

Peer Review Plan

Date: 4/10/2015 (Updated)

Source Center: U.S Geological Survey (USGS)
Washington Water Science Center
934 Broadway, Suite 300
Tacoma, WA 98402

Title: Simulated groundwater flow paths to nitrate-contaminated wells in the Yakima River Basin, Washington.

Subject and Purpose: The subject report presents the results of using a previously published groundwater flow model ([USGS SIR 2011-5155](#)) along with an established particle-tracking program (MODPATH) to simulate groundwater flow paths between nitrate-contaminated wells and the land-surface in the Yakima River Basin, Washington. The locations of multiple residential drinking-water wells with elevated concentrations of nitrate were obtained from a recent U.S. Environmental Protection Agency (EPA) report (EPA-910-R-12-003) that described the results of a study to investigate the contribution from various land uses to high nitrate levels in groundwater and residential drinking water wells in the basin. For the subject report, MODPATH was used to simulate groundwater flowpaths and travel times backwards from the wells to the land surface, or from the wells backwards for a groundwater travel-time of 42 years (the duration of the previous groundwater flow simulation). The well depths and/or screened intervals were not known and had to be estimated from known depths of nearby wells. The subject report will describe how well depths were estimated, how MODPATH was parameterized and applied, simulated flowpaths with time-of-travel information, assumptions and limitations of using this groundwater flow model and particle-tracking to simulate groundwater flowpaths, and further assumptions and limitations of using the same tools to infer chemical (nitrate) transport from the land surface to wells. The publication will be released as a USGS Scientific Investigations Report.

Impact of Dissemination: This information product is considered by the USGS to be Influential Scientific Information.

Timing of Review (Including Deferrals): December 2014 – April 2015. No deferrals are anticipated at this time.

Manner of Review, Selection of Reviewers, and Nomination Process: This review will be conducted via individual letters. USGS will select the peer reviewers pursuant to requirements in Survey Manual chapter 502.3 -Fundamental Science Practices: Peer Review (<http://www.usgs.gov/usgs-manual/500/502-3.html>).

Expected Number of Reviewers: Anticipate 4 reviewers.

Requisite Expertise: Hydrogeology, Groundwater Modeling, Particle-tracking and/or solute transport modeling.

Opportunity for Public Comment: No opportunity for public comment is formally incorporated for this product.

Agency Contact: peer_review_agenda@usgs.gov