

109.9/WD/84/05/02/0

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MAY 03 1984

Dr. Ralph D. Lindberg
2203 Arapahoe St.
Golden, CO 80401

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Dear Dr. Lindberg:

Thank you for your letter dated April 3, 1984. I appreciate your comments on hydrogeochemical codes and the "validation" of these codes.

The Geochemistry Section of the Division of Waste Management at NRC is supporting the development, documentation, verification and validation of state-of-the-art hydrogeochemical codes. We currently have the codes WATEQF and PHREEQE on our computer and have plans for adding the most current version of the MINTEQ code. In addition, codes such as EQ3/EQ6 are implemented by our contractors.

We feel that published documentation of codes is necessary prior to obtaining useful results. The review of all thermodynamic data is essential to maintain internal consistency, although such a task is arduous. The WATEQ family of codes have been documented at several times. Similar published documentation of the added elements in WATEQFC is essential for acceptance of the results of your code for modeling natural water systems.

The NRC must conform to stringent legal requirements. As a result, all computer codes must be thoroughly checked if the codes are to be used for the interpretation of data which would affect policy decisions and licensing sites. These requirements generally apply to other government agencies such as EPA and the states.

Thank you for sending copies of your PhD thesis and resume.

Sincerely,

"ORIGINAL SIGNED BY"

William L. Dam
Geotechnical Branch
Division of Waste Management

WM Record File
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