

# Executive Summary

The Lower Yakima Valley Groundwater Management Area (GWMA) was formed in 2012 to address the goal of reducing nitrate concentrations in groundwater. A recent groundwater study in the Lower Yakima Valley, which sampled over 150 private domestic wells in 2017, found 20 percent of the wells consistently exceeded the drinking water standard (USGS 2018).

While many sources contribute to nitrates in groundwater, data from these wells indicate that human activities at the land surface have affected water quality.

One objective of the Lower Yakima Valley Groundwater Advisory Committee (GWAC), also formed in 2012, was to develop a program that would achieve the goal of reducing nitrate levels in groundwater. This document is that program. It describes the committee's completed work, including the committee's decisions, recommendations, and accomplishments. This work is the foundation for the implementation phase.

The GWAC is a large and diverse committee, including representatives from all identified groups affected by groundwater quality, including local, state, and federal government agencies; local citizens; farmers, dairy producers, and agronomists; irrigation districts; conservation districts; environmental groups; and other vested parties. This committee and its workgroups met regularly over the past six years with members committed to resolving issues. The tremendous amount of work produced and the ability to reach consensus on many issues, demonstrates the high level of commitment by the committee members.

## Funding

Funding to support the development and planning stage of the GWMA was appropriated by the Washington State Legislature primarily through the efforts of Senator Jim Honeyford of Sunnyside.

## Program Content

The program content describes the issue of elevated nitrate in groundwater, how the GWMA was established in the Lower Yakima Valley, and defines the goals and objectives developed for the GWMA. This report explains the environmental and health effects of nitrate in the environment, describes the sources of nitrate, and the different regulatory authorities that affect nitrate in groundwater. Additionally, the report characterizes the Lower Yakima Valley; it discusses the accomplishments and the recommended actions of the GWAC.

## Initiatives Completed by the GWAC

Since its inception in 2012, the committee has accomplished the following actions:

- Conducted free well water testing for residents
- Educated the public in both English and Spanish through a variety of outreach methods:
  - Door-to-door discussion and surveys
  - Fact sheets
  - Community fairs
  - Community billboards
  - Website posts
  - Radio public service announcements
  - News releases
- Established a comprehensive database that graphically displays information (GIS)
- Collected deep soil samples from 175 fields (to a depth of six feet)
- Conducted a detailed nitrogen availability assessment to identify the predominant sources of nitrogen
- Collected samples from 159 private domestic wells for six consecutive months to assess drinking water quality.
- Developed sampling plans for all future monitoring work
- Installed 30 monitoring wells for monitoring of long-term ambient groundwater quality
- Compiled Best Management Practices (BMPs) for agriculture and livestock activities
- Developed alternative management strategies to reduce nitrate loading to groundwater from a variety of sources

## Recommendations and Alternative Management Strategies.

Through the workgroups and other contracted work, the GWAC identified over 250 potential alternative management strategies that could reduce nitrate concentrations in groundwater. These are described in Appendix I. The committee discussed each strategy, and reached consensus (Appendix J) and prioritized 65 strategies (see Recommended Actions section). These recommendations include the following action categories, to be implemented by the appropriate local, state, and federal governmental agencies, along with farmers, citizens, and other interested groups.

- Support the implementation phase of the GWMA
- Continue groundwater and soil monitoring
- Promote voluntary source reduction strategies for all nitrate sources
- Continue education and public outreach strategies for all Lower Yakima Valley residents, including homeowners and farmers
- Improve irrigation efficiency
- Develop and support research about innovative nitrate reduction strategies
- Consider incentives that support nitrate reduction
- Explore technology to utilize nutrients as energy
- Enhance and streamline regulatory and enforcement mechanisms
- Maintain the established GIS database

## Implementation

The next phase of the GWMA program is implementation. The GWAC's completed work from the assessment and planning phase provides a solid foundation for this next phase. Within this document are specific recommendations for reducing nitrate concentrations in groundwater.

Implementation of recommendations is subject to future funding.