

# **Joint U.S.-Russian Contaminant Transport Modeling Workshop Record of Meeting**

Richland, Washington  
February 24- March 10, 2001

## **On-Site Participants:**

Signe Wurstner, Pacific Northwest National Laboratory  
Charles Cole, Pacific Northwest National Laboratory  
Mark Williams, Pacific Northwest National Laboratory  
Nelly Vasilkova, Hydrospeztzgeologiya  
Galina Zinina, Institute for Physics and Power Engineering  
Brendan McManus, Science Applications International Corporation  
Paul Grenier, Thomas E. Albert and Associates, Inc. - Interpreter

## **Background:**

The contract between the United States Department of Energy (DOE) and the company “Hydrospeztzgeologiya” of the Russian Federation on contaminant transport modeling is being implemented under the auspices of the Joint Coordinating Committee for Environmental Restoration and Waste Management (JCCEM). The purpose of the contract, the period of performance of which is January 1-September 30, 2001, is to pursue the transient recharge and hydrodynamic models of the Mayak site, the transient-inverse calibration approach.

The main objectives of the workshop were to 1) develop a detailed plan for the approach to the 3-D contaminant transport modeling for nitrate and strontium-90 and 2) to create a data CD containing all the files and data for the current steady-state and transient models.

## **Workshop Activities:**

Through discussions, the workshop participants were able to obtain critical information, exchange ideas, and accomplish the objectives stipulated above.

This workshop designed a new transport modeling plan for predicting the long-term migration of nitrate and strontium-90 at Mayak using a calibrated 3-D hydrogeologic model. This new plan includes three tasks: 1) Pathline Analysis; 2) Transport Model Construction, Testing and Evaluation; and 3) Long-Term Prediction which are detailed in the attached plan. The workshop also produced a data CD containing all the files and data for the current steady-state and transient models. This CD has been annotated and documented so that the model can be generated from the data on the CD.

Other activities included:

- Identifying the boundary condition parameters to be adjusted in the UCODE inverse calibration and the additional fluxes to be used in the objective function in addition to the existing head data;
- Defining areas of the finite-element grid that will need to be refined for the transport model; and
- Evaluating the detailed vertical porosity data and currently defined hydraulic conductivity zones to provide a 3-dimensional distribution of porosity for use in the transport model.

Future work that was discussed includes:

- 1) Nelly Vasilkova and Galina Zinina agreed to provide data on NO<sub>3</sub> plumes at Mayak by May 2001.
- 2) Nelly Vasilkova and Galina Zinina agreed to provide initial data on the Sr-90 plume at Mayak by July 2001.
- 3) Charles Cole agreed to begin autocalibration of the UCODE based on data provided by this workshop.

The Record of meeting was signed by:

For the U.S. side

Signe Wurstner  
Project Manager,  
Pacific Northwest National Laboratory

For the Russian side

Nelly Vasilkova  
Senior Hydrogeologist,  
Hydrospetzgeologiya