Peer Review Summary Document

(12/2/2011)

Peer Review Plan

Coupled Groundwater Flow and Management Models for the Upper Klamath Basin, Oregon and California [70.2 KB PDF].

Title and Authorship of Information Product Disseminated

Groundwater Simulation and Management Models for the Upper Klamath Basin, Oregon and California, By Marshall W. Gannett, Brian J. Wagner, and Kenneth E. Lite Jr.

Peer Reviewers Expertise and Credentials

Peer Reviewer #1: Hydrologist in the U.S. Geological Survey (USGS) Office of Groundwater. Nearly 28 years of professional experience with the USGS, as well as an MS degree from the University of Arizona, Department of Hydrology, and PhD from the University of Connecticut in Environmental Engineering. Reviewer's expertise is in the areas of groundwater modeling, including the application of simulation-optimization modeling to groundwater studies, and in groundwater/surface-water interactions.

Peer Reviewer #2: Hydrologist for the USGS. MS degree from the University of Nevada, Las Vegas, in Geoscience and 15 years of professional experience with the USGS. Reviewer's expertise is in the area of hydrologic modeling, with applications to better understand the interaction between ground and surface-water resources.

Charge Submitted to Peer Reviewers

The reviewers were asked to make an objective evaluation of the research.

Summary of Peer Reviewers Comments

Reviewer #1 Summary

Reviewer #1 characterized the report as comprehensive, well organized, and well written. The reviewer did offer suggestions regarding clarification of the discussion, virtually all of which were incorporated.

The reviewer questioned reporting the objective function of the groundwater management model as the sum of two quarterly pumping rates, stating that a sum of rates is not intuitively applicable in water management. In response, figures were converted to quarterly pumped volumes (in acre feet), which are more physically meaningful and intuitive for readers. This reviewer also suggested a new first and second order heading structure, which was adopted.

Reviewer #2 Summary

Reviewer # 2 characterized the report as well written and scientifically thorough and noted that the addition of optimization models is a significant improvement over simple numerical flow models. The reviewer provided many editorial suggestions and revisions to improve clarity that were, with few exceptions, adopted.

The reviewer noted that certain aspects of model construction were not fully explained, such as which MODFLOW packages were used and how they were set up. The report was expanded as necessary in all places where the reviewer indicated more detail was needed.

The reviewer noted the lack of discussion on model limitations, particularly as a result of the relatively simple vertical discretization scheme, and suggested the addition of a model limitations section. In response, the authors added a first-order section on model limitations that included addressing limitations of groundwater models in general as well as specific limitations of the Klamath model resulting from a variety of causes, such as coarse vertical discretization.

Dissemination

The published information product will be released in a USGS publication series and will be available at http://pubs.er.usgs.gov/.