site specific conditions that may threaten resources such as soil, water, air, plants, animals, and public health. This may also include assistance is selecting appropriate BMPs or a suite of BMPs to protect resources and provide a cost share when available. The conservation districts have no regulatory function and serve only in an educational role. RCW 90.64 is known as the Dairy Nutrient Management Act and has sections describing the participation of local conservation districts regarding dairies. WAC 16-611 gives the framework to provide a fair and uniform determination of civil penalties issued for violations of RCW 90.64.	• May accompany WSDA inspectors on any scheduled inspection • Provide management practice technical assistance to WSDA or Ecology in identifying and correcting existing water quality problems resulting from dairy farms • Provide management practice technical assistance to dairy producers in developing and implementing a dairy nutrient management plan • Provides management practice technical assistance to farmers
Miscellaneous development and use in aquifer recharge area	Cities, Yakima County, local agencies, the public. This has formed into the Lower Yakima Valley GWMA and GWAC.	WAC 173-100	WAC 173-100 allows for the creation of Groundwater Management Areas and Programs under the authority pursuant to RCW 90.44.400, 90.44.410, 90.44.420, 90.44.430 and 90.44.440. Ecology would, in cooperation with local government, designate specific groundwater management areas and appoint a lead agency to develop a groundwater management program and an advisory committee to oversee the development of the program for each designated area. The program will then be implemented through state regulations and local ordinances. The program would identify sources of degradation to the area's groundwater and alleviate those problems. The advisory committee represents a broad spectrum of the public.	• Development of advisory committee • Development and implementation of groundwater management program • Enforcement through existing regulation and possibly local ordinances.
Miscellaneous development and use in aquifer recharge area	Yakima County	RCW 36.36	RCW 36.36 gives the county legislative authority of a county the ability to create aquifer protection areas for the purpose of funding the protection, preservation, and rehabilitation of subterranean water. When creating an aquifer protection area, a public hearing is held by the county. After the public hearing, a public ballot of those within the area is conducted and if passed by a simple majority, a protection area can be created. Fees can be collected from those within the area for use in activities to protect and preserve groundwater quality.	• Hold public hearing and issue ballots for creation of aquifer protection areas • Collect fees in protection areas for conducting aquifer protection programs • Issue liens for delinquent fees
Miscellaneous development and use in aquifer recharge area	Yakima County	Educational Program	Yakima County has a Nitrate Treatment Pilot Program with the goal of providing water treatment systems, education, and management practice technical assistance to households with individuals at high public health risk from nitrate contaminated wells. The program was established using money provided by the state legislature in 2010 and was administered by Department of Health (DOH), and the Yakima Health District.	• Continue to implement Nitrate Treatment Pilot Program
Miscellaneous development and use in aquifer recharge area producing surface runoff	Yakima County	Guidance Document	Yakima County publishes the "Yakima County Regional Stormwater Manual." Yakima County and the Cities of Yakima, Union Gap, and Sunnyside entered into an Interlocal Governmental Agreement (ILA) for coverage under the Eastern Washington Phase II Municipal Stormwater Permit. Under the ILA, the county and cities developed the stormwater manual to have consistent approach to stormwater management between the entities. The manual provides guidelines, procedures and local information for the planning, design and maintenance of stormwater facilities throughout the county. The manual is equivalent to Ecology's Stormwater Management Manual for Eastern Washington but has been specifically tailored for use within Yakima County.	• Updating of the manual as required
Miscellaneous development and use in aquifer recharge area producing surface runoff	Yakima County	Guidance Document	Yakima County publishes the "Yakima Regional Low Impact Development Stormwater Design Manual." The manual provides design guidance that is specific to the Yakima regions semi-arid climate. The manual includes technical guidance for LID BMPs including: bioretention, soil amendments, pervious pavement, vegetated roofs, rainwater harvesting, and minimal excavation foundations.	• Updating of the manual as required

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
			State Agencies	
Dairy operations on non-tribal lands	WSDA	RCW 90.64 RCW 90.48 WAC 16-611	RCW 90.64, the Dairy Nutrient Management Act, requires all licensed grade "A" dairies to develop and implement nutrient management plans, register with the WSDA, and participate in a program of regular inspections and compliance. WSDA is responsible for implementing RCW 90.64 and is required to follow RCW 43.05 (provide regulatory technical assistance when water quality is impacted or threatened) and may refer dairy operations to local conservation districts for additional technical assistance to implement BMPs that will protect water quality. WSDA is responsible for inspections and compliance actions for all dairies. All dairy farms must: ▪ Maintain records for 5 years to demonstrate that applications of nutrients to crop land are within acceptable agronomic rates. ▪ In accordance with RCW 90.64.010 (17)(c) and 90.64.102, failure to maintain all records necessary to show that applications of nutrient to the land were within acceptable agronomic rates may be subject to a civil penalty. WAC 16-611 gives the framework to provide a fair and uniform determination of civil penalties issued for violations of RCW 90.64.	• Conduct inspections of licensed dairies every 22 months • Responsible for inspections and compliance actions for all dairies
Fertilizers	WSDA	RCW 15.54 WAC 16-200	RCW 15.54, known as the Commercial Fertilizer Act, covers fertilizers, minerals, and limes. The chapter requires the creation of a fertilizer database of commercially available fertilizers in the state and requires a sampling and testing program of commercial fertilizers. Fertilizers are required to meet the nutrient value guaranteed by the fertilizer. Penalties for not meeting the guarantee can be applied to the fertilizer seller. Further details on requirements for commercial fertilizer producers is provided in WAC 16-200 including labeling, claims by fertilizer, and penalties.	• Maintain a fertilizer database • Sample and test commercial fertilizers distributed with the state • Enforcement of chapter and issuance of penalties.
Fertilizer	WSDA	WAC 16-201	WAC 16-201 covers the bulk storage and operational area containment rules for fertilizer. The chapter gives facilities requirements for storing fertilizer and the adoption of a spill response plan, Civil penalties can be issued for violating storage requirements.	• Conduct inspections for compliance as necessary • Issue permits waiving requirements when needed • Issue civil penalties for infractions
Chemigation and fertigation	WSDA	WAC 16-202	WAC 16-202 givens general provisions, general requirements, and safety requirements for chemigation and fertigation for agriculture. Any person who fails to follow the requirements of the chapter is subject to denial of permits and /or a civil penalty.	• Issue civil penalties for infractions

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
CAFOs on non-tribal lands	Ecology and WSDA (inspections)	RCW 90.48.130 RCW 90.64 WAC 173-220	RCW 90.48 is the Water Pollution Control Act. The chapter gives Ecology the jurisdiction to control and prevent the pollution of streams, lakes, rivers, ponds, inland waters, salt waters, water courses, and other surface and underground waters of the state of Washington and the ability to take enforcement actions. The chapter includes the issuance of waste disposal permits to entities discharging waste into waters of the state. Any discharge without a permit is prohibited. A state waste disposal permit is required for industrial, commercial, and municipal discharges of pollutants into surface and groundwaters and discharges of pollutants into the ground or a public sewage system. Pursuant to authority granted by the federal Clean Water Act, the discharge of pollutants from point sources to surface waters of the state requires a National Pollutant Discharge Elimination System (NPDES) permit from the Department. WAC 173-220 covers the implementation of the state's NPDES permit program including the application process, public notices, public hearings, and enforcement. Any designated CAFO or medium Animal Feeding Operation (AFO) that has a confirmed discharge to state waters must get a permit. A site specific nutrient management plan must be developed and implemented by the permittee. Ecology is responsible for issuing NPDES CAFO permits. There is a Memorandum of Agreement between Ecology and WSDA, where WSDA performs inspections, review of nutrient management plans, and provides regulatory technical assistance. When providing regulatory technical assistance, the agency notifies land user of the activities under their control that must be corrected to meet water quality standards or to protect water quality. Currently, Ecology covers 6 CAFOs (5 of which are dairies) under the NPDES General CAFO permit. The last 5-year permit cycle has expired and Ecology is currently unable to issue new General Permits. A new permit is being drafted by Ecology but has not yet been officially completed.	• Issue CAFO permits and determine when a AFO requires a CAFO permit • Review nutrient management plans submitted as part of an application for CAFO coverage and final approval of plans (WSDA) Other responsibilities: • Development, issuance, cancellation and revocation of both federal NPDES permits and state waste discharge permits to all facilities and entities • Develop fact sheets for NPDES permits
Food processor's land application of waste, municipal wastewater discharge to land, dairies with state waste discharge permits, other entities with state waste discharge permits	Ecology	WAC 173-216 – State Waste Discharge Permit	WAC 173-216 covers the State Waste Discharge Permit Program which was created to satisfy the requirements of RCW 90.78, the Water Pollution Control Act. The permit program does not cover point source discharges into navigable waters of the state which is covered by the NPDES Permit Program (WAC 173-220), or discharges covered under the general permit program (WAC 173-226). Any entity who proposes to discharge waste materials into waters of the state must file an application with Ecology.	• Implementation of a state waste discharge permit program, applicable to the discharge of waste materials from industrial, commercial, and municipal operations into ground and surface waters of the state • Review and approval of permits • Public hearings if applicable
Large On-site Sewage Systems (LOSS)	DOH	WAC 246-272B	WAC 246-272B covers large on-site sewage systems (LOSS) and implements RCW 70.118B. The Chapter covers the approval and permitting process, site and environmental requirements, engineering requirements, design and technical standards, LOSS operations requirements, and enforcement. LOSS are on-site sewer systems that handle more than 3,500 gal/day. LOSS may not be installed or operated without a permit issued by DOH. As part of the permitting process for LOSS, DOH requires a site risk survey that includes a nitrate balance. DOH publishes "Level 1 Nitrate Balance Instructions for Large On-site Sewage Systems" (Publication #337-069) to assist in performing the required calculations.	• Review of LOSS applications and permit approval • Enforcement of regulation
	DOH	WAC 246-290-135	WAC 246-290-135 covers source water protection for Group A public water supply systems. The chapter establishes that all systems must maintain a sanitary control area (SCA) around all drinking water sources. For wells, the SCA must have a radius of at least 100 ft from the well. DOH may require a larger SCA given site conditions and may require additional monitoring if a potential risk exists to a water source. The SCA prevents constructing, storing, disposing, or applying any source of potential contamination within the area. The chapter also requires water systems to develop a wellhead protection program as part of the system's water system plan. This includes delineating wellhead protection areas and creating a database of known or potential sources of pollution within the wellhead protection area.	• Review SCA and Wellhead Protection Programs • Enforcement of regulation

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
Domestic and industrial wastewater facilities	Ecology	WAC 173-240 WAC 173-221 WAC 173-221A	WAC 173-240 covers the submission of plans and reports for the construction of wastewater facilities which are classified as handling more than 100,000 gal/day. Unlike LOSS which are regulated by DOH (with local jurisdiction given to the County Health Department), wastewater facilities are regulated by Ecology. The chapter, which implements RCW 90.48.110, includes requirements for domestic wastewater facilities and industrial wastewater facilities. This includes requirements for design, reports, plans and specs, and operation and maintenance manuals. WAC 173-221 covers discharge standards and effluent limitations for domestic wastewater facilities while WAC 173-221A covers discharge standards and effluent limitations for industrial wastewater facilities.	• Review and approval of wastewater facility construction documents • Enforcement of discharge and effluent limitations for wastewater facilities
Underground injection control (UIC) wells	Ecology	WAC 173-218	WAC 173-218 is the state regulation for the state's UIC Program. Ecology was delegated authority by the EPA to administer a UIC program per 40 CFR 144 and by statutory authority by RCW 43-21A.445. The program requires that a non-endangerment performance standard must be met, prohibiting injection that allows the movement of fluids containing any contaminant into groundwater. In Washington, all ground water is considered a potential source of drinking water. Any UIC well owner must also provide inventory information to register their well with Ecology. The chapter covers UIC well classifications, operating requirements, permit terms for wells that are not rule authorized, UIC well decommissioning, and enforcement.	• Management of a UIC program • Maintaining UIC inventory • Reviewing and issuing of permits for wells not rule authorized • Enforcement of regulation
Miscellaneous development and use in aquifer recharge area	Ecology	WAC 173-200 RCW 90.48	WAC 173-200 covers the water quality standards for groundwaters within the state and is an implementation of authority granted in RCW 90.48. The chapter introduces the state's antidegradation policy. The policy prevents the degradation of groundwater that interferes with existing and future beneficial use. Degradation is not allowed of high quality groundwaters constituting an outstanding national or state resource, such as waters of national and state parks and wildlife refuges, and waters of exceptional recreational or ecological significance. The chapter states that when the quality of groundwater exceeds the assigned criteria for groundwater, then the higher existing groundwater quality is to be protected and any contaminants that reduce that quality cannot be introduced into the groundwater. The only exception to where degradation is allowed is if an overriding consideration of public interest will be served and all contaminants for entry into the groundwater is provided with all known, available, and reasonable methods of prevention, control, and treatment (AKART) prior to entry. The chapter provides a table of groundwater quality criteria that establishes a maximum contaminant concentration for the protection of a variety of beneficial uses of Washington's groundwater. For nitrate (as N) that criteria is 10 mg/L. The chapter presents procedures for establishing enforcement limits and point of compliance locations for when a permit is issued for an activity effecting groundwater quality. Ecology has the ability of creating special protection areas for areas that require special consideration or increased protection.	• Establishing enforcement limit, point of compliance, and early warning concentration value for permits • Review of AKART used in permits • Establishment of special protection areas • Implementation and enforcement of groundwater quality rules
Wells	Ecology	WAC 173-160	WAC 173-160 covers minimum standards for the construction and maintenance of wells under statutory authority of RCW 18.104. The chapter includes standards for the construction and decommission of wells. Any violations of the sections in the chapter may be enforced by issuance of regulatory orders under RCW 43.27A.190, civil penalties under RCW 90.03.600 and 18.104.155, and criminal penalties under RCW 18.104.160.	• Update design requirements as required • Review variance applications to chapter • Issuance of well drilling permits • Review of water well reports • Enforcement of rules in chapter
Land application of solid waste, anaerobic digesters	Ecology	WAC 173-350 RCW 70.95	WAC 173-350 covers standards for the handling of solid waste under statutory authority given under RCW 70.95. The section includes the land application of solid waste (WAC 173-350-230) and anaerobic digesters (WAC 173-350-250). The chapter does not apply to land application of manures and crop residues at agronomic rates, or agricultural composting when all agricultural wastes are generated, processed, and applied on-farm at agronomic rates in accordance with accepted agricultural practices.	• Issue permits for the beneficial use of solid waste • Enforcement of rules in chapter
Miscellaneous development and use adjacent to surface water	Ecology	WAC 173-27 RCW 90.58	WAC 173-27 covers shoreline management permit and enforcement procedures. The chapter is given authority under RCW 90.58 known as the Shoreline Management Act of 1971. The chapter requires local governments to establish a program, consistent with rules adopted by Ecology, for the administration and enforcement of the permit system for shoreline management. The local program should be integrated with other local government systems for administration and enforcement of land use regulations. The chapter requires local governments to only authorize development along shorelines that is consistent with the policy and provisions of the Shoreline Management Act. A person who fails to conform to a permit issued under RCW 90.58 may be imposed a penalty by Ecology filed jointly with the local government or filed alone.	• Enforcement of rules in chapter and issuance of penalties.

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
Solid waste	Ecology	WAC 173-304	WAC 173-304 covers the minimum functional standards for solid waste handling and is promulgated under the authority of RCW 70.95 to protect public health, to prevent land, air, and water pollution, and conserve the state's natural, economic, and energy resources. The chapter includes: setting minimum functional performance standards for the proper handling of all solid waste materials originating from residences, commercial, agricultural and industrial operations and other sources, identification of those functions necessary to assure effective solid waste handling programs at both the state and local level, describes the responsibility of persons, municipalities, regional agencies, state and local government under existing laws and regulations related to solid waste, and requires use of the best available technology for siting, and all known available and reasonable methods for designing, constructing, operating and closing solid waste handling facilities.	• Enforcement of rules in chapter and issuance of penalties
Biosolids	Ecology	WAC 173-308	WAC 173-308 covers biosolids management and is given authority under RCW 70.95. The chapter considers biosolids as sewage sludge or septage that has been or is being treated to meet standards so that it can be applied to the land. The chapter includes requirements for those who prepare, transport, or apply solid waste. The law requires biosolids monitoring and sampling which includes nitrate. The chapter also includes requirements for the storage of biosolids which states that biosolids cannot be stored in a manner that would likely result in contamination of groundwater. The chapter includes requirements for recordkeeping for those preparing or applying biosolids, and the submittal of annual reports by certain facilities. All treatment works treating domestic must apply for a permit for the final use or disposal of biosolids.	• Review of annual reports • Issuance of permits • Collection of permit fees
Miscellaneous development and use in aquifer recharge area producing surface runoff	Ecology	Guidance Document	Ecology publishes the "Stormwater Management Manual for Eastern Washington" (Publication 04-10-076). The objective of the manual is to provide guidance in stormwater design and management for eastern Washington by providing methodologies and technical guidance. The manual identifies eight Core Elements for managing stormwater runoff from new development and redevelopment projects of all sizes. Many counties and municipalities in eastern Washington require the manual to be followed for development	• Updating of the manual as required
Miscellaneous development and use in aquifer recharge area producing surface runoff	Ecology	Guidance Document	Ecology publishes the "Eastern Washington Low Impact Development Guidance Manual". The manual is currently still in the draft phase and not yet been released in its final form. The manual covers low impact development methodologies for handling stormwater in developments.	• Completion of manual • Promote awareness of new guidance manual • Updating of manual as required
Miscellaneous development and use in aquifer recharge area	Ecology	Guidance Document	Ecology publishes "Implementation Guidance for the Ground Water Quality Standards" (Publication 96-02). The guidance is a document that explains and interprets WAC 173-200 which covers Ground Water Quality Standards.	• Updating of guidance as required
Nutrient application from municipal and industrial wastewater sources.	Ecology	Guidance Document	Ecology publishes "Guidance on Land Treatment of Nutrients in Wastewater, with Emphasis on Nitrogen" (Publication 04-10-081). The guidance provides a brief guidance on land treatment of nutrients in wastewater, with emphasis on nitrogen in relation to Ecology's Water Quality Program. This guidance is used to support state waste discharge permits under WAC 173-216.	• Updating of guidance as required
Miscellaneous development and use in critical aquifer recharge areas	Ecology	Guidance Document	Ecology publishes "Critical Aquifer Recharge Areas: Guidance Document" (Publication 05-10-28). The document provides guidance for local jurisdictions on the laws and rules of the state for water quality, pollution prevention, and water resources in relation to CARA protection. This includes guidance on how local jurisdictions can use planning and ordinances to help protect critical aquifer recharge areas.	• Updating of guidance as required
Nutrient application, agriculture	Ecology	Guidance Document	Ecology publishes "Irrigation Management Practices to Protect Ground Water and Surface Water Quality - State of Washington" (Publication EM4885). The manual presents overall management objectives for irrigated agriculture in Washington. A series of implementation practices is listed for each management objective outlined with the goal of reducing point and non-point pollution sources. A particular focus of the manual is on nutrients including nitrogen.	• Updating of manual as required
Miscellaneous pollutants from surface runoff entering underground injection control (UIC) wells	Ecology	Guidance Document	Ecology publishes "Guidance for UIC Wells that Manage Stormwater" (Publication 05-10-067). The document provides design and pretreatment BMPs for UIC wells handling stormwater and explains the UIC rule, WAC 173-218.	• Updating of guidance as required

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
			Federal Agencies	
Agriculture, AFOs, and CAFOs located on tribal lands	EPA	33 USC §1311	33 USC §1311 gives EPA the authority to issue NPDES permits on tribal land. In areas outside of tribal lands, Ecology has responsibility for issuing and enforcing NPDES permits.	• Issuance and enforcement of NPDES permit
Underground injection control (UIC) wells located on tribal lands	EPA	40 CFR Part 144	UIC program requirements are found in 40 CFR Parts 144, 146, and 147. In tribal areas, EPA is the primary enforcement mechanism of the regulations. Outside of tribal areas, Ecology has been granted primacy for enforcement under the states own UIC program.	• Enforcement of federal UIC regulations
Miscellaneous development and use in aquifer recharge area posing a significant endangerment to human health	EPA	SDWA §1431	Section 1431 of the SDWA gives the EPA emergency powers to take action to protect the public health if substantial endangerment of the underground sources of drinking water is imminent. This could include the issuance of orders and civil actions.	• Use of Section 1431 to issue orders and civil actions
Miscellaneous development and use receiving federal funding within aquifer recharge area	EPA	SDWA §1424(e)	Section 1424(e) of the SDWA authorizes for the designation of an aquifer by the EPA administrator that the aquifer is the sole source for drinking water in the area. The process for designating an aquifer as a sole source can be initiated by the EPA or upon petition by another entity (individual, company, state, municipality, etc.). If an aquifer is designated as a sole source for drinking water, no federal funding may go to projects in the recharge area of aquifer that may cause contamination of the aquifer. The Safe Drinking Water Act Amendments, enacted June 1986, established the Sole Source Aquifer Demonstration Program, which is separate from, but dependent upon, the Sole Source Aquifer program. The Sole Source Aquifer Demonstration Program establishes procedures for developing, implementing and assessing demonstrations designed to protect critical aquifer protection areas (CAPAs). A CAPA is an area that: ▪ Must be located with an area designated as a Sole Source Aquifer by June 19, 1986 and has a Clean Water Act, Section 208, ground water quality protection plan approved prior to that same date; or ▪ Must be located within an area that is designated as a Sole Source Aquifer no later than June 19, 1988, and which satisfies the CAPA criteria EPA must establish by June 19, 1987.	• Initiation or review of petitions for designating aquifer as a sole source for drinking water • Determination of aquifer as sole source for drinking water
Agriculture, dairies, and CAFOs	USDA-Natural Resources Conservation District (NRCS)	Nutrient Management (Code 590)	The NRCS is charged with developing and updating the Nutrient Management (Code 590) conservation practice standard for nutrient planning. The plans are developed on a state by state basis. While not a regulation, the standard is used by EPA and state agencies for nutrient management planning. Furthermore, for farmers receiving federal assistance through the USDA, implementation of a nutrient management plan is required.	• No regulatory authority, but responsible for developing and updating Nutrient Management Code 590, which is adapted by several regulatory agencies.

Technical Memorandum #1 - Regulatory Review
Comment Issues and Responses
August 2013

Issue #	Organization	Commenter	Summarized Issue Text[1]	Category[2]	Response
001	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	The use of manure for its fertilizer value is a sound and beneficial practice – as long as it is applied correctly at agronomic rates (rates at which most nutrients are taken up by the crop or crops, and not left over to be leached into groundwater)… This regulatory review must delve into the actual degree that the current system is achieving agronomic manure application based on accurate nitrogen accounting from year to year.	Not applicable to regulatory review task scope of work.	An analysis to the degree that the current system is achieving agronomic manure application is out of the defined scope for the regulatory review. An analysis of this may be conducted as part of the BMP effectiveness evaluation task.
002	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	Another serious gap in the Dairy Nutrient Management Act is that there is little or no control over manure transfers; that is manure that leaves the control of the dairy producer and is applied to fields not under his control. We don't really have a good idea of the amount of manure that is being applied currently this way or the degree of over-application. This regulatory review must provide actual information on manure transfers and their potential impact.	Not applicable to regulatory review task scope of work.	Performing an analysis of the gaps in the existing regulations is out of the defined scope for the regulatory review. The purpose of the regulatory review was only to identify existing regulations and guidance, not to review their effectiveness. A discussion of this may be conducted as part of the BMP effectiveness evaluation task.
003	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	Still another potential gap in the program relates to construction standards (such as compaction standards) and performance standards (leaching rates, etc.) for liquid manure lagoons… This regulatory review must provide an assessment of manure lagoons, their actual potential for causing nitrate contamination, and the conditions under which they may be do so.	Not applicable to regulatory review task scope of work.	Performing an analysis of the gaps in the existing regulations is out of the defined scope for the regulatory review. The purpose of the regulatory review was only to identify existing regulations and guidance, not to review their effectiveness. A discussion of this may be conducted as part of the BMP effectiveness evaluation task when looking at construction and performance standards of lagoons.
004	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	Ecology is not currently able to issue a General Permit (the last 5-year permit cycle has expired). Ecology has drafted a new permit, attempting to fix many of the deficiencies of the old permit, but it has not been officially completed.	Applicable comment.	Section text edited to reflect this.
005	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	Improperly decommissioned wells can be a conduit for direct contamination of ground water. There are probably unknown or unreported abandoned wells in the lower valley. This regulatory review should try to get an estimate of the extent of the problem, the potential for contributing to nitrate contamination, and the reasons why they may have fallen through the regulatory cracks.	Not applicable to regulatory review task scope of work.	Performing this estimate is out of the defined scope for the regulatory review. An analysis of this may be conducted as part of the BMP effectiveness evaluation task when looking at well BMPs.
006	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	There are almost no direct regulatory requirements for fertilizer application to crops. BMPs have traditionally been implemented through voluntary and educational programs… This regulatory review should ascertain the degree to which fertilizer BMPs are actually being implemented and does the degree of implementation differ from crop to crop.	Not applicable to regulatory review task scope of work.	Performing an analysis of the degree voluntary BMPs are utilized is out of the defined scope for the regulatory review. An analysis of this may be conducted as part of the BMP effectiveness evaluation task when looking at fertilizer BMPs.
007	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	This regulatory review should ascertain the degree to which irrigation BMPs are actually being implemented and does the degree of implementation differ from crop to crop.	Not applicable to regulatory review task scope of work.	Performing an analysis of the degree voluntary BMPs are utilized is out of the defined scope for the regulatory review. An analysis of this may be conducted as part of the BMP effectiveness evaluation task when looking at irrigation BMPs.
008	Yakima County	--	"The area comprising the Lower Yakima Valley GWMA is shown in the figure on the following page. The area spans from Union Gap to Grandview and includes the cities of Sunnyside, Zillah, Granger, and Mabton." Suggestion: Add "Grandview" to the cities, and "small communities of Outlook, Buena and Crewport" and should read as follows: "The area comprising the Lower Yakima Valley GWMA is shown in the figure on the following page. The area spans from Union Gap to Grandview and includes the cities of Grandview, Sunnyside, Zillah, Granger, and Mabton. The area also includes small communities of Outlook, Buena and Crewport."	Applicable comment.	Changes made to text.
009	Yakima County	--	Page 6, under Yakima County, add the following guidance documents: 1. Yakima County Regional Stormwater Manual published in January 2010 2. Yakima Regional Low Impact Development Stormwater Design Manual published in September 2011	Applicable comment.	Guidance documents added to table.
010	Yakima County	--	Page 9, under Department of Health, add WAC 246-290-135, Source Water Protection Plan for Group A water systems and small water systems	Applicable comment.	Added regulation and description to table.
011	Sunnyside Valley Irrigation District	Jim Trull	The area comprising the Lower Yakima Valley GWMA is shown in the figure on the following page. The area spans from Union Gap to Grandview and includes the cities of Sunnyside, Zillah, Granger, and Mabton. Shouldn't Grandview be listed as well? I also wondered about Outlook which probably	Applicable comment.	Grandview and Outlook are now listed as being within the GWMA.

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Issue #	Organization	Commenter	Summarized Issue Text[1]	Category[2]	Response
			doesn't have applicable ordinances but are suspected to contribute to the nitrate issue.		
012	Friends of Toppenish Creek	Jean Mendoza	Can we do a comparison of county ordinances for Yakima County and other agricultural counties in Washington, Oregon and Idaho? Can we look at case law for examples of how these issues have played out in other places, such as California, North Carolina, Missouri, Texas, New Mexico & Wisconsin?	Not applicable to regulatory review task scope of work.	Research of regulations used in other areas of the state or country was not part of the scope of this regulatory review task. Further research into this may be conducted as part of other project tasks.
013	Friends of Toppenish Creek	Jean Mendoza	I have attached a news brief from Spokane that illustrates potential problems in Washington State if proposed solutions do not have clear, measurable and enforceable objectives.	Not applicable to regulatory review task scope of work.	Thank you for your comment. Though the importance of having clear, measurable, and enforceable objectives is not mentioned as part of this regulatory review task, this will be considered in the write-ups of the other tasks.
014	Friends of Toppenish Creek	Jean Mendoza	I have also attached a list of additional local, state and federal laws that might impact the GWMA.	Applicable comment.	The list of additional local, state, and federal laws provided was reviewed and a number of regulations were added to the table. Some of the regulations listed were already included in the review table. Other regulations were not added because (although they may effect groundwater) do not directly deal with the issue of nitrate contamination in groundwater.
015	Friends of Toppenish Creek	Jean Mendoza	[We require] a listing and mapping of all lagoons and ponds in the Lower Yakima Valley along with capacities and documentation of any testing for nitrates. It is my understanding that Yakima County permits lagoons when there is a new project or expansion/modification of an existing AFO/CAFO that triggers land use review under county zoning or environmental review under the State Environmental Policy act (SEPA). Although the South Yakima Conservation District has no enforcement authority, they provide technical expertise for lagoon and pond construction and they should be able to tell us where lagoons are located and describe them.	Not applicable to regulatory review task scope of work.	Mapping of lagoons is out of the defined scope for the regulatory review. An analysis of this may be conducted as part of the BMP effectiveness evaluation task when looking at lagoons to determine how high a priority lagoon and pond BMPs are.
016	Friends of Toppenish Creek	Jean Mendoza	[We require] an analysis of ground to surface water flow with an estimation of the groundwater contribution to nitrates and acidity in the surface water. It will help to describe streams and canals as well as parts of the Yakima River that are at risk due to temperature, pH, contaminants or TMDL. The Department of Ecology should have this data.	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review. This may be looked at for other tasks of the project to determine locations in the GWMA that are a higher priority for utilizing BMPs.
017	Friends of Toppenish Creek	Jean Mendoza	[We require] an analysis and mapping of areas where biosolids are applied to the fields and an estimation of the impact from this source.	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review but may be looked at as part of the BMP effectiveness evaluation task.
018	Friends of Toppenish Creek	Jean Mendoza	[We require] a listing and mapping of fields that are devoted to composting operations along with documentation of appropriate soil and water testing.	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review but may be looked at as part of the BMP effectiveness evaluation task.
019	Friends of Toppenish Creek	Jean Mendoza	Within Best Management Practices we need a way to estimate and describe the diversion of nitrates to air and surface water that may result from efforts to improve ground water.	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review but will be looked at as part of the BMP effectiveness evaluation task when looking at the effects of BMPs.
020	Friends of Toppenish Creek	Jean Mendoza	Please attempt to retest the wells that were studied in 1990 in the Washington State Agricultural Chemicals Pilot Study (Erickson & Norton) and 1992 in the Groundwater Quality Assessment – Hornby Lagoon (Erickson).	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review but may be looked at during a later task of the project, such as during the monitory plan implementation task.
021	Friends of Toppenish Creek	Jean Mendoza	Can we ask the GWAC to consider an analysis of nitrogen balance in the Lower Yakima Valley? In 2000 the Natural Resource Conservation Service found that the Yakima Valley produces significantly more nutrients than the land can assimilate. The contributing factors have multiplied since that time. We should look closely at this balance, in the same manner as the UC Davis study in the Central Valley of California.	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review but may be looked at during a later task of the project.
022	Washington State Department of Agriculture	Virginia Prest	One thing I continue to see mixed up is the relationship between regulatory agency and local conservation district. There are two kinds of technical assistance in my mind: **Regulatory technical assistance** RCW 43.05 – 70, 100, 110 – Agency notifies a producer, dairy, landowner, etc of activities under their control (or responsibility) that must be corrected to meet water quality standards or protect water quality.	Applicable comment.	The differences between the two types of technical assistance have been included in the text of the regulatory review table.

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Issue #	Organization	Commenter	Summarized Issue Text[1]	Category[2]	Response
			Management practice technical assistance – Generally provided by local conservation district or NRCS or private industry technical service provider (TSP). Helps producer evaluate site specific conditions that may threaten resources (soil, water, air, plants, animal and humans). Help producer select individual BMPs or a suite of BMPs that will protect the resources; provide cost share when available.		
023	Washington State Department of Agriculture	Virginia Prest	[Change dairy operations on on-tribal lands description to read: RCW 90.64, the Dairy Nutrient Management Act, requires all licensed grade "A" dairies to develop and implement nutrient management plans, register with the WSDA, and participate in a program of regular inspections and compliance. WSDA is responsible for implementing RCW 90.64 and is required to follow RCW 43.05 (provide regulatory technical assistance when water quality is impacted or threatened) and may refer dairy operations to local conservation districts for additional technical assistance to implement BMPs that will protect water quality. WSDA is responsible for inspections and compliance actions for all dairies. All dairy farms must: ▪ Maintain records for 5 years to demonstrate that applications of nutrients to crop land are within acceptable agronomic rates. ▪ In accordance with RCW 90.64.010 (17)(c) and 90.64.102, failure to maintain all records necessary to show that applications of nutrient to the land were within acceptable agronomic rates may be subject to a civil penalty." Change the authority of institution to read: ▪ Conduct inspections of licensed dairies every 22 months ▪ Responsible for inspections and compliance actions for all dairies]	Applicable comment.	Changes have been made to document.
024	Washington State Department of Agriculture	Virginia Prest	Change the last sentence of the description of CAFOs on non-tribal lands to read: "There is a Memorandum of Agreement between Ecology and WSDA, where WSDA performs inspections, review of nutrient management plans, and provides regulatory technical assistance."	Applicable comment.	Changes have been made to document.
025	Environmental Protection Agency	Ralph Fisher	Here are a couple of suggestions for your group to consider to help get started. Some of this may be built into the Technical Memo 1 but I couldn't see it: Determine: a. Total acres of irrigated cropland b. A general soil map for the project area. NRCS can use Soil Data Mart to help you develop this map and related soil interpretations. c. Acres of sprinkler irrigated land and acres of surface irrigated land d. Acres where land application occurs and acres where only commercial fertilizer is applied. At this point it does not matter if this is third party application or application made by a dairy, just acres applied. There are probably a lot of acres where both are applied. If its possible to identify those acres it would be good but maybe should be considered fine tuning for the future. e. "Typical" crops and crop rotations for each category and if possible an estimate of acres. f. As you begin to locate typical crop rotations to specific sites check soil survey data to make sure that site is also representative of the project area.	Not applicable to regulatory review task scope of work.	Compiling this information is out of the defined scope for the regulatory review. However, this information will be compiled as part of completing later tasks of the project. Areas of types of irrigation, types of crops, etc., will drive which BMPs are included when developing a BMP database.
026	Environmental Protection Agency	Ralph Fisher	Since you are choosing to start with a small number of sample sites it is important to select sites which will result in data representative of the area.	Not applicable to regulatory review task scope of work.	The choosing of sample sites is out of the defined scope for the regulatory review but may be looked at during a later task of the project, such as during the monitory plan implementation task.
027	Environmental Protection Agency	Ralph Fisher	As you work your way through the process you may find that 20 sample sites are not sufficient. It may take 25 or 30 or…. The important thing is that the sites selected represent the study area, that way data or information obtained is also representative of the study area.	Not applicable to regulatory review task scope of work.	The number sample sites is out of the defined scope for the regulatory review but this will be considered during a later task of the project, such as during the monitory plan implementation task.
028	Environmental Protection Agency	Thomas Eaton	Under the UIC/EPA row on page 10, change the first sentence in the description box to read, "UIC program requirements are found in 40 CFR Parts 144,146 and 147.	Applicable comment.	Change incorporated into document.
029	Environmental Protection Agency	Thomas Eaton	I also believe the descriptions of the Dairy program and the roles of WSDA, the Conservation District and Ecology need to be more sharply defined to so that some gaps in the program can be better understood. Key gaps from EPA's perspective include – lack of specific requirements and oversight of construction of new lagoons and failure to upgrade old lagoons, transfer of manure to a third party applicator is not controlled and lack of groundwater monitoring requirements.	Not applicable to regulatory review task scope of work.	Performing an analysis of the gaps in the existing regulations is out of the defined scope for the regulatory review. The purpose of the regulatory review was only to identify existing regulations and guidance, not to review their effectiveness. A discussion of this may be conducted as part of the BMP effectiveness evaluation task.

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Regulatory Framework and Authority

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
Local Agencies				
Private sewage disposal, unlawful wastes disposal	City of Sunnyside	SMC 13.12 - Sewers	Chapter 13.12 primarily addresses discharges and management of municipal and industrial wastewater associated with the publically owned treatment works (POTW). It includes requirements for connection to the POTW. Where a public sewer line is not available, under the provisions of Sunnyside Municipal Code (SMC) 13.12.180 a private sewer and sewage disposal system shall be constructed, in accordance with the specifications and applicable provisions of the Yakima Health District requirements. The type, capacities, location and layout of a private sewage system shall comply with all recommendations and regulations of the Washington State Department of Health and the Uniform Plumbing Code.	• City may issue cease and desist orders on violations • City may issue fines for violations
Illicit stormwater discharges and connections	City of Sunnyside	SMC 13.30A – Stormwater Illicit Discharge	This chapter applies to all water or pollutants entering the municipal separate storm sewer system (MS4) and public Underground Injection Control (UIC) wells generated on any developed and undeveloped lands unless explicitly exempted by the City of Sunnyside Public Works Department. The code provides the City of Sunnyside authority to regulate illicit discharge of pollutants and illicit connections to the stormwater system.	• City may issue cease and desist orders on violations • City may issue fines for violations
Private water wells (not a direct nitrogen source but could provide migration pathway if well not constructed properly and also well restrictions would prevent ingestion of nitrate impacted groundwater)	City of Grandview	GMC 8.32 - Wells	No person shall hereafter drill or install, or cause to be drilled, a private water well within the city.	• City may issue cease and desist orders on violations • City may issue fines for violations may issue fines for violations
Septic tanks, private sewage disposal	City of Grandview	GMC 13.20 –Private Sewage Disposal Systems	Chapter covers the permitting and inspection of private sewage disposal systems (septic tanks). The chapter requires all disposal systems to comply with the county health standards. If a public sewer becomes available, the chapter requires abandonment of private sewage disposal system and connection to public sewer.	• City inspects and issues permits under the direction of the public works director • City may issue fines for violations
Miscellaneous development and use within Critical Aquifer Recharge Areas	City of Grandview	GMC 18.06 – Critical Areas GMC 18.40 – Enforcement and Penalties GMC 18.90 – Critical Aquifer Recharge Areas	Grandview Municipal Code (GMC) 18.06 describes Critical Areas and includes designation and mapping of critical aquifer recharge areas (CARAs) and general requirements if a project is located within a CARA. Developments must be designed and constructed in accordance with surface/stormwater management requirements of the Eastern Washington Stormwater Management Manual as published by Ecology. GMC 18.40 covers enforcement of Chapter 18 of the GMC. GMC 18.90 covers CARAs and states the City's protection of CARAs shall be accomplished through normal project permit review under various city codes, especially the stream protection standards in Chapter 18.60 GMC, Fish and Wildlife Habitat and the Stream Corridor System, including GMC 18.60.100, Prohibited uses; the shoreline use table in GMC 18.100.050; and GMC Title 15, Buildings and Construction, which provides detailed construction, use, and fire/life-safety standards for the storage and handling of dangerous and hazardous substances to a greater extent than most existing state and federal laws.	• City maintains and updates mapping of CARAs • Update/maintain comprehensive plan • City controls development in CARAs through permitting and inspection • City inspects surface/ stormwater management for compliance with the Eastern Washington Stormwater Management Manual • City may issue cease and desist orders on violations • City may issue fines for violations
Animal and human waste, garbage, miscellaneous waste	City of Toppenish	TMC 13.28 – Public Sewers TMC 13.48 – Powers and Authority	It is unlawful for any person to place, deposit, or permit to be deposited in any unsanitary manner on public or private property within the city, any human or animal excrement, garbage, or other objectionable waste.	• City may issue cease and desist orders on violations • City may issue fines for violations
Septic tanks, private sewage disposal	City of Toppenish	TMC 13.30 – Private Sewer Disposal TMC 13.48 – Powers and Authority	TMC 13.30 states that where connection to public sewers is required, but public sewers are more than 400 feet away from a property line, property owner may request a "special private sewage disposal use permit" from the city council. Application for the permit shall be accompanied by proof of compliance of all county health district rules and regulations and approval of State Department of Ecology. The city may require the installation of a public sewer for future use as a condition of issuance of a special private sewage disposal use permit. TMC 13.48 covers enforcement of Chapter 13.	• City inspects and issues permits under the direction of the public works director • City may issue cease and desist orders on violations • City may issue fines for violations

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
Sewer systems, septic tanks, On-site Sewer Systems (OSS)	Yakima County and Yakima Health District	YCC 6.04 YCC 12.05 WAC 246-272A RCW 43.20.050	Yakima County Code (YCC) 12.05 covers sewer systems. It is unlawful to discharge to any natural outlet within the county, or in any area under the jurisdiction of the county, any sewage or other polluted waters, except where suitable treatment has been provided in accordance with county codes. The type, capacities, location and layout of a private sewage disposal system shall comply with all recommendations of the State Department of Health. Washington Administrative Code (WAC) 246-272A is a state code (statutory authority given by Revised Code of Washington (RCW) 43.20.050) with the purpose of protecting the public health by minimizing: (a) The potential for public exposure to sewage from on-site sewage systems (OSS); and (b) Adverse effects to public health that discharges from on-site sewage systems may have on ground and surface waters. OSS are systems handling less than 3,500 gal/day. The chapter includes general requirements, design requirements, required permitting, and enforcement of OSSs. Enforcement is to be carried out by the local health officer which for Yakima County falls under the jurisdiction of the County Health District given authority by RCW 70.05 YCC 6.04 establishes the County Health District which has local authority for the enforcement of OSSs.	• Yakima Health District performs inspection and permitting of on-site sewer systems (<3,500 gal/day) • County may issue cease and desist orders on violations • County may issue fines for violations
Stormwater	Yakima County	YCC 12.10	YCC 12.10 creates a stormwater authority for Yakima County. The purpose of this chapter is to provide for the health, safety, and welfare for Yakima County through the regulation of discharges to county stormwater control facilities and UIC wells consistent with local, federal, and state law. Chapter includes stormwater requirements, stormwater design criteria, prohibition of illicit discharges, violations and enforcement, and civil infractions. Chapter states no person shall discharge or cause to be discharged into county stormwater facilities or a public UIC any materials, including but not limited to pollutants or waters containing any pollutants other than stormwater. (See Yakima County guidance documents listed below relating to stormwater management)	• Maintain county stormwater standards • County may issue cease and desist orders on violations • County may issue fines for violations
Concentrated feeding operations outside of urban growth area zoning	Yakima County	YCC 15.18 YCC 15.12	YCC 15.18 covers permitted land uses within Yakima County. Concentrated animal feeding operations (CAFOs) are permitted in agricultural, remote, and industrial zones as a Type II land use; and are permitted in valley rural zones as a Type III land use. In other zones, CAFOs are not permitted. As a Type II or Type III land use, special conditions may be given for approval as described in YCC 15.12. The application process also includes public notice and a public hearing.	• County maintains zoning and land use maps • Update/maintain comprehensive plan • When a CAFO is requesting a permit, County sends out public notice, holds a public hearing, and conductions a land use review.
Concentrated feeding operations within urban growth area zoning	Yakima County	YCC 15A.04 YCC 15A.15	YCC 15A.04 covers permitted land uses within Yakima County's urban growth area. Concentrated animal feeding operations (CAFOs) are permitted only in suburban residential as a Class (3) land use. As a Class (3) land use, a Type 3 review public hearing is required by the county Hearing Examiner. YCC 15A.15 covers Type (3) reviews. The Type (3) review includes a staff report prepared by the county planning division	• County maintains zoning and land use maps • Update/maintain comprehensive plan • When a concentrated feeding operation is requesting a permit, county sends out public notice, holds a public hearing, and conductions a land use review.
Miscellaneous development and use within Critical Aquifer Recharge Areas	Yakima County	YCC 16C.09 YCC 16C.04	Any development within a CARA is reviewed by Yakima County. Applications for any development activity or division of land which requires review by Yakima County and which is located within a mapped CARA or Wellhead Protection Area shall be reviewed by the Administrative Official to determine whether hazardous materials will be used, stored, transported, or disposed of in connection with the proposed activity. Activities may only be permitted in a CARA if the applicant can show that the proposed activity will not cause contaminants to enter the aquifer and that the proposed activity will not adversely affect the recharging of the aquifer.	• County maintains and updates mapping of CARAs • Update/maintain comprehensive plan • County controls development in CARAs through permitting and inspection • County may issue cease and desist orders on violations • County may issue fines for violations
Fertilizer	Yakima County	YCC 16C.09.06	YCC 16C.09 covers CARAs. YCC 16C.09.06 states that application of household pesticides, herbicides, and fertilizers shall not exceed times and rates specified on the packaging for the residential use of pesticides and nutrients.	• County may issue cease and desist orders on violations • County may issue fines for violations

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
AFOs, CAFOs, agriculture	South Yakima Conservation District	RCW 90.64 RCW 89.08 WAC 16-611	The South Yakima Conservation District is the local conservation district for the Lower Yakima Valley. Conservation districts are created under RCW 89.08. The district serves as a source of management practice technical assistance and can be used as a liaison between the Washington State Department of Agriculture and Ecology and the farmer/ landowner. The management practice technical assistance including helping to evaluate site specific conditions that may threaten resources such as soil, water, air, plants, animals, and public health. This may also include assistance is selecting appropriate BMPs or a suite of BMPs to protect resources and provide a cost share when available. The conservation districts have no regulatory function and serve only in an educational role. RCW 90.64 is known as the Dairy Nutrient Management Act and has sections describing the participation of local conservation districts regarding dairies. WAC 16-611 gives the framework to provide a fair and uniform determination of civil penalties issued for violations of RCW 90.64.	• May accompany WSDA inspectors on any scheduled inspection • Provide management practice technical assistance to WSDA or Ecology in identifying and correcting existing water quality problems resulting from dairy farms • Provide management practice technical assistance to dairy producers in developing and implementing a dairy nutrient management plan • Provides management practice technical assistance to farmers
Miscellaneous development and use in aquifer recharge area	Cities, Yakima County, local agencies, the public. This has formed into the Lower Yakima Valley GWMA and GWAC.	WAC 173-100	WAC 173-100 allows for the creation of Groundwater Management Areas and Programs under the authority pursuant to RCW 90.44.400, 90.44.410, 90.44.420, 90.44.430 and 90.44.440. Ecology would, in cooperation with local government, designate specific groundwater management areas and appoint a lead agency to develop a groundwater management program and an advisory committee to oversee the development of the program for each designated area. The program will then be implemented through state regulations and local ordinances. The program would identify sources of degradation to the area's groundwater and alleviate those problems. The advisory committee represents a broad spectrum of the public.	• Development of advisory committee • Development and implementation of groundwater management program • Enforcement through existing regulation and possibly local ordinances.
Miscellaneous development and use in aquifer recharge area	Yakima County	RCW 36.36	RCW 36.36 gives the county legislative authority of a county the ability to create aquifer protection areas for the purpose of funding the protection, preservation, and rehabilitation of subterranean water. When creating an aquifer protection area, a public hearing is held by the county. After the public hearing, a public ballot of those within the area is conducted and if passed by a simple majority, a protection area can be created. Fees can be collected from those within the area for use in activities to protect and preserve groundwater quality.	• Hold public hearing and issue ballots for creation of aquifer protection areas • Collect fees in protection areas for conducting aquifer protection programs • Issue liens for delinquent fees
Miscellaneous development and use in aquifer recharge area	Yakima County	Educational Program	Yakima County has a Nitrate Treatment Pilot Program with the goal of providing water treatment systems, education, and management practice technical assistance to households with individuals at high public health risk from nitrate contaminated wells. The program was established using money provided by the state legislature in 2010 and was administered by Department of Health (DOH), and the Yakima Health District.	• Continue to implement Nitrate Treatment Pilot Program
Miscellaneous development and use in aquifer recharge area producing surface runoff	Yakima County	Guidance Document	Yakima County publishes the "Yakima County Regional Stormwater Manual." Yakima County and the Cities of Yakima, Union Gap, and Sunnyside entered into an Interlocal Governmental Agreement (ILA) for coverage under the Eastern Washington Phase II Municipal Stormwater Permit. Under the ILA, the county and cities developed the stormwater manual to have consistent approach to stormwater management between the entities. The manual provides guidelines, procedures and local information for the planning, design and maintenance of stormwater facilities throughout the county. The manual is equivalent to Ecology's Stormwater Management Manual for Eastern Washington but has been specifically tailored for use within Yakima County.	• Updating of the manual as required
Miscellaneous development and use in aquifer recharge area producing surface runoff	Yakima County	Guidance Document	Yakima County publishes the "Yakima Regional Low Impact Development Stormwater Design Manual." The manual provides design guidance that is specific to the Yakima regions semi-arid climate. The manual includes technical guidance for LID BMPs including: bioretention, soil amendments, pervious pavement, vegetated roofs, rainwater harvesting, and minimal excavation foundations.	• Updating of the manual as required

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
			State Agencies	
Dairy operations on non-tribal lands	WSDA	RCW 90.64 RCW 90.48 WAC 16-611	RCW 90.64, the Dairy Nutrient Management Act, requires all licensed grade "A" dairies to develop and implement nutrient management plans, register with the WSDA, and participate in a program of regular inspections and compliance. WSDA is responsible for implementing RCW 90.64 and is required to follow RCW 43.05 (provide regulatory technical assistance when water quality is impacted or threatened) and may refer dairy operations to local conservation districts for additional technical assistance to implement BMPs that will protect water quality. WSDA is responsible for inspections and compliance actions for all dairies. All dairy farms must: ▪ Maintain records for 5 years to demonstrate that applications of nutrients to crop land are within acceptable agronomic rates. ▪ In accordance with RCW 90.64.010 (17)(c) and 90.64.102, failure to maintain all records necessary to show that applications of nutrient to the land were within acceptable agronomic rates may be subject to a civil penalty. WAC 16-611 gives the framework to provide a fair and uniform determination of civil penalties issued for violations of RCW 90.64.	• Conduct inspections of licensed dairies every 22 months • Responsible for inspections and compliance actions for all dairies
Fertilizers	WSDA	RCW 15.54 WAC 16-200	RCW 15.54, known as the Commercial Fertilizer Act, covers fertilizers, minerals, and limes. The chapter requires the creation of a fertilizer database of commercially available fertilizers in the state and requires a sampling and testing program of commercial fertilizers. Fertilizers are required to meet the nutrient value guaranteed by the fertilizer. Penalties for not meeting the guarantee can be applied to the fertilizer seller. Further details on requirements for commercial fertilizer producers is provided in WAC 16-200 including labeling, claims by fertilizer, and penalties.	• Maintain a fertilizer database • Sample and test commercial fertilizers distributed with the state • Enforcement of chapter and issuance of penalties.
Fertilizer	WSDA	WAC 16-201	WAC 16-201 covers the bulk storage and operational area containment rules for fertilizer. The chapter gives facilities requirements for storing fertilizer and the adoption of a spill response plan, Civil penalties can be issued for violating storage requirements.	• Conduct inspections for compliance as necessary • Issue permits waiving requirements when needed • Issue civil penalties for infractions
Chemigation and fertigation	WSDA	WAC 16-202	WAC 16-202 givens general provisions, general requirements, and safety requirements for chemigation and fertigation for agriculture. Any person who fails to follow the requirements of the chapter is subject to denial of permits and /or a civil penalty.	• Issue civil penalties for infractions

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
CAFOs on non-tribal lands	Ecology and WSDA (inspections)	RCW 90.48.130 RCW 90.64 WAC 173-220	RCW 90.48 is the Water Pollution Control Act. The chapter gives Ecology the jurisdiction to control and prevent the pollution of streams, lakes, rivers, ponds, inland waters, salt waters, water courses, and other surface and underground waters of the state of Washington and the ability to take enforcement actions. The chapter includes the issuance of waste disposal permits to entities discharging waste into waters of the state. Any discharge without a permit is prohibited. A state waste disposal permit is required for industrial, commercial, and municipal discharges of pollutants into surface and groundwaters and discharges of pollutants into the ground or a public sewage system. Pursuant to authority granted by the federal Clean Water Act, the discharge of pollutants from point sources to surface waters of the state requires a National Pollutant Discharge Elimination System (NPDES) permit from the Department. WAC 173-220 covers the implementation of the state's NPDES permit program including the application process, public notices, public hearings, and enforcement. Any designated CAFO or medium Animal Feeding Operation (AFO) that has a confirmed discharge to state waters must get a permit. A site specific nutrient management plan must be developed and implemented by the permittee. Ecology is responsible for issuing NPDES CAFO permits. There is a Memorandum of Agreement between Ecology and WSDA, where WSDA performs inspections, review of nutrient management plans, and provides regulatory technical assistance. When providing regulatory technical assistance, the agency notifies land user of the activities under their control that must be corrected to meet water quality standards or to protect water quality. Currently, Ecology covers 6 CAFOs (5 of which are dairies) under the NPDES General CAFO permit. The last 5-year permit cycle has expired and Ecology is currently unable to issue new General Permits. A new permit is being drafted by Ecology but has not yet been officially completed.	• Issue CAFO permits and determine when a AFO requires a CAFO permit • Review nutrient management plans submitted as part of an application for CAFO coverage and final approval of plans (WSDA) Other responsibilities: • Development, issuance, cancellation and revocation of both federal NPDES permits and state waste discharge permits to all facilities and entities • Develop fact sheets for NPDES permits
Food processor's land application of waste, municipal wastewater discharge to land, dairies with state waste discharge permits, other entities with state waste discharge permits	Ecology	WAC 173-216 – State Waste Discharge Permit	WAC 173-216 covers the State Waste Discharge Permit Program which was created to satisfy the requirements of RCW 90.78, the Water Pollution Control Act. The permit program does not cover point source discharges into navigable waters of the state which is covered by the NPDES Permit Program (WAC 173-220), or discharges covered under the general permit program (WAC 173-226). Any entity who proposes to discharge waste materials into waters of the state must file an application with Ecology.	• Implementation of a state waste discharge permit program, applicable to the discharge of waste materials from industrial, commercial, and municipal operations into ground and surface waters of the state • Review and approval of permits • Public hearings if applicable
Large On-site Sewage Systems (LOSS)	DOH	WAC 246-272B	WAC 246-272B covers large on-site sewage systems (LOSS) and implements RCW 70.118B. The Chapter covers the approval and permitting process, site and environmental requirements, engineering requirements, design and technical standards, LOSS operations requirements, and enforcement. LOSS are on-site sewer systems that handle more than 3,500 gal/day. LOSS may not be installed or operated without a permit issued by DOH. As part of the permitting process for LOSS, DOH requires a site risk survey that includes a nitrate balance. DOH publishes "Level 1 Nitrate Balance Instructions for Large On-site Sewage Systems" (Publication #337-069) to assist in performing the required calculations.	• Review of LOSS applications and permit approval • Enforcement of regulation
	DOH	WAC 246-290-135	WAC 246-290-135 covers source water protection for Group A public water supply systems. The chapter establishes that all systems must maintain a sanitary control area (SCA) around all drinking water sources. For wells, the SCA must have a radius of at least 100 ft from the well. DOH may require a larger SCA given site conditions and may require additional monitoring if a potential risk exists to a water source. The SCA prevents constructing, storing, disposing, or applying any source of potential contamination within the area. The chapter also requires water systems to develop a wellhead protection program as part of the system's water system plan. This includes delineating wellhead protection areas and creating a database of known or potential sources of pollution within the wellhead protection area.	• Review SCA and Wellhead Protection Programs • Enforcement of regulation

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
Domestic and industrial wastewater facilities	Ecology	WAC 173-240 WAC 173-221 WAC 173-221A	WAC 173-240 covers the submission of plans and reports for the construction of wastewater facilities which are classified as handling more than 100,000 gal/day. Unlike LOSS which are regulated by DOH (with local jurisdiction given to the County Health Department), wastewater facilities are regulated by Ecology. The chapter, which implements RCW 90.48.110, includes requirements for domestic wastewater facilities and industrial wastewater facilities. This includes requirements for design, reports, plans and specs, and operation and maintenance manuals. WAC 173-221 covers discharge standards and effluent limitations for domestic wastewater facilities while WAC 173-221A covers discharge standards and effluent limitations for industrial wastewater facilities.	• Review and approval of wastewater facility construction documents • Enforcement of discharge and effluent limitations for wastewater facilities
Underground injection control (UIC) wells	Ecology	WAC 173-218	WAC 173-218 is the state regulation for the state's UIC Program. Ecology was delegated authority by the EPA to administer a UIC program per 40 CFR 144 and by statutory authority by RCW 43-21A.445. The program requires that a non-endangerment performance standard must be met, prohibiting injection that allows the movement of fluids containing any contaminant into groundwater. In Washington, all ground water is considered a potential source of drinking water. Any UIC well owner must also provide inventory information to register their well with Ecology. The chapter covers UIC well classifications, operating requirements, permit terms for wells that are not rule authorized, UIC well decommissioning, and enforcement.	• Management of a UIC program • Maintaining UIC inventory • Reviewing and issuing of permits for wells not rule authorized • Enforcement of regulation
Miscellaneous development and use in aquifer recharge area	Ecology	WAC 173-200 RCW 90.48	WAC 173-200 covers the water quality standards for groundwaters within the state and is an implementation of authority granted in RCW 90.48. The chapter introduces the state's antidegradation policy. The policy prevents the degradation of groundwater that interferes with existing and future beneficial use. Degradation is not allowed of high quality groundwaters constituting an outstanding national or state resource, such as waters of national and state parks and wildlife refuges, and waters of exceptional recreational or ecological significance. The chapter states that when the quality of groundwater exceeds the assigned criteria for groundwater, then the higher existing groundwater quality is to be protected and any contaminants that reduce that quality cannot be introduced into the groundwater. The only exception to where degradation is allowed is if an overriding consideration of public interest will be served and all contaminants for entry into the groundwater is provided with all known, available, and reasonable methods of prevention, control, and treatment (AKART) prior to entry. The chapter provides a table of groundwater quality criteria that establishes a maximum contaminant concentration for the protection of a variety of beneficial uses of Washington's groundwater. For nitrate (as N) that criteria is 10 mg/L. The chapter presents procedures for establishing enforcement limits and point of compliance locations for when a permit is issued for an activity effecting groundwater quality. Ecology has the ability of creating special protection areas for areas that require special consideration or increased protection.	• Establishing enforcement limit, point of compliance, and early warning concentration value for permits • Review of AKART used in permits • Establishment of special protection areas • Implementation and enforcement of groundwater quality rules
Wells	Ecology	WAC 173-160	WAC 173-160 covers minimum standards for the construction and maintenance of wells under statutory authority of RCW 18.104. The chapter includes standards for the construction and decommission of wells. Any violations of the sections in the chapter may be enforced by issuance of regulatory orders under RCW 43.27A.190, civil penalties under RCW 90.03.600 and 18.104.155, and criminal penalties under RCW 18.104.160.	• Update design requirements as required • Review variance applications to chapter • Issuance of well drilling permits • Review of water well reports • Enforcement of rules in chapter
Land application of solid waste, anaerobic digesters	Ecology	WAC 173-350 RCW 70.95	WAC 173-350 covers standards for the handling of solid waste under statutory authority given under RCW 70.95. The section includes the land application of solid waste (WAC 173-350-230) and anaerobic digesters (WAC 173-350-250). The chapter does not apply to land application of manures and crop residues at agronomic rates, or agricultural composting when all agricultural wastes are generated, processed, and applied on-farm at agronomic rates in accordance with accepted agricultural practices.	• Issue permits for the beneficial use of solid waste • Enforcement of rules in chapter
Miscellaneous development and use adjacent to surface water	Ecology	WAC 173-27 RCW 90.58	WAC 173-27 covers shoreline management permit and enforcement procedures. The chapter is given authority under RCW 90.58 known as the Shoreline Management Act of 1971. The chapter requires local governments to establish a program, consistent with rules adopted by Ecology, for the administration and enforcement of the permit system for shoreline management. The local program should be integrated with other local government systems for administration and enforcement of land use regulations. The chapter requires local governments to only authorize development along shorelines that is consistent with the policy and provisions of the Shoreline Management Act. A person who fails to conform to a permit issued under RCW 90.58 may be imposed a penalty by Ecology filed jointly with the local government or filed alone.	• Enforcement of rules in chapter and issuance of penalties.

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
Solid waste	Ecology	WAC 173-304	WAC 173-304 covers the minimum functional standards for solid waste handling and is promulgated under the authority of RCW 70.95 to protect public health, to prevent land, air, and water pollution, and conserve the state's natural, economic, and energy resources. The chapter includes: setting minimum functional performance standards for the proper handling of all solid waste materials originating from residences, commercial, agricultural and industrial operations and other sources, identification of those functions necessary to assure effective solid waste handling programs at both the state and local level, describes the responsibility of persons, municipalities, regional agencies, state and local government under existing laws and regulations related to solid waste, and requires use of the best available technology for siting, and all known available and reasonable methods for designing, constructing, operating and closing solid waste handling facilities.	• Enforcement of rules in chapter and issuance of penalties
Biosolids	Ecology	WAC 173-308	WAC 173-308 covers biosolids management and is given authority under RCW 70.95. The chapter considers biosolids as sewage sludge or septage that has been or is being treated to meet standards so that it can be applied to the land. The chapter includes requirements for those who prepare, transport, or apply solid waste. The law requires biosolids monitoring and sampling which includes nitrate. The chapter also includes requirements for the storage of biosolids which states that biosolids cannot be stored in a manner that would likely result in contamination of groundwater. The chapter includes requirements for recordkeeping for those preparing or applying biosolids, and the submittal of annual reports by certain facilities. All treatment works treating domestic must apply for a permit for the final use or disposal of biosolids.	• Review of annual reports • Issuance of permits • Collection of permit fees
Miscellaneous development and use in aquifer recharge area producing surface runoff	Ecology	Guidance Document	Ecology publishes the "Stormwater Management Manual for Eastern Washington" (Publication 04-10-076). The objective of the manual is to provide guidance in stormwater design and management for eastern Washington by providing methodologies and technical guidance. The manual identifies eight Core Elements for managing stormwater runoff from new development and redevelopment projects of all sizes. Many counties and municipalities in eastern Washington require the manual to be followed for development	• Updating of the manual as required
Miscellaneous development and use in aquifer recharge area producing surface runoff	Ecology	Guidance Document	Ecology publishes the "Eastern Washington Low Impact Development Guidance Manual". The manual is currently still in the draft phase and not yet been released in its final form. The manual covers low impact development methodologies for handling stormwater in developments.	• Completion of manual • Promote awareness of new guidance manual • Updating of manual as required
Miscellaneous development and use in aquifer recharge area	Ecology	Guidance Document	Ecology publishes "Implementation Guidance for the Ground Water Quality Standards" (Publication 96-02). The guidance is a document that explains and interprets WAC 173-200 which covers Ground Water Quality Standards.	• Updating of guidance as required
Nutrient application from municipal and industrial wastewater sources.	Ecology	Guidance Document	Ecology publishes "Guidance on Land Treatment of Nutrients in Wastewater, with Emphasis on Nitrogen" (Publication 04-10-081). The guidance provides a brief guidance on land treatment of nutrients in wastewater, with emphasis on nitrogen in relation to Ecology's Water Quality Program. This guidance is used to support state waste discharge permits under WAC 173-216.	• Updating of guidance as required
Miscellaneous development and use in critical aquifer recharge areas	Ecology	Guidance Document	Ecology publishes "Critical Aquifer Recharge Areas: Guidance Document" (Publication 05-10-28). The document provides guidance for local jurisdictions on the laws and rules of the state for water quality, pollution prevention, and water resources in relation to CARA protection. This includes guidance on how local jurisdictions can use planning and ordinances to help protect critical aquifer recharge areas.	• Updating of guidance as required
Nutrient application, agriculture	Ecology	Guidance Document	Ecology publishes "Irrigation Management Practices to Protect Ground Water and Surface Water Quality - State of Washington" (Publication EM4885). The manual presents overall management objectives for irrigated agriculture in Washington. A series of implementation practices is listed for each management objective outlined with the goal of reducing point and non-point pollution sources. A particular focus of the manual is on nutrients including nitrogen.	• Updating of manual as required
Miscellaneous pollutants from surface runoff entering underground injection control (UIC) wells	Ecology	Guidance Document	Ecology publishes "Guidance for UIC Wells that Manage Stormwater" (Publication 05-10-067). The document provides design and pretreatment BMPs for UIC wells handling stormwater and explains the UIC rule, WAC 173-218.	• Updating of guidance as required

Potential Nitrogen Source	Institution	Regulation	Description	Authority of Institution
Federal Agencies				
Agriculture, AFOs, and CAFOs located on tribal lands	EPA	33 USC §1311	33 USC §1311 gives EPA the authority to issue NPDES permits on tribal land. In areas outside of tribal lands, Ecology has responsibility for issuing and enforcing NPDES permits.	• Issuance and enforcement of NPDES permit
Underground injection control (UIC) wells located on tribal lands	EPA	40 CFR Part 144	UIC program requirements are found in 40 CFR Parts 144, 146, and 147. In tribal areas, EPA is the primary enforcement mechanism of the regulations. Outside of tribal areas, Ecology has been granted primacy for enforcement under the states own UIC program.	• Enforcement of federal UIC regulations
Miscellaneous development and use in aquifer recharge area posing a significant endangerment to human health	EPA	SDWA §1431	Section 1431 of the SDWA gives the EPA emergency powers to take action to protect the public health if substantial endangerment of the underground sources of drinking water is imminent. This could include the issuance of orders and civil actions.	• Use of Section 1431 to issue orders and civil actions
Miscellaneous development and use receiving federal funding within aquifer recharge area	EPA	SDWA §1424(e)	Section 1424(e) of the SDWA authorizes for the designation of an aquifer by the EPA administrator that the aquifer is the sole source for drinking water in the area. The process for designating an aquifer as a sole source can be initiated by the EPA or upon petition by another entity (individual, company, state, municipality, etc.). If an aquifer is designated as a sole source for drinking water, no federal funding may go to projects in the recharge area of aquifer that may cause contamination of the aquifer. The Safe Drinking Water Act Amendments, enacted June 1986, established the Sole Source Aquifer Demonstration Program, which is separate from, but dependent upon, the Sole Source Aquifer program. The Sole Source Aquifer Demonstration Program establishes procedures for developing, implementing and assessing demonstrations designed to protect critical aquifer protection areas (CAPAs). A CAPA is an area that: ▪ Must be located with an area designated as a Sole Source Aquifer by June 19, 1986 and has a Clean Water Act, Section 208, ground water quality protection plan approved prior to that same date; or ▪ Must be located within an area that is designated as a Sole Source Aquifer no later than June 19, 1988, and which satisfies the CAPA criteria EPA must establish by June 19, 1987.	• Initiation or review of petitions for designating aquifer as a sole source for drinking water • Determination of aquifer as sole source for drinking water
Agriculture, dairies, and CAFOs	USDA-Natural Resources Conservation District (NRCS)	Nutrient Management (Code 590)	The NRCS is charged with developing and updating the Nutrient Management (Code 590) conservation practice standard for nutrient planning. The plans are developed on a state by state basis. While not a regulation, the standard is used by EPA and state agencies for nutrient management planning. Furthermore, for farmers receiving federal assistance through the USDA, implementation of a nutrient management plan is required.	• No regulatory authority, but responsible for developing and updating Nutrient Management Code 590, which is adapted by several regulatory agencies.

Technical Memorandum #1 - Regulatory Review
Comment Issues and Responses
August 2013

Issue #	Organization	Commenter	Summarized Issue Text[1]	Category[2]	Response
001	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	The use of manure for its fertilizer value is a sound and beneficial practice – as long as it is applied correctly at agronomic rates (rates at which most nutrients are taken up by the crop or crops, and not left over to be leached into groundwater)… This regulatory review must delve into the actual degree that the current system is achieving agronomic manure application based on accurate nitrogen accounting from year to year.	Not applicable to regulatory review task scope of work.	An analysis to the degree that the current system is achieving agronomic manure application is out of the defined scope for the regulatory review. An analysis of this may be conducted as part of the BMP effectiveness evaluation task.
002	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	Another serious gap in the Dairy Nutrient Management Act is that there is little or no control over manure transfers; that is manure that leaves the control of the dairy producer and is applied to fields not under his control. We don't really have a good idea of the amount of manure that is being applied currently this way or the degree of over-application. This regulatory review must provide actual information on manure transfers and their potential impact.	Not applicable to regulatory review task scope of work.	Performing an analysis of the gaps in the existing regulations is out of the defined scope for the regulatory review. The purpose of the regulatory review was only to identify existing regulations and guidance, not to review their effectiveness. A discussion of this may be conducted as part of the BMP effectiveness evaluation task.
003	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	Still another potential gap in the program relates to construction standards (such as compaction standards) and performance standards (leaching rates, etc.) for liquid manure lagoons… This regulatory review must provide an assessment of manure lagoons, their actual potential for causing nitrate contamination, and the conditions under which they may be do so.	Not applicable to regulatory review task scope of work.	Performing an analysis of the gaps in the existing regulations is out of the defined scope for the regulatory review. The purpose of the regulatory review was only to identify existing regulations and guidance, not to review their effectiveness. A discussion of this may be conducted as part of the BMP effectiveness evaluation task when looking at construction and performance standards of lagoons.
004	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	Ecology is not currently able to issue a General Permit (the last 5-year permit cycle has expired). Ecology has drafted a new permit, attempting to fix many of the deficiencies of the old permit, but it has not been officially completed.	Applicable comment.	Section text edited to reflect this.
005	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	Improperly decommissioned wells can be a conduit for direct contamination of ground water. There are probably unknown or unreported abandoned wells in the lower valley. This regulatory review should try to get an estimate of the extent of the problem, the potential for contributing to nitrate contamination, and the reasons why they may have fallen through the regulatory cracks.	Not applicable to regulatory review task scope of work.	Performing this estimate is out of the defined scope for the regulatory review. An analysis of this may be conducted as part of the BMP effectiveness evaluation task when looking at well BMPs.
006	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	There are almost no direct regulatory requirements for fertilizer application to crops. BMPs have traditionally been implemented through voluntary and educational programs… This regulatory review should ascertain the degree to which fertilizer BMPs are actually being implemented and does the degree of implementation differ from crop to crop.	Not applicable to regulatory review task scope of work.	Performing an analysis of the degree voluntary BMPs are utilized is out of the defined scope for the regulatory review. An analysis of this may be conducted as part of the BMP effectiveness evaluation task when looking at fertilizer BMPs.
007	Washington Dept. of Ecology, Water Quality Program	Charlie McKinney	This regulatory review should ascertain the degree to which irrigation BMPs are actually being implemented and does the degree of implementation differ from crop to crop.	Not applicable to regulatory review task scope of work.	Performing an analysis of the degree voluntary BMPs are utilized is out of the defined scope for the regulatory review. An analysis of this may be conducted as part of the BMP effectiveness evaluation task when looking at irrigation BMPs.
008	Yakima County	--	"The area comprising the Lower Yakima Valley GWMA is shown in the figure on the following page. The area spans from Union Gap to Grandview and includes the cities of Sunnyside, Zillah, Granger, and Mabton." Suggestion: Add "Grandview" to the cities, and "small communities of Outlook, Buena and Crewport" and should read as follows: "The area comprising the Lower Yakima Valley GWMA is shown in the figure on the following page. The area spans from Union Gap to Grandview and includes the cities of Grandview, Sunnyside, Zillah, Granger, and Mabton. The area also includes small communities of Outlook, Buena and Crewport."	Applicable comment.	Changes made to text.
009	Yakima County	--	Page 6, under Yakima County, add the following guidance documents: 1. Yakima County Regional Stormwater Manual published in January 2010 2. Yakima Regional Low Impact Development Stormwater Design Manual published in September 2011	Applicable comment.	Guidance documents added to table.
010	Yakima County	--	Page 9, under Department of Health, add WAC 246-290-135, Source Water Protection Plan for Group A water systems and small water systems	Applicable comment.	Added regulation and description to table.
011	Sunnyside Valley Irrigation District	Jim Trull	The area comprising the Lower Yakima Valley GWMA is shown in the figure on the following page. The area spans from Union Gap to Grandview and includes the cities of Sunnyside, Zillah, Granger, and Mabton. Shouldn't Grandview be listed as well? I also wondered about Outlook which probably	Applicable comment.	Grandview and Outlook are now listed as being within the GWMA.

Notes:
(1) For complete issue text in context with full comment submitted, see the unabridged comments appended to this table.
(2) Responses to issues submitted are being considered for the regulatory review task scope of work. Issues outside of the scope of the regulatory review will be considered when relevant to future tasks.

Issue #	Organization	Commenter	Summarized Issue Text[1]	Category[2]	Response
			doesn't have applicable ordinances but are suspected to contribute to the nitrate issue.		
012	Friends of Toppenish Creek	Jean Mendoza	Can we do a comparison of county ordinances for Yakima County and other agricultural counties in Washington, Oregon and Idaho? Can we look at case law for examples of how these issues have played out in other places, such as California, North Carolina, Missouri, Texas, New Mexico & Wisconsin?	Not applicable to regulatory review task scope of work.	Research of regulations used in other areas of the state or country was not part of the scope of this regulatory review task. Further research into this may be conducted as part of other project tasks.
013	Friends of Toppenish Creek	Jean Mendoza	I have attached a news brief from Spokane that illustrates potential problems in Washington State if proposed solutions do not have clear, measurable and enforceable objectives.	Not applicable to regulatory review task scope of work.	Thank you for your comment. Though the importance of having clear, measurable, and enforceable objectives is not mentioned as part of this regulatory review task, this will be considered in the write-ups of the other tasks.
014	Friends of Toppenish Creek	Jean Mendoza	I have also attached a list of additional local, state and federal laws that might impact the GWMA.	Applicable comment.	The list of additional local, state, and federal laws provided was reviewed and a number of regulations were added to the table. Some of the regulations listed were already included in the review table. Other regulations were not added because (although they may effect groundwater) do not directly deal with the issue of nitrate contamination in groundwater.
015	Friends of Toppenish Creek	Jean Mendoza	[We require] a listing and mapping of all lagoons and ponds in the Lower Yakima Valley along with capacities and documentation of any testing for nitrates. It is my understanding that Yakima County permits lagoons when there is a new project or expansion/modification of an existing AFO/CAFO that triggers land use review under county zoning or environmental review under the State Environmental Policy act (SEPA). Although the South Yakima Conservation District has no enforcement authority, they provide technical expertise for lagoon and pond construction and they should be able to tell us where lagoons are located and describe them.	Not applicable to regulatory review task scope of work.	Mapping of lagoons is out of the defined scope for the regulatory review. An analysis of this may be conducted as part of the BMP effectiveness evaluation task when looking at lagoons to determine how high a priority lagoon and pond BMPs are.
016	Friends of Toppenish Creek	Jean Mendoza	[We require] an analysis of ground to surface water flow with an estimation of the groundwater contribution to nitrates and acidity in the surface water. It will help to describe streams and canals as well as parts of the Yakima River that are at risk due to temperature, pH, contaminants or TMDL. The Department of Ecology should have this data.	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review. This may be looked at for other tasks of the project to determine locations in the GWMA that are a higher priority for utilizing BMPs.
017	Friends of Toppenish Creek	Jean Mendoza	[We require] an analysis and mapping of areas where biosolids are applied to the fields and an estimation of the impact from this source.	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review but may be looked at as part of the BMP effectiveness evaluation task.
018	Friends of Toppenish Creek	Jean Mendoza	[We require] a listing and mapping of fields that are devoted to composting operations along with documentation of appropriate soil and water testing.	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review but may be looked at as part of the BMP effectiveness evaluation task.
019	Friends of Toppenish Creek	Jean Mendoza	Within Best Management Practices we need a way to estimate and describe the diversion of nitrates to air and surface water that may result from efforts to improve ground water.	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review but will be looked at as part of the BMP effectiveness evaluation task when looking at the effects of BMPs.
020	Friends of Toppenish Creek	Jean Mendoza	Please attempt to retest the wells that were studied in 1990 in the Washington State Agricultural Chemicals Pilot Study (Erickson & Norton) and 1992 in the Groundwater Quality Assessment – Hornby Lagoon (Erickson).	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review but may be looked at during a later task of the project, such as during the monitory plan implementation task.
021	Friends of Toppenish Creek	Jean Mendoza	Can we ask the GWAC to consider an analysis of nitrogen balance in the Lower Yakima Valley? In 2000 the Natural Resource Conservation Service found that the Yakima Valley produces significantly more nutrients than the land can assimilate. The contributing factors have multiplied since that time. We should look closely at this balance, in the same manner as the UC Davis study in the Central Valley of California.	Not applicable to regulatory review task scope of work.	This analysis is out of the defined scope for the regulatory review but may be looked at during a later task of the project.
022	Washington State Department of Agriculture	Virginia Prest	One thing I continue to see mixed up is the relationship between regulatory agency and local conservation district. There are two kinds of technical assistance in my mind: **Regulatory technical assistance** RCW 43.05 – 70, 100, 110 – Agency notifies a producer, dairy, landowner, etc of activities under their control (or responsibility) that must be corrected to meet water quality standards or protect water quality.	Applicable comment.	The differences between the two types of technical assistance have been included in the text of the regulatory review table.

Notes:
(1) For complete issue text in context with full comment submitted, see the unabridged comments appended to this table.
(2) Responses to issues submitted are being considered for the regulatory review task scope of work. Issues outside of the scope of the regulatory review will be considered when relevant to future tasks.

Issue #	Organization	Commenter	Summarized Issue Text[1]	Category[2]	Response
			Management practice technical assistance – Generally provided by local conservation district or NRCS or private industry technical service provider (TSP). Helps producer evaluate site specific conditions that may threaten resources (soil, water, air, plants, animal and humans). Help producer select individual BMPs or a suite of BMPs that will protect the resources; provide cost share when available.		
023	Washington State Department of Agriculture	Virginia Prest	[Change dairy operations on on-tribal lands description to read: RCW 90.64, the Dairy Nutrient Management Act, requires all licensed grade "A" dairies to develop and implement nutrient management plans, register with the WSDA, and participate in a program of regular inspections and compliance. WSDA is responsible for implementing RCW 90.64 and is required to follow RCW 43.05 (provide regulatory technical assistance when water quality is impacted or threatened) and may refer dairy operations to local conservation districts for additional technical assistance to implement BMPs that will protect water quality. WSDA is responsible for inspections and compliance actions for all dairies. All dairy farms must: ▪ Maintain records for 5 years to demonstrate that applications of nutrients to crop land are within acceptable agronomic rates. ▪ In accordance with RCW 90.64.010 (17)(c) and 90.64.102, failure to maintain all records necessary to show that applications of nutrient to the land were within acceptable agronomic rates may be subject to a civil penalty." Change the authority of institution to read: ▪ Conduct inspections of licensed dairies every 22 months ▪ Responsible for inspections and compliance actions for all dairies]	Applicable comment.	Changes have been made to document.
024	Washington State Department of Agriculture	Virginia Prest	Change the last sentence of the description of CAFOs on non-tribal lands to read: "There is a Memorandum of Agreement between Ecology and WSDA, where WSDA performs inspections, review of nutrient management plans, and provides regulatory technical assistance."	Applicable comment.	Changes have been made to document.
025	Environmental Protection Agency	Ralph Fisher	Here are a couple of suggestions for your group to consider to help get started. Some of this may be built into the Technical Memo 1 but I couldn't see it: Determine: a. Total acres of irrigated cropland b. A general soil map for the project area. NRCS can use Soil Data Mart to help you develop this map and related soil interpretations. c. Acres of sprinkler irrigated land and acres of surface irrigated land d. Acres where land application occurs and acres where only commercial fertilizer is applied. At this point it does not matter if this is third party application or application made by a dairy, just acres applied. There are probably a lot of acres where both are applied. If its possible to identify those acres it would be good but maybe should be considered fine tuning for the future. e. "Typical" crops and crop rotations for each category and if possible an estimate of acres. f. As you begin to locate typical crop rotations to specific sites check soil survey data to make sure that site is also representative of the project area.	Not applicable to regulatory review task scope of work.	Compiling this information is out of the defined scope for the regulatory review. However, this information will be compiled as part of completing later tasks of the project. Areas of types of irrigation, types of crops, etc., will drive which BMPs are included when developing a BMP database.
026	Environmental Protection Agency	Ralph Fisher	Since you are choosing to start with a small number of sample sites it is important to select sites which will result in data representative of the area.	Not applicable to regulatory review task scope of work.	The choosing of sample sites is out of the defined scope for the regulatory review but may be looked at during a later task of the project, such as during the monitory plan implementation task.
027	Environmental Protection Agency	Ralph Fisher	As you work your way through the process you may find that 20 sample sites are not sufficient. It may take 25 or 30 or…. The important thing is that the sites selected represent the study area, that way data or information obtained is also representative of the study area.	Not applicable to regulatory review task scope of work.	The number sample sites is out of the defined scope for the regulatory review but this will be considered during a later task of the project, such as during the monitory plan implementation task.
028	Environmental Protection Agency	Thomas Eaton	Under the UIC/EPA row on page 10, change the first sentence in the description box to read, "UIC program requirements are found in 40 CFR Parts 144,146 and 147.	Applicable comment.	Change incorporated into document.
029	Environmental Protection Agency	Thomas Eaton	I also believe the descriptions of the Dairy program and the roles of WSDA, the Conservation District and Ecology need to be more sharply defined to so that some gaps in the program can be better understood. Key gaps from EPA's perspective include – lack of specific requirements and oversight of construction of new lagoons and failure to upgrade old lagoons, transfer of manure to a third party applicator is not controlled and lack of groundwater monitoring requirements.	Not applicable to regulatory review task scope of work.	Performing an analysis of the gaps in the existing regulations is out of the defined scope for the regulatory review. The purpose of the regulatory review was only to identify existing regulations and guidance, not to review their effectiveness. A discussion of this may be conducted as part of the BMP effectiveness evaluation task.

Notes:
(1) For complete issue text in context with full comment submitted, see the unabridged comments appended to this table.
(2) Responses to issues submitted are being considered for the regulatory review task scope of work. Issues outside of the scope of the regulatory review will be considered when relevant to future tasks.

Consolidated Comments to HDR's Draft Technical Memorandum No. 1 – Nitrate Regulatory Review, August 5, 2013

Comments on: Regulatory Framework and Authority – LYV-GWMA

Charlie McKinney, Dept of Ecology, Water Quality Program

I have focused only on areas I believe have the most potential to contribute to the nitrate problem and that have potential for improvement.

Page 7

Dairy operations on non-tribal lands – WSDA

RCW 90.64 – the Dairy Nutrient Management Act is currently the primary environmental regulatory program over dairies. Probably the activity related to dairies with the greatest potential for causing nitrate contamination of groundwater is the over-application or mismanagement of manure to land and crops. The use of manure for its fertilizer value is a sound and beneficial practice – as long as it is applied correctly at agronomic rates (rates at which most nutrients are taken up by the crop or crops, and not left over to be leached into groundwater).

A commonly-used tool to insure that manure is applied agronomically is the dairy nutrient management plan (DNMP). The Dairy Nutrient Management Act requires producers to develop a DNMP but currently does not really require that it be followed! In 2010 Ecology found that soil samples taken by all 5 dairies covered by the NPDES CAFO Permit (see later comments), which are required to have the same DNMP, showed fields that exceeded the red-flag level of 45 ppm nitrate nitrogen. Dairies were required to take and submit annual soil samples from fields (their own or rented) where manure was being applied. They were complying, however, we found that they were generally not using that soil data to guide or change their manure application. In 2011 the program modified the inspection report requiring reporting of the number of acres above and below 45 ppm nitrate nitrogen. This may have helped some but I believe the program still lacks the straight-forward requirement that accurate nitrogen accounting be carried out and that manure application directly conforms. The requirement of a spreadsheet that tracks nutrient content of manure applied, rate applied, residual from previous applications, amount removed by cropping (calculated based on actual yields), etc. would be an improvement. **This regulatory review must delve into the actual degree that the current system is achieving agronomic manure application based on accurate nitrogen accounting from year to year.**

Another serious gap in the Dairy Nutrient Management Act is that there is little or no control over manure transfers; that is manure that leaves the control of the dairy producer and is applied to fields not under his control. We don't really have a good idea of the amount of manure that is

being applied currently this way or the degree of over-application. **This regulatory review must provide actual information on manure transfers and their potential impact.**

Still another potential gap in the program relates to construction standards (such as compaction standards) and performance standards (leaching rates, etc.) for liquid manure lagoons. Modern lagoons that are built with cost-share monies or some other forms of financial assistance are required to follow NRCS construction and compaction standards. However, if a producer builds a lagoon on his own dime, this is not the case. Also, it is often hard to know how older lagoons were constructed and how they are currently performing. Another question: are lagoons being built in areas with shallow ground water, regardless the construction standard, and is this a source of nitrate contamination? **This regulatory review must provide an assessment of manure lagoons, their actual potential for causing nitrate contamination, and the conditions under which they may be do so.**

Page 8

CAFOs on non-tribal lands – Ecology and WSDA

Ecology covers only 6 CAFOs (5 are dairies) under the NPDES General CAFO Permit. CAFOs can only be required to get permit coverage if they have had a confirmed discharge to surface water. They can get coverage voluntarily. The current permit has the same DNMP requirement and so is subject to the same gaps and deficiencies as the Dairy Nutrient Management Act in terms of agronomic application, manure transfers and lagoon standards.

Ecology is not currently able to issue a General Permit (the last 5-year permit cycle has expired). Ecology has drafted a new permit, attempting to fix many of the deficiencies of the old permit, but it has not been officially completed.

Page 9

Wells – Ecology

Improperly decommissioned wells can be a conduit for direct contamination of ground water. There are probably unknown or unreported abandoned wells in the lower valley. **This regulatory review should try to get an estimate of the extent of the problem, the potential for contributing to nitrate contamination, and the reasons why they may have fallen through the regulatory cracks.**

Page 10

Nutrient application, agriculture

There are almost no direct regulatory requirements for fertilizer application to crops. BMPs have traditionally been implemented through voluntary and educational programs; Conservation Districts, WSU Cooperative Extension, etc. Is this working adequately? Fertilizer application

(improperly managed) to irrigated crop land is a documented source of nitrate contamination in other areas and GWMAs. It may have occurred to a greater extent back when nitrogen costs were lower. **This regulatory review should ascertain the degree to which fertilizer BMPs are actually being implemented and does the degree of implementation differ from crop to crop.**

A related area that can have a large influence on nitrate contamination is irrigation water management. Again, irrigation BMPs have traditionally been implemented through voluntary and educational programs. Is this working? **This regulatory review should ascertain the degree to which irrigation BMPs are actually being implemented and does the degree of implementation differ from crop to crop.**

Other WQ-related permits issued by Ecology: please contact me; the WQ Section will assist in providing you with the necessary detailed data needed to ascertain if these programs and permits are adequately protecting groundwater.

Some additional comments may be provided by other Ecology staff.

Yakima County

- Cover letter, page 2

  "The area comprising the Lower Yakima Valley GWMA is shown in the figure on the following page. The area spans from Union Gap to Grandview and includes the cities of Sunnyside, Zillah, Granger, and Mabton."

  Suggestion: Add "Grandview" to the cities, and "small communities of Outlook, Buena and Crewport" and should read as follows:

  "The area comprising the Lower Yakima Valley GWMA is shown in the figure on the following page. The area spans from Union Gap to Grandview and includes the cities of Grandview, Sunnyside, Zillah, Granger, and Mabton. The area also includes small communities of Outlook, Buena and Crewport."

- Page 6, under Yakima County, add the following guidance documents:

  1. Yakima County Regional Stormwater Manual published in January 2010
  2. Yakima Regional Low Impact Development Stormwater Design Manual published in September 2011

- Page 9, under Department of Health, add WAC 246-290-135, Source Water Protection Plan for Group A water systems and small water systems

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Jim Trull, SVID

- Cover Letter, page 2

  The area comprising the Lower Yakima Valley GWMA is shown in the figure on the following page. The area spans from Union Gap to Grandview and includes the cities of Sunnyside, Zillah, Granger, and Mabton. Shouldn't Grandview be listed as well? I also wondered about Outlook which probably doesn't have applicable ordinances but are suspected to contribute to the nitrate issue.

Jean Mendoza, Friends of Toppenish Creek

Hello Angie & HDR,

In my opinion this is one of the most important tasks before us. Can we do a comparison of county ordinances for Yakima County and other agricultural counties in Washington, Oregon and Idaho?

Can we look at case law for examples of how these issues have played out in other places, such as California, North Carolina, Missouri, Texas, New Mexico & Wisconsin? There may be challenges to our plans.

I have attached a news brief from Spokane that illustrates potential problems in Washington State if proposed solutions do not have clear, measurable and enforceable objectives. I have also attached a list of additional local, state and federal laws that might impact the GWMA.

Best wishes.

Jean Mendoza

Attachment 1 - State Pollution Control Board revokes flawed permit because of more PCB pollution to Spokane River

Spokane, July 23, 2013 - On Friday July 19 the Pollution Control Hearings Board (the Board) invalidated Spokane County's permit for its new sewage treatment plant and remanded the matter back to the Washington Department of Ecology. The Board directed that Ecology reissue the permit with conditions that fulfill the requirements of the state's water quality laws. As a result of the Board's decision, it is expected that the County will shut down its sewage treatment plant

until Ecology issues a new permit in compliance with state and federal water quality laws and standards. The County's sewage can be diverted to the Riverside Park Plant.

"The Board's decision to revoke the Spokane County's pollution permit advances the cleanup of the Spokane River - the state's most PCB-polluted river," said John Osborn, a Spokane physician and co-chair of the Sierra Club's Upper Columbia River Group. "Eating fish from the Spokane River is a public health hazard. It's outrageous that Ecology knew its pollution permit was unenforceable and illegal and issued the permit to the County anyway."

The Board found that the lack of any limit on PCB discharges was in violation of the Clean Water Act and that other terms of the permit were vague and unenforceable. The Board rejected the County's argument that it was improving water quality, recognizing that the County plans to increase its sewage treatment at the Sewage Treatment Plant located in Riverside State Park. The Board also noted that water reuse and land application of treated effluent are options available to the County to avoid discharging to the Spokane River.

The Board ruled that the Toxics Management Program in Ecology's permit is "confusing, vague, and lacks definition of key terms. More importantly, it lacks deadlines by which Spokane County is to undertake and/or complete actions to reduce PCBs in influent to the facility. It lacks mandatory language requiring Spokane County to actually undertake necessary actions to achieve reductions in PCBs in both influent and effluent. . . . [R]ather than requiring Spokane County to meet water quality standards, the [Toxics Management Program] only asks that the County take steps so that 'in time the effluent does not contribute to PCBs in the Spokane River exceeding applicable water quality standards.' . . . The Permit must require Spokane County to comply with water quality standards . . . ." (Paragraph 13, p 23-24) This requirement will need to include compliance with the Spokane Tribe's downstream water quality standards that were adopted by the Tribe and approved by the U.S. Environmental Protection Agency in 2003.

Additionally, the Board ruled that the Regional Toxics Task Force fails to require that "goals be achieved by a specified date. Nor does [this permit condition] establish an objective standard against which its accomplishments can be measured . . . . [The Toxics Task Force permit condition] does not impose any restrictions on quantities, rates, and concentrations of PCBs being discharged from point sources into the Spokane River. While the Board finds that the creation of the Task Force is a positive step toward bring the Spokane River into compliance with water quality standards for PCBs, it is uncertain that the Task Force will achieve any of its stated goals or achieve a measurable reduction in the discharge of PCBs. . . . Ecology is directed on remand to modify the [Toxics Task Force permit condition] to make clear that compliance with the Permit's requirements take precedence over the work of the Task Force." (Paragraph 17, pp 26-27)

"The Spokane River is emblematic of Ecology's statewide failure to support water quality standards to protect human health," said Suzanne Skinner, director of the Center for

Environmental Law & Policy. "People who eat fish from the state's rivers - and especially Tribal members and immigrant communities - are vulnerable to the power politics lurking behind Ecology's pollution decisions. This is an environmental injustice that cries out for action."

The Spokane River is Washington's most contaminated river for PCBs. Exposure to PCBs through ingestion of Spokane River fish represents a public health hazard. (Washington State Department of Health, ATSDR: www.doh.wa.gov/Portals/1/Documents/Pubs/334-147.pdf) In 2008, the Washington State Department of Health issued fish consumption advisories, recommending limited or no consumption of fish from Lake Roosevelt and the Spokane River. (See: Health Advisory for Spokane River Fish Consumption: www.doh.wa.gov/Portals/1/Documents/Pubs/334-164.pdf)

The role of polluting industries in controlling Washington State's water quality standards has been the subject of a series by investigative journalist Robert McClure. (See Robert McClure, Business Interests Trump Health Concerns in Fish Consumption Fight, Investigate West. March 30, 2013 www.invw.org) In 2011, Sierra Club's Upper Columbia River Group and CELP filed companion lawsuits in state and federal court to compel Washington State and the U.S. Environmental Protection Agency to uphold water quality laws. The Spokane Tribe supports the litigation, and has formally intervened in support of the federal lawsuit.

The parties have 30 days to appeal the Board's order. Ecology has been directed by the Board to correct the permit and impose effluent limits on the County Plant. It is unknown how or when Ecology will take action to comply with the Board's order. Still to come is the companion federal lawsuit to compel EPA to complete a PCB cleanup plan for the Spokane River. That case is currently before the federal court, and awaiting scheduling for oral argument.

Sierra Club and CELP are represented by attorney Richard Smith of Smith & Lowney PLLC. The Spokane Tribe of Indians is represented by attorney Ted Knight.

Links:

PCHB decision - http://www.columbia-institute.org/pdf/PCHB_Findings-of-Fact_Conclusions-of-Law-and-Order_130719.pdf

PCB Cleanup Website - http://www.washington.sierraclub.org/uppercol/pcb/overview.html

Attachment 2 - Rules, Regulations & Laws that Impact the Lower Yakima Valley Ground Water Management Area

Revised Code of Washington

Chapter 7.48 RCW NUISANCES - http://apps.leg.wa.gov/rcw/default.aspx?cite=7.48

Chapter 15.54 RCW FERTILIZERS, MINERALS, AND LIMES - http://apps.leg.wa.gov/rcw/default.aspx?cite=15.54

Chapter 15.92 RCW CENTER FOR SUSTAINING AGRICULTURE AND NATURAL RESOURCES - http://apps.leg.wa.gov/rcw/default.aspx?cite=15.92&full=true

Chapter 35.88 RCW WATER POLLUTION — PROTECTION FROM http://apps.leg.wa.gov/rcw/default.aspx?cite=35.88

Chapter 36.36 RCW AQUIFER PROTECTION AREAS http://apps.leg.wa.gov/rcw/default.aspx?cite=36.36

Chapter 36.70A RCW GROWTH MANAGEMENT — PLANNING BY SELECTED COUNTIES AND CITIES - http://apps.leg.wa.gov/rcw/default.aspx?cite=36.70A

Chapter 36.94 RCW SEWERAGE, WATER, AND DRAINAGE SYSTEMS - http://apps.leg.wa.gov/rcw/default.aspx?cite=36.94&full=true

Chapter 43.20 RCW STATE BOARD OF HEALTH - http://apps.leg.wa.gov/rcw/default.aspx?cite=43.20

Chapter 43.21A RCW DEPARTMENT OF ECOLOGY - http://apps.leg.wa.gov/rcw/default.aspx?cite=43.21A

Chapter 43.21B RCW ENVIRONMENTAL AND LAND USE HEARINGS OFFICE — POLLUTION CONTROL HEARINGS BOARD - http://apps.leg.wa.gov/rcw/default.aspx?cite=43.21B

Chapter 43.21C RCW STATE ENVIRONMENTAL POLICY - http://apps.leg.wa.gov/rcw/default.aspx?cite=43.21C

Chapter 43.21M RCW INTEGRATED CLIMATE CHANGE RESPONSE STRATEGY - http://apps.leg.wa.gov/rcw/default.aspx?cite=43.21M

Chapter 43.23 RCW DEPARTMENT OF AGRICULTURE - http://apps.leg.wa.gov/rcw/default.aspx?cite=43.23

Title 70 RCW PUBLIC HEALTH AND SAFETY - http://apps.leg.wa.gov/rcw/default.aspx?Cite=70

Chapter 70.05 RCW LOCAL HEALTH DEPARTMENTS, BOARDS, OFFICERS — REGULATIONS - http://apps.leg.wa.gov/rcw/default.aspx?cite=70.05

Chapter 70.46 RCW HEALTH DISTRICTS -
http://apps.leg.wa.gov/rcw/default.aspx?cite=70.46

Chapter 70.95 RCW SOLID WASTE MANAGEMENT — REDUCTION AND RECYCLING
http://apps.leg.wa.gov/rcw/default.aspx?cite=70.95

Chapter 70.116 RCW PUBLIC WATER SYSTEM COORDINATION ACT OF 1977 -
http://apps.leg.wa.gov/rcw/default.aspx?cite=70.116

Chapter 70.118 RCW ON-SITE SEWAGE DISPOSAL SYSTEMS -
http://apps.leg.wa.gov/rcw/default.aspx?cite=70.118

Chapter 70.118B RCW LARGE ON-SITE SEWAGE DISPOSAL SYSTEMS -
http://apps.leg.wa.gov/rcw/default.aspx?cite=70.118B

Chapter 70.140 RCW AREA-WIDE SOIL CONTAMINATION -
http://apps.leg.wa.gov/rcw/default.aspx?cite=70.140

Chapter 70.142 RCW CHEMICAL CONTAMINANTS AND WATER QUALITY -
http://apps.leg.wa.gov/rcw/default.aspx?cite=70.142

Chapter 70.150 RCW WATER QUALITY JOINT DEVELOPMENT ACT -
http://apps.leg.wa.gov/rcw/default.aspx?cite=70.150

Title 90 RCW WATER RIGHTS — ENVIRONMENT -
http://apps.leg.wa.gov/rcw/default.aspx?Cite=90

Chapter 90.44 RCW REGULATION OF PUBLIC GROUNDWATERS -
http://apps.leg.wa.gov/rcw/default.aspx?cite=90.44

RCW 90.44.050 Permit to withdraw - http://apps.leg.wa.gov/rcw/default.aspx?cite=90.44.050

Chapter 90.64 RCW DAIRY NUTRIENT MANAGEMENT (Formerly Dairy waste management) - http://apps.leg.wa.gov/rcw/default.aspx?cite=90.64

Chapter 90.66 RCW FAMILY FARM WATER ACT -
http://apps.leg.wa.gov/rcw/default.aspx?cite=90.66

Chapter 90.74 RCW AQUATIC RESOURCES MITIGATION -
http://apps.leg.wa.gov/rcw/default.aspx?cite=90.74&full=true

Washington Administrative Code

Chapter 16-25 WAC - DISPOSAL OF DEAD LIVESTOCK -
http://apps.leg.wa.gov/wac/default.aspx?cite=16-25

Chapter 16-30 WAC - RESTRICTED FEEDLOTS AND RESTRICTED HOLDING FACILITIES - http://apps.leg.wa.gov/wac/default.aspx?cite=16-30

Chapter 16-200 WAC – FERTILIZERS - http://apps.leg.wa.gov/wac/default.aspx?cite=16-200

Chapter 16-201 WAC - FERTILIZER BULK STORAGE AND OPERATIONAL AREA CONTAINMENT RULES - http://apps.leg.wa.gov/wac/default.aspx?cite=16-201

Chapter 16-202 WAC - APPLICATION OF PESTICIDES AND PLANT NUTRIENTS THROUGH IRRIGATION SYSTEMS - http://apps.leg.wa.gov/wac/default.aspx?cite=16-202

Chapter 16-236 WAC - SEPA PROCEDURES - http://apps.leg.wa.gov/wac/default.aspx?cite=16-236

Chapter 16-250 WAC - COMMERCIAL FEED RULES - http://apps.leg.wa.gov/wac/default.aspx?cite=16-250

Chapter 16-256 WAC - COMMERCIAL FEED RULES — PROCESSED ANIMAL WASTE - http://apps.leg.wa.gov/wac/default.aspx?cite=16-256&full=true

Chapter 16-603 WAC - AQUACULTURE IDENTIFICATION REQUIREMENTS - http://apps.leg.wa.gov/wac/default.aspx?cite=16-603&full=true

Chapter 16-611 WAC - NUTRIENT MANAGEMENT - http://apps.leg.wa.gov/wac/default.aspx?cite=16-611&full=true

Chapter 82-10 WAC - PUBLIC FUNDS CASH FLOW - http://apps.leg.wa.gov/wac/default.aspx?cite=82-10&full=true

Chapter 82-48 WAC - DISCLOSURE OF PUBLIC RECORDS - http://apps.leg.wa.gov/wac/default.aspx?cite=82-48

Title 173 WAC - ECOLOGY, DEPARTMENT OF - http://apps.leg.wa.gov/wac/default.aspx?cite=173

Chapter 173-03 WAC - PUBLIC RECORDS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-03

Chapter 173-04 WAC - PRACTICE AND PROCEDURE - http://apps.leg.wa.gov/wac/default.aspx?cite=173-04

Chapter 173-06 WAC - DELEGATION OF POWERS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-06

Chapter 173-18 WAC - SHORELINE MANAGEMENT ACT — STREAMS AND RIVERS CONSTITUTING SHORELINES OF THE STATE - http://apps.leg.wa.gov/wac/default.aspx?cite=173-18

Chapter 173-20 WAC SHORELINE MANAGEMENT ACT — LAKES CONSTITUTING SHORELINES OF THE STATE - http://apps.leg.wa.gov/wac/default.aspx?cite=173-20

Chapter 173-22 WAC ADOPTION OF DESIGNATIONS OF SHORELANDS AND WETLANDS ASSOCIATED WITH SHORELINES OF THE STATE - http://apps.leg.wa.gov/wac/default.aspx?cite=173-22

Chapter 173-24 WAC TAX EXEMPTIONS AND CREDITS FOR POLLUTION CONTROL FACILITIES - http://apps.leg.wa.gov/wac/default.aspx?cite=173-24

Chapter 173-26 WAC STATE MASTER PROGRAM APPROVAL/AMENDMENT PROCEDURES AND MASTER PROGRAM GUIDELINES - http://apps.leg.wa.gov/wac/default.aspx?cite=173-26

Chapter 173-27 WAC SHORELINE MANAGEMENT PERMIT AND ENFORCEMENT PROCEDURES - http://apps.leg.wa.gov/wac/default.aspx?cite=173-27

Chapter 173-40 WAC POLLUTION DISCLOSURE - http://apps.leg.wa.gov/wac/default.aspx?cite=173-40

Chapter 173-50 WAC ACCREDITATION OF ENVIRONMENTAL LABORATORIES

http://apps.leg.wa.gov/wac/default.aspx?cite=173-50

Chapter 173-80 WAC LIMITATIONS ON USE OF REFERENDUM 39 GRANT FUNDS FOR WATER POLLUTION ABATEMENT

http://apps.leg.wa.gov/wac/default.aspx?cite=173-80

Chapter 173-95A WAC USES AND LIMITATIONS OF THE CENTENNIAL CLEAN WATER PROGRAM

http://apps.leg.wa.gov/wac/default.aspx?cite=173-95A

Chapter 173-98 WAC - USES AND LIMITATIONS OF THE WATER POLLUTION CONTROL REVOLVING FUND - http://apps.leg.wa.gov/wac/default.aspx?cite=173-98

Chapter 173-100 WAC GROUNDWATER MANAGEMENT AREAS AND PROGRAMS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-100

Chapter 173-136 WAC THE ESTABLISHMENT OF A SYSTEM OF AUTHORIZING THE WITHDRAWAL OF ARTIFICIALLY STORED GROUNDWATERS EMBODIED IN AN APPROVED DECLARATION UNDER RCW 90.44.130, WHICH ARE COMMINGLED WITH PUBLIC GROUNDWATERS IN GROUNDWATER AREAS, SUBAREAS, AND ZONES ESTABLISHED UNDER RCW 90.44.130 - http://apps.leg.wa.gov/wac/default.aspx?cite=173-136

Chapter 173-145 WAC ADMINISTRATION OF THE FLOOD CONTROL ASSISTANCE ACCOUNT PROGRAM - http://apps.leg.wa.gov/wac/default.aspx?cite=173-145

Chapter 173-150 WAC PROTECTION OF WITHDRAWAL FACILITIES ASSOCIATED WITH GROUNDWATER RIGHTS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-150

Chapter 173-152 WATER RIGHTS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-152

Chapter 173-153 WAC WATER CONSERVANCY BOARDS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-153

Chapter 173-154 WAC PROTECTION OF UPPER AQUIFER ZONES - http://apps.leg.wa.gov/wac/default.aspx?cite=173-154

Chapter 173-157 WAC UNDERGROUND ARTIFICIAL STORAGE AND RECOVERY - http://apps.leg.wa.gov/wac/default.aspx?cite=173-157

Chapter 173-158 WAC FLOOD PLAIN MANAGEMENT - http://apps.leg.wa.gov/wac/default.aspx?cite=173-158

Chapter 173-160 WAC MINIMUM STANDARDS FOR CONSTRUCTION AND MAINTENANCE OF WELLS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-160

Chapter 173-170 WAC AGRICULTURAL WATER SUPPLY FACILITIES - http://apps.leg.wa.gov/wac/default.aspx?cite=173-170

Chapter 173-173 WAC REQUIREMENTS FOR MEASURING AND REPORTING - http://apps.leg.wa.gov/wac/default.aspx?cite=173-173

Chapter 173-200 WAC - WATER QUALITY STANDARDS FOR GROUNDWATERS OF THE STATE OF WASHINGTON - http://apps.leg.wa.gov/wac/default.aspx?cite=173-200

Chapter 173-201A WAC - WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF WASHINGTON - http://apps.leg.wa.gov/wac/default.aspx?cite=173-201A

Chapter 173-204 WAC - SEDIMENT MANAGEMENT STANDARDS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-204

Chapter 173-205 WAC - WHOLE EFFLUENT TOXICITY TESTING AND LIMITS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-205

Chapter 173-208 WAC - GRANT OF AUTHORITY SEWERAGE SYSTEMS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-208

Chapter 173-216 WAC - STATE WASTE DISCHARGE PERMIT PROGRAM - http://apps.leg.wa.gov/wac/default.aspx?cite=173-216

Chapter 173-218 WAC - UNDERGROUND INJECTION CONTROL PROGRAM - http://apps.leg.wa.gov/wac/default.aspx?cite=173-218

Chapter 173-220 WAC - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT PROGRAM - http://apps.leg.wa.gov/wac/default.aspx?cite=173-220
Chapter 173-221 WAC - DISCHARGE STANDARDS AND EFFLUENT LIMITATIONS FOR DOMESTIC WASTEWATER FACILITIES - http://apps.leg.wa.gov/wac/default.aspx?cite=173-221

Chapter 173-221A WAC - WASTEWATER DISCHARGE STANDARDS AND EFFLUENT LIMITATIONS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-221A

Chapter 173-225 WAC - FEDERAL WATER POLLUTION CONTROL ACT — ESTABLISHMENT OF IMPLEMENTATION PROCEDURES OF APPLICATION FOR CERTIFICATION - http://apps.leg.wa.gov/wac/default.aspx?cite=173-225

Chapter 173-226 WAC - WASTE DISCHARGE GENERAL PERMIT PROGRAM - http://apps.leg.wa.gov/wac/default.aspx?cite=173-226

Chapter 173-255 WAC - LIMITATIONS ON USE OF REFERENDUM 26 GRANT FUNDS FOR WATER POLLUTION ABATEMENT -http://apps.leg.wa.gov/wac/default.aspx?cite=173-255

Chapter 173-303 WAC - DANGEROUS WASTE REGULATIONS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-303

Chapter 173-304 WAC - MINIMUM FUNCTIONAL STANDARDS FOR SOLID WASTE HANDLING - http://apps.leg.wa.gov/wac/default.aspx?cite=173-304

Chapter 173-307 WAC - POLLUTION PREVENTION PLANS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-307

Chapter 173-308 WAC - BIOSOLIDS MANAGEMENT - http://apps.leg.wa.gov/wac/default.aspx?cite=173-308

Chapter 173-313 WAC - LOCAL SOLID WASTE ENFORCEMENT GRANT REGULATION - http://apps.leg.wa.gov/wac/default.aspx?cite=173-313

Chapter 173-321 WAC- PUBLIC PARTICIPATION GRANTS

http://apps.leg.wa.gov/wac/default.aspx?cite=173-321

Chapter 173-322 WAC - REMEDIAL ACTION GRANTS AND LOANS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-322

Chapter 173-340 WAC - MODEL TOXICS CONTROL ACT — CLEANUP - http://apps.leg.wa.gov/wac/default.aspx?cite=173-340

Chapter 173-342 WAC - ADDITIONAL TAXABLE HAZARDOUS SUBSTANCE LIST - http://apps.leg.wa.gov/wac/default.aspx?cite=173-342

Chapter 173-350 WAC - SOLID WASTE HANDLING STANDARDS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-350

Chapter 173-351 WAC - CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-351

Chapter 173-360 WAC - UNDERGROUND STORAGE TANK REGULATIONS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-360

Chapter 173-406 WAC - ACID RAIN REGULATION - http://apps.leg.wa.gov/wac/default.aspx?cite=173-406

Chapter 173-500 WAC - WATER RESOURCES MANAGEMENT PROGRAM ESTABLISHED PURSUANT TO THE WATER RESOURCES ACT OF 1971 - http://apps.leg.wa.gov/wac/default.aspx?cite=173-500

Chapter 173-590 WAC - PROCEDURES RELATING TO THE RESERVATION OF WATER FOR FUTURE PUBLIC WATER SUPPLY - http://apps.leg.wa.gov/wac/default.aspx?cite=173-590

Chapter 173-700 WAC - WETLAND MITIGATION BANKS - http://apps.leg.wa.gov/wac/default.aspx?cite=173-700

Chapter 173-802 WAC - SEPA PROCEDURES - http://apps.leg.wa.gov/wac/default.aspx?cite=173-802

Chapter 173-806 WAC - MODEL ORDINANCE - http://apps.leg.wa.gov/wac/default.aspx?cite=173-806

Chapter 197-06 WAC - PUBLIC RECORDS -http://apps.leg.wa.gov/wac/default.aspx?cite=197-06

Chapter 197-11 WAC - SEPA RULES (Formerly chapter 197-10 WAC.) - http://apps.leg.wa.gov/wac/default.aspx?cite=197-11

Chapter 198-09 WAC - STATEMENT OF EXEMPTION FROM STATE ENVIRONMENTAL POLICY ACT - http://apps.leg.wa.gov/wac/default.aspx?cite=198-09

Chapter 198-14 WAC - PUBLIC RECORDS - http://apps.leg.wa.gov/wac/default.aspx?cite=198-14

Chapter 242-03 WAC - GMHB RULES OF PRACTICE AND PROCEDURE - http://apps.leg.wa.gov/wac/default.aspx?cite=242-03

Chapter 242-06 WAC - COMPLIANCE WITH STATE ENVIRONMENTAL POLICY ACT - http://apps.leg.wa.gov/wac/default.aspx?cite=242-06

Chapter 246-01 WAC - DESCRIPTION AND ORGANIZATION (State Dept. of Health) - http://apps.leg.wa.gov/wac/default.aspx?cite=246-01

Chapter 246-03 WAC - STATE ENVIRONMENTAL POLICY ACT — GUIDELINES - http://apps.leg.wa.gov/wac/default.aspx?cite=246-03

Chapter 246-203 WAC - GENERAL SANITATION - http://apps.leg.wa.gov/wac/default.aspx?cite=246-203

Chapter 246-270 WAC - SEWER SYSTEMS — CERTIFICATION OF NECESSITY FOR WATER DISTRICT INVOLVEMENT - http://apps.leg.wa.gov/wac/default.aspx?cite=246-270

Chapter 246-271 WAC - PUBLIC SEWAGE - http://apps.leg.wa.gov/wac/default.aspx?cite=246-271

Chapter 246-272 WAC - WASTEWATER AND RECLAIMED WATER USE FEES - http://apps.leg.wa.gov/wac/default.aspx?cite=246-272

Chapter 246-272A WAC - ON-SITE SEWAGE SYSTEMS - http://apps.leg.wa.gov/wac/default.aspx?cite=246-272A

Chapter 246-272B WAC - LARGE ON-SITE SEWAGE SYSTEM REGULATIONS - http://apps.leg.wa.gov/wac/default.aspx?cite=246-272B

Chapter 246-272C WAC - ON-SITE SEWAGE SYSTEM TANKS - http://apps.leg.wa.gov/wac/default.aspx?cite=246-272C

Chapter 246-273 WAC - ON-SITE SEWAGE SYSTEM ADDITIVES - http://apps.leg.wa.gov/wac/default.aspx?cite=246-273

Chapter 246-274 WAC - GREYWATER REUSE FOR SUBSURFACE IRRIGATION - http://apps.leg.wa.gov/wac/default.aspx?cite=246-274

Chapter 246-290 WAC - GROUP A PUBLIC WATER SUPPLIES - http://apps.leg.wa.gov/wac/default.aspx?cite=246-290

Chapter 246-291 WAC - GROUP B PUBLIC WATER SYSTEMS - http://apps.leg.wa.gov/wac/default.aspx?cite=246-291

Chapter 246-293 WAC - WATER SYSTEM COORDINATION ACT - http://apps.leg.wa.gov/wac/default.aspx?cite=246-293

Chapter 246-294 WAC - DRINKING WATER OPERATING PERMITS - http://apps.leg.wa.gov/wac/default.aspx?cite=246-294

Chapter 246-295 WAC - SATELLITE SYSTEM MANAGEMENT AGENCIES - http://apps.leg.wa.gov/wac/default.aspx?cite=246-295

Chapter 246-296 WAC - DRINKING WATER STATE REVOLVING FUND LOAN PROGRAM - http://apps.leg.wa.gov/wac/default.aspx?cite=246-296

Chapter 371-08 WAC - PRACTICE AND PROCEDURE (Environmental and Land Use Board) - http://apps.leg.wa.gov/wac/default.aspx?cite=371-08

Chapter 372-52 WAC - WATER DISTRICTS REQUESTS FOR APPROVALS AND CERTIFICATIONS OF NECESSITY TO OPERATE SEWER DISTRICTS WATER POLLUTION CONTROL AND ABATEMENT PLANS FOR SEWAGE DRAINAGE BASINS - http://apps.leg.wa.gov/wac/default.aspx?cite=372-68

Chapter 508-12 WAC - ADMINISTRATION OF SURFACE AND GROUNDWATER CODES -http://apps.leg.wa.gov/wac/default.aspx?cite=508-12

Yakima County Code - http://www.codepublishing.com/WA/yakimacounty/

Title 1 General Provisions
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl?path=../html/YakimaCounty01/YakimaCounty01.html

Title 6 Health, Welfare and Sanitation
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl?path=../html/YakimaCounty06/YakimaCounty06.html
Chapter 6.02 Refuse Disposal Sites
Chapter 6.04 County Health District
Chapter 6.20 Public Nuisances
Chapter 6.22 Public Nuisances – Rights of Farmers

Title 12 Water and Sewage
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl

Chapter 12.04 Comprehensive Sewer and Water Plan Chapter 12.05 Sewer System
Chapter 12.08 Water System
Chapter 12.09 Stormwater Management Utility Chapter 12.10 Stormwater Authority

Title 15 Zoning
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl?path=../html/YakimaCounty15/YakimaCounty15.html
Chapter 15.16 Zoning Map
Chapter 15.18 Permitted, Administrative and Conditional Uses
Chapter 15.20 General Zoning District Regulations
Chapter 15.21 Agricultural Zoning District
Title 15A Yakima County Urban Growth Area Zoning
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl?path=../html/YakimaCounty15A/YakimaCounty15A.html

Title 16 Environment
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl?path=../html/YakimaCounty16/YakimaCounty16.html
Chapter 16.04 State Environmental Policy Act
Chapter 16.16 Reclamation Program
Title 16A Critical Areas
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl?path=../html/YakimaCounty16A/YakimaCounty16A.html
Title 16B Project Permit Administration
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl?path=../html/YakimaCounty16B/YakimaCounty16B.html
Title 16C Critical Areas
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl?path=../html/YakimaCounty16C/YakimaCounty16C.html
Title 16D Shoreline Master Program
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl?path=../html/YakimaCounty16D/YakimaCounty16D.html

Title 17 Urban Growth Area Policy
http://www.codepublishing.com/WA/yakimacounty/frameless/index.pl?path=../html/YakimaCounty17/YakimaCounty17.html

Federal Laws & Guidelines

Clean Water Act: 33 U.S.C. §§1251-1387
1. Summary:
Summary of the Clean Water Act – EPA. http://www.epa.gov/lawsregs/laws/cwa.html
2. Full Text:
Federal Water Pollution Control Act. PL 107 – 303. http://epw.senate.gov/water.pdf
3. Congressional Research Service Reports:

Clean Water Act: A Summary of the Law.
http://crs.ncseonline.org/nle/crsreports/10May/RL30030.pdf or
http://infousa.state.gov/government/branches/docs/clean_water_act_summary.pd
Water Quality Issues in the 111th Congress: Oversight and Implementation.
http://crs.ncseonline.org/NLE/CRSreports/10Aug/R40098.pdf
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http://www.fas.org/sgp/crs/misc/R41594.pdf
Water Quality: Implementing the Clean Water Act.
http://www.nationalaglawcenter.org/assets/crs/RL33466.pdf
Clean Water Act and Pollutant Total Maximum Daily loads (TMDLs).
http://www.fas.org/sgp/crs/misc/R42752.pdf
Animal Waste and Water Quality: EPA's Response to the *Waterkeeper Alliance* Court Decision on Regulation of CAFO's http://crs.ncseonline.org/nle/crsreports/10Jul/RL33656.pdf

Safe Drinking Water Act: 42 U.S.C. 300f-300j-25
1. Summary:
Safe Drinking Water Act – EPA. http://water.epa.gov/lawsregs/rulesregs/sdwa/index.cfm
Understanding the safe Drinking Water Act – EPA
http://water.epa.gov/lawsregs/guidance/sdwa/upload/2009_08_28_sdwa_fs_30ann_sdwa_web.pdf
2. Full Text
Title XIV of the Public Health Service Act: Safety of Public Water Systems (Safe Drinking Water Act) http://epw.senate.gov/sdwa.pdf
3. Congressional Research Service Reports:
Safe Drinking Water act (SDWA): A Summary of the Act and Its Major Requirements.
http://www.fas.org/sgp/crs/misc/RL31243.pdf
Safe Drinking Water Act (SDWA): Selected Regulatory and Legislative Issues.
http://assets.opencrs.com/rpts/RL34201_20100422.pdf or
http://assets.opencrs.com/rpts/RL31243_20101210.pdf

National Environmental Policy Act: 42 U.S.C. 4321-4347
1. Summary:
National Environmental Policy Act, Basic Information – EPA.
http://www.epa.gov/compliance/basics/nepa.html
National Environmental Policy Act – GSA. http://www.gsa.gov/portal/content/104676
NEPA Home Page. http://ceq.hss.doe.gov/
2. Full Text:
Title 42 – The Public Health and Welfare, Chapter 55 – National Environmental Policy.
http://www.law.cornell.edu/uscode/pdf/lii_usc_TI_42_CH_55.pdf
3. Congressional Research Service Reports:
Hydraulic Fracturing and the National Environmental Policy Act (NEPA): Selected Issues.
http://www.fas.org/sgp/crs/misc/R42502.pdf
Implementing the National Environmental Policy Act (NEPA) for Disaster Response, Recovery, and Mitigation Projects. http://www.fas.org/sgp/crs/misc/RL34650.pdf

Solid Waste Disposal Act/Resource Conservation and Recovery Act: 42 U.S.C. 6901-6992k
1. Summary:
Summary of the Resource Conservation and Recovery Act – EPA.
http://www.epa.gov/lawsregs/laws/rcra.html
Resource Conservation and Recovery Act, Agriculture – EPA.
http://www.epa.gov/agriculture/lrca.html
2. Full Text:
Solid Waste Disposal Act. http://epw.senate.gov/rcra.pdf

Comprehensive Environmental Response, Compensation, and Liability Act: 42 U.S.C. 9601-9675; 26 U.S.C. 4611,4661, 4671, 59A, 9507; 10 U.S.C. 2700-2710
1. Summary:
CERCLA Overview – EPA. http://www.epa.gov/superfund/policy/cercla.htm
Summary of the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) http://www.epa.gov/lawsregs/laws/cercla.html
2. Full Text:
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 "Superfund" http://epw.senate.gov/cercla.pdf
3. Congressional Research Service Reports:
Comprehensive Environmental Response, Compensation, and Liability Act: A Summary of Superfund Cleanup Authorities and Related Provisions of the Act.
http://www.fas.org/sgp/crs/misc/R41039.pdf

Pollution Prevention Act of 1990: 42 U.S.C. 13101-13109
1. Summary:
Summary of the Pollution Prevention Act – EPA. http://www.epa.gov/lawsregs/laws/ppa.html
2. Full Text:
Pollution Prevention Act of 1990. http://www.epa.gov/p2/pubs/p2policy/act1990.htm or http://epw.senate.gov/PPA90.pdf
3. Congressional Research Service Reports:
Federal Pollution Control Laws: How Are They Enforced?
http://www.fas.org/sgp/crs/misc/RL34384.pdf

Toxic Substances Control Act: 15 U.S.C. 2601-2697
1. Summary:
Summary of the Toxic Substances Control Act – EPA.
http://www.epa.gov/lawsregs/laws/tsca.html
Toxic Substances Control Act, Agriculture – EPA. http://www.epa.gov/agriculture/lsca.html
2. Full Text:
Toxic Substances Control Act. http://epw.senate.gov/tsca.pdf
3. Congressional Research Service Reports:
Federal Regulation of Chemicals in Commerce: An Overview of Issues for the 113th Congress.
http://www.fas.org/sgp/crs/misc/R42879.pdf
Proposed Reform of the Toxic Substances Control Act (TSCA) in the 112th Congress: S. 847 Compared with Current Law. http://www.lawbc.com/uploads/docs/R41937%5B1%5D.pdf

The Toxic Substances Control Act (TSCA): Implementation and New Challenges.
https://portal.acs.org/preview/fileFetch/C/CNBP_023612/pdf/CNBP_023612.pdf

Emergency Planning and Community Right-to-Know Act: 42 U.S.C. 11001-11050
1. Summary:
Summary of the Emergency Planning and Community Right-to-Know Act - EPA
http://www.epa.gov/lawsregs/laws/epcra.html
Emergency Planning and Community Right-to-Know Act, Agriculture – EPA.
http://www.epa.gov/agriculture/lcra.html
Emergency Planning and Community Right-to-Know Act Overview.
http://www.epa.gov/osweroe1/content/lawsregs/epcraover.htm
2. Full Text:
Title 42 – The Public Health and Welfare, Chapter 116 – Emergency Planning and Community Right-to-Know http://www.law.cornell.edu/uscode/pdf/lii_usc_TI_42_CH_116.pdf
3. Congressional Research Service Reports:
The Emergency Planning and Community Right-to-Know Act (APCRA): A Summary.
http://www.fas.org/sgp/crs/misc/RL32683.pdf

Federal Insecticide, Fungicide, and Rodenticide Act and Amendments: 7 U.S.C. 136-136y
1. Summary:
Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), Agriculture – EPA
http://www.epa.gov/agriculture/lfra.html
Summary of the Federal Insecticide, Fungicide, and Rodenticide Act – EPA.
http://www.epa.gov/lawsregs/laws/fifra.html
2. Full Text:
Federal Insecticide, Fungicide, and Rodenticide Act.
http://www.epa.gov/pesticides/bluebook/FIFRA.pdf
3. Congressional Research Service Reports
Pesticide Use and Water Quality: Are the Laws Complementary or in Conflict?
http://crs.ncseonline.org/NLE/CRSreports/07Jul/RL32884.pdf
Pesticide Law: A Summary of the Statutes.
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Endangered Species Act: 16 U.S.C. §1531 et seq. (1973)
1. Summary:
Summary of the Endangered Species Act. http://www.epa.gov/lawsregs/laws/esa.html
2. Full Text:
Endangered Species act of 1973. http://epw.senate.gov/esa73.pdf
3. Congressional Research Service Reports:
The Endangered Species Act: A Primer.
http://www.nationalaglawcenter.org/assets/crs/RL31654.pdf
The Endangered Species Act (ESA) in the 111th Congress: Conflicting Values and Difficult Choices. http://infousa.state.gov/government/branches/docs/R40185.pdf
The Endangered Species Act (ESA) in the 112th Congress: Conflicting Values and Difficult Choices. http://www.fas.org/sgp/crs/misc/R41608.pdf

Bioterrorism Act H.R. 2448, P.L. 109 - 417

1. Summary:

Requirements of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Bioterrorism act) – EPA.

http://water.epa.gov/infrastructure/watersecurity/lawsregs/bioterrorismact.cfm

2. Full Text:

Public Health and Bioterrorism Preparedness and Response act of 20021

http://www.selectagents.gov/resources/PL107-188.pdf or http://www.gpo.gov/fdsys/pkg/BILLS-107hr3448enr/pdf/BILLS-107hr3448enr.pdf

Public Law 107 – 188, Title IV – Drinking water Security and Safety.

http://www.epa.gov/watersecurity/pubs/security_act.pdf

3. Congressional Research Service Reports:

Federal Efforts to Address the Threat of Bioterrorism: Selected Issues and Options for Congress.

http://www.fas.org/sgp/crs/terror/R41123.pdf

The Pandemic and All-Hazards Preparedness Act (P.L. 109-417): Provisions and Changes to Preexisting Law. http://www.nationalaglawcenter.org/assets/crs/RL33589.pdf

Food, Conservation and Energy Act of 2008 (Commonly referred to at the 2008 Farm Bill): P.L. 110-246

1. Summary:

Conservation Title: Food, Conservation and Energy Act of 2008.

http://www.nacdnet.org/policy/agriculture/farmbill/2007/NACD%20Farm%20Bill%20Conservation%20Title%20Summary.pdf

2. Full Text

Public Law 110 – 246. http://www.gpo.gov/fdsys/pkg/PLAW-110publ234/html/PLAW-110publ234.htm or http://www.gpo.gov/fdsys/pkg/PLAW-110publ246/pdf/PLAW-110publ246.pdf

H.R. 6124. http://www.usda.gov/documents/Bill_6124.pdf

3. Congressional Research Services Reports:

Water Quality Issues in the 112th Congress: Oversight and Implementation.

http://www.fas.org/sgp/crs/misc/R41594.pdf

Renewable Energy Programs in the 2008 Farm Bill.

http://crs.ncseonline.org/nle/crsreports/10Sep/RL34130.pdf

Conservation Reserve Program: Status and Current Issues.

http://crs.ncseonline.org/nle/crsreports/10Oct/RS21613.pdf

Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act of 2010 (P.L.111-80) H.R. 2997

1. Summary:

2. Full text:

Agricultural, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2010. http://www.gpo.gov/fdsys/pkg/PLAW-111publ80/pdf/PLAW-111publ80.pdf or http://www.gpo.gov/fdsys/pkg/BILLS-111hr2997enr/pdf/BILLS-111hr2997enr.pdf

3. Congressional Research Services:
Agriculture and Related Agencies: FY 2009 Appropriations.
http://www.nationalaglawcenter.org/assets/crs/R40000.pdf
Agriculture and Related Agencies: FY 2010 Appropriations.
http://www.nationalaglawcenter.org/assets/crs/R40721.pdf

Food Security Act of 1985: P.L. 99 – 198. 16 U.S.C. 3843 - 3962
1. Summary:
Provisions of the Food Security Act of 1985.
http://www.ers.usda.gov/media/302417/aib498_1_.pdf
Summary of Food Security Act of 1985. http://thomas.loc.gov/cgi-bin/bdquery/z?d099:HR02100:@@@D&summ2=m&
2. Full Text:
Food Security act of 1985, http://www.nationalaglawcenter.org/assets/farmbills/1985-3.pdf
3. Congressional Research Services:
Conservation Compliance and U.S. Farm Policy. https://www.fas.org/sgp/crs/misc/R42459.pdf
Agricultural Conservation: A Guide to Programs. http://www.fas.org/sgp/crs/misc/R40763.pdf

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(The following e-mail was sent by Jean Mendoza focusing on nitrate data base development, BMP effectiveness review and may also have relevance to nitrate regulatory review)

From: JEAN MENDOZA [mailto:jean.mendoza@wildblue.net]
Sent: Friday, July 26, 2013 9:05 PM
To: Ali Sedighi; Andres Cervantes; Cook, Kirk (AGR); Dr. Kefy Desta; Helen Reddout; Jan Whitetfoot, Concerned Citizens of Yakama Reservation; Jim Dyjak; Jim Trull; kakaleena1; Kevin Lindsey; Larry Fendel; Laurie Crowe, South Yakima Conservation District; Lonna Frans, USGS; Lorraine Edmond (Edmond.Lorraine@epamail.epa.gov); Mary Bryson Baechler; Matt Bachmann; Stern, Ginny; Steve Swope, Pacific Groundwater; Stuart Turner, Turner & Co; Thomas Tebb, Ecology; Donald Gatchalian; Penny Mabie
Subject: Scope of Work

Hello HDR & PGG & Data Work Group,

May I document components of our Data Base that are essential for a successful analysis? We require:

- A listing and mapping of all lagoons and ponds in the Lower Yakima Valley along with capacities and documentation of any testing for nitrates. It is my understanding that Yakima County permits lagoons when there is a new project or expansion/modification of an existing AFO/CAFO that triggers land use review under county zoning or environmental review under the State Environmental Policy act (SEPA). Although the South Yakima Conservation District

has no enforcement authority, they provide technical expertise for lagoon and pond construction and they should be able to tell us where lagoons are located and describe them/

- An analysis of ground to surface water flow with an estimation of the groundwater contribution to nitrates and acidity in the surface water. It will help to describe streams and canals as well as parts of the Yakima River that are at risk due to temperature, pH, contaminants or TMDL. The Department of Ecology should have this data.

- An analysis and mapping of areas where biosolids are applied to the fields and an estimation of the impact from this source.

- A listing and mapping of fields that are devoted to composting operations along with documentation of appropriate soil and water testing.

Within Best Management Practices we need a way to estimate and describe the diversion of nitrates to air and surface water that may result from efforts to improve ground water. For example, managing soil to promote post-growing season denitrification of nitrate may reduce nitrate leaching to groundwater, but will increase nitrous oxide emissions to the atmosphere. Injection of nutrients into the soil decreases air pollution but may increase the leaching of nitrates to the groundwater.

Please attempt to retest the wells that were studied in 1990 in the Washington State Agricultural Chemicals Pilot Study (Erickson & Norton) and 1992 in the Groundwater Quality Assessment – Hornby Lagoon (Erickson). These documents are available in the GWMA Resource Library.

Can we ask the GWAC to consider an analysis of nitrogen balance in the Lower Yakima Valley? In 2000 the Natural Resource Conservation Service found that the Yakima Valley produces significantly more nutrients than the land can assimilate. The contributing factors have multiplied since that time. We should look closely at this balance, in the same manner as the UC Davis study in the Central Valley of California.

Thanks. I look forward to our next meeting.

Jean Mendoza

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Kellogg, R.L., Lander, C.H., Moffit, D.C. & Gollehan, N. (2000) Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients: Spatial and Temporal Trends for the United States. Natural Resources Conservation Service. Retrieved from http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_012133.pdf

From: Prest, Virginia (AGR) [mailto:VPrest@agr.wa.gov]
Sent: Friday, August 02, 2013 2:45 PM
To: Donald Gatchalian; 'Chelsea Durfey'; Cook, Kirk (AGR); 'Doug Simpson'; 'Dr. Kefy Desta'; 'Dr. Troy Peters'; 'Elizabeth Sanchey, Yakama Nation'; 'Jean Mendoza, Friends of Toppenish Creek'; 'Jim Trull'; 'John Van Wingerden, Port of Sunnyside'; 'Laurie Crowe'; 'Lonna Frans, USGS'; 'Rachel Little'; 'Ralph Fisher (Fisher.Ralph@EPAmail.EPA.gov)'; 'Robert Farrell'; 'Ron Cowin, SVID'; 'Stuart Turner, Turner & Co'; Tebb, G. Thomas (ECY)
Cc: Lisa Freund; Ali Sedighi; Terry Keenhan
Subject: RE: LYV GWAC Deliverable Submittal: DRAFT Technical Memo #1 - Regulatory Review

Don,

Thanks for giving me the opportunity to clear up what I see as misunderstandings.

One thing I continue to see mixed up is the relationship between regulatory agency and local conservation district. There are two kinds of technical assistance in my mind

Regulatory technical assistance RCW 43.05 – 70, 100, 110 – Agency notifies a producer, dairy, landowner, etc of activities under their control (or responsibility) that must be corrected to meet water quality standards or protect water quality.

Management practice technical assistance – Generally provided by local conservation district or NRCS or private industry technical service provider (TSP). Helps producer evaluate site specific conditions that may threaten resources (soil, water, air, plants, animal and humans). Help producer select individual BMPs or a suite of BMPs that will protect the resources; provide cost share when available.

[Change dairy operations on on-tribal lands description to read:

RCW 90.64,the Dairy Nutrient Management Act ,requires all licensed grade "A" dairies to develop and implement nutrient management plans, register with the WSDA, and participate in a program of regular inspections and compliance. WSDA is responsible for implementing RCW 90.64 and is required to follow RCW 43.05 (provide regulatory technical assistance when water quality is impacted or threatend) and may refer dairy operations to local conservation districts for additional technical assistance to implement BMPs that will protect water quality. WSDA is responsible for inspections and compliance actions for all dairies . All dairy farms must:

- Maintain records for 5 years to demonstrate that applications of nutrients to crop land are within acceptable agronomic rates.

- In accordance with RCW 90.64.010 (17)(c) and 90.64.102, failure to maintain all records necessary to show that applications of nutrient to the land were within acceptable agronomic rates may be subject to a civil penalty."

Change the authority of institution to read:

- Conduct inspections of licensed dairies every 22 months
- Responsible for inspections and compliance actions for all dairies]

Change the last sentence of the description of CAFOs on non-tribal lands to read:

> *There is a Memorandum of Agreement between Ecology and WSDA, where WSDA performs inspections, review of nutrient management plans, and provides regulatory technical assistance.*

From: Fisher, Ralph [mailto:fisher.ralph@epa.gov]
Sent: Monday, August 05, 2013 6:33 AM
To: Donald Gatchalian
Cc: Ginny Prest
Subject: RE: LYV GWAC Deliverable Submittal: DRAFT Technical Memo #1 - Regulatory Review

Thank you Don. I have a couple suggestions concerning where soil sample sites might be located. In my prior life with NRCS before I became the State Agronomist, one of my job was a Watershed Party Planning Leader. In that capacity I organized and coordinated a number of large projects similar to this one. Here are a couple of suggestions for your group to consider to help get started. Some of this may be built into the Technical Memo 1 but I couldn't see it:

1. The Technical Memo #1 shows established project boundaries so that step is done.
2. Determine:
    a. Total acres of irrigated cropland
    b. A general soil map for the project area. NRCS can use Soil Data Mart to help you develop this map and related soil interpretations.
    c. Acres of sprinkler irrigated land and acres of surface irrigated land
    d. Acres where land application occurs and acres where only commercial fertilizer is applied. At this point it does not matter if this is third party application or application made by a dairy, just acres applied. There are probably a lot of acres where both are applied. If its possible to identify those acres it would be good but maybe should be considered fine tuning for the future.
    e. "Typical" crops and crop rotations for each category and if possible an estimate of acres.
    f. As you begin to locate typical crop rotations to specific sites check soil survey data to make sure that site is also representative of the project area.

3. The information obtained will help you determine what kind of crop rotations and irrigation systems represent your study area. Since you are choosing to start with a small number of sample sites it is important to select sites which will result in data representative of the area. For example If one of the typical sprinkler irrigated crop rotations is 1 yr. silage corn, 2 years of cereal crop, 4 years alfalfa, and that rotation makes up 20% of rotations in that irrigation group then 20% of the sample sites should be located on fields with that rotation so that results of the study are also representative of that rotation. So then the question is what are the representative crops. I suggest you consider any of the annually seeded crops within the rotation.
4. As you work your way through the process you may find that 20 sample sites are not sufficient. It may take 25 or 30 or.... The important thing is that the sites selected represent the study area, that way data or information obtained is also representative of the study area.

Please don't misunderstand me here. I'm not trying to tell you how to conduct or organize your study. As I said I have had considerable experience in this area so I'm just trying to offer assistance. It sounded like there are several individuals who also have experience doing this. Please feel free to call if you want to discuss it some more.

Ralph Fisher
208-378-5761

From: Eaton, Thomas [mailto:Eaton.Thomas@epa.gov]
Sent: Wednesday, August 07, 2013 11:10 AM
To: Donald Gatchalian
Subject: Comments on Regulatory and Policy table

Hi Don,

Sorry for the late comments, but here they are:

Under the UIC/EPA row on page 10, change the first sentence in the description box to read, " UIC program requirements are found in 40 CFR Parts 144,146 and 147.

I also believe the descriptions of the Dairy program and the roles of WSDA, the Conservation District and Ecology need to be more sharply defined to so that some gaps in the program can be better understood. Key gaps from EPA's perspective include – lack of specific requirements and oversight of construction of new lagoons and failure to upgrade old lagoons, transfer of manure to a third party applicator is not controlled and lack of groundwater monitoring requirements.

Thomas Eaton
Director, Washington Operations Office
USEPA, Region 10

360-753-8086
206-295-9364 (cell)

Attachment C

Public Questionnaire (Survey #2) Outreach and Results

- Lower Yakima Valley GWMA Informational Public Questionnaire (English/Spanish)
- "Tell Us About Your Drinking Water" Postcard (English/Spanish)
- Information Packet (English/Spanish)
- News Release: Monday, July 29, 2013 (English/Spanish)
- News Release: Monday, September 30, 2013 (English/Spanish)
- Public Questionnaire Survey Results

LOWER YAKIMA VALLEY
GROUNDWATER ADVISORY COMMITTEE

Form # GWMA0001 A
Revised 7/25/13

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

Lower Yakima Valley Groundwater Management Area
Informational Public Questionnaire

☐ Survey Completed ☐ Survey Attempted/Not Completed:
No One Home_____ Declined_____ Other_____
Number of Attempts_____

***Address:**_____

***Parcel Number**_____ ***Survey Date**_____ ***Surveyor**_____

***Mandatory Information**

The purpose of this questionnaire is to learn more about water quality and nitrates in drinking water from people who live here. Thank you for sharing your ideas.

1. Where does the water in your home come from?
   PRIVATE WELL SHARED WELL COMMUNITY WATER DON'T KNOW
2. If you have a private or shared well, where do you get your drinking water?
   TAP WATER BOTTLED TREATED WATER
3. If you are on a community water system, where do you get your drinking water?
   TAP WATER BOTTLED
4. Are you aware of the potential health hazards in drinking water with high levels of nitrates? YES NO
5. Has your well water been tested for nitrates? YES NO DON'T KNOW
6. Has your well water been tested for bacteria? YES NO DON'T KNOW
7. Do you own your home or rent? OWN RENT
8. If you rent, do you feel comfortable asking your landlord to have the water tested? YES NO
9. Who would you trust to give you reliable information about nitrates in drinking water?
   _____
10. Are you aware of anyone in your home that has become ill from drinking your water? YES NO
    Please describe: _____
    Has this been confirmed by a physician? YES NO DON'T KNOW
11. Are there things that you do to make sure your drinking water is safe? YES NO
    Please describe _____
12. How long have you lived in your home? Years_____ Months _____
13. Is there a child under the age of six months in your household ? YES NO
14. Are there pregnant women in your household? YES NO
15. Are there chronically ill people in your household? YES NO
16. Have you heard of the Lower Yakima Valley Ground Water Management Area (GWMA)? YES NO
17. Where have you heard of the GWMA? Please circle all that apply:
    RADIO TELEVISION NEWSPAPER NEIGHBORS AT WORK HEALTH CARE OTHER
18. Are you interested in being contacted for a survey of your well at a later date? YES NO
    If yes, please provide the following:
    Name:_____
    Mailing Address (Street or P.O. Box, City, State, Zip)_____
    Phone: _____E-mail: _____
19. Do you have any information about your well or your well log? YES NO DON'T KNOW

Thank you for participating in this survey. We will use the information to increase our understanding of what people know about groundwater contamination and to improve our efforts to educate people on how to identify and prevent nitrate contamination of the groundwater.

Please return this survey to: Lower Yakima Valley Groundwater Management Area, c/o Yakima County Public Services, 128 N 2nd St, Fourth Floor, Yakima WA 98901.

LOWER YAKIMA VALLEY

GROUNDWATER ADVISORY COMMITTEE

Forma # GWMA0001 A
Refrito 7/25/13

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

Lower Yakima Valley Groundwater Management Area
Informational Public Questionnaire

☐ Encuesta terminada ☐ Se intentó hacer la encuesta/No se hizo:
No había nadie en casa_____ No se quiso hacer_____
Otra razón_____ Número de intentos_____

***Domicilio:**_____

***Número de parcela**_____ ***Fecha de la encuesta**_____ ***Encuestador**_____

***Información requerida**
El propósito de este cuestionario es saber más de los nitritos y la calidad del agua potable según las personas que viven en esta propiedad. Gracias por atendernos y compartir sus comentarios.

1. ¿De donde viene el agua de su casa?
   POZO PRIVADO POZO COMPARTIDO AGUA DE LA COMUNIDAD NO SÉ
2. Si usted tiene un pozo privado o compartido ¿de donde toma el agua para beber?
   DE LA LLAVE EMBOTELLADA AGUA TRATADA
3. Si usted recibe su agua de un sistema comunitario ¿de donde toma el agua para beber?
   DE LA LLAVE EMBOTELLADA
4. ¿Sabe usted los riesgos potenciales de tomar agua que contenga altos niveles de nitritos? SI NO
5. ¿Se le ha hecho prueba de nitritos a su agua? SI NO NO SÉ
6. ¿Se le ha hecho prueba de bacteria a su agua? SI NO NO SÉ
7. ¿Vive en casa propia o de renta? PROPIA DE RENTA
8. Si usted renta ¿podría usted pedirle al dueño de la propiedad que le haga pruebas al agua? SI NO
9. ¿A quién le confiaría usted que le dé información confiable acerca de nitritos en el agua?
   _____
10. ¿Sabe usted si alguien se ha enfermado por tomar el agua potable de su casa? SI NO
    Por favor describa: _____
    ¿Se ha confirmado esto con un médico? SI NO NO SÉ
11. ¿Hace usted algo para asegurarse de que su agua sea segura para tomarse? SI NO
    Por favor describa: _____
12. ¿Por cuánto tiempo ha vivido en su casa? Años _____ Meses _____
13. ¿Vive en su casa algún niño menor de seis meses? SI NO
14. ¿Vive alguna mujer embarazada en su casa? SI NO
15. ¿Hay alguna persona en su casa con alguna enfermedad crónica? SI NO
16. ¿Había escuchado usted del área de manejo de agua subterránea del valle bajo de Yakima o Lower Yakima Valley Ground Water Management Area (GWMA)? SI NO
17. ¿Dónde había escuchado de GWMA? Por favor circule todos los que corresponden:
    RADIO TELEVISIÓN PERIÓDICO VECINOS EN EL TRABAJO EN LA CLÍNICA OTROS
18. ¿Está usted interesado de que le visitemos en una fecha futura para evaluar su pozo? SI NO
    Si así es, por favor indique lo siguiente:
    Nombre:_____
    Domicilio de correo (calle o P.O. Box, Ciudad, Estado, Código postal)_____
    Teléfono: _____ Correo electrónico:_____
19. ¿Usted tiene otra información de su pozo o archivos de lecturas de su pozo? SI NO NO SÉ

Gracias por participar en esta encuesta. Utilizaremos esta información para poder entender mejor lo que la gente sabe acerca de la contaminación del agua subterránea y para mejorar nuestros esfuerzos para informar a la gente a identificar y prevenir la contaminación de nitritos en el agua subterránea.

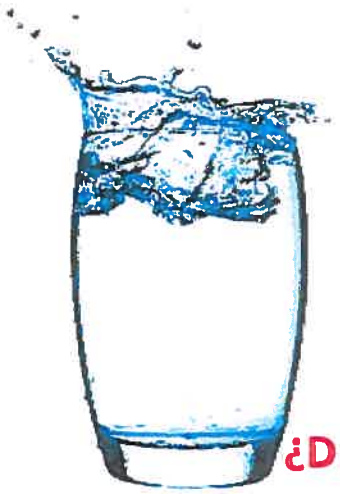
Por favor devuelva esta encuesta a: Lower Yakima Valley Groundwater Management Area, c/o Yakima County Public Services, 128 N 2nd St, Fourth Floor, Yakima WA 98901.

LOWER YAKIMA VALLEY
GROUNDWATER ADVISORY COMMITTEE

Heritage University

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

128 N 2nd St, 4th Floor Courthouse
Yakima WA 98901



Label Here

¿Díganos acerca de su agua potable?

Tell us about your drinking water!

Participate in the Groundwater Survey!

Your opinion is IMPORTANT!

In the next few days, Heritage University students will come to your door to ask about:

- *Your drinking water*
- *Your opinion on how safe it is to drink*
- *What you know about nitrate in drinking water*
- *And what you know about the Lower Yakima Valley Groundwater Management Area (GWMA)*

Please take five minutes to answer the survey questions.

Limited time offer!

To learn more, please call 509.574.2300. For assistance in Spanish, please call 509.329.2120.

The voluntary survey is sponsored by the Lower Yakima Valley Groundwater Advisory Committee (GWAC). For more information, please visit http://www.yakimacounty.us/gwma

¡Su opinión es IMPORTANTE!

En los próximos días estudiantes de la Universidad Heritage vendrán a su casa a preguntarle acerca de lo siguiente:

- *Su agua potable*
- *Su opinión acerca de lo segura que es tomarla*
- *Lo que usted sabe sobre los nitratos en el agua para tomar y*
- *Qué es lo que usted sabe acerca del Área de Manejo del Agua Subterránea del Valle de Yakima (GWMA)*

Por favor tómese cinco minutos para responder las preguntas de esta encuesta.

¡Oferta de tiempo limitado!

Para más información, llame al 509.574.2300. Para asistencia en español, por favor llame al 509.329.2120.

Esta encuesta voluntaria es auspiciada por el Comité Consultor de Manejo de Agua Subterránea del Valle de Yakima (GWAC). Para más información, por favor visite http://www.yakimacounty.us/gwma

LOWER YAKIMA VALLEY

GROUNDWATER ADVISORY COMMITTEE

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

August 2013

Dear Lower Valley Resident,

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. The primary long-term goal of the Groundwater Management Area (GWMA) is to reduce concentrations of nitrate in groundwater to below Washington State drinking water standards. The target area extends from Union Gap to County Line Road in Yakima County (see map for details).

We are asking for input from concerned citizens affected by or interested in the problems and solutions associated with elevated nitrate levels in drinking water. The attached survey is one method we will use to gather input from various groups and individuals. We wish to:

1. Learn how much people know about the concern with nitrates in groundwater
2. Learn about local residents' beliefs and perceptions regarding the problem
3. Assess how well we as a group can communicate important information to the public

Please help us by responding as best you can to this short survey. We welcome all additional comments. Your input will help us achieve the very important goal of reducing nitrates in our drinking water in the valley.

Sincerely,

The Lower Yakima Valley Groundwater Management Area Advisory Committee
http://www.yakimacounty.us/gwma/

If you have questions about your drinking water, please call the State Department of Health at 509-329-2120.

If you have questions about the survey or the Groundwater Management Area, please call Yakima County Public Services at 509-574-2300.

For assistance in Spanish, please call the State Department of Health at 509-329-2120.

LOWER YAKIMA VALLEY

GROUNDWATER ADVISORY COMMITTEE

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

Agosto 2013

Estimado residente del Valle Bajo de Yakima,

El Comité de Manejo de Agua Subterránea del Área del Valle Bajo de Yakima (GWAC por sus siglas en inglés) es un grupo formado por varias agencias y ciudadanos que coordina los esfuerzos para reducir la contaminación por nitrato en el agua subterránea en el área del Valle Bajo de Yakima. La meta principal a largo plazo de este grupo es la de reducir la concentración de nitrato en el agua por debajo de los estándares del Estado de Washington. El área de enfoque abarca desde Union Gap hasta el camino County Line Road en el condado de Yakima (para más detalle vea el mapa).

Solicitamos la participación de los ciudadanos afectados o interesados en el problema y en las soluciones asociadas con los altos niveles de nitratos en el agua para tomar. La encuesta que se incluye es un método que utilizaremos para recolectar los comentarios de individuos y de varios grupos. Deseamos:

1. Saber cuántas personas saben sobre el problema de los nitratos en el agua subterránea.
2. Saber lo que saben los residentes locales y su percepción acerca de este problema.
3. Evaluar qué tan bien, como grupo, podemos comunicar información importante al público.

Por favor, ayúdenos respondiendo lo mejor que pueda a esta encuesta. Agradeceremos cualquier otro comentario adicional. Su participación nos ayudará a lograr nuestra meta principal de reducir los nitratos en nuestra agua potable en el valle.

Atentamente,

El Comité Lower Yakima Valley Ground Water Management Area Advisory Committee
http://www.yakimacounty.us/gwma/

Si tiene preguntas acerca de su agua, por favor llame al Departamento de Salud del Estado de Washington al 509-329-2120.

Si tiene preguntas sobre esta encuesta o sobre este programa, por favor llame al Departamento de Servicios Públicos del Condado de Yakima al 509-574-2300.

Para asistencia en español llame al Distrito de Salud del Condado de Yakima o al Departamento de Salud del Estado de Washington al 509-329-2120.

Questions & Answers

Nitrate in Drinking Water

May 2012
DOH 331-214
Revised

Nitrate is a chemical found in most fertilizers, manure, and liquid waste discharged from septic tanks. Natural bacteria in soil can convert nitrogen into nitrate. Rain or irrigation water can carry nitrate down through the soil into groundwater. Your drinking water may contain nitrate if your well draws from this groundwater.

Nitrate is an acute contaminant. That means one exposure can affect a person's health.

Does the state regulate nitrate in drinking water?

Yes. State law requires public water systems to sample for many contaminants, including nitrate, on a regular basis. Our drinking water quality standard for nitrate is 10 milligrams per liter (mg/L). Public water systems with nitrate levels over 10 mg/L must notify people who receive water from them.

How does nitrate affect health?

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. 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 is called methemoglobinemia or "blue baby syndrome." Some scientists think diarrhea makes this problem worse.

Low levels of nitrate in water will not have a long-lasting effect on your baby. If your baby doesn't have any of signs of blue baby syndrome, you do not need to have a doctor test for methemoglobinemia.

What are the signs of blue baby syndrome?

Moderate to serious blue baby syndrome may cause brownish-blue skin tone due to lack of oxygen. This condition may be hard to detect in infants with dark skin. For infants with dark skin, look for a bluish color inside the nose and mouth, on the lips, or fingernail and toenail beds.

Mild to moderate blue baby syndrome may cause signs similar to a cold or other infection (fussy, tired, diarrhea or vomiting). While there is a blood test to see if an infant has blue baby syndrome, doctors may not think to do this test for babies with mild to moderate symptoms.

What should I do if my infant has blue baby syndrome?

Take a baby who has brownish-blue skin tone or a bluish color to the lips, tongue, gums, nail beds, or nose to a hospital immediately. A medication called "methylene blue" will quickly return the baby's blood to normal.

Washington State Department of Health
Environmental Public Health
Office of Drinking Water

HELPING TO ENSURE SAFE AND RELIABLE DRINKING WATER

Can I prevent blue baby syndrome?

Yes. Do not give infants younger than 12 months drinking water with nitrate levels above 10 mg/L. Do not offer high-nitrate vegetables such as beets, broccoli, carrots, cauliflower, green beans, spinach, and turnips until the baby is at least seven months old.

Nitrate levels in well water can vary throughout the year. If you have a private well and you're not sure about your water quality, you may want to use bottled water to prepare your baby's food and drinks. Although boiling water kills bacteria, it will not remove chemicals such as nitrate. In fact, boiling may actually increase the nitrate level.

Will breast-feeding give my infant blue baby syndrome?

Low levels of nitrate have been found in breast milk, but the levels are not high enough to cause blue baby syndrome.

Can nitrate affect adults?

Although red blood cells quickly return to normal, some health conditions can make people more susceptible to health problems from nitrate. Individuals with the following health conditions should not drink water with more than 10 mg/L of nitrate:

- Individuals who don't have enough stomach acids.
- Individuals with an inherited lack of the enzyme that converts affected red blood cells back to normal (methemoglobin reductase).
- Women who are pregnant or trying to become pregnant. Some studies have found an increased risk of spontaneous abortion or certain birth defects.

How can I tell if my well water has nitrate?

Shallow wells, poorly sealed or poorly constructed wells, and wells that draw from shallow aquifers are at greatest risk of nitrate contamination. Manure and septic tank waste may also contain disease-causing bacteria and viruses.

If you own a private well, we recommend that you test for coliform bacteria and nitrate every year. Your county health department can tell you where you can get your water tested and may have specific recommendations for testing. Many certified labs in Washington charge $20 to $40 per test. If your nitrate test results are 5 mg/L or higher, you may want to re-sample in six months.

Where can I get more information?

If you get your water from a public water system, call your water utility or the state Department of Health at 800-521-0323. You can also visit online at http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater.aspx

If you have a private well, call your local health department. You can also find information in *Private Wells: Information for owners* (331-349) a publication available in English and Spanish at https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm

For a list of certified labs, visit the state Department of Ecology online at http://www.ecy.wa.gov/apps/eap/acclabs/labquery.aspUnder "Location," select your state, city, and county. Scroll down and click on "Show results." Click on the name of a lab to see the tests it performs. Call the lab to make sure it's accredited to analyze for nitrate in drinking water.

PUBLIC HEALTH
ALWAYS WORKING FOR A SAFER AND
HEALTHIER WASHINGTON

If you need this publication in an alternate format, call 800-525-0127. For TTY/TDD, call 800-833-6388.

Preguntas y Respuestas

Nitratos en el agua potable

Julio 2013
DOH 331-214s
Revisado

El nitrato es un químico que se encuentra en la mayoría de los fertilizantes, estiércol, y residuos líquidos que se liberan de los tanques sépticos. Las bacterias naturales del suelo pueden convertir nitrógeno al nitrato. La lluvia o agua de irrigación puede llevar el nitrato a través del suelo hasta las aguas subterráneas. Su agua potable puede contener nitrato si su pozo saca agua de tales aguas subterráneas.

El nitrato es un contaminante que puede ocasionar enfermedades agudas, lo que significa que una sola exposición puede afectar a la salud de alguien.

¿Cómo afecta a la salud el nitrato?

El nitrato reduce la capacidad de los glóbulos rojos para llevar oxígeno. En la mayoría de los adultos y niños, estos glóbulos rojos se normalizan rápidamente. Sin embargo, en los lactantes. los glóbulos rojos pueden demorar más tiempo para normalizarse. Los lactantes que beben agua con altos niveles de nitrato (o comen alimentos hechos con agua contaminada con nitrato) pueden desarrollar una enfermedad seria debido a la falta de oxígeno. Esta enfermedad se llama metahemoglobinemia o "síndrome del bebé azul." Algunos científicos piensan que la diarrea puede empeorar este problema.

¿Está regulado por el estado el nitrato en el agua?

Sí. La ley estatal requiere que los sistemas de agua pública hagan pruebas para muchas contaminantes incluyendo el nitrato con regularidad. Nuestra norma para calidad del agua es 10 miligramos por litro (mg/L). Los sistemas de agua pública que contienen niveles de nitrato por encima de 10 mg/L deben notificar a las personas quien recibe agua de ellos.

Los niveles bajos de nitrato en el agua no tendrán un efecto de largo plazo en su bebé. Si su bebé no tiene ningunos de los signos del síndrome del bebé azul. no es necesario que su doctor le examine por la enfermedad de metahemoglobinemia.

¿Cuáles son los signos del síndrome del bebé azul?

El síndrome del bebé azul **moderado a serio** puede causar un tono de piel café-azulado dado la falta de oxígeno. Esta condición puede ser difícil de detectar en lactantes con piel oscura. Para bebés con piel oscura, busca un color azulado dentro de la nariz y la boca, en los labios, o la piel debajo de las uñas de las manos o los pies.

El síndrome del bebé azul **suave a moderado** puede causar signos parecidos a un resfriado u otra infección (irritado, cansado, con diarrea o vómitos). Aunque existe una prueba de sangre para ver si un lactante tiene el síndrome del bebé azul, es posible que los médicos no hagan esta prueba para los bebés con síntomas suaves a moderados.

¿Qué debo hacer si mi bebé tiene el síndrome del bebé azul?

Lleve el bebé al hospital de inmediato si el tono de la piel tiene un color café-azulado o tiene un color azulado en los labios, la lengua, las encías, la piel debajo de las uñas y la nariz. Un medicamento llamado "azul de metileno" normalizará rápidamente la sangre del bebé.

¿Puedo prevenir el síndrome del bebé azul?

Si. No dé a los bebés menores de 12 meses de edad agua potable con niveles de nitrato más alto de 10 mg/L. No les dé verduras con alto contenido en nitrato como la remolacha, brócoli, zanahorias, coliflor, ejotes o judías, espinaca, y nabos hasta que el bebé tenga más de siete meses de edad.

Los niveles de nitrato en el agua de pozo pueden variar a través del año. Si usted tiene un pozo privado y no está seguro de la calidad del agua, es posible que desee usar agua en botella para preparar la comida y bebidas de su bebé. Aunque hervir el agua elimina las bacterias, no remueve químicos como el nitrato. De hecho, hirviendo causa la evaporación del agua que puede resultar en el incremento del nivel de nitrato.

¿Puede la lactancia materna ocasionar el síndrome del bebé azul?

Se ha encontrado bajos niveles de nitrato en la leche materna, pero los niveles no son bastantes altos para causar el "síndrome del bebé azul."

¿Puede el nitrato afectar a los adultos?

Aunque las células rojas vuelven rápidamente a la normalidad, las condiciones de salud de algunas personas las hacen más susceptible a los problemas de salud por nitrato. Las personas con las siguientes condiciones de salud no deberían beber agua con más de 10 mg/L de nitrato:

- Las personas que no tienen suficientes ácidos estomacales.
- Las personas con pérdida hereditaria de la enzima que convierte los glóbulos rojos afectados en células normales (metahemoglobina reductasa).
- Las mujeres embarazadas o que están tratando de quedar embarazadas. Alto contenido de nitratos puede incrementar el riesgo de aborto espontáneo o ciertos defectos de nacimiento.

¿Cómo puedo saber si mi agua de pozo tiene nitrato?

Los pozos poco profundos, mal sellados o construidos o los pozos que extraen agua de acuíferos poco profundos tienen riesgo más alto de tener agua contaminada con nitrato. El abono (estiércol) y los desechos de un tanque séptico pueden también contener bacterias y virus que causan enfermedades.

Si usted es el dueño de un pozo privado nosotros recomendamos que analice el agua por bacterias y nitrato cada año. El departamento de salud de su condado puede decirle donde puede obtener el análisis de su agua y pudiera tener recomendaciones específicas para el análisis. Muchos laboratorios certificados cobran entre $20 a $40 por análisis. Si el resultado del análisis de nitrato es de 5 mg/L o más alto, recomendamos que vuelva a hacer otro análisis en 6 meses.

¿Dónde puedo obtener más información?

Si usted obtiene agua de un sistema público, llame a su servicio de agua o al Departamento de Salud del Estado de Washington. Oficina de Agua Potable, al número de teléfono (800) 521-0323 o visítenos en línea en: http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater.aspx

Si tiene un pozo privado, llame al departamento de salud local. También puede encontrar información en **Pozos Privados: Información para los propietarios (331-349s)** una publicación disponible en Inglés y Español https://fortress.wa.gov/doh/eh/dw/publications/publications.cfm

Para una lista de laboratorios certificados, visite en línea al Departamento de Ecología de Washington en: http://www.ecy.wa.gov/apps/eap/acclabs/labquery.asp. Bajo "Location" seleccione su estado, ciudad y condado. En la parte baja de la página haga click en "Show results." Haga click en el nombre de un laboratorio para ver qué tipo de análisis hace. Llame al laboratorio para asegurarse que esté acreditado para hacer análisis de nitrato.

El nivel del nitrato es *menor de* 10 ppm, ¿qué debo hacer?

Los niveles de nitrato pueden variar a lo largo del año, por lo tanto si el nivel es de 5 ppm o mayor, deberá volver a tomar una prueba dentro de seis meses.

El nivel de nitrato es *mayor de* 10 ppm, ¿qué debo hacer?

Si su análisis de nitrato muestra niveles mayores a 10 partes por millón, busque un suministro de agua potable diferente y más seguro. Lo primero que debe hacer es comenzar a utilizar agua embotellada para beber y cocinar. No hierva agua con altos niveles de nitrato. Hervir el agua puede incrementar el nivel de nitrato, ¡empeorando el problema!

Otra opción es instalar un dispositivo o filtro diseñado para eliminar el nitrato del agua. Estos dispositivos se instalan con frecuencia en los grifos de la cocina, donde las personas toman agua para beber y cocinar. El nitrato no se absorbe a través de la piel, por lo tanto es seguro utilizar esta agua para limpiar y bañarse.

Otras soluciones a largo plazo incluyen:

- Cavar un pozo más profundo en una fuente diferente de aguas subterráneas;
- Conectarse a un sistema de agua público; o
- Trabajar con otras personas de su comunidad para desarrollar un nuevo sistema público de agua para su hogar y los vecinos de la zona.

Los resultados de mi análisis indican coliformes en el agua, ¿qué debo hacer?

Los análisis de coliformes por lo general indican SATISFACTORIO o NO SATISFACTORIO. Si recibe un informe SATISFACTORIO, significa que su agua no contiene estas bacterias al momento de tomar la muestra. Asegúrese de realizar este análisis de coliformes todos los años.

Si recibe un informe NO SATISFACTORIO, el agua podría estar contaminada. No beba el agua hasta que el análisis sea SATISFACTORIO. Busque un suministro de agua potable distinto y seguro. Lo primero que debe hacer es comenzar a utilizar agua embotellada o hervida para beber y cocinar. Además, debe utilizarla para preparar hielo o café, lavarse los dientes y lavar frutas y verduras que come crudas. Hervir el agua durante un minuto por lo general mata las bacterias.

El laboratorio y el departamento de salud local pueden ayudarlo a determinar si debe volver a tomar una muestra, desinfectar el pozo o tomar otras medidas basadas en el resultado.

¿Qué son las bacterias coliformes y por qué debería tener cuidado?

Las bacterias coliformes son organismos que están en el medio ambiente y en las heces de humanos y animales. Las bacterias coliformes probablemente no causan enfermedades, pero su presencia en el agua potable indica que también puede haber organismos causantes de enfermedades.

¿Qué es el nitrato?

El Nitrógeno es un químico que se encuentra en la mayoría de los fertilizantes, en estiércol de animales y en los tanques sépticos. Las bacterias naturales de la tierra pueden cambiar el nitrógeno a nitrato. El agua de lluvia y el agua de riego pueden arrastrar el nitrato por debajo de la tierra hacia las aguas subterráneas.

¿Qué me puede hacer el nitrato?

El exceso de nitrato en el cuerpo dificulta el transporte de oxígeno que deben realizar los glóbulos rojos. Aunque muchas personas no noten la diferencia, esto puede ser muy peligroso para los bebés y las mujeres embarazadas. Los bebés expuestos a grandes cantidades de nitrato pueden desarrollar el "síndrome del bebé azul," una enfermedad extraña pero que puede ser fatal.

¿Cuáles son los síntomas del síndrome del bebé azul?

Los síntomas se pueden confundir con los de otras enfermedades. Un bebé con el síndrome del bebé azul leve a moderado puede tener diarrea, vómitos y estar apático.

En casos más graves el bebé puede tener:

- piel que cambia a color gris, café oscura o azul, o
- labios, dedos o las uñas de los pies de color azulado; o
- problemas para respirar.

Los resultados de mi análisis indican *tanto* coliformes *como* nitrato, ¿qué debo hacer?

Busque un suministro de agua potable distinto y seguro. Lo primero que debe hacer es comenzar a utilizar agua embotellada para beber y cocinar. Hervir el agua mata las bacterias coliformes, pero no elimina el nitrato. NO hierva agua con coliformes y nitrato. Puede incrementar el nivel de nitrato, ¡empeorando el problema! Consulte otras opciones bajo nitrato y coliformes más arriba.

Los resultados del análisis indican que está bien, pero no me gusta el sabor/olor/la apariencia del agua. ¿Qué está pasando?

Algunos contaminantes hacen que el agua no tenga buen olor, sabor o apariencia pero no son nocivos para su salud. Su laboratorio y el departamento de salud local pueden ayudarlo a determinar si necesita analizar o tratar su agua.

¿Qué son las unidades domésticas de tratamiento de agua? He escuchado que son útiles.

Los sistemas de filtro en el punto de uso (POU) tratan el agua en un sólo grifo. Los sistemas de filtro en el punto de entrada (POE) tratan el agua utilizada por toda la vivienda.

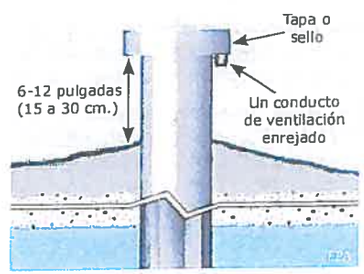
Los tres tipos de sistemas que peuden eliminar el nitrato del agua son:

- Unidad de ósmosis inversa
- Unidad de destilación
- Unidad de intercambio iónico

Importante: Todos los sistemas de filtro POU y POE o las unidades de tratamiento requieren mantenimiento para funcionar bien. Si no reciben el mantenimiento adecuado, los contaminantes se podrían acumular en las unidades y empeorar el agua. Además, algunos vendedores podrían declarar su efectividad aunque no esté basado en la ciencia. EPA no analiza ni certifica las unidades de tratamiento, pero sí lo hacen dos organizaciones: la NSF International y el Underwriters Laboratory.

¿Cómo puedo proteger el agua de mi pozo de la contaminación?

Asegúrese que la boca del pozo se extienda entre 6 a 12 pulgadas (15 a 30 cm.) por encima de la superficie del suelo y que esté tapado para que no entren los contaminantes. Selle el suelo alrededor de la boca del pozo y hágalo en declive para que el agua no se acumule y filtre dentro del pozo.



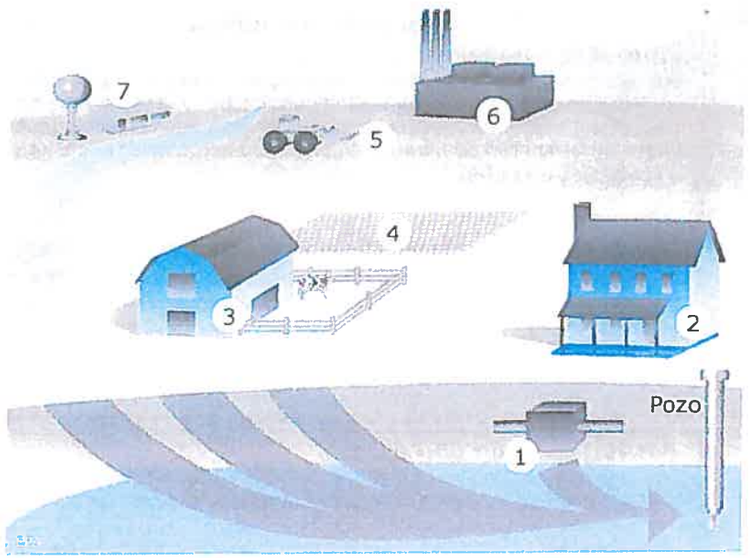
Es importante mantener el pozo protegido de contaminantes potenciales que pueden estar alrededor de su vivienda. Cuánto más lejos de las fuentes de contaminación, mucho mejor.

Los expertos sugieren que el pozo debe estar al menos:

- a 50 pies (15 metros) del tanque séptico,
- a 100 pies (30 metros) del borde de un campo de drenaje, tanque de combustible, graneros y cualquier depósito de fertilizantes y pesticidas, y
- a 250 pies (75 metros) de un montículo de estiércol.

Fuentes potenciales de contaminación del agua de pozos

1. Tanque séptico
2. Residuos domésticos
3. Residuos de animales
4. Pesticidas y fertilizantes
5. Vertedero
6. Industria local
7. Tanques de almacenamiento subterráneo



Recursos adicionales (información en inglés)

Departamentos de salud locales
www.doh.wa.gov/LHJMap/LHJMap.htm

Laboratorios certificados en su zona
www.ecy.wa.gov/apps/eap/acclabs/labquery.asp

Organizaciones certificadoras de unidades domésticas de tratamiento de agua
NSF International (Anteriormente, Fundación de Sanidad Nacional), www.nsf.org
Underwriters Laboratory, www.ul.com

Publicaciones del Centro para el Control y la Prevención de Enfermedades
Pozos privados, www.cdc.gov/healthywater/drinking/private/wells/location.html
Desinfección de emergencia de pozos, http://emergency.cdc.gov/disasters/wellsdisinfect.asp

Publicaciones de la Agencia de Protección Ambiental
Pozos domésticos, www.epa.gov/safewater/privatewells/pdfs/household_wells.pdf
Estándares secundarios, www.epa.gov/safewater/consumer/2ndstandards.html
Folleto sobre datos de filtración, www.epa.gov/safewater/faq/pdfs/fs_healthseries_filtration.pdf
Protección de fuente de agua, http://cfpub.epa.gov/safewater/sourcewater

Washington State Department of Health
DOH 333-171 mayo 2010

Para personas con discapacidades, este documento está disponible en otros formatos. Por favor llame al 1-800-525-0127 (TTY/TDD 1-800-833-6388).

Agua de Pozos Privados

Información sobre las bacterias coliformes y el nitrato para usuarios de pozos privados

¿Por qué debería hacer un análisis del agua de mi pozo?

Beber agua contaminada es un riesgo para la salud. Algunos contaminantes no se pueden ver, oler ni notar por el sabor. Dos de los contaminantes más comunes del agua potable son las bacterias coliformes y el nitrato, los cuales pueden ser nocivos.

¿Quién debería analizar el agua de mi pozo?

Usted o su arrendador. Los usuarios de pozos privados son responsables de analizar su propia agua. Si usted no es propietario de su vivienda pero utiliza un pozo privado, hable con su arrendador para analizar el agua o ver los resultados más recientes. Siempre podrá tomar una muestra de agua usted mismo y hacerla analizar.

¿Qué debería buscar en el análisis y con qué frecuencia?

El Departamento de Salud recomienda que analice el agua de pozo privado todos los años para verificar que no existan bacterias coliformes y nitrato.

También deberá analizar el agua cuando:

- Note un cambio en el agua, tal como el sabor, color y olor.*
- El pozo se haya inundado.
- Reemplace cualquier parte de su sistema de pozo.
- Alguna mujer de su hogar esté embarazada, amamantando o tenga una enfermedad inexplicable y usted sospeche de que el agua puede estar en riesgo.
- Escuche que el agua de su vecino está contaminada.
- Viva cerca de zonas industriales o agrícolas.*

*Estos casos pueden requerir un análisis para evitar la existencia de otros elementos distintos de las coliformes o el nitrato.

Si ha tenido problemas de contaminación previos o está preocupado por contaminantes específicos, usted debería analizar el agua del pozo con mayor frecuencia.

¿Dónde me dirijo para analizar el agua?

Los laboratorios de análisis de agua potable certificados se encuentran en todo el estado. El laboratorio que seleccione o el departamento de salud local podrán ayudarlo a decidir qué buscar en el análisis, cómo tomar las muestras y cómo interpretar los resultados. Estos análisis tienen un costo. Los costos de este año (2010) van desde los $20 a los $25 por análisis de bacterias coliformes, y desde los $30 a los $42 para el análisis de nitrato. La mayoría de los laboratorios prefieren proporcionar sus propios recipientes para muestra.

My nitrate level is *less than* 10 ppm, what should I do?

Nitrate levels can vary throughout the year, so if your level is 5 ppm or higher, you may want to re-sample in six months.

My nitrate level is *more than* 10 ppm, what should I do?

If your nitrate test shows levels higher than 10 parts per million, find a different and safe drinking water supply. The quickest thing to do is to begin using bottled water for drinking and food preparation. Do NOT boil water with high nitrate. Boiling water may actually increase the nitrate level, making the problem worse!

Another option is to install a device or filter designed to remove nitrate from your water. These devices are often installed on kitchen faucets, where people get their water for drinking and cooking. Nitrate is not absorbed through the skin, so it is safe to clean and bathe with it.

Other, longer term solutions include:

- Drilling a deeper well into a different groundwater source;
- Connecting to a public water system; or
- Working with others in your community to develop a new public water system to serve your home and nearby neighbors.

My test results came back with coliform in the water, what should I do?

Coliform tests usually come back as SATISFACTORY or UNSATISFACTORY. If you receive a SATISFACTORY report, it means your water was free of these bacteria at the time of the sample. Be sure to test every year for coliform bacteria.

If you receive an UNSATISFACTORY report, it may be contaminated. Do not drink the water until it tests SATISFACTORY. Find a different and safe drinking water supply. The quickest thing to do is either begin using bottled water or boil all water for drinking and food preparation. This also includes water used for making ice or coffee, brushing teeth, and washing fruits and vegetables you eat raw. Boiling water rapidly for one minute usually kills bacteria.

Your lab and local health department can help you determine if you should resample, disinfect your well, or take other action based on your results.

What are coliform bacteria and why should I care?

Coliform bacteria are organisms that are present in the environment and in the feces of humans and animals. Coliform bacteria will not likely cause illness, but their presence in drinking water indicates disease-causing organisms may also be present.

What is nitrate?

Nitrogen is a chemical found in most fertilizers, animal manure, and in septic tanks. Natural bacteria in the soil can change nitrogen into nitrate. Rain water and irrigation water can carry nitrate down through the soil into the groundwater.

What can nitrate do to me?

Too much nitrate in your body makes it harder for red blood cells to carry oxygen. While many people do not notice a difference, this can be very dangerous for infants and pregnant women. Infants exposed to high amounts of nitrate may develop "blue –baby syndrome," a condition that is rare but can be fatal.

What are the symptoms of blue-baby syndrome?

Symptoms can be confused with other illnesses. An infant with mild to moderate blue-baby syndrome may have diarrhea, vomiting, and be lethargic.

In more serious cases, the infant may have:

- skin that becomes gray, darker brown, or blue, or
- lips, finger or toe nails with a blue-like color, or
- trouble breathing.

My test results came back with *both* coliform and nitrate, what should I do?

Find a different and safe drinking water supply. The quickest thing to do is to begin using bottled water for drinking and food preparation. Boiling water kills coliform bacteria, but does not remove nitrate. Do NOT boil water with both coliform and nitrate. It may increase the nitrate level, making the problem worse! See other options under nitrate and coliform above.

My test results came back OK, but I don't like the taste/smell/appearance of my water. What is wrong with it?

Some contaminants make water smell, taste, or look bad but are not harmful to your health. Your lab and local health department can help you determine if you need to test or treat your water.

What about Home Water Treatment Units? I've heard that these can help.

Point of use (POU) filter systems treat water at a single tap. Point of entry (POE) filter systems treat water used throughout the house.

Three types of systems that can remove nitrate from your water are:

- Reverse Osmosis Unit
- Distillation Unit
- Anion Exchange Unit

Important: All POU and POE filter systems or treatment units need maintenance to operate effectively. If they are not maintained properly, contaminants may accumulate in the units and make your water worse. In addition, some vendors may make claims about their effectiveness that are not based on science. The EPA does not test or certify treatment units, but two organizations that do are NSF International and Underwriters Laboratory.

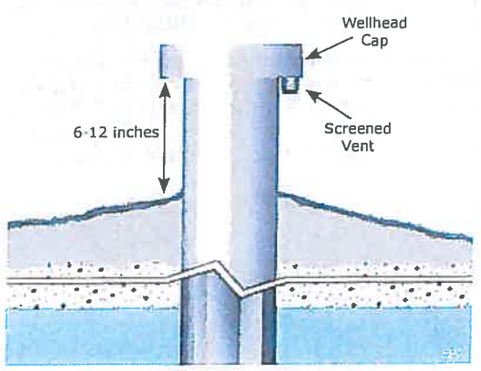
How can I protect my well water from contamination?

Make sure your wellhead extends 6 to 12 inches above the surface of the ground and is capped to keep contaminants out. Seal the ground around the wellhead and slope it away so water does not collect and seep into the well.

It is important to keep your well safe from potential contaminants that may be around your home. The further away from contamination sources, the better.

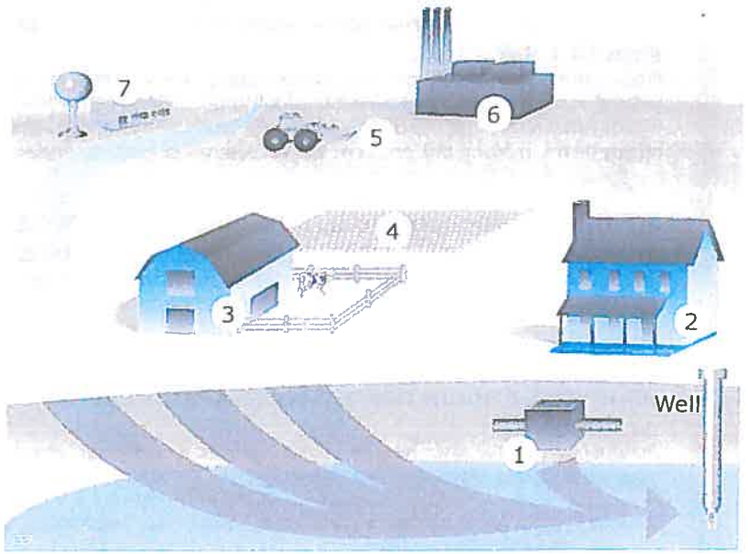
Experts suggest your well should be at least:

- 50 feet from a septic tank,
- 100 feet from the edge of a drainfield, fuel tank, barn, and any storage shed for fertilizers and pesticides, and
- 250 feet from a manure stack.



Potential Well Contaminants

1. Septic Tank
2. Household Wastes
3. Livestock Wastes
4. Pesticides and Fertilizers
5. Landfills
6. Local Industries
7. Underground Storage Tanks



Additional Resources

Local Health Departments
www.doh.wa.gov/LHJMap/LHJMap.htm

Certified Labs in Your Area
www.ecy.wa.gov/apps/eap/acclabs/labquery.asp

Certifying Organizations for Home Water Treatment Units
NSF International (Formerly National Sanitation Foundation), www.nsf.org
Underwriters Laboratory, www.ul.com

Center for Disease Control and Prevention Publications
Private Wells, www.cdc.gov/healthywater/drinking/private/wells/location.html
Emergency disinfection of wells, http://emergency.cdc.gov/disasters/wellsdisinfect.asp

Environmental Protection Agency Publications
Household wells, www.epa.gov/safewater/privatewells/pdfs/household_wells.pdf
Secondary Standards, www.epa.gov/safewater/consumer/2ndstandards.html
Filtration Facts booklet, www.epa.gov/safewater/faq/pdfs/fs_healthseries_filtration.pdf
Source Water Protection, http://cfpub.epa.gov/safewater/sourcewater

Washington State Department of Health
DOH 333-171 May 2010

For persons with disabilities, this document is available in other formats. To make a request, call 1-800-525-0127 or 1-800-833-6388 (TTY/TDD).

Private Well Water

Coliform Bacteria and Nitrate Information for Private Well Users

Why should my well water be tested?

Drinking contaminated water is a health risk. Some contaminants cannot be seen, smelled, or tasted. Two of the most common contaminants in drinking water are coliform bacteria and nitrate and they can be harmful.

Who should be testing my well water?

You or your landlord. Private well users are responsible for testing their own water. If you don't own your home but you use a private well, talk with your landlord about getting your water tested or seeing the most recent results. You can always take a water sample yourself and have it tested.

What should I test for and how often?

The Department of Health recommends that you test your private well water every year for coliform bacteria and nitrate.

You should also test your water when:

- You notice a change in your water, such as taste, color, or smell.*
- Your well has been flooded.
- You replace any part of your well system.
- Someone in your household is pregnant, nursing, or has an unexplained illness and you suspect your water may be at risk.
- You hear that a neighbor's water is contaminated.
- You live near industrial or agricultural activities.*

*These may require testing for something other than coliform or nitrate.

If you have had previous contamination problems or are concerned about specific contaminants, you may want to test your well water more often.

Where do I go to get my water tested?

Certified drinking water labs are located across the state. The lab you select or your local health department can help you decide what to test for, how to collect samples, and how to understand results. There is a cost for these tests. Costs this year (2010) range from $20 to $25 per test for coliform bacteria, and $30 to $42 per test for nitrate. Most labs like to provide their own sample bottles.

Heritage University Students to Conduct Groundwater Opinion Surveys

FOR IMMEDIATE RELEASE: MONDAY, JULY 29, 2013

CONTACT: Lisa Freund, Yakima County Public Services Administrative Manager

Office: 509-574-2300

Cell: 509-961-0470

Yakima, WA – Beginning this week Heritage University students will conduct up to 160 door-to-door surveys in the Lower Yakima Valley. They will be asking residents served by private wells what they know about their drinking water and their opinion of its safety, what they know about nitrate and if they have been following the meetings of the Lower Yakima Valley Groundwater Management Area Advisory Committee (GWAC).

Students will be visiting households served by private wells in targeted areas known to have high nitrate in groundwater. In addition, students will survey households in areas where little data on nitrate levels exist. The eight targeted areas, encompassing 300 households, range from Konnowac Pass in the northeast to County Line Road to the southeast. The map can be viewed here: http://www.yakimacounty.us/gwma/education_public_outreach.php

The 19-question opinion survey is being conducted on behalf of the Lower Yakima Valley Groundwater Management Area Advisory Committee (GWAC), a multi-agency and citizens-based group coordinating the effort to reduce nitrate contamination in Lower Yakima Valley groundwater. The survey is intended to both inform and educate citizens while gaining data in its efforts to address nitrate contamination in the Lower Yakima Valley.

Results of the opinion survey will help determine where a more in-depth study of private wells in the Lower Yakima Valley needs to occur. A follow-up survey is scheduled to take place later this year.

The Lower Yakima Valley GWMA was formed in 2011 in response to concern about nitrate contamination in groundwater. For more information about the Lower Yakima Valley Groundwater Management Area and the Groundwater Advisory Committee (GWAC), please visit:

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

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

Estudiantes de la Universidad Heritage conducirán encuestas de opinión sobre el agua subterránea

PARA PUBLICACIÓN INMEDIATA: MARTES 30 DE JULIO, 2013

CONTACTO: Lisa Freund, Administrador de Servicios Públicos del Condado de Yakima
Oficina: 509-574-2300
Celular: 509-961-0470

Yakima, WA – Comenzando esta semana, estudiantes de la Universidad Heritage conducirán hasta 160 encuestas en hogares en el Valle Bajo de Yakima. Preguntarán a los residentes con pozos privados lo que saben acerca de su agua, su opinión acerca de lo segura que es y acerca de lo que saben sobre los nitratos y si han seguido las juntas del Comité Consultor de Manejo de Agua Subterránea del Área del Valle Bajo de Yakima (GWMA por sus siglas en inglés).

Los estudiantes visitarán hogares que tienen pozo privado en las áreas de enfoque que se sabe que tienen alto nivel de nitrato en el agua subterránea. Además, los estudiantes harán encuestas en hogares en áreas donde existen pocos datos sobre los niveles de nitrato. Las ocho áreas de enfoque que incluyen 300 hogares, abarcan de Konnowac Pass en el Noroeste a County Line en el Sureste. El mapa puede verse en este sitio; http://www.yakimacounty.us/gwma/education_public_outreach.php

La encuesta de 19 preguntas se va a realizar en representación del Comité Consultor de Manejo de Agua Subterránea del Área del Valle Bajo de Yakima (GWAC), una agencia multitudinaria y ciudadanía para coordinar los esfuerzos para reducir la contaminación de nitrato en el agua subterránea en el Valle Bajo de Yakima. La intención de la encuesta es tanto informar como educar a los ciudadanos y al mismo tiempo obtener datos en los esfuerzo para resolver la contaminación de nitrato en el Valle Bajo de Yakima.

Los resultados de esta encuesta ayudarán a determinar dónde se necesita realizar un estudio más detallado de los pozos privados en el Valle Bajo de Yakima. Una encuesta de seguimiento está programada a realizarse más adelante en este año.

El Comité de Manejo de Agua Subterránea del Área del Valle Bajo de Yakima (GWMA) fue formado en el 2011 en respuesta a la preocupación sobre la contaminación con nitrato del agua subterránea. Para más información sobre el Área de Manejo del Agua Subterránea del Valle de Yakima y el Comité de Manejo de Agua Subterránea del Área del Valle Bajo de Yakima (GWAC), visite: http://www.yakimacounty.us/gwma/

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Lower Yakima Valley Groundwater Survey Results Released

Stage Set For In-Depth Well Surveys

FOR IMMEDIATE RELEASE: MONDAY, SEPTEMBER 30, 2013

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

Yakima – Heritage University students recently completed 136 door-to-door surveys in the Lower Yakima Valley. They asked residents served by private wells about their drinking water, their opinion of its safety, and what they know about nitrate. Survey results also revealed what residents know about the Lower Yakima Valley Groundwater Management Area Advisory Committee (GWAC) and its work.

Results indicated that 69 percent (94 households) surveyed are aware of the potential health risks associated with drinking water with high levels of nitrate. Over half of those surveyed have had their private well tested for nitrate. Four percent (six households) believe someone in their home had become ill from drinking their well water. None, however, indicated that high levels of nitrate were the source of the illness. Less than half (42 percent) had heard of the Lower Yakima Valley Groundwater Management Area, while 33 percent indicated an interest in participating in a more in-depth high risk well assessment survey. All of those surveyed live within the GWMA boundaries.

The 19-question opinion survey was conducted on behalf of the Lower Yakima Valley Groundwater Management Area Advisory Committee (GWAC), a multi-agency and citizens-based group coordinating the effort to reduce nitrate contamination in Lower Yakima Valley groundwater. The survey was intended to both inform and educate citizens while gaining data in its efforts to address nitrate contamination in the Lower Yakima Valley.

Results of the opinion survey will help launch a more in-depth study of private wells in the Lower Yakima Valley that will begin next month. The study, to be conducted by the Yakima Health District, will start with the 45 households who indicated interest in participating in that survey.

To review survey results, please go to:
http://www.yakimacounty.us/gwma/education_public_outreach.php

For more information about the Lower Yakima Valley Groundwater Management Area and the Groundwater Advisory Committee (GWAC), please visit:
http://www.yakimacounty.us/gwma/.

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Publicación de los resultados de la encuesta del agua subterránea del Valle Bajo de Yakima

Etapa inicial de la investigación a fondo de pozos de agua

PARA PUBLICACION INMEDIATA: LUNES, SEPTIEMBRE 30, 2013

CONTACTO: Lisa Freund, Director Administrativo de Servicios Públicos del Condado de Yakima
Oficina: 509-574-2300
Celular: 509-961-0470

Yakima – Recientemente, estudiantes de la Universidad Heritage realizaron 136 encuestas de puerta a puerta en el Valle Bajo de Yakima. Pidieron a los residentes que utilizan pozos de agua privados, su opinión sobre la calidad de su agua y qué sabían de los nitratos. Los resultados de la encuesta también revelaron lo que los residentes saben del Grupo Consultor de Manejo del Agua Subterránea del Valle Bajo de Yakima (Lower Yakima Valley Groundwater Management Area Advisory Committee [GWAC] en inglés) y su trabajo.

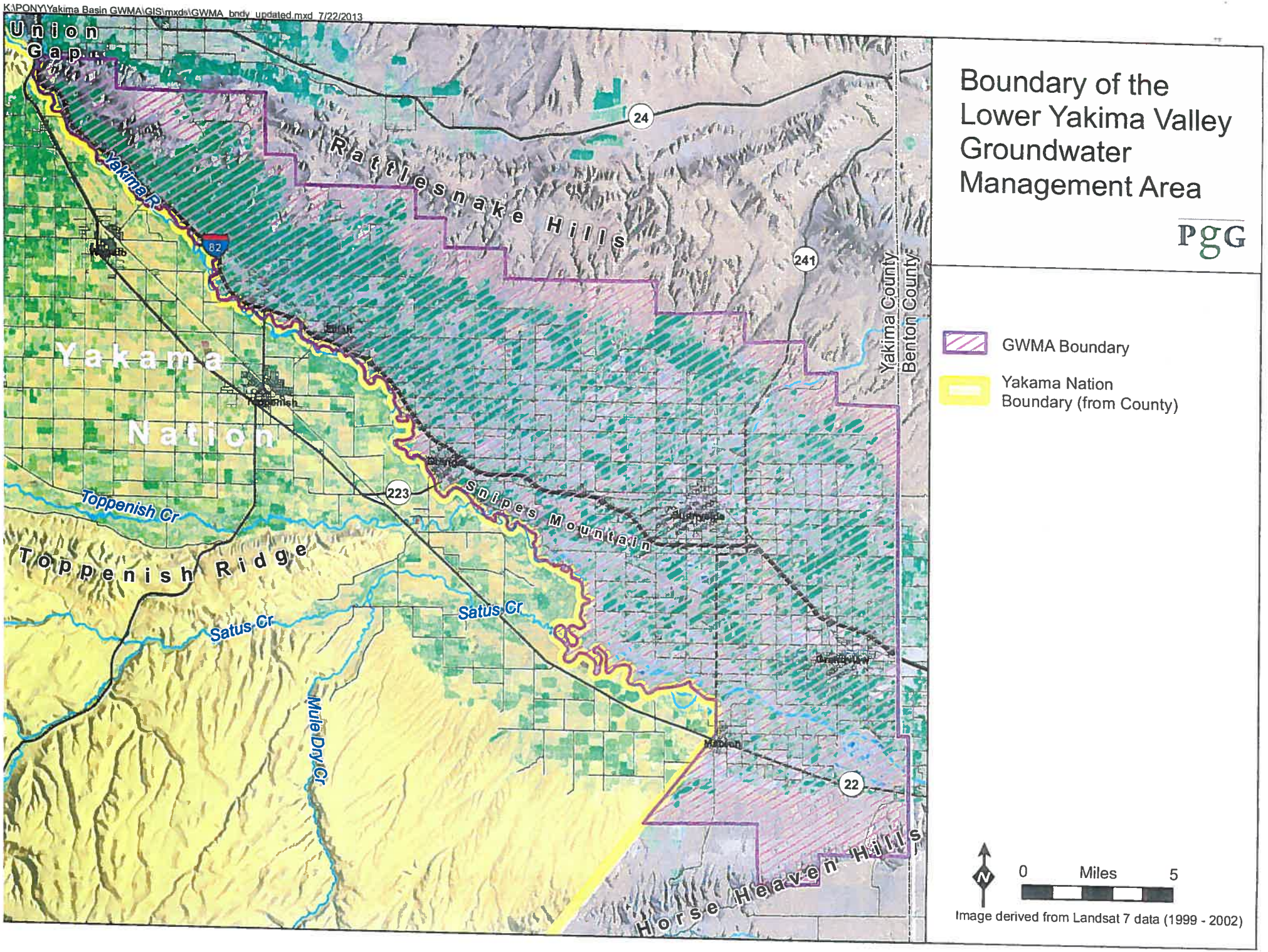
Los resultados indicaron que el 69 por ciento (94 hogares) de los encuestados reconocen el peligro potencial de salud asociado con la ingestión de agua con altos niveles de nitrato. Más de la mitad de los encuestados han evaluado sus pozos por nitrato. Cuatro por ciento (seis hogares) creen que alguien en la casa se ha enfermado por tomar agua de su pozo. Sin embargo, ninguno indicó que el alto nivel de nitratos fuera la fuente de la enfermedad. Menos de la mitad (42 por ciento) había escuchado del Área de Manejo de Agua Subterránea del Valle Bajo de Yakima (Lower Yakima Valley Groundwater Management Area), mientras que el 33 por ciento mostró interés en participar en una evaluación a fondo del riesgo potencial del pozo. Todos los encuestados viven dentro de los límites del área en cuestión GWMA (según sus siglas en inglés).

La encuesta de 19 preguntas fue realizada de parte del Lower Yakima Valley Groundwater Management Area Advisory Committee (GWAC), una agencia multitudinaria y de ciudadanos para la coordinación de esfuerzos para reducir la contaminación del agua subterránea por nitratos en el Valle Bajo de Yakima. La intención de la encuesta es tanto para informar y para educar a los ciudadanos como también la de obtener datos en referencia a los esfuerzos para minimizar y para responder a la contaminación por nitratos en el Valle Bajo de Yakima.

Los resultados de la encuesta ayudarán a establecer un estudio más a fondo de los pozos privados en el Valle Bajo de Yakima que iniciará el próximo mes. El estudio que será realizado por el Distrito de Salud de Yakima, empezará con los 45 hogares que indicaron interés en participar en la encuesta.

Para revisar los resultados:

Para más información acerca del Lower Yakima Valley Groundwater Management Area y el comité Groundwater Advisory Committee (GWAC), visite:
http://www.yakimacounty.us/gwma/.


K:\PONY\Yakima Basin GWMA\GIS\mxds\GWMA_bndy_updated.mxd 7/22/2013
Union Gap
Yakima R
Rattlesnake Hills
24
241
82
Yakima County
Benton County
Yakama Nation
Toppenish
223
Toppenish Cr
Toppenish Ridge
Snipes Mountain
Satus Cr
Satus Cr
Mule Dry Cr
Mabton
22
Horse Heaven Hills
Boundary of the Lower Yakima Valley Groundwater Management Area
PgG
GWMA Boundary
Yakama Nation Boundary (from County)
N
0
Miles
5
Image derived from Landsat 7 data (1999 - 2002)

Lower Yakima Valley GWMA Program
Certified Testing Laboratories
(Updated July 23, 2013)

Laboratory Name	Address	Phone	Web Site	Approximate Cost
Ag Health Laboratories, Inc.	445 Barnard Boulevard Sunnyside, WA	(509) 836-2020	www.aghealthlabs.com	Nitrate - $30 Coliform - $21
Benton-Franklin Health District Lab	7102 West Okanogan Place Kennewick, WA	(509) 460-4206	www.bfhd.wa.gov	Nitrate - $24 Coliform - $24
Cascade Analytical Inc. - Yakima	1008 West Ahtanum Road, #2 Yakima, WA	(509) 452-7707	www.cascadeanalytical.com	Nitrate - $27.50 Coliform - $25
Mukang Labs, Inc.	2526 E. Saint Helens Street Pasco, WA	(509) 544-2159	www.mukanglabs.com	Nitrate - $18.50 Coliform - $20
Northwest Agricultural Consultants, Inc.	2545 West Falls Ave. Kennewick, WA	(509) 783-7450	www.nwag.com	Nitrate - $17.50 Coliform - NA
Valley Environmental Laboratory	201 East D Street Yakima, WA	(509) 575-3999	http://www.valleylab.net/	Nitrate - $35 Coliform - $25

All of the above laboratories are certified by the Washington State Department of Ecology to test for nitrate in drinking water. Ag Health Laboratories, Benton-Franklin Health District, Cascade Analytical, Mukang Labs and Valley Environmental Laboratory are also certified to test for coliform in drinking water.

Costs shown for nitrate and coliform tests are approximate and subject to change.

Lower Yakima Valley GWMA Program
Laboratorios Certificados

Nombre del laboratorio	Dirección	Teléfono	Web Site	Costo aprox.
Ag Health Laboratories, Inc.	445 Barnard Boulevard Sunnyside, WA	(509) 836-2020	www.aghealthlabs.com	Nitratos - $30 Coliforme - $21
Benton-Franklin Health District Lab	7102 West Okanogan Place Kennewick, WA	(509) 460-4206	www.bfhd.wa.gov	Nitratos - $24 Coliforme - $24
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Todos los laboratorios en éste documento están certificados por el Departamento de Ecología del Estado de Washington para probar nitratos en el agua potable Los laboratorios Ag Health Laboratories, Benton-Franklin Health District, Cascade Analytical, Mukang Labs, y Valley Environmental Laboratory también están certificados para probar la presencia de coliformes en el agua potable.

El costo por la prueba de nitratos y coliforme es aproximado y sujeto a cambio.

Results - Last Updated September 27, 2013

	LOWER YAKIMA VALLEY GROUNDWATER MANAGEMENT AREA INFORMATIONAL PUBLIC QUESTIONNAIRE							
		Number	Percentage	TOTAL				
	Number of Households In Survey			300				
	Number of Surveys Completed	136	45%					
	Number of households Not Possible (dogs, gates, etc)	88	29%					
	Number of Households Declining	60	20%					
	Number of Households Not Attempted	16	5%					
	TOTAL	300	100%					
	QUESTION	YES	DON'T KNOW	NO	NOT ANSWERED	TOTAL		
#1	Where does the water in your home come from?	PRIVATE WELL	SHARED WELL	COMM. WELL	DON'T KNOW			
		122	5	2	7	136		
		90%	4%	1%	5%			
#2	If you have a private or shared well, where do you get your drinking water?	TAP WATER	BOTTLED WATER	TREATED WATER	NOT ANSWERED			
		69	24	41	2	136		
		51%	18%	30%	1%			
#3	If you are on a community water system, where do you get your drinking water	TAP WATER	BOTTLED WATER	TREATED WATER	NOT ANSWERED			
		1	0	0	1	2		
		50%		50%				
		YES	DON'T KNOW	NO	NOT ANSWERED	TOTAL		
#4	Are you aware of the potential health hazards in drinking water with high levels of nitrates?	94	35		7	136		
		69%	26%		5%			
#5	Has your well water been tested for nitrates?	73	23	40		136		
		54%	17%	29%				
#6	Has your well water been tested for bacteria?	45	28	63		136		
		33%	21%	46%				
		OWN	RENT					
#7	Do you own your home or rent?	115	17					
		85%	12%					
#8	If you rent, do you feel comfortable asking your landlord to have the water tested.	12		5		17		
		71%		29%				
#9	Who would you trust to give you reliable information about nitrates in drinking water? (answers on p.2)							
#10	Are you aware of anyone in your homes that has become ill from drinking your water?	6		125	5	136		
		4%		92%				
#11	Are there things you do to make sure your drinking water is safe? (answers on p. 2)	81	39	16	0	136		
		59%	29%	12%	0%			
#12	How long have you lived in your home							
	Less than a year	8						
	1-10years	50						
	10-15years	24						
	15-20year	13						
	20-43years	21						
	Not Answered	20						

Results - Last Updated September 27, 2013

#13	Is there a child under the age of six months in your household?	1		134	1	136		
		<1.0%		99.0%	<1.0%			
#14	Are there pregnant women in your household?	1		134	1	136		
		<1.0%		99%	<1.0%			
#15	Are there chronically ill people in your household?	7		128	1	136		
		5%		94%	<1.0%			
#16	Have you heard of the Lower Valley GWMA?	57		73	6	136		
		42%		54%	4%			
					Percentages rounded to the nearest			
#17	Where have you heard of the Lower Yakima Valley Ground Water Management Area (GWMA)	RADIO	TV	NEWSPAPER	AT WORK	HEALTH CARE	OTHER	NOT ANSWERED
		8	4	24	1	2	18	79
		5%	2%	17%	0%	0%	13.0%	58.0%
#18	Are you interested in being contacted for a survey of your well at a later date?	45		76	15	136		
		33%		56%	11%			
#19	Do you have any information about your well or your well log?	17	24	81	14	136		
		13%	18%	59%	10%			

#9	#11
Who would you trust to give you reliable information about nitrates in drinking water?	Are there things that you do to make sure your drinking water is safe?
18 Responses: County	42 Responses: Filter
14 Responses: Health Department	6 Responses: Test
10: Doctor	4: Purchase drinking water
9: Don't know	4-Reverse Osmosis
6: Government Agency	Have it checked
6: Independent Company	Inspection
3: Department of Health	Lab
2: Lab	A person was coming in that specializes in water treatment.
2: Testing Service	Refrigerator treats water
2: himself	Soft water tester
City	Buy Culligan
Culligan	Water Softener
Cascade Testing/Independent	Water system
Ask Owner	Whole house filter, considering upgrading (well drilled in 2009)
Down town	Zero test often number low
Drinking water Kinetico Personnel	
EPA	
Fed water	
Central Washington University	
Heritage University Students	
Local School	
Clean water in Tri Cities, from the fair	
4 years tested	
Labon Yakima	
My own research (not counting on 2nd hand info.)	
myself	
Nobody	
Anyone knows	
People who know about it	
Professionals who test the water	
Rain Water in Sunnyside	
Reputable servicer	
Service who tests water	
Somebody who test for nitrates	
Son	
Water officials @ clinic	
Water system facility	
Whoever his landlord tells him	
Yes but she/he lives in Texas	
Don't care	

Attachment D

- "Connect with Your Government" (English/Spanish script)

"Conozsca su Gobierno"
Connect with your Government Spanish Radio Program
Sept. 24, 2013

Introduction:
My name is Andres R. Cervantes and I work for the state Department of Health, Office of Drinking Water. Today I am here to talk about drinking water, and how residents can protect themselves. We are focusing on the Lower Yakima Valley where thousands of residents rely on private or shared drinking water wells.

In many areas across the country and in the Lower Yakima Valley, the shallow aquifer is contaminated by nitrates at levels that aren't safe for vulnerable household members, such as infants, pregnant women, and people with certain medical conditions.

What is the source of nitrate contamination?
Nitrate is a chemical found in most fertilizers, manure and liquid waste from septic tanks. Natural bacteria in soil can convert nitrogen into nitrate. Rain or irrigation water can carry nitrate down through the soil into groundwater. Your drinking water may contain high levels of nitrate if your well draws from the shallow aquifer.

Nitrate is considered an acute contaminant, which means one exposure can affect a person's health.

Why are nitrates a concern?
Infants younger than age 1 and women who are pregnant or trying to become pregnant shouldn't drink water with high levels of nitrate. The chemical reduces the ability of red blood cells to carry oxygen. Infants may develop a serious condition known as "blue baby syndrome" or scientifically called methemoglobinemia, due to the lack of oxygen.

Adults and older children aren't affected the same as infants. Their blood cells quickly return to normal. Some people do have a bad reaction if they lack certain enzymes that convert red blood cells back to normal.

Aren't water supplies tested and treated to be safe?
Public water systems must meet minimum water quality standards to be considered safe and reliable. A water system can include those of a city and town, down to a small home owners association or commercial business. These systems must test their wells on a regular basis to show they meet the minimum standards. Or if necessary install treatment if the samples show the water supply is contaminated.

Many residents, however, rely on private or shared drinking water wells that are not regulated. These residents are responsible for testing their own well to make sure it is safe to drink. They can best protect themselves by having samples analyzed from their drinking water wells by a certified lab at least once a year for bacteria and nitrate.

What should people do if they find out their water isn't safe to drink?
They or their landlord may want to seek treatment or alternative water sources, based on the results of these tests. For instance, a treatment solution for bacteria may not work for nitrate. Residents may wish to rely on bottled water, especially for mixing baby formula and for younger

family members or pregnant women. Or they may install a certified filtration system that eliminates nitrate, bacteria, or both types of contamination.

If they are concerned the water was the cause for someone being sick, they should see a doctor. For bacterial contamination, symptoms can seem flu-like, but the drinking water may be the problem.

What's the government doing to help remedy this situation?
The Department of Ecology granted a request by Yakima County, to create a special study area and establish a workgroup to find solutions to prevent contamination and protect residents who might be exposed to high levels of nitrate in their drinking water. The area is known as the Lower Yakima Valley Groundwater Management Area. In the short-term, the goal is to educate people about the problem and provide information on how they can protect themselves. Long-term solutions will use available and new data collected in the valley to prevent continued groundwater pollution and make sure residents have clean and safe drinking water.

What actions are being taken?
Early on, many households were identified as being at risk and have received the opportunity to have filtration devices installed in their homes through a program sponsored by Yakima County.

In August, students from Heritage College embarked on a house-to-house survey of residents within the area where nitrate contamination is of greatest concern. These students provided people with information and surveyed them on what they know about their drinking water. Additional surveys may be depend on the overall students success with reaching residents, and public interest in getting additional information.

Soon, county surveyors will be reaching out to those households within the special study area, where residents are at risk of contamination or areas of concern and or where additional information on the groundwater is needed. While we're surveying now, we'll also be determining how to make some treatment systems available to those who qualify.

What about addressing the contamination?
Different committees represented by local, state and federal agencies, as well as, citizens, farmers and health and environmental advocates are working to develop practices to prevent pollution and consider rules to better protect wells and drinking water sources.

The state legislature has provided Yakima County with funding to move forward with these efforts. This group will help guide that process, is known as the Groundwater Management Area Advisory Committee.

People who are interested in getting involved may contact me. On a practical basis,

- Have your drinking water tested by a certified lab at least once or twice a year.
- Make sure septic systems are working properly and not leaking
- Lessen the amount of nitrogen fertilizers used, and
- Report observed incidents of pollution to the Washington Department of Ecology.

People with questions can contact me at 509-329-2120 or online at preguntas@ecy.wa.gov.

"Conozca su Gobierno"
Connect with your Government Spanish Radio Program
24 de septiembre, 2013

Introducción:
Me llamo Andres R. Cervantes y trabajo para el Departamento de Salud del Estado de Washington, en la Oficina de Agua Potable. Estoy aquí hoy para hablar sobre el agua potable, como los residentes pueden protegerse contra la contaminación. Estamos enfocándonos en la Baja Valle de Yakima donde existen miles de residentes que toman agua de pozos privados y comunitarios.

En muchas áreas del país tanto como la Baja Valle de Yakima, el acuífero cercano a la superficie del terreno está contaminado por niveles de nitrato que ponen en peligro algunos miembros del hogar, tal como los infantes, mujeres embarazadas y otras personas con ciertas condiciones médicas.

¿De dónde viene la contaminación de nitrato?
Nitrato es una substancia química que existe en la mayoría de fertilizantes, estiércol y los líquidos que salen de los sistemas de aguas negras privadas (tanques sépticos). La bacteria natural en los suelos puede convertir el nitrógeno al nitrato. El nitrato puede pasar por los suelos durante una lluvia o el riego agrícola hasta entrar a las aguas subterráneas. El agua que usted toma de su pozo puede contener niveles altos de nitrato si el pozo solo extiende al acuífero cercano.

El nitrato es considerado como un contaminante grave, que significa que un solo expuesto puede afectar la salud de la persona.

¿Por qué deben preocuparse de los nitratos?
Los infantes menores de un año y las mujeres quienes están embarazadas o están tratando de embarazarse no deben tomar agua con altos niveles de nitrato. Tal sustancia química reduce la capacidad de las células rojas de la sangre para llevar el oxígeno. Los infantes pueden desarrollar una condición seria conocida como el "síndrome de bebé azul" o científicamente conocido como la metahemoglobinemia, debido a la falta de oxígeno.

Los adultos y niños mayores no están afectados a tal grado como los infantes. Las células de su sangre se normalizan de manera rápida. Algunas personas tienen una reacción mala si la sangre de ellas no contiene una cierta enzima que ayuda a normalizar las células rojas.

¿No se analizan y tratan las aguas para asegurar que son seguras para tomar?
Los sistemas municipales de agua tienen que cumplir con unas normas mínimas de calidad de agua para considerarse sanos y confiables. Tales sistemas de agua pueden incluir los que pertenecen a una ciudad o pueblo, hasta los de una empresa comercial o una asociación pequeña de propietarios de casas. Estos sistemas deben analizar sus pozos en forma regular para comprobar que cumplen con las normas mínimas. O si es necesario, tiene que instalar un sistema de tratamiento si las muestras indican que el abastecimiento de agua está contaminado.

Muchos residentes, sin embargo, dependen en pozos privados o comunitarios para su agua potable y que no son regulados. Estos residentes son responsables para analizar su propia agua de pozos para asegurar que es sana para tomar. El mejor método para protegerse es usar un laboratorio certificado para analizar muestras del agua de sus pozos por lo menos una vez al año para bacteria y nitrato.

¿Qué debe hacer una persona si encuentra que el agua no es sana para tomar?
Tal persona o el propietario pueden buscar tratamiento o una fuente alternativa de agua, dependiendo en los resultados del análisis. Por ejemplo, una solución de tratamiento para quitar bacteria no necesariamente va a quitar el nitrato. Los residentes pueden escoger el uso de agua embotellada, especialmente cuando mezclando fórmula para infantes y haciendo bebidas para los jóvenes y mujeres embarazadas. Como alternativo, las personas pueden instalar un sistema de filtración certificado que eliminará el nitrato, la bacteria o ambos tipos de contaminación.

Si una persona está preocupada referente al agua causando alguien a enfermarse, ella debe visitar un doctor. Los síntomas de contaminación de bacteria parecen iguales a la influenza, aunque el real problema es debido al tomar agua contaminada.

¿Qué está haciendo el gobierno para resolver esta situación?
El Departamento de Ecología aprobó una solicitud del Condado de Yakima para crear un área especial de estudio y establecer un grupo de personas para encontrar soluciones para prevenir la contaminación. Al mismo tiempo, el grupo tiene que pensar en proteger los residentes que pueden estar expuestos a altos niveles de nitrato en su agua que toman. El área es conocida como el Área Administrativa de Aguas Subterráneas del Baja Valle de Yakima. En el corto plazo, la meta es educar gente referente al problema y entregarle información sobre cómo puede protegerse contra la contaminación. Las soluciones de largo plazo usarán información disponible y nueva colectada por toda la valle para prevenir la continuación de la contaminación del agua subterránea. También, se usará tal información para asegurar que los residentes tienen agua que es limpia y sana para tomar.

¿Cuáles acciones están siendo realizadas?
Hace algunos años, muchas residencias fueron identificadas como en riesgo y tuvieron la oportunidad a obtener sistemas de filtración puestos en sus casas por medio de un programa patrocinado por el Condado de Yakima.

En agosto, estudiantes de Heritage College completaron una encuesta de todas las casas dentro del área donde la contaminación de nitrato es mayor. Estos estudiantes entregaron información a los residentes y, también, les preguntaron sobre que sabían referente a su agua que toman. Encuestas adicionales pueden ocurrir pero dependerán en el éxito final de los estudiantes a conectar con los residentes. También dependerán del interés que exhibe el público para obtener información adicional.

Pronto, habrá gente de parte del Condado que van a hacer una encuesta de los residentes que viven dentro del área especial de estudio. Este área pertenece a casas que ya están en riesgo de contaminación, donde contaminación es posible, y donde información adicional es necesario referente al agua subterránea. Mientras estamos investigando, vamos a determinar cómo podemos proveer algunos sistemas de tratamiento a los residentes quienes califican.

¿Qué hace para resolver la contaminación?
Diferentes comités representados por agencias locales, estatales y federales, tanto como residentes, agricultores y personas que advocan para la salud y el medio ambiente están trabajando para desarrollar prácticas para prevenir la contaminación. Tales comités considerarán regulaciones para mejor proteger a los pozos y fuentes de agua potable.

La legislatura estatal ha dado al Condado de Yakima los fondos necesarios para mover adelante con estos esfuerzos. Este grupo que dirigirá el proceso es conocido como el Comité Asesor del Área Administrativa de Aguas Subterráneas.

Cualquier persona interesada en ser parte del proceso puede comunicarse conmigo. Por lo general,

- Una o dos veces al año, debe hacer un análisis del agua que toma por medio de un laboratorio certificado.
- Debe asegurar que los sistemas de tratamiento de aguas negras (tanques sépticos) están trabajando apropiadamente y que no hay fugas.
- Debe reducir la cantidad que usa de fertilizantes que contienen nitrógeno, y
- Debe reportar todos los incidentes observados de polución al Departamento de Ecología del Estado de Washington.

Las personas con preguntas pueden comunicarse conmigo al 509-329-2120 o vía el correo electrónico al preguntas@ecy.wa.gov.