

# Northern Malheur County Groundwater Management Area



State of Oregon  
Department of  
Environmental  
Quality

## Background

Oregon's Groundwater Protection Act of 1989 requires the DEQ to declare a Groundwater Management Area (GWMA) if area-wide groundwater contamination, caused primarily by nonpoint source pollution, exceeds certain trigger levels. Because elevated nitrate levels (above the 7 mg/l trigger) were detected in many wells within a 115,000-acre portion of Malheur County, DEQ declared the Northern Malheur County GWMA in 1989. Nitrate levels above 10 mg/l can interfere with the ability of the blood to carry oxygen to vital tissues of the body in infants. The resulting illness is called "blue baby syndrome"

## Sources of Contamination

Groundwater samples from private water wells identified nitrate contamination and the presence of the pesticide DCPA (known by the brand name Dacthal) and its breakdown products. Traditional fertilizer and agricultural chemical application practices are believed to be the main source of the contamination. Other possible sources of nitrate include residential lawn care, septic tanks, confined animal feed lot operations, and food processing facilities.

## Groundwater Management Committee

The Groundwater Protection Act also requires the establishment of a local Groundwater Management Committee comprised of affected and interested parties. The committee works with and advises the state agencies that are required to develop an action plan that will reduce groundwater contamination in the area.

## Action Plan Goal

The goal of the December 1991 Action Plan is to seek solutions to protect the area's groundwater. Recommended solutions should bring the level of nitrate in the groundwater back below the 7 mg/l triggering the GWMA declaration.

## Roles and Responsibilities

The roles and responsibilities for Action Plan implementation are undertaken by nine participating agencies and organizations. The Malheur County Soil & Water Conservation District is the principal local agency responsible for implementing and coordinating water quality

protection programs in the GWMA. Other participating organizations include the Malheur County Groundwater Management Committee, the Oregon State University (OSU) Agricultural Experiment Station, OSU Cooperative Extension Service, Natural Resources Conservation Service, the Oregon Water Resources Department, DEQ, Oregon Department of Human Services - Health Division, and the Oregon Department of Agriculture.

## Voluntary Action Plan

The Action Plan is being implemented on a voluntary basis. The Groundwater Management Committee determined that a voluntary approach was the most workable, flexible, and acceptable method to begin implementation of the Action Plan. If the voluntary approach does not result in satisfactory progress in reducing nitrate contamination, then a regulatory approach with mandatory actions will be considered.

## Measuring Action Plan Success

The Action Plan specifies ways to gauge success that include improving water quality and the adoption of Best Management Practices (BMPs).

## 2003 Evaluation of Action Plan Success

In December 2003, three documents were finalized which (1) describe the implementation of BMPs through 1996, (2) describe nitrate and DCPA trends from 1991 through 1999, and (3) evaluates the success of the Action Plan.

Based on the information presented in the Trend Analysis Report and the BMP Implementation Report, the Committee concluded that sufficient progress has been made to continue the voluntary nature of the Action Plan.

Major conclusions from the BMP Implementation Report include:

- The measure of Action Plan success stating that "other indicators of progress" be implemented has been met.
- Documentation of BMP implementation since 1997 is needed.
- There is a strong local commitment to maintain and expand the implementation of BMPs so that economic and environmental benefits can be realized and maintained.

## Water Quality Division Eastern Region

700 SE Emigrant, #330  
Pendleton, OR 97801  
Phone: (541) 278-4604  
(800) 304-3513  
Fax: (541) 278-0168  
Contact: Phil Richerson  
[www.deq.state.or.us](http://www.deq.state.or.us)

## Alternative formats

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Major conclusions from the Trend Analysis Report include:

- The three measures of Action Plan success based on groundwater quality values have not yet been met. These measures of success were overly optimistic; it is clear that a longer time frame will be required for these measures of success to be met.
- The area-wide trend appears to be no longer increasing. This conclusion is based on four estimates of the area-wide trend that suggest it is either flat or slightly declining (up to 0.3 mg/l decline per year). This conclusion is not definitive because the nitrate trends at individual wells were mixed (i.e., they included increasing, decreasing, flat, and statistically insignificant trends).
- Because the trend analysis was conducted approximately four years after DCPA use essentially ended, the increasing DCPA trends in wells located near the end of groundwater flow paths illustrates the need for a longer time frame to flush the aquifer. Continued monitoring of DCPA could provide useful information in assessing the nature of contaminant transport in the area thus allowing a more accurate evaluation of nitrate transport in the area.

**Groundwater Sampling**

DEQ samples a network of 37 wells every other month for analysis of nitrate and DCPA. Once a year, these wells are also samples for major ions, metals, and additional pesticides. These data are being used to evaluate changes in groundwater quality over time in response to adoption of BMPs.

**Next Steps**

As recommended in the December 2003 reports, both BMP implementation and water quality trends will be re-evaluated in 2005.

**Summary**

Progress is being made at land surface, but it will take years or even decades for groundwater quality to return to acceptable levels.

**Other NMC GWMA Information**

Additional information is available at:  
<http://www.deq.state.or.us/wq/groundwa/NMalheurGWMgmtArea.htm>

**Location and Boundary of the Northern Malheur County Groundwater Management Area**

