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**RESPONSE TO U.S. EPA COMMENTS ON THE
U.S. DEPARTMENT OF ENERGY'S SOUTH
PLUME REMOVAL ACTION GROUNDWATER
MODELING REPORT, APRIL 1992**

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U.S. DEPARTMENT OF ENERGY'S
SOUTH PLUME REMOVAL ACTION GROUNDWATER MODELING REPORT, APRIL 1992

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Comment 1: The modeling report probably overstates the accuracy of particle tracking analysis. For example, page 4-4 of the modeling report states that the revised location of the groundwater extraction wells will deflect the organic contaminant plume by less than 1 foot and the inorganic plume by a maximum of 20 feet. The U.S. Department of Energy (DOE) Ground Water Report (dated December 1991) described particle tracing as a function of the three dimensional groundwater flow model. The smallest cells used in the south plume area of interest (rows 10 through 19 and columns 5 through 10) are 250 feet by 500 feet. Unless the model code is capable of tracking particles within individual cells the accuracy is overstated. In addition, it is also unclear if the model code account for other factors which reduce the accuracy of particle tracking, such as dispersion and diffusion. Additional information could be provided to support the conclusions of the particle tracking analysis.

Response: See DOE response to OEPA Comment #1.

Action: As stated in response Comment #1 made by the Ohio EPA.

Comment 2: The Ground Water Report generally lacks sufficient documentation concerning calibration of the ground-water flow model. The three dimensional ground-water flow model was calibrated to 1986 ground-water elevation data. The ground-water flow model was not calibrated to 1988 data as was the two dimensional ground-water flow model. Both models should be calibrated to 1988 data to confirm that the ground-water model accurately represents drought conditions.

Additional calibration checks should be conducted with the most complete data set available such as 1991 or 1992 ground-water elevation data. Additional calibration of the three dimensional ground-water flow model is required because layer 1 of the model has only one observation point and layer 2 has no observation points in the area of interest in the south plume (rows 10 through 19 and columns 5 through 10). In addition, layer 2 of the ground-water flow model has only two observations points south of Fernald Environmental Management Project (FEMP) property. Because further remedial actions will be required in the south plume (as well as other areas of FEMP), an additional post-calibration verification audit should be completed.

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It is not possible to make a point-by-point check on the model's calibration because the Ground Water Report presents only the residuals between modeled and observed measurements. DOE should provide a table which presents both the observed (water level elevation and uranium concentration) and the modeled measurements.

Response: See DOE response to OEPA Comment #5.

Action: As stated in DOE response to OEPA Comment #5.

Comment 3: A review of the calibration of the contaminant transport model was not conducted; however, as with the ground-water flow model, the most complete data set should be used to calibrate the model or at least perform a post-calibration verification audit.

Response:

Action: As stated in DOE response to OEPA Comment #5.

Comment 4: To provide a check on the accuracy of the model to predict future remedial actions, the ground-water flow model should be run to simulate the effect that pumping from the south plume extraction wells will have on the water table. Ground-water elevation data for specific monitoring points should be modeled so that the model predictions can be verified by future field observations.

Response: DOE concurs with U.S. EPA comment. The predicted effect that pumping from the south plume extraction wells will have on the water table is reported in the South Plume Removal Action Groundwater Modeling Report (Figure 14). Once the wells are actually pumping, field observations will be used to verify the predictions which were made using the model.

The recently submitted South Plume Removal Action - Design, Monitoring, and Evaluation Program Plan (DMEPP), defines a program of model validation using pump test and initial operation of the well field, and routine monitoring to verify model predictions.

Action: As stated in the response.