DIGITAL MODEL OF GROUND-WATER FLOW IN THE PICEANCE BASIN, RIO BLANCO AND GARFIELD COUNTIES, COLORADO

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The digital model is documented by a program listing and flow charts. Data used in the model and sample output are presented to document the simulation of steady-state flow in the aquifer system. The variables used in the computer program and program options are discussed in detail.

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METRIC CONVERSIONS

The U.S. customary units used in this report can be converted to metric units by multiplying by the factors given in the following table:

To convert U.S. customary unit	*Multiply by*	*To obtain metric unit*
foot	0.3048	meter
gallon	3.785	liter
mile	1.609	kilometer
square mile	2.590	square kilometer

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ABSTRACT

The digital model used to simulate ground-water flow in the aquifer system in the basin drained by Piceance and Yellow Creeks in northwestern Colorado is described in detail. The model is quasi three-dimensional in that it simulates ground-water flow in a multiaquifer system by assuming horizontal flow in the aquifers and vertical flow through the confining layers separating the aquifers. The model uses the iterative alternating-direction implicit procedure to solve the finite-difference flow equations.

The digital model is documented by a program listing and flow charts. Data used in the model and sample output are presented to document the simulation of steady-state flow in the aquifer system. The variables used in the computer program and program options are discussed in detail.

INTRODUCTION

The Piceance basin (fig. 1), which consists of the drainage basins of Piceance and Yellow Creeks, contains extensive deposits of oil shale in the Green River Formation of Eocene age (Donnell, 1961). The hydrology of the Piceance basin has been studied by the U.S. Geological Survey since 1964, when the Survey, in cooperation with the Colorado Water Conservation Board, began a reconnaissance investigation. Coffin, Welder, Glanzman, and Dutton (1968) and Coffin, Welder, and Glanzman (1971) reported on the study.

Intensive environmental studies have been conducted in the area since 1971 when the U.S. Department of the Interior announced plans for a prototype leasing program to permit development of a small part of the oil-shale resources on public lands in Colorado, Utah, and Wyoming. In 1974, two prototype leases in the Piceance basin, tracts C-a and C-b, were sold by competitive bidding for private development under controlled conditions. Development of lease tracts C-a and C-b will require mine-dewatering systems which may have significant effects on the water resources of the Piceance basin.

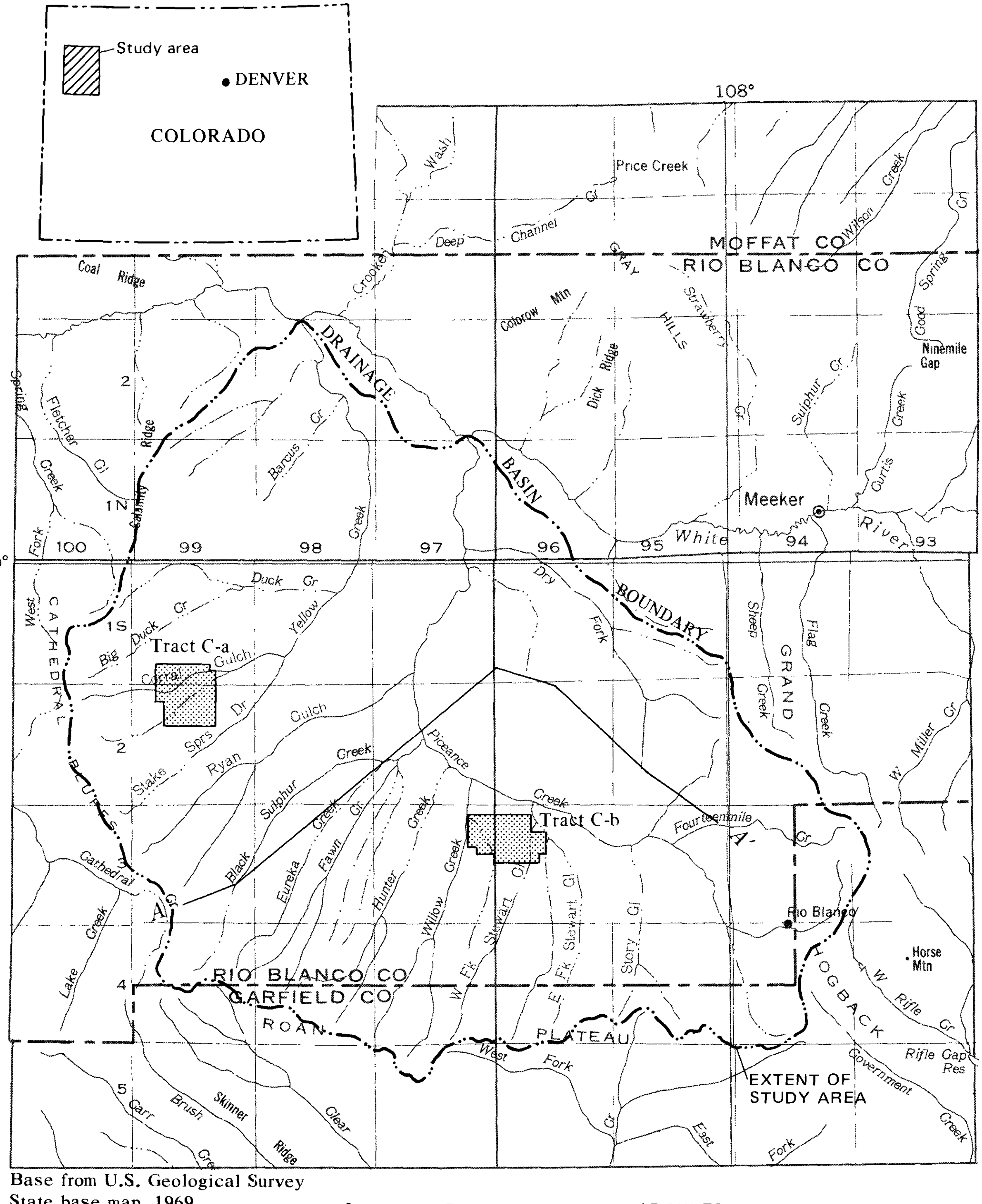


Figure 1.--Location of the Piceance basin and prototype oil-shale lease tracts C-a and C-b. (Modified from Weeks and others, 1974.)

In 1972, the U.S. Geological Survey, in cooperation with the Colorado Department of Natural Resources, began a comprehensive study of the water resources of the Piceance basin. Water-resources data were compiled and published by Ficke, Weeks, and Welder (1974) and Weeks and Welder (1974). A water budget for Piceance and Yellow Creeks drainage basins was developed by Wymore (1974) and an evaluation of hillslope and channel erosion was made by Frickel, Shown, and Patton (1975). Ground-water flow and surface-water runoff models were developed and used to predict the impact of development on the quantity and quality of water in the basin. The results of the study were published in "Simulated Effects of Oil-Shale Development on the Hydrology of Piceance Basin, Colorado," by Weeks, Leavesley, Welder, and Saulnier (1974), U.S. Geological Survey Professional Paper 908.

Purpose and Scope

The report by Weeks, Leavesley, Welder, and Saulnier (1974) briefly describes the digital model used to simulate ground-water flow in the Piceance basin; however, details of the model were not presented. The purpose of this report is to describe the ground-water flow model in detail and document the computer program used to make the analyses contained in the above report.

The digital model was designed to simulate flow in the multiaquifer system in the Piceance basin. The theoretical development of the finite-difference equations used to approximate the equations governing ground-water flow and a complete listing of the computer program used to solve the equations are included in this report. Input data used in the model and the resulting solution output are presented also. Although the model is specifically for the Piceance basin, those people who are experienced in modeling should have no difficulty in revising the computer program to simulate other multiaquifer systems.

Multiaquifer System

A brief description of the geohydrology of the Piceance basin is presented below. The purpose of this discussion is to familiarize the reader with the type of multiaquifer system simulated by the digital model. For a detailed discussion of the multiaquifer system, the reader is referred to Weeks, Leavesley, Welder, and Saulnier (1974).

The ground-water system in the Piceance basin, an area of about 900 square miles, consists of two principal aquifers. The upper and lower aquifers are separated by the Mahogany zone in the Parachute Creek Member of the Green River Formation as shown on figure 2. The Mahogany zone is less permeable than the aquifers it separates.

The upper aquifer consists of fractured, lean oil shale (marlstone) in the upper part of the Parachute Creek Member above the Mahogany zone and the fractured marlstone, siltstone, and sandstone of the overlying Uinta Formation

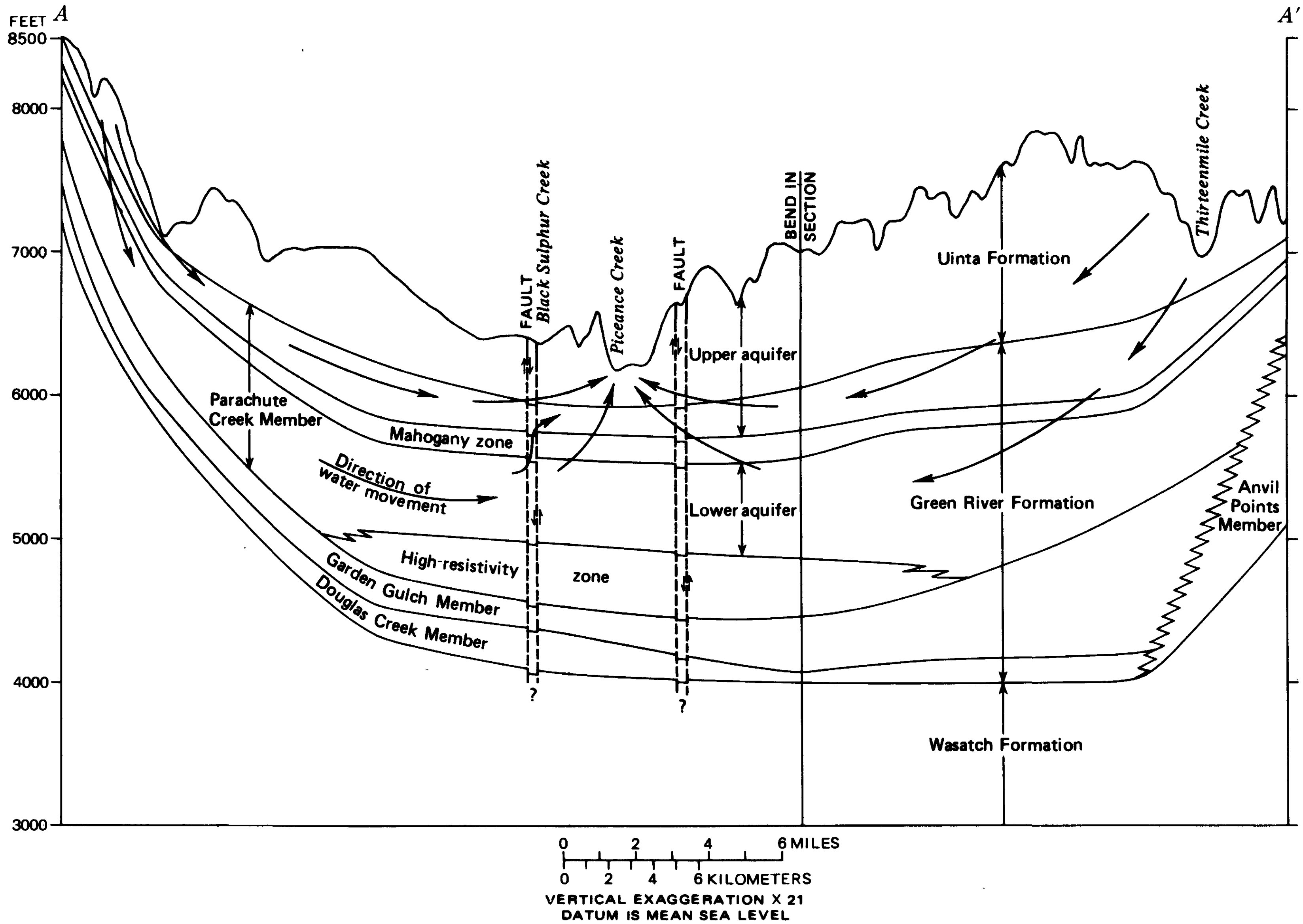


Figure 2.--Geohydrologic section through the Piceance basin showing relation of the aquifers to the Green River and Uinta Formations. Section located in figure 1. (Modified from Weeks and others, 1974.)

of Eocene age (fig. 2). The permeability of the aquifer is mainly due to secondary or fracture porosity. The upper aquifer is about 1,000 feet thick in the center of the basin and consists of a series of marlstone and sandstone beds with varying permeabilities and degrees of confinement. The aquifer is generally confined by low-permeability sandstones but may be unconfined in many locations, particularly near outcrop areas.

The upper and lower aquifers are separated by the Mahogany zone, an interval of rich oil shale 100 to 200 feet thick. The Mahogany zone extends to all margins of the basin and impedes the flow of water between the aquifers.

The lower aquifer consists of fractured marlstone in the lower part of the Parachute Creek Member below the Mahogany zone (fig. 2). The secondary porosity and permeability of the lower aquifer have been enhanced by the solution of minerals. The thickness of the lower aquifer is generally 400 to 700 feet but may be as much as 1,000 feet. In the central part of the basin, the high-resistivity zone (fig. 2), an interval of rich oil shale, forms the base of the lower aquifer. Where the high-resistivity zone is not present, the Garden Gulch Member of the Green River Formation (fig. 2), which has low permeability, is the base of the aquifer system.

Recharge to the aquifers mainly occurs from snowmelt above an altitude of 7,000 feet along the basin margins. Recharge infiltrates to the upper aquifer and flows toward the north-central part of the basin as illustrated on figure 2. In the recharge area, the hydraulic head in the upper aquifer is higher than that in the lower aquifer and water moves down, through the Mahogany zone, to the lower aquifer. In the north-central part of the basin and in the major stream valleys, the hydraulic heads in the aquifers are reversed and water moves upward from the lower aquifer through the Mahogany zone. Water from the aquifers is eventually discharged in the stream valleys as evapotranspiration and base flow. Ground-water discharge to the White River (fig. 1) is prevented by the structure of the basin.

Very little development of the ground-water resource has occurred in the Piceance basin. Consequently, the ground-water system has not been significantly stressed and changes in the system are due to natural variations in recharge only. Thus, for the purposes of modeling, the aquifer system was assumed to be in a condition of dynamic equilibrium or steady state.

DIGITAL MODEL

A digital model of ground-water flow in the Piceance basin was developed so that hypothetical dewatering operations for oil-shale mines at tracts C-a and C-b (fig. 1) could be simulated. To develop the model, the aquifer system was idealized to permit a mathematical description of the system.

Conceptual Model

The upper and lower aquifers are assumed to be horizontal and isotropic. The Mahogany zone confining layer is assumed to permit vertical connection between the aquifers without storage in the confining layer. The flow model assumed for the Piceance basin aquifer system is illustrated on figure 3 by a generalized east-west cross section through the model system. It is assumed that water enters the model aquifer system by recharge from precipitation in the recharge areas at a specified rate. Ground water circulates through the upper and lower aquifers in response to differences in potentiometric heads. The ground water is finally discharged to the stream valley as base flow and evapotranspiration. The lateral and lower boundaries of the aquifer model are assumed to be impermeable so that no water can enter or leave the system by crossing the boundaries. Thus, under steady-state conditions, the rate of recharge must equal the rate of ground-water discharge to the stream valleys.

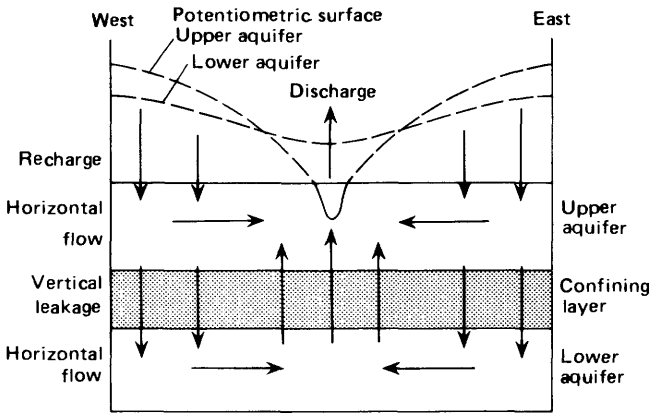


Figure 3.--Flow model of the aquifer system.
(From Weeks and others, 1974.)

The lateral boundaries of the aquifer model are shown on figure 4. The lateral boundaries of the model are assumed to be impermeable and coincide with the outcrop of the Green River Formation on the north, east, and west. To the south, the model boundary is assumed to be impermeable and coincide with the ground-water divide on the Roan Plateau. The modeled area is about 900 square miles. The stream valleys of Piceance Creek, Yellow Creek, Dry Fork Piceance Creek, and Black Sulphur Creek (fig. 4) are assumed to be constant-head boundaries in the upper aquifer, and represent areas where ground water is discharged to the stream valleys from the upper aquifer.

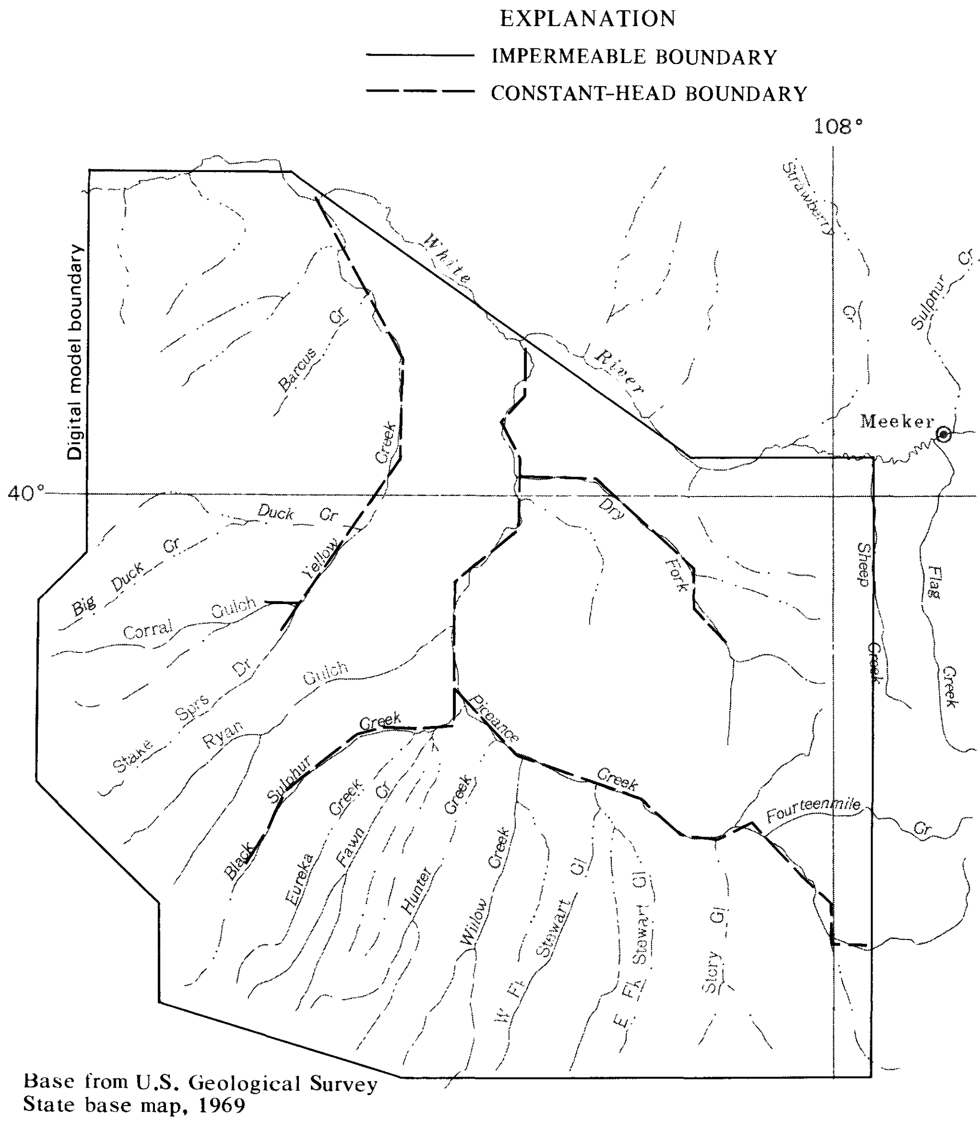


Figure 4.--Aquifer boundaries used in the digital model of the ground-water system. (From Weeks and others, 1974.)

Mathematical Model

The digital model used to simulate the multiaquifer system in the Piceance basin was originally developed by Bredehoeft and Pinder (1970). The model is quasi three-dimensional in that it simulates a three-dimensional, multiaquifer system by assuming horizontal flow in the aquifers and vertical flow through the confining layers, or beds, which separate the aquifers. These assumptions reduce the mathematical problem to one of solving coupled two-dimensional equations for each aquifer in the system. An iterative, alternating-direction-implicit scheme is used to solve the system of simultaneous, finite-difference equations which describe the response of the aquifer system to applied stresses.

Bredehoeft and Pinder (1970) tested the model by simulating pumpage from a leaky aquifer system for which the theoretical solution for drawdown was known. The agreement between the numerical solution and the theoretical solution (Bredehoeft and Pinder, 1970, fig. 2) was excellent.

Ground-Water Flow Equation

The general equation which governs the flow of water in a two-dimensional, isotropic, confined aquifer is:

$$\frac{\partial}{\partial x}\left(T\frac{\partial h}{\partial x}\right) + \frac{\partial}{\partial y}\left(T\frac{\partial h}{\partial y}\right) = S\frac{\partial h}{\partial t} + W(x,y,t)\,, \qquad (1)$$

where T is the transmissivity of the aquifer (L^2/t),
h is the hydraulic head in the aquifer (L),
S is the storage coefficient of the aquifer (dimensionless), and
$W(x,y,t)$ is the flow rate per unit area of a source or sink (L/t).

The transmissivity and storage coefficient are both functions of the space variables x and y. The source term is a function of the space variables, time, t, and also may be a function of hydraulic head. The source term, W, incorporates the effects of natural recharge or discharge, recharge or discharge from wells, and leakage from adjacent aquifers. For leakage without storage in the confining bed, the vertical flow through the confining bed to an adjacent aquifer is given by:

$$L = \frac{K'}{m}(\hat{h} - h)\,, \qquad (2)$$

where L is the flow rate per unit area (L/t),
$\hat{h}$ is the hydraulic head in the adjacent aquifer (L),
K' is the vertical hydraulic conductivity of the confining layer (L/t), and
m is the thickness of the confining layer (L).

Equation 1 can be written for both the upper and lower aquifers. Substitution of L, along with other appropriate source and (or) sink terms, for W

couples the equations describing the head distribution in the two adjacent aquifers.

The appropriate boundary and initial conditions required to obtain a unique solution to equation 1 depend on the conceptual model. The boundaries of the conceptual model are assumed to be impermeable. Therefore, the boundary conditions applicable to equation 1 require that the partial derivative of the head, h, in the direction normal to the aquifer boundary must be zero. For transient-flow problems, the initial conditions require specifying the head, h, as a function of the space variables, x and y, at time zero. For steady-state flow, the solution to equation 1 is independent of time and, therefore, independent of initial conditions.

Finite-Difference Approximations

To solve equation 1 for heterogeneous aquifers with irregular boundaries, the aquifers are subdivided into rectangular blocks in which the aquifer properties are assumed to be uniform. The derivatives in equation 1 are replaced by finite-difference approximations for the derivatives at the center of each block. The result is a system of simultaneous algebraic equations (Bredehoeft and Pinder, 1970) which can be solved efficiently by digital computers.

The finite-difference approximations to equation 1 were developed for a block-centered grid with variable grid spacing. The index scheme used for the grid system is shown on figure 5. The approximation method used is known as the iterative alternating-direction implicit procedure (Douglas and Rachford, 1956). The procedure consists of two steps involving the solution of two tridiagonal sets of equations for each aquifer. The first tridiagonal set of equations is derived by expressing one space derivative implicitly and the other explicitly in terms of known head values from the previous iteration. The next step is to reverse the procedure of the first step utilizing the intermediate solution as known values. Thus, the procedure is to alternate the direction of the implicit and explicit derivatives. For the calculation by rows ($\partial^2 h/\partial x^2$ implicit), equation 1 can be approximated by

$$\frac{1}{\Delta x_i}\left[\left(T\,\frac{\partial h}{\partial x}\right)^{n+\frac{1}{2}}_{i+\frac{1}{2},j,k} - \left(T\,\frac{\partial h}{\partial x}\right)^{n+\frac{1}{2}}_{i-\frac{1}{2},j,k}\right] + \frac{1}{\Delta y_j}\left[\left(T\,\frac{\partial h}{\partial y}\right)^{n}_{i,j+\frac{1}{2},k} - \left(T\,\frac{\partial h}{\partial y}\right)^{n}_{i,j-\frac{1}{2},k}\right]$$

$$= \frac{S_{i,j}}{\Delta t_k}\left(h^{n+\frac{1}{2}}_{i,j,k} - h_{i,j,k-1}\right) + W_{i,j,k} + I_l\left(h^{n+\frac{1}{2}}_{i,j,k} - h^{n}_{i,j,k}\right), \quad (3)$$

where Δx_i is the width of column i (fig. 5)(L),

Δy_j is the height of row j (fig. 5)(L),

Δt_k is the k^{th} time increment (t),

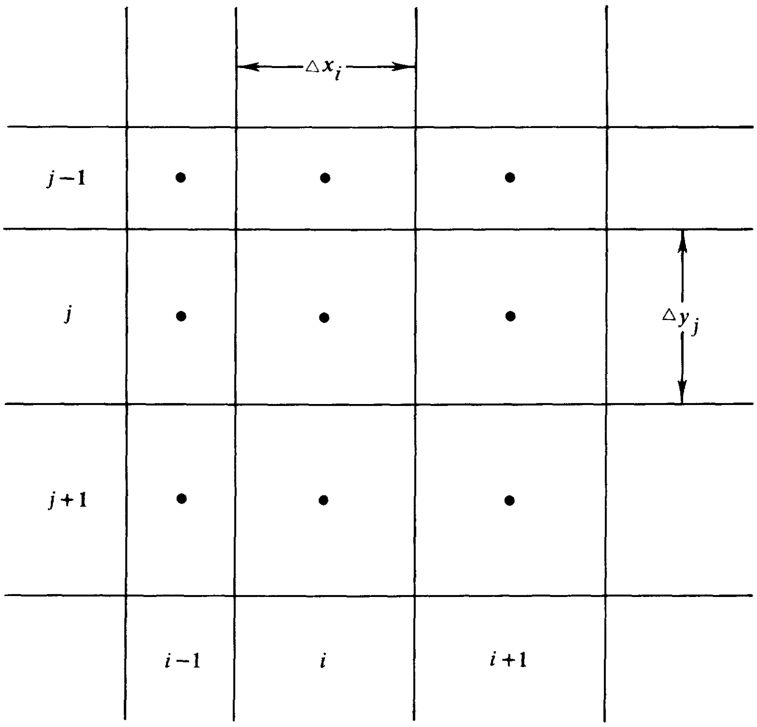


Figure 5.--Index scheme for finite-difference grid at block (i, j).

I_l is an acceleration parameter,
i is the column index,
j is the row index,
k is the time index, and
n is the iteration index.

The purpose of the acceleration parameter is to reduce the number of iterations to converge to a solution.

The derivatives in equation 3 can be approximated as follows:

$$\left(T\frac{\partial h}{\partial x}\right)^{n+\frac{1}{2}}_{i+\frac{1}{2},j,k} = \left(\frac{T}{\Delta x}\right)_{i+\frac{1}{2},j}\left(h^{n+\frac{1}{2}}_{i+1,j,k} - h^{n+\frac{1}{2}}_{i,j,k}\right). \tag{4}$$

The ratio $(T/\Delta x)_{i+\frac{1}{2},j}$ in equation 4 must be approximated using known values at blocks (i,j) and $(i+1,j)$. The ratio is usually approximated by the harmonic mean of the ratios at the two neighboring nodes. Thus, if

$$\left(\frac{T}{\Delta x}\right)_{i+\frac{1}{2},j} = \frac{2T_{i+1,j}T_{i,j}}{\Delta x_i T_{i+1,j} + \Delta x_{i+1} T_{i,j}}, \tag{5}$$

and

$$A_{i,j} = \frac{1}{\Delta x_i}\left(\frac{T}{\Delta x}\right)_{i-\frac{1}{2},j}, \tag{6a}$$

$$C_{i,j} = \frac{1}{\Delta x_i}\left(\frac{T}{\Delta x}\right)_{i+\frac{1}{2},j}, \tag{6b}$$

$$E_{i,j} = \frac{1}{\Delta y_j}\left(\frac{T}{\Delta y}\right)_{i,j-\frac{1}{2}}, \tag{6c}$$

$$F_{i,j} = \frac{1}{\Delta y_j}\left(\frac{T}{\Delta y}\right)_{i,j+\frac{1}{2}}, \tag{6d}$$

equation 3 for row computations can be written as

$$A_{i,j}\left(h^{n+\frac{1}{2}}_{i-1,j,k} - h^{n+\frac{1}{2}}_{i,j,k}\right) + C_{i,j}\left(h^{n+\frac{1}{2}}_{i+1,j,k} - h^{n+\frac{1}{2}}_{i,j,k}\right)$$
$$+ E_{i,j}\left(h^{n}_{i,j-1,k} - h^{n}_{i,j,k}\right) + F_{i,j}\left(h^{n}_{i,j+1,k} - h^{n}_{i,j,k}\right)$$
$$= \frac{S_{i,j}}{\Delta t_k}\left(h^{n+\frac{1}{2}}_{i,j,k} - h_{i,j,k-1}\right) + W_{i,j,k} + I_l\left(h^{n+\frac{1}{2}}_{i,j,k} - h^{n}_{i,j,k}\right). \tag{7}$$

Similarly, the equation for column computations ($\partial^2 h/\partial^2 y$ implicit) is

$$A_{i,j}\left(h^{n+\frac{1}{2}}_{i-1,j,k} - h^{n+\frac{1}{2}}_{i,j,k}\right) + C_{i,j}\left(h^{n+\frac{1}{2}}_{i+1,j,k} - h^{n+\frac{1}{2}}_{i,j,k}\right)$$
$$+ E_{i,j}\left(h^{n+1}_{i,j-1,k} - h^{n+1}_{i,j,k}\right) + F_{i,j}\left(h^{n+1}_{i,j+1,k} - h^{n+1}_{i,j,k}\right)$$
$$= \frac{S_{i,j}}{\Delta t_k}\left(h^{n+1}_{i,j,k} - h_{i,j,k-1}\right) + W_{i,j,k} + I_l\left(h^{n+1}_{i,j,k} - h^{n+\frac{1}{2}}_{i,j,k}\right). \tag{8}$$

An iteration consists of alternately solving equations 7 and 8 for each aquifer in the system. For the model of the Piceance basin, there are two aquifers and an iteration consists of solving the row and column equations for the upper aquifer and repeating the procedure for the lower aquifer. For each time step, iteration continues until the greatest head difference between consecutive iterations is less than a prescribed error or tolerance. When closure is achieved, the procedure is repeated for the next time step.

The acceleration parameters, I_l, are calculated by the model from the equation

$$I_l = \omega_l \left(A_{i,j} + C_{i,j} + E_{i,j} + F_{i,j} \right), \tag{9}$$

where the iteration parameter, ω_l, ranges between a maximum value of one and a minimum value computed from

$$\omega_{min} = Min \text{ (for all } i,j) \left[\frac{\pi^2}{2N_x^2} \frac{1}{1 + \frac{\Delta x_i C_{i,j} \left(\Delta y_j\right)^2}{\Delta y_j F_{i,j} \left(\Delta x_i\right)^2}}, \right.$$

$$\left. \frac{\pi^2}{2N_y^2} \frac{1}{1 + \frac{\Delta y_j F_{i,j} \left(\Delta x_i\right)^2}{\Delta x_i C_{i,j} \left(\Delta y_j\right)^2}} \right], \tag{10}$$

where N_x is the number of columns and N_y is the number of rows. Recall from equation 6 that $\Delta x_i C_{i,j}$ and $\Delta y_i F_{i,j}$ are the harmonic means of the ratios as defined by equation 5. The set of parameters, ω_l, are spaced in a geometric sequence by the formula

$$\omega_{l+1} = \omega_l \exp \left[\frac{ln\left(1/\omega_{min}\right)}{M - 1} \right], \tag{11}$$

where M is the number of iteration parameters selected by the user. The parameters, ω_l, are computed once in the model and stored in an array. As iteration proceeds, beginning with $\omega_1 = \omega_{min}$, the iteration parameters are cycled. The acceleration parameter, I_l, is calculated from equation 9 during the solution of each set of row or column equations.

The optimum number of iteration parameters is problem dependent. For the Piceance basin model, five to seven iteration parameters will provide rapid convergence for transient solutions. For a more detailed discussion of the iteration parameters, see Trescott, Pinder, and Larson (1976, p. 20).

The source term, $W_{i,j,k}$, incorporates the effects of pumpage, recharge, and leakage through the confining layers. Assuming outflow is positive and inflow is negative,

$$W_{i,j,k} = \frac{Q_{i,j}}{\Delta x_i \Delta y_j} - R_{i,j} + L_{i,j,k}, \tag{12}$$

where $Q_{i,j}$ is the well discharge rate at block (i,j) (L^3/t),

$R_{i,j}$ is the recharge rate per unit area of block (i,j) (L/t), and

$L_{i,j,k}$ is the leakage (flow rate per unit area) to adjacent aquifers at block (i,j) during the k^{th} time step (L/t).

The well discharge rate $(Q_{i,j})$ and the recharge velocity (rate per unit area, $R_{i,j}$) are specified at each block in the model. Well discharge is assumed to be constant for a specified pumping period which may include several time steps. The recharge rate is assumed to be constant throughout the period of simulation. However, leakage through the confining layers (including discharge to constant-head boundaries) is computed by the model during each iteration. For the upper aquifer,

$$L_{i,j,k} = V_{i,j}\left(h^r_{i,j,k} - WT_{i,j}\right) + \hat{V}_{i,j}\left(h^r_{i,j,k} - \hat{h}^n_{i,j,k}\right), \tag{13}$$

where $WT_{i,j}$ is the constant hydraulic head in the upper aquifer at (i,j) (L),

$V_{i,j}$ is the leakance (K'/m) of the layer confining the upper aquifer at (i,j) (t^{-1}),

$\hat{h}^n_{i,j,k}$ denotes the hydraulic head in the lower aquifer at (i,j,k) calculated during the previous (n^{th}) iteration (L),

$\hat{V}_{i,j}$ is the leakance of the confining layer separating the upper and lower aquifers at (i,j) (t^{-1}), and

r is the iteration index which equals $n+\frac{1}{2}$ for row computations and $n+1$ for column computations.

The constant hydraulic heads $(WT_{i,j})$ and the leakance of the upper confining layer $(V_{i,j})$ are convenience arrays used to control discharge from (or recharge to) the upper aquifer to surface streams (constant-head boundaries). For example, if a constant head at block (i,j) in the upper aquifer is desired, then the desired constant head is assigned to $WT_{i,j}$ and an extremely large leakance value is assigned to $V_{i,j}$. Application of Darcy's law causes the hydraulic head in the upper aquifer, $h_{i,j,k}$, to be about equal to $WT_{i,j}$. The values initially assigned to $WT_{i,j}$ are never changed during computing.

Although not applicable to the model of the Piceance basin, the WT and V arrays can be used to simulate flux between the upper aquifer and an overlying water-table aquifer. In addition, the arrays can be used to model the effects of low permeability stream sediments on ground-water discharge to streams or other surface-water bodies.

For the lower aquifer, the leakage through the confining layer is given by

$$L_{i,j,k} = \hat{V}_{i,j}\left(\hat{h}^{r}_{i,j,k} - h^{n}_{i,j,k}\right). \qquad (14)$$

Equation 7 can now be rearranged so that all unknown quantities are on the left side of the equation and all known quantities are on the right. By substituting equations 12 and 13 for $W_{i,j,k}$ in equation 7 and rearranging, the equation for row computations in the upper aquifer becomes

$$A_{i,j}h^{n+\frac{1}{2}}_{i-1,j,k} - \left[(A + C + V + \hat{V})_{i,j} + \frac{S_{i,j}}{\Delta t_k} + I_l\right]h^{n+\frac{1}{2}}_{i,j,k} + C_{i,j}h^{n+\frac{1}{2}}_{i+1,j,k}$$

$$= - E_{i,j}h^{n}_{i,j-1,k} + \left(E_{i,j} + F_{i,j} - I_l\right)h^{n}_{i,j,k} - F_{i,j}h^{n}_{i,j+1,k}$$

$$- \frac{S_{i,j}}{\Delta t_k}h_{i,j,k-1} - V_{i,j}WT_{i,j} - \hat{V}_{i,j}\hat{h}^{n}_{i,j,k} + \frac{Q_{i,j}}{\Delta x_i \Delta y_j} - R_{i,j}, \qquad (15)$$

which can be simplified to

$$A_{i,j}h^{n+\frac{1}{2}}_{i-1,j,k} + B_{i,j}h^{n+\frac{1}{2}}_{i,j,k} + C_{i,j}h^{n+\frac{1}{2}}_{i+1,j,k} = D_{i,j}, \qquad (16)$$

where $B_{i,j}$ and $D_{i,j}$ are defined by equation 15. This system of equations is readily solved by the computer program using Gaussian elimination (Carnahan and others, 1969, p. 441).

The form of equation 16 is identical for row or column computation in both the upper and lower aquifers. For column computations in the upper aquifer,

$$a_{i,j}h^{n+1}_{i,j-1,k} + b_{i,j}h^{n+1}_{i,j,k} + c_{i,j}h^{n+1}_{i,j+1,k} = d_{i,j}, \qquad (17)$$

where $a_{i,j} = E_{i,j}$,

$$b_{i,j} = - (a + c + V + \hat{V})_{i,j} - \frac{S_{i,j}}{\Delta t_k} - I_l,$$

$$c_{i,j} = F_{i,j},$$

and

$$d_{i,j} = - A_{i,j}h^{n+\frac{1}{2}}_{i-1,j,k} + \left(A_{i,j} + C_{i,j} - I_l\right)h^{n+\frac{1}{2}}_{i,j,k} - C_{i,j}h^{n+\frac{1}{2}}_{i+1,j,k}$$

$$- \frac{S_{i,j}}{\Delta t_k}h_{i,j,k-1} - V_{i,j}WT_{i,j} - \hat{V}_{i,j}\hat{h}^{n}_{i,j,k} + \frac{Q_{i,j}}{\Delta x_i \Delta y_j} - R_{i,j} .$$

Equations 16 and 17 also apply to row and column computations in the lower aquifer if h is replaced by $\hat{h}$ and the coefficients are computed from transmissivity and storage-coefficient data for the lower aquifer. The coefficients which are different are those involving the leakage term (see equations 13 and 14).

Before equations 16 and 17 can be solved, values must be assigned to all parameters from which the coefficients are computed. The values assigned to the parameters become input data to the computer program. The input data that must be provided are the block dimensions, transmissivity and storage coefficients of the aquifers, leakance of the confining layers, initial hydraulic heads in the aquifers, and the recharge velocity and pumping rate for each node in the model. The input data are included in a listing at the back of this report and will be discussed later. The development of the data is discussed by Weeks, Leavesley, Welder, and Saulnier (1974).

Model Geometry

The digital model is based on a rectangular block-centered grid which permits irregular grid spacing. The planar area of the model is divided into a rectangular grid with the origin of the coordinate system at the northwest corner. The map reference lines for the grid are shown on figure 6 and the grid spacing is given in the input data listing for the computer program. The grid system used for the Piceance basin aquifer system consists of 29 columns and 33 rows. The grid spacing ranges from 1.0 to 2.8 miles. The locations of constant-head nodes, which correspond to the location of streams hydraulically connected to the upper aquifer, are shown on figure 6 also. The grid is constructed so that at least one block at the beginning and end of each row and column is outside the modeled area. This permits irregular model boundaries within the rectangular grid. The finite-difference grid is used to overlay maps of aquifer boundaries, transmissivity, storage coefficient, leakance, and recharge so that values of the parameters required for computational purposes can readily be coded on card format for input to the model.

COMPUTER PROGRAM

The computer program is written in FORTRAN IV utilizing variables which will enable users to adapt the model to other multiaquifer systems.

Program Variables

The principal variables used in the computer program are defined in table 1. Several other variables are used in the program for intermediate computations or array indices. The use of these variables is generally self-explanatory in the program.

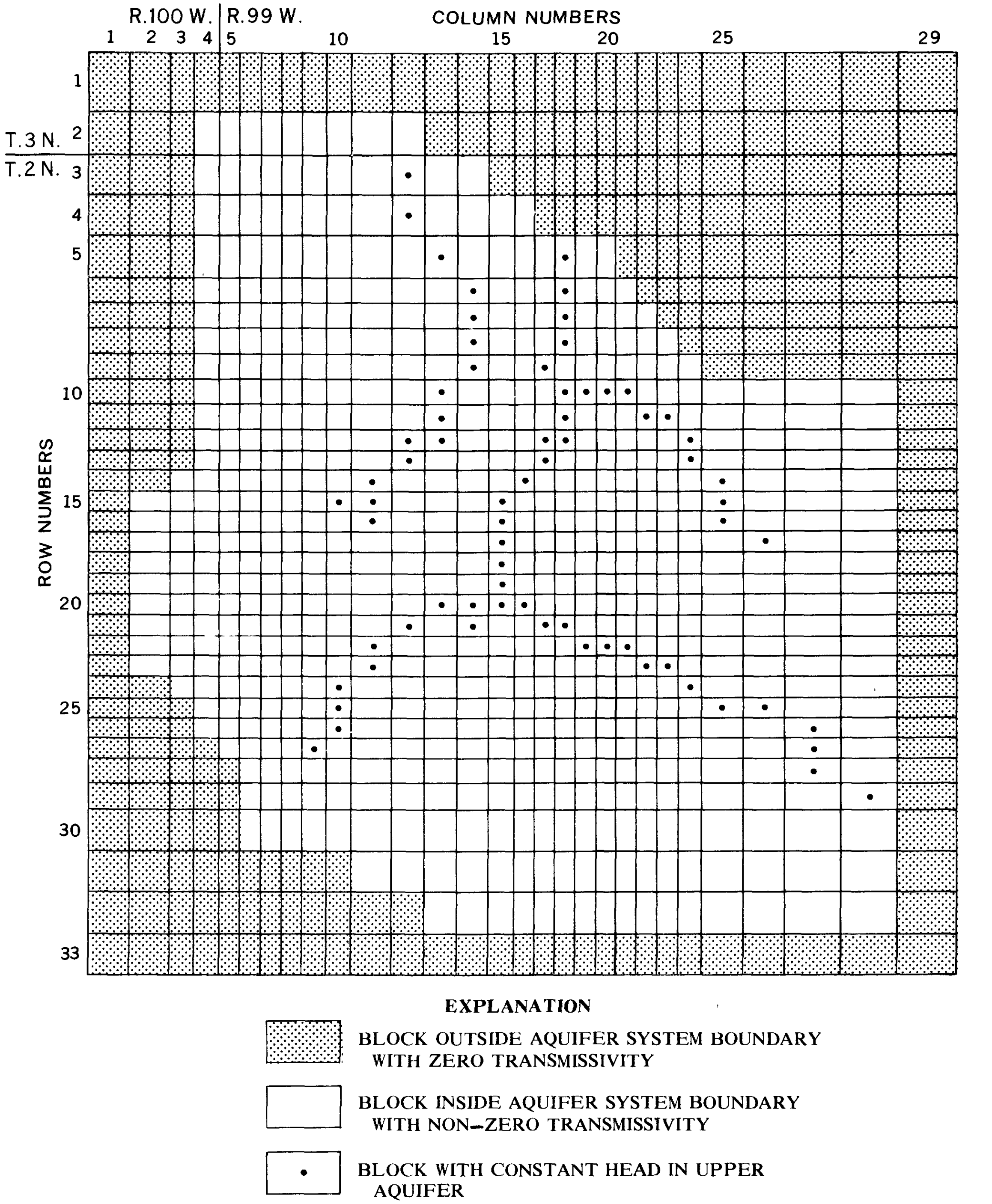


Figure 6.--Block-centered, finite-difference grid used to model the Piceance basin aquifer system showing township and range reference lines and grid-numbering system.

Table 1.--*Definitions of variables used in the computer program which simulates ground-water flow in the Piceance basin*

Variable	Definition
AOPT(NITP)	Array of iteration parameters.
BAL	Transient mass balance.
FCTR	Scale factor for input data.
FLUX1	Net outflow at start of time period.
FLUX2	Net outflow at end of time period.
HC(NX,NY,NL)	Array of head values, column solution.
HI(NX,NY,NL)	Array of initial head values.
HK(NX,NY,NL)	Array of head values, time step solution.
HMIN	Minimum iteration parameter.
HR(NX,NY,NL)	Array of head values, row solution.
ID	Directional index for transmissivity array.
IH(NX)	Array of head differences.
IL	Aquifer or confining layer index.
INT	Pumping period index.
IPMP	Mass balance option variable.
IRHI	Initial head option variable.
KOUNT	Iteration counter.
N	Time step index.
NITP	Number of iteration parameters.
NL	Number of aquifers or confining layers.
NPMP	Number of pumping periods.
NPNT	Print control option variable.
NREC	Number of pumping nodes.
NTIM	Number of time steps.
NX	Number of columns.
NY	Number of rows.
OPTP	Output option variable.
PARAM	Iteration parameter.
PINT(NPMP)	Array of pumping periods.
PUMP	Total pumping rate.
PYR	Summation of pumping periods.
Q(NX,NY)	Outflow rate at constant head nodes.
QIN	Summation of inflow rate.
QOUT	Summation of outflow rate.
QSTR	Volume of water from aquifer storage.
R1,R2,R3	Recharge rate factors.
RCI(NX,NY,NL)	Array of uniform recharge rates.
REC(NX,NY,NL)	Array of recharge + pumping rates.
RECH	Total recharge rate.
REMN	Print control variable.

Table 1.--*Definitions of variables used in the computer program which simulates ground-water flow in the Piceance basin*--Continued

Variable	Definition
RCE	Pumping rate at node.
S(NX,NY,NL)	Storage coefficient array.
SUMT	Summation of time.
TEST	Convergence test variable.
TDEL	Time step.
THCK(NX,NY,NL)	Aquifer thickness array.
TIM(NTIM)	Time step array.
TMRX(NX,NY,ID)	Harmonic-mean transmissivity array.
TOL	Convergence tolerance.
VFLUX	Volume of flow to constant-head nodes.
VPRM(NX,NY,NL)	Leakance or transmissivity array.
VPUMP	Volume of pumping.
VRECH	Volume of recharge.
WT(NX,NY)	Array of constant hydraulic heads.
XDEL(NX)	X-spacing array.
YDEL(NY)	Y-spacing array.

Program Options

The computer program has several options available to the user. These options control output printing, computations, and data input. Options are assigned values in SUBROUTINE PARLOD between line numbers B46 and B51. The line numbers appear at the right end of each line in the program listing. The option variables have assigned values as follows:

Line B46: NPNT is a print control index. For transient-flow problems, the head solution matrix is printed out every NPNT time steps. For steady-state problems, the head solution is achieved during the first time step and NPNT should be assigned an integer value greater than one.

Line B47: OPTP controls the printing of the hydraulic head solution matrix. If OPTP is assigned the value 1, the solution matrix is printed in tabular form. If OPTP is assigned the value 2, the solution matrix is printed in tabular and map form. The hydraulic-head maps can be contoured by hand although the map is not to scale. If OPTP is assigned the value 3, the solution matrix is printed in tabular and map form and punched on card format. The punched output is for use as initial conditions for subsequent simulations or as input to a separate computer program to contour the solution at a suitable map scale.

Line B48: IPMP controls the mass-balance computations. If IPMP is set to zero, no mass balance will be computed. A mass balance is calculated if IPMP is assigned the value 1 for steady-state solutions or 2 for transient solutions.

Line B49: IRHI controls the method of inputing initial hydraulic-head values. If IRHI is equal to 1, initial hydraulic heads are read in card format. If IRHI is equal to 2, initial hydraulic heads are assigned in SUBROUTINE BOUDY.

Line B50: NITP is the number of iteration parameters to be computed in SUBROUTINE PARLOD. The purpose of the iteration parameters is to speed convergence to a solution. The optimum number of parameters is problem dependent. For the two-aquifer model of the Piceance basin, five to seven iteration parameters were found to provide rapid convergence for transient problems. Simulation of steady-state conditions in the Piceance basin resulted in extremely slow convergence irrespective of the number of iteration parameters when relatively large leakance values were used. Rapid convergence to a steady-state solution was achieved by obtaining a solution for the upper aquifer [NL=1 and VPRM(NX,NY,2)=0]. The solution for the upper aquifer was then used as initial conditions for the upper aquifer and lower aquifer in the two-aquifer model. Rapid convergence was then obtained.

Line B51: TOL is the parameter used to test for convergence to a solution. Convergence is achieved when the hydraulic head at every node in each aquifer does not change in absolute value by an amount greater than TOL, in feet, between successive iterations. The magnitude of TOL should depend on the adequacy of the data to meet input-data requirements (a subjective evaluation by the user) and the range in hydraulic-head values expected in the solution. However, the value of TOL must be small enough to obtain a satisfactory solution as indicated by the mass balance. In the model of the Piceance basin aquifer system, values of 0.1 foot for steady-state solutions and 1.0 foot for transient solutions were assigned to TOL.

Input Variables

Input data required by the computer program are either read from cards or assigned within the program. The formats for data read by the program are contained in the program listing and summarized in table 2.

The following variables are read or assigned values at the line numbers indicated in SUBROUTINE PARLOD.

Line B20: NTIM is the number of time steps per pumping period to be assigned to the array TIM. For a steady-state solution, NTIM is assigned the value 1. For transient solutions, NTIM must be assigned a value such that the summation of NTIM time steps (SUMT) is equal to or greater than the longest pumping period. The value of NTIM must be less than 100 (the dimension of array TIM). The last time increment (TDEL) in each pumping period is adjusted

Table 2.--*FORMATs for input variables read by the computer program*

Order read	Variable and dimension	READ FORMAT	FORMAT line number
1-----	PINT(25)	25F3.0	B 114
2-----	XDEL(29)	29F2.0	C 148
3-----	YDEL(33)	33F2.0	C 149
4-----	VPRM(29,33,2)	29F2.0	C 146
5-----	VPRM(29,33,2)	29F2.0	C 146
6-----	WT(29,33)	10F8.2/10F8.2/9F8.2	D 65
7-----	HI(29,33,2)	10F8.2	D 67
8-----	RCI(29,33,2)	29F2.0	E 78
9-----	NREC	I13	E 75
10-----	IX,IY,IL,RCE	3I3,F10.5	E 74

in SUBROUTINE ITERAT so that the solution will be obtained at exactly the end of each pumping period.

Line B21: NPMP is the number of pumping periods to be simulated. NPMP must be assigned the value 1 for steady-state solutions and as much as 25 (dimension of PINT) for transient solutions.

Line B22: NX is the number of columns in the solution matrix or the number of blocks in the X-direction of the finite-difference grid. The value of NX is 29 in the model of the Piceance basin.

Line B23: NY is the number of rows in the solution matrix or the number of blocks in the Y-direction of the finite-difference grid. The value of NY is 33 in the model of the Piceance basin.

Line B24: NL is the number of aquifers or confining layers simulated. The value of NL is 2 in the model of the Piceance basin. The upper aquifer and overlying confining layer is indexed by the number 1 and the lower aquifer and its overlying confining layer is indexed by the number 2.

Line B67: PINT(NPMP) is an array of pumping intervals. NPMP pumping intervals are read from card format (table 2) in convenient units. The variable FCTR is used to change the units of PINT to seconds. At the beginning of each pumping period, subroutine RCHRG is called and the number of pumping nodes (NREC) to be simulated during the pumping period is read. (See discussion of NREC.)

Line B87: TIM(NTIM) is an array of time increments, in seconds, which are used to simulate the duration of each pumping period. The time-step variable (TDEL) in SUBROUTINE ITERAT is assigned successive values from the array TIM until calculations have proceeded the maximum number of time steps (NTIM) or the end of the pumping period is reached. For transient-flow problems, the duration, in seconds, of each time increment (TIM) may be assigned successively larger values. In line B84, the first time step, TIM(1), is assigned a value, in seconds, from which successive time steps are computed. In fact, a pumping period can be simulated by a single time step although the number of iterations required for convergence may become excessive. An initial time step of about 1/100 of the shortest pumping period is frequently used with successive time increments multiplied by a factor of 1.5 or 2.0. For steady-state solutions, any initial time step may be used.

The following variables are read or assigned values at the line numbers indicated in SUBROUTINE TRANS.

Line C19: XDEL(NX) is an array of column widths (finite-difference grid spacing in the X-direction). NX column widths are read from card format (table 2) in convenient units. The variable FCTR is used to change the units of XDEL to feet. In the program for the Piceance basin, XDEL is read in units of 0.2 mile.

Line C20: YDEL(NY) is an array of row heights (finite-difference grid spacing in the Y-direction). NY row heights are read from card format (table 2) in convenient units. The variable FCTR is used to change the units of YDEL to feet. In the program for the Piceance basin, YDEL is read in units of 0.2 mile.

Line C43: S(NX,NY,NL) is an array of aquifer storage coefficients. The storage coefficients for NL aquifers are assigned values in the program. For steady-state solutions, the array of storage coefficients must be set equal to zero. For transient-flow solutions with the Piceance basin model, uniform storage coefficients of 0.001 were assigned to the upper aquifer (NL=1) and 0.0001 to the lower aquifer (NL=2).

Line C57: VPRM(NX,NY,NL) is an array used to read the transmissivity of NL aquifers and the leakance of NL confining layers. The transmissivity of the aquifers is read from card format (table 2) in convenient units. The variable FCTR is used to change the units of VPRM to feet squared per second. In the model of the Piceance basin, the transmissivity is read in units of 100 gallons per day per foot. The directional harmonic-mean transmissivities (TMRX) are then computed from VPRM, XDEL, and YDEL for each node in the model. Elements of the array THCK are then assigned values of 1.0 at nodes where VPRM is not zero. One or more consecutive elements at the beginning and end of each row and column in the transmissivity matrix must be zero. These elements correspond to nodes in the finite-difference grid which are outside the aquifer boundaries. Zero values of transmissivity at nodes within the aquifer boundaries are not allowed.

Line C120: After the transmissivity data have been read into the program, the leakance of NL confining layers is read from card format (table 2) into the array VPRM(NX,NY,NL) in convenient units. The variable FCTR is used to change the units of VPRM to inverse seconds. The leakance of the upper confining layer (NL=1) is used to simulate the stream-aquifer interface. A negative value of leakance is used to flag nodes along the stream courses where ground-water discharge or recharge occurs. An appropriate leakance value is then assigned in the program (line C134) to the corresponding negative element of VPRM(NX,NY,1) to simulate hydraulic connection between the stream and aquifer. In the Piceance basin model, an extremely large leakance value (1.0 s^{-1}) is assigned to these elements. In effect, the large leakance value creates a constant head at each node on the stream course. A smaller value could be used to simulate impedance to flow at the stream-aquifer interface. All other elements of the array VPRM(NX,NY,1) are assigned zero values. In the Piceance basin model, VPRM(NX,NY,2) is the leakance of the confining layer separating the upper and lower aquifers and a uniform value of 1.55×10^{-10} s^{-1} is assigned to the array.

The following variables are read or assigned values at the line numbers indicated in SUBROUTINE BOUDY.

Line D18: WT(NX,NY) is an array of constant hydraulic heads used to control leakage at the stream-aquifer interface and create constant-head nodes in the upper aquifer (NL=1). Elements of the array WT are read, in feet, from card format. A constant head at node I,J in the upper aquifer is obtained by setting WT(I,J) to the desired head value and assigning VPRM(I,J,1) the value 1.0. In the Piceance basin model, the altitude of the stream channel, in feet above mean sea level, is assigned to corresponding elements of WT where hydraulic connection between the alluvium and upper aquifer occurs. Arbitrary values may be assigned to WT wherever VPRM(NX,NY,1) is equal to zero.

Line D24: HI(NX,NY,NL) is an array of initial hydraulic heads. Elements of the array HI are read, in feet, from card format for NL aquifers if IRHI has been assigned the value 1. If IRHI has the value 2, the computer cards which make up the HI data set must be omitted and the array HI is assigned values in SUBROUTINE BOUDY, line D34. For steady-state solutions, the initial hydraulic heads may be arbitrary; however, convergence to a solution may require an excessive number of iterations. Therefore, the initial hydraulic heads should approximate the solution as closely as possible. For transient-flow problems, the solution depends directly on the initial hydraulic heads which must be precisely defined. The Piceance basin ground-water-flow system is essentially in a steady-state condition so that the steady-state solution (HK) is used as the initial conditions for transient-flow simulations.

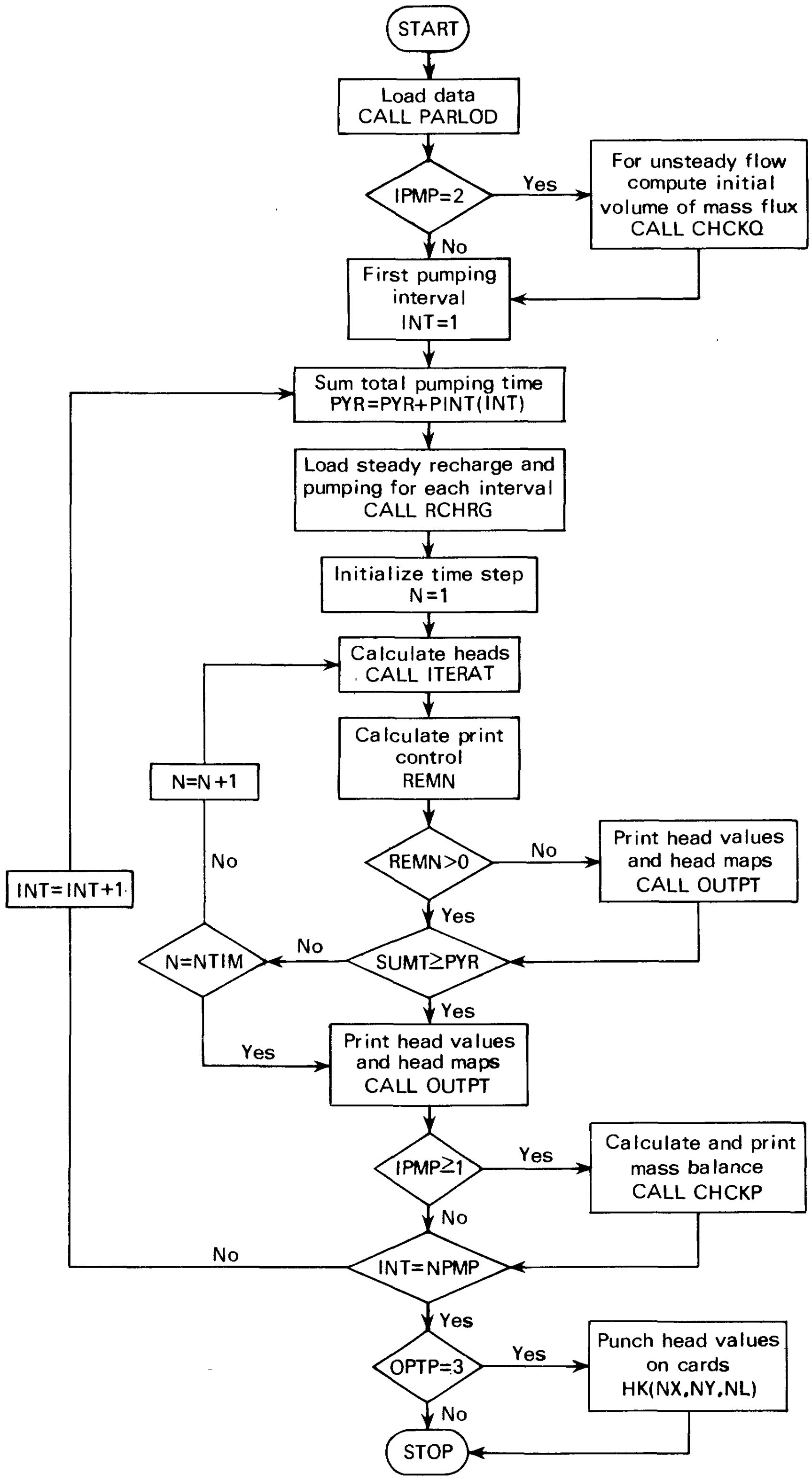
The following variables are read at the line indicated in SUBROUTINE RCHRG.

Line E38: RCI(NX,NY,NL) is an array of uniform recharge velocities. Uniform recharge to NL aquifers is read in convenient units from card format (table 2). The variables R1, R2, and R3 are used to change the units of RCI to feet per second. Recharge to the aquifers is considered to be negative. SUBROUTINE RCHRG is called at the beginning of each pumping period but the value of each element of RCI is assumed to be uniform throughout the period of simulation. Consequently, the recharge rate cannot be varied without modification of the program. In the Piceance basin model, uniform recharge from precipitation is assumed to occur only in the upper aquifer. Therefore, only the elements of RCI(NX,NY,1) are read into the model and the elements of RCI(NX,NY,2) are assigned the value zero in the program.

Line E57: NREC is the number of pumping nodes to be simulated during each pumping period. If NREC is greater than zero, the program will read (line E61) NREC computer cards (table 2) containing the location (IX,IY,IL) of the pumping node and the pumping rate (RCE) for that pumping node. A data card specifying NREC followed by NREC data cards defining IX, IY, IL, and RCE must be included in the data set for each pumping period. In the Piceance basin model, no wells are simulated in the steady-state solution and a value of zero is read for NREC.

A listing of the computer program used to simulate steady-state groundwater flow in the Piceance basin follows. A flow chart is included for the main program and each subroutine to aid the user in understanding the program. The program listing includes the input data set and a copy of the printed output. The hydraulic head distribution given in the output is the steady-state solution which is used as initial conditions for transient-flow problems.

MAIN PROGRAM

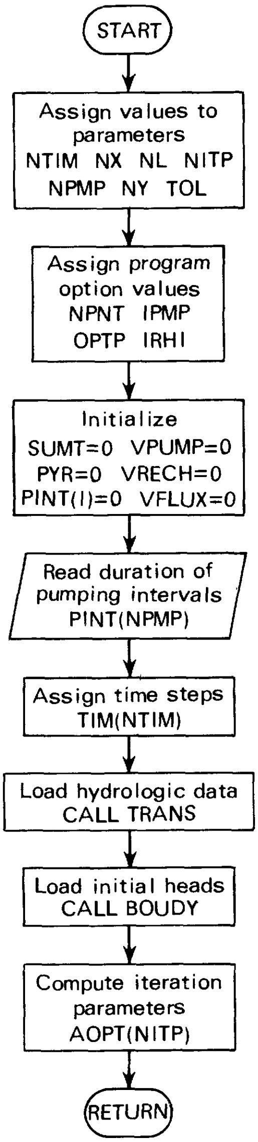


```
C     ************************************************************
C     QUASI THREE-DIMENSIONAL, MULTI-AQUIFER, GROUND-WATER FLOW MODEL
C
C     ITERATIVE ALTERNATING-DIRECTION-IMPLICIT PROCEDURE
C     VARIABLE BLOCK-CENTERED GRID SPACING
C
C     PROGRAM DEVELOPED BY J. D. BREDEHOEFT (1969) AND REVISED AND
C     ADAPTED TO CONDITIONS IN THE PICEANCE BASIN, COLORADO,
C     BY J. B. WEEKS (1973-75)
C     *************************************************************
C     THE MAIN PROGRAM CONTROLS THE NUMBER OF TIME STEPS, PUMPING
C     PERIODS, AND CALLS SUBROUTINES PARLOD, RCHRG, ITERAT, OUTPT,
C     CHCKQ, AND CHCKP
C
C     SUBROUTINE PARLOD LOADS INITIAL INPUT DATA FOR HYDRAULIC
C     PARAMETERS AND PROGRAM OPTIONS, ASSIGNS DURATION OF TIME STEPS
C     USED DURING EACH PUMPING PERIOD, CALLS SUBROUTINES TRANS AND
C     BOUDY AND COMPUTES ITERATION PARAMETERS
C
C     SUBROUTINE TRANS READS OR ASSIGNS THE GRID SPACING AND AQUIFER
C     PARAMETERS
C
C     SUBROUTINE BOUDY LOADS INITIAL HYDRAULIC HEADS
C
C     SUBROUTINE RCHRG LOADS UNIFORM RECHARGE AND PUMPING RATES FOR
C     EACH PUMPING PERIOD
C
C     SUBROUTINE ITERAT CONTROLS TIME STEPS AND ITERATION PARAMETERS,
C     CALLS COMPRC FOR ROW AND COLUMN COMPUTATIONS, TESTS FOR
C     CONVERGENCE, AND CALLS CHCKQ
C
C     SUBROUTINE COMPRC PERFORMS ROW AND COLUMN COMPUTATIONS FOR
C     EACH ITERATION
C
C     SUBROUTINE OUTPT LISTS OR MAPS HEAD VALUES AT SPECIFIED TIMES
C
C     SUBROUTINE CHCKP COMPUTES AND WRITES MASS BALANCE AND
C     INFLOW-OUTFLOW MAP AT END OF EACH PUMPING PERIOD
```

```
C
C     SUBROUTINE CHCKQ COMPUTES MASS BALANCE AT END OF EACH TIME STEP
C     ****************************************************************
      IMPLICIT REAL*8(A-H,O-Z)
      COMMON /PRMI/ IPMP,IRHI,NTIM,NPMP,NPNT,NITP,OPTP
      COMMON /DUMI/ N,NX,NY,NREC,NL,IL
      COMMON /PRMR/ SUMT,RHO,PARAM,TEST,TOL,HMIN,AOPT(20),PYR,PINT(25)
      COMMON /HEDA/ THCK(29,33,2),TMRX(29,33,4),VPRM(29,33,2),HI(29,33,2
     1),HR(29,33,2),HC(29,33,2),HK(29,33,2),WT(29,33),REC(29,33,2),RCI(2
     29,33,2),TIM(100),XDEL(29),YDEL(33),S(29,33,2)
      COMMON /MASS/ VPUMP,VRECH,VFLUX,TDEL,INT
C     ****************************************************************
C     LOAD DATA
C
      CALL PARLOD
C     *****************************************************************
C     START COMPUTATIONS
C     CHANGE PUMPING
C
      IF (IPMP.EQ.2) CALL CHCKQ
      DO 40 INT=1,NPMP
      PYR=PYR+PINT(INT)
C
      CALL RCHRG
C     *****************************************************************
C     COMPUTE ONE PUMPING PERIOD
C
      DO 20 N=1,NTIM
      CALL ITERAT
      REMN=MOD(N,NPNT)
      IF (REMN.GT.0.0) GO TO 10
      CALL OUTPT
   10 IF (SUMT.GE.PYR) GO TO 30
   20 CONTINUE
C     *****************************************************************
```

```
C     SUMMARY OUTPUT
C
   30 CALL OUTPT
      IF (IPMP.GE.1) CALL CHCKP
   40 CONTINUE
      IF (OPTP.NE.3) GO TO 60
      DO 50 IL=1,NL
   50 WRITE (7,70) ((HK(IX,IY,IL),IX=1,NX),IY=1,NY)
   60 CONTINUE
C     ****************************************************************
      STOP
C
   70 FORMAT (10F8.2)
      END
```

SUBROUTINE PARLOD



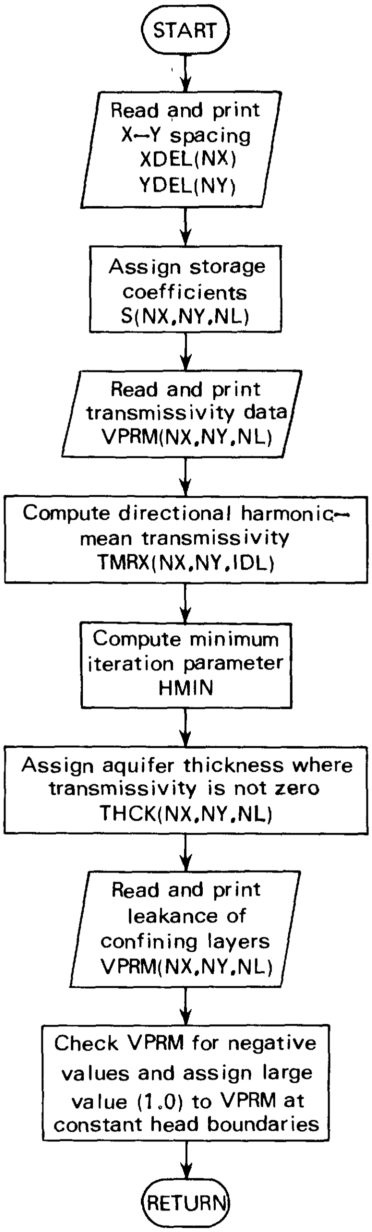
```
      SUBROUTINE PARLOD
      IMPLICIT REAL*8(A-H,O-Z)
C     ******************************************************************
      COMMON /PRMI/ IPMP,IRHI,NTIM,NPMP,NPNT,NITP,OPTP
      COMMON /DUMI/ N,NX,NY,NREC,NL,IL
      COMMON /PRMR/ SUMT,RHO,PARAM,TEST,TOL,HMIN,AOPT(20),PYR,PINT(25)
      COMMON /HEDA/ THCK(29,33,2),TMRX(29,33,4),VPRM(29,33,2),HI(29,33,2
     1),HR(29,33,2),HC(29,33,2),HK(29,33,2),WT(29,33),REC(29,33,2),RCI(2
     29,33,2),TIM(100),XDEL(29),YDEL(33),S(29,33,2)
      COMMON /MASS/ VPUMP,VRECH,VFLUX,TDEL,INT
C     ******************************************************************
C     TIME AND SPACE PARAMETERS
C
C      NTIM                                NUMBER OF TIME INCREMENTS
C      NPMP                                NUMBER OF PUMPING PERIODS
C      PINT                                PUMPING PERIOD
C      NX                                  MAX X
C      NY                                  MAX Y
C      NL                                  NUMBER OF LAYERS
      NTIM=1
      NPMP=1
      NX=29
      NY=33
      NL=2
C     ******************************************************************
```

```
C     PROGRAM OPTIONS
C
C      NPNT                            PRINT CONTROL INDEX
C                                      OUTPUT PRINTED EVERY NPNT TIME
C                                      STEPS AND END OF EACH PUMPING
C                                      PERIOD
C      OPTP                            OUTPUT OPTIONS
C                                      OPTP = 1 VALUES ONLY
C                                           = 2 CONTOUR + VALUES
C                                           = 3 CONTOUR + VALUES + CARDS
C      IPMP                            COMPUTE MASS BALANCE AT END
C                                      OF EACH PUMPING PERIOD
C                                      IPMP = 0 NO MASS BALANCE
C                                           = 1 STEADY STATE BALANCE
C                                           = 2 TRANSIENT BALANCE
C      IRHI                            SET INITIAL HEAD
C                                      IRHI = 1 READ HI
C                                           = 2 SET HI
C      NITP                            NUMBER OF ITERATION PARAMETERS
C      TOL                             CONVERGENCE PARAMETER
      NPNT=10
      OPTP=2
      IPMP=1
      IRHI=1
      NITP=7
      TOL=0.1
C     ************************************************************
C     INITIAL VALUES
C
      VFLUX=0.0
      VPUMP=0.0
      VRECH=0.0
      SUMT=0.0
      PYR=0.0
      DO 10 ID=1,25
      PINT(ID)=0.0
   10 CONTINUE
C     ************************************************************
```

```
C     LOAD DATA
C     READ PUMPING INTERVALS IN CONVENIENT UNITS
C
      READ (5,100) (PINT(I),I=1,NPMP)
C
      WRITE (6,110)
      WRITE (6,90) PINT
C     CHANGE PJMPING INTERVAL UNITS TO SECONDS WITH FCTR
C
      FCTR=86400.0*365.25
      DO 20 I=1,NPMP
      PINT(I)=PINT(I)*FCTR
   20 CONTINUE
C     ****************************************************************
C     ASSIGN TIME INCREMENTS IN SECONDS
C     LIST TIME INCREMEMTS
C
      DO 30 J=1,100
      TIM(J)=0.0
   30 CONTINUE
      TIM(1)=86400.0
      IF (NTIM.EQ.1) GO TO 50
      DO 40 K=2,NTIM
      TIM(K)=2.0000*TIM(K-1)
   40 CONTINUE
C
   50 WRITE (6,130)
      WRITE (6,140) TIM
C     ****************************************************************
      CALL TRANS
      CALL BOUDY
C     ****************************************************************
```

```
C     COMPUTE ITERATION PARAMETERS
C
      DO 60 ID=1,20
      AOPT(ID)=0.0
   60 CONTINUE
      ALPHA=DEXP(DLOG(1.0/HMIN)/(NITP-1))
      AOPT(1)=HMIN
      DO 70 IP=2,NITP
      AOPT(IP)=AOPT(IP-1)*ALPHA
   70 CONTINUE
C
      WRITE (6,80)
      WRITE (6,120) AOPT
      RETURN
C     ****************************************************************
C
   80 FORMAT (1H1,20HITERATION PARAMETERS)
   90 FORMAT (3H    ,25F5.1)
  100 FORMAT (25F3.0)
  110 FORMAT (1H1,21HPUMPING PERIODS YEARS)
  120 FORMAT (1E20.5)
  130 FORMAT (1H0,14HTIME INTERVALS)
  140 FORMAT (3H    ,10E12.5)
      END
```

SUBROUTINE TRANS



```
      SUBROUTINE TRANS
      IMPLICIT REAL*8(A-H,O-Z)
C     ************************************************************
      COMMON /PRMI/ IPMP,IRHI,NTIM,NPMP,NPNT,NITP,OPTP
      COMMON /DUMI/ N,NX,NY,NREC,NL,IL
      COMMON /PRMR/ SUMT,RHO,PARAM,TEST,TOL,HMIN,AOPT(20),PYR,PINT(25)
      COMMON /HEDA/ THCK(29,33,2),TMRX(29,33,4),VPRM(29,33,2),HI(29,33,2
     1),HR(29,33,2),HC(29,33,2),HK(29,33,2),WT(29,33),REC(29,33,2),RCI(2
     29,33,2),TIM(100),XDEL(29),YDEL(33),S(29,33,2)
C     ************************************************************
C     HYDRAULIC PARAMETERS
C
C      XDEL                              X-DIRECTION SPACING
C      YDEL                              Y-DIRECTION SPACING
C      VPRM                              LEAKANCE OF CONFINING LAYERS
C      S                                 STORAGE COEFFICIENT
C     ************************************************************
C     READ X AND Y SPACING IN CONVENIENT UNITS
      READ (5,170) (XDEL(IX),IX=1,NX)
      READ (5,180) (YDEL(IY),IY=1,NY)
C
      WRITE (6,190)
      WRITE (6,200) XDEL
      WRITE (6,210) YDEL
C
C     CHANGE SPACING TO FEET WITH FCTR
      FCTR=5280.0*0.2
      DO 10 IX=1,NX
      XDEL(IX)=XDEL(IX)*FCTR
   10 CONTINUE
C
      DO 20 IY=1,NY
      YDEL(IY)=YDEL(IY)*FCTR
   20 CONTINUE
C     ************************************************************
```

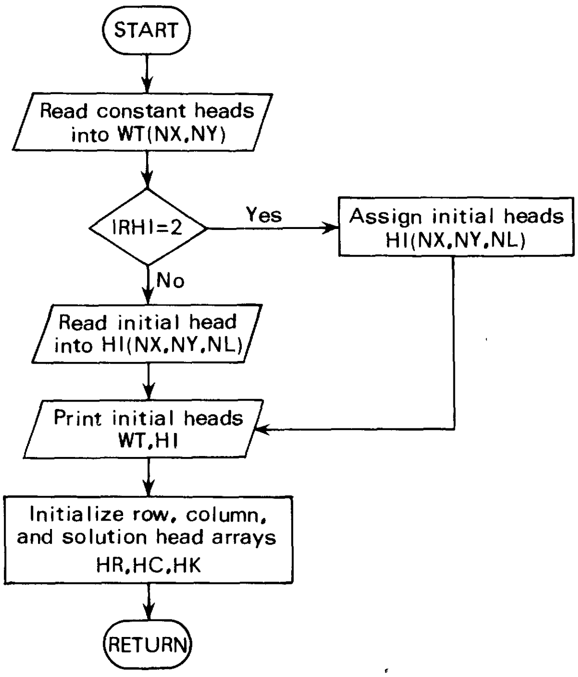
```
C     ASSIGN STORAGE COEFFICIENTS
C     STORAGE COEFFICIENTS SET TO ZERO FOR STEADY STATE SOLUTION
C
C
      DO 30 IL=1,NL
      DO 30 IY=1,NY
      DO 30 IX=1,NX
      S(IX,IY,IL)=0.0
   30 CONTINUE
C     ****************************************************************
C     INITIALIZE COEFFICIENT MATRIX
C
      IDL=2*NL
      DO 40 IL=1,IDL
      DO 40 IY=1,NY
      DO 40 IX=1,NX
      TMRX(IX,IY,IL)=0.0
   40 CONTINUE
C
C     READ TRANSMISSIVITY INTO VPRM IN CONVENIENT UNITS
C
      READ (5,150) (((VPRM(IX,IY,IL),IX=1,NX),IY=1,NY),IL=1,NL)
C
      WRITE (6,130)
      WRITE (6,120) ((VPRM(IX,IY,1),IX=1,NX),IY=1,NY)
      WRITE (6,140)
      WRITE (6,120) ((VPRM(IX,IY,2),IX=1,NX),IY=1,NY)
C     ****************************************************************
C     SET UP COEFFICIENT MATRIX
C
      PIES=3.1415927*3.1415927/2.0
      YNS=NY*NY
      XNS=NX*NX
      HMIN=2.0
C
C     DIRECTIONAL HARMONIC MEAN TRANSMISSIVITY
C     BLOCK CENTERED GRID
C     CHANGE TRANSMISSIVITY UNITS TO FT**2/SEC WITH FCTR
      FCTR=100.0/(7.48*86400.0)
```

```
C
      INY=NY-1
      INX=NX-1
      DO 50 IL=1,NL
      ID=2*IL
      DO 50 IY=2,INY
      DO 50 IX=2,INX
      IF (VPRM(IX,IY,IL).EQ.0.0) GO TO 50
      TMRX(IX,IY,ID-1)=2.0*VPRM(IX,IY,IL)*VPRM(IX+1,IY,IL)/(VPRM(IX,IY,I
     1L)*XDEL(IX+1)+VPRM(IX+1,IY,IL)*XDEL(IX))
      TMRX(IX,IY,ID)=2.0*VPRM(IX,IY,IL)*VPRM(IX,IY+1,IL)/(VPRM(IX,IY,IL)
     1*YDEL(IY+1)+VPRM(IX,IY+1,IL)*YDEL(IY))
      TMRX(IX,IY,ID-1)=TMRX(IX,IY,ID-1)*FCTR
      TMRX(IX,IY,ID)=TMRX(IX,IY,ID)*FCTR
C     ******************************************************************
C     COMPUTE MINIMUM ITERATION PARAMETER
C     HMIN                              MINIMUM ITERATION PARAMETER
C
      IF (TMRX(IX,IY,ID-1).EQ.0.0) GO TO 50
      IF (TMRX(IX,IY,ID).EQ.0.0) GO TO 50
      RAT=TMRX(IX,IY,ID-1)*YDEL(IY)/(TMRX(IX,IY,ID)*XDEL(IX))
      HMX=PIES/(XNS*(1.0+RAT))
      HMY=PIES/(YNS*(1.0+(1.0/RAT)))
      IF (HMX.LT.HMIN) HMIN=HMX
      IF (HMY.LT.HMIN) HMIN=HMY
C
   50 CONTINUE
C     ******************************************************************
      DO 60 IL=1,NL
      DO 60 IY=1,NY
      DO 60 IX=1,NX
      THCK(IX,IY,IL)=1.0
      IF (VPRM(IX,IY,IL).EQ.0.0) THCK(IX,IY,IL)=0.0
   60 CONTINUE
C     ******************************************************************
```

```
C     READ LEAKANCE (VERTICAL PERMEABILITY / THICKNESS) OF CONFINING
C     LAYERS INTO VPRM IN CONVENIENT UNITS
C
C     INITIALIZE VPRM
      DO 70 IL=1,NL
      DO 70 IY=1,NY
      DO 70 IX=1,NX
      VPRM(IX,IY,IL)=0.0
   70 CONTINUE
C
      READ (5,150) (((VPRM(IX,IY,IL),IX=1,NX),IY=1,NY),IL=1,NL)
C
      WRITE (6,160)
      WRITE (6,110) (((VPRM(IX,IY,IL),IX=1,NX),IY=1,NY),IL=1,NL)
C
C     CHANGE LEAKANCE UNITS TO 1/SEC WITH FCTR
C     CHECK FOR LOCATION OF CONSTANT HEAD NODES FLAGGED BY NEGATIVE
C     VALUE OF VPRM AND ASSIGN LARGE LEAKANCE VALUE (1.0 1/SEC)
C
      FCTR=1.55D-10
      DO 100 IL=1,NL
      DO 100 IY=1,NY
      DO 100 IX=1,NX
      IF (VPRM(IX,IY,IL)) 80,90,90
   80 VPRM(IX,IY,IL)=1.0
      GO TO 100
   90 VPRM(IX,IY,IL)=VPRM(IX,IY,IL)*FCTR
  100 CONTINUE
C
      RETURN
C     **************************************************************
```

```
C
  110 FORMAT (29F4.1)
  120 FORMAT (1H0,5X,29F4.0)
  130 FORMAT (1H1,'UPPER AQUIFER TRANSMISSIVITY MAP (100 GPD/FT)')
  140 FORMAT (1H1,'LOWER AQUIFER TRANSMISSIVITY MAP (100 GPD/FT)')
  150 FORMAT (29F2.0)
  160 FORMAT (1H1,' LEAKANCE MAP (0.0001 GPD/FT**3)')
  170 FORMAT (29F2.0)
  180 FORMAT (33F2.0)
  190 FORMAT (1H0,'X-Y SPACING (0.2 MILES)')
  200 FORMAT (1X,29F3.0)
  210 FORMAT (1X,33F3.0)
      END
```

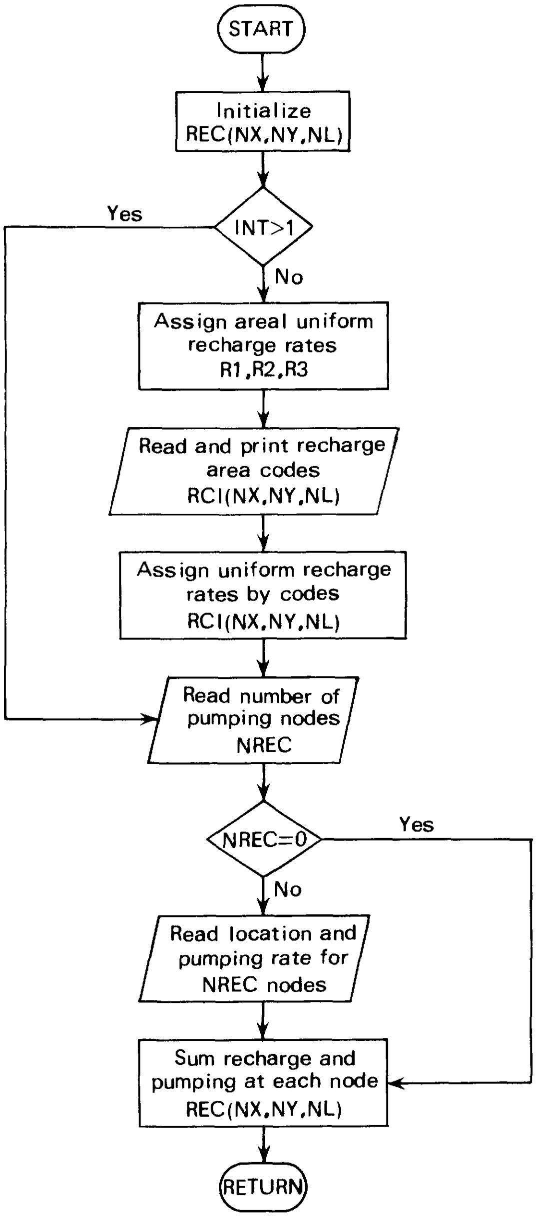
SUBROUTINE BOUDY



```
      SUBROUTINE BOUDY
      IMPLICIT REAL*8(A-H,O-Z)
C     ****************************************************************
      COMMON /PRMI/ IPMP,IRHI,NTIM,NPMP,NPNT,NITP,OPTP
      COMMON /DUMI/ N,NX,NY,NREC,NL,IL
      COMMON /PRMR/ SUMT,RHO,PARAM,TEST,TOL,HMIN,AOPT(20),PYR,PINT(25)
      COMMON /HEDA/ THCK(29,33,2),TMRX(29,33,4),VPRM(29,33,2),HI(29,33,2
     1),HR(29,33,2),HC(29,33,2),HK(29,33,2),WT(29,33),REC(29,33,2),RCI(2
     29,33,2),TIM(100),XDEL(29),YDEL(33),S(29,33,2)
C     ****************************************************************
C     HYDRAULIC PARAMETERS
C
C      WT                                 INACTIVE WATER TABLE HEADS
C      HI                                 INITIAL CONFINED AQUIFER HEADS
C     *****************************************************************
C     READ WATER TABLE CONSTANT HEADS
C
   10 READ (5,110) ((WT(IX,IY),IX=1,NX),IY=1,NY)
      IF (IRHI.EQ.2) GO TO 30
C     ****************************************************************
C     READ INITIAL HEAD
C
      DO 20 IL=1,NL
   20 READ (5,130) ((HI(IX,IY,IL),IX=1,NX),IY=1,NY)
      GO TO 70
C     ****************************************************************
C     SET INITIAL HEAD
C
   30 DO 50 IL=1,NL
      DO 50 IY=1,NY
      DO 50 IX=1,NX
      IF (THCK(IX,IY,IL).EQ.0.0) GO TO 40
      HI(IX,IY,IL)=7000.0
      GO TO 50
   40 HI(IX,IY,IL)=0.0
   50 CONTINUE
C     *****************************************************************
```

```
C
      DO 70 IL=1,NL
      DO 70 IY=1,NY
      DO 70 IX=1,NX
      IF (VPRM(IX,IY,IL)-0.9D0) 70,70,60
   60 HI(IX,IY,IL)=WT(IX,IY)
   70 CONTINUE
C
      WRITE (6,120)
      WRITE (6,100) ((WT(IX,IY),IX=1,NX),IY=1,NY)
      WRITE (6,90)
      WRITE (6,100) (((HI(IX,IY,IL),IX=1,NX),IY=1,NY),IL=1,NL)
C     ************************************************************
C     SET HC FOR INITIAL CONDITIONS
C
      DO 80 IL=1,NL
      DO 80 IY=1,NY
      DO 80 IX=1,NX
      HC(IX,IY,IL)=HI(IX,IY,IL)
      HR(IX,IY,IL)=HI(IX,IY,IL)
      HK(IX,IY,IL)=HI(IX,IY,IL)
   80 CONTINUE
      RETURN
C     ************************************************************
C
   90 FORMAT (1H1,'INITIAL HEADS IN FEET')
  100 FORMAT (1H0,10F8.2/10F8.2/9F8.2)
  110 FORMAT (10F8.2/10F8.2/9F8.2)
  120 FORMAT (1H1,'WATER TABLE CONSTANT HEADS IN FEET')
  130 FORMAT (10F8.2)
      END
```

SUBROUTINE RCHRG

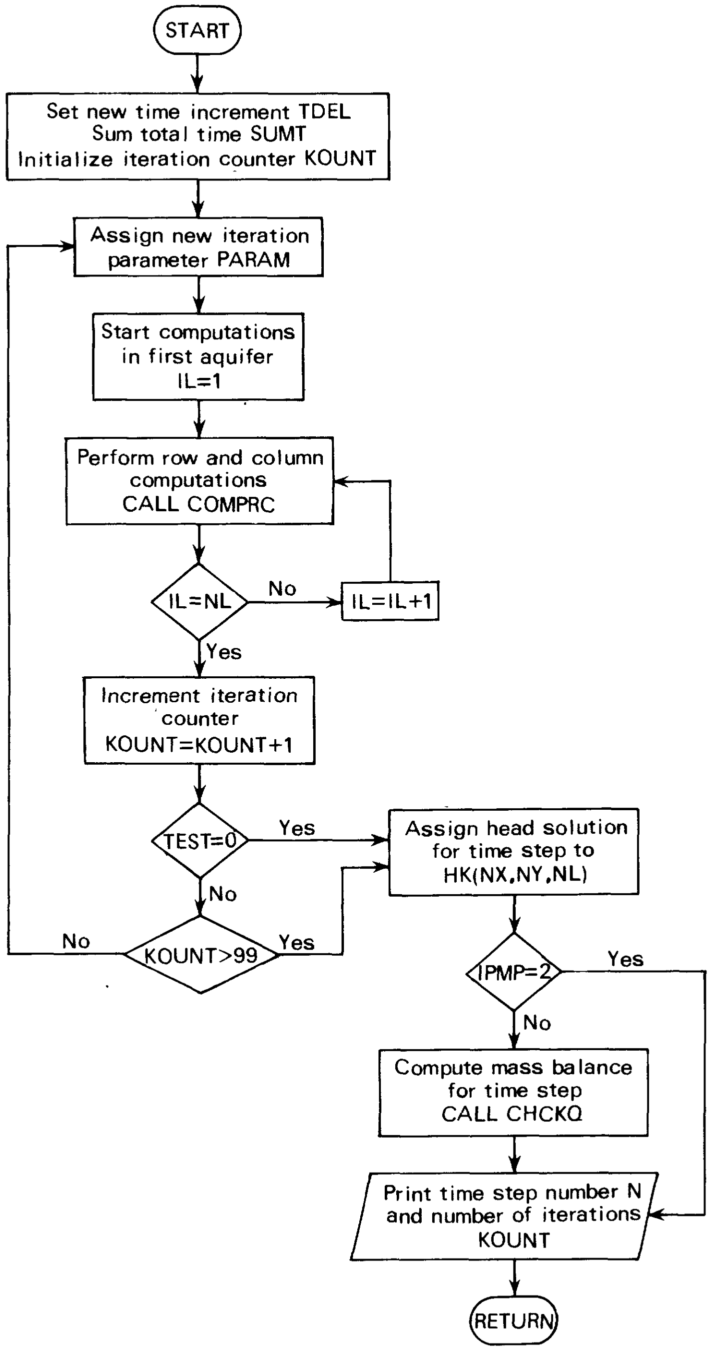


```
      SUBROUTINE RCHRG
      IMPLICIT REAL*8(A-H,O-Z)
C     ************************************************************
C
C      RECHARGE,DISCHARGE,PUMPAGE
C      OUTFLOWS ARE POSITIVE; INFLOWS ARE NEGATIVE
C
C      RCI = UNIFORM RECHARGE RATE
C      RCE = PUMPING RATE FOR EACH PUMPING INTERVAL
C      REC = RCI + REC FOR EACH PUMPING INTERVAL
C      NREC = NUMBER OF PUMPING NODES
C
C     ************************************************************
      COMMON /PRMI/ IPMP,IRHI,NTIM,NPMP,NPNT,NITP,OPTP
      COMMON /DUMI/ N,NX,NY,NREC,NL,IL
      COMMON /PRMR/ SUMT,RHO,PARAM,TEST,TOL,HMIN,AOPT(20),PYR,PINT(25)
      COMMON /HEDA/ THCK(29,33,2),TMRX(29,33,4),VPRM(29,33,2),HI(29,33,2
     1),HR(29,33,2),HC(29,33,2),HK(29,33,2),WT(29,33),REC(29,33,2),RCI(2
     29,33,2),TIM(100),XDEL(29),YDEL(33),S(29,33,2)
      COMMON /MASS/ VPUMP,VRECH,VFLUX,TDEL,INT
C     ************************************************************
C     INITIALIZE RECHARGE-PUMPING NODES
      DO 10 IL=1,NL
      DO 10 IY=1,NY
      DO 10 IX=1,NX
      REC(IX,IY,IL)=0.0
      IF (INT.EQ.1) RCI(IX,IY,IL)=0.0
   10 CONTINUE
C     ************************************************************
C     LOAD RECHARGE
C
      IF (INT.GT.1) GO TO 70
C     UNIFORM RECHARGE RATES IN FT/SEC FOR AREAS 1, 2, AND 3
      R1=-2.6D-09
      R2=-1.3D-09
      R3=-2.6D-09
```

```
C     READ UNIFORM RECHARGE CODES
      READ (5,140) ((RCI(IX,IY,1),IX=1,NX),IY=1,NY)
      WRITE (6,130) R1,R2,R3
      WRITE (6,150) ((RCI(IX,IY,1),IX=1,NX),IY=1,NY)
C     ASSIGN RECHARGE VALUES TO NODES IN FT/SEC
      DO 60 IY=1,NY
      DO 60 IX=1,NX
      IF (RCI(IX,IY,1)) 60,60,20
   20 IF (RCI(IX,IY,1)-2.0) 30,40,50
   30 RCI(IX,IY,1)=R1
      GO TO 60
   40 RCI(IX,IY,1)=R2
      GO TO 60
   50 RCI(IX,IY,1)=R3
   60 CONTINUE
C     ***************************************************************
C     LOAD PUMPING
C     READ NUMBER OF PUMPING NODES (NREC)
C     READ NODAL LOCATION AND PUMPING RATE IN CFS FOR NREC NODES
C
   70 READ (5,120) NREC
      IF (NREC.EQ.0) GO TO 90
      WRITE (6,160)
      DO 80 INR=1,NREC
      READ (5,110) IX,IY,IL,RCE
      WRITE (6,170) IX,IY,IL,RCE
      REC(IX,IY,IL)=RCE/(XDEL(IX)*YDEL(IY))
   80 CONTINUE
C     ***************************************************************
   90 DO 100 IL=1,NL
      DO 100 IY=1,NY
      DO 100 IX=1,NX
      REC(IX,IY,IL)=REC(IX,IY,IL)+RCI(IX,IY,IL)
  100 CONTINUE
      RETURN
C     ***************************************************************
```

```
C
  110 FORMAT (3I3,F10.5)
  120 FORMAT (1I3)
  130 FORMAT (1H1,'UNIFORM RECHARGE, AREA 1 = ',E10.3,', AREA 2 = ',E10.
     13,', AREA 3 = ',E10.3,' FT/SEC')
  140 FORMAT (29F2.0)
  150 FORMAT (1H0,5X,29F4.0)
  160 FORMAT (1H1,8X,'PUMPING NODES',/,2X,'IX',2X,'IY',2X,'IL',2X,'DISCH
     1ARGE (CFS)')
  170 FORMAT (2X,I2,2X,I2,2X,I2,4X,F10.5)
      END
```

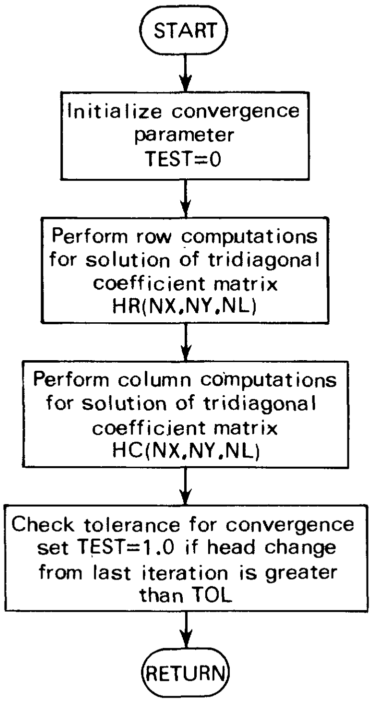
SUBROUTINE ITERAT



```
      SUBROUTINE ITERAT
      IMPLICIT REAL*8(A-H,O-Z)
C     ************************************************************
      COMMON /PRMI/ IPMP,IRHI,NTIM,NPMP,NPNT,NITP,OPTP
      COMMON /DUMI/ N,NX,NY,NREC,NL,IL
      COMMON /PRMR/ SUMT,RHO,PARAM,TEST,TOL,HMIN,AOPT(20),PYR,PINT(25)
      COMMON /HEDA/ THCK(29,33,2),TMRX(29,33,4),VPRM(29,33,2),HI(29,33,2
     1),HR(29,33,2),HC(29,33,2),HK(29,33,2),WT(29,33),REC(29,33,2),RCI(2
     29,33,2),TIM(100),XDEL(29),YDEL(33),S(29,33,2)
      COMMON /TIME/ RHOM
      COMMON /MASS/ VPUMP,VRECH,VFLUX,TDEL,INT
C     ************************************************************
C     LOAD NEW DELTA T
C     INITIALIZE ITERATION COUNTER
C
      TDEL=DMIN1(TIM(N),PYR-SUMT)
      SUMT=SUMT+TDEL
      KOUNT=0
C     ************************************************************
C     CONTINUE ITERATIONS
C     COMPUTE ROW AND COLUMN
C     CALL NEW ITERATION PARAMETER
C     TEST FOR CONVERGENCE
C
   10 REMN=MOD(KOUNT,NITP)
      IF (REMN.EQ.0) NTH=0
      NTH=NTH+1
      PARAM=AOPT(NTH)
C
      DO 20 IL=1,NL
      RHOM=1.0/TDEL
      CALL COMPRC
   20 CONTINUE
      KOUNT=KOUNT+1
      IF (TEST.EQ.0.0) GO TO 30
      IF (KOUNT.GT.199) GO TO 30
      GO TO 10
C     ************************************************************
```

```
C     SET NEW HEAD HK
C
   30 DO 40 IL=1,NL
      DO 40 IY=1,NY
      DO 40 IX=1,NX
      HK(IX,IY,IL)=HC(IX,IY,IL)
   40 CONTINUE
C     **************************************************************
      IF (IPMP.EQ.2) CALL CHCKQ
      WRITE (6,70)
      WRITE (6,50) N
      WRITE (6,60) KOUNT
      RETURN
C     **************************************************************
C
   50 FORMAT (3X,4HN = ,1I5)
   60 FORMAT (3H   ,23HNUMBER OF ITERATIONS = ,1I5)
   70 FORMAT (1H0)
      END
```

SUBROUTINE COMPRC



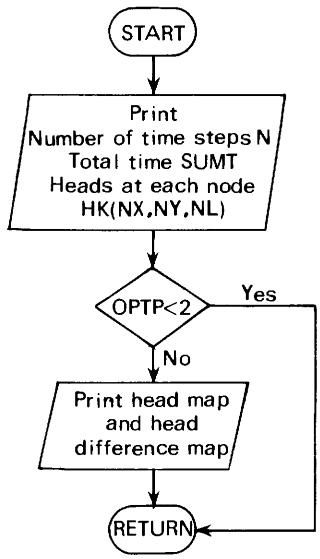
```
      SUBROUTINE COMPRC
      IMPLICIT REAL*8(A-H,O-Z)
C     ******************************************************************
      COMMON /PRMI/ IPMP,IRHI,NTIM,NPMP,NPNT,NITP,OPTP
      COMMON /DUMI/ N,NX,NY,NREC,NL,IL
      COMMON /PRMR/ SUMT,RHO,PARAM,TEST,TOL,HMIN,AOPT(20),PYR,PINT(25)
      COMMON /HEDA/ THCK(29,33,2),TMRX(29,33,4),VPRM(29,33,2),HI(29,33,2
     1),HR(29,33,2),HC(29,33,2),HK(29,33,2),WT(29,33),REC(29,33,2),RCI(2
     29,33,2),TIM(100),XDEL(29),YDEL(33),S(29,33,2)
      COMMON /TIME/ RHOM
C     ******************************************************************
      DIMENSION W(33), B(33), G(33)
C     ******************************************************************
      TEST=0.0
      ID=2*IL
      DO 60 IY=1,NY
      DO 10 M=1,NX
      W(M)=0.0
      B(M)=0.0
      G(M)=0.0
   10 CONTINUE
C     ******************************************************************
C     ROW COMPUTATIONS
C
      DO 40 IX=1,NX
      IF (THCK(IX,IY,IL).EQ.0.0) GO TO 40
      RHO=S(IX,IY,IL)*RHOM
C     ******************************************************************
C
      AREA=XDEL(IX)*YDEL(IY)
C
C
```

```
C     ADJUST EQUATIONS FOR LEAK FROM OTHER LAYERS
C     TWO ACTIVE LAYERS AND WATER TABLE
C
      IF (IL.EQ.2) GO TO 20
      COEF=VPRM(IX,IY,1)+VPRM(IX,IY,2)
      QL=-VPRM(IX,IY,1)*WT(IX,IY)-VPRM(IX,IY,2)*HC(IX,IY,2)
      GO TO 30
C
   20 COEF=VPRM(IX,IY,2)
      QL=-VPRM(IX,IY,2)*HC(IX,IY,1)
C     **************************************************************
   30 A=TMRX(IX-1,IY,ID-1)/XDEL(IX)
      C=TMRX(IX,IY,ID-1)/XDEL(IX)
      E=TMRX(IX,IY-1,ID)/YDEL(IY)
      F=TMRX(IX,IY,ID)/YDEL(IY)
      TBAR=A+C+E+F
      TMK=TBAR*PARAM
      BLH=-A-C-RHO-COEF-TMK
      BRH=E+F-TMK
      BRK=-RHO
C     *************************************************************
C
      DR=BRH*HC(IX,IY,IL)+BRK*HK(IX,IY,IL)-E*HC(IX,IY-1,IL)-F*HC(IX,IY+1
     1,IL)+REC(IX,IY,IL)+QL
C
      W(IX)=BLH-A*B(IX-1)
      B(IX)=C/W(IX)
      G(IX)=(DR-A*G(IX-1))/W(IX)
   40 CONTINUE
C     *************************************************************
```

```
C     BACK SUBSTITUTION
C
      DO 50 J=2,NX
      IJ=J-1
      IS=NX-IJ
      HR(IS,IY,IL)=G(IS)-B(IS)*HR(IS+1,IY,IL)
   50 CONTINUE
   60 CONTINUE
C     ***************************************************************
      DO 130 IX=1,NX
      DO 70 M=1,NY
      W(M)=0.0
      B(M)=0.0
      G(M)=0.0
   70 CONTINUE
C     ***************************************************************
C     COLUMN COMPUTATIONS
C
      DO 100 IY=1,NY
      IF (THCK(IX,IY,IL).EQ.0.0) GO TO 100
      RHO=S(IX,IY,IL)*RHOM
C     ***************************************************************
C
      AREA=XDEL(IX)*YDEL(IY)
C
C     ADJUST EQUATIONS FOR LEAK FROM OTHER LAYERS
C     TWO ACTIVE LAYERS AND WATER TABLE
C
      IF (IL.EQ.2) GO TO 80
      COEF=VPRM(IX,IY,1)+VPRM(IX,IY,2)
      QL=-VPRM(IX,IY,1)*WT(IX,IY)-VPRM(IX,IY,2)*HC(IX,IY,2)
      GO TO 90
C
   80 COEF=VPRM(IX,IY,2)
      QL=-VPRM(IX,IY,2)*HC(IX,IY,1)
C     ****************************************************************
```

```
   90 A=TMRX(IX,IY-1,ID)/YDEL(IY)
      C=TMRX(IX,IY,ID)/YDEL(IY)
      E=TMRX(IX-1,IY,ID-1)/XDEL(IX)
      F=TMRX(IX,IY,ID-1)/XDEL(IX)
      TBAR=A+C+E+F
      TMK=TBAR*PARAM
      BLH=-A-C-RHO-COEF-TMK
      BRH=E+F-TMK
      BRK=-RHO
C     ****************************************************************
C
      DC=BRH*HR(IX,IY,IL)+BRK*HK(IX,IY,IL)-E*HR(IX-1,IY,IL)-F*HR(IX+1,IY
     1,IL)+REC(IX,IY,IL)+QL
C
      W(IY)=BLH-A*B(IY-1)
      B(IY)=C/W(IY)
      G(IY)=(DC-A*G(IY-1))/W(IY)
  100 CONTINUE
C     ****************************************************************
C     BACK SUBSTITUTION
C     CHECK TOLERANCE FOR CONVERGENCE
C
      DO 120 J=2,NY
      IJ=J-1
      IB=NY-IJ
      DHC=G(IB)-B(IB)*HC(IX,IB+1,IL)
      IF (TEST.EQ.1.0) GO TO 110
      CHK=DABS(DHC-HC(IX,IB,IL))
      IF (CHK.GT.TOL) TEST=1.0
  110 HC(IX,IB,IL)=DHC
  120 CONTINUE
C     ****************************************************************
  130 CONTINUE
      RETURN
      END
```

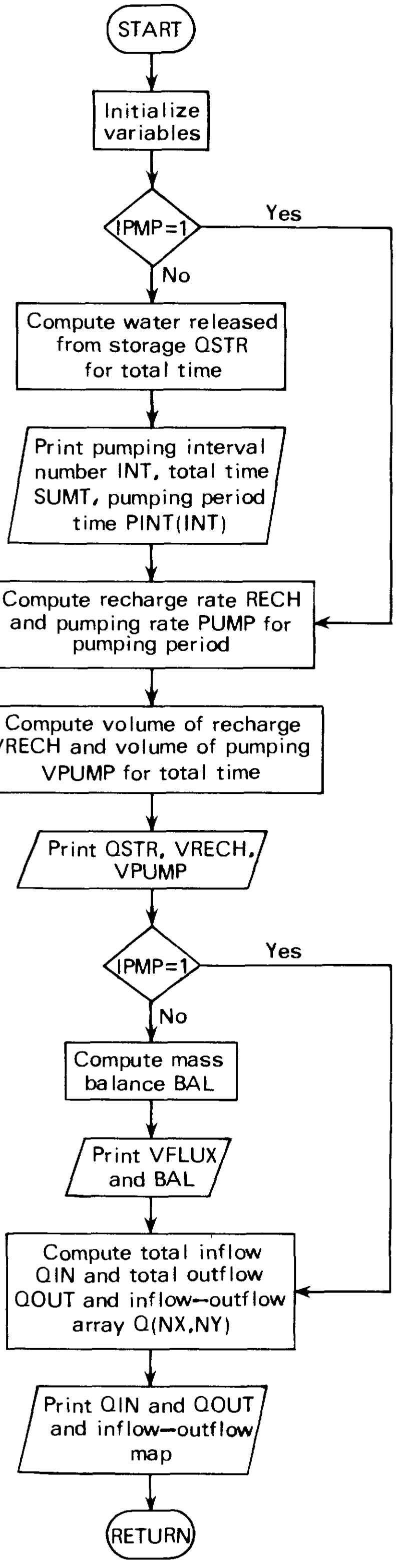
SUBROUTINE OUTPT



```
      SUBROUTINE OUTPT
      IMPLICIT REAL*8(A-H,O-Z)
C     ****************************************************************
      COMMON /PRMI/ IPMP,IRHI,NTIM,NPMP,NPNT,NITP,OPTP
      COMMON /DUMI/ N,NX,NY,NREC,NL,IL
      COMMON /PRMR/ SUMT,RHO,PARAM,TEST,TOL,HMIN,AOPT(20),PYR,PINT(25)
      COMMON /HEDA/ THCK(29,33,2),TMRX(29,33,4),VPRM(29,33,2),HI(29,33,2
     1),HR(29,33,2),HC(29,33,2),HK(29,33,2),WT(29,33),REC(29,33,2),RCI(2
     29,33,2),TIM(100),XDEL(29),YDEL(33),S(29,33,2)
C     ****************************************************************
      DIMENSION IH(50)
C     ****************************************************************
      TIMM=SUMT/60.0
      TIMD=SUMT/(86400.0*365.25)
C     ****************************************************************
      WRITE (6,80)
      WRITE (6,110) N
      WRITE (6,120) SUMT
      WRITE (6,130) TIMM
      WRITE (6,140) TIMD
      WRITE (6,150)
      WRITE (6,170) ((HK(IX,IY,1),IX=1,NX),IY=1,NY)
      WRITE (6,160)
      WRITE (6,170) ((HK(IX,IY,2),IX=1,NX),IY=1,NY)
      IF (OPTP.LT.2) GO TO 70
C     ****************************************************************
C     HEAD MAP *** NOT TO SCALE *** IN TENS OF FEET
C
      WRITE (6,90)
      DO 20 IY=1,NY
      DO 10 IX=1,NX
      IH(IX)=HK(IX,IY,1)/10.0
   10 CONTINUE
      WRITE (6,180) (IH(ID),ID=1,NX)
   20 CONTINUE
```

```
      WRITE (6,100)
      DO 40 IY=1,NY
      DO 30 IX=1,NX
   30 IH(IX)=HK(IX,IY,2)/10.0
      WRITE (6,180) (IH(ID),ID=1,NX)
   40 CONTINUE
      WRITE (6,190)
      DO 60 IY=1,NY
      DO 50 IX=1,NX
   50 IH(IX)=HK(IX,IY,1)-HK(IX,IY,2)
      WRITE (6,180) (IH(ID),ID=1,NX)
   60 CONTINUE
C
   70 RETURN
C     ****************************************************************
C
   80 FORMAT (1H1,23HHEAD DISTRIBUTION - ROW)
   90 FORMAT (1H1,'UPPER AQUIFER HEAD MAP IN TENS OF FEET--NOT TO SCALE'
     1)
  100 FORMAT (1H1,'LOWER AQUIFER HEAD MAP IN TENS OF FEET--NOT TO SCALE'
     1)
  110 FORMAT (1X,23HNUMBER OF TIME STEPS = ,1I5)
  120 FORMAT (8X,16HTIME(SECONDS) = ,1E12.5)
  130 FORMAT (8X,16HTIME(MINUTES) = ,1E12.5)
  140 FORMAT (8X,16HTIME(YEARS)   = ,1E12.5)
  150 FORMAT (' UPPER AQUIFER')
  160 FORMAT (' LOWER AQUIFER')
  170 FORMAT (3X,15F8.1,/,1X,14F8.1)
  180 FORMAT (5X,29I4,/)
  190 FORMAT (1H1,'HEAD DIFFERENCE MAP, UPPER AQUIFER-LOWER AQUIFER')
      END
```

SUBROUTINE CHCKP

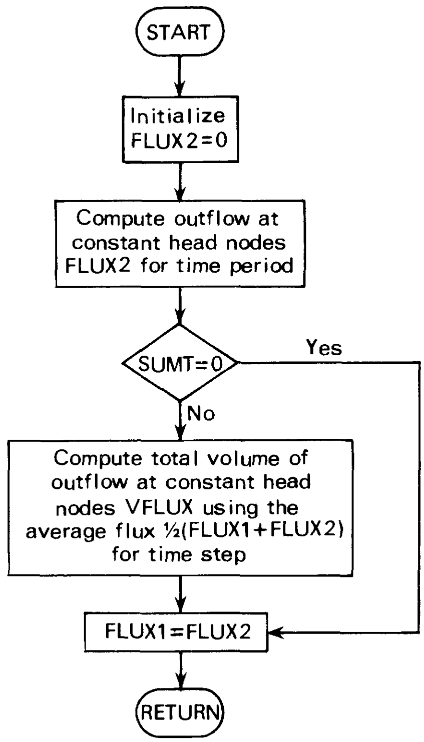


```
      SUBROUTINE CHCKP
      IMPLICIT REAL*8(A-H,O-Z)
C     ****************************************************************
      COMMON /PRMI/ IPMP,IRHI,NTIM,NPMP,NPNT,NITP,OPTP
      COMMON /DUMI/ N,NX,NY,NREC,NL,IL
      COMMON /PRMR/ SUMT,RHO,PARAM,TEST,TOL,HMIN,AOPT(20),PYR,PINT(25)
      COMMON /HEDA/ THCK(29,33,2),TMRX(29,33,4),VPRM(29,33,2),HI(29,33,2
     1),HR(29,33,2),HC(29,33,2),HK(29,33,2),WT(29,33),REC(29,33,2),RCI(2
     29,33,2),TIM(100),XDEL(29),YDEL(33),S(29,33,2)
      COMMON /MASS/ VPUMP,VRECH,VFLUX,TDEL,INT
C     ****************************************************************
      DIMENSION Q(29,33)
C     ****************************************************************
C     INITIALIZE VARIABLES
C
      QSTR=0.0
      PUMP=0.0
      RECH=0.0
      QOUT=0.0
      QIN=0.0
C     ****************************************************************
      WRITE (6,150)
      IF (IPMP.EQ.1) GO TO 30
      DO 20 IL=1,NL
      DO 20 IY=1,NY
      DO 20 IX=1,NX
      IF (THCK(IX,IY,IL)) 10,20,10
   10 DH=HI(IX,IY,IL)-HK(IX,IY,IL)
      QSTR=QSTR+S(IX,IY,IL)*DH*XDEL(IX)*YDEL(IY)
   20 CONTINUE
      WRITE (6,160) INT,SUMT,PINT(INT)
   30 DO 50 IL=1,NL
      DO 50 IY=1,NY
      DO 50 IX=1,NX
      IF (THCK(IX,IY,IL)) 40,50,40
   40 AREA=XDEL(IX)*YDEL(IY)
      RECH=RECH+RCI(IX,IY,IL)*AREA
      PUMP=PUMP+(REC(IX,IY,IL)-RCI(IX,IY,IL))*AREA
   50 CONTINUE
```

```
C     ************************************************************
      WRITE (6,170) RECH,PUMP
C     ************************************************************
      IF (IPMP.EQ.1) GO TO 60
      RECH=RECH*PINT(INT)
      PUMP=PUMP*PINT(INT)
      WRITE (6,180) RECH,PUMP
      VPUMP=VPUMP+PUMP
      VRECH=VRECH+RECH
      WRITE (6,190) VRECH,VPUMP,QSTR
C     ************************************************************
      BAL=VPUMP+VRECH-QSTR+VFLUX
      WRITE (6,200) VFLUX,BAL
   60 DO 90 IY=1,NY
      DO 90 IX=1,NX
      Q(IX,IY)=0.0
      AREA=XDEL(IX)*YDEL(IY)
      QIN=QIN-REC(IX,IY,1)*AREA
      IF (VPRM(IX,IY,1).EQ.0.0) GO TO 90
      DH=WT(IX,IY)-HK(IX,IY,1)
      Q(IX,IY)=-VPRM(IX,IY,1)*AREA*DH
      IF (Q(IX,IY)) 80,90,70
   70 QOUT=QOUT+Q(IX,IY)
      GO TO 90
   80 QIN=QIN-Q(IX,IY)
   90 CONTINUE
C     ************************************************************
      WRITE (6,100) QIN
      WRITE (6,110) QOUT
      WRITE (6,120)
      WRITE (6,130) ((Q(IX,IY),IX=2,14),IY=1,NY)
      WRITE (6,150)
      WRITE (6,120)
      WRITE (6,140) ((Q(IX,IY),IX=15,28),IY=1,NY)
      RETURN
C     ************************************************************
```

```
C
  100 FORMAT (1H0,'RATE OF INFLOW =',1E12.5,' CFS')
  110 FORMAT (' RATE OF OUTFLOW =',1E12.5,' CFS')
  120 FORMAT (' INFLOW-OUTFLOW MAP IN CFS')
  130 FORMAT (1X,13E9.2)
  140 FORMAT (1X,14E9.2)
  150 FORMAT (1H1)
  160 FORMAT (' PUMPING INTERVAL = ',I3,/,' TOTAL TIME (SEC) = ',E12.5,/
     1,' PUMPING TIME (SEC) = ',E12.5,/)
  170 FORMAT (' RECHARGE RATE (CFS) = ',E12.5,/,' PUMPING RATE (CFS) = '
     1,E12.5)
  180 FORMAT (' RECHARGE FOR INTERVAL (FT**3) = ',E12.5,/,' PUMPING FOR
     1INTERVAL (FT**3) = ',E12.5)
  190 FORMAT (' TOTAL RECHARGE (FT**3) = ',E12.5,/,' TOTAL PUMPING (FT**
     13) = ',E12.5,/,' TOTAL FROM STORAGE (FT**3) = ',E12.5)
  200 FORMAT (' TOTAL DISCHARGE (FT**3) = ',E12.5,/,' MASS BALANCE = ',E
     112.5,/)
      END
```

SUBROUTINE CHCKQ



```
      SUBROUTINE CHCKQ
      IMPLICIT REAL*8(A-H,O-Z)
C     ******************************************************************
      COMMON /DUMI/ N,NX,NY,NREC,NL,IL
      COMMON /PRMR/ SUMT,RHO,PARAM,TEST,TOL,HMIN,AOPT(20),PYR,PINT(25)
      COMMON /HEDA/ THCK(29,33,2),TMRX(29,33,4),VPRM(29,33,2),HI(29,33,2
     1),HR(29,33,2),HC(29,33,2),HK(29,33,2),WT(29,33),REC(29,33,2),RCI(2
     29,33,2),TIM(100),XDEL(29),YDEL(33),S(29,33,2)
      COMMON /MASS/ VPUMP,VRECH,VFLUX,TDEL,INT
C     ******************************************************************
      FLUX2=0.0
      DO 10 IY=1,NY
      DO 10 IX=1,NX
      IF (VPRM(IX,IY,1).EQ.0.0) GO TO 10
      DH=HK(IX,IY,1)-WT(IX,IY)
      FLUX2=FLUX2+DH*VPRM(IX,IY,1)*XDEL(IX)*YDEL(IY)
   10 CONTINUE
      IF (SUMT.NE.0.0) GO TO 20
      FLUX1=FLUX2
      GO TO 30
   20 VFLUX=VFLUX+(FLUX1+FLUX2)*0.5*TDEL
      FLUX1=FLUX2
   30 RETURN
      END
```

INPUT DATA LISTING

Card numbers	Data set for	FORMAT
1	PINT(25)	25F3.0
2	XDEL(29)	29F2.0
3	YDEL(33)	33F.20
4-36	VPRM(29,22,1)	29F2.0
37-69	VPRM(29,33,2)	29F2.0
70-102	VPRM(29,33,1)	29F2.0
103-135	VPRM(29,33,2)	29F2.0
136-234	WT(29,33)	10F8.2/10F8.2/9F8.2
235-330	HI(29,33,1)	10F8.2
331-426	HI(29,33,2)	10F8.2
427-459	RCI(29,33,1)	29F2.0
460	NREC	1I3

```
CARD  1  999
CARD  2  1010 6 6 5 5 5 5 6 610 8 8 8 6 5 5 5 5 5 5 5 5 61010141414
CARD  3  1410101010 6 6 6 6 6 6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 6 610101010
CARD  4   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  5   0 0 01010101010101010 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  6   0 0 0101010101010101010101 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  7   0 0 010101010101010101010101020 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  8   0 0 010101010101010101010101020202020202020 0 0 0 0 0 0 0 0 0
CARD  9   0 0 01010101010101010101010102020202020202020 0 0 0 0 0 0 0 0
CARD 10   0 0 0101010101010101010101010202020202020202020 0 0 0 0 0 0 0
CARD 11   0 0 010101010101010101010101020202020202020202020 0 0 0 0 0 0
CARD 12   0 0 01010101010101010101010102020202020202020202020 0 0 0 0 0
CARD 13   0 0 0101010101010101010101010202020202020202020202020202020 0
CARD 14   0 0 0101010101010101010101010202020202020202020202020202020 0
CARD 15   0 0 0101010101010101010101010202020202020202020202020202020 0
CARD 16   0 0 0 5 5 51010101010101010202020202020202020202020202020 0
CARD 17   0 0 5 5 5 5 5 5101010101010202020202020202020202020202020 0
CARD 18   0 5 5 5 5 5 5 5 51010101010202020202020202020202020202020 0
CARD 19   0 5 5 5 5 5 5 5 5 510101010202020202020202020202020202020 0
CARD 20   0 5 5 5 5 5 5 5 5 510101010202020202020202020202020202020 0
CARD 21   0 5 5 5 5 5 5 5 5 5 5101010202020202020202020202020202020 0
CARD 22   0 5 5 5 5 5 5 5 5 5 5101010202020202020202020202020202020 0
CARD 23   0 5 5 5 5 5 5 5 5 5 5101010202020202020202020202020202020 0
CARD 24   0 5 5 5 5 5 5 5 5 5 5101010202020202020202020202020202020 0
CARD 25   0 5 5 5 5 5 5 5 5 5 5 51010102020202020202020202020202020 0
CARD 26   0 5 5 5 5 5 5 5 5 5 5 51010102020202020202020202020202020 0
CARD 27   0 0 5 5 5 5 5 5 5 5 5 5101010102020202020202020202020202020 0
CARD 28   0 0 0 5 5 5 5 5 5 5 5 5101010102020202020202020202020202020 0
CARD 29   0 0 0 5 5 5 5 5 5 5 5 510101010102020202020202020202020 0
CARD 30   0 0 0 0 5 5 5 5 5 5 5 510101010101010102020202020202020 0
CARD 31   0 0 0 0 0 5 5 5 5 5 5 510101010101010101010202020202020 0
CARD 32   0 0 0 0 0 5 5 5 5 5 5 510101010101010101010101010102020202020 0
CARD 33   0 0 0 0 0 5 5 5 5 5 5 5101010101010101010101010101010101020 0
CARD 34   0 0 0 0 0 0 0 0 0 0 5 51010101010101010101010101010101010 0
CARD 35   0 0 0 0 0 0 0 0 0 0 0 0 0101010101010101010101010101010 0
CARD 36   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

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CARD 37   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 38   0 0 04040404040404040 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 39   0 0 040404040404040404040 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 40   0 0 0404040405050505050404040 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 41   0 0 04040505050505050505040404030303030 0 0 0 0 0 0 0 0 0
CARD 42   0 0 0405050505050505050505040403030303030 0 0 0 0 0 0 0 0
CARD 43   0 0 040505050505050505050504040303030303020 0 0 0 0 0 0 0
CARD 44   0 0 04040505050505050505050404030303030302020 0 0 0 0 0 0
CARD 45   0 0 0404040505050505050505040403030303030302020 20 0 0 0 0
CARD 46   0 0 040404040405050505050404030303030303020202020201010 0
CARD 47   0 0 040404040404050505040403030303030303030202020202 01010 0
CARD 48   0 0 0304040404040404040404030303030303030202020202 01010 0
CARD 49   0 0 030303040404040404040403030303030303030202020202020101 0 0
CARD 50   0 0303030303040404040403030303030303030202020202020101010 0
CARD 51   0303030303030304040403030303030303030302020202020201 01010 0
CARD 52   0303030303030303030303030303030303020202020202020101010 0
CARD 53   0303030303030303030303030303030302020202020202010101010 0
CARD 54   0202030303030303030303030303030202020202020201010101010 0
CARD 55   0202020303030303030303030303030202020202020201010101010 0
CARD 56   0202020202020202020202020202020202020202020201010101010 0
CARD 57   0202020202020202020202020202020202020202010101010101010 0
CARD 58   0202020202020202020202020202020202020201010101010101010 0
CARD 59   0202020202020202020202020202020202020101010101010101010 0
CARD 60   0 01010101010101010101010101010101010101010101010101010 0
CARD 61   0 0 010101010101010101010101010101010101010101010101010 0
CARD 62   0 0 010101010101010101010101010101010101010101010101010 0
CARD 63   0 0 0 0101010101010101010101010101010101010101010101010 0
CARD 64   0 0 0 0 01010101010101010101010101010101010101010101010 0
CARD 65   0 0 0 0 01010101010101010101010101010101010101010101010 0
CARD 66   0 0 0 0 01010101010101010101010101010101010101010101010 0
CARD 67   0 0 0 0 0 0 0 0 0 0101010101010101010101010101010101010 0
CARD 68   0 0 0 0 0 0 0 0 0 0 0 0 0101010101010101010101010101010 0
CARD 69   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

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CARD  70   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  71   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  72   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  73   0 0 0 0 0 0 0 0 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  74   0 0 0 0 0 0 0 0 0 0 0 0-1 0 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0
CARD  75   0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0
CARD  76   0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0
CARD  77   0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0
CARD  78   0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0-1 0 0 0 0 0 0 0 0 0 0 0 0
CARD  79   0 0 0 0 0 0 0 0 0 0 0 0-1 0 0 0 0-1-1-1-1 0 0 0 0 0 0 0 0
CARD  80   0 0 0 0 0 0 0 0 0 0 0 0-1 0 0 0 0-1 0 0 0-1-1 0 0 0 0 0 0
CARD  81   0 0 0 0 0 0 0 0 0 0 0-1-1 0 0 0-1-1 0 0 0 0 0-1 0 0 0 0 0
CARD  82   0 0 0 0 0 0 0 0 0 0 0-1 0 0 0 0-1 0 0 0 0 0 0-1 0 0 0 0 0
CARD  83   0 0 0 0 0 0 0 0 0 0-1 0 0 0 0-1 0 0 0 0 0 0 0 0-1 0 0 0 0
CARD  84   0 0 0 0 0 0 0 0 0-1-1 0 0 0-1 0 0 0 0 0 0 0 0 0-1 0 0 0 0
CARD  85   0 0 0 0 0 0 0 0 0 0-1 0 0 0-1 0 0 0 0 0 0 0 0 0-1 0 0 0 0
CARD  86   0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0 0 0 0 0 0 0 0 0-1 0 0 0
CARD  87   0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  88   0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  89   0 0 0 0 0 0 0 0 0 0 0 0-1-1-1-1 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD  90   0 0 0 0 0 0 0 0 0 0 0-1 0-1 0 0-1-1 0 0 0 0 0 0 0 0 0 0 0
CARD  91   0 0 0 0 0 0 0 0 0 0-1 0 0 0 0 0 0 0-1-1-1 0 0 0 0 0 0 0 0
CARD  92   0 0 0 0 0 0 0 0 0 0-1 0 0 0 0 0 0 0 0 0 0-1-1 0 0 0 0 0 0
CARD  93   0 0 0 0 0 0 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0 0 0 0
CARD  94   0 0 0 0 0 0 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0 0 0 0-1-1 0 0 0
CARD  95   0 0 0 0 0 0 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0
CARD  96   0 0 0 0 0 0 0 0-1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0
CARD  97   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0 0
CARD  98   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0-1 0
CARD  99   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 100   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 101   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 102   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

```
CARD 103   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 104   0 0 0 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 105   0 0 0 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 106   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 107   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0
CARD 108   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0
CARD 109   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0
CARD 110   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0 0
CARD 111   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 0
CARD 112   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 113   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 114   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 115   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 116   0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 117   0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 118   0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 119   0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 120   0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 121   0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 122   0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 123   0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 124   0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 125   0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 126   0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 127   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 128   0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 129   0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 130   0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 131   0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 132   0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 133   0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 134   0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 0
CARD 135   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
```

CARD 136	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 137	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 138	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 139	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 141	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 142	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 143	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 144	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 146	0.0	5700.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 147	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 148	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 149	0.0	0.0	5800.00	0.0	0.0	0.0	0.0	5725.00	0.0	0.0
CARD 150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 151	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 152	0.0	0.0	0.0	5850.00	0.0	0.0	0.0	5750.00	0.0	0.0
CARD 153	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 154	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 155	0.0	0.0	0.0	5900.00	0.0	0.0	0.0	5800.00	0.0	0.0
CARD 156	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 157	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 158	0.0	0.0	0.0	5950.00	0.0	0.0	0.0	5830.00	0.0	0.0
CARD 159	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 161	0.0	0.0	0.0	6000.00	0.0	0.0	5870.00	0.0	0.0	0.0
CARD 162	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 163	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 164	0.0	0.0	6050.00	0.0	0.0	0.0	0.0	5900.00	5950.00	6000.00
CARD 165	6100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 166	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 167	0.0	0.0	6100.00	0.0	0.0	0.0	0.0	5925.00	0.0	0.0
CARD 168	0.0	6200.00	6300.00	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 169	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 170	0.0	6200.00	6150.00	0.0	0.0	0.0	5975.00	5950.00	0.0	0.0
CARD 171	0.0	0.0	0.0	6400.00	0.0	0.0	0.0	0.0	0.0	

CARD 172	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 173	0.0	6250.00	0.0	0.0	0.0	0.0	6000.00	0.0	0.0	0.0
CARD 174	0.0	0.0	0.0	6500.00	0.0	0.0	0.0	0.0	0.0	
CARD 175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 176	6300.00	0.0	0.0	0.0	0.0	6025.00	0.0	0.0	0.0	0.0
CARD 177	0.0	0.0	0.0	0.0	6600.00	0.0	0.0	0.0	0.0	
CARD 178	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6400.00
CARD 179	6350.00	0.0	0.0	0.0	6050.00	0.0	0.0	0.0	0.0	0.0
CARD 180	0.0	0.0	0.0	0.0	6700.00	0.0	0.0	0.0	0.0	
CARD 181	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 182	6400.00	0.0	0.0	0.0	6075.00	0.0	0.0	0.0	0.0	0.0
CARD 183	0.0	0.0	0.0	0.0	6800.00	0.0	0.0	0.0	0.0	
CARD 184	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 185	0.0	0.0	0.0	0.0	6100.00	0.0	0.0	0.0	0.0	0.0
CARD 186	0.0	0.0	0.0	0.0	0.0	7000.00	0.0	0.0	0.0	
CARD 187	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 188	0.0	0.0	0.0	0.0	6125.00	0.0	0.0	0.0	0.0	0.0
CARD 189	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 190	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 191	0.0	0.0	0.0	0.0	6150.00	0.0	0.0	0.0	0.0	0.0
CARD 192	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 193	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 194	0.0	0.0	6340.00	6270.00	6200.00	6175.00	0.0	0.0	0.0	0.0
CARD 195	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 196	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 197	0.0	6400.00	0.0	6340.00	0.0	0.0	6200.00	6240.00	0.0	0.0
CARD 198	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 199	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 200	6500.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6280.00	6320.00
CARD 201	6360.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 202	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 203	6600.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 204	0.0	6400.00	6470.00	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 205	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6700.00
CARD 206	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 207	0.0	0.0	0.0	6540.00	0.0	0.0	0.0	0.0	0.0	

CARD 208	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6800.00
CARD 209	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 210	0.0	0.0	0.0	0.0	6600.00	6700.00	0.0	0.0	0.0	
CARD 211	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6900.00
CARD 212	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 213	0.0	0.0	0.0	0.0	0.0	0.0	6800.00	0.0	0.0	
CARD 214	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7000.00	0.0
CARD 215	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 216	0.0	0.0	0.0	0.0	0.0	0.0	6900.00	0.0	0.0	
CARD 217	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 218	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 219	0.0	0.0	0.0	0.0	0.0	0.0	7000.00	0.0	0.0	
CARD 220	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 221	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 222	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7100.00	0.0	
CARD 223	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 224	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 225	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 226	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 227	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 228	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 229	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 230	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 231	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
CARD 232	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 233	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 234	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

CARD 235	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 236	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 237	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 238	0.0	0.0	6187.94	6180.36	6168.05	6150.90	6129.83	6103.80	6074.49	6040.63
CARD 239	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 240	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 241	0.0	6211.50	6202.61	6187.94	6166.97	6140.33	6106.34	6063.43	5997.68	5898.92
CARD 242	5881.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 243	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 244	6270.55	6259.64	6241.11	6212.33	6168.98	6124.11	6068.20	5972.20	5700.00	5833.92
CARD 245	5846.59	5845.31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 246	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6318.04
CARD 247	6305.98	6286.40	6258.53	6220.78	6164.42	6107.10	6025.71	5915.58	5800.00	5847.94
CARD 248	5839.15	5818.24	5785.02	5725.00	5777.04	5799.57	0.0	0.0	0.0	0.0
CARD 249	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6356.63	6344.24
CARD 250	6324.33	6296.13	6258.68	6202.30	6146.96	6072.79	5987.95	5918.09	5850.00	5859.78
CARD 251	5841.04	5809.71	5750.00	5815.55	5855.13	5889.35	0.0	0.0	0.0	0.0
CARD 252	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6387.23	6373.75	6353.55
CARD 253	6325.07	6287.57	6231.80	6178.07	6107.68	6030.56	5967.29	5900.00	5887.87	5867.24
CARD 254	5840.25	5800.00	5855.80	5898.44	5937.67	5976.97	0.0	0.0	0.0	0.0
CARD 255	0.0	0.0	0.0	0.0	0.0	0.0	6421.21	6406.54	6384.35	6354.59
CARD 256	6315.91	6261.39	6209.29	6141.58	6068.18	6007.47	5950.00	5919.95	5894.83	5865.70
CARD 257	5830.00	5894.42	5942.35	5989.19	6038.61	6091.06	0.0	0.0	0.0	0.0
CARD 258	0.0	0.0	0.0	0.0	0.0	6459.09	6443.64	6418.68	6384.47	6337.44
CARD 259	6290.09	6240.17	6174.35	6102.39	6040.68	6000.00	5952.55	5920.34	5870.00	5895.10
CARD 260	5935.83	5983.44	6041.90	6101.39	6168.06	6247.32	0.0	0.0	0.0	0.0
CARD 261	0.0	0.0	0.0	0.0	6501.13	6484.57	6457.56	6419.24	6368.78	6320.55
CARD 262	6271.19	6206.22	6133.49	6050.00	6024.60	5984.45	5957.85	5929.92	5900.00	5950.00
CARD 263	6000.00	6100.00	6160.40	6238.83	6333.97	6520.20	6694.00	6867.96	6953.80	0.0
CARD 264	0.0	0.0	0.0	6548.52	6529.45	6498.17	6450.31	6404.49	6354.77	6303.16
CARD 265	6237.93	6168.23	6100.00	6056.51	6014.80	5988.94	5962.17	5925.00	6009.17	6075.33
CARD 266	6143.12	6200.00	6300.00	6384.23	6541.95	6713.56	6894.13	6969.77	0.0	0.0
CARD 267	0.0	0.0	6601.00	6575.35	6538.14	6486.95	6440.02	6389.29	6335.23	6267.48
CARD 268	6200.00	6150.00	6084.65	6039.13	6011.24	5975.00	5950.00	6058.68	6131.62	6200.11
CARD 269	6271.25	6345.61	6400.00	6570.19	6748.86	6922.73	6997.65	0.0	0.0	0.0
CARD 270	0.0	6674.69	6635.75	6583.89	6519.60	6471.51	6420.06	6363.87	6292.49	6250.00

CARD 271	6171.23	6106.39	6056.30	6028.46	6000.00	6054.12	6119.77	6185.37	6257.30	6336.10
CARD 272	6408.55	6500.00	6602.78	6782.14	6952.15	7033.85	0.0	0.0	0.0	6862.09
CARD 273	6770.97	6706.76	6635.99	6567.59	6506.98	6447.80	6387.73	6300.00	6258.36	6192.77
CARD 274	6125.04	6063.30	6025.00	6073.13	6119.96	6175.31	6240.13	6317.90	6393.60	6465.20
CARD 275	6535.68	6600.00	6821.82	6983.59	7064.50	0.0	0.0	7005.48	6912.30	6837.27
CARD 276	6769.83	6702.84	6623.19	6554.82	6483.67	6400.00	6350.00	6282.53	6215.40	6141.84
CARD 277	6050.00	6088.14	6125.76	6170.20	6224.91	6291.08	6368.64	6443.09	6515.66	6593.32
CARD 278	6700.00	6875.30	7014.32	7090.31	0.0	0.0	7021.83	6953.25	6889.27	6823.46
CARD 279	6755.61	6674.75	6605.12	6533.11	6458.79	6400.00	6309.74	6239.26	6163.78	6075.00
CARD 280	6125.01	6164.11	6210.37	6272.11	6339.30	6410.70	6482.99	6556.45	6641.97	6800.00
CARD 281	6934.26	7041.30	7110.79	0.0	0.0	7047.35	6990.66	6933.82	6870.17	6794.89
CARD 282	6722.31	6652.59	6579.17	6503.03	6418.62	6334.50	6263.54	6187.62	6100.00	6152.66
CARD 283	6192.99	6241.82	6305.53	6372.02	6440.58	6510.72	6582.91	6667.46	6810.50	7000.00
CARD 284	7060.75	7125.13	0.0	0.0	7082.64	7030.81	6975.31	6915.88	6851.01	6770.86
CARD 285	6697.78	6621.54	6543.42	6446.81	6356.65	6288.01	6212.62	6125.00	6174.35	6214.90
CARD 286	6264.56	6323.51	6391.01	6457.68	6525.89	6596.53	6682.40	6817.35	6973.14	7066.90
CARD 287	7132.68	0.0	0.0	7122.02	7075.86	7021.40	6960.25	6898.42	6825.46	6741.90
CARD 288	6661.09	6578.25	6474.49	6378.94	6313.13	6239.29	6150.00	6187.52	6227.91	6280.15
CARD 289	6337.28	6398.31	6462.00	6529.03	6600.01	6686.26	6815.21	6955.99	7063.86	7133.62
CARD 290	0.0	0.0	7158.56	7118.74	7070.72	7011.57	6948.32	6865.80	6789.45	6703.88
CARD 291	6614.34	6500.09	6398.51	6340.00	6270.00	6200.00	6175.00	6224.59	6272.06	6332.20
CARD 292	6390.20	6451.60	6518.96	6592.96	6679.74	6803.93	6937.38	7053.03	7128.46	0.0
CARD 293	0.0	7189.64	7156.58	7115.34	7061.92	7001.14	6920.55	6852.18	6751.15	6652.29
CARD 294	6519.21	6400.00	6389.71	6340.00	6275.81	6250.58	6200.00	6240.00	6308.79	6362.63
CARD 295	6422.43	6494.79	6572.66	6660.78	6783.27	6913.17	7034.78	7117.90	0.0	0.0
CARD 296	7213.10	7187.95	7154.10	7106.88	7051.20	6982.36	6904.07	6796.20	6690.84	6500.00
CARD 297	6479.61	6447.19	6401.94	6351.46	6328.36	6312.42	6311.32	6280.00	6320.00	6360.00
CARD 298	6450.59	6534.74	6629.54	6753.32	6881.05	7009.00	7102.92	0.0	0.0	7226.47
CARD 299	7212.21	7188.02	7147.69	7096.74	7031.30	6951.34	6842.71	6723.64	6600.00	6550.52
CARD 300	6511.47	6469.35	6427.62	6399.28	6394.10	6391.79	6389.85	6406.18	6420.76	6400.00
CARD 301	6470.00	6587.70	6714.54	6838.93	6975.21	7084.91	0.0	0.0	0.0	7231.75
CARD 302	7225.57	7194.92	7150.21	7088.08	7006.71	6887.31	6700.00	6688.43	6633.29	6593.04
CARD 303	6553.11	6514.88	6485.18	6477.15	6475.45	6478.33	6489.85	6502.45	6512.41	6540.04
CARD 304	6540.00	6666.45	6782.87	6932.30	7065.83	0.0	0.0	0.0	0.0	7261.11
CARD 305	7240.02	7203.33	7146.56	7067.54	6951.20	6800.00	6793.04	6730.53	6689.37	6650.73
CARD 306	6612.81	6583.65	6561.21	6560.67	6563.16	6572.13	6583.68	6597.36	6615.96	6624.05

CARD 307	6600.00	6700.00	6877.42	7048.55	0.0	0.0	0.0	0.0	7283.55	7273.75
CARD 308	7247.71	7198.09	7122.14	7005.83	6900.00	6889.97	6826.55	6790.44	6752.86	6711.57
CARD 309	6681.80	6654.80	6641.61	6641.03	6651.43	6662.04	6676.00	6691.66	6706.98	6718.91
CARD 310	6781.71	6800.00	7037.05	0.0	0.0	0.0	0.0	0.0	7294.74	7285.75
CARD 311	7245.30	7169.58	7000.00	7013.83	6981.64	6918.30	6882.28	6846.31	6809.96	6778.28
CARD 312	6756.08	6737.48	6730.52	6728.46	6735.86	6752.52	6769.24	6785.15	6808.08	6857.02
CARD 313	6900.00	7047.68	0.0	0.0	0.0	0.0	0.0	0.0	7329.07	7300.69
CARD 314	7247.46	7164.57	7120.39	7072.74	7016.70	6973.54	6939.21	6906.73	6877.84	6860.78
CARD 315	6851.94	6843.07	6830.84	6834.02	6835.28	6847.08	6861.82	6890.59	6933.02	7000.00
CARD 316	7071.62	0.0	0.0	0.0	0.0	0.0	0.0	7373.97	7352.86	7313.03
CARD 317	7251.47	7203.04	7151.90	7099.62	7057.26	7026.36	6998.95	6975.37	6965.41	6956.42
CARD 318	6948.88	6942.83	6940.38	6936.72	6941.85	6951.84	6966.32	6999.79	7050.92	7100.00
CARD 319	0.0	0.0	0.0	0.0	0.0	0.0	7416.85	7400.31	7368.44	7316.67
CARD 320	7272.09	7226.95	7182.66	7145.93	7122.01	7102.74	7089.08	7079.23	7071.39	7065.39
CARD 321	7061.28	7059.28	7059.25	7061.91	7067.02	7075.51	7098.82	7132.75	7155.80	0.0
CARD 322	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 323	7256.15	7230.96	7205.29	7195.44	7185.02	7176.98	7170.41	7164.90	7160.64	7157.82
CARD 324	7156.56	7156.93	7158.98	7162.95	7171.32	7187.45	7208.59	7220.21	0.0	0.0
CARD 325	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 326	0.0	0.0	7229.19	7224.28	7219.34	7214.82	7210.78	7207.57	7205.46	7204.60
CARD 327	7205.10	7206.99	7210.51	7217.95	7230.99	7247.38	7258.19	0.0	0.0	0.0
CARD 328	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 329	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 330	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

CARD 331	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 332	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 333	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 334	0.0	0.0	6187.89	6180.31	6168.00	6150.86	6129.82	6103.81	6074.51	6040.69
CARD 335	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 336	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 337	0.0	6210.75	6201.86	6187.23	6166.37	6140.24	6106.43	6063.61	5998.59	5906.96
CARD 338	5882.74	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 339	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 340	6258.41	6247.55	6229.36	6201.35	6166.00	6123.83	6069.16	5981.46	5846.66	5849.70
CARD 341	5848.51	5846.07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 342	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6305.12
CARD 343	6292.82	6273.05	6245.87	6209.87	6162.76	6107.05	6027.09	5929.26	5866.07	5856.33
CARD 344	5842.39	5823.32	5798.69	5775.34	5789.56	5803.27	0.0	0.0	0.0	0.0
CARD 345	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6343.46	6331.02
CARD 346	6310.99	6283.14	6247.38	6200.51	6146.73	6073.04	5990.08	5927.62	5885.37	5866.33
CARD 347	5846.75	5824.05	5805.07	5828.49	5858.17	5889.82	0.0	0.0	0.0	0.0
CARD 348	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6373.92	6359.66	6339.99
CARD 349	6312.02	6276.31	6230.01	6177.82	6107.73	6031.06	5970.10	5919.95	5893.79	5872.45
CARD 350	5852.28	5840.14	5866.03	5900.57	5936.02	5974.46	0.0	0.0	0.0	0.0
CARD 351	0.0	0.0	0.0	0.0	0.0	0.0	6408.10	6392.51	6370.05	6341.56
CARD 352	6305.38	6259.78	6209.06	6141.59	6068.39	6008.75	5957.56	5925.16	5900.35	5880.94
CARD 353	5874.22	5904.83	5944.55	5986.77	6035.86	6090.33	0.0	0.0	0.0	0.0
CARD 354	0.0	0.0	0.0	0.0	0.0	6446.12	6430.47	6404.74	6371.72	6333.58
CARD 355	6289.22	6240.00	6174.37	6102.85	6043.68	5995.49	5957.49	5929.46	5907.75	5913.84
CARD 356	5944.47	5987.85	6038.50	6098.11	6167.31	6247.22	0.0	0.0	0.0	0.0
CARD 357	0.0	0.0	0.0	0.0	6488.17	6471.74	6445.06	6408.38	6365.33	6318.81
CARD 358	6270.81	6206.23	6135.22	6071.83	6027.41	5988.77	5963.71	5945.11	5943.26	5977.29
CARD 359	6026.64	6089.91	6157.14	6237.82	6334.21	6519.95	6689.44	6865.64	6953.71	0.0
CARD 360	0.0	0.0	0.0	6535.13	6517.03	6487.24	6447.37	6403.51	6353.26	6301.74
CARD 361	6237.44	6169.12	6108.14	6059.21	6019.41	5994.63	5978.71	5979.02	6024.64	6081.10
CARD 362	6141.45	6209.60	6296.31	6387.55	6542.02	6707.91	6887.83	6969.50	0.0	0.0
CARD 363	0.0	0.0	6591.32	6564.72	6529.13	6485.66	6440.03	6389.19	6334.62	6267.27
CARD 364	6200.73	6142.91	6086.15	6045.45	6021.23	6008.42	6018.36	6072.75	6132.95	6194.34
CARD 365	6268.89	6348.06	6427.60	6571.34	6737.92	6915.85	6996.71	0.0	0.0	0.0
CARD 366	0.0	6664.21	6624.29	6575.42	6521.72	6473.84	6421.17	6364.92	6295.00	6232.97

CARD 367	6169.16	6108.62	6065.10	6045.51	6043.80	6073.29	6123.80	6180.13	6249.94	6329.80
CARD 368	6405.40	6487.96	6602.86	6768.18	6945.22	7029.16	0.0	0.0	0.0	6848.31
CARD 369	6757.60	6694.27	6632.93	6567.70	6509.29	6453.08	6393.32	6319.86	6256.69	6192.68
CARD 370	6128.78	6081.87	6069.58	6088.75	6125.03	6172.76	6233.59	6310.31	6386.15	6458.89
CARD 371	6534.19	6629.08	6811.38	6977.83	7059.23	0.0	0.0	6991.66	6898.48	6823.53
CARD 372	6756.42	6691.51	6621.90	6553.72	6487.60	6422.36	6353.19	6282.44	6215.86	6148.41
CARD 373	6097.31	6104.83	6131.11	6170.05	6218.42	6284.89	6360.95	6435.18	6507.85	6585.99
CARD 374	6695.17	6865.90	7008.74	7084.95	0.0	0.0	7007.91	6939.32	6875.47	6810.01
CARD 375	6744.24	6673.46	6604.89	6533.19	6463.64	6389.42	6309.25	6239.81	6170.61	6120.68
CARD 376	6136.16	6165.78	6205.51	6261.96	6331.25	6402.66	6474.75	6547.52	6629.88	6760.18
CARD 377	6921.33	7035.62	7105.41	0.0	0.0	7032.66	6975.84	6919.81	6857.35	6791.41
CARD 378	6721.62	6652.48	6579.35	6505.70	6420.06	6334.90	6264.17	6194.42	6145.12	6162.32
CARD 379	6191.90	6237.40	6298.46	6364.23	6432.48	6502.13	6572.64	6651.40	6795.08	6970.57
CARD 380	7054.74	7119.73	0.0	0.0	7068.70	7015.89	6959.53	6901.95	6839.18	6768.52
CARD 381	6697.31	6621.42	6543.71	6448.94	6359.00	6288.73	6219.31	6169.21	6183.55	6214.75
CARD 382	6263.04	6320.40	6383.87	6449.58	6516.63	6582.34	6670.46	6809.96	6963.98	7061.33
CARD 383	7127.30	0.0	0.0	7109.01	7062.60	7006.22	6944.00	6883.85	6813.79	6739.48
CARD 384	6659.85	6577.40	6475.18	6381.49	6313.63	6245.67	6193.75	6201.40	6231.13	6277.48
CARD 385	6331.87	6391.29	6454.04	6519.54	6586.09	6676.26	6809.28	6950.00	7058.44	7128.25
CARD 386	0.0	0.0	7145.65	7105.78	7057.50	6997.33	6935.13	6862.12	6787.00	6702.62
CARD 387	6613.53	6501.36	6405.05	6345.37	6281.86	6229.45	6218.84	6241.34	6280.15	6330.74
CARD 388	6385.57	6444.65	6508.16	6582.83	6673.27	6798.43	6931.91	7047.64	7123.08	0.0
CARD 389	0.0	7176.75	7143.67	7102.39	7048.95	6989.07	6917.11	6842.21	6750.13	6652.31
CARD 390	6526.26	6432.32	6392.44	6340.44	6290.27	6268.82	6258.61	6282.35	6323.34	6369.15
CARD 391	6421.12	6489.07	6567.53	6655.57	6777.94	6907.81	7029.41	7112.52	0.0	0.0
CARD 392	7200.21	7174.98	7141.04	7093.80	7038.25	6970.24	6892.33	6794.42	6688.83	6547.69
CARD 393	6487.69	6448.06	6401.73	6357.67	6334.96	6323.80	6326.43	6331.43	6355.68	6393.06
CARD 394	6459.79	6536.37	6626.26	6748.36	6875.87	7003.67	7097.55	0.0	0.0	7213.56
CARD 395	7198.62	7173.73	7132.98	7081.81	7016.38	6937.13	6835.38	6722.74	6608.29	6548.97
CARD 396	6507.54	6464.29	6424.72	6400.86	6391.09	6389.24	6392.07	6409.22	6431.11	6446.36
CARD 397	6504.59	6592.30	6711.19	6834.72	6970.10	7079.56	0.0	0.0	0.0	7219.91
CARD 398	7213.21	7182.20	7137.28	7075.11	6994.48	6883.22	6743.77	6687.64	6631.04	6589.61
CARD 399	6548.70	6511.00	6485.11	6473.84	6471.09	6474.78	6490.10	6504.67	6519.43	6547.92
CARD 400	6575.74	6670.94	6784.50	6928.47	7060.60	0.0	0.0	0.0	0.0	7250.21
CARD 401	7229.09	7192.39	7135.67	7057.34	6948.14	6826.45	6789.41	6730.72	6689.28	6649.80
CARD 402	6612.37	6585.01	6566.43	6561.60	6563.51	6572.46	6584.23	6598.39	6616.43	6630.49

CARD 403	6644.57	6737.20	6880.72	7043.92	0.0	0.0	0.0	0.0	7272.80	7262.99
CARD 404	7236.97	7187.47	7112.65	7006.30	6917.76	6885.78	6826.78	6787.94	6749.61	6711.02
CARD 405	6682.42	6659.89	6647.96	6646.24	6652.93	6662.94	6676.34	6691.56	6706.52	6723.91
CARD 406	6787.07	6842.71	7035.11	0.0	0.0	0.0	0.0	0.0	7284.00	7275.05
CARD 407	7234.95	7163.33	7046.72	7013.87	6976.87	6918.17	6879.44	6842.63	6806.85	6778.11
CARD 408	6757.02	6741.86	6735.15	6734.27	6740.79	6753.41	6768.04	6783.58	6806.86	6856.10
CARD 409	6907.71	7045.45	0.0	0.0	0.0	0.0	0.0	0.0	7318.35	7290.07
CARD 410	7237.74	7162.63	7115.81	7067.68	7012.59	6970.58	6935.46	6903.29	6877.36	6860.28
CARD 411	6849.35	6840.80	6833.45	6834.87	6838.76	6849.05	6863.13	6888.83	6930.91	6992.00
CARD 412	7069.29	0.0	0.0	0.0	0.0	0.0	0.0	7363.25	7342.18	7302.82
CARD 413	7246.17	7197.94	7146.80	7095.22	7054.26	7022.60	6995.42	6974.39	6962.18	6952.77
CARD 414	6945.26	6939.62	6937.41	6936.65	6941.77	6951.29	6967.58	7000.91	7050.70	7100.16
CARD 415	0.0	0.0	0.0	0.0	0.0	0.0	7406.14	7389.64	7358.18	7311.15
CARD 416	7266.94	7221.85	7178.17	7142.81	7118.22	7098.93	7085.36	7075.44	7067.57	7061.57
CARD 417	7057.47	7055.49	7055.58	7058.26	7063.43	7073.14	7096.37	7129.91	7154.27	0.0
CARD 418	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 419	7251.07	7226.31	7201.95	7191.64	7181.20	7173.16	7166.58	7161.07	7156.81	7153.98
CARD 420	7152.72	7153.09	7155.15	7159.12	7167.54	7183.66	7204.80	7217.31	0.0	0.0
CARD 421	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 422	0.0	0.0	7225.38	7220.46	7215.52	7211.00	7206.95	7203.74	7201.62	7200.77
CARD 423	7201.27	7203.15	7206.68	7214.11	7227.15	7243.53	7254.37	0.0	0.0	0.0
CARD 424	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 425	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CARD 426	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

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CARD 427   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 428   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 429   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 430   0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 431   0 0 0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 432   0 0 0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 433   0 0 0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 434   0 0 0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 435   0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 436   0 0 0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 437   0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 0 0
CARD 438   0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 3 0 0
CARD 439   0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 0 0 3 3 3 3 0
CARD 440   0 0 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 0 0 3 3 3 0
CARD 441   0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 3 3 3 3 3 0
CARD 442   0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 3 3 3 3 3 3 3 0
CARD 443   0 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 3 3 3 3 3 3 3 0
CARD 444   0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 3 3 3 3 3 3 0
CARD 445   0 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 3 3 3 3 3 3 3 3 3 3 3 0
CARD 446   0 1 1 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 3 3 3 3 3 3 3 0
CARD 447   0 1 1 1 1 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 3 3 3 3 3 0
CARD 448   0 1 1 1 1 1 1 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 3 3 3 0
CARD 449   0 1 1 1 1 1 1 1 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 3 3 3 3 3 0
CARD 450   0 0 1 1 1 1 1 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 2 0 3 3 3 3 0
CARD 451   0 0 0 1 1 1 1 1 2 0 2 0 0 0 0 0 0 0 0 0 0 0 2 2 0 0 3 3 0
CARD 452   0 0 0 1 1 1 1 1 2 0 2 0 2 2 0 0 0 0 0 0 0 0 0 2 2 2 0 2 0
CARD 453   0 0 0 0 1 1 1 1 2 2 2 0 2 2 2 0 0 0 0 0 0 0 2 2 2 2 0 2 0
CARD 454   0 0 0 0 0 1 1 1 2 2 2 2 2 2 2 0 0 2 2 0 2 0 2 2 2 2 0 2 0
CARD 455   0 0 0 0 0 1 1 1 2 2 2 2 2 2 2 0 2 2 2 2 2 2 2 2 2 2 2 2 0
CARD 456   0 0 0 0 0 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 0
CARD 457   0 0 0 0 0 0 0 0 0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 0
CARD 458   0 0 0 0 0 0 0 0 0 0 0 0 0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 0
CARD 459   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
CARD 460    0
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COMPUTER OUTPUT

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PUMPING PERIODS YEARS
  999.0

TIME INTERVALS
   0.86400D 05 0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   0.0         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   0.0         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   0.0         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   0.0         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   0.0         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   0.0         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   0.0         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   0.0         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   0.0         0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0

X-Y SPACING (0.2 MILES)
10.10. 6. 6. 5. 5. 5. 5. 6. 6.10. 8. 8. 8. 6. 5. 5. 5. 5. 5. 5. 5. 5. 6.10.10.14.14.14.
14.10.10.10.10. 6. 6. 6. 6. 6. 6. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 6. 6.10.10.10.10.
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UPPER AQUIFER TRANSMISSIVITY MAP (100 GPD/FT)

0.	0.	0.	0.	9.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.	0.	0.	0.	0.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.	0.	0.	0.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	0.	0.	5.	5.	5.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	0.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.

0.	0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	0.	0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	0.	0.	5.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	0.	0.	0.	5.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	20.	20.	0.
0.	0.	0.	0.	0.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	20.	20.	20.	0.
0.	0.	0.	0.	0.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	20.	20.	20.	0.
0.	0.	0.	0.	0.	5.	5.	5.	5.	5.	5.	5.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	20.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	5.	5.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

LOWER AQUIFER TRANSMISSIVITY MAP (100 GPD/FT)

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	40.	40.	40.	40.	40.	40.	40.	40.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	40.	40.	40.	40.	40.	40.	40.	40.	40.	40.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	40.	40.	40.	40.	50.	50.	50.	50.	50.	40.	40.	40.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	40.	40.	50.	50.	50.	50.	50.	50.	50.	50.	40.	40.	40.	30.	30.	30.	30.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	40.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	40.	40.	30.	30.	30.	30.	30.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	40.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	40.	40.	30.	30.	30.	30.	30.	20.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	40.	40.	50.	50.	50.	50.	50.	50.	50.	50.	50.	40.	40.	30.	30.	30.	30.	30.	20.	20.	0.	0.	0.	0.	0.	0.
0.	0.	0.	40.	40.	40.	50.	50.	50.	50.	50.	50.	50	40.	40.	30.	30.	30.	30.	30.	30.	20.	20.	20.	0.	0.	0.	0.	0.
0.	0.	0.	40.	40.	40.	40.	40.	50.	50.	50.	50.	50.	40.	40.	30.	30.	30.	30.	30.	30.	20.	20.	20.	20.	20.	10.	10.	0.
0.	0.	0.	40.	40.	40.	40.	40.	40.	50.	50.	50.	40.	40.	30.	30.	30.	30.	30.	30.	30.	20.	20.	20.	20.	20.	10.	10.	0.
0.	0.	0.	30.	40.	40.	40.	40.	40.	40.	40.	40.	40.	40.	30.	30.	30.	30.	30.	30.	30.	20.	20.	20.	20.	20.	10.	10.	0.
0.	0.	0.	30.	30.	30.	40.	40.	40.	40.	40.	40.	40.	30.	30.	30.	30.	30.	30.	30.	20.	20.	20.	20.	20.	20.	10.	10.	0.
0.	0.	30.	30.	30.	30.	30.	40.	40.	40.	40.	40.	30.	30.	30.	30.	30.	30.	30.	20.	20.	20.	20.	20.	20.	10.	10.	10.	0.
0.	30.	30.	30.	30.	30.	30.	30.	40.	40.	40.	30.	30.	30.	30.	30.	30.	30.	30.	20.	20.	20.	20.	20.	20.	10.	10.	10.	0.
0.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	20.	20.	20.	20.	20.	20.	20.	10.	10.	10.	0.
0.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	20.	20.	20.	20.	20.	20.	20.	10.	10.	10.	10.	0.
0.	20.	20.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	20.	20.	20.	20.	20.	20.	20.	10.	10.	10.	10.	10.	0.
0.	20.	20.	20.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	20.	20.	20.	20.	20.	20.	20.	10.	10.	10.	10.	10.	0.
0.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	10.	10.	10.	10.	10.	10.	0.
0.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	10.	10.	10.	10.	10.	10.	10.	0.
0.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.

0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

UPPER CONFINING LAYER LEAKANCE MAP

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-1.0	-1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	-1.0	0.0	0.0	0.0	-1.0	-1.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	-1.0	-1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	-1.0	0.0	0.0	-1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	-1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	-1.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

LOWER CONFINING LAYER LEAKANCE MAP

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

WATER TABLE CONSTANT HEADS IN FEET

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	5700.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	5800.00	0.0	0.0	0.0	0.0	5725.00	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	5850.00	0.0	0.0	0.0	5750.00	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	5900.00	0.0	0.0	0.0	5800.00	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	5950.00	0.0	0.0	0.0	5830.00	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	6000.00	0.0	0.0	5870.00	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	6050.00	0.0	0.0	0.0	0.0	5900.00	5950.00	6000.00
6100.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	6100.00	0.0	0.0	0.0	0.0	5925.00	0.0	0.0
0.0	6200.00	6300.00	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	6200.00	6150.00	0.0	0.0	0.0	5975.00	5950.00	0.0	0.0

0.0	0.0	0.0	6400.00	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	6250.00	0.0	0.0	0.0	0.0	6000.00	0.0	0.0	0.0
0.0	0.0	0.0	6500.00	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6300.00	0.0	0.0	0.0	0.0	6025.00	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	6500.00	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6400.00
6350.00	0.0	0.0	0.0	6050.00	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	6700.00	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6400.00	0.0	0.0	0.0	6075.00	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	6800.00	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	6100.00	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	7000.00	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	6125.00	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	6150.00	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	6340.00	6270.00	6200.00	6175.00	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	6400.00	0.0	6340.00	0.0	0.0	6200.00	6240.00	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6500.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6280.00	6320.00
6360.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6600.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	6400.00	6470.00	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6700.00
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.0	0.0	0.0	6540.00	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6800.00
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	6600.00	6700.00	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6900.00
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	6800.00	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7000.00	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	6900.00	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	7000.00	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	7100.00	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

INITIAL HEADS IN FEET

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6187.94	6180.36	6168.05	6150.90	6129.83	6103.80	6074.49
6040.63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6211.50	6202.61	6187.94	6166.97	6140.33	6106.34	6063.43
5997.68	5898.92	5881.03	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6270.55	6259.64	6241.11	6212.33	6168.98	6124.11	6068.20
5972.20	5700.00	5833.92	5846.59	5845.31	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6318.04	6305.98	6286.40	6258.53	6220.78	6164.42	6107.10
6025.71	5915.58	5800.00	5847.94	5839.15	5818.24	5785.02	5725.00	5777.04	5799.57
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6356.63	6344.24	6324.33	6296.13	6258.68	6202.30	6146.96
6072.79	5987.95	5918.09	5850.00	5859.78	5841.04	5809.71	5750.00	5815.55	5855.13
5889.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6387.23	6373.75	6353.55	6325.07	6287.57	6231.80	6178.07
6107.68	6030.56	5967.29	5900.00	5887.87	5867.24	5840.25	5800.00	5855.80	5898.44
5937.67	5976.97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6421.21	6406.54	6384.35	6354.59	6315.91	6261.39	6209.29
6141.58	6068.18	6007.47	5950.00	5919.95	5894.83	5865.70	5830.00	5894.42	5942.35
5989.19	6038.61	6091.06	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6459.09	6443.64	6418.68	6384.47	6337.44	6290.09	6240.17
6174.35	6102.39	6040.68	6000.00	5952.55	5920.34	5870.00	5895.10	5935.83	5983.44
6041.90	6101.39	6168.06	6247.32	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6501.13	6484.57	6457.56	6419.24	6368.78	6320.55	6271.19
6206.22	6133.49	6050.00	6024.60	5984.45	5957.85	5929.92	5900.00	5950.00	6000.00
6100.00	6160.40	6238.83	6333.97	6520.20	6694.00	6867.96	6953.80	0.0	
0.0	0.0	0.0	6548.52	6529.45	6498.17	6450.31	6404.49	6354.77	6303.16
6237.93	6168.23	6100.00	6056.51	6014.80	5988.94	5962.17	5925.00	6009.17	6075.33
6143.12	6200.00	6300.00	6384.23	6541.95	6713.56	6894.13	6969.77	0.0	
0.0	0.0	0.0	6601.00	6575.35	6538.14	6486.95	6440.02	6389.29	6335.23
6267.48	6200.00	6150.00	6084.65	6039.13	6011.24	5975.00	5950.00	6058.68	6131.62

6200.11	6271.25	6345.61	6400.00	6570.19	6748.86	6922.73	6997.65	0.0	
0.0	0.0	0.0	6674.69	6635.75	6583.89	6519.60	6471.51	6420.06	6363.87
6292.49	6250.00	6171.23	6106.39	6056.30	6028.46	6000.00	6054.12	6119.77	6185.37
6257.30	6336.10	6408.55	6500.00	6602.78	6782.14	6952.15	7033.85	0.0	
0.0	0.0	6862.09	6770.97	6706.76	6635.99	6567.59	6506.98	6447.80	6387.73
6300.00	6258.36	6192.77	6125.04	6063.30	6025.00	6073.13	6119.96	6175.31	6240.13
6317.90	6393.60	6465.20	6535.68	6600.00	6821.82	6983.59	7064.50	0.0	
0.0	7005.48	6912.30	6837.27	6769.83	6702.84	6623.19	6554.82	6483.67	6400.00
6350.00	6282.53	6215.40	6141.84	6050.00	6088.14	6125.76	6170.20	6224.91	6291.08
6368.64	6443.09	6515.66	6593.32	6700.00	6875.30	7014.32	7090.31	0.0	
0.0	7021.83	6953.25	6889.27	6823.46	6755.61	6674.75	6605.12	6533.11	6458.79
6400.00	6309.74	6239.26	6163.78	6075.00	6125.01	6164.11	6210.37	6272.11	6339.30
6410.70	6482.99	6556.45	6641.97	6800.00	6934.26	7041.30	7110.79	0.0	
0.0	7047.35	6990.66	6933.82	6870.17	6794.89	6722.31	6652.59	6579.17	6503.03
6418.62	6334.50	6263.54	6187.62	6100.00	6152.66	6192.99	6241.82	6305.53	6372.02
6440.58	6510.72	6582.91	6667.46	6810.50	7000.00	7060.75	7125.13	0.0	
0.0	7082.64	7030.81	6975.31	6915.88	6851.01	6770.86	6697.78	6621.54	6543.42
6446.81	6356.65	6288.01	6212.62	6125.00	6174.35	6214.90	6264.56	6323.51	6391.01
6457.68	6525.89	6596.53	6682.40	6817.35	6973.14	7066.90	7132.68	0.0	
0.0	7122.02	7075.86	7021.40	6960.25	6898.42	6825.46	6741.90	6661.09	6578.25
6474.49	6378.94	6313.13	6239.29	6150.00	6187.52	6227.91	6280.15	6337.28	6398.31
6462.00	6529.03	6600.01	6686.26	6815.21	6955.99	7063.86	7133.62	0.0	
0.0	7158.56	7118.74	7070.72	7011.57	6948.32	6865.80	6789.45	6703.88	6614.34
6500.09	6398.51	6340.00	6270.00	6200.00	6175.00	6224.59	6272.06	6332.20	6390.20
6451.60	6518.96	6592.96	6679.74	6803.93	6937.38	7053.03	7128.46	0.0	
0.0	7189.64	7156.58	7115.34	7061.92	7001.14	6920.55	6852.18	6751.15	6652.29
6519.21	6400.00	6389.71	6340.00	6275.81	6250.58	6200.00	6240.00	6308.79	6362.63
6422.43	6494.79	6572.66	6660.78	6783.27	6913.17	7034.78	7117.90	0.0	
0.0	7213.10	7187.95	7154.10	7106.88	7051.20	6982.36	6904.07	6796.20	6690.84
6500.00	6479.61	6447.19	6401.94	6351.46	6328.36	6312.42	6311.32	6280.00	6320.00
6360.00	6450.59	6534.74	6629.54	6753.32	6881.05	7009.00	7102.92	0.0	
0.0	7226.47	7212.21	7188.02	7147.69	7096.74	7031.30	6951.34	6842.71	6723.64
6600.00	6550.52	6511.47	6469.35	6427.62	6399.28	6394.10	6391.79	6389.85	6406.18
6420.76	6400.00	6470.00	6587.70	6714.54	6838.93	6975.21	7084.91	0.0	
0.0	0.0	7231.75	7225.57	7194.92	7150.21	7088.08	7006.71	6887.31	6700.00
6688.43	6633.29	6593.04	6553.11	6514.88	6485.18	6477.15	6475.45	6478.33	6489.85

```
6502.45 6512.41 6540.04 6540.00 6666.45 6782.87 6932.30 7065.83     0.0

    0.0     0.0     0.0 7261.11 7240.02 7203.33 7146.56 7067.54 6951.20 6800.00
6793.04 6730.53 6689.37 6650.73 6612.81 6583.65 6561.21 6560.67 6563.16 6572.13
6583.68 6597.36 6615.96 6624.05 6600.00 6700.00 6877.42 7048.55     0.0

    0.0     0.0     0.0 7283.55 7273.75 7247.71 7198.09 7122.14 7005.83 6900.00
6889.97 6826.55 6790.44 6752.86 6711.57 6681.80 6654.80 6641.61 6641.03 6651.43
6662.04 6676.00 6691.66 6706.98 6718.91 6781.71 6800.00 7037.05     0.0

    0.0     0.0     0.0     0.0 7294.74 7285.75 7245.30 7169.58 7000.00 7013.83
6981.64 6918.30 6882.28 6846.31 6809.96 6778.28 6756.08 6737.48 6730.52 6728.46
6735.86 6752.52 6769.24 6785.15 6808.08 6857.02 6900.00 7047.68     0.0

    0.0     0.0     0.0     0.0     0.0 7329.07 7300.69 7247.46 7164.57 7120.39
7072.74 7016.70 6973.54 6939.21 6906.73 6877.84 6860.78 6851.94 6843.07 6830.84
6834.02 6835.28 6847.08 6861.82 6890.59 6933.02 7000.00 7071.62     0.0

    0.0     0.0     0.0     0.0     0.0 7373.97 7352.86 7313.03 7251.47 7203.04
7151.90 7099.62 7057.26 7026.36 6998.95 6975.37 6965.41 6956.42 6948.88 6942.83
6940.38 6936.72 6941.85 6951.84 6966.32 6999.79 7050.92 7100.00     0.0

    0.0     0.0     0.0     0.0     0.0 7416.85 7400.31 7368.44 7316.67 7272.09
7226.95 7182.66 7145.93 7122.01 7102.74 7089.08 7079.23 7071.39 7065.39 7061.28
7059.28 7059.25 7061.91 7067.02 7075.51 7098.82 7132.75 7155.80     0.0

    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
7256.15 7230.96 7205.29 7195.44 7185.02 7176.98 7170.41 7164.90 7160.64 7157.82
7156.56 7156.93 7158.98 7162.95 7171.32 7187.45 7208.59 7220.21     0.0

    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
    0.0     0.0     0.0 7229.19 7224.28 7219.34 7214.82 7210.78 7207.57 7205.46
7204.60 7205.10 7206.99 7210.51 7217.95 7230.99 7247.38 7258.19     0.0

    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0

    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0

    0.0     0.0     0.0 6187.89 6180.31 6168.00 6150.86 6129.82 6103.81 6074.51
6040.69     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0

    0.0     0.0     0.0 6210.75 6201.86 6187.23 6166.37 6140.24 6106.43 6063.61
5998.59 5906.96 5882.74     0.0     0.0     0.0     0.0     0.0     0.0     0.0
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```
   0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0

     0.0      0.0      0.0  6258.41 6247.55 6229.36 6201.35 6166.00 6123.83 6069.16
5981.46 5846.66 5849.70 5848.51 5846.07     0.0      0.0      0.0      0.0      0.0
   0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0

     0.0      0.0      0.0  6305.12 6292.82 6273.05 6245.87 6209.87 6162.76 6107.05
6027.09 5929.26 5866.07 5856.33 5842.39 5823.32 5798.69 5775.34 5789.56 5803.27
   0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0

     0.0      0.0      0.0  6343.46 6331.02 6310.99 6283.14 6247.38 6200.51 6146.73
6073.04 5990.08 5927.62 5885.37 5866.33 5846.75 5824.05 5805.07 5828.49 5858.17
5889.82     0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0

     0.0      0.0      0.0  6373.92 6359.66 6339.99 6312.02 6276.31 6230.01 6177.82
6107.73 6031.06 5970.10 5919.95 5893.79 5872.45 5852.28 5840.14 5866.03 5900.57
5936.02 5974.46     0.0      0.0      0.0      0.0      0.0      0.0      0.0

     0.0      0.0      0.0  6408.10 6392.51 6370.05 6341.56 6305.38 6259.78 6209.06
6141.59 6068.39 6008.75 5957.56 5925.16 5900.35 5880.94 5874.22 5904.83 5944.55
5986.77 6035.86 6090.33     0.0      0.0      0.0      0.0      0.0      0.0

     0.0      0.0      0.0  6446.12 6430.47 6404.74 6371.72 6333.58 6289.22 6240.00
6174.37 6102.85 6043.68 5995.49 5957.49 5929.46 5907.75 5913.84 5944.47 5987.85
6038.50 6098.11 6167.31 6247.22     0.0      0.0      0.0      0.0      0.0

     0.0      0.0      0.0  6488.17 6471.74 6445.06 6408.38 6365.33 6318.81 6270.81
6206.23 6135.22 6071.83 6027.41 5988.77 5963.71 5945.11 5943.26 5977.29 6026.64
6089.91 6157.14 6237.82 6334.21 6519.95 6689.44 6865.64 6953.71     0.0

     0.0      0.0      0.0  6535.13 6517.03 6487.24 6447.37 6403.51 6353.26 6301.74
6237.44 6169.12 6108.14 6059.21 6019.41 5994.63 5978.71 5979.02 6024.64 6081.10
6141.45 6209.60 6296.31 6387.55 6542.02 6707.91 6887.83 6969.50     0.0

     0.0      0.0      0.0  6591.32 6564.72 6529.13 6485.66 6440.03 6389.19 6334.62
6267.27 6200.73 6142.91 6086.15 6045.45 6021.23 6008.42 6018.36 6072.75 6132.95
6194.34 6268.89 6348.06 6427.60 6571.34 6737.92 6915.85 6996.71     0.0

     0.0      0.0      0.0  6664.21 6624.29 6575.42 6521.72 6473.84 6421.17 6364.92
6295.00 6232.97 6169.16 6108.62 6065.10 6045.51 6043.80 6073.29 6123.80 6180.13
6249.94 6329.80 6405.40 6487.96 6602.86 6768.18 6945.22 7029.16     0.0

     0.0      0.0  6848.31 6757.60 6694.27 6632.93 6567.70 6509.29 6453.08 6393.32
6319.86 6256.69 6192.68 6128.78 6081.87 6069.58 6088.75 6125.03 6172.76 6233.59
6310.31 6386.15 6458.89 6534.19 6629.08 6811.38 6977.83 7059.23     0.0

     0.0  6991.66 6898.48 6823.53 6756.42 6691.51 6621.90 6553.72 6487.60 6422.36
6353.19 6282.44 6215.86 6148.41 6097.31 6104.83 6131.11 6170.05 6218.42 6284.89
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6360.95	6435.18	6507.85	6585.99	6695.17	6855.90	7008.74	7084.95	0.0	
0.0	7007.91	6939.32	6875.47	5810.01	6744.24	6673.46	6604.89	6533.19	6463.64
6389.42	6309.25	6239.81	6170.61	6120.68	6136.16	6165.78	6205.51	6261.96	6331.25
6402.66	6474.75	6547.52	6629.88	6760.18	6921.33	7035.62	7105.41	0.0	
0.0	7032.66	6975.84	6919.81	5857.35	6791.41	6721.62	6652.48	6579.35	6505.70
6420.06	6334.90	6264.17	6194.42	6145.12	6162.32	6191.90	6237.40	6298.46	6364.23
6432.48	6502.13	6572.64	6651.40	6795.08	6970.57	7054.74	7119.73	0.0	
0.0	7068.70	7015.89	6959.53	6901.95	6839.18	6768.52	6697.31	6621.42	6543.71
6448.94	6359.00	6288.73	6219.31	6169.21	6183.55	6214.75	6263.04	6320.40	6383.87
6449.58	6516.63	6582.34	6670.46	6809.96	6963.98	7061.33	7127.30	0.0	
0.0	7109.01	7062.60	7006.22	6944.00	6883.85	6813.79	6739.48	6659.85	6577.40
6475.18	6381.49	6313.63	6245.67	6193.75	6201.40	6231.13	6277.48	6331.87	6391.29
6454.04	6519.54	6586.09	6676.26	6809.28	6950.00	7058.44	7128.25	0.0	
0.0	7145.65	7105.78	7057.50	6997.33	6935.13	6862.12	6787.00	6702.62	6613.53
6501.36	6405.05	6345.37	6281.86	6229.45	6218.84	6241.34	6280.15	6330.74	6385.57
6444.65	6508.16	6582.83	6673.27	6798.43	6931.91	7047.64	7123.08	0.0	
0.0	7176.75	7143.67	7102.39	7048.95	6989.07	6917.11	6842.21	6750.13	6652.31
6526.26	6432.32	6392.44	6340.44	6290.27	6268.82	6258.61	6282.35	6323.34	6369.15
6421.12	6489.07	6567.53	6655.57	6777.94	6907.81	7029.41	7112.52	0.0	
0.0	7200.21	7174.98	7141.04	7093.80	7038.25	6970.24	6892.33	6794.42	6688.83
6547.69	6487.69	6448.06	6401.73	6357.67	6334.96	6323.80	6326.43	6331.43	6355.68
6393.06	6459.79	6536.37	6626.26	6748.36	6875.87	7003.67	7097.55	0.0	
0.0	7213.56	7198.62	7173.73	7132.98	7081.81	7016.38	6937.13	6835.38	6722.74
6608.29	6548.97	6507.54	6464.29	6424.72	6400.86	6391.09	6389.24	6392.07	6409.22
6431.11	6446.36	6504.59	6592.30	6711.19	6834.72	6970.10	7079.56	0.0	
0.0	0.0	7219.91	7213.21	7182.20	7137.28	7075.11	6994.48	6883.22	6743.77
6687.64	6631.04	6589.61	6548.70	6511.00	6485.11	6473.84	6471.09	6474.78	6490.10
6504.67	6519.43	6547.92	6575.74	6670.94	6784.50	6928.47	7060.60	0.0	
0.0	0.0	0.0	7250.21	7229.09	7192.39	7135.67	7057.34	6948.14	6826.45
6789.41	6730.72	6689.28	6649.80	6612.37	6585.01	6566.43	6561.60	6563.51	6572.46
6584.23	6598.39	6616.43	6630.49	6644.57	6737.20	6880.72	7043.92	0.0	
0.0	0.0	0.0	7272.80	7262.99	7236.97	7187.47	7112.65	7006.30	6917.76
6885.78	6826.78	6787.94	6749.61	6711.02	6682.42	6659.89	6647.96	6646.24	6652.93
6662.94	6676.34	6691.56	6706.52	6723.91	6787.07	6842.71	7035.11	0.0	
0.0	0.0	0.0	0.0	7284.00	7275.05	7234.95	7163.33	7046.72	7013.87
6976.87	6918.17	6879.44	6842.63	6806.85	6778.11	6757.02	6741.86	6735.15	6734.27

```
6740.79 6753.41 6768.04 6783.58 6806.86 6856.10 6907.71 7045.45    0.0

    0.0     0.0     0.0     0.0     0.0 7318.35 7290.07 7237.74 7162.63 7115.81
7067.68 7012.59 6970.58 6935.46 6903.29 6877.36 6860.28 6849.35 6840.80 6833.45
6834.87 6838.76 6849.05 6863.13 6888.83 6930.91 6992.00 7069.29    0.0

    0.0     0.0     0.0     0.0     0.0 7363.25 7342.18 7302.82 7246.17 7197.94
7146.80 7095.22 7054.26 7022.60 6995.42 6974.39 6962.18 6952.77 6945.26 6939.62
6937.41 6936.65 6941.77 6951.29 6967.58 7000.91 7050.70 7100.16    0.0

    0.0     0.0     0.0     0.0     0.0 7406.14 7389.64 7358.18 7311.15 7266.94
7221.85 7178.17 7142.81 7118.22 7098.93 7085.36 7075.44 7067.57 7061.57 7057.47
7055.49 7055.58 7058.26 7063.43 7073.14 7096.37 7129.91 7154.27    0.0

    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
7251.07 7226.31 7201.95 7191.64 7181.20 7173.16 7166.58 7161.07 7156.81 7153.98
7152.72 7153.09 7155.15 7159.12 7167.54 7183.66 7204.80 7217.31    0.0

    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
   0.0     0.0     0.0  7225.38 7220.46 7215.52 7211.00 7206.95 7203.74 7201.62
7200.77 7201.27 7203.15 7206.68 7214.11 7227.15 7243.53 7254.37    0.0

    0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
   0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0
   0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0     0.0

ITERATION PARAMETERS
        0.51261D-03
        0.18120D-02
        0.64051D-02
        0.22641D-01
        0.80032D-01
        0.28290D 00
        0.10000D 01
        0.0
        0.0
        0.0
        0.0
        0.0
        0.0
        0.0
        0.0
        0.0
        0.0
        0.0
        0.0
        0.0
```

UNIFORM RECHARGE, AREA 1 = -0.260D-08, AREA 2 = -0.130D-08, AREA 3 = -0.260D-08 FT/SEC

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.
0.	0.	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	0.	0.
0.	0.	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0.	3.	3.	3.	3.	0.
0.	0.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	3.	0.	0.	3.	3.	3.	0.
0.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	3.	3.	3.	3.	3.	3.	0.
0.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	0.
0.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	0.
0.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	3.	3.	3.	3.	3.	3.	3.	0.
0.	1.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	0.
0.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	0.
0.	1.	1.	1.	1.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	3.	3.	3.	3.	3.	3.	0.
0.	1.	1.	1.	1.	1.	1.	1.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	3.	3.	3.	3.	0.
0.	1.	1.	1.	1.	1.	1.	1.	2.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.	3.	3.	3.	3.	0.

0.	0.	1.	1.	1.	1.	1.	1.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	0.	3.	3.	3.	3.	0.
0.	0.	0.	1.	1.	1.	1.	1.	2.	0.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	0.	0.	3.	3.	0.
0.	0.	0.	1.	1.	1.	1.	1.	2.	0.	2.	0.	2.	2.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	2.	0.	2.	0.
0.	0.	0.	0.	1.	1.	1.	1.	2.	2.	2.	0.	2.	2.	2.	0.	0.	0.	0.	0.	0.	0.	2.	2.	2.	2.	0.	2.	0.
0.	0.	0.	0.	0.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	0.	0.	2.	2.	0.	2.	0.	2.	2.	2.	2.	0.	2.	0.
0.	0.	0.	0.	0.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	0.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	0.
0.	0.	0.	0.	0.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

N = 1
NUMBER OF ITERATIONS = 147

HEAD DISTRIBUTION - ROW
NUMBER OF TIME STEPS = 1
TIME(SECONDS) = 0.864000 05
TIME(MINUTES) = 0.14400D 04
TIME(YEARS) = 0.273790-02
UPPER AQUIFER

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6197.7	6190.0	6177.3	6159.7	6138.1	6111.5	6081.4	6046.8	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6221.9	6212.8	6197.7	6176.2	6148.9	6114.0	6070.1	6002.9	5902.1	5883.6	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6282.7	6271.5	6252.4	6222.8	6178.1	6132.0	6074.8	5976.7	5700.0	5835.3	5847.7	5846.2
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6331.1	6318.7	6298.5	6269.8	6230.9	6172.8	6113.9	6030.6	5918.1	5800.0	5848.6	5839.7
5818.6	5785.2	5725.0	5777.1	5799.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6370.3	6357.5	6336.9	6307.8	6269.2	6211.0	6154.0	6077.8	5990.9	5919.5	5850.0	5860.1
5841.3	5809.9	5750.0	5815.6	5855.2	5889.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6401.2	6387.3	6366.4	6337.0	6298.2	6240.6	6185.2	6112.8	6033.7	5968.9	5900.0	5888.2
5867.5	5840.4	5800.0	5855.9	5898.6	5937.9	5977.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6435.6	6420.4	6397.5	6366.6	6326.6	6270.2	6216.4	6146.6	6071.3	6009.0	5950.0	5920.2
5895.0	5865.8	5830.0	5894.5	5942.5	5989.4	6038.9	6091.5	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6473.9	6457.9	6432.0	6396.6	6347.8	6298.8	6247.2	6179.2	6105.2	6041.9	6000.0	5952.8
5920.5	5870.0	5895.1	5935.9	5983.6	6042.1	6101.8	6168.7	6248.3	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6516.5	6499.3	6471.3	6431.5	6379.1	6329.1	6278.0	6210.8	6135.9	6050.0	6025.0	5984.7
5958.1	5930.0	5900.0	5950.0	6000.0	6100.0	6160.7	6239.5	6335.4	6523.5	6700.3	6878.1	6965.9	0.0	
0.0	0.0	0.0	6564.6	6544.7	6512.2	6462.4	6414.8	6363.1	6309.6	6242.0	6170.0	6100.0	6056.9	6015.1
5989.1	5962.3	5925.0	6009.4	6075.7	6143.4	6200.0	6300.0	6385.3	6545.1	6719.9	6904.9	6982.2	0.0	
0.0	0.0	0.0	6618.0	6591.3	6552.6	6499.3	6450.4	6397.5	6341.2	6270.8	6200.0	6150.0	6085.0	6039.4
6011.4	5975.0	5950.0	6059.2	6132.3	6200.9	6272.1	6346.2	6400.0	6572.9	6755.5	6933.9	7010.7	0.0	
0.0	0.0	0.0	6693.3	6652.9	6599.0	6532.1	6481.9	6428.0	6369.2	6294.8	6250.0	6171.7	6106.8	6056.6
6028.6	6000.0	6054.6	6120.7	6186.6	6258.8	6337.7	6409.7	6500.0	6604.9	6788.6	6963.5	7047.8	0.0	
0.0	0.0	6885.6	6791.8	6725.3	6651.8	6580.7	6517.4	6455.4	6391.7	6300.0	6259.2	6193.5	6125.5	6063.5
6025.0	6073.6	6120.9	6176.6	6241.9	6320.2	6396.0	6467.3	6536.9	6600.0	6827.7	6995.0	7079.0	0.0	
0.0	7033.3	6937.2	6859.7	6789.8	6720.2	6637.2	6565.8	6491.0	6400.0	6350.0	6283.6	6216.3	6142.3	6050.0
6088.5	6126.6	6171.5	6226.7	6293.5	6371.6	6446.2	6518.6	6595.5	6700.0	6880.4	7025.7	7105.1	0.0	
0.0	7050.1	6979.1	6912.9	6844.5	6774.0	6689.8	6617.1	6541.7	6463.2	6400.0	6311.1	6240.3	6164.3	6075.0
6125.6	6165.2	6212.0	6274.6	6342.4	6414.3	6486.8	6560.1	6644.9	6800.0	6937.7	7052.5	7125.7	0.0	
0.0	7076.2	7017.5	6958.4	6892.2	6813.9	6738.3	6665.6	6588.9	6509.3	6421.3	6336.3	6264.7	6188.2	6100.0
6153.3	6194.2	6243.7	6308.3	6375.5	6444.6	6515.0	6587.2	6671.4	6813.2	7000.0	7071.8	7140.1	0.0	
0.0	7112.4	7058.6	7000.8	6939.0	6871.4	6787.9	6711.7	6632.2	6550.9	6450.7	6358.7	6289.2	6213.2	6125.0
6175.0	6216.1	6266.5	6326.2	6394.6	6461.8	6530.4	6601.3	6687.3	6822.1	6977.9	7078.3	7147.6	0.0	
0.0	7152.8	7104.7	7048.0	6984.3	6919.8	6843.8	6756.7	6672.5	6586.3	6478.8	6391.0	6314.1	6239.8	6150.0
6188.0	6229.0	6282.1	6340.0	6401.7	6466.0	6533.6	6605.0	6691.7	6821.2	6963.1	7075.5	7148.3	0.0	
0.0	7190.2	7148.6	7098.5	7036.8	6970.8	6884.7	6805.0	6715.9	6622.7	6504.3	6400.1	6340.0	6270.0	6200.0
6175.0	6225.3	6273.4	6334.4	6393.1	6455.1	6523.1	6597.8	6685.3	6810.5	6945.5	7064.6	7142.7	0.0	
0.0	7222.0	7187.3	7144.1	7088.2	7024.6	6940.4	6869.0	6763.6	6660.7	6522.5	6400.0	6391.6	6340.0	6277.3
6252.0	6200.0	6240.0	6309.9	6364.3	6424.8	6498.0	6576.7	6665.8	6789.7	6921.3	7045.9	7131.5	0.0	

0.0	7246.0	7219.3	7183.6	7134.0	7075.6	7003.5	6921.5	6808.9	6699.0	6500.0	6482.7	6451.5	6405.9	6355.4
6332.0	6315.4	6313.5	6280.0	6320.0	6360.0	6452.2	6537.4	6633.5	6759.0	6888.5	7019.1	7115.5	0.0	
0.0	7259.6	7244.0	7218.1	7175.5	7121.9	7053.1	6969.2	6855.5	6730.5	6600.0	6556.0	6518.6	6476.6	6434.5
6405.4	6399.9	6396.9	6394.0	6409.7	6423.3	6400.0	6470.0	6590.0	6718.9	6844.9	6983.8	7096.3	0.0	
0.0	0.0	7263.7	7256.2	7223.5	7176.2	7110.6	7024.7	6899.0	6700.0	6694.0	6642.5	6604.1	6564.4	6525.6
6494.9	6486.3	6484.0	6486.1	6496.9	6508.5	6517.0	6543.5	6540.0	6669.0	6786.5	6938.8	7075.7	0.0	
0.0	0.0	0.0	7291.9	7269.2	7230.1	7159.7	7085.7	6962.2	6800.0	6803.5	6744.5	6705.4	6667.1	6628.3
6597.9	6574.2	6573.0	6574.7	6582.9	6593.4	6606.0	6623.3	6629.1	6600.0	6700.0	6881.2	7056.7	0.0	
0.0	0.0	0.0	7314.5	7303.3	7275.2	7222.0	7140.4	7015.2	6900.0	6905.2	6845.8	6812.2	6774.9	6732.3
6701.1	6672.4	6657.9	6656.4	6666.1	6675.7	6688.6	6703.0	6716.7	6725.3	6795.9	6800.0	7043.5	0.0	
0.0	0.0	0.0	0.0	7324.4	7314.3	7270.6	7188.4	7000.0	7026.5	7003.0	6943.1	6909.5	6873.7	6836.2
6802.8	6779.2	6759.0	6750.6	6747.1	6753.4	6769.2	6785.0	6799.3	6819.3	6864.5	6900.0	7052.5	0.0	
0.0	0.0	0.0	0.0	0.0	7359.7	7329.5	7273.1	7185.8	7144.0	7101.0	7048.1	7006.4	6972.2	6938.6
6908.1	6889.9	6880.1	6869.8	6855.5	6857.2	6856.6	6867.2	6880.3	6906.4	6944.0	7000.0	7074.6	0.0	
0.0	0.0	0.0	0.0	0.0	7407.7	7385.8	7344.7	7282.0	7234.7	7186.7	7137.0	7095.6	7064.7	7036.5
7011.5	7000.9	6990.9	6982.0	6974.4	6970.2	6964.5	6967.8	6975.6	6986.5	7015.1	7057.9	7100.0	0.0	
0.0	0.0	0.0	0.0	0.0	7453.9	7437.2	7405.1	7353.6	7310.4	7258.7	7226.4	7190.3	7166.6	7146.8
7132.4	7121.8	7112.9	7105.7	7100.2	7096.6	7094.8	7095.6	7098.5	7103.3	7121.8	7149.2	7166.4	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7303.8	7279.4	7254.2	7245.2	7234.6
7226.1	7218.8	7212.3	7207.0	7202.8	7200.1	7198.9	7199.2	7201.0	7206.2	7218.0	7234.0	7240.8	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7282.1	7276.8
7271.4	7266.2	7261.2	7256.9	7253.6	7251.3	7250.2	7250.4	7252.0	7256.3	7265.4	7277.3	7284.4	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
LOWER AQUIFER														
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6197.7	6189.9	6177.3	6159.7	6138.1	6111.5	6081.5	6046.8	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6221.2	6212.0	6197.0	6175.6	6148.8	6114.1	6070.3	6003.8	5910.2	5885.3	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6270.1	6258.9	6240.2	6211.4	6175.0	6131.7	6075.7	5986.1	5848.7	5851.3	5849.6	5847.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6317.7	6305.0	6284.6	6256.6	6219.6	6171.1	6113.9	6032.0	5931.9	5867.2	5857.1	5843.0
5823.7	5798.9	5775.5	5789.7	5803.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6356.6	6343.7	6323.0	6294.3	6257.4	6209.1	6153.8	6078.1	5993.1	5929.2	5886.0	5866.8
5847.1	5824.3	5805.2	5828.6	5858.3	5890.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6387.4	6372.7	6352.3	6323.4	6286.5	6238.7	6184.9	6112.8	6034.2	5971.8	5920.5	5894.2
5872.7	5852.5	5840.2	5856.1	5900.7	5936.2	5974.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6422.0	6405.8	6382.6	6353.1	6315.7	6268.5	6216.2	6146.7	6071.5	6010.4	5958.1	5925.5
5900.6	5881.1	5874.3	5904.9	5944.7	5987.0	6036.2	6090.8	0.0	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6460.4	6444.2	6417.6	6383.4	6343.8	6297.9	6247.0	6179.3	6105.7	6045.1	5996.0	5957.8
5929.7	5907.9	5913.9	5944.6	5988.0	6038.7	6098.5	6168.0	6248.2	0.0	0.0	0.0	0.0	0.0	
0.0	0.0	0.0	6503.0	6485.9	6458.3	6420.2	6375.6	6327.3	6277.6	6210.8	6137.7	6072.8	6027.9	5989.1
5963.9	5945.3	5943.4	5977.4	6026.8	6090.1	6157.5	6238.6	6335.6	6523.3	6695.6	6875.7	6965.8	0.0	
0.0	0.0	0.0	6550.6	6531.8	6500.8	6459.4	6413.8	6361.6	6308.1	6241.6	6171.1	6108.9	6059.7	6019.7
5994.9	5978.9	5979.2	6024.9	6081.5	6141.9	6210.0	6296.9	6388.8	6545.2	6714.1	6898.4	6981.9	0.0	
0.0	0.0	0.0	6607.9	6580.2	6543.2	6497.9	6450.4	6397.4	6340.7	6270.8	6202.0	6143.5	6086.6	6045.8

6021.5	6008.6	6018.7	6073.3	6133.7	6195.2	6269.8	6348.9	6428.5	6574.1	6744.2	6926.7	7009.7	0.0	
0.0	0.0	0.0	6682.3	6640.9	6590.1	6534.2	6484.2	6429.2	6370.4	6297.7	6234.0	6169.8	6109.1	6065.4
6045.8	6044.1	6073.9	6124.7	6181.3	6251.3	6331.3	6406.7	6488.9	6605.1	6774.3	6956.3	7042.9	0.0	
0.0	0.0	6871.3	6777.9	6712.4	6648.7	6580.8	6519.8	6460.9	6398.1	6321.8	6257.8	6193.4	6129.3	6082.2
6069.9	6089.3	6126.0	6174.1	6235.3	6312.4	6388.3	6460.9	6535.7	6630.3	6817.1	6989.1	7073.5	0.0	
0.0	7018.9	6922.8	6845.4	6775.8	6708.4	6635.9	6564.7	6495.4	6426.5	6354.8	6283.7	6216.7	6149.0	6097.6
6105.3	6132.0	6171.3	6220.1	6287.1	6363.7	6438.0	6510.5	6588.1	6696.2	6870.8	7019.9	7099.5	0.0	
0.0	7035.6	6964.7	6898.5	6830.6	6762.2	6698.4	6616.9	6541.9	6468.9	6391.3	6310.7	6240.8	6171.2	6121.0
6136.8	6166.8	6207.0	6264.1	6334.1	6405.9	6478.2	6550.9	6632.7	6761.4	6925.0	7046.6	7120.1	0.0	
0.0	7061.0	7002.1	6943.9	6878.9	6810.3	6737.6	6665.5	6589.1	6512.2	6423.2	6336.7	6265.3	6195.1	6145.5
6163.0	6193.1	6239.1	6301.0	6367.4	6436.1	6506.1	6576.6	6655.1	6797.8	6972.8	7065.7	7134.5	0.0	
0.0	7097.9	7043.1	6984.5	6924.5	6859.1	6785.4	6711.2	6632.1	6551.2	6452.9	6361.1	6289.9	6220.0	6159.6
6184.3	6216.0	6264.9	6323.0	6387.1	6453.4	6520.9	6586.8	6675.1	6814.5	6968.9	7072.5	7142.0	0.0	
0.0	7139.2	7090.9	7032.2	6967.4	6904.7	6831.7	6754.2	6671.2	6585.5	6479.6	6383.7	6314.8	6246.3	6194.2
6202.1	6232.3	6279.3	6334.4	6394.4	6457.8	6523.8	6590.8	6681.5	6815.1	6957.0	7069.9	7142.7	0.0	
0.0	7176.8	7135.1	7084.7	7022.0	6957.1	6880.9	6802.5	6714.6	6621.9	6505.6	6407.0	6346.4	6282.6	6230.2
6219.6	6242.4	6281.7	6332.9	6388.3	6447.9	6512.1	6587.4	6678.6	6804.8	6939.8	7059.0	7137.1	0.0	
0.0	7208.6	7173.9	7130.6	7074.7	7012.1	6936.9	6858.6	6762.5	6660.7	6529.9	6434.1	6394.7	6342.0	6292.2
6270.7	6260.0	6283.7	6325.0	6371.1	6423.6	6492.2	6571.5	6660.4	6784.1	6915.8	7040.3	7125.9	0.0	
0.0	7232.6	7205.8	7170.0	7120.4	7062.1	6990.9	6909.3	6807.0	6696.8	6550.2	6491.1	6452.4	6405.9	6361.8
6338.8	6327.1	6329.1	6333.3	6357.2	6394.4	6461.8	6539.1	6630.1	6753.8	6883.1	7013.6	7109.9	0.0	
0.0	7246.2	7229.9	7203.3	7160.3	7106.4	7037.7	6954.5	6847.8	6729.8	6611.0	6554.4	6514.4	6471.3	6431.4
6407.0	6396.7	6394.3	6396.3	6412.9	6434.0	6448.0	6506.2	6594.9	6715.4	6840.5	6978.5	7090.7	0.0	
0.0	0.0	7251.4	7243.4	7210.4	7162.8	7097.1	7012.1	6894.8	6747.6	6693.4	6640.1	6600.4	6559.8	6521.5
6494.8	6482.9	6479.5	6482.4	6497.1	6510.8	6524.3	6551.7	6577.8	6673.8	6798.3	6934.8	7070.2	0.0	
0.0	0.0	0.0	7280.6	7257.9	7218.7	7158.4	7075.1	6959.1	6830.1	6799.6	6744.6	6705.2	6666.1	6627.8
6599.3	6579.7	6574.0	6575.1	6583.2	6594.0	6607.0	6623.8	6635.8	6646.7	6739.0	6884.5	7051.9	0.0	
0.0	0.0	0.0	7303.3	7292.2	7264.0	7210.9	7130.6	7016.4	6923.1	6900.7	6845.9	6809.4	6771.4	6731.6
6701.7	6677.8	6664.6	6661.9	6667.7	6676.7	6689.0	6702.9	6716.2	6730.5	6791.4	6843.9	7041.4	0.0	
0.0	0.0	0.0	0.0	7313.2	7303.2	7259.9	7182.5	7055.4	7027.2	6997.8	6942.9	6906.3	6869.7	6832.9
6802.6	6780.1	6763.6	6755.5	6753.3	6758.7	6770.2	6783.6	6797.5	6817.9	6863.5	6908.6	7050.1	0.0	
0.0	0.0	0.0	0.0	0.0	7348.5	7318.5	7263.0	7184.1	7139.1	7095.5	7043.6	7003.1	6968.1	6934.9
6907.6	6889.3	6877.3	6857.3	6858.2	6858.1	6860.4	6869.3	6881.6	6904.4	6941.8	6993.7	7072.4	0.0	
0.0	0.0	0.0	0.0	0.0	7396.5	7374.6	7334.0	7276.3	7229.2	7181.2	7132.1	7092.2	7060.6	7032.6
7010.4	6997.4	6986.9	6978.1	6970.9	6967.0	6964.4	6967.7	6975.1	6987.9	7016.3	7058.2	7102.3	0.0	
0.0	0.0	0.0	0.0	0.0	7442.7	7426.1	7394.4	7347.6	7304.8	7263.2	7221.5	7186.9	7162.5	7142.7
7128.4	7117.6	7108.8	7101.5	7096.0	7092.5	7090.8	7091.7	7094.6	7100.7	7119.2	7146.3	7165.0	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7298.2	7274.3	7250.5	7241.1	7230.5
7221.9	7214.6	7208.2	7202.8	7198.7	7196.0	7194.7	7195.0	7196.9	7202.1	7213.9	7229.9	7237.8	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7277.9	7272.7
7267.2	7262.0	7257.1	7252.8	7249.4	7247.1	7246.1	7246.3	7247.8	7252.2	7261.3	7273.1	7280.3	0.0	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

UPPER AQUIFER HEAD MAP IN TENS OF FEET--NOT TO SCALE

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	619	618	617	615	613	611	608	604	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	622	621	619	617	614	611	607	600	590	588	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	628	627	625	622	617	613	607	597	570	583	584	584	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	633	631	629	626	623	617	611	603	591	580	584	583	581	578	572	577	579	0	0	0	0	0	0	0	0	0
0	0	0	637	635	633	630	626	621	615	607	599	591	585	586	584	580	575	581	585	588	0	0	0	0	0	0	0	0
0	0	0	640	638	636	633	629	624	618	611	603	596	590	588	586	584	580	585	589	593	597	0	0	0	0	0	0	0
0	0	0	643	642	639	636	632	627	621	614	607	600	595	592	589	586	583	589	594	598	603	609	0	0	0	0	0	0
0	0	0	647	645	643	639	634	629	624	617	610	604	599	595	592	587	589	593	598	604	610	616	624	0	0	0	0	0
0	0	0	651	649	647	643	637	632	627	621	613	605	602	598	595	593	590	595	600	609	616	623	633	652	670	687	696	0
0	0	0	656	654	651	646	641	636	630	624	616	610	605	601	598	596	592	600	607	614	620	629	638	654	671	690	698	0
0	0	0	661	659	655	649	645	639	634	627	620	614	608	603	601	597	595	605	613	620	627	634	640	657	675	693	701	0
0	0	0	669	665	659	653	648	642	636	629	624	617	610	605	602	600	605	612	618	625	633	640	649	660	678	696	704	0
0	0	688	679	672	665	658	651	645	639	630	625	619	612	606	602	607	612	617	624	632	639	646	653	660	682	699	707	0
0	703	693	685	678	672	663	656	649	640	635	628	621	614	605	608	612	617	622	629	637	644	651	659	670	688	702	710	0
0	705	697	691	684	677	668	661	654	646	639	631	624	616	607	612	616	621	627	634	641	648	656	664	679	693	705	712	0
0	707	701	695	689	681	673	666	658	650	642	633	626	618	610	615	619	624	630	637	644	651	658	667	681	699	707	714	0
0	711	705	700	693	687	678	671	663	655	645	635	628	621	612	617	621	626	632	639	646	653	660	668	682	697	707	714	0
0	715	710	704	698	691	684	675	667	658	647	638	631	623	615	618	622	628	633	640	646	653	660	669	682	696	707	714	0
0	719	714	709	703	697	688	680	671	662	650	640	634	627	620	617	622	627	633	639	645	652	659	668	681	694	706	714	0
0	722	718	714	708	702	694	686	676	666	652	640	639	633	627	625	620	624	630	636	642	649	657	666	678	692	704	713	0
0	724	721	718	713	707	700	692	680	669	650	648	645	640	635	633	631	631	628	632	636	645	653	663	675	688	701	711	0
0	725	724	721	717	712	705	696	685	673	660	655	651	647	643	640	639	639	639	640	642	640	647	658	671	684	698	709	0
0	0	726	725	722	717	711	702	689	670	669	664	660	656	652	649	648	648	648	649	650	651	654	654	666	678	693	707	0

0	0	0	729	726	723	716	708	696	680	680	674	670	666	662	659	657	657	657	658	659	660	662	662	660	670	688	705	0
0	0	0	731	730	727	722	714	701	690	590	684	681	677	673	670	667	665	665	666	667	668	670	671	672	678	680	704	0
0	0	0	0	732	731	727	718	700	702	700	694	690	687	683	680	677	675	675	674	675	676	678	679	681	686	690	705	0
0	0	0	0	0	735	732	727	718	714	710	704	700	697	693	690	688	688	686	685	685	685	686	688	690	694	699	707	0
0	0	0	0	0	740	738	734	728	723	718	713	709	706	703	701	700	699	698	697	697	696	696	697	698	701	705	710	0
0	0	0	0	0	745	743	740	735	731	726	722	719	716	714	713	712	711	710	710	709	709	709	709	710	712	714	716	0
0	0	0	0	0	0	0	0	0	0	730	727	725	724	723	722	721	721	720	720	720	719	719	720	720	721	723	724	0
0	0	0	0	0	0	0	0	0	0	0	0	0	728	727	727	726	726	725	725	725	725	725	725	725	726	727	728	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LOWER AQUIFER HEAD MAP IN TENS OF FEET--NOT TO SCALE

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	619	618	617	615	613	611	608	604	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	622	621	619	617	614	611	607	600	591	588	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	627	625	624	621	617	613	607	598	584	585	584	584	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	631	630	628	625	621	617	611	603	593	586	585	584	582	579	577	578	580	0	0	0	0	0	0	0	0	0
0	0	0	635	634	632	629	625	620	615	607	599	592	588	586	584	582	580	582	585	588	0	0	0	0	0	0	0	0
0	0	0	638	637	635	632	628	623	618	611	603	597	592	589	587	585	584	586	590	593	597	0	0	0	0	0	0	0
0	0	0	642	640	638	635	631	626	621	614	607	601	595	592	590	588	587	590	594	598	603	609	0	0	0	0	0	0
0	0	0	646	644	641	638	634	629	624	617	610	604	599	595	592	590	591	594	598	603	609	616	624	0	0	0	0	0
0	0	0	650	648	645	642	637	632	627	621	613	607	602	598	596	594	594	597	602	609	615	623	633	652	669	687	696	0
0	0	0	655	653	650	645	641	636	630	624	617	610	605	601	599	597	597	602	608	614	621	629	638	654	671	689	698	0
0	0	0	660	658	654	649	645	639	634	627	620	614	608	604	602	600	601	607	613	619	626	634	642	657	674	692	700	0
0	0	0	668	664	659	653	648	642	637	629	623	616	610	606	604	604	607	612	618	625	633	640	648	660	677	695	704	0
0	0	687	677	671	664	658	651	646	639	632	625	619	612	608	606	608	612	617	623	631	638	646	653	663	681	698	707	0
0	701	692	684	677	670	663	656	649	642	635	628	621	614	609	610	613	617	622	628	636	643	651	658	669	687	701	709	0
0	703	696	689	683	676	668	661	654	646	639	631	624	617	612	613	616	620	626	633	640	647	655	663	676	692	704	712	0
0	706	700	694	687	681	673	666	658	651	642	633	626	619	614	616	619	623	630	636	643	650	657	665	679	697	706	713	0
0	709	704	698	692	685	678	671	663	655	645	636	628	621	616	618	621	626	632	638	645	652	658	667	681	696	707	714	0
0	713	709	703	696	690	683	675	667	658	547	638	631	624	619	620	623	627	633	639	645	652	659	668	681	695	706	714	0
0	717	713	708	702	695	688	680	671	662	650	640	634	628	623	621	624	628	633	638	644	651	658	667	680	693	705	713	0
0	720	717	713	707	701	693	685	676	666	652	643	639	634	629	627	626	628	632	637	642	649	657	666	678	691	704	712	0
0	723	720	717	712	706	699	690	680	669	655	649	645	640	636	633	632	632	633	635	639	646	653	663	675	688	701	710	0
0	724	722	720	716	710	703	695	684	672	661	655	651	647	643	640	639	639	639	641	643	644	650	659	671	684	697	709	0
0	0	725	724	721	716	709	701	689	674	669	664	660	655	652	649	648	647	648	649	651	652	655	657	667	678	693	707	0

0	0	0	728	725	721	715	707	695	683	679	674	670	666	662	659	657	657	657	658	659	660	662	663	664	673	688	705	0
0	0	0	730	729	726	721	713	701	692	690	684	680	677	673	670	667	666	666	666	667	668	670	671	673	679	684	704	0
0	0	0	0	731	730	725	718	705	702	699	694	690	686	683	680	678	676	675	675	675	677	678	679	681	686	690	705	0
0	0	0	0	0	734	731	726	718	713	709	704	700	696	693	690	688	687	686	685	685	686	686	688	690	694	699	707	0
0	0	0	0	0	739	737	733	727	722	718	713	709	706	703	701	699	698	697	697	696	696	696	697	698	701	705	710	0
0	0	0	0	0	744	742	739	734	730	726	722	718	716	714	712	711	710	710	709	709	709	709	709	710	711	714	716	0
0	0	0	0	0	0	0	0	0	0	729	727	725	724	723	722	721	720	720	719	719	719	719	719	720	721	722	723	0
0	0	0	0	0	0	0	0	0	0	0	0	0	727	727	726	726	725	725	724	724	724	724	724	725	726	727	728	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

HEAD DIFFERENCE MAP, UPPER AQUIFER-LOWER AQUIFER

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	-8	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	12	12	12	11	3	0	0	-9	-148	-16	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	13	13	13	13	11	1	0	-1	-13	-67	-8	-3	-5	-13	-50	-12	-3	0	0	0	0	0	0	0	0	0
0	0	0	13	13	13	13	11	1	0	0	-2	-9	-35	-6	-5	-14	-55	-12	-3	0	0	0	0	0	0	0	0	0
0	0	0	13	14	14	13	11	1	0	0	0	-2	-20	-6	-5	-12	-40	-10	-2	1	2	0	0	0	0	0	0	0
0	0	0	13	14	14	13	10	1	0	0	0	-1	-8	-5	-5	-15	-44	-10	-2	2	2	0	0	0	0	0	0	0
0	0	0	13	13	14	13	3	0	0	0	0	-3	3	-5	-9	-37	-18	-8	-4	3	3	0	0	0	0	0	0	0
0	0	0	13	13	12	11	3	1	0	0	-1	-22	-2	-4	-5	-15	-43	-27	-26	9	3	0	0	0	4	2	0	0
0	0	0	13	12	11	3	1	1	1	0	-1	-8	-2	-4	-5	-16	-54	-15	-5	1	-10	3	-3	0	5	6	0	0
0	0	0	10	11	9	1	0	0	0	0	-2	6	-1	-6	-10	-33	-68	-14	-1	5	2	-2	-28	-1	11	7	0	0
0	0	0	10	11	8	-2	-2	-1	-1	-2	15	1	-2	-8	-17	-44	-19	-4	5	7	6	3	11	0	14	7	4	0
0	0	14	13	12	3	0	-2	-5	-6	-21	1	0	-3	-18	-44	-15	-5	2	6	7	7	6	1	-30	10	5	5	0
0	14	14	14	13	11	1	1	-4	-26	-4	0	0	-6	-47	-16	-5	0	6	6	7	8	8	7	3	9	5	5	0
0	14	14	14	13	11	1	0	0	-5	8	0	0	-6	-46	-11	-1	4	10	8	8	8	9	12	38	12	5	5	0
0	15	15	14	13	3	0	0	0	-2	-1	0	0	-6	-45	-9	1	4	7	8	8	8	10	16	15	27	6	5	0
0	14	15	16	14	12	2	0	0	0	-2	-2	0	-6	-44	-9	0	1	3	7	8	9	14	12	7	9	5	5	0
0	13	13	15	16	15	12	2	1	0	0	-2	0	-6	-44	-14	-3	2	5	7	8	9	14	10	6	6	5	5	0
0	13	13	13	14	13	3	2	1	0	-1	-6	-6	-12	-30	-44	-17	-8	1	4	7	11	10	6	5	5	5	5	0
0	13	13	13	13	12	3	10	1	0	-7	-34	-3	-1	-14	-18	-60	-43	-15	-6	1	5	5	5	5	5	5	5	0
0	13	13	13	13	13	12	12	1	2	-50	-8	0	0	-6	-6	-11	-15	-53	-37	-34	-9	-1	3	5	5	5	5	0
0	13	14	14	15	15	15	14	7	0	-11	1	4	5	3	-1	3	2	-2	-3	-10	-48	-36	-4	3	4	5	5	0
0	0	12	12	13	13	13	12	4	-47	0	2	3	4	4	0	3	4	3	0	-2	-7	-8	-37	-4	-1	3	5	0

0	0	0	11	11	11	11	10	3	-30	3	0	0	0	0	-1	-5	0	0	0	0	-1	0	-6	-46	-39	-3	4	0
0	0	0	11	11	11	11	9	-1	-23	4	0	2	3	0	0	-5	-6	-5	-1	0	0	0	0	-5	-5	-43	2	0
0	0	0	0	11	11	10	5	-55	0	5	0	3	3	3	0	0	-4	-4	-6	-5	0	1	1	1	1	-8	2	0
0	0	0	0	0	11	11	10	1	4	5	4	3	4	3	0	0	2	2	-2	0	-3	-2	-1	1	2	6	2	0
0	0	0	0	0	11	11	10	5	5	5	4	3	4	3	1	3	3	3	3	3	0	0	0	-1	-1	0	-2	0
0	0	0	0	0	11	11	10	5	5	5	4	3	4	4	4	4	4	4	4	4	3	3	3	2	2	2	1	0
0	0	0	0	0	0	0	0	0	0	5	5	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	0
0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

RECHARGE RATE (CFS) = -0.33434D 02
PUMPING RATE (CFS) = 0.0

RATE OF INFLOW = 0.36919D 02 CFS
RATE OF OUTFLOW = 0.36826D 02 CFS
INFLOW-OUTFLOW MAP IN CFS

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.33D 01	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.15D 01	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.50D 00
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.23D 00
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.86D-01
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.12D 00
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.35D 00	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.11D 00	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.83D-01	-0.12D 00	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.25D 00	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.38D 00	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.23D 00	0.33D-01	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.20D 00	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.98D-01	0.15D 00
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.43D 00	0.0	-0.35D-01
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.71D 00	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.13D 00	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.49D 00	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.26D 00	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.22D 00	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.65D 00	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

INFLOW-OUTFLOW MAP IN CFS

0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.12D 01	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.83D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.51D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.69D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.62D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.57D 00	0.26D 00	0.48D 00	-0.23D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.74D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.22D 00	0.97D 00	0.0	0.0	0.0	0.31D 00	-0.13D 00	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.60D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.65D 00	0.0	0.0	0.0	0.0
0.0	0.66D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.34D 00	0.0	0.0	0.0	0.0
0.63D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.11D 01	0.0	0.0	0.0
0.51D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.19D 00	0.0	0.0	0.0
0.51D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.81D 00	0.0	0.0	0.0
0.50D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.81D 00	0.0	0.0
0.56D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.29D 00	0.70D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.98D 00	0.61D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.90D 00	0.58D 00	0.71D 00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.10D 01	0.71D 00	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.97D 00	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.18D 01	0.15D 01	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.24D 01	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.15D 00	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.45D 00	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.28D 00
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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