

APPENDIX D: Long Range Plan for Groundwater Protection in Southern Deschutes County (Outline)

A. Local Rule Implementation (90 days between adoption & effective date)

B. Financial Assistance Program

1. Formal program description
2. Update work plan
3. Establish implementation schedule
4. Third party administrator - contracts
 - a. Reporting
 - i. Identify measures of success
 - ii. Identify shortcomings
 - iii. Create public information process
 - b. Specify contractual obligation re: targeting funds to:
 - i. Geographic areas
 - ii. Specific income levels

C. Long term environmental monitoring

1. Domestic well testing (estimated timeframe 2011)
 - a. Work with USGS to identify appropriate wells
 - i. Representative number of wells
 - ii. Sampling plan (including QA/QC)
 - b. Identify costs
 - c. Identify funding source
 - d. Reporting
 - i. Interagency report (DEQ, DHS)
 - ii. Incorporate public water system data, real estate data
 - iii. Public information
2. Nitrogen reducing system performance audit
 - a. Develop system for randomizing spot checks
 - b. Identify costs
 - c. Identify funding source
 - d. Reporting

D. Sewer & other approaches to pollution reduction

1. Coordination role in sewer expansion/creation processes
 - a. Land use
 - b. District formation
 - c. Information resource
 - d. Examples: OWW1 & 2, Sunriver
2. Maintain state of knowledge of emerging technologies

E. Identify interagency partnerships, pursue grant opportunities

1. Sunriver feasibility study proposal
2. Wetland delineation study
3. Other

F. Coordinate with Comprehensive Plan update

1. High Groundwater Area work program
 - a. Local rule sunset - code amendment
2. Other water quality related comprehensive plan updates



G. Ongoing Public Involvement & Information

1. Web site revision
 - a. Orient towards available solutions
 - b. Highlight processes for different approaches
 - i. Onsite wastewater treatment
 - ii. New or expanded sewers
 - County role
 - Land use process
 - District formation
 - c. Other approaches
2. Potential continuation of advisory committee (FAAC or other group)
3. Other

H. Legislative action

1. County code updates
2. State legislation
3. Federal legislation
4. Grant opportunities



APPENDIX E: References for groundwater investigations and other research related to southern Deschutes County

(Additional references are provided in the Staff Report contained in Appendix B.)

Region-specific research used in the development of the proposed rule:

Hinkle SR, Weick RJ, Johnson JM, Cahill JD, Smith SG, Rich BJ, 2005. *Organic Wastewater Compounds, Pharmaceuticals, and Coliphage in Ground Water Receiving Discharge from Onsite Wastewater Treatment Systems near La Pine, Oregon: Occurrence and Implications for Transport*. US Geological Survey Scientific Investigations Report 05-5055, 98 p.

Hinkle SR, Bohlke, JK, Duff, JH, Morgan DS, Weick RJ, 2007. *Aquifer-scale controls on the distribution of nitrate and ammonium in ground water near La Pine, Oregon, USA*. *Journal of Hydrology*, 333, 486-503.

Hinkle, S.R., Morgan, D.S., Orzol, LL, and Polette, DJ. *Ground water redox zonation near La Pine, Oregon – Relation to River Position within the Aquifer-Riparian Zone Continuum*. US Geological Survey Scientific Investigations Report 2007-5239, 30 p.

KCM, 1997. *South County Regional Cost/Benefit Analysis Final Report*. Consultant report.

Morgan, D. S. and R. Everett. 2005. *Simulation-Optimization Methods for Management of Nitrate Loading to Groundwater From Decentralized Wastewater Treatment Systems*. Project No. WU-HT-03-37. Prepared for the National Decentralized Water Resources Capacity Development Project, Washington University, St. Louis, MO, by US Geological Survey, Oregon Water Science Center, Portland, OR.

Morgan, DS, Hinkle, SR, and Weick, RJ, 2007. *Evaluation of approaches for managing nitrate loading from on-site wastewater systems near La Pine, Oregon*. US Geological Survey Scientific Investigations Report 2007-5237, 66 p.

Oregon DEQ, 2006. *Groundwater Water Quality Report for the Deschutes Basin*. <http://www.deq.state.or.us/lab/techrpts/groundwater/dbgroundwater/dbgwreport.pdf>.

Oregon DEQ, 2005. *Data from the La Pine National Demonstration Project*. Available online at: <http://www.deq.state.or.us/wq/lapine/siterptcriteria.asp>.

Williams, JS, Morgan, DS, and Hinkle, SR. *Questions and Answers About the Effects of Septic Systems on Waste Quality in the La Pine Area, Oregon*. US Geological Survey Fact Sheet 2007-3103, 6 p.

