Attachment 3 to the

SETTLEMENT AGREEMENT AMONG THE UNITED STATES OF AMERICA, TAOS PUEBLO, THE STATE OF NEW MEXICO, THE TAOS VALLEY ACEQUIA ASSOCIATION AND ITS 55 MEMBER ACEQUIAS, THE TOWN OF TAOS, EL PRADO WATER AND SANITATION DISTRICT, AND THE 12 TAOS AREA MUTUAL DOMESTIC WATER CONSUMERS' ASSOCIATIONS

Part I: Documentation of OSE Taos Area Calibrated Groundwater Flow Model T17.0, January 11, 2006, by Peggy Barroll, PhD and Peter Burck, CGWP, NMOSE. 37 pages, plus Appendices A, B and C.

Part II: Development of the T17sup.M7 Superposition Version of the Taos Area Groundwater Model, and Water Rights Administration under the Taos (Abeyta) Settlement; April 16, 2012. by Peggy Barroll, PhD, NM OSE. 17 pages, plus Appendices A, B, C, D and E.

Attachment 3
Part I

Documentation of OSE Taos Area Calibrated Groundwater Flow Model T17.0,
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37 pages, plux Appendices A, B and C.

DOCUMENTATION OF OSE TAOS AREA CALIBRATED GROUNDWATER FLOW MODEL T17.0
1/11/2006

by

Peggy Barroll, Ph.D. and Peter Burck, CGWP
New Mexico Office of the State Engineer

with

Taos Area Hydrogeologic Framework Discussion and Attachment
by

Paul Drakos, Jay Lazarus, Mustafa Chudnoff and Meghan Hodgins of Glorieta Geoscience Inc.

Prepared by the
New Mexico Office of the State Engineer
Water Resource Allocation Program
Technical Services Division

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EXECUTIVE SUMMARY

A calibrated groundwater model has been developed for the Taos Valley. This model is the result of several years of collaboration between the NM Office of the State Engineer, the U.S. Bureau of Reclamation, and other professional hydrologists with considerable experience in the Taos Valley, representing the Parties to the Abeyta Adjudication Settlement negotiations. The model was developed in response to 1) a need for a tool to evaluate the effects of groundwater development proposed during Adjudication Settlement Negotiations, especially groundwater diversions from deep levels of the aquifer system, and 2) a need for a tool to administer the wells subject to the Settlement Agreement.

Given the hydrogeologic complexity of the Taos area, this groundwater flow model does a relatively good job matching observed water levels, the discharge from the springs at Buffalo Pasture, and the observed large downward vertical gradients. Simulation of the large vertical gradients constrains model vertical anisotropy, and allows the model to simulate the interaction between the deep and shallow aquifer systems with reasonable reliability. The model was designed, in part, to evaluate the hydrologic effects of wells proposed under the Taos Adjudication settlement, and it is recommended that the model be used in evaluating the hydrologic impacts of those wells. Determination of how and whether the model should be applied to the hydrologic evaluation of other wells should be made on a case-by-case basis.

1. INTRODUCTION

1.1 Project Overview

At the request of the Parties to the Abeyta Adjudication Settlement negotiations, the New Mexico Office of the State Engineer (OSE) Hydrology Bureau developed a regional, 7-layer, groundwater flow model of the Taos Valley, New Mexico using the USGS groundwater flow simulator MODFLOW-2000. The OSE developed the model with input from members of the Taos Technical Committee. (Table 1) The Taos Technical Committee is comprised of geohydrologists representing the major parties involved in Taos Settlement negotiations (*State of New Mexico ex rel. State Engineer v.*

Abeyta and *State of New Mexico ex rel. State Engineer v. Arellano,* Civil Nos. 7896-BB and 7939-BB (consolidated) ("Abeyta")). Numerous model versions were generated during this process. This report documents the version released in 2004 as version T17.0, which was adopted by the Parties to the settlement negotiations for the purpose of evaluating hydrologic aspects of the Settlement Agreement.

Table 1 Participating Members of Taos Technical Committee

Names	From	Party Represented
Peggy Barroll Peter Burck	NM Office of the State Engineer (OSE)	State of New Mexico
Robert Talbot Tom Bellinger	US Bureau of Reclamation (USBOR)	United States
Lee Wilson Roger Miller	Lee Wilson and Associates	Taos Pueblo
Mustafa Chudnoff Jay Lazarus Meghan Hodgins Paul Drakos	Glorieta Geoscience	Town of Taos
John Shomaker	John Shomaker and Associates, Inc.	Taos Valley Acequia Association
Maryann Wasiolek Michael Spinks	Hydroscience Associates Inc.	El Prado Water and Sanitation District
Chris Banet Bill White John Sandoval	US Bureau of Indian Affairs (USBIA)	Taos Pueblo

This model incorporates results from recent hydrogeologic investigations, including a recent Town of Taos/Taos Pueblo cooperative deep drilling and hydrologic testing project sponsored by the USBOR. The geologic and hydrogeologic framework and aquifer coefficients used in the model are presented in Drakos et al. (2004c), which summarizes and interprets results from the deep drilling program and other Taos Valley geologic and hydrologic investigations. The Drakos Report is presented in Appendix C of this report. The model also incorporates the most recent geologic/hydrologic mapping by the New Mexico Bureau of Geology and Mineral Resources. Water level data collected by many agencies and consultants were used as calibration targets, including new data from the deep drilling project that allowed quantification of the large vertical hydraulic gradients present in the valley.

The model simulates groundwater flow in about 3000 feet of alluvial and volcanic materials. Geologic strata represented in the model include Quaternary alluvial fan deposits, Tertiary Servilleta basalt flows, and Tertiary Santa Fe Group sediments. Key hydrologic processes are simulated, including natural recharge, irrigation seepage, evapotranspiration, and the interaction between groundwater and surface water features including the Rio Grande, its tributaries, and Buffalo Pasture springs.

The groundwater model is designed to calculate the effects of groundwater diversions on aquifer water levels and depletion to the Rio Grande, its tributaries and springs, including the Buffalo Pasture springs on Taos Pueblo. The tributaries supply water for irrigation to Taos Pueblo and to members of the Taos Valley Acequia Association. The Buffalo Pasture springs have great cultural significance to Taos Pueblo, and the Pueblo places a high value on protecting these springs.

The groundwater model can be and has been used to evaluate scenarios in settlement negotiations in the on-going Abeyta water rights adjudication. In addition, it is anticipated that the model will form the basis of an administrative tool that will be used, as appropriate on a case-by-case basis, to administer water rights and evaluate the hydrologic impacts of proposed groundwater diversions, especially deep groundwater diversion such as the wells proposed in the Taos Settlement Agreement as of October 2005. (It may be preferable to use other methods to evaluate the effects of shallow wells).

The model was run in steady state mode using long-term average stress inputs, and calibrated to the measured water levels from area wells and groundwater discharge estimated to occur to the Rio Grande and Buffalo Pasture. The calibrated model simulates observed heads and groundwater discharges reasonably well, and captures major groundwater features such as large downward vertical gradients, thus allowing the interaction of the shallow and deep aquifer systems to be well simulated. Transient calibration runs were made using historical metered and estimated groundwater diversions. These transient runs gave reasonable results, but groundwater development in the area has so far been very limited, and the available data do not show any significant aquifer response to groundwater development.

This model was developed in conjunction with a surface water model of the Taos Valley that was produced by the USBOR. The development of the surface water model assisted in the development of some groundwater model input parameters, such as irrigation return flow and evapotranspiration by riparian and wetlands vegetation.

However, now that these basic inputs have been developed, no other data from the surface water model are required in order to evaluate groundwater diversions. The groundwater model can be run independently of the surface water model in the evaluation of development alternatives.

1.2 Code and Software

The model was constructed using the modular three-dimensional finite-difference groundwater flow code developed by the United States Geological Survey (USGS) commonly known as MODFLOW (McDonald and Harbaugh, 1988, and Harbaugh and McDonald, 1996). MODFLOW-2000 was used in this application (Harbaugh et al., 2000; Hill et al., 2000). The model uses days (d) for the time unit, and the length units are in feet (ft). Thus, head measurements are given in feet above mean sea level (amsl), transmissivity values are in feet squared per day (ft^2/d), and flow values are reported in cubic feet per day (ft^3/d).

1.3 Modeled Area

This model simulates the alluvial/volcanic aquifer system within the Taos Valley in Northern New Mexico (Figure 1). A detailed description of the model structure is presented in Section 2.2. The model is bounded by the mountain-front of the Sangre de Cristo Mountains on the east, the Rio Grande on the west, and the Rio Hondo on the north. The southern boundary is defined by the foothills of the Picuris Mountains and the confluence of the Rio Grande and Rio Pueblo de Taos (Figure 2). The model area includes the areas in and near the Town of Taos, Taos Pueblo, and surrounding communities (e.g., Ranchos de Taos, Los Cordovas, Cañon, Talpa, El Prado, Arroyo Seco, and Arroyo Hondo). The model grid is shown in Figure 3 and 4.

1.4 Conceptual Model

The Taos Valley surface water system (Figure 2) consists of the Rio Grande and a number of tributaries that rise in the Sangre de Cristo Mountains and discharge into the Rio Grande. These tributaries include, from north to south, the Rio Hondo, Arroyo Seco, Rio Lucero, Rio Pueblo de Taos, Rio Fernando, Rio Chiquito and Rio Grande del

Rancho. The Rio Grande is deeply incised into the Servilleta basalts at the bottom of the Taos Gorge, and the tributaries generally become more deeply incised close to their confluence with the Rio Grande.

Recharge enters the Taos groundwater system from 1) precipitation in the Sangre de Cristo Mountains, 2) seepage of tributary flow, 3) local precipitation, and 4) return flow and seepage from surface water irrigation. In general, groundwater in the shallow combined Servilleta/alluvial aquifer system flows in a southwesterly direction from the Sangre de Cristo mountain-front, subsequently discharging into the Rio Grande (Drakos et al. 2004c Figure 5). Based on limited data available from 12 deep wells (Drakos et al 2004c Figure 6), groundwater in the deeper alluvial aquifer, below the Servilleta basalts, appears to flow from east to west. Water leaves the aquifer via discharge to surface water features, pumping, and evapotranspiration. There may be some underflow components to and from adjacent basins, but these are not well quantified, and have been neglected in the current analysis. A schematic cross-section of the Taos Valley showing geologic layers represented in the model is presented in Figure 5.

The model area includes a shallow unconfined alluvial aquifer system in the eastern part of the Taos Valley, underlain by layers of Servilleta basalt that extend westward to the Rio Grande. Below the Servilleta basalts, a deep aquifer system consisting of older Santa Fe Group basin fill deposits extends to depths greater than 3000 feet. Large downward gradients are observed between the shallow and deep systems, reflecting the drainage of groundwater from the shallow aquifer system downward into the deep aquifer. Within the deep system itself, piezometer data from the deep drilling project indicates moderate vertical gradients, mostly downward, but data from two sites indicates modest upward gradients (Drakos et al., 2004c).

Groundwater development in the Taos Valley has been minor. On the order 2,500 acre-feet per year (AF/yr) of groundwater is diverted from wells, and the available water level data do not shown any significant or regional drawdown in response to this diversion. The few wells for which more than one water level is available do not show any systematic response to regional pumping, but rather, water level variations appear to reflect seasonal changes in conditions (USBIA wells near the Buffalo Pasture), or the difference in recharge between wet and dry years.

A number of springs discharge groundwater in the upper Taos Valley (within a few miles of the mountain front, where the water table is relatively shallow). The most significant of these are associated with the Buffalo Pasture on Taos Pueblo. Much of the spring discharge in the Taos valley appears to represent reappearing surface water that had seeped into the ground upstream of the springs, from streams, acequias or applied irrigation water.

Evapotranspiration from phreatophytic vegetation and wetlands consumes water in some parts of Taos Valley, most significantly in the vicinity of the Buffalo Pasture. Evapotranspiration along the edges of streams probably intercepts infiltrating surface water before it could reach the regional water table, whereas wetlands farther away from streams are assumed to directly deplete shallow groundwater.

1.5 Stream-Aquifer Interaction

The Rio Grande gains water throughout the river reach downstream of the Rio Hondo to the confluence of the Rio Grande and the Rio Pueblo de Taos, and acts as a drain to the groundwater system. Gains from groundwater seepage to the Rio Grande include subsurface gains along the riverbed and gains from springs in the canyon walls. Seepage studies and evaluation of gage data indicate that this reach gains about 20 to 25 cubic feet per second from groundwater (cfs) (Tetra Tech, 2003). The Rio Grande in this reach also gains water from surface inflows from the Rio Hondo and the Rio Pueblo de Taos.

The tributary streams in the Taos area vary in how well they are connected to the groundwater system. The upper Rio Pueblo de Taos, near Taos Pueblo, is known to gain water from the groundwater system, as do various sub-reaches of the Rio Pueblo and Rio Lucero (USBOR, 2002). These reaches are clearly connected to the shallow groundwater system, and groundwater pumping could intercept water that otherwise would have discharged into these reaches. Other tributary reaches are unlikely to be well connected to the groundwater system. Except in its uppermost reaches at or near the mountain front, Arroyo Seco is a losing stream that is often dry, with lengthy reaches perched well above the water table. As a result, the connection between Arroyo Seco and the groundwater system is limited. Similarly, Rio Lucero above the Buffalo Pasture is a losing stream that appears to be perched well above the water table; therefore groundwater pumping would not affect surface water flow in that reach. There are fewer observational data available for other tributary reaches such as the Rio Fernando, Rio Grande del Rancho and Rio Chiquito. It is assumed in the model that t these streams are connected to the groundwater system.

The Buffalo Pasture itself is a large wetland located in and around the lower Rio Lucero, upstream from its confluence with the Rio Pueblo de Taos. The Buffalo Pasture is fed by the discharge of groundwater at numerous springs. Total groundwater discharge from the Buffalo Pasture appears to vary, and measurements and estimates of this discharge range from 2 to 15 cfs. In 2001, the total discharge measured from several large springs in the Buffalo Pasture totaled 7.41 cfs (USBOR, 2001). It is likely that much of the groundwater discharge from the Buffalo Pasture originated as seepage from the Rio Lucero and upstream acequias and also from mountain front recharge. The location of the springs may be geologically controlled: a low-permeability sedimentary unit may occur close to the surface under the Buffalo Pasture, forcing groundwater to the surface (Chris Banet, USBIA, personal communication, 8/22/2003).

1.6 Hydrogeology

The Taos region is known to have at least four discrete groundwater zones or layers within 2500 feet below land surface. Figure 5 is a schematic cross section of the model area. There appear to be at least two water-bearing zones within the alluvial fan sediments above the Pliocene Servilleta basalt, one at depths approximately from 5 to 200 feet and another at depths approximately from 400 to 750 feet. Water in the fan sediments is sometimes perched and may be widespread across the eastern part of the valley as a result of historic irrigation practices. A third water-producing interval is located between the Upper and Middle Servilleta basalts and is informally referred to as the Aqua Azul Aquifer (Drakos, 2004a). The thickness of the entire Servilleta Formation (including interbedded sediments) ranges from 0 to 650 ft (Dungan et al., 1984). The sediments below the Servilleta are correlated with Miocene Santa Fe Group clays, silts, sands and gravels exposed in outcrop near Pilar, NM. These materials are rift fill sediments (Galusha and Blick, 1971) and consist of moderate to poorly sorted sands with clasts of intermediate volcanic rock, quartzite, and other metamorphic rocks (Bauer and Kelson, 1998).

Groundwater generally flows from recharge areas near the Sangre de Cristo Mountains westward toward the Rio Grande. In the eastern part of the Valley, the water table is well above the Servilleta basalts in shallow alluvial deposits only tens of feet below the surface. Farther west the water table is 150 ft or deeper within the Servilleta basalts and interbedded sediments.

These geologic units are crosscut by numerous faults, generally associated with the development of the Rio Grande Rift. The faults generally trend north-south, and step down toward the west. Pumping test data from wells near these faults (part of the recent USBOR drilling program) indicate that some faults act as a partial barrier to the flow of groundwater (Drakos et al., 2004c).

The Sangre de Cristo mountain block east of the Taos Valley has significantly different lithologic and hydrologic properties than the shallow alluvial or deeper basin fill aquifers. The mountain block is comprised of Paleozoic sedimentary rocks, Oligocene intrusives, and Precambrian granites. Groundwater flow within the mountain block is assumed to be small, and its effects are simulated in the model by a mountain front recharge term. To the north and south, the valley is constricted by the mountains and foothills. There may be some subsurface hydrologic connection between the Taos Valley and other valleys along the Rio Grande to the north and south, but these connections are poorly understood and not quantified. West of the Rio Grande, data are sparse and the hydrology is relatively poorly understood.

2. GROUNDWATER MODEL DESIGN AND INPUT PARAMETERS

2.1 Model Temporal Discretization

The model was first run in steady-state mode using long-term averages of natural recharge and irrigation related return flow, and long-term average surface inflows to tributary streams. A 40-year transient run followed, in which the average recharge and stream-inflows from the steady-state run were continued, with the addition of increasing historically metered and estimated groundwater diversions.

Relatively little groundwater development has occurred in the Taos Valley and a trend of declining water levels in response to groundwater development has not been observed. Therefore the most important and reliable part of the calibration is the steady-state run. The transient run was made to confirm that simulated water levels remained relatively stable, and are consistent with historically observed water levels.

2.2 Model Structure

As shown in Figures 3 and 4, the model grid encompasses a 225-square mile area from the Rio Grande on the west, to the Taos range of the Sangre de Cristo Mountains on the east, and from the Rio Hondo on the north, to the confluence of the Rio Grande with the Rio Pueblo de Taos on the south. The model area measures 15 miles by 15 miles and has 60 rows, 60 columns, and 7 layers. Rows and columns are evenly spaced and measure 1,320 feet (1/4 of a mile) on each side. The southwest corner of the model grid is tied to the southwest corner of Section 2 of Township 24 North, Range 11 East, New Mexico Coordinate System. The grid is oriented north-south and east-west.

Figures 3 and 4 show the extent of the hydrologically active model cells, and some of the model boundary conditions. Model cells located in the mountain areas to the east and the area west of the Rio Grande are inactive. The lateral boundaries of the model are all specified flux and no-flow boundaries. These boundaries were not simulated as head-dependent-flux boundaries because of the lack of hydrologic information about how, or even whether, the Taos Valley aquifers extend continuously beyond the boundaries here defined, and therefore it was decided that groundwater flow across those boundaries should be strictly limited.

Figure 5 depicts a schematic geologic cross section of the model area. Layer descriptions and nominal thickness are given in Table 2. Figures 6 and 7 show a cross section of the model grid itself, with the observed water table superimposed. The total model thickness is more than 3,000 feet. Land surface elevations range from about 6,100 feet amsl in the southwest to just under 8,000 feet in the northeast. Upper layers thin and pinch out toward the west (Figure 5, 6 and 7). Consequently, rivers and streams cut down from higher to lower layers as they flow west. Figure 4 shows a plan view of the model, with the uppermost active layers of the model designated by color.

LAYER	TABLE 2. MODEL LAYER DESCRIPTIONS GEOLOGIC DESCRIPTION	THICKNESSES (ft)
1, 2	Youngest alluvial fan deposits derived from Sangre de Cristo Mountains. .	20, 30
3	Youngest alluvial fan deposits derived from Sangre de Cristo Mountains. (Northern Basin: Reworked alluvial fan materials)	50 (up to 700)
4	Reworked alluvial fan materials and other basin fill deposits including poorly to well sorted silts, sands, and gravels	<100 to 550
5	Pliocene Servilleta basalt flows and interbedded sediments	400
6, 7	Miocene Santa Fe Group sediments composed of fluvial, eolian, and lacustrine clays, silts, sands, and gravels	500, 1700

For reasons of model stability, the model simulates all layers as “Type 0” layers, in which transmissivity does not change as aquifer water levels change. MODFLOW-2000 requires input of aquifer storativity, and for the parts of Taos model layers that are unconfined, storativity values are set so that appropriate unconfined storages are calculated. The assumption of constant transmissivity layers is acceptable since historical drawdowns have been very small, and anticipated drawdowns in the shallow unconfined system are anticipated to remain small.

Geologic deposits simulated include Quaternary alluvial fan materials derived from the Taos Range of the Sangre de Cristo Mountains (Layers 1 through 4), Pliocene Servilleta basalt flows and interbedded sediments (Layer 5), and Miocene Santa Fe

Group sediments consisting of clay, silt, sand, and gravel of fluvial, aeolian, and lacustrine origin (Layer 6 and 7).

Several mapped faults are represented using the MODFLOW horizontal flow barrier (HFB) package. These faults – Los Cordovas, Town Yard, and other unnamed faults – generally trend north and are typically down to the west. Two types of faults, out of numerous mapped faults, were explicitly simulated with the MODFLOW HFB package: 1) faults for which water level and pumping test data suggest a hydrologic influence (Drakos, et al, 2004c) and 2) a number of other representative major faults. The faults were simulated as less transmissive than the surrounding aquifer material, thereby slowing the east-west flow of groundwater in the deeper layers.

2.3 Areal Recharge and Mountain Front Recharge

Areal recharge is estimated at 4% of the average annual precipitation (12.55 inches per year, Garrabrant, 1993) or 0.5 inches. Areal recharge is simulated with the MODFLOW recharge package and is distributed uniformly over the uppermost active cells in model layers 1 through 4, where the water table is within ~200 feet of the surface. The total amount of areal recharge applied is 1,820 acre-feet per year.

Mountain front recharge of about 5,310 acre-feet per year is applied along the mountain front on the eastern and part of the southern boundary (see diagram in Appendix B), through the MODFLOW WEL package, which applies specified flux stresses to the groundwater system. The amount of mountain front recharge was originally based on discussions with the Taos Technical Committee and water budget calculation for the area (Keller and Blisner, 1995), and modified during calibration to improve the agreement between simulated and observed water levels and groundwater discharge. The final amount of mountain front recharge (5,310 acre-feet per year) is equal to about 1.3% of the estimated average annual precipitation over the mountainous part of the watershed, which is not inconsistent with results obtained by the USGS using chloride mass balance methods for other watersheds in the Sandia (0.7% to 15 %) and Sangre de Cristo (3% to 6%) Mountains (Anderholm 2001 and 1994), although it is on the low side. In comparison, surface water runoff represents about 23% of the estimated mean annual precipitation in the mountainous part of the watershed. The distribution of mountain front recharge in the model area was originally based on a water budget study by Mike Johnson (2003) and modified during calibration. Mountain front recharge is applied in model layers 1 through 4, at rates decreasing with depth, to represent both infiltration of streamflow at the mountain-front, and smaller amounts of deeper flow from the mountain-block.

2.4 Irrigation Return Flows

Irrigation return flows consist of recharge from acequia/ditch/lateral seepage and on-farm deep percolation. The amount and distribution of the return flow referred to as "groundwater accretions" was derived from the U.S. Bureau of Reclamation's Taos Valley surface water model (Bellinger, 2003). Groundwater accretions represent a fraction of the surface water diverted for irrigation of about 12,000 acres of land (Bellinger, 2003). The surface water model calculates groundwater accretions on a seasonal basis for a variety of surface water reaches. These reaches were correlated with zones of cells in the groundwater model corresponding to the locations of the conveyances and irrigated lands. A long-term average of the groundwater accretions from the surface water model was applied to the groundwater model, on a zone-by-zone basis (see diagram in Appendix B).

Groundwater accretions include only the part of irrigation return flows that actually recharge the regional aquifer. Groundwater accretions do not include excess irrigation water that remains on the surface or that only seeps into the shallow subsurface and quickly reappears as surface water. Such water is treated in the surface water model as being available to downstream irrigators. The groundwater accretion components were applied in zones defined using Geographic Information System (GIS) coverage identifying irrigated lands. Specified flux cells in the MODFLOW WEL package were used to simulate this process. Groundwater accretions account for a total of about 11,910 AFY, reflecting about 1 AFY of deep percolation to the aquifer per acre of irrigated land resulting from both canal seepage and on-farm return flows.

2.5 Surface Water Features

Eight river reaches are simulated in the model:

- Rio Grande
- Rio Hondo
- Arroyo Seco
- Rio Lucero
- Rio Pueblo de Taos
- Rio Fernando de Taos
- Rio Chiquito, and
- Rio Grande del Rancho.

The Rio Grande is simulated using the RIV package of MODFLOW, and the tributaries are simulated using the STR package. The RIV package simulates head-dependent flux to and from the groundwater from a simple surface water body. The STR package is a more complex version of RIV that allows for some accounting of the amount of surface water in the tributaries, and allows the tributaries to go dry when all the surface water is lost. Long-term average annual stream flow values derived from USGS stream gage measurements are applied to the upper end of the tributary STR cells. Since the Rio Grande is perennial and gaining in this reach, it was decided that it was not necessary to use the more complex STR package to simulate the Rio Grande.

The model is designed such that the various reaches incise more deeply into the model from east to west. That is, the upper (eastern) portions of the tributaries are simulated by cells in layers 1 through 3, farther west these tributaries drop into layers 4 and 5, and the Rio Grande itself is in layers 5 and 6.

The Buffalo Pasture springs cover a roughly 600-acre marshy area on both sides of the Rio Lucero. These springs are represented as cells in two reaches of the Rio Lucero using MODFLOW STR package.

Input elevations associated with all STR and RIV cells were determined from USGS Digital Elevation Model data and from topographic maps. Conductances for tributary STR cells were initially set assuming a vertical hydraulic conductance of about 1 ft/d, and modified slightly during calibration. Final conductance values for most of the tributary reaches ranged from 10,000 to 50,000 ft^2/d. The conductances of cells representing the heart of the Buffalo Pasture were much higher in order to represent the large area of groundwater discharge, and to simulate the observed spring discharge. The final conductance value for cells in the heart of the Buffalo Pasture was 500,000 ft^2/d. The RIV cells representing the Rio Grande were also given large conductances (550,000 ft^2/d), representing the high degree of hydrologic connection that exists between the Rio Grande and the geologic units which discharge into it.

2.6 Evapotranspiration

Non-crop evapotranspiration (ET) is simulated with the MODFLOW ET package. The ET package was applied to all of the uppermost active cells of the model, but an extinction depth of 6 feet was specified, which meant that ET was only active in a limited part of the model. In most cells, a maximum evaporation rate of 2.2 feet per year was specified based on calculation of CIR for phreatophytes made by Brian Wilson of the OSE (Wilson and Smith, 2004). In cells containing stream reaches, the maximum ET rate is reduced to one-fifth of that in other cells. This reduction is made in stream cells to account for the fact that much of the water consumed by stream-side vegetation is probably intercepted surface water, a physical process which is accounted for in the water budget of the USBOR surface water model.

Total ET from the groundwater model is simulated to be about 5,370 acre-feet per year, which is a reasonable value consistent with other estimates of non-crop evapotranspiration, but not well constrained by observational measurements. A comparison of spatial locations of model cells experiencing ET with GIS coverage of soggy soils/wet meadows (from the National Resources Conservation Service Soil Survey Geographic Database, SSURGO) shows relatively good agreement between the two[1].

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[1] The best available information regarding locations where ET actually occurs in the field is reportedly the SSURGO data, which shows the spatial distribution of soils that developed under anoxic conditions because of perennial or seasonal high water levels, and also soils that occur in association with hydric conditions on the loosely defined valley floors (Roger Miller, personal communication, 7/29/2003).

2.7 Groundwater Diversions

Groundwater diversions from a variety of water users are represented (see diagrams in Appendix B). The model includes the following groundwater diversions (with recent diversion amounts):

1) Town of Taos municipal wells (currently about 840 acre-feet per year),
2) El Prado Water and Sanitation District (64 acre-feet per year),
3) about one dozen mutual domestic water users associations (about 400 acre-feet per year)
4) approximately 1,900 individual private domestic wells (pumping 560 acre-feet per year),
5) multiple household domestic wells (pumping 300 acre-feet per year), and
6) commercial sanitary wells using 190 acre-feet per year.

Wells were identified from OSE records and by data provided by Taos Technical Committee members.

Metered diversions were available for public water supply wells. Diversions for other wells were estimated at 0.25 AFY per well for domestic wells serving single dwellings, 3.0 AFY per well for domestic wells serving multiple dwellings, and 3.0 AFY for wells listed in OSE records as “Sanitary” type wells.

2.8 Hydraulic Properties

The model defines zones of hydraulic conductivity (K), which are then multiplied by layer thicknesses (b) to generate transmissivity. Model hydraulic conductivities were in part defined based upon the results of 46 aquifer tests (Drakos et al. 2004c, Tables 1, 2, 3, 4, 5; Table 3 this report), and in part based on available lithologic data. Adjustments were made to both K values in zones and the boundaries between zones during calibration, while keeping model values consistent with the magnitude and trends of the available well test data. Transmissivity (T) values from aquifer tests in the shallow system range from 250 to 6,000 ft^2/d although no values are available for the shallowest stream-channel sediments. Transmissivity in the lower aquifer system tends to be lower, ranging from 100 to 1,600 ft^2/d.

The final hydraulic conductivities in the calibrated model produce T values that are consistent in trend and magnitude with the aquifer test values (see diagrams in Appendix B). Model hydraulic conductivities in the shallow system range from 1.0 to 90.0 ft/d, yielding T values in the range from 500 to 10,000 ft^2/d. A very low K and T are given to cells within Buffalo Pasture, representing low permeability “Marsh” sediments, and the underlying Blueberry Hill deposit, which are thought to force groundwater to discharge in this area (verbal communication, Chris Banet, US BIA). Model hydraulic conductivities for the deeper layers (6 and 7) are systematically lower, ranging from 0.1 to 3.0 ft/d, yielding T values of around 200 to 400 ft^2/d in the central part of the Taos Valley, and T values between 1,000 and 2,500 ft^2/d for the western and southern parts of the deep system. The higher values of T in the western part of layers 6 and 7 are consistent with an aquifer test from the River View Acres well of 1250 ft^2/d, near the Rio Grande, but are otherwise poorly constrained by well test data.

There are few pumping tests with observation wells in the shallow aquifer in the Taos area. Therefore, storage values for the Taos model were based on standard hydrologic texts (Freeze and Cherry, 1979) and other alluvial aquifer models in New Mexico (McAda and Barroll, 2002; McAda and Wasiolek, 1988). For reasons of stability, the model simulates all layers as “Type 0”, in which a specific storage value is multiplied by the layer thickness. Specific storage was set so as to generate the appropriate unconfined storage coefficient (0.15) for areas that are not confined. That is, specific storage for each cell is set equal to 0.15 divided by the saturated thickness of the cell. For parts of the model that are confined, the specific storage is set at 2×10^{-6} per foot, which is consistent with the theoretical storage due to the compressibility of water with adjustment for aquifer compressibility, and consistent with other water resource groundwater models of alluvial basins (McAda and Barroll, 2002).

There is evidence that the vertical anisotropy (the ratio of horizontal hydraulic conductivity to vertical) is large. This evidence includes the presence of 1) large observed vertical hydraulic gradients (up to 50 feet of head decline per 100 feet of increasing depth), and 2) horizontal low permeability beds, including thick horizontal basalt layers. Model anisotropy was determined during calibration, in order to accurately simulate the observed vertical gradients, and ranges from 25:1 near the edges of certain alluvial layers, to 1400:1 in the basalt layer.

Table 3 Transmissivity and Storage Values from Pumping Tests			
Well Name	**Screened Depth**	**Transmissivity (ft^2/d)**	**Storage (unitless)**
Arroyo Park	Shallow	495 – 561	0.00053
Baird Joint Venture	Shallow	1150 – 2308	0.001
Barranca del Pueblo	Shallow	454 – 882	
BOR 2A	Shallow	230	
Buffalo Pasture	Shallow	2000 – 6300	0.003 – 0.1
Cameron	Shallow	414 – 588	
Ceja de Colonias	Shallow	235 – 282	
Cielo Azul	Shallow	390	
Clinic	Shallow	900	
Colonias Point	Shallow	976 – 1497	
Cooper	Shallow	187 – 401	
Don's	Shallow	810	
Hail Creek Deep	Shallow	5000	0.0063
Howell Well	Shallow	4278 – 7753	
Kit Carson	Shallow	1069 – 1764	
La Fontana	Shallow	2807 – 4679	
La Percha	Shallow	481 – 976	
Riverbend	Shallow	1600	0.000085
River View Acres	Shallow	1250	
San Juan-Chama	Shallow	400 – 468	0.00025 – 0.00027
Ski & Tennis Ranch	Shallow	35 – 504	
TP-2 Taos North	Shallow	930	
Tract A PW2	Shallow	175	
El Prado	Shallow+Deep	3000	
Airport Deep	Deep	est. 250	
BOR 1 (RG-73095)	Deep	520 – 1400	
BOR 2B	Deep	260 – 290	
BOR 2C	Deep	370 – 1470	
BOR 3 (RG-74545-EX)	Deep	450 – 710	0.0005
BOR 4	Deep	121 – 334	
BOR 5	Deep	110 – 119	
BOR 6	Deep	270 – 800	
BOR 7	Deep	109	
Karavas 2 (Screen 2)	Deep	90 – 200	0.0014 – 0.019
Karavas 3	Deep	100 – 210	
Mariposa	Deep	530	
National Guard Domestic	Deep	760	
Rio Pueblo 2000	Deep	280 – 700	
Rio Pueblo 2500	Deep	115 – 140	
Taos Yard	Deep	400	
Tract A PW	Deep	300	
Tract B PW	Deep	600	0.0002
Tract B PW2	Deep	220	
Tract B Tip – BIA 10	Deep	275	0.001
Tract B Tip – BIA 11	Deep	310	
UNM Taos	Deep	176 – 706	

3. MODEL CALIBRATION

3.1 Calibration Overview

The model was started under steady-state conditions, which represented conditions before substantial groundwater pumping, followed by a transient historical period simulation of 40 years during which historical groundwater diversions were applied. The model was calibrated to observed water level data, estimated discharge from the Buffalo Pasture springs and discharge to the Rio Grande. Calibration was done using trial-and-error methods.

Little change in model water levels or discharges was simulated to occur during the transient simulation in most areas of the model, which is consistent with the available observational data. Observed well hydrographs show only climatically induced variability, and not any trend indicative of groundwater development. Therefore, no attempt was made to simulate the observed well hydrographs; instead the simulated change in water levels over the transient period was checked to ensure that unreasonably large values had not been simulated.

3.2 Calibration Targets

Water level data used to calibrate the model were obtained from various sources including:

- U.S. Geological Survey (USGS) Ground-Water Site Inventory (GWSI)
- Office of the State Engineer well records (including WATERS database)
- Bauer et al. (1999)
- Garrabrant (1993)
- Glorieta Geoscience, Inc. reports
- Lee Wilson and Associates, Inc. report (1978)
- Taos Pueblo well inventory
- Purtymun (1969)

These water level data are tabulated in Appendix A.

The range of water levels is similar to the range in land surface elevation in the model, from about 6,100 feet amsl at the Rio Grande to nearly 8,000 feet amsl near the mountain front. There is considerable scatter in the observed water level data, in part because of issues of hydrogeologic complexity and the presence of large hydrologic gradients, but also in part because of variable data quality. The recent USBOR drilling program provides high quality data from a number of piezometer nests, allowing quantification of the vertical gradient. Calibration was performed so as to match both individual water levels and to match the overall large downward vertical gradient between the shallow and deep aquifer systems. No attempt was made to simulate the much smaller observed upward gradient within the deep aquifer, which is assumed to be associated with a local geologic structure (Drakos et al., 2004c).

Additional calibration targets included groundwater discharge to the Rio Grande within the reach simulated by the model (estimated at about 1 cfs per mile or 20 cfs), the estimated discharge from the Buffalo Pasture (estimated at various times between 2 and 15 cfs), and the general distribution of gaining and losing reaches on the tributaries, including some seepage loss data from the Rio Lucero and Rio Pueblo de Taos.

For convenience, water level targets and the discharge target for the Buffalo Pasture were including in MODFLOW-2000 observation package input files. MODFLOW-2000 automatically provided output on how well these targets were matched, which simplified evaluation of trial-and-error calibration runs.

3.3 Calibration Results

Trial-and-error calibration resulted in a model whose hydraulic properties are relatively consistent with observed values, and that simulates observed water levels, vertical gradients and groundwater discharges adequately. The distribution of hydraulic properties in the calibrated model is provided Appendix B in diagram form. The match of simulated and observed water levels (also provided in Appendix B) is generally good, but shows considerable scatter, which is expected considering the large amount of scatter in the available water level data. In general, the shallow system is simulated more closely than the deep system. Model calibration statistics are given in Table 4. 50% of simulated water levels are within 20 feet of observed values, and 82% are within 50 feet, which is acceptable given the scatter in the data and the large range of observed water levels across the model area (1267 feet). Most large residuals are associated with wells at the edge of the basin, or wells of suspect location or screening (we did not attempt to eliminate such outliers). Figure 8 shows observed vs. modeled water level elevations, and Figure 9 is a chart of the distribution of residuals. The residual is the difference between the observed head and the model simulated heads at the same locations (observed head minus model-simulated head). Ideally, for a perfect model, all residuals would be zero. Figures 8 and 9 show a reasonable distribution of residuals for a regional model of this complex system. Residuals are mostly of reasonable size, and their distribution is centered on zero.

The fact that the upper model layers pinch out to the west as the water table cuts down through the geologic section causes some anomalous conditions at the limits of these layers. In the layers 1, 2 and 3 this is treated by increasing the vertical conductance at the western edge of the pinching layer, thus allowing water from an upper layer to flow westward, in accordance with the hydrologic gradient, into the next layer. This creates minor anomalies in simulated heads, especially near the western edge of layer 4 where simulated heads drop precipitously, creating more of a “step” than can be observed in field data. However, observed data are sparse in this area, west of Arroyo Seco, where the water table drops hundreds of feet below land surface as the shallow aquifer system gives way to a deeper hydrologic system. What data there are suggest that the shallow hydrologic system represented by model layers 1-4 may not be in direct connection with the deeper hydrologic system represented in layers 5, 6 and 7 in this area. Without more detailed local data it probably would not be worthwhile attempting to improve the simulation of this area.

TABLE 4. Model Calibration Statistics

PARAMETER	ALL LAYERS
Number of Observations	354
Residual Mean (feet)	0.95
Residual Standard Deviation (feet)	44.5
Sum of Squared Residuals (feet squared)	695,424
Absolute Residual Mean (feet)	30.0
Minimum Residual (feet)	-143
Maximum Residual (feet)	229
Observed Head Range (feet)	1267
Minimum Observed Head (feet)	6452
Maximum Observed Head (feet)	7719
Std. Deviation/Head Range	3.5 %
Percent of Residuals within 100’	96 %
Percent of Residuals within 50’	82 %
Percent of Residuals within 30’	67 %
Percent of Residuals within 20’	51 %
Percent of Residuals within 10’	30 %

This model closely simulates the large vertical gradients observed between the shallow (layers 1-4) and deep (layers 5-7) aquifer system in the Taos Valley. Observed difference in water level between deep and shallow wells and /or piezometers at the same location range from 100 to over 400 feet (the deeper well having the lower water level), and this phenomenon was well simulated by the model (see Table 5). These well-quantified downward vertical gradients constrained model vertical anisotropy, which in many models is a highly uncertain and unconstrained parameter because of the lack of definitive calibration data from multi-level piezometers.

TABLE 5. Vertical Head Difference Between Shallow and Deep Wells and Corresponding Model Layers. All Gradients Listed Reflect Lower Heads at Deeper Depths

WELL	OBSERVED (feet)	SIMULATED (feet)
BOR 1/ National Guard	62	104
BOR 2 and 3	218	212
BOR 4 and 6	424	405
BOR 5	132	104
BOR 7	253	260
Cielo Azul	208	217
Grumpy	137 (?)	473
Karavas 2 and 3	255	260
L25/L27	41	46
Rio Pueblo 2500	131	117

The groundwater model also adequately simulates observed groundwater discharge targets. Analysis of recorded flows in the Rio Grande from the confluence of the Rio Grande and Rio Hondo to the Taos Junction stream gage shows a gain of about 20 - 25 cfs (or about 1 cfs per mile). The model simulates approximately 21 cfs discharge from groundwater in this reach. At the Buffalo Pasture, modeled discharge from groundwater is about 5 cfs or 3,800 acre-feet per year, compared with 2 to15 cfs range of observed discharge (which may contain a direct surface water return component not simulated here in the model).

In addition, other qualitative flow and discharge targets were simulated successfully. These targets include large observed losses from the upper reach of the Rio Lucero and gains to the upper reach of the Rio Pueblo de Taos. Arroyo Seco was also correctly simulated to have large losses, and as going dry over an extended reach. The water budget from the calibrated model at the end of the transient run is provided in Table 6. The difference between total recharge and total discharge is less than 0.05%, and is well within acceptable limits.

TABLE 6. Groundwater Model Water Budget, End of Simulation (Present-Day Conditions)

Recharge	AF/Y	Discharge	AF/Y
Areal Recharge from Precipitation	1,820	Discharge at Buffalo Pasture Springs	3,960
Mountain Front Recharge	5,310	Evapotranspiration	5,350
Irrigation Seepage	11,910	Groundwater Pumping	2,540
Tributary Recharge (to aquifer)	18,810	Discharge to Tributaries	11,420
Water Released from Aquifer Storage	370	Discharge to Rio Grande	14,940
Total Recharge	38,220	Total Discharge	38,210

4. SUMMARY, CONCLUSIONS, DISCUSSION

The T17.0 model is the result of several years of collaboration between the OSE, and the US Bureau of Reclamation with input from other professional hydrologists with considerable experience in the Taos Valley representing the Parties to the Abeyta Adjudication Settlement negotiations. The model was developed in response to 1) a need for a tool to evaluate the effects of groundwater development proposed during Adjudication Settlement Negotiations, especially groundwater diversions from deep levels of the aquifer system, and 2) a need for a tool to administer the wells subject to the Settlement Agreement. New hydrologic data became available from a deep-drilling program funded by the U.S. Bureau of Reclamation, which was integral to the development of a regional model of the Taos Valley that provides reasonable and reliable results when simulating deep-aquifer pumping.

Given the hydrogeologic complexity of the Taos area, this groundwater flow model does a relatively good job matching observed water levels, the discharge from the springs at Buffalo Pasture, and the observed large downward vertical gradients. Simulation of the large vertical gradients constrains model vertical anisotropy, and allows the model to simulate the interaction between the deep and shallow aquifer systems with reasonable reliability. This model provides reasonable and useful predictions of the impacts of proposed wells. The model was designed, in part, to evaluate the hydrologic effects of wells proposed under the Taos Adjudication settlement, and it is recommended that the model be used in evaluating the hydrologic impacts of those wells. Determination of how and whether the model should be applied the hydrologic evaluation of other wells should be made on a case-by-case basis.

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Taos Model Location

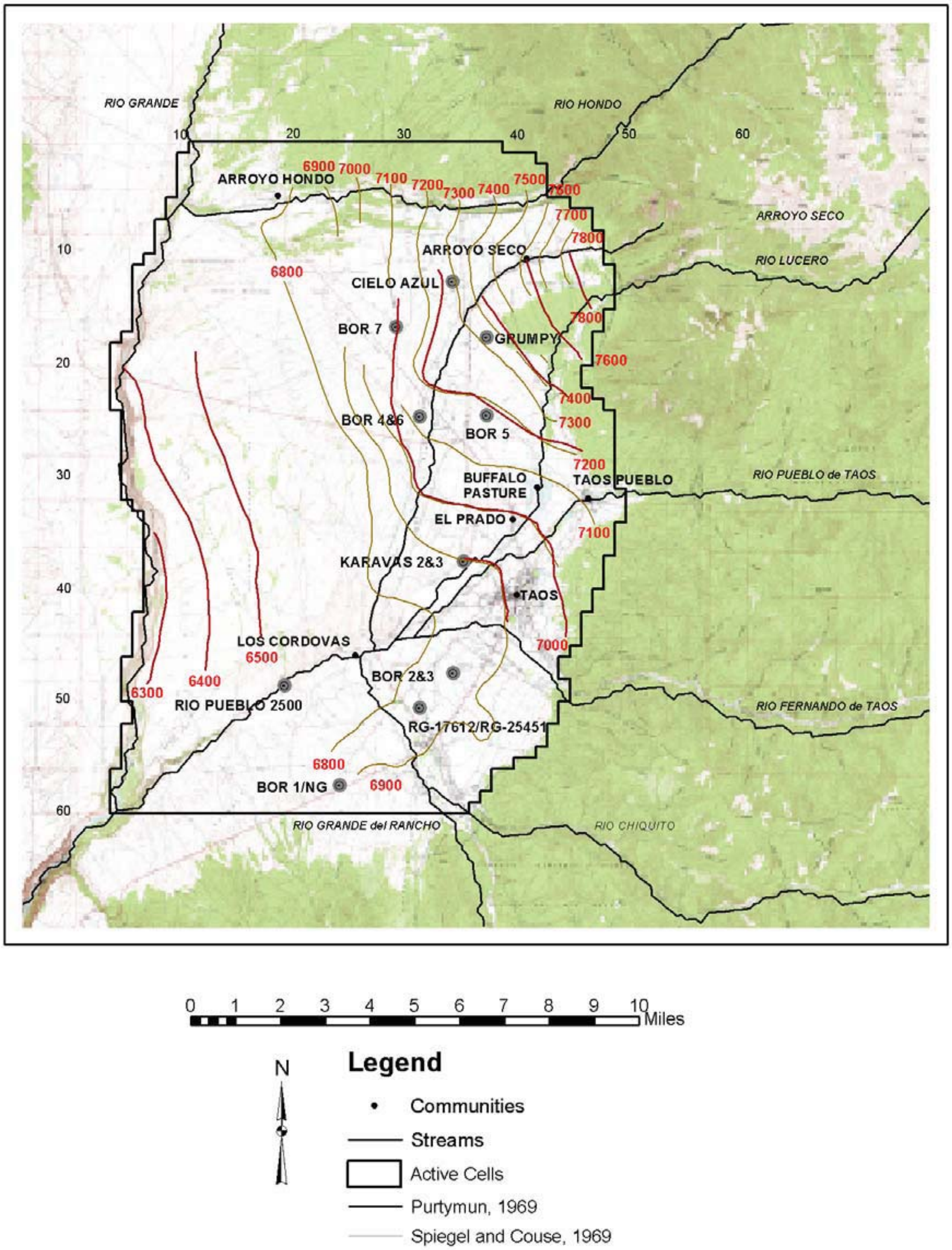


Figure 2. Observed Water Level Contour Map, contour elevations given in feet amsl (after Spiegel and Couse, 1969; and Purtymun, 1969). Also shown: locations of key wells.

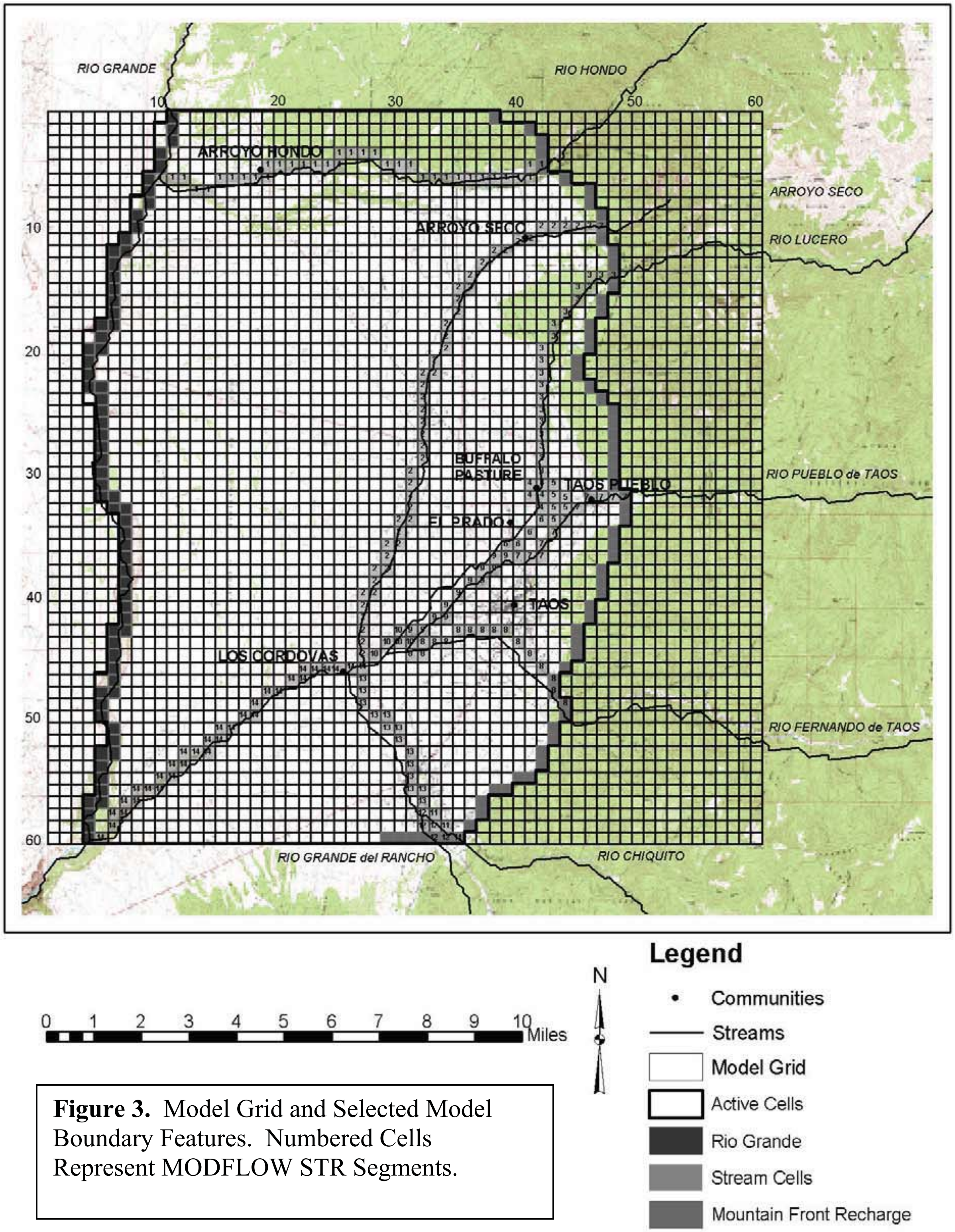
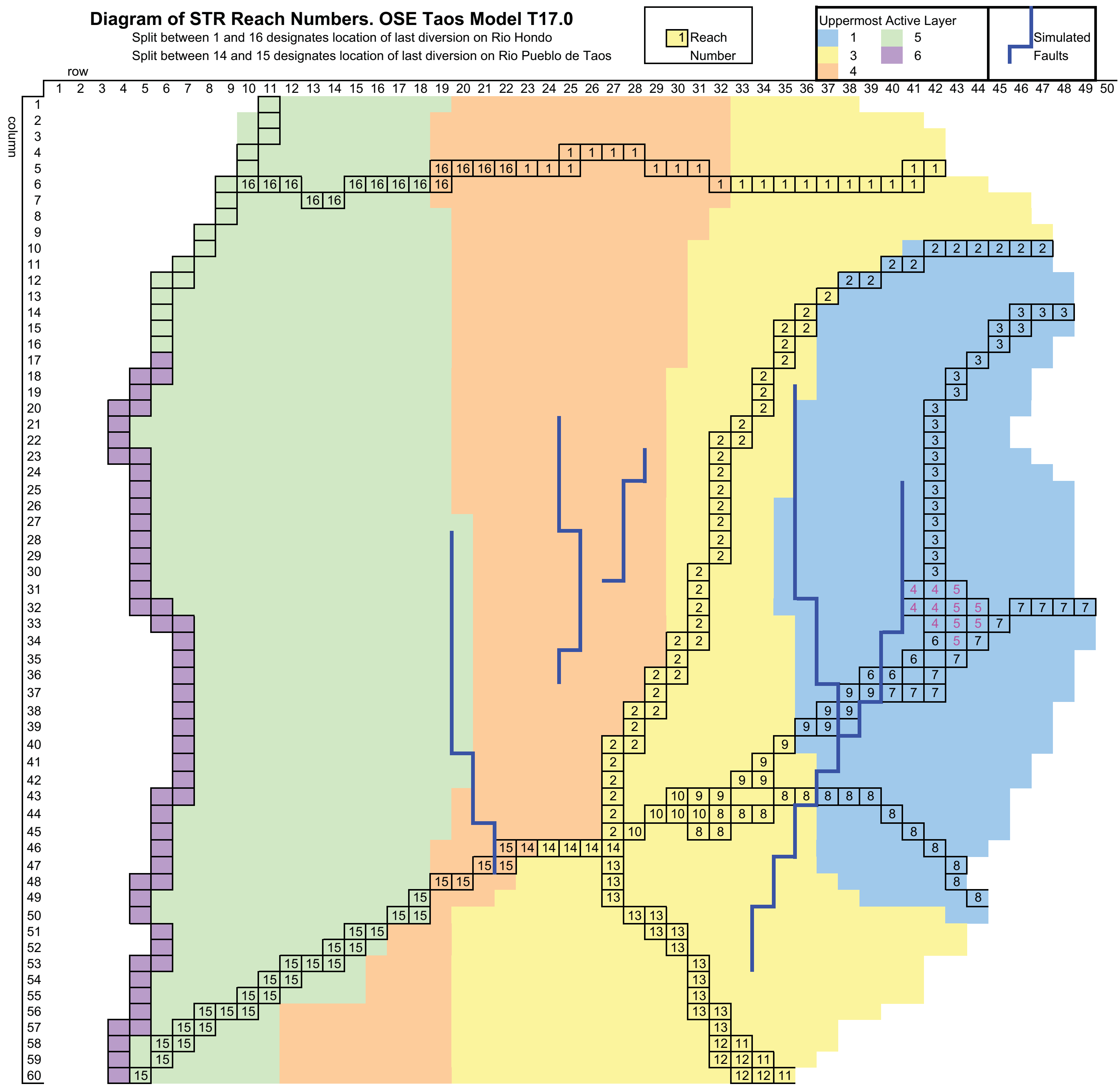


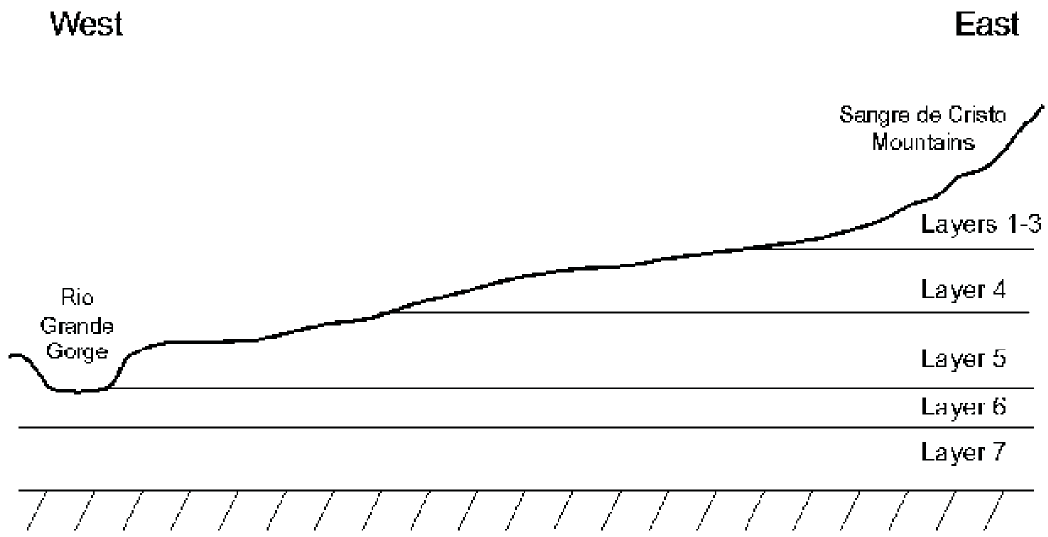
Figure 3. Model Grid and Selected Model Boundary Features. Numbered Cells Represent MODFLOW STR Segments.

Diagram of STR Reach Numbers. OSE Taos Model T17.0

Split between 1 and 16 designates location of last diversion on Rio Hondo

Split between 14 and 15 designates location of last diversion on Rio Pueblo de Taos

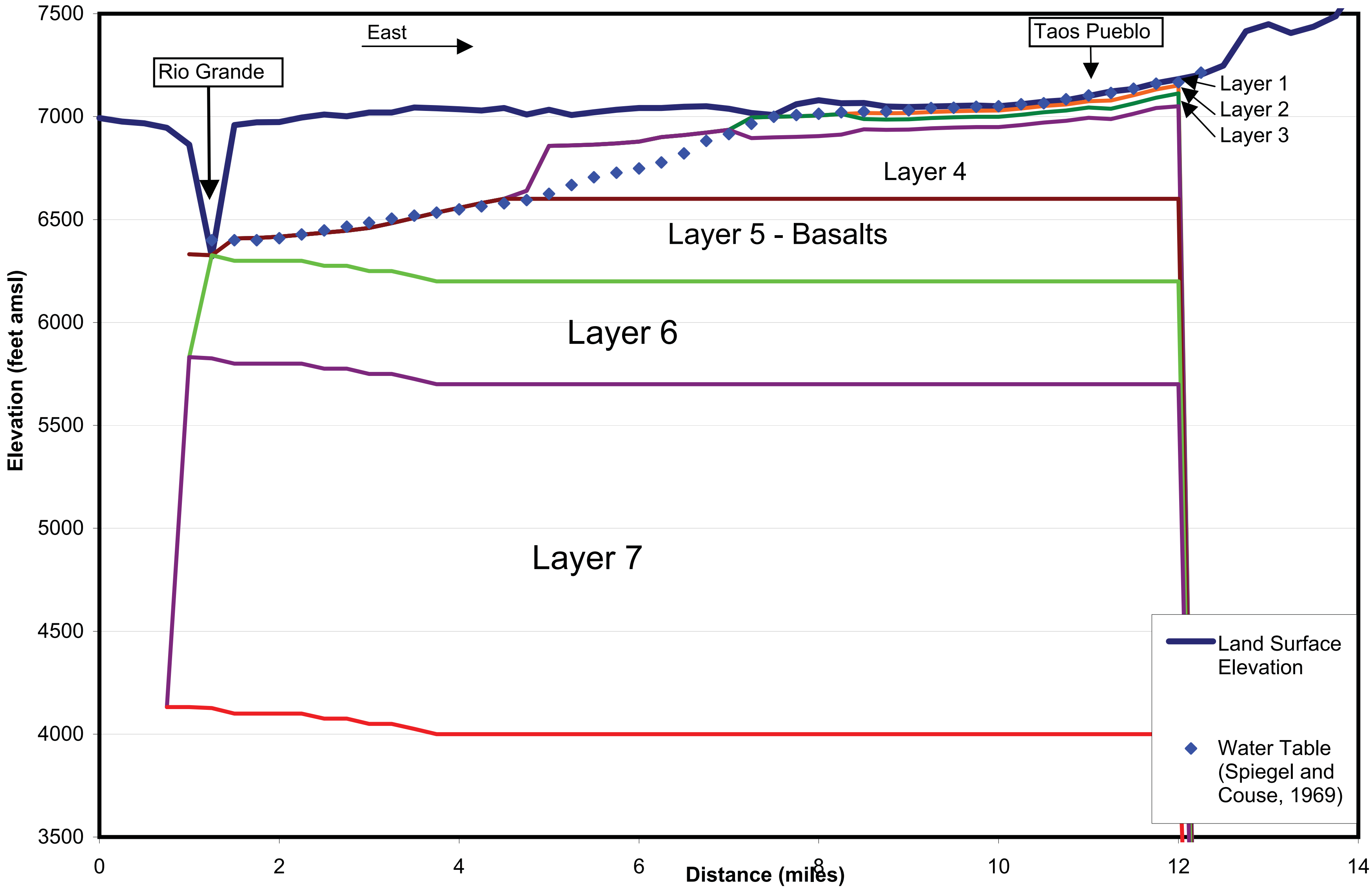


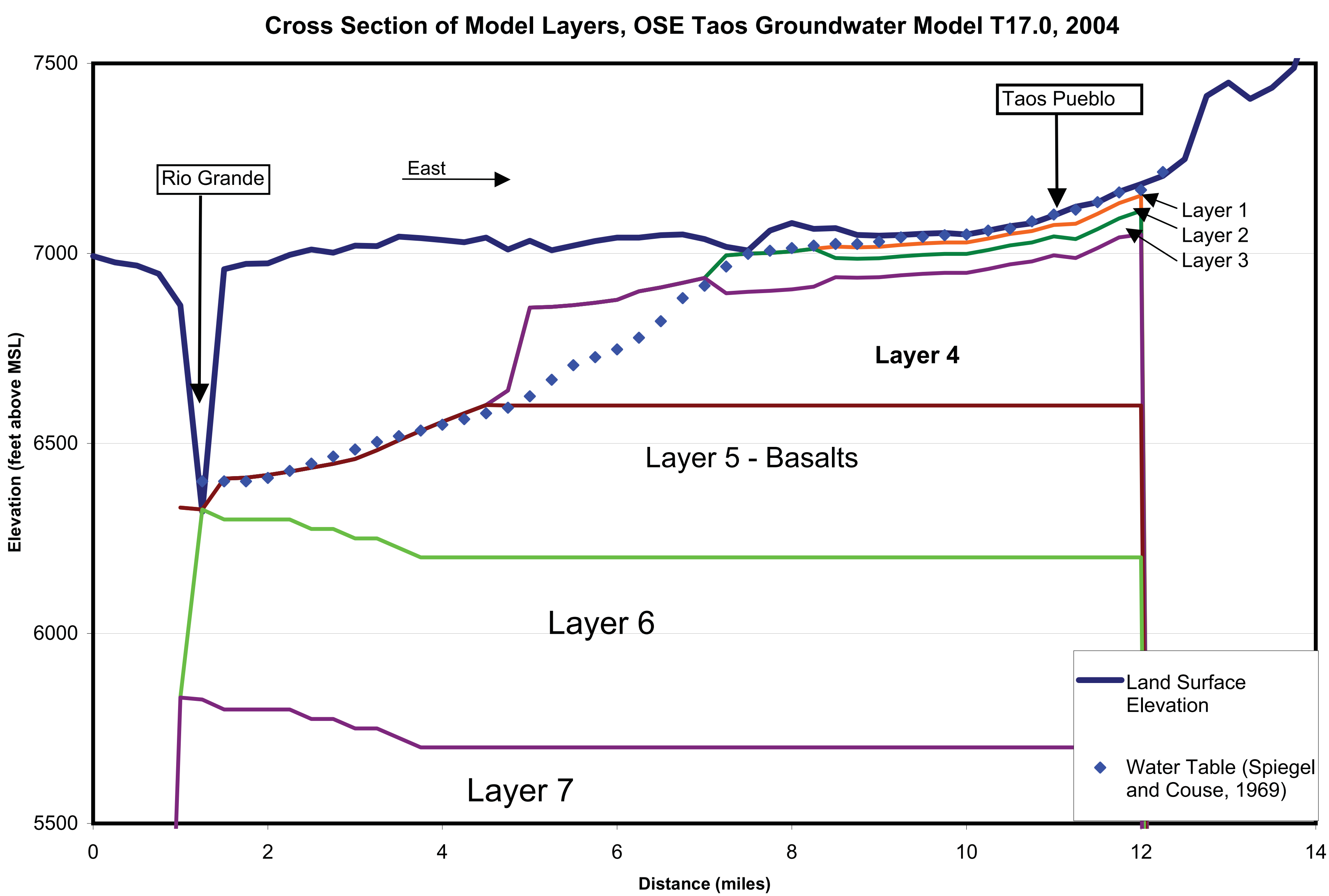


Layers 1 – 3:	Quaternary Alluvial Fan Deposits
Layer 4:	Reworked Alluvial Fan Materials
Layer 5:	Pliocene Servilleta Basalts and Interbedded Sediments
Layers 6 – 7:	Miocene Santa Fe Group Sediments

Figure 5. Schematic Cross-Section of the Taos Valley Showing Geologic Layers Represented in the Taos Regional Groundwater Model. Layer Thickness information provided in Table 2.

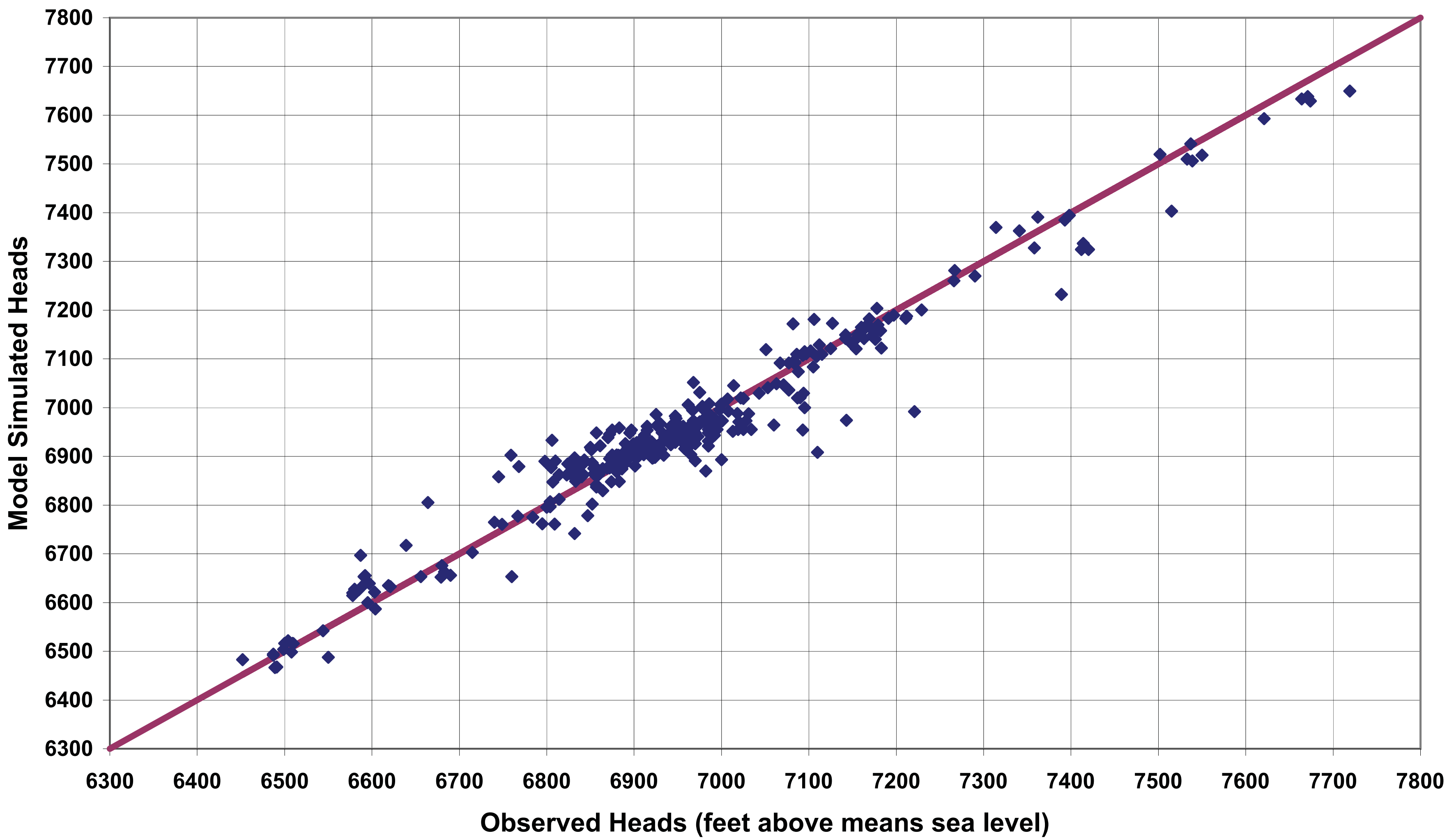
Cross Section of Model Layers, OSE Taos Groundwater Model T17.0, 2004

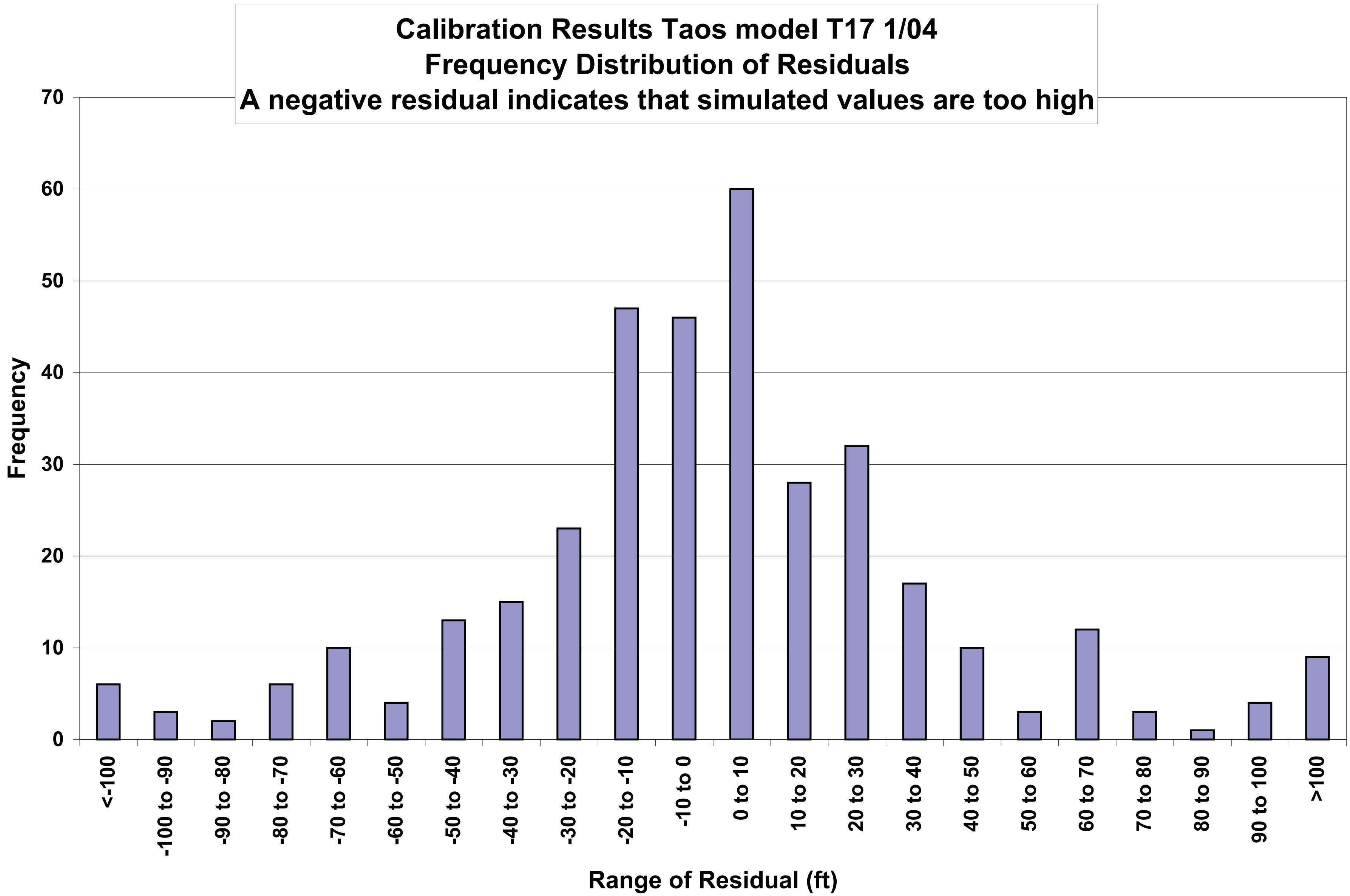




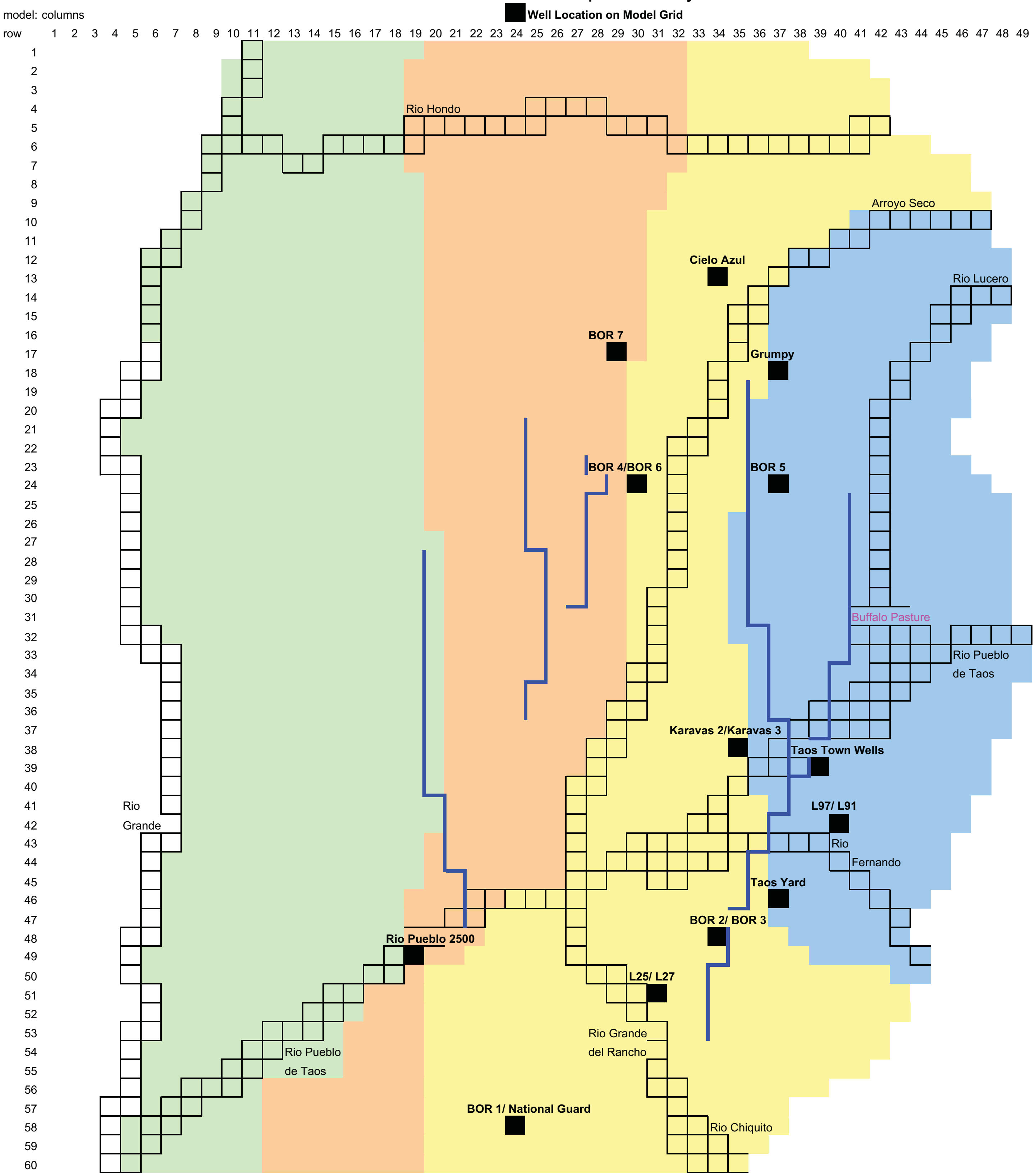
Cross Section of Model Layers, OSE Taos Groundwater Model T17.0, 2004
Rio Grande
East
Taos Pueblo
Layer 1
Layer 2
Layer 3
Layer 4
Layer 5 - Basalts
Layer 6
Layer 7
Land Surface Elevation
Water Table (Spiegel and Couse, 1969)
Elevation (feet above MSL)
7500
7000
6500
6000
5500
Distance (miles)
0
2
4
6
8
10
12
14

Calibration Results: Taos Groundwater Model version T17.0 1/04
Observed vs. Simulated Heads All Layers




Calibration Results Taos model T17 1/04
Frequency Distribution of Residuals
A negative residual indicates that simulated values are too high
Frequency
70
60
50
40
30
20
10
0
<-100
-100 to -90
-90 to -80
-80 to -70
-70 to -60
-60 to -50
-50 to -40
-40 to -30
-30 to -20
-20 to -10
-10 to 0
0 to 10
10 to 20
20 to 30
30 to 40
40 to 50
50 to 60
60 to 70
70 to 80
80 to 90
90 to 100
>100
Range of Residual (ft)

Location Map for Vertical Hydraulic Gradient Data



APPENDIX A

Water Level Data Used for Calibration of Taos Groundwater Model T17.0

Water level data compiled by OSE personnel from a variety of sources:

- U.S. Geological Survey (USGS) Ground-Water Site Inventory (GWSI) (Source ID: A##)
- Office of the State Engineer Well Records (including WATERS database) (Source ID: D##)
- Bauer et al. (1999) (Source ID: B##)
- Garrabrant (1993) (Source ID: G##)
- Glorieta Geoscience, Inc. Reports (Source ID: GG##)
- Lee Wilson and Associates, Inc. Report (1978) (Source ID: L##)
- Taos Pueblo Well Inventory (Source ID: P##)
- Purtymun (1969) (Source ID: Y##)

Well locations for many wells were derived from PLSS or other data using GIS techniques.

Row, column and offset values designated in red were adjusted to place observation at the center of cells located at edge of active model domain, in order to permit MODFLOW-2000 to calculate residuals.

Row, column and offset values designated in blue were estimated based on available PLSS data.

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model

Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
OW-9 Shallow	**P40**	P40	449210	4037410	1	21	41	-0.23	0.24	7460	40	7420	41
OW-9 Deep	**P39**	P39	449210	4037410	1	21	41	-0.23	0.24	7460	48	7412	65
West Well - BIA-19	**P21**	BIA19	447320	4036100	1	24	37	0.03	-0.45	7242	45	7197	76
Acequia Well - BIA 12	**P13**	BIA12	448270	4035010	1	27	39	-0.27	-0.09	7198	34	7164	65
OW-1	**P29**	P29	448750	4035010	1	27	40	-0.27	0.10	7207	38	7169	58
OW-8	**P38**	OW8	449750	4034610	1	28	43	-0.27	-0.41	7215	36	7179	37
MW-2	**P30**	P30	449150	4033970	1	29	41	0.32	0.10	7122	10	7112	32
RG-27258	**L194**	L194	447335	4033615	1	30	37	0.20	-0.41	7093	5	7088	40
MW-4	**P32**	P32	449220	4033650	1	30	41	0.11	0.27	7110	16	7094	26
MW-3	**P31**	P31	449350	4033660	1	30	42	0.09	-0.41	7110	15	7095	35
OW-5-shal	**P34**	OW5S	449540	4033380	1	31	42	-0.21	0.06	7093	10	7083	37
OW-5-deep	**P33**	OW5D	449540	4033380	1	31	42	-0.21	0.06	7093	16	7077	115
OW-6-shal	**P36**	OW6S	449540	4033410	1	31	42	-0.29	0.06	7096	12	7084	40
OW-6-deep	**P35**	OW6D	449540	4033410	1	31	42	-0.29	0.06	7096	14	7082	58
OW-7	**P37**	OW7	449530	4033390	1	31	42	-0.24	0.04	7095	11	7084	40
RG-26362	**L202**	L202	451203	4033134	1	31	46	0.40	0.20	7145	20	7125	49
RG-3465	**L197**	L197	447856	4032491	1	33	38	0.00	-0.12	7032	7	7025	30
RG-3464	**L198**	L198	447836	4032515	1	33	38	-0.06	-0.17	7030	8	7022	45
RG-24896	**L41, Archuleta**	L41	451187	4032324	1	33	46	0.41	0.16	7105	12	7093	48
RG-66996	**D474**	D474	448285	4031620	1	35	39	0.16	-0.06	6983	15	6968	50
Hail Creek Shallow - BIA 22	**P24**	P24	448745	4031161	1	36	40	0.30	0.09	6965	9	6956	25
BIA	**Y5**	Y5	449665	4031279	1	36	42	0.01	0.38	7010	2	7008	4
RG-27625	**L81**	L81	449384	4030144	1	39	42	-0.17	-0.32	7006	20	6986	50
Antonio Romero	**Y11**	Y11	449550	4029945	1	39	42	0.32	0.09	7035	70	6965	85
RG-2045	**L69**	L69	449019	4029517	1	40	41	0.39	-0.23	6997	5	6992	33
RG-12570	**L99**	L99	447860	4029005	1	42	38	-0.34	-0.11	6930	8	6922	42
RG-371	**L90**	L90	448237	4028608	1	43	39	-0.35	-0.17	6913	20	6893	52
RG-5407	**L97**	L97	448642	4028639	1	43	40	-0.43	-0.17	6936	43	6893	80
RG-19455	**L87**	L87	449174	4028091	1	44	41	-0.07	0.15	6966	6	6960	25
RG-5422	**L122**	L122	448110	4027186	1	46	39	0.18	-0.49	6963	52	6911	90
RG-17896	**L191**	L191	446915	4034794	2	27	36	0.27	-0.46	7162	8	7154	75
South Well Shallow - BIA 16	**P18**	P18	450290	4034730	2	27	44	0.43	-0.07	7200	73	7127	116
RG-55393	**D401**	D401	446781	4034595	2	28	35	-0.23	0.21	7143	46	7097	100
RG-3370	**L192**	L192	446930	4033170	2	31	36	0.31	-0.42	7075	12	7063	53
RG-29506	**L199**	L199	448134	4032832	2	32	39	0.15	-0.43	7056	3	7053	64
RG-26306	**L42**	L42	450988	4032157	2	34	46	-0.18	-0.34	7093	10	7083	56
RG-16042	**L49**	L49	448487	4031602	2	35	39	0.21	0.45	6990	8	6982	60
RG-23218	**L51**	L51	448495	4031554	2	35	39	0.32	0.47	6982	12	6970	70
RG-27741	**L46**	L46	448554	4031574	2	35	40	0.28	-0.38	6987	7	6980	50
RG-5773	**L45**	L45	448531	4031546	2	35	40	0.34	-0.44	6982	12	6970	56
RG-23874	**L52**	L52	448523	4031582	2	35	40	0.26	-0.46	6988	20	6968	62
RG-27591	**L57**	L57	447347	4031204	2	36	37	0.19	-0.38	6957	12	6945	80
RG-22108	**L56**	L56	447359	4031189	2	36	37	0.23	-0.36	6955	20	6935	60

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model

Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
RG-27623	L68	L68	448928	4030418	2	38	41	0.15	-0.46	6967	5	6962	71
Ann Barlow	Y8	Y8	449919	4030519	2	38	43	-0.10	0.01	6990	9	6981	75
RG-20387	L77	L77	448189	4030132	2	39	39	-0.14	-0.29	6936	8	6928	64
RG-15856	L71	L71	448503	4029997	2	39	39	0.19	0.49	6943	6	6937	65
RG-15659	L70	L70	448527	4029974	2	39	40	0.25	-0.45	6942	6	6936	62
362459105340701	A2/G12	A2	449022	4030082	2	39	41	-0.02	-0.22	6980	17	6963	80
RG-8633	L82	L82	450095	4030013	2	39	43	0.15	0.44	7071	40	7031	94
RG-27284	L80	L80	450119	4029993	2	39	44	0.20	-0.50	7073	55	7018	110
RG-70142	D553	D553	447312	4029484	2	40	37	0.00	0.00	6890	18	6872	75
RG-15786	L83	L83	449916	4029815	2	40	43	-0.35	0.00	7073	45	7028	85
RG-65827	D576	D576	449065	4028349	2	43	41	0.29	-0.12	6958	15	6943	60
RG-56131	D584	D584	449307	4028209	2	44	41	-0.36	0.49	6972	18	6954	82
RG-3419	L121	L121	447967	4027524	2	45	38	0.34	0.15	6932	50	6882	100
RG-2950	L93	L93	448249	4027782	2	45	39	-0.30	-0.14	6932	44	6888	100
RG-60855	D617	D617	449482	4027643	2	45	42	0.05	-0.08	6981	24	6957	75
RG-22432	D621	D621	449451	4027552	2	45	42	0.27	-0.16	6979	30	6949	71
RG-22701	L114	L114	447375	4027111	2	46	37	0.00	0.00	6931	50	6881	98
RG-9794	L123	L123	448078	4027202	2	46	38	0.14	0.43	6959	40	6919	100
RG-36010	D628	D628	448047	4027372	2	46	38	-0.28	0.35	6953	50	6903	105
RG-32196	D116	D116	448581	4042739	3	8	40	-0.48	-0.32	7693	160	7533	300
RG-60877	D119	D119	448642	4042708	3	8	40	-0.40	-0.17	7697	195	7502	300
RG-69484	D128	D128	448732	4042584	3	8	40	-0.09	0.06	7697	160	7537	320
RG-20938	L168	L168	449305	4041850	3	10	41	-0.27	0.48	7678	14	7664	50
363207105340701	A3/G19	G19	449425	4041584	3	10	42	0.39	-0.22	7681	7	7674	204
RG-67419	D229	D229	449572	4041568	3	10	42	0.44	0.14	7701	30	7671	160
RG-6410	L166	L166	448376	4041381	3	11	39	-0.10	0.17	7595	45	7550	85
RG-66201	D240	D240	449022	4041484	3	11	41	-0.36	-0.22	7639	18	7621	280
RG-7146	L169	L169	447042	4041040	3	12	36	-0.25	-0.14	7517	155	7362	221
RG-24453	L170	L170	446950	4041139	3	12	36	-0.50	-0.37	7523	130	7393	157
RG-67170	D270	D270	448619	4040971	3	12	40	-0.08	-0.22	7579	40	7539	160
RG-6207	L162	L162	450218	4041139	3	12	44	-0.50	-0.25	7776	57	7719	95
RG-65614	Cielo Azul GG3	GG3	446417	4040360	3	13	34	0.44	0.30	7450	136	7314	353
RG-10344	L171	L171	447038	4040647	3	13	36	-0.28	-0.15	7494	96	7398	375
North Well - BIA 18	P20	BIA18	448430	4039800	3	15	39	-0.17	0.31	7550	35	7515	160
RG-20608	L178	L178	447062	4039122	3	17	36	-0.49	-0.10	7401	60	7341	115
Grumpy Well Shallow - BIA 25	P27	BIA25	447440	4038540	3	18	37	-0.04	-0.15	7398	40	7358	213
Mid-Point Well - BIA 17	P19	BIA17	448840	4038340	3	18	40	0.46	0.32	7500	86	7414	470
RG-17874	L180	L180	446919	4037982	3	19	36	0.35	-0.45	7327	60	7267	125
RG-54924	D316	D316	446840	4037733	3	20	35	-0.03	0.35	7326	60	7266	145
RG-10638	L179	L179	446216	4037272	3	21	34	0.11	-0.20	7257	79	7178	129
RG-64366	D325	D325	446464	4036915	3	22	34	0.00	0.42	7254	42	7212	140
RG-68541	D326	D326	446433	4036855	3	22	34	0.15	0.34	7251	60	7191	125
RG-1828X	L185	L185	446537	4036775	3	22	35	0.35	-0.40	7247	36	7211	135

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model

Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
OW-10	**P41**	P41	448450	4036980	3	22	39	-0.16	0.36	7373	83	7290	127
RG-70900	**D337**	D337	446367	4036521	3	23	34	-0.02	0.18	7233	62	7171	125
RG-7239	**L181**	L181	446633	4036339	3	23	35	0.43	-0.16	7228	63	7165	115
RG-1828-S	**L186**	L186	446585	4036335	3	23	35	0.44	-0.28	7225	55	7170	300
RG-1828-REPLACE	**L187**	L187	446613	4036323	3	23	35	0.47	-0.21	7225	65	7160	152
RG-9359	**L183**	L183	446990	4036390	3	23	36	0.00	0.00	7252	23	7229	85
RG-60457	**D356**	D356	446209	4036065	3	24	34	0.11	-0.21	7203	40	7163	101
RG-59485	**D354**	D354	446561	4036198	3	24	35	-0.22	-0.34	7222	40	7182	110
RG-69579	**D357**	D357	446514	4036062	3	24	35	0.12	-0.46	7216	60	7156	125
RG-1828	**L184**	L184	446537	4035973	3	24	35	0.34	-0.40	7226	53	7173	160
RG-59283	**D363**	D363	444986	4035777	3	25	31	-0.17	-0.25	7194	143	7051	203
RG-56560	**D364**	D364	446297	4035760	3	25	34	-0.13	0.00	7188	40	7148	112
RG-55401	**D365**	D365	446510	4035757	3	25	35	-0.12	-0.47	7216	40	7176	120
RG-1822	**L182**	L182	446720	4035787	3	25	35	-0.20	0.06	7202	60	7142	104
RG-1828-A-S/RG-28097-X	**D359/D360**	D359	446889	4035877	3	25	35	-0.42	0.48	7222	45	7177	275
362759105354801	**A19/G20**	A19	446541	4035644	3	25	35	0.16	-0.39	7205	53	7152	280
Ski & Tennis Ranch	**GG4**	GG4	446353	4035424	3	26	34	-0.29	0.14	7228	45	7183	150
RG-25008	**L188**	L188	447316	4035183	3	26	37	0.30	-0.46	7192	50	7142	115
RG-62300	**Colonias Point GG2**	GG2	444914	4034924	3	27	31	-0.05	-0.43	7160	55	7105	127
RG-7955	**L190**	L190	446930	4034774	3	27	36	0.32	-0.42	7157	55	7102	104
Acequia Well - BIA 13	**P14**	P14	448270	4035040	3	27	39	-0.34	-0.09	7201	44	7157	195
South Well Deep - BIA 16	**P17**	P17	450290	4034730	3	27	44	0.43	-0.07	7200	118	7082	138
RG-3255 CLW	**L189**	L189	446736	4034591	3	28	35	-0.22	0.10	7151	42	7109	201
RG-55314	**D424**	D424	445603	4033940	3	29	32	0.39	0.28	7054	86	6968	140
RG-64970	**D425**	D425	445707	4033786	3	30	33	-0.22	-0.46	7061	47	7014	90
RG-27234	**L196**	L196	449039	4033730	3	30	41	-0.08	-0.18	7131	16	7115	75 to 12
362636105365801	**A29/G18**	A29	444782	4033097	3	31	30	0.49	0.24	7038	60	6978	120
RG-16891	**L193**	L193	446911	4033198	3	31	36	0.24	-0.47	7086	15	7071	100
RG-52261	**D448**	D448	445739	4032720	3	32	33	0.43	-0.38	7067	100	6967	170
RG-17490	**L195**	L195	447343	4032821	3	32	37	0.18	-0.39	7035	60	6975	110
RG-25253	**L44**	L44	448423	4032316	3	33	39	0.43	0.29	7024	38	6986	102
Taos Pueblo Comm. Bldg.	**Y12**	Y12	451034	4032524	3	33	46	-0.09	-0.22	7090	23	7067	105
RG-21832	**D459**	D459	448507	4032288	3	34	39	-0.50	0.50	7024	24	7000	108
BIA	**Y1**	Y1	451443	4032106	3	34	47	-0.05	-0.20	7125	39	7086	138
BIA	**Y2**	Y2	451595	4032044	3	34	47	0.00	0.00	7130	35	7095	240
RG-5150	**L54**	L54	446827	4031689	3	35	35	-0.01	0.32	7034	62	6972	120
RG-33999	**D473**	D473	446868	4031638	3	35	35	0.12	0.42	7035	73	6962	120
RG-5977	**L55**	L55	446958	4031609	3	35	36	0.00	0.00	7023	51	6972	105
RG-24577	**L58**	L58	446938	4031625	3	35	36	0.15	-0.40	7026	80	6946	130
RG-20048 362553105345501	**A15/G10**	A15	447836	4031753	3	35	38	-0.17	-0.17	6996	21	6975	131
RG-60299	**Ceja de Colonias**	D490	445278	4031232	3	36	31	0.12	0.47	7007	92	6915	188
Hail Creek Deep - BIA 21	**P23**	P23	448745	4031171	3	36	40	0.28	0.09	6965	23	6942	180
RG-18437	**D493**	D493	448888	4031155	3	36	40	0.32	0.44	6975	30	6945	105

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model

Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
Don's OW	**P28**	P28	449410	4031180	3	36	42	0.25	-0.26	7000	8	6992	NA
RG-7339-S-5	**Howell Taos 6 GG15**	Taos6	448420	4030917	3	37	39	-0.09	0.28	6960	12	6948	500
362531105343201	**A8/G11**	A8	448553	4030763	3	37	40	0.29	-0.39	6952	7	6945	500
RG-52040	**Chatwin**	chat			3	38	30	0.00	0.00	6958	120	6838	161
Karavas 1	**P44**	K1	446700	4030590	3	38	35	-0.28	0.01	6923	34	6889	100
Karavas 2 screen 7	**P49**	K2-7	446690	4030630	3	38	35	-0.38	-0.02	6925	34	6891	206
Taos Cerro Project; OP-TP-1A	**L76**	L76	448185	4030486	3	38	39	-0.02	-0.30	6925	5	6920	507
RG-65955	**D520**	D520	448819	4030546	3	38	40	-0.17	0.27	6959	15	6944	110
RG-25613	**L84**	L84	449690	4030406	3	38	42	0.18	0.44	7010	30	6980	105
RG-7339-S2 / 362453105341401	**A4/G13/Taos 3**	Taos3	448891	4029895	3	39	40	0.45	0.45	6950	38	6912	330
Clinic Well - BIA 1	**P1**	P1	449770	4029980	3	39	43	0.24	-0.36	7040	92	6948	400
RG-12138/Upper Ranchitos MD	**L59**	L59	447181	4029283	3	40	36	0.00	0.00	6886	5	6881	100
RG-7339 / 362438105342901	**A10, Town Well 1**	Taos1	448576	4029599	3	40	40	0.18	-0.33	6950	38	6912	204
RG-7339-S / 362436105342001	**A7/G14**	Taos2	448598	4029605	3	40	40	0.17	-0.28	6970	38	6932	204
Niche Well - BIA 23	**P25**	BIA23	449310	4029600	3	40	41	0.18	0.49	7025	93	6932	225
Clinic Well - BIA 1	**P1**	BIA1	450017	4029743	3	40	43	-0.17	0.25	7090	92	6998	400
Tribal Well RWP-6, BIA 3	**P3**	BIA3	450530	4029850	3	40	45	-0.44	-0.47	7160	180	6980	235
RG-59900	**Cooper GG1**	GG1	443864	4029117	3	41	28	0.38	-0.04	6910	96	6814	190
RG-17178	**Kit Carson**	KC	448912	4029241	3	41	41	0.07	-0.50	6870	64	6806	270
RG-7339-S4	**Taos #5 L95/B33**	Taos5	448581	4029040	3	42	40	-0.43	-0.32	6935	16	6919	330
362407105372801	**A31/G5**	A31	444006	4028511	3	43	28	-0.11	0.31	6885	118	6767	225
RG-482	**L91**	L91	448574	4028548	3	43	40	-0.20	-0.34	6931	80	6851	125
RG-21836	**L88**	L88	449182	4028298	3	43	41	0.42	0.17	6959	25	6934	100
RG-59005	**Arroyo Park GG9 D58**	D583	443639	4028237	3	44	27	-0.43	0.40	6900	105	6795	262
RG-13308	**L100**	L100	448860	4027996	3	44	40	0.17	0.38	6947	48	6899	150
RG-20081; Taos Cerro Project; DH-T6	**L85**	DH-T6	449714	4027976	3	44	42	0.22	0.50	7013	40	6973	500
RG-65553	**D596**	D596	449609	4028037	3	44	42	0.07	0.24	6988	50	6938	140
RG-15111	**L124**	L124	447776	4027540	3	45	38	0.30	-0.32	6915	72	6843	160
RG-58140	**D623**	D623	447896	4027481	3	45	38	0.45	-0.02	6929	50	6879	158
RG-5673	**L98**	L98	448277	4027794	3	45	39	-0.33	-0.08	6933	20	6913	100
RG-19174	**L86**	L86	448689	4027849	3	45	40	-0.47	-0.05	6941	80	6861	120
RG-57939	**D625**	D625	449206	4027464	3	45	41	0.49	0.23	6986	76	6910	138
RG-18884	**L131**	L131	449559	4027540	3	45	42	0.30	0.11	6987	25	6962	97
Owner Record	**B55**	B55	450424	4027664	3	45	44	-0.01	0.26	7105	160	6945	190
RG-54136	**B22**	B22	450688	4027457	3	45	45	0.00	0.00	7185	165	7020	240
RG-22567	**L113**	L113	447570	4027357	3	46	37	-0.24	0.17	6912	60	6852	110
RG-53513	**D626**	D626	447408	4027457	3	46	37	0.00	0.00	6900	76	6824	120
RG-67772	**D630**	D630	447589	4027332	3	46	37	-0.18	0.22	6915	72	6843	150
RG-20042	**L118**	L118	449035	4027452	3	46	41	-0.48	-0.19	6975	60	6915	125
RG-62756	**D634**	D634	450056	4027209	3	46	43	0.00	0.00	7046	80	6966	160
RG-38702	**B21**	B21	450378	4027030	3	46	44	0.00	0.00	7105	80	7025	165
RG-28826	**D648**	D648	450118	4026839	3	46	44	0.00	0.00	7089	70	7019	115
RG-66366	**D662**	D662	450141	4026690	3	46	44	0.00	0.00	7124	90	7034	147

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model													
Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
Driller	**B49**	B49	450425	4026883	3	46	44	0.00	0.00	7165	175	6990	180
RG-30390	**B15**	B15	450449	4026943	3	46	44	0.00	0.00	7155	160	6995	185
RG-45997	**B13**	B13	450346	4026894	3	46	44	0.00	0.00	7135	150	6985	200
RG-25988	**L116**	L116	446859	4026817	3	47	35	0.10	0.40	6906	46	6860	108
RG-25876	**L111**	L111	446899	4026829	3	47	35	0.07	0.50	6909	54	6855	104
RG-23347	**L115**	L115	446883	4026785	3	47	35	0.18	0.46	6906	52	6854	63
RG-20232	**L119**	L119	448439	4026809	3	47	39	0.12	0.33	6975	60	6915	102
RG-17991	**L125**	L125	448479	4026817	3	47	39	0.10	0.43	6976	80	6896	229
RG-20533	**L132**	L132	449892	4026866	3	47	43	-0.02	-0.06	7046	93	6953	183
RG-69217	**D674**	D674	444561	4026488	3	48	30	-0.08	-0.31	6816	16	6800	100
362304105365001	**A27/G7**	A27	444940	4026564	3	48	31	-0.27	-0.37	6820	16	6804	80
BOR2-a	**BOR2-A**	BOR2A	446240	4026553	3	48	34	-0.25	-0.14	6868	61	6807	291
RG-17671	**L112**	L112	447531	4026649	3	48	37	-0.48	0.07	6946	60	6886	104
RG-48434X	**D673**	D673	448371	4026499	3	48	39	-0.11	0.16	6995	80	6915	180
RG-402	**L120**	L120	448768	4026369	3	48	40	0.21	0.15	7018	60	6958	109
RG-64464	**D686**	D686	449130	4026276	3	48	41	0.44	0.04	7047	105	6942	170
RG-65512	**D679**	D679	449192	4026367	3	48	41	0.22	0.20	7037	120	6917	200
RG-64863	**D687**	D687	449282	4026274	3	48	41	0.45	0.42	7043	140	6903	290
RG-23095	**L133**	L133	449686	4026404	3	48	42	0.12	0.43	7050	155	6895	225
RG-60383	**B56**	B56	449737	4026393	3	48	43	0.15	-0.45	7060	47	7013	140
RG-19145	**L117**	L117	449307	4025903	3	49	41	0.37	0.49	7090	105	6985	170
RG-68110	**D693**	D693	448976	4026187	3	49	41	-0.34	-0.34	7046	137	6909	195
RG-17601	**L24**	L24	445072	4025740	3	50	31	-0.22	-0.04	6879	15	6864	38
362228105364301	**A26/G8**	A26	445107	4025454	3	50	31	0.49	0.05	6884	27	6857	43
RG-15897	**L138**	L138	446277	4025833	3	50	34	-0.46	-0.05	6890	50	6840	105
RG-66029	**D714**	D714	446259	4025765	3	50	34	-0.29	-0.09	6890	51	6839	105
RG-58151	**D713**	D713	446472	4025793	3	50	34	-0.36	0.44	6890	76	6814	120
RG-27644	**L142**	L142	446502	4025628	3	50	35	0.05	-0.49	6896	70	6826	100
RG-52979	**D744**	D744	441497	4025156	3	51	22	0.23	0.07	6810	70	6740	145
RG-5846	**L28**	L28	443658	4025107	3	51	27	0.35	0.44	6862	10	6852	75
RG-25451	**L27**	L27	445278	4025092	3	51	31	0.38	0.47	6893	60	6833	110
RG-17617	**L25**	L25	445259	4025126	3	51	31	0.30	0.42	6889	15	6874	60
RG-23836	**L26**	L26	445386	4025246	3	51	32	0.00	-0.26	6901	18	6883	52
RG-55097	**D750**	D750	446676	4025089	3	51	35	0.39	-0.05	6929	95	6834	140
RG-63984	**D746**	D746	446921	4025147	3	51	36	0.25	-0.44	6937	65	6872	147
RG-20378	**L141**	L141	446910	4025220	3	51	36	0.07	-0.47	6929	60	6869	120
RG-18720	**L143**	L143	446939	4025197	3	51	36	0.12	-0.40	6932	60	6872	123
RG-25455	**L144**	L144	446999	4025089	3	51	36	0.39	-0.25	6939	59	6880	120
362208105360701	**B67/A21/G15**	A21	446000	4024832	3	52	33	0.03	0.27	6950	70	6880	181
GGI	**B9**	B9	446390	4024785	3	52	34	0.15	0.24	6945	59	6886	202
RG-54531	**D779**	D779	446154	4024730	3	52	34	0.29	-0.35	6939	80	6859	150
RG-65670	**D776**	D776	446367	4024758	3	52	34	0.22	0.18	6940	58	6882	202
RG-65589	**La Fontana D773**	D773	446307	4024789	3	52	34	0.14	0.03	6937	57	6880	242

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Water Level Data Used as Targets for the Taos Groundwater Model

Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	**Source ID**	**MODFLOW Target ID**	**X UTM NAD83**	**Y UTM NAD83**	**Model Layer**	**Row**	**Col**	**Row offset**	**Col offset**	**Ground Surface Elevation**	**Depth to Water**	**Water Level Elevation**	**Total Depth**
RG-67905	**D774**	D774	446484	4024787	3	52	34	0.14	0.47	6936	82	6854	300
RG-1756 / Ranchos de Taos MD	**L137**	L137	446464	4024793	3	52	34	0.13	0.42	6936	80	6856	188
RG-16262	**L139**	L139	446674	4025025	3	52	35	-0.45	-0.06	6927	63	6864	127
RG-62383	**D765**	D765	447039	4024871	3	52	36	-0.06	-0.15	6961	60	6901	120
RG-66716	**D759**	D759	447131	4024931	3	52	36	-0.21	0.08	6957	82	6875	150
RG-56278	**D754**	D754	447102	4025023	3	52	36	-0.44	0.01	6949	70	6879	160
RG-18040	**L140**	L140	447164	4024890	3	52	36	-0.11	0.16	6963	80	6883	125
RG-58626	**B28**	B28	449818	4025037	3	52	43	-0.48	-0.24	7240	147	7093	283
RG-63321	**B29**	B29	449825	4024562	3	52	43	0.00	0.00	7270	210	7060	260
RG-62726	**D789**	D789	446516	4024482	3	53	35	-0.10	-0.45	6952	71	6881	160
RG-54323	**B54**	B54	448790	4024299	3	53	40	0.36	0.20	7155	260	6895	325
RG-56772	**B53**	B53	449130	4024634	3	53	41	-0.48	0.05	7165	285	6880	375
Driller	**B42**	B42	449708	4024548	3	53	42	0.00	0.00	7245	275	6970	405
RG-55251	**B51**	B51	449443	4024472	3	53	42	-0.07	-0.18	7230	360	6870	440
RG-50637	**B50**	B50	449548	4024502	3	53	42	0.00	0.00	7237	380	6857	490
RG-56279	**B38**	B38	449682	4024344	3	53	42	0.00	0.00	7275	290	6985	360
RG-60396	**B3**	B3	446696	4023938	3	54	35	0.25	0.00	7005	35	6970	160
RG-53672	**D827**	D827	448767	4024148	3	54	40	-0.27	0.14	7164	290	6874	380
RG-68369	**B2**	B2	449288	4023996	3	54	41	0.00	0.00	7250	320	6930	440
RG-57377	**D839**	D839	449100	4023961	3	54	41	0.00	0.00	7221	290	6931	375
RG-52124	**B62**	B62	449585	4024240	3	54	42	0.00	0.00	7275	400	6875	490
RG-17243	**L39**	L39	445127	4023558	3	55	31	0.20	0.10	6878	80	6798	110
362127105361801	**A22/G9**	A22	445718	4023570	3	55	33	0.17	-0.43	6950	29	6921	54
RG-68646	**B59**	B59	448755	4023740	3	55	40	-0.25	0.11	7150	300	6850	450
RG-18848	**L40**	L40	445340	4023344	3	56	32	-0.27	-0.37	6894	135	6759	175
RG-27221	**L145**	L145	446860	4023299	3	56	35	-0.16	0.40	7034	100	6934	146
RG-21162	**L148**	L148	447818	4023116	3	56	38	0.00	0.00	7117	170	6947	200
RG-54111	**D907**	D907	448054	4023212	3	56	38	0.00	0.00	7140	227	6913	330
Owner	**B46**	B46	448475	4023064	3	56	39	0.00	0.00	7240	350	6890	400
RG-55292	**D920**	D920	448327	4023087	3	56	39	0.00	0.00	7206	240	6966	333
RG-17344	**L32**	L32	440974	4022870	3	57	21	-0.09	-0.22	6927	80	6847	125
RG-58553	**B8**	B8	445961	4022633	3	57	33	0.50	0.17	6970	61	6909	82
RG-22677	**L35**	L35	445816	4022809	3	57	33	0.06	-0.19	6943	35	6908	95
RG-61534	**D948**	D948	446189	4022779	3	57	34	0.13	-0.26	7034	78	6956	160
RG-64995	**D958**	D958	446307	4022473	3	58	34	-0.10	0.03	7054	105	6949	165
362045105354801	**A18/G3/B66?**	A18	446458	4022271	3	58	34	0.40	0.40	7065	120	6945	300
Driller	**B40**	B40	446181	4022345	3	58	34	0.21	-0.28	7045	130	6915	160
RG-63128	**D967**	D967	446396	4022289	3	58	34	0.35	0.25	7062	120	6942	160
RG-67581	**D966**	D966	446396	4022289	3	58	34	0.35	0.25	7062	147	6915	190
RG-54514	**B12**	B12	447181	4022245	3	58	36	0.00	0.00	7115	147	6968	210
RG-3894-S / Llano Quemado MD	**B58**	B58	444842	4021947	3	59	30	0.20	0.39	7055	94	6961	244
RG-65037	**D983**	D983	445126	4021848	3	59	31	0.45	0.09	7023	140	6883	220
RG-7462	**L10**	L10	446409	4021978	3	59	34	0.13	0.28	7068	80	6988	130

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Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
RG-6539	**L9**	L9	446428	4021936	3	59	34	0.23	0.33	7065	140	6925	200
362029105364301	**A25/G2**	A25	445084	4021787	3	60	31	-0.40	-0.01	7039	109	6930	165
RG-4995	**L6**	L6	445080	4021732	3	60	31	-0.26	-0.02	7042	94	6948	112
	D987	D987	446542	4021800	3	60	35	-0.43	-0.39			6998	
RG-56388	**D1001**	D1001	446629	4021433	3	60	35	0.48	-0.17	7049	87	6962	135
RG-61059CLW & RG-61059	**D996/D997**	D996	446630	4021524	3	60	35	0.25	-0.17	7059	60	6999	252
RG-54501	**D76**	D76	440879	4043296	4	6	21	0.14	-0.46	6853	30	6823	82
RG-38199	**D87**	D87	440816	4043144	4	7	20	-0.48	0.38	6856	25	6831	30
RG-7609 CLW / Upper Arroyo Hondo M	**L206**	L206	442154	4042513	4	8	24	0.09	-0.29	7101	175	6926	230
RG-61808	**D156**	D156	442510	4042208	4	9	25	-0.16	-0.41	7217	270	6947	388
RG-16107 / Lower Des Montes MD	**L207**	L207	447165	4042076	4	9	36	0.17	0.16			7389	
RG-70152	**D279/W_1358**	D279	446417	4040360	4	13	34	0.44	0.30	7453	347	7106	850
Tract B Tip Well - BIA 10	**P11**	BIA10	444970	4035880	4	25	31	-0.43	-0.29	7190	100	7090	608
Tract B Tip Well - BIA 11	**P12**	BIA11	444960	4035870	4	25	31	-0.40	-0.32	7187	100	7087	760
BOR 4	**BOR 4-S**	BOR4S	445020	4035680	4	25	31	0.07	-0.17	7188	181	7007	900
RG-71635	**D388**	D388	443605	4035033	4	27	27	-0.32	0.31	7149	252	6897	360
RG-65302	**D384**	D384	443454	4035065	4	27	27	-0.40	-0.06	7152	280	6872	360
TP-2 Taos North	**BOR**	tp2			4	27	33	0.00	0.00	7115	21	7094	500
RG-20045	**A28/G16**	A28	444867	4034699	4	28	30	-0.49	0.45	7152	57	7095	500
RG-73285	**Cameron**	CAM			4	28	34	0.00	0.00	7150	107	7043	350
Buffalo Pasture Well - BIA 2	**P2**	P2	449550	4033390	4	31	42	-0.24	0.09	7095	18	7077	700
Don's Well - BIA 14	**P15**	BIA14	449420	4031200	4	36	42	0.20	-0.23	7000	-1	7001	613
Taos Cerro Project; OH-TP-1B	**L48**	L48	448443	4030883	4	37	39	-0.01	0.34	6956	5	6951	507
Karavas 2 screen 6	**P48**	K2-6	446690	4030610	4	38	35	-0.33	-0.02	6925	16	6909	348
RG-63808	**La Percha GG11**	GG11	446021	4030196	4	39	33	-0.30	0.32	6990	105	6885	360
Tract A PW2 - BIA 15	**P16**	BIA15	442420	4028400	4	43	24	0.16	0.37	6925	116	6809	225
RG-7339-S3; Taos #4	**L94**	Taos4	448038	4028399	4	43	38	0.17	0.33	6905	15	6890	300
RG-7339X-S?	**B32**	B32	448096	4028182	4	44	38	-0.29	0.48	6905	15	6890	300
RG-55738	**B16**	B16	450751	4027469	4	45	45	0.00	0.00	7165	180	6985	360
RG-47694	**B23**	B23	450599	4027477	4	45	45	0.00	0.00	7155	200	6955	382
RG-51093	**B47**	B47	450452	4027370	4	46	44	0.00	0.00	7140	170	6970	229
RG-50762X	**B48**	B48	450515	4027440	4	46	44	0.00	0.00	7145	175	6970	235
RG-70014	**D657**	D657	448526	4026741	4	47	40	0.29	-0.46	6987	105	6882	250
RG-23015	**L29 Sewage treatmen**	Sew	440350	4025505	4	50	19	0.36	0.22	6767	52	6715	130
RG-66288	**B10**	B10	449670	4025430	4	51	42	-0.45	0.39	7190	80	7110	365
RG-55279	**B6**	B6	449448	4025279	4	51	42	-0.08	-0.16	7170	250	6920	325
RG-59381	**D751**	D751	449663	4025081	4	51	42	0.41	0.37	7211	290	6921	360
RG-47720	**B7**	B7	449581	4024847	4	52	42	-0.01	0.17	7225	320	6905	404
RG-67517	**B4**	B4	449710	4024972	4	52	42	-0.32	0.49	7235	360	6875	460
Driller	**B39**	B39	449433	4024704	4	52	42	0.35	-0.20	7202	370	6832	410
RG-65604	**D770**	D770	449415	4024810	4	52	42	0.09	-0.25	7194	270	6924	380
Driller	**B52**	B52	449761	4024702	4	52	43	0.00	0.00	7265	300	6965	650
RG-73095 / BOR 1 Shallow	**BOR1 Shallow GG13**	BOR1S	442124	4022604	4	58	24	-0.43	-0.37	6960	211	6749	460

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Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
RG-67964	**B1**	D965	446032	4022355	4	58	33	0.19	0.34	7045	235	6810	480
RG-54314	**D980**	D980	445021	4022002	4	59	31	0.07	-0.17	7023	255	6768	410
RG-55985	**B19**	B19	447214	4021743	4	59	36	0.00	0.00	7125	125	7000	280
River View Acres	**test well**	RVA	12E Sec 6 SW 1/4		5	7	10	0.00	0.00	6955	456	6499	510
RG-68808	**D176/W_1302**	D176	437159	4041988	5	9	11	0.39	0.29	6854	350	6504	455
RG-62458	**Mariposa Ranch GG7**	MAR	443925	4042037	5	9	28	0.27	0.11	7330	585	6745	800
RG-57312	**D263/W_1283**	D263	436432	4041160	5	11	9	0.45	0.49	6867	380	6487	410
RG-70236	**D288/W_1331**	D288	436509	4040001	5	14	10	0.33	-0.32	6957	470	6487	570
RG-53410	**D291/W_1357**	D291	440803	4039792	5	15	20	-0.15	0.35	7137	550	6587	815
RG-62152	**D303/W_1334**	D303	437484	4038845	5	17	12	0.20	0.10	7001	493	6508	580
Tract B OW - BIA 7 shallow	**P8**	BIA7s	444350	4039090	5	17	29	-0.41	0.17	7312	485	6827	590
Tract B PW2 - BIA 9	**P10**	BIA9	444340	4039090	5	17	29	-0.41	0.14	7312	470	6842	575
Grumpy Well - BIA 24	**P26**	BIA24	447450	4038550	5	18	37	-0.06	-0.13	7398	177	7221	1000
RG-64059	**D318/W_1336**	D318	438942	4037333	5	21	16	-0.04	-0.28	7046	502	6544	590
RG-68728	**D328/W_1342**	D328	441678	4036795	5	22	23	0.30	-0.48	7164	525	6639	640
RG-4066	**L150**	L150	437171	4036327	5	23	11	0.46	0.32	6989	498	6491	561
West Deep Well - BIA 20	**P22**	BIA20	447330	4036110	5	24	37	0.00	-0.43	7242	99	7143	1000
RG-75635	**Taos Landfill**	TL	442398	4033819	5	30	24	-0.31	0.31	7152	320	6832	510
RG-74803-EXP	**El Prado Wtr & San**	ELPR			5	34	40	0.00	0.00	6970	24	6946	1125
Karavas 2 screen 5	**P47**	K2-5	446690	4030610	5	38	35	-0.33	-0.02	6925	23	6902	508
Taos Yard Exploratory Deep	**GG17/B61**	TY	447560	4027036	5	47	37	-0.45	0.14	6920	115	6805	1020
RG-35518	**A33/G6 Exploratory**	A33	440130	4026244	5	49	19	-0.48	-0.32	6640	37	6603	530
RG-37303 / RG-60885-EX	**Taos SJC GG10**	SJC	440453	4026098	5	49	19	-0.11	0.48	6650	29	6621	180
Special OSE file	**L30**	L30	440409	4025107	5	51	19	0.35	0.37	6735	116	6619	136
RG-68034	**Riverbend**	RIVB	438869	4024581	5	53	16	-0.34	-0.46	6725	121	6604	215
RG-50140	**BJV1 GG5**	GG5	441231	4023483	5	55	21	0.38	0.41	6841	158	6683	240
RG-65392 EXP	**Barranca del Pueblo**	BAR			5	56	11	0.00	0.00	6685	233	6452	320
RG-59563-EX	**UNM/Taos GG6**	UNM	441599	4022601	5	58	22	-0.42	0.33	6990	310	6680	1200
Tract B OW - BIA 7 Deep	**P7**	BIA7d	444350	4039090	6	17	29	-0.41	0.17	7312	720	6592	1020
Tract B PW - BIA 8	**P9**	BIA8	444320	4039080	6	17	29	-0.38	0.09	7310	719	6591	1005
BOR 5	**BOR 5**	BOR5	447380	4035900	6	25	37	-0.48	-0.30	7247	265	6982	1830
Taos Airport	**deep**	TA	439404	4034694	6	28	17	-0.48	-0.13	7050	500	6550	1720
Karavas 2 screen 2	**P46**	K2-2	446690	4030610	6	38	35	-0.33	-0.02	6925	261	6664	1117
Tract A OW - BIA 5	**P5**	BIA5	442420	4028390	6	43	24	0.19	0.37	6780	200	6580	1000
Tract A PW - BIA 6	**P6**	BIA6	442400	4028390	6	43	24	0.19	0.32	6785	200	6585	1000
RG-73668	**BOR 2B intermediate**	BOR2B	446240	4026553	6	48	34	-0.25	-0.14	6868	84	6784	1050
Rio Pueblo 2000	**upper**	RP2Ku	440375	4026027	6	49	19	0.06	0.29	6660	171	6489	1175
RG-72824	**Nat Guard Domestic**	NG	442209	4022626	6	58	24	-0.48	-0.16	6960	270	6690	1430
RG-73095	**BOR1 deep**	BOR1	442124	4022604	6	58	24	-0.43	-0.37	6960	281	6679	2003
BOR 7	**BOR 7**	BOR7	444280	4038930	7	17	29	-0.01	-0.01	7315	720	6595	3000
BOR 6	**BOR 6**	BOR6	444798	4036007	7	24	30	0.26	0.28	7188	610	6578	2000
BOR 4	**BOR 4-D**	BOR4D	445020	4035680	7	25	31	0.07	-0.17	7188	610	6578	1800
Karavas 2 screen 1	**P45**	K2-1	446690	4030610	7	38	35	-0.33	-0.02	6925	165	6760	1942

Table A1

Water Level Data Used as Targets for the Taos Groundwater Model

Well ID			Well Location		Model Coordinates					Elevation/Depth data in feet			
Well ID	Source ID	MODFLOW Target ID	X UTM NAD83	Y UTM NAD83	Model Layer	Row	Col	Row offset	Col offset	Ground Surface Elevation	Depth to Water	Water Level Elevation	Total Depth
Karavas 3	**P50**	K3	446690	4030610	7	38	35	-0.33	-0.02	6927	271	6656	1800
RG-73668	**BOR 2C deep**	BOR2C	446240	4026553	7	48	34	-0.25	-0.14	6868	271	6597	2024
BOR 3	**BOR 3**	BOR3	446247	4026541	7	48	34	-0.22	-0.12	6868	276	6592	2110
Rio Pueblo 2000	**deep**	RP2Kd	440375	4026027	7	49	19	0.06	0.29	6660	151	6509	2000
Rio Pueblo 2000	**middle**	RP2Km	440375	4026027	7	49	19	0.06	0.29	6660	160	6500	1360
RG-74167	**Rio Pueblo 2500**	RP25K	440360	4026053	7	49	19	0.00	0.25	6665	155	6510	2500

APPENDIX B

Distribution of Hydraulic Properties, Stresses and Calibration Residuals for Taos Groundwater Model T17.0

This Appendix contains the following model information:

1) Hydraulic Conductivity (K) Diagrams, Layers 1 through 7
2) Transmissivity (T) Diagrams, Layers 1 through 7
3) Distribution of Irrigation Return Flow (Groundwater Accretions from Irrigation)
4) Distribution of Mountain-Front Recharge
5) Table Summarizing Well Pumping Simulated in Model
6) Distribution of Municipal, Domestic and Sanitary Pumping Diagrams
7) Calibration Residuals Diagrams, Layers 1 through 7

All diagrams were generate using Microsoft Excel for illustrative purposes, and are not to scale, and generally have some horizontal exaggeration. Model cells are actually squares: ¼ mile by ¼ mile. Row values are listed along the left hand side, and column values are listed along the top of each diagram.

These diagrams include a few basic model features. RIV and STR cells that represent the Rio Grande and its tributaries are designated by bordered cells. The Buffalo Pasture is denoted by bordered STR cells with pink font within. The background colors of the cells indicate which layer contains the uppermost active cell at each x, y location for the model as a whole.

- Light Blue Cells: the uppermost active cells are in layer 1.
- Yellow Cells: the uppermost active cells are in layer 3 (layers 1 and 2 are not active in these locations)
- Orange Cells: The uppermost active cells are in layer 4 (layers 1, 2 and 3 are not active in these locations)
- Green Cells: The uppermost active cells are in layer 5 (layers 1, 2, 3 and 4 are not active in these locations)
- White cells: Only the white cells representing the Rio Grande, which are the bordered white cells along the left hand side of the active model grid, are active. These cells are in layer 6.

Layer 1 Hydraulic Conductivity (ft/day)

K1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	10	10	10	10	10	10	10	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	1	1	1	1	1	1	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	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	5	1	1	1	1	1	1	1	1	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	1	1	1	1	1	1	1	1	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	1	1	1	10	10	10	10	0	0
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17	0	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	90	90	10	1	1	1	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	90	90	1	1	1	0	0	0	0
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	10	5	5	5	90	90	90	1	1	1	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	1	1	1	0	0	0	0
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	0	0	0	0	0	0	0	10	10	5	5	5	90	90	90	1	1	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	1	1	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	1	1	1	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	1	1	1	1	0	0	0
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29	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	90	1	1	1	1	0	0
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33	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	1	1	90	10	5	1	1	1	0
34	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	5	1	1	10	5	5	1	1	1	0
35	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	10	10	5	5	5	1	1	0	0
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	0	0	0	0	0	0	10	10	10	90	90	90	90	5	5	5	5	1	1	0	0
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	10	10	90	90	90	90	90	5	5	5	5	1	1	0	0
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43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	90	90	10	10	10	5	5	1	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	90	10	10	5	5	1	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	90	10	1	1	1	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	20	90	1	1	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	20	20	10	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	20	10	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	1	10	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Layer 2 Hydraulic Conductivity (ft/day)

K2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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
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
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	10	10	10	10	10	10	10	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	1	1	1	1	1	1	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	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	5	1	1	1	1	1	1	1	1	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	1	1	1	1	1	1	1	1	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	1	1	1	10	10	10	10	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	1	1	1	10	10	10	1	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	90	90	10	10	1	1	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	90	90	10	1	1	1	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	90	90	1	1	1	0	0	0	0
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	10	5	5	5	90	90	90	1	1	1	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	1	1	1	0	0	0	0
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	0	0	0	0	0	0	0	10	10	5	5	5	90	90	90	1	1	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	1	1	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	1	1	1	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	1	1	1	1	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	1	1	1	1	1	0	0
26	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	90	1	1	1	1	0	0
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	0	0	0	0	0	0	0	0	0	0	10	10	10	5	5	5	90	90	90	90	1	1	1	1	0	0
28	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	90	1	1	1	1	0	0
29	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	90	1	1	1	1	0	0
30	0	0	0	0	0	0	0	0	0	0	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	5	5	5	90	90	90	90	5	1	1	1	0	0
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	10	10	10	5	5	5	90	90	90	90	5	5	1	1	0	0
32	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	1	1	90	5	10	10	10	10	0
33	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	1	1	90	10	5	1	1	1	0
34	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	5	1	1	10	5	5	1	1	1	0
35	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	10	10	5	5	5	1	1	0	0
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	0	0	0	0	0	0	10	10	10	90	90	90	90	5	5	5	5	1	1	0	0
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	10	10	90	90	90	90	90	5	5	5	5	1	1	0	0
38	0	0	0	0	0	0	0	0	0	0	0	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	90	90	10	10	10	10	5	5	5	5	1	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	90	90	10	10	10	10	5	5	5	5	1	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	5	1	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	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	5	5	5	1	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	90	90	10	10	10	5	5	1	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	90	10	10	5	5	1	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	90	10	1	1	1	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	20	90	1	1	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	20	20	10	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	20	10	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	1	10	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Layer 3 Hydraulic Conductivity (ft/day)

K3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0
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	0.1	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
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	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0
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	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	3	3	0	0	0	0	0	0	0	0
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	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	3	3	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
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	3	3	3	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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	0	0	0	0	3	3	3	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
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	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	3	3	3	3	3	3	3	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	0.5	0.5	0.5	3	3	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	20	20	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	20	20	3	0.5	0.5	0.5	0.1	0.1	0.1	0.1	3	3	3	3	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	20	20	3	0.5	0.5	0.5	0.1	0.1	0.1	0.1	3	3	3	0.1	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	20	3	3	0.5	0.5	0.5	0.1	20	20	3	3	0.1	0.1	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	20	3	3	0.5	0.5	0.5	0.1	20	20	3	0.1	0.1	0.1	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	20	3	3	3	0.5	0.5	0.5	0.1	20	20	0.1	0.1	0.1	0	0	0	0
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	3	3	3	3	20	3	3	3	0.5	0.5	0.5	20	20	20	0.1	0.1	0.1	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	3	20	3	3	3	0.5	0.5	0.5	20	20	20	0.1	0.1	0.1	0	0	0	0
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	0	3	3	3	20	3	3	3	3	0.5	0.5	0.5	20	20	20	0.1	0.1	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	20	20	3	3	3	3	0.5	0.5	0.5	20	20	20	0.1	0.1	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	20	20	3	3	3	3	0.5	0.5	0.5	20	20	20	0.1	0.1	0.1	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	20	20	3	3	3	3	0.5	0.5	0.5	20	20	20	0.1	0.1	0.1	0.1	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	20	20	3	3	3	3	0.5	0.5	0.5	20	20	20	0.1	0.1	0.1	0.1	0.1	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	20	20	3	3	3	3	0.5	0.5	0.5	20	20	20	20	0.1	0.1	0.1	0.1	0	0
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	0	0	0	0	0	3	3	20	20	3	3	3	3	0.5	0.5	0.5	20	20	20	20	0.1	0.1	0.1	0.1	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	20	3	3	3	3	3	0.5	0.5	0.5	20	20	20	20	0.1	0.1	0.1	0.1	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	20	20	3	3	3	3	3	0.5	0.5	0.5	20	20	20	20	0.1	0.1	0.1	0.1	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	20	3	3	3	3	3	3	0.5	0.5	0.5	20	20	20	20	0.5	0.1	0.1	0.1	0	0
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	3	20	3	3	3	3	3	3	0.5	0.5	0.5	20	20	20	20	0.5	0.5	0.1	0.1	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	20	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	20	0.5	3	3	3	3	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	20	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	20	3	0.5	0.1	0.1	0.1	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	3	0.5	0.5	0.1	0.1	0.1	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	3	3	3	3	3	3	3	3	0.5	0.5	0.5	3	3	0.5	0.5	0.5	0.1	0.1	0	0
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	20	20	3	3	3	3	3	3	3	3	20	20	20	20	0.5	0.5	0.5	0.5	0.1	0.1	0	0
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	20	3	3	3	3	3	3	3	3	20	20	20	20	20	0.5	0.5	0.5	0.5	0.1	0.1	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	3	3	3	3	3	3	3	20	20	3	3	3	3	0.5	0.5	0.5	0.5	0.1	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	3	3	3	3	3	3	3	20	20	20	3	3	3	3	0.5	0.5	0.5	0.5	0.1	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	3	3	3	3	3	3	20	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.1	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	3	3	3	3	3	3	20	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.1	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	3	3	3	3	3	3	20	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.1	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	3	3	20	20	20	20	20	20	20	20	20	20	3	3	3	0.5	0.5	0.1	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	3	20	20	20	20	20	20	15	15	15	15	15	20	3	3	0.5	0.5	0.1	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	15	15	20	20	15	15	15	15	15	15	15	15	20	3	0.1	0.1	0.1	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	20	20	15	15	15	15	15	15	15	15	15	15	15	15	15	15	20	0.1	0.1	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	20	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	3	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	20	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	3	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	20	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	0.1	3	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	20	20	15	15	15	15	15	15	15	15	15	15	15	15	0.1	0.1	0.1	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	20	20	15	15	15	15	15	15	15	15	15	15	15	0.1	0.1	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	20	15	15	15	15	15	15	15	15	15	15	15	0.1	0.1	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	20	15	15	15	15	15	15	15	15	15	0.1	0.1	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	20	15	15	15	15	15	15	15	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	20	15	15	15	15	15	15	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	20	20	15	15	15	15	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	20	15	15	15	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	20	20	15	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	15	15	20	15	15	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	15	15	15	15	15	15	15	15	15	0.1	0.1	0.1	15	15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Layer 4 Hydraulic Conductivity (ft/day)

K4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	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	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
3	0	0	0	0	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	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
4	0	0	0	0	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	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
5	0	0	0	0	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	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
6	0	0	0	0	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	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
7	0	0	0	0	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	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
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Layer 5 Hydraulic Conductivity (ft/day)

Layer 5 Hydraulic Conductivity (ft/day)

K5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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31	0	0	0	0	0	10	10	10	10	10	10	10	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	0	0	0
32	0	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	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	0	0	0
33	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	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	0	0	0
34	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	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0
35	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	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0
36	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	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0
37	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	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0
38	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	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0
39	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	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0
40	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	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0
41	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	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0
42	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	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	0	0	0	0
43	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	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	0	0	0	0	0
44	0	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	1	1	1	1	1	1	1	4	4	4	4	4	4	4	1	4	0	0	0	0	0
45	0	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	1	1	1	1	1	1	1	4	4	4	4	4	4	4	1	1	0	0	0	0	0
46	0	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	1	1	1	1	1	1	1	1	4	4	4	4	4	4	1	0	0	0	0	0	0
47	0	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	1	1	1	1	1	1	1	1	4	4	4	4	4	4	0	0	0	0	0	0	0
48	0	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	1	1	1	1	1	1	1	1	4	4	4	4	1	4	0	0	0	0	0	0	0
49	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	1	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	0	0	0	0	0	0
50	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	1	1	1	1	1	1	1	1	4	4	4	4	4	1	4	4	0	0	0	0	0	0
51	0	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	1	1	1	1	1	1	1	4	4	4	4	4	4	1	0	0	0	0	0	0	0
52	0	0	0	0	0	0	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0
53	0	0	0	0	0	0	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0	0
54	0	0	0	0	0	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0	0
55	0	0	0	0	0	1	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	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
57	0	0	0	0	0	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	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
58	0	0	0	0	1	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	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
59	0	0	0	0	1	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	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
60	0	0	0	0	1	1	1	1	1	4	4	4	4	4	4	4	4	4	4	4	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

Layer 6 Hydraulic Conductivity (ft/day)

Layer 6 Hydraulic Conductivity (ft/day)

K6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	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
2	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	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
3	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	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
4	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	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
5	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	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
6	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	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
7	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	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
8	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	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
9	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	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
10	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	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
11	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	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
12	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	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
13	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.1	0.1	0.1	0.1	0.1	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
14	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	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
15	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	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
16	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	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
17	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	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
18	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
19	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
20	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
21	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	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
22	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	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
23	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
24	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	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
25	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
26	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
27	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
28	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
29	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
30	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
31	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
32	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	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
33	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	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
34	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	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
35	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	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
36	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
37	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
38	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
39	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
40	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
41	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
42	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
43	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
44	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
45	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
46	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0
47	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
48	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
49	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0
50	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0
51	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
52	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
53	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0	0	0	0	0	0	0	0
54	0	0	0	0	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0	0	0	0	0	0	0	0
55	0	0	0	0	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0	0	0	0	0	0	0	0	0
56	0	0	0	0	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	3	3	3	3	3	3	3	3	3	3	3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Layer 7 Hydraulic Conductivity (ft/day)

Layer 7 Hydraulic Conductivity (ft/day)

K7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	0	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	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
2	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	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
3	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	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
4	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	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
5	0	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	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
6	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	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
7	0	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	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
8	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	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
9	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	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
10	0	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	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
11	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	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
12	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	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
13	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	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
14	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	0.1	0.1	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
15	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	0.1	0.1	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
16	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	0.1	0.1	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
17	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	0.1	0.1	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
18	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
19	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
20	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
21	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	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
22	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	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
23	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
24	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.1	0.1	0.1	0.1	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
25	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
26	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
27	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
28	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
29	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
30	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
31	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
32	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	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
33	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	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
34	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	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
35	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	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
36	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
37	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
38	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
39	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
40	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0
41	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
42	0	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0
43	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
44	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
45	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0
46	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0
47	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
48	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
49	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0
50	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0
51	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
52	0	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0
53	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0	0	0	0	0	0	0	0
54	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0.1	0	0	0	0	0	0	0	0
55	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.1	0.1	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

T1 Column: T17.0

Transmissivity Layer 1 ft2/day

Row	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
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
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22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200	100	100	100	1800	1800	1800	20	20	0	0	0	0	0	0
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T2 Column: T17.0 Transmissivity Layer 2 ft2/day

Row	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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T3 Column: T17.0

Transmissivity Layer 3 ft2/day

Row	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
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	15	15	15	19	28	45	-266	0	0	0	0	0	0	0	0	0	0
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	15	15	15	18	25	32	35	45	63	0	0	0	0	0	0	0	0
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	75	75	67	17	22	27	33	40	52	68	0	0	0	0	0	0	0
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	75	75	69	86	21	25	30	36	43	55	0	0	0	0	0	0	0
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60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	10	10	10	1500	1500	1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0

T4 Column: T17.0

Transmissivity Layer 4

ft2/day

Row:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	221	293	324	361	401	441	478	510	538	560	302	335	365	337	355	389	400	400	400	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	232	255	284	319	359	402	445	484	517	544	567	305	338	368	337	355	386	400	400	400	450	450	450	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	216	237	269	309	354	403	453	495	530	558	580	313	346	374	340	356	450	450	450	450	450	450	450	500	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	181	206	244	293	344	400	469	515	551	579	597	326	410	434	395	411	450	450	450	450	450	450	500	500	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	113	154	197	267	327	375	446	495	535	570	711	397	433	446	399	417	450	450	450	450	450	500	500	500	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	178	235	296	345	390	540	582	620	654	689	379	421	457	400	400	450	450	450	450	500	500	500	500	450	450	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	141	237	380	417	453	491	532	571	606	639	670	367	410	541	450	450	500	500	500	500	500	500	500	500	450	550	500	500	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	384	403	428	457	490	525	559	592	624	654	359	451	400	450	450	500	500	500	500	500	500	550	550	500	500	500	500	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	406	416	435	460	488	519	550	581	611	640	400	444	400	450	500	500	500	500	500	500	500	550	550	500	500	500	500	500	0	0
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11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	418	426	440	460	483	508	535	563	691	718	390	400	450	500	550	550	550	550	550	550	550	550	550	500	550	550	550	550	0	0
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15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	517	523	533	548	566	586	657	679	379	398	428	450	450	500	550	550	550	550	550	550	550	550	550	550	550	550	550	550	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	514	519	529	543	560	629	650	720	375	395	425	450	450	500	595	550	550	550	550	550	550	550	550	550	550	550	550	550	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	509	515	575	538	605	623	693	713	372	392	422	500	450	500	576	550	550	550	550	550	550	550	550	550	550	550	550	550	0	0
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21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	589	594	602	613	626	656	672	691	360	430	450	550	529	482	503	517	545	550	550	550	550	550	550	550	550	550	0	0	0	0
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25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	569	572	579	588	600	636	652	669	714	847	900	1000	476	428	435	449	470	484	499	518	539	558	565	559	548	568	581	627	0	0
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47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	58	56	66	73	67	72	81	89	53	69	84	98	111	247	269	305	329	735	768	804	840	876	923	1006	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	43	84	100	34	36	40	47	101	64	80	94	106	118	258	278	310	331	704	767	795	826	858	906	1003	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75	86	104	40	41	45	50	58	113	77	92	103	114	125	268	286	314	331	698	733	788	811	837	866	1061	1288	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	32	26	40	45	51	58	67	77	87	100	111	121	524	557	606	636	664	692	720	746	768	788	804	1060	1230	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	70	89	35	38	43	49	56	64	74	85	98	110	119	128	553	581	622	644	666	688	709	729	748	764	777	786	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	62	83	37	40	45	52	60	69	79	91	104	116	126	138	580	602	634	652	669	687	704	720	736	750	764	779	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	36	56	80	38	42	48	55	63	73	84	96	110	123	137	151	608	622	646	659	674	690	704	717	730	743	756	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	28	51	77	40	43	49	57	66	76	88	101	115	130	145	156	632	644	658	670	681	695	707	718	730	740	752	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	44	72	40	45	51	59	68	79	92	105	120	135	151	162	660	666	674	683	692	702	713	722	736	742	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	26	34	49	67	87	111	137	165	142	146	152	161	170	182	195	209	224	240	256	268	1092	1092	1094	1099	1105	1114	1124	1130	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	15	27	42	61	80	104	130	158	142	146	153	162	172	184	197	211	227	243	258	271	1115	1121	1118	1117	1120	1128	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	2	15	28	50	74	99	126	154	143	147	153	162	173	185	199	214	230	246	262	276	1140	1152	1148	1140	1136	1137	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	19	44	69	95	123	152	143	147	154	163	174	186	200	216	233	251	267	281	1156	1169	1177	1168	1156	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	15	41	67	94	121	151	143	147	154	163	174	186	201	217	236	258	275	288	1174	1187	1191	1193	0	0	0	0	0	0	0	0	0	0	0	0	0	0

T5 T17.0 Transmissivity Layer 5 ft2/day

Row: \ Column:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1	0	0	0	0	0	0	0	0	0	0	930	1108	1245	1344	165	234	267	296	321	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	883	880	1106	1254	1356	191	235	270	299	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	856	841	1121	1276	1626	194	241	275	327	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	810	995	1182	1562	1656	199	248	307	333	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	781	1073	1488	1600	1943	232	283	317	340	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	740	982	1667	1791	1882	1975	247	301	334	353	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	500	500	0	0	0	0	0
7	0	0	0	0	0	0	0	0	552	991	1660	1779	1895	1983	233	284	317	340	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	500	400	450	450	0	0	0
8	0	0	0	0	0	0	0	660	661	980	1647	1756	1851	1930	224	273	356	380	399	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	450	450	450	450	0	0	0
9	0	0	0	0	0	0	0	620	799	1000	1638	1732	1815	1886	217	263	345	371	392	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	450	450	450	450	450	0	0
10	0	0	0	0	0	0	0	581	834	1007	1626	1709	1784	1848	212	303	334	361	384	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	450	450	450	450	450	0	0
11	0	0	0	0	0	0	540	696	868	1009	1611	1686	1754	1814	207	295	326	353	378	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	450	400	400	400	400	0	0
12	0	0	0	0	0	480	500	725	880	1001	1591	1661	1725	1782	251	288	320	347	373	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0
13	0	0	0	0	0	450	595	753	886	1488	1565	1634	1697	2249	247	283	314	342	368	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0
14	0	0	0	0	0	430	612	756	877	1469	1539	1606	1667	2217	243	279	310	338	364	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0
15	0	0	0	0	0	400	606	747	858	1444	1511	1575	1633	2184	240	275	306	335	386	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0
16	0	0	0	0	0	300	603	740	1337	1412	1480	1544	2099	2147	236	272	303	357	382	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0
17	0	0	0	0	0	0	652	733	1314	1381	1447	1510	2065	2112	233	269	300	354	379	400	400	400	400	400	400	400	400	400	400	400	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0
18	0	0	0	0	0	0	641	708	1284	1348	1415	1974	2027	2075	230	266	322	350	400	400	400	400	400	400	400	400	400	400	400	400	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0
19	0	0	0	0	0	514	589	669	1246	1311	1378	1938	1990	2038	226	263	320	347	398	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0
20	0	0	0	0	0	482	553	1131	1202	1270	1337	1898	1950	2000	223	285	317	370	395	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0
21	0	0	0	0	336	418	508	1093	1160	1231	1795	1854	1910	1961	220	282	314	367	393	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0
22	0	0	0	0	314	373	463	1049	1116	1187	1754	1811	1868	1923	241	278	311	365	415	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0	0
23	0	0	0	0	0	340	414	1001	1069	1139	1708	1767	1826	1882	237	276	333	362	413	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0	0
24	0	0	0	0	0	302	872	946	1022	1592	1657	1720	1783	1842	234	273	331	385	411	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	0	0
25	0	0	0	0	0	248	827	895	974	1546	1609	1674	1740	2056	231	296	329	383	409	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	400	0	0
26	0	0	0	0	0	712	770	842	923	1497	1560	1624	1693	2031	231	296	328	381	407	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	400	0	0
27	0	0	0	0	0	671	721	793	872	1448	1510	1571	1874	205	262	296	351	378	429	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	400	0	0
28	0	0	0	0	0	625	675	751	1329	1399	1465	1524	1827	203	263	295	349	400	423	400	400	400	400	400	400	400	400	400	350	350	350	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
29	0	0	0	0	0	581	632	710	1291	1361	1433	2491	1792	226	262	319	347	397	420	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
30	0	0	0	0	0	545	602	1179	1254	1330	1407	2472	1774	225	262	318	370	395	417	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
31	0	0	0	0	0	529	1087	1153	1230	1311	1640	1711	1776	228	288	318	369	393	415	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
32	0	0	0	0	0	0	207	109	117	127	162	174	213	238	291	343	368	391	414	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
33	0	0	0	0	0	0	0	99	108	146	161	202	220	267	292	342	367	390	412	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
34	0	0	0	0	0	0	0	92	102	142	159	202	222	269	318	342	365	388	410	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
35	0	0	0	0	0	0	0	86	123	139	182	202	247	269	317	341	364	387	409	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
36	0	0	0	0	0	0	0	82	119	136	181	201	247	293	316	339	362	385	407	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
37	0	0	0	0	0	0	0	105	117	159	179	224	245	292	314	338	361	383	405	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
38	0	0	0	0	0	0	0	103	115	158	177	223	269	290	312	336	359	381	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
39	0	0	0	0	0	0	0	102	139	156	201	221	267	288	311	335	358	380	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
40	0	0	0	0	0	0	0	101	138	155	200	245	266	287	310	334	357	379	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0
41	0	0	0	0	0	0	0	127	138	180	199	244	265	286	309	333	356	378	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0
42	0	0	0	0	0	0	0	127	138	180	224	244	265	286	309	333	356	378	399	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0
43	0	0	0	0	0	0	0	152	163	180	224	244	265	287	310	333	356	378	399	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0
44	0	0	0	0	0	0	111	148	163	206	225	245	267	289	312	334	357	379	399	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	400	1600	0	0	0	0
45	0	0	0	0	0	0	138	148	163	207	227	248	270	292	315	337	360	381	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	400	400	0	0	0	0
46	0	0	0	0	0	0	139	149	191	209	230	252	275	297	320	342	364	385	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	400	0	0	0	0	0
47	0	0	0	0	0	0	140	151	193	213	235	258	281	304	327	349	371	392	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0
48	0	0	0	0	0	0	140	178	196	218	241	265	289	313	337	359	381	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	400	1600	0	0	0	0	0	0
49	0	0	0	0	0	126	139	181	201	224	249	274	299	324	348	371	394	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0
50	0	0	0	0	0	127	167	185	206	231	258	285	312	338	363	384	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	400	1600	1600	0	0	0	0	0
51	0	0	0	0	0	0	176	191	213	240	269	298	326	355	383	397	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	400	1600	1600	1600	1600	1600	1600	400	0	0	0	0	0	0
52	0	0	0	0	0	0	180	195	220	249	281	313	341	372	1531	1558	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0
53	0	0	0	0	0	0	180	199	226	259	294	332	355	370	1504	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0
54	0	0	0	0	0	151	172	200	231	267	305	328	342	1418	1467	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0
55	0	0	0	0	0	146	169	202	236	274	290	310	327	1376	1430	1555	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0	0
56	0	0	0	0	0	135	162	211	238	255	278	400	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	111	140	188	221	346	369	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	63	119	102	174	311	336	359	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	45	71	127	275	305	330	1396	1468	1588	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	66	65	238	271	304	1303	1372	1445	1559	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0

T6 T17.0 Transmissivity Layer 6 ft2/day

Row: \ Column:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1	0	0	0	0	0	0	0	0	0	0	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	50	50	50	50	50	50	50	0	0	0	0	0	0	0	0	0	0	0
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T7 Column: T17.0 Transmissivity Layer 7 ft2/day

Row	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
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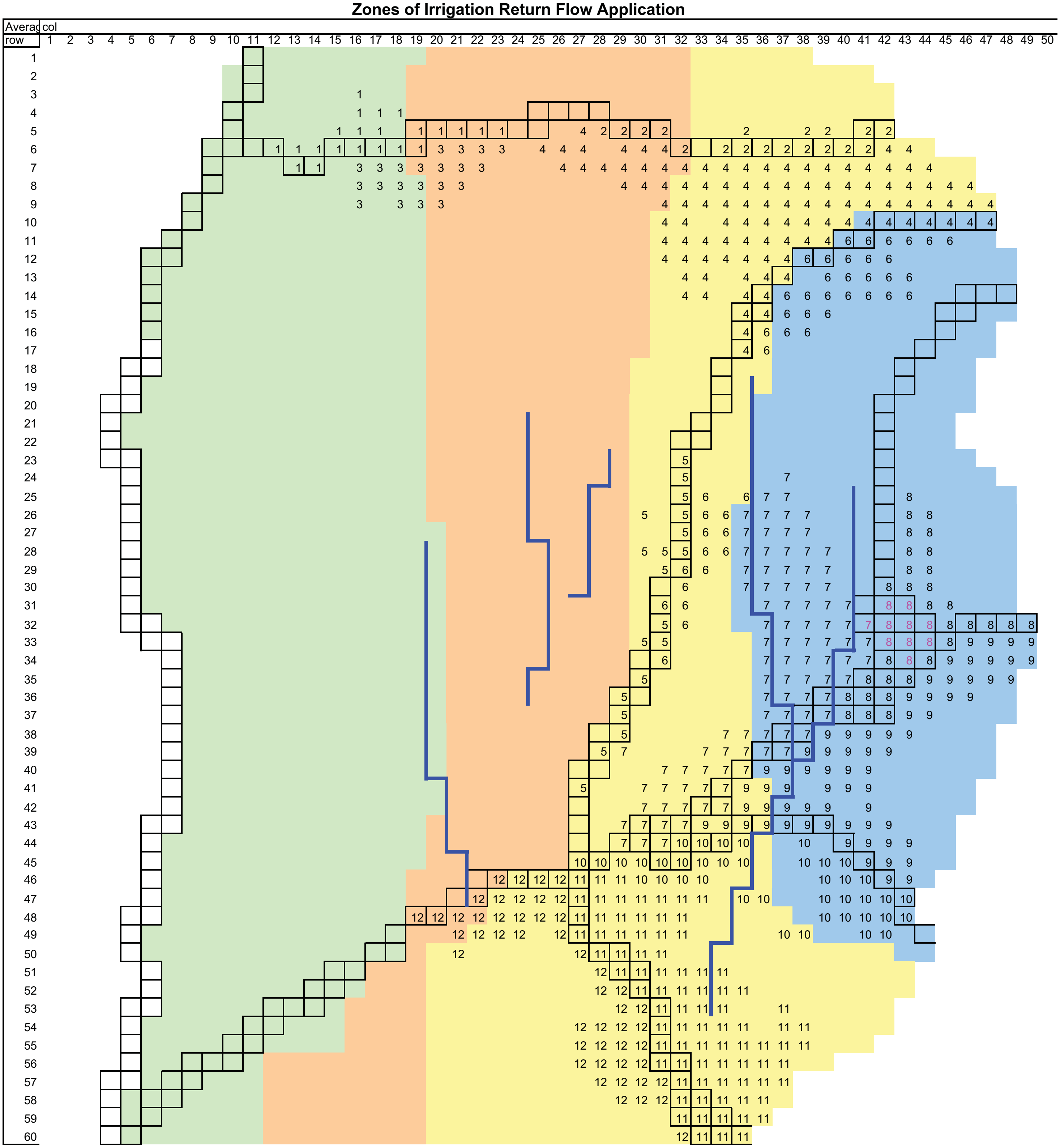
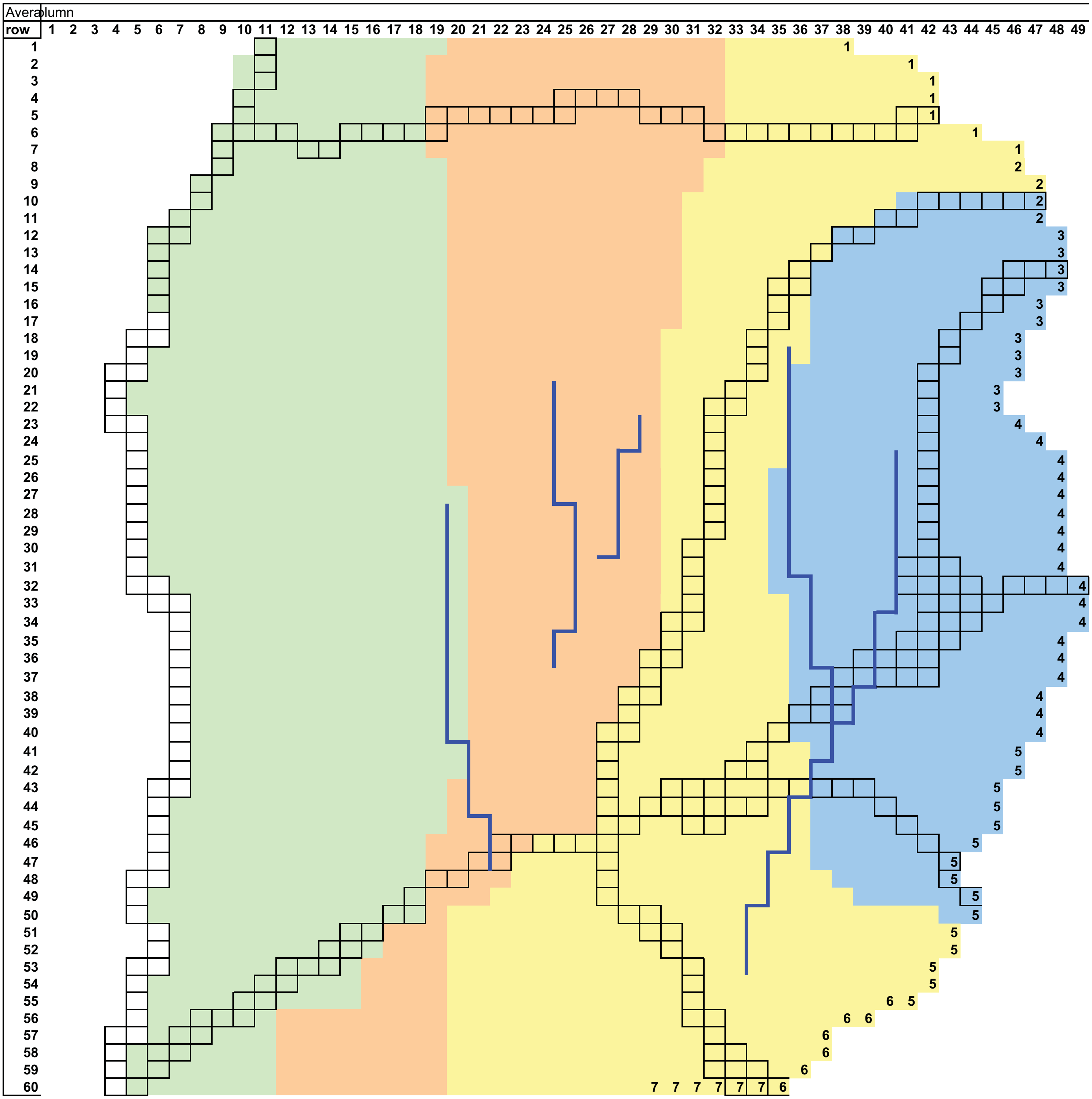
Zones of Irrigation Return Flow Application



Application of Irrigation Return Flows to Groundwater		
Zone Number	**Zonal Application Rate (AF/yr)**	**Location Description of Zone**
1	338	A - NW of Rio Hondo
2	169	B - NE of Rio Hondo
3	334	C - SW of Rio Hondo
4	1720	D - BTW RH & AS
5	319	E - West Side of AS
6	424	F - South Side of AS
7	2115	G - Btw AS & RL
8	1483	H - Btw RL & RPdT
9	1516	I - Btw RPdT & RFdT
10	647	J - South Side of RFdT
11	1668	K - East Side of RGdR & RC
12	1159	L - West Side of RGdR
13	14	M - North Side of RPdT

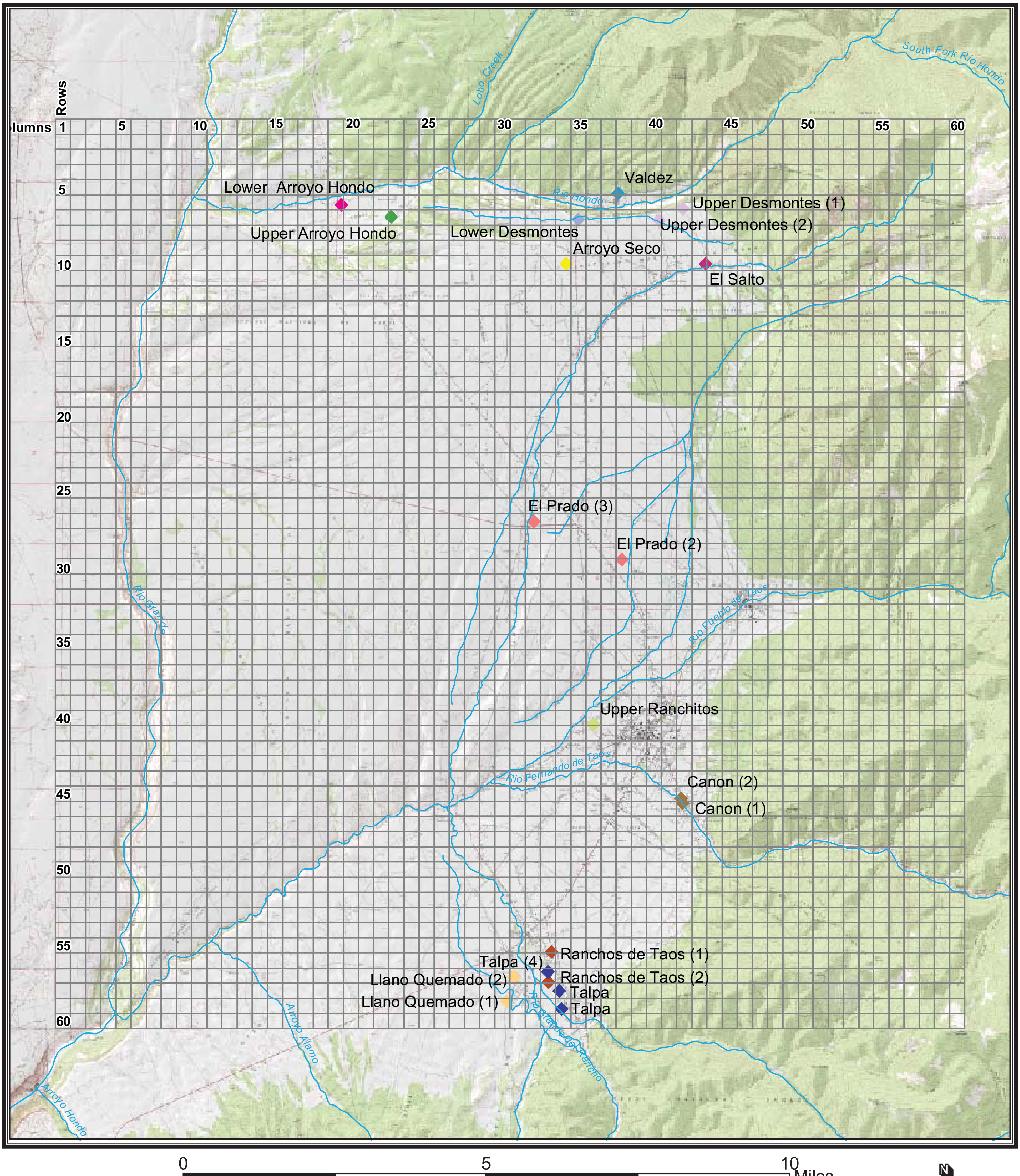
Diagram of Mountain Front Recharge Distribution T17.0



Mountain Front Recharge Distribution	
Zone Number	Zonal Recharge Rate (AF/yr)
1	1260
2	630
3	1080
4	1440
5	270
6	180
7	450

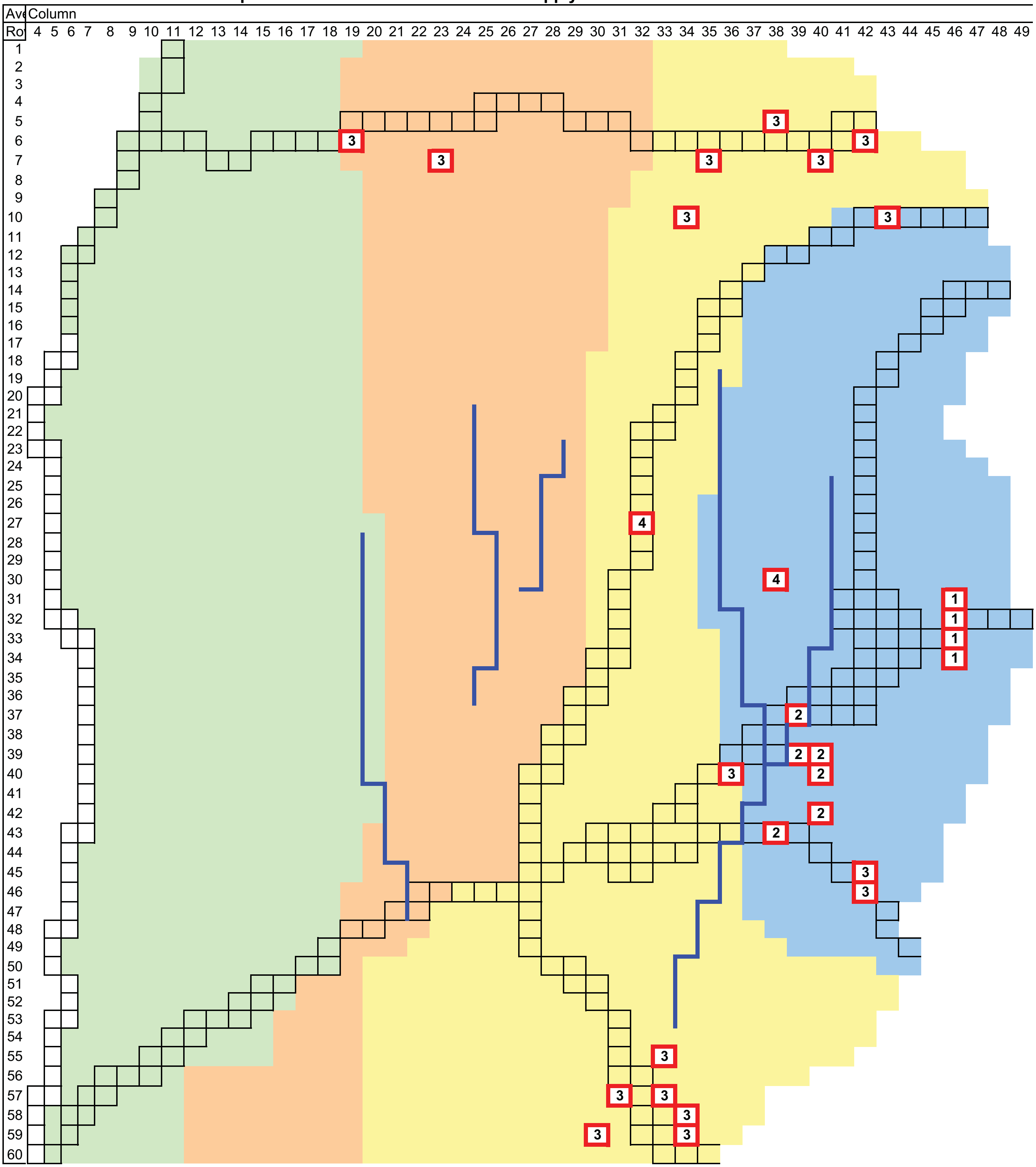
Well Pumping Input into Calibration Run of T17.0 Model (AF/yr)									
Stress Period:		Taos Pueblo*	Town of Taos	El Prado	Other Mutual Domestic Wells	Domestic Well*	Multiple Dwelling Domestic Wells*	Sanitary Wells*	Total
1964-1973		100	510	0	137	563	299	189	1608
1974-1983		200	680	0	183	563	299	189	1924
1984-1993		200	837	37	370	563	299	189	2305
1994-2003		200	838	64	395	563	299	189	2358

* Estimated Diversions



Taos Mutual Domestic Wells and El Prado WSD Wells

Municipal and Other Non-Domestic Water Supply Wells Simulated in Taos Groundwater Model



Designation	Wells
1	Taos Pueblo (estimated, generalized pumping location)
2	Town of Taos
3	El Prado Water & Sanitation District
4	Mutual Domestic Associations

Distribution of Domestic Wells and Sanitary Type Wells Simulated in Taos Groundwater Model

Includes wells listed in OSE files as Domestic, Multiple (Domestic well serving multiple dwelling) and Sanitary

Numbers shown represents the number of these types of wells that occur in the model cells

Sun Column

Rov	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
1												1				1										1						5				1											
2									1						2	1																		1	1													
3												2	2	4	1	1											1					3	2	1			1			1						
4												1	1	6	3	4											2				2	1	1	4			2			3						
5							1				1		1	4	5	4		1		1			1	1	1	2		2			1	3	3	4	2	1	7	1	6						
6												3	2	2	3	2	5	2	4	5	3			1		3					1	4	4	5	6	2	1	1	1	1						
7									3	1	2	4	2	1	1	1			1				3	1	1	3	1	1	6		5	4	4	6	4	5	5	4	6	1		3			
8									1	1	2		2		2	3		1			1		1	2		1	1		3	8	5		2		2	1	3	2	2	2	4	11	4			
9								2		1	1	2	2	2	2	2	1		6	3				1		1	1		4	9	10	4	8	3	4	2	1	3	5	8		3	3	3		
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12																																4				3	1		1	1		1					
13						1	1	1		1		1		2		2		1	1										3	5	1														
14				1			2			1							1	2						2						1	1	3	3				1										
15				1			1		1																								2	1														
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18								1			1												1						1	2	2														
19											1	1			1									1					1			2	2														
20													1	2								1		1				1		1																
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24						1								1							1				1		1	5	2	4	3				1			1						
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26													1			1					1	3	4				4	4	4	1	8														
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54						1										1	1	1	1	4	1	5	2	1	1	2	7	6	5	4	3	1	4	4	8	5	5	2							
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58																				2	1	1	1	2			1	2	3	4	2	6	8	2	1											
59					2			1													1	1					1	2		5	10	3	2												
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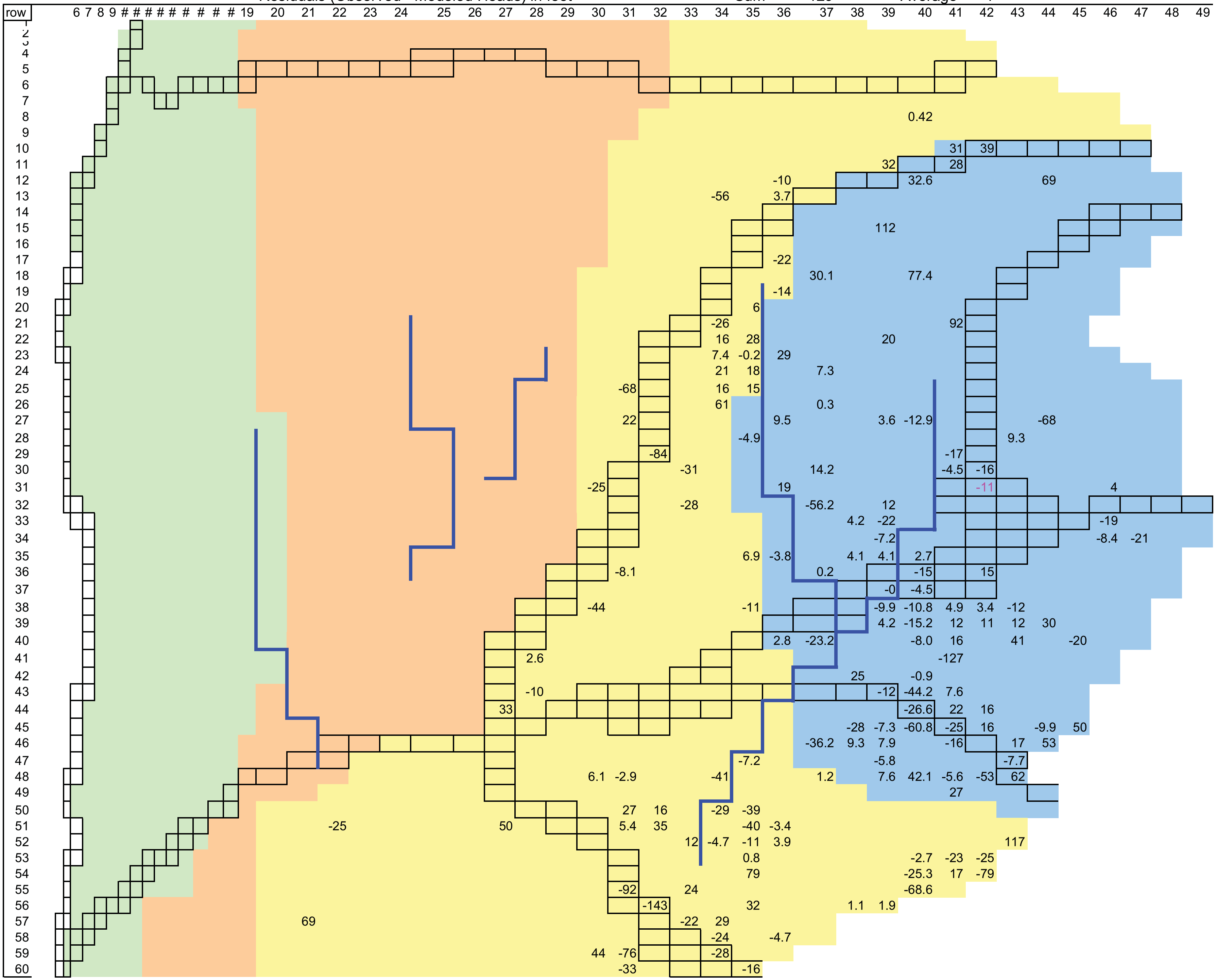
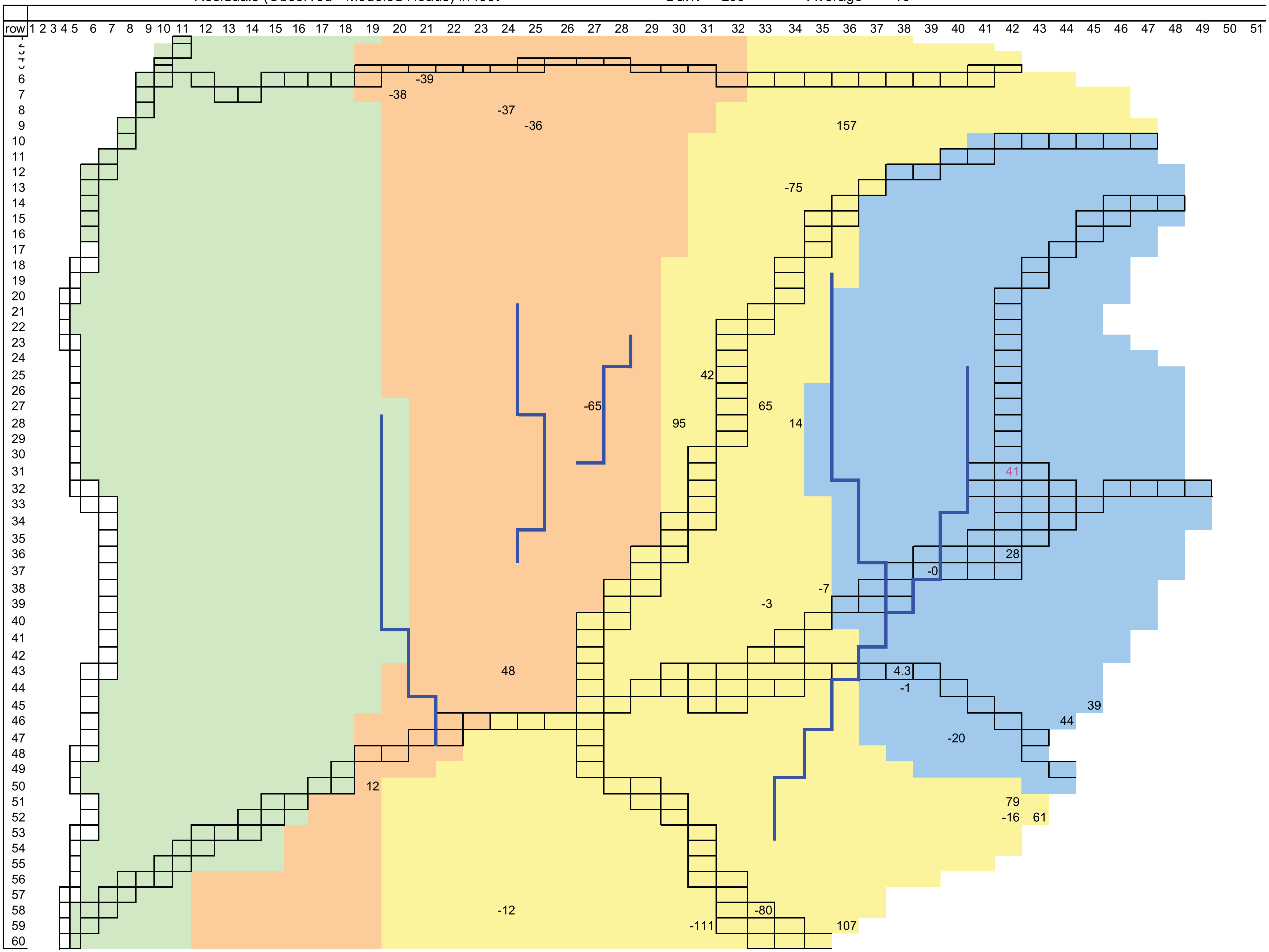
T-17 Calibration Results Layers 1, 2 and 3

Residuals (Observed - Modeled Heads) in feet Sum -129 Average -1



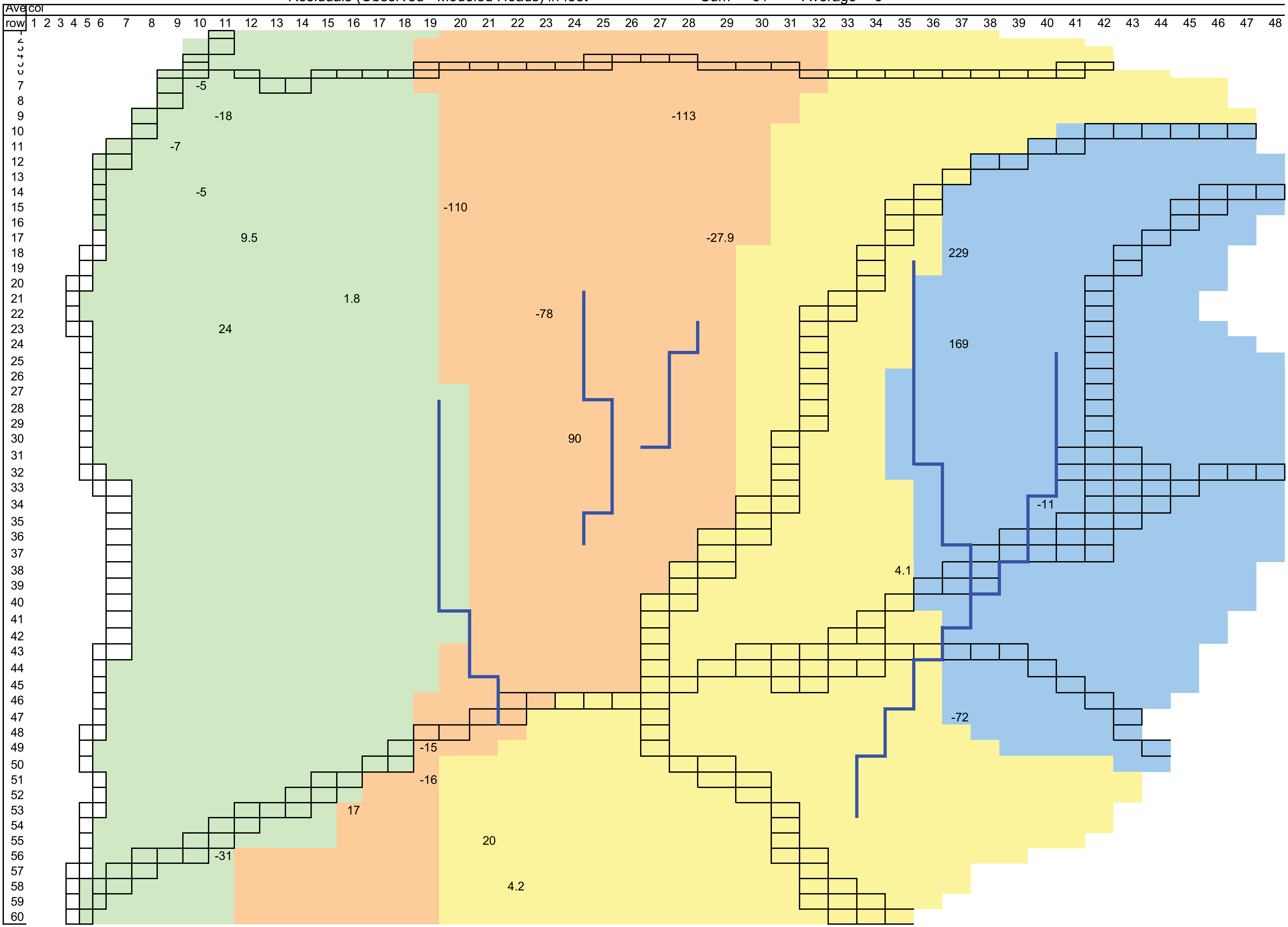
T-17 Calibration Results Layer 4

Residuals (Observed - Modeled Heads) in feet Sum 295 Average 10



T-17 Calibration Results Layer 5

Residuals (Observed - Modeled Heads) in feet Sum 61 Average 3



T-17 Calibration Results Layer 6

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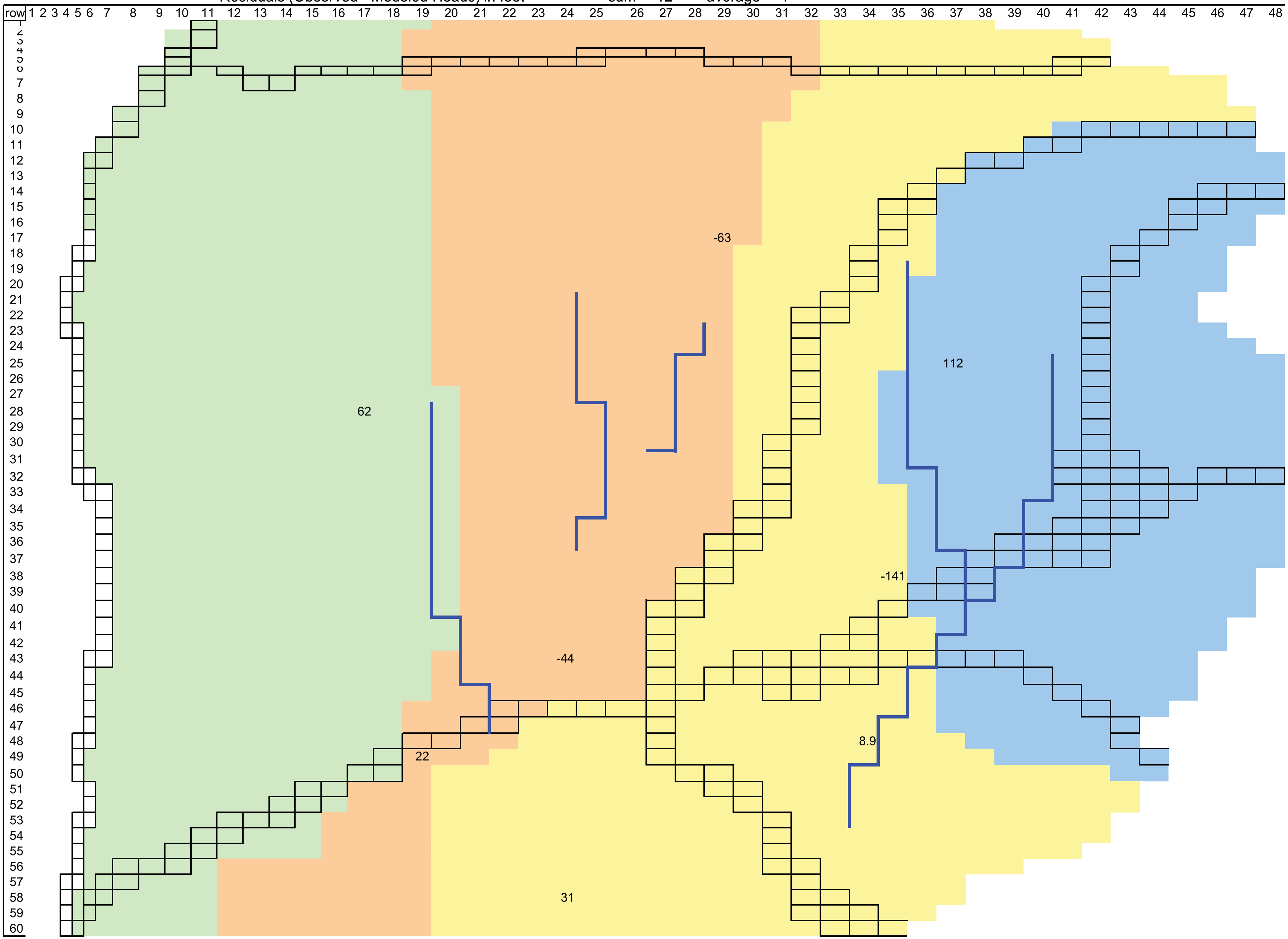
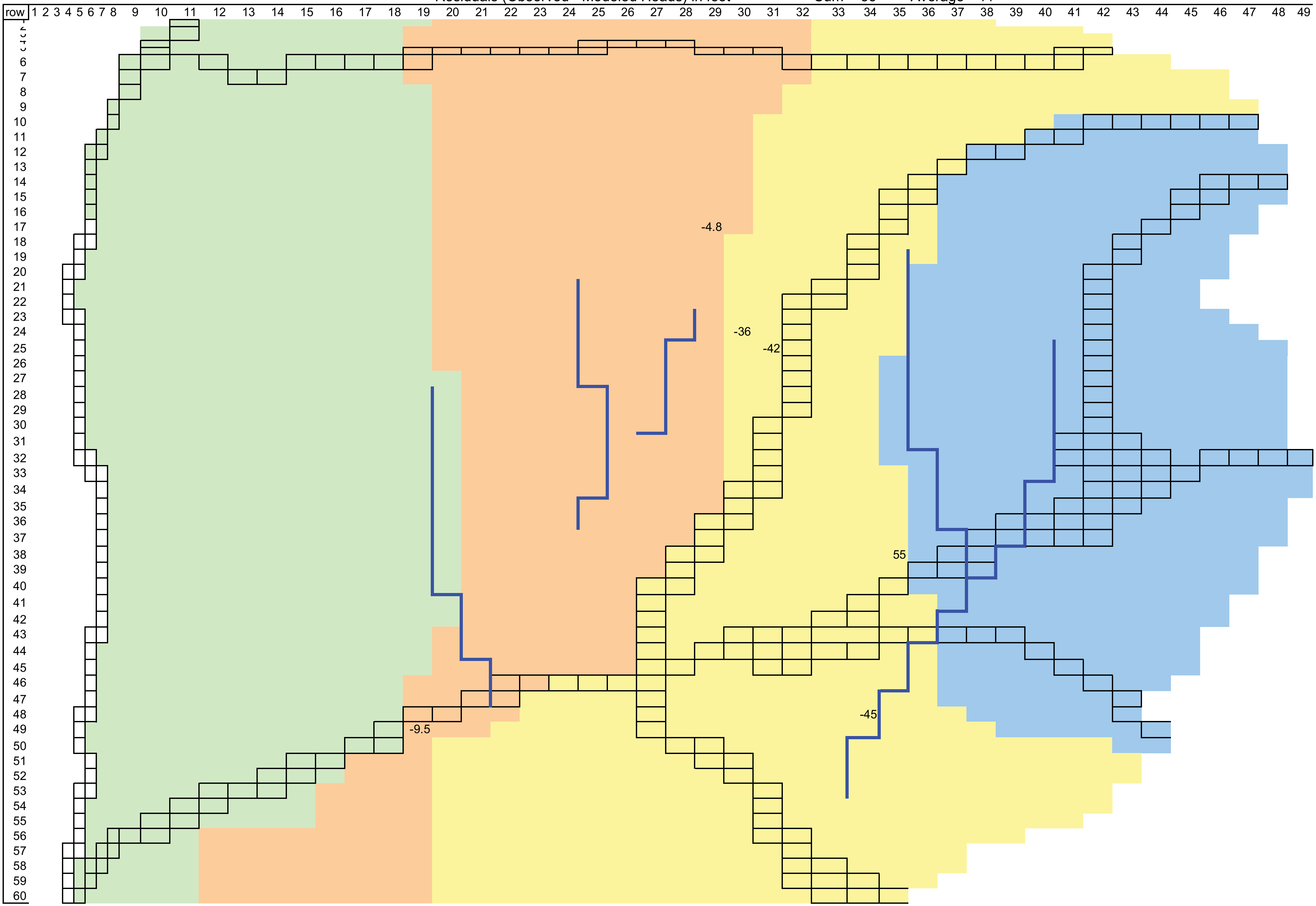


T-17 Calibration Results Layer 7

Residuals (Observed - Modeled Heads) in feet Sum -83 Average -14



Appendix C

Detailed hydrogeologic background report:

Hydrologic Characteristics of Basin-fill Aquifers in the Southern San Luis Basin, New Mexico

By Paul Drakos, Jay Lazarus, Bill White, Chris Banet, Meghan Hodgins, Jim Riesterer and John Sandoval.

New Mexico Geological Society Guidebook, 55th Field Conference, Geology of the Taos Region, 2004, p. 391-404.

HYDROLOGIC CHARACTERISTICS OF BASIN-FILL AQUIFERS IN THE SOUTHERN SAN LUIS BASIN, NEW MEXICO

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Abstract.—The Town of Taos and Taos Pueblo conducted a joint deep drilling program to evaluate the productivity and water quality of the Tertiary basin-fill aquifer system underlying the Servilleta Formation. Testing results from a series of municipal, exploratory, subdivision, and domestic wells are also used to characterize hydrologic properties (T, K, K', and S), and the effect of faults on groundwater flow in shallow and deep basin fill aquifers. The shallow unconfined to leaky-confined alluvial aquifer includes alluvial deposits and the underlying Servilleta Formation (Agua Azul aquifer facies). The deep leaky-confined to confined aquifer includes Tertiary age rift-fill sediments below the Servilleta Formation and is subdivided into the Chama-El Rito and Ojo Caliente aquifer facies. Although faults typically do not act as impermeable boundaries in the shallow alluvial aquifer and groundwater flow in the shallow aquifer is not significantly affected by faults, the Seco fault and several of the Los Cordovas faults act as impermeable boundaries in the deep basin fill aquifer. However, other Los Cordovas faults apparently do not affect groundwater flow in the deep aquifer, suggesting variable cementation along fault planes at depth. The Town Yard fault appears to be a zone of enhanced permeability in the shallow alluvial aquifer, and does not act as an impermeable boundary in the deep basin fill aquifer. Intrabasin faults such as the Seco fault that exhibit significant offset likely cause some compartmentalization of the deep aquifer system.

INTRODUCTION

The Town of Taos, Taos Pueblo, and adjacent communities are situated primarily within the Rio Pueblo de Taos and Rio Hondo drainage basins. The Rio Pueblo de Taos basin includes the following streams from north to south; Arroyo Seco, Rio Lucero, Rio Pueblo de Taos, Rio Fernando de Taos, and Rio Grande del Rancho (Figs. 1 and 3). Northern tributaries to Rio Pueblo de Taos drain Precambrian granite and gneiss, and Tertiary granite, whereas southern tributaries drain Paleozoic sandstone, shale, and limestone (Kelson and Wells, 1989). The area of this study includes the region between the Sangre de Cristo mountain front on the east and the Rio Grande on the west, the Rio Hondo on the north and the Rio Grande-Rio Pueblo de Taos confluence on the south (Fig. 1).

The majority of the historic water supply for municipal, domestic, livestock, and sanitary purposes for the Town of Taos, Taos Pueblo, and adjacent communities has been derived from the

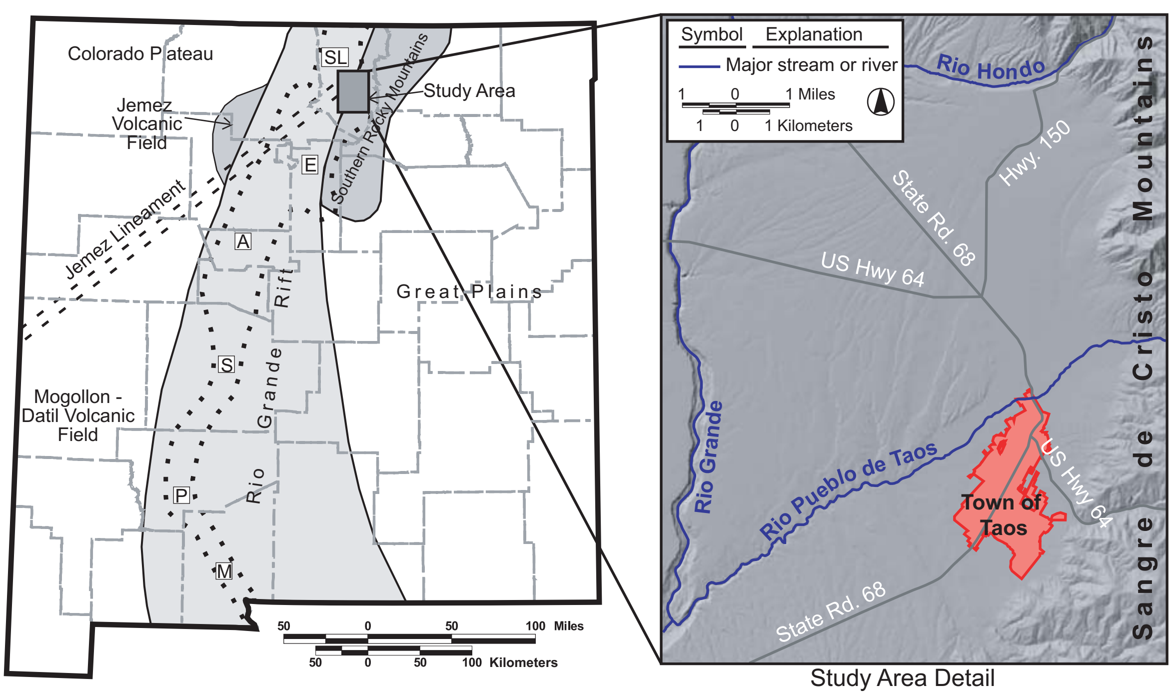

FIGURE 1. Location map – schematic map of New Mexico showing study area and the approximate limits of various physiographic provinces and geographic features. Major basins in the Rio Grande rift from north to south are: SL=San Luis, E = Española, A = Albuquerque, S = Socorro, P = Palomas, M = Mimbres. (state map modified from Sanford et al., 1995 and Keller and Cather, 1994).

shallow stream-connected alluvial aquifer system. In an effort to minimize stream depletion effects resulting from new groundwater development, the Town of Taos and Taos Pueblo, with funding from the U.S. Bureau of Reclamation (BOR), conducted a deep drilling program to evaluate the productivity and water quality of the Tertiary basin-fill aquifer system underlying the Servilleta Formation. The results of this drilling program, in conjunction with data collected from shallow basin fill and alluvial wells and additional deep exploratory wells, allow for a preliminary evaluation of aquifer characteristics, vertical connectivity of the shallow and deep aquifer systems, and the effect of faults on groundwater flow in the basin-fill aquifer system.

METHODOLOGY

A series of exploratory wells were drilled and tested during the deep drilling program and previous investigations to characterize the basin fill aquifer system. Data from 45 pumping tests are used to determine aquifer characteristics and boundary effects, in particular to determine the effect (if any) of faults on groundwater flow. Well nests and nested piezometers were installed in several locations and pumping tests were configured to: 1) measure transmissivity (T) and storage coefficient (S); 2) evaluate downward or upward leakage between aquifers induced by pumping stresses, and; 3) where possible, to calculate vertical hydraulic conductivity (K'). Water-level data collected from wells in the different aquifers using electronic sounders, steel tapes, and transducers are used to construct potentiometric surface maps of the aquifers and are used to determine upward or downward vertical gradients at point locations.

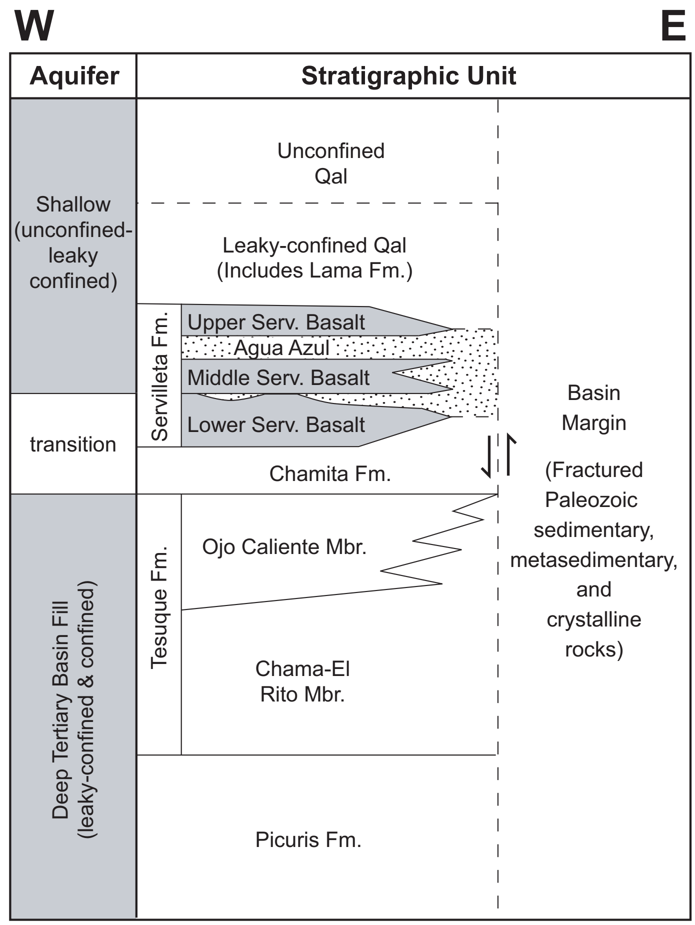

FIGURE 2. Taos Valley geohydrologic framework

STRATIGRAPHIC UNITS

From oldest to youngest, the units underlying the basin discussed in this study are: 1) Pennsylvanian Alamitos Formation, 2) Tertiary Picuris Formation, 3) Tertiary Santa Fe Group, 4) Tertiary Servilleta Formation, and 5) Quaternary Alluvium. Galusha and Blick (1971) subdivided the Santa Fe Group into the Tesuque Formation and the overlying Chamita Formation. The Tesuque Formation is further subdivided into the Chama-El Rito Member and the overlying Ojo Caliente Sandstone Member (Fig. 2; Galusha and Blick, 1971). Although extending this Santa Fe Group stratigraphic nomenclature into the southern San Luis Basin may be problematic, it is used as an initial framework for this investigation.

DESCRIPTION OF THE SHALLOW AQUIFER SYSTEM

Two major aquifer systems are identified in the Taos area: 1) A shallow aquifer that includes the Servilleta Formation and overlying alluvial deposits and, 2) A deeper aquifer associated with Tertiary age rift-fill sediments (Fig. 2). The lower Servilleta basalt and underlying Chamita Formation may act as a transition zone and/or boundary between the shallow and deep aquifers, although there are not currently enough data points in this interval to definitively support or refute this hypothesis.

The shallow aquifer system generally includes unconsolidated alluvial fan and axial-fluvial deposits overlying and interbedded with the Servilleta basalt flows. The shallow aquifer is subdivided on the basis of lithology and pumping test analyses into: 1) unconfined alluvium; 2) leaky-confined alluvium, and; 3) the Servilleta Formation (Fig. 2). Several wells in the study area are completed into shallow aquifers in fractured Paleozoic sedimentary formations and fractured Precambrian crystalline rocks along the Sangre de Cristo mountain front. These aquifers discharge to alluvium and/or the Servilleta Formation and are therefore part of the shallow alluvial-aquifer flow system. The shallow alluvial aquifer has a maximum thickness of 1500 ft (457 m) or more in the graben formed by the down-to-the-west Town Yard fault and the down-to-the-east Seco fault (Drakos et al., this volume), and pinches out in the western part of the study area where the alluvium is unsaturated at the Taos Airport domestic well (Fig. 4).

Hydrologic Characteristics of the Shallow Aquifer

Aquifer testing data are available for the shallow aquifer from 32 pumping tests at locations throughout the study area (Fig. 4; Table 1). Pumping tests were run for times ranging from 350 to 12,960 minutes (min) at discharge (Q) ranging from 18 to 440 gallons per minute (gpm) (Table 1).

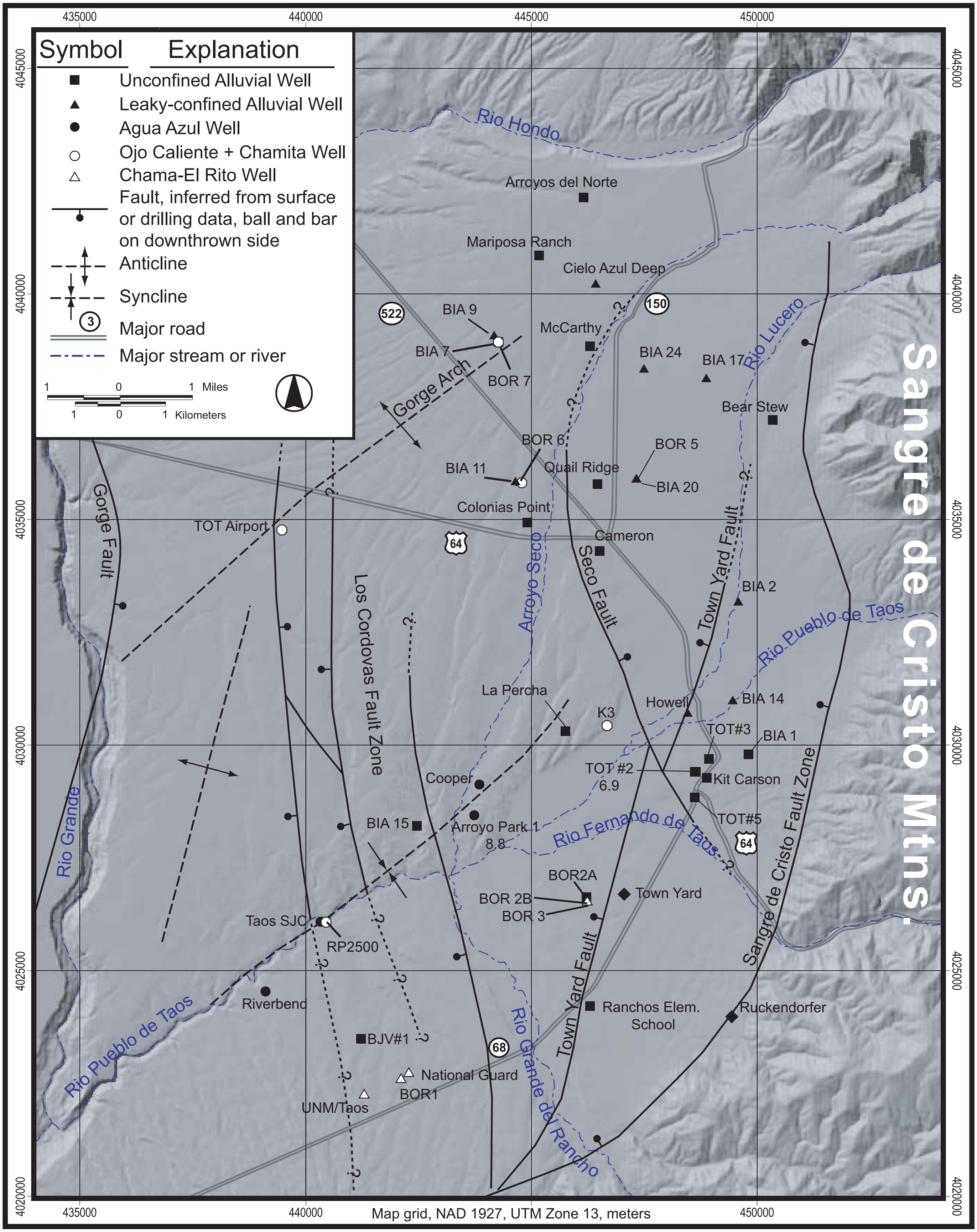

FIGURE 3. Map of study area with pumping test well locations

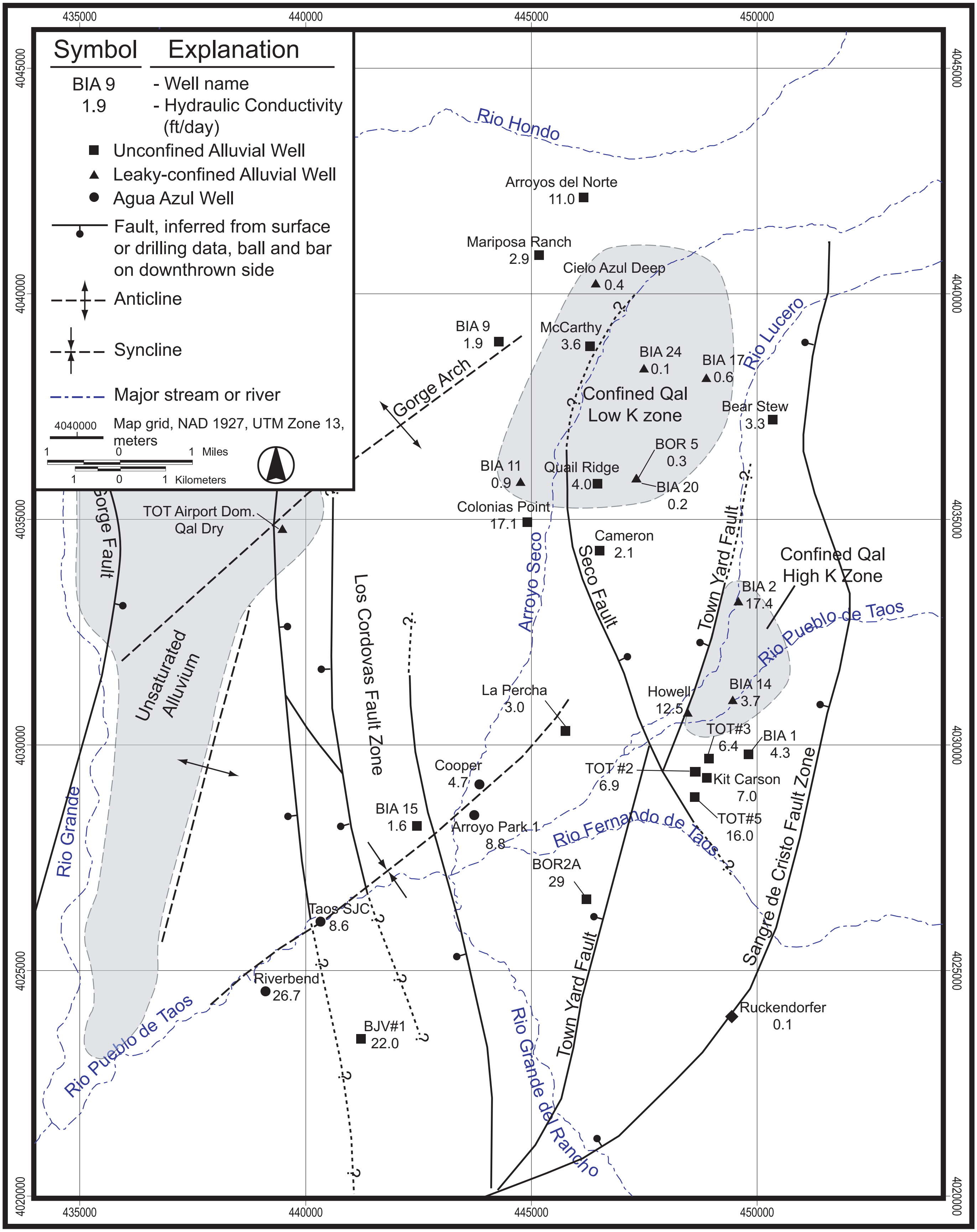

FIGURE 4. Map of shallow aquifer wells with K values from pumping tests

Unconfined alluvium

Pumping tests on 18 unconfined alluvial wells exhibit hydraulic conductivity (K) values ranging from 1.8 to 22 ft/day (mean = 6.8 ft/day, ± (1σ) 5.9 ft/day). No clear pattern is observed in geographic distribution of K in the unconfined alluvial aquifer (Fig. 4). The K value calculated at a given location is likely controlled by local facies changes (e.g. better sorted axial fluvial deposits yield higher K values than less well sorted overbank or fan deposits) and well design (e.g. whether the well was drilled and screened to sufficient depth to encounter a productive zone). Pumping tests were not run long enough to observe delayed yield and allow for a calculation of specific yield (S_y), but storativity (S) ranged from 10^{-4} to 10^{-2}. Possible recharge boundaries were observed in the TOT#3 and TOT#1 tests, and, although data are somewhat ambiguous, an impermeable boundary may be indicated in the BJV#1 test (Table 1). The possible recharge boundary observed in the TOT#3 and TOT#1 tests is likely a result of leakage into the shallow aquifer from the nearby Rio Pueblo de Taos and Rio Lucero.

Leaky-confined alluvium

Pumping tests on nine leaky-confined alluvial wells exhibit K values ranging from 0.1 to 17.4 ft/day, and fall into two distinct populations and geographic groupings. Low-K (mean K = 0.4 ft/day) northern wells correspond to older Blueberry Hill mudflow or weathered fan deposits underlying the large Rio Hondo alluvial fan at the northern portion of the study area. High-K (mean K = 11.4 ft/day) values observed in southern wells correspond to young (?), less-weathered deposits underlying the small Rio Pueblo de Taos fan (Fig. 4). The Howell well and BIA 2 (Buffalo Pasture) wells, which both exhibit high K values of 12 to 17 ft/day, lie along the northern trace (approximately located) of the Town Yard fault (Fig. 4). This segment of the fault may be a high-permeability zone or may be coincident with high-permeability Rio Lucero and/or ancestral Rio Hondo or Rio Pueblo de Taos channel fill deposits. The Town Yard fault may have been a control on stream channel location during aggradation of paleo-Rio Pueblo de Taos or paleo-Rio Hondo deposits. The Town Yard fault projects into the present day Rio Lucero drainage, and the "Seco fault" projects into the Arroyo Seco drainage (Fig. 4).

Servilleta Formation (Agua Azul aquifer)

Aquifer testing data are available for the Servilleta Formation from five pumping tests (Fig. 4, Table 2). All wells tested are completed into the "Agua Azul" aquifer between the upper and middle basalt flow members and are located along the Rio Pueblo de Taos and Arroyo Seco drainages (Fig. 4). Pumping test duration ranged from 2,880 to 5,760 min at Q ranging from 8 to 120 gpm (Table 2). Agua Azul wells exhibit K ranging from 4.7 to 26.7 ft/day (mean K = 12.0 ± 8.6 ft/day). Because the five wells tested in the "Agua Azul" aquifer are relatively close to one another (Fig. 4), determining the geographic distribution of K is not possible. Storativity values range around 10^{-4}.

TABLE 1. Aquifer testing data from unconfined and confined/leaky confined alluvial wells, southern San Luis basin. DTW = depth to water; Q = discharge; T = transmissivity; b = aquifer thickness; K = hydraulic conductivity. Well locations included in Appendix A.

Well Name	TD (ft)	Static DTW (ft)	Test length (min)	Q (gpm)	T (ft^2/day)	b (ft)	K (ft/day)	Storage coefficient	Boundaries observed	Source	Comments
Unconfined alluvium											
Colonias Point	127	55	2880	36	1,200	70	17.1	n.a.	none	GGI	well pumped at maximum Q of existing pump
Quail Ridge	150	45	2880	22	400	100	4.0	1.2×10^{-4}	none	GGI	calculations from obs. well data, r = 35 ft
TOT #1	182	43	400	125	830	140	5.9	5.2×10^{-4}	none/	GGI	calculations from obs. well data, r = 50 ft
McCarthy	193	84	2880	18	400	110	3.6	n.a.	none	GGI	
TOT #2	204	42	355	205	760	110	6.9	8.6×10^{-4}	none	GGI	calculations from obs. well data, r = 50 ft
BIA 15	225	116	1600	41	150	95	1.6	2.5×10^{-2}	none	BIA	observation well data, r = 21 ft
BJV#1	240	158	5760	68	1,980	90	22.0	1.0×10^{-3}	none/ imperm?	GGI	Theis curve is very poor fit; obs well data suggest impermeable boundary
Kit Carson	270	64	480	100	1,400	200	7.0	n.a.	none	GGI	
BOR 2A	291	61	250	45	230	80	2.9	n.a.	none	GGI	
TOT #3	312	60	350	180	960	150	6.4	n.a.	none/	GGI	T calculated from obs. well data, r = 18 ft
TOT#5	330	14	1720	370	3,700	230	16.1	n.a.	none	GGI	
Bear Stew	339	46	1300	33	968	290	3.3	n.a.	recharge?	BIA	
Cameron	350	107	2880	50	500	240	2.1	n.a.	none	GGI	
La Percha	360	105	2880	69	700	235	3.0	n.a.	none	GGI	
BIA 1	400	92	1440	180	825	190	4.3	n.a.	none	BIA	T = avg of Pump & Rec semilog plots
BIA 9	575	470	1400	18.5	230	120	1.9	3.0×10^{-4}	none	BIA	T calculated from obs. well data, r = 23.1 ft
Mariposa Ranch	781	585	2880	31-49	580	200	2.9	n.a.	none	GGI	well dev. during pumping; T from rec data
Arroyos del Norte	800	659	2880	55	1,100	100	11.0	n.a.	none	GGI	
Confined or leaky-confined alluvium											
Southern wells											
Howell	500	13	12960	440	5,000	400	12.5	6.3×10^{-3}	leaky/recharge	GGI	T and S calculated from obs. well data, r = 485 ft; k' = 0.2 ft/day
BIA 14	613	-1	2800	70	810	220	3.7	n.a.	none	BIA	
BIA 2	700	18	1440	300	5,700	440	17.4	6×10^{-3}	leaky/recharge	BIA	S calculated from obs. well data, r = 47 ft
Northern wells											
BIA 17	470	86	1440	19	230	385	0.6	n.a.	leaky/recharge	BIA	
BIA 11	760	100	2800	70	310	330	0.9	1×10^{-3}	none	BIA	S calculated from obs. well data (30'screen), r = 147 ft;
Cielo Azul deep	850	339	2880	20	40	100	0.4	n.a.	none	BIA	no drawdown observed in adjacent shallow well during test
BIA 24/ Grumpy	1000	177	944	25	32	400	0.1	n.a.	none	BIA	Blueberry Hill Fm?
BIA 20/ West	1018	111	1120	50	120	600	0.2	n.a.	none	BIA	Blueberry Hill Fm?
BOR 5	1763	265	5760	40	110	400	0.3	n.a.	none	BIA	Blueberry Hill Fm?

Groundwater Flow Direction in the Shallow Aquifer System

A composite alluvial and Agua Azul (Servilleta) potentiometric surface map representing the shallow alluvial aquifer was constructed from water levels measured to the nearest 0.01 ft from wells that could be assigned to a specific aquifer. In the northeast part of the study area, a downward vertical gradient was observed in the alluvial aquifer, with up to 200+ ft (60+ m) head difference in adjacent wells (e.g. well nests Cielo Azul shallow and deep, BIA20/BOR5, Mariposa shallow/deep; Fig. 5). Where strong downward vertical gradients are observed, the shallower water level was used for construction of the potentiometric surface map. Water levels from Agua Azul wells were included with the alluvial well data, because the Agua Azul aquifer interfingers with the alluvium near the mountain front and in the southern part of the study area, and water levels in the Agua Azul are similar to those measured in the unconfined alluvium.

In addition to groundwater elevations measured in wells throughout the study area, streambed elevation data are incorporated into the construction of the potentiometric surface map. Streambed elevations were determined from USGS 7.5' quadrangles and added as elevation control points to the base map. Equipotential lines are contoured so that groundwater elevation is less than or approximately equal to streambed elevation. Equipotential lines lie consistently lower than streambed elevation along the lower Rio Pueblo de Taos and the Arroyo Seco, indicating a disconnection between surface water and groundwater in those areas.

Groundwater flow direction in the composite Alluvial plus Aqua Azul (Servilleta) aquifer system is from northeast to southwest and east to west (Fig. 5). A broad groundwater trough is observed north of Rio Pueblo de Taos and west of Rio Lucero (Fig. 5). At its northern end the trough axis projects into the Rio Hondo drainage (Fig. 5), and the trough lies along the eastern side of the large Rio Hondo fan north of Rio Pueblo de Taos. This trough may correspond to an area of high-permeability fluvial deposits associated with the ancestral Rio Hondo, and is coincident with a structural low (Lipman, 1978, p. 42) or Rio Pueblo de Taos syncline of Machette and Personius (1984) and Dungan et al. (1984), suggesting a structural control on the location of the ancestral Rio Hondo drainage. However, the location of the river has been restricted to near its present course since stream incision occurred in response to rapid cutting of the Rio Grande gorge ca. 0.6 to 0.3 Ma ago (Wells et al.,1987; Kelson and Wells, 1987). Since that time, the Rio Hondo has been an entrenched stream flowing very close to its present location (Kelson and Wells, 1987, Kelson and Wells, 1989). Other high transmissivity zones associated with axial stream deposits have been identified along the Rio Grande del Rancho (within the Miranda graben) and along the Rio Fernando (Spiegel and Couse, 1969; Bauer et al., 1999). A groundwater high is observed in the vicinity of the lower Arroyo Seco drainage on the west side of the Town of Taos, corresponding to the area between the Gorge arch and the Rio Pueblo de Taos syncline (Fig. 5). The composite Alluvial plus Servilleta aquifer system becomes unsaturated in the western part of the study area, indicating this upper aquifer is discharging to surface water where it is stream connected and/or leaking into the deeper basin-fill aquifer. The steepening gradient in the vicinity of the Los Cordovas faults suggests that the faults are an area of downward leakage through which the shallow aquifer may be recharging the deep aquifer system.

Equipotential lines are deflected downstream along most of the Arroyo Seco and the upper Rio Lucero, indicating that these are losing streams west of the mountain front (Fig. 5). Based on equipotential lines, the upper Rio Hondo is a gaining reach, whereas the lower Rio Hondo is a losing reach. Equipotential lines are generally deflected upstream along the Rio Pueblo de Taos, lower Rio Lucero, and Rio Fernando de Taos, indicating that these streams are gaining reaches (Fig. 5).

In January and June 2000, personnel from the BIA, GGI, and the BOR measured flows in Taos valley rivers (Rio Hondo, Arroyo Seco, Rio Lucero, Rio Fernando de Taos, Rio Pueblo de Taos, Rio Grande del Rancho). Flows were measured in January and June to determine seasonal variations in stream loss or gain. Acequia diversions from and return flows to each river were also measured and accounted for in the flow data to allow for a determination of gaining or losing reaches (see Smith, 2001 and 2002, unpubl. BOR reports, for results of this study). Figure 5 summarizes the results of the January, 2001 stream gaging, showing losing, gaining, and no net change reaches of the major stream systems. In general, results of stream gaging correlate well with gaining and losing reaches derived from construction of the potentiometric surface map described above. However, two significant differences are observed between the gaging data and the potentiometric surface map: 1) gaging data show the upper reaches of the Rio Hondo as losing reaches, while the equipotential lines suggest it is a gaining reach, and 2) gaging data indicate the upper reach of the Rio Lucero is gaining, while the potentiometric surface map suggests it is a losing reach (Fig. 5). These differences may be a result of the groundwater elevation representing long-term

TABLE 2. Aquifer testing data from Servilleta Formation sediments and fractured basalt (Agua Azul) wells, southern San Luis Basin. Well locations included in Appendix A.

Well Name	TD (ft)	Static DTW (ft)	Test length (min)	Q (gpm)	T (ft^2/day)	b (ft)	K (ft/day)	Storage coefficient	Boundaries observed	Source	Comments
Cooper	180	96	2880	31	280	60	4.7	n.a.	none	GGI	
Arroyo Park	262	105	2880	48	530	60	8.8	5.3×10^{-4}	none	GGI	S calc from obs well, r = 2000 ft
Taos SJC	180	29	5760	120	430	50	8.6	2.5×10^{-4}	none	GGI	calculations from observatin well data, r = 25 ft;k' = 0.02 ft/day
Barranca del Pueblo		233	2880	7.5-12	670	60	11.2	n.a.	none	RE/SPEC	b is unknown; 60 ft used as default aquifer thickness
Riverbend	215	121	2880	54	1,600	60	26.7	8.5×10^{-5}	none	GGI	

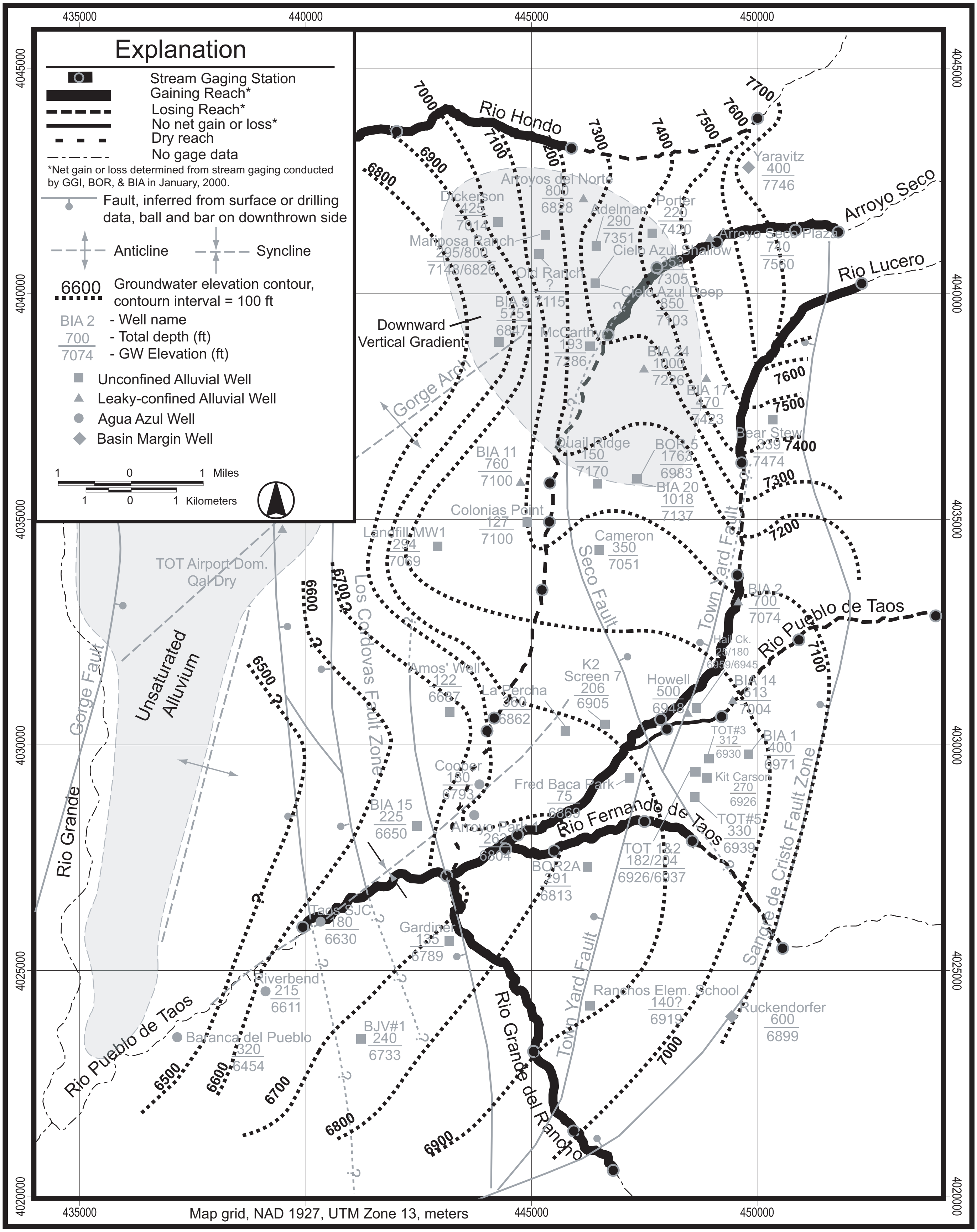

FIGURE 5. Shallow aquifer potentiometric surface map, gaining and losing stream reaches

conditions, while the gaging data are a snapshot of conditions at a particular time. It is also possible that some surface diversions from, or additions to, the rivers may not have been accounted for or may have been variable during the gaging study.

Effect of Faults on the Shallow Aquifer

Unconfined and leaky-confined alluvium

Twenty-seven pumping tests have been conducted on alluvial wells, nine of which were conducted on wells completed into the leaky-confined alluvial aquifer facies, and five of which were additional tests conducted on Agua Azul (Servilleta) wells. Of these tests, data from only one well near the southern portion of the study area (BJV#1) suggest impermeable boundary effects (Table 1). Pumping test data from numerous other wells located in close proximity (< approximately 0.5 mi or 0.8 km) to faults do not show impermeable boundary effects (Fig. 4; Table 1). As examples, the Howell, BIA2, and possibly Bear Stew wells are located along the Town Yard Fault; Quail Ridge, Cameron, and TOT#5 are located along the Seco fault; and BIA 15 is located near one of the Los Cordovas faults. Data from the BJV#1 test is suggestive of an impermeable boundary, which may correspond to a southern extension of the western Los Cordovas fault (Fig. 3). The down-to-the-west Los Cordovas fault would likely juxtapose a thick clay against the underlying relatively thin water-producing sandy gravel described in the BJV#1 well log (Lazarus, unpubl. GGI report for BJV properties, 1989). In contrast, data from three wells located along the northern segment of the Town Yard fault (Howell, BIA 2, and Bear Stew wells) indicate leakage or recharge boundaries, suggesting that the northern segment of the Town Yard fault may be a zone of enhanced permeability. Alternatively, as discussed above, the northern Town Yard fault may be coincident with an area of deposition of high-permeability axial channel deposits.

Based on the well density used to construct the potentiometric surface map and the 100-ft contour interval utilized, equipotential lines in the unconfined and leaky-confined alluvial aquifers are not strongly affected by the major faults in the basin (Fig. 5). This is consistent with the aquifer testing data, which indicate that, except in rare cases, intrabasin faults do not act as barriers to groundwater flow in the shallow alluvial aquifer. In some cases, such as the northern segment of the Town Yard fault, intrabasin faults may act as zones of enhanced permeability in the alluvium.

Servilleta Formation (Agua Azul aquifer facies)

Neither recharge nor impermeable boundaries were observed in any of the five tests for which data are available (Table 2). This is an unexpected result, given the relatively thin producing interval (50-60 ft thick [15-20 m]) aquifer and the proximity of Agua Azul wells to several of the Los Cordovas faults, in particular the proximity of the Taos SJC well to the western Los Cordovas fault strand (Fig. 4).

Aquifer Anisotropy/Vertical Hydraulic Conductivity

Alluvium

Data on vertical hydraulic conductivity (K') and aquifer anisotropy are available from one location in the shallow aquifer system. The Howell well pumping test configuration included observation wells completed in both the deep leaky-confined and shallow stream-connected unconfined alluvial aquifers (Hail Creek shallow/deep; Fig. 5). Based on the Hantush-Jacob (1955) leaky-confined aquifer solution, a K' of 0.2 ft/day was calculated. Based on the Howell well pumping test, horizontal K is approximately 60 times vertical K.

Servilleta Formation (Agua Azul)

Data on K' and aquifer anisotropy are available from one location in the Servilleta Formation. The Taos SJC well pumping test configuration included observation wells completed in both the Agua Azul and the overlying shallow stream-connected unconfined alluvial aquifer (GGI, unpubl. consulting report to the Town of Taos, 1997). Based on the Hantush-Jacob (1955) leaky-confined aquifer solution, a K' of 0.02 ft/day through the USB was calculated. Horizontal K is approximately 430 times vertical K at that location.

DEEP TERTIARY BASIN FILL AQUIFER

The deep Tertiary basin fill aquifer includes generally weakly to moderately cemented eolian, alluvial fan, fluvial, and volcaniclastic deposits that underlie the Servilleta Formation. The deep Tertiary basin fill aquifer includes the Chamita Formation, the Ojo Caliente Sandstone Member of Tesuque Formation, the Chama-El Rito Member of Tesuque Formation, and the Lower Picuris Formation (Fig. 2). Pumping test data are available for the Ojo Caliente Sandstone Member of Tesuque Formation, the Chama-El Rito Member of Tesuque Formation, but are not available from wells completed solely in the Chamita or Picuris Formation.

The Tertiary basin fill aquifer exhibits confined or leaky-confined characteristics in the central and eastern part of the study area, but is likely unconfined in the western part of the study area along the Rio Grande. A deep fractured crystalline rock aquifer at or near the Sangre de Cristo mountain front may discharge to the deep basin fill aquifer system, but no wells are known to be completed into this zone. The Chamita Formation and the overlying Servilleta Formation, while not extensively studied, may represent a transition zone between the shallow and deep aquifer systems (Fig. 2). The deep aquifer is, where investigated thus far, greater than 2000 ft thick. However, the Taos graben, within which the study area lies, has a depth of approximately 5 km (16,000 ft) (Cordell, 1978; Bauer and Kelson, this volume), so further investigations may show the deep aquifer to be significantly thicker than is presently known.

Hydrologic Characteristics of the Deep Aquifer

Ojo Caliente Sandstone Member of Tesuque Formation

Aquifer testing data are available from five wells completed entirely or predominantly in the Ojo Caliente Sandstone Member of the Tesuque Formation (Fig. 6). Three of the tests were multiple-well pumping tests (Table 3). Wells completed into the Ojo Caliente range in depth from 1720 to 2991 ft (524 to 912 m; Table 3), and exhibit pressure head (height of water column above the screened interval in a well) ranging from 500 ft (150 m) in the Airport well to greater than 1700 ft (500 m) in BOR7. Pumping test durations ranged from 1,361 to 11,965 min at Q ranging from 57 to 400 gpm (Table 3). Ojo Caliente wells exhibit K ranging from 0.2 to 0.8 ft/day (mean K = 0.4 ± 0.25 ft/day). Hydraulic conductivity in the Ojo Caliente is relatively consistent throughout the area and does not show variability relative to geographic location (Fig. 6). S values range from 1 x 10^{-3} to 2 x 10^{-2} (Table 3).

Chama-El Rito Member of Tesuque Formation

Aquifer testing data are available from five wells completed entirely or predominantly into the Chama-El Rito Member of the Tesuque Formation, three of which are multiple-well tests (Fig. 6; Table 4). Wells completed into the Chama-El Rito Member range from 1200 ft (365 m) to 2109 ft (643 m) in depth (Table 4), and exhibit pressure head ranging from 590 ft (180 m) at UNM/Taos to greater than 1300 ft (400 m) (BOR3). Pumping tests were run for times ranging from 2,737 to 15,840 min at Q ranging from 60 to 500 gpm (Table 4). Chama-El Rito wells exhibit K ranging from 0.6 to 3.4 ft/day (mean K = 1.8 ± 1.0 ft/day). Aquifer testing data for the Chama-El Rito Member are only available for the southern part of the study area so the geographic distribution of K throughout the basin is unknown. An S of 5 x 10^{-4} was calculated from the BOR3/BOR2 pumping test. All Chama-El Rito wells exhibited a confined or leaky-confined response during pumping tests. These data, in conjunction with the large pressure head observed in Chama-El Rito wells, indicates that the portion of the Chama-El Rito Member investigated thus far is a confined or leaky-confined aquifer.

Groundwater Flow Direction in the Deep Tertiary Aquifer System

Water level data from deep wells in the basin were used to construct a preliminary potentiometric surface map of the deep basin fill aquifer. These limited data suggest that groundwater flow direction in the deep aquifer is generally from east to west, at a relatively shallow gradient of approximately 0.004 ft/ft (Fig. 6). The shallow alluvial aquifer system has a much steeper gradient (measured north of and parallel to the Rio Pueblo de Taos) of approximately 0.02 ft/ft. Although the head in the shallow aquifer system is much higher in the eastern part of the study area along the Sangre de Cristo mountain front, the potentiometric surfaces in the shallow and deep aquifers project toward one another in the western part of the study area. Head in the shallow alluvial aquifer is approximately from 100 to 200 ft higher than the head in the deep aquifer just east of where the shallow aquifer becomes unsaturated, suggesting the shallow aquifer discharges to the deep aquifer system in this general area.

Vertical gradients in the deep aquifer are observed at several well nests in the study area. Downward gradients are observed in the deep basin fill aquifer at well nests BOR4/BOR6, BOR7/BIA9, BOR1/NGDOM, and BOR2/BOR3, whereas upward gradients are observed at RP2500/RP2000 and K2/K3. Both well nests with upward gradients (BOR2/BOR3 and K2/K3) are located along the approximate trace of the Rio Pueblo de Taos syncline (Fig. 6; Lipman, 1978). These data suggest recharge to the deep aquifer at or near the basin margin migrates downdip within the syncline resulting in an upward pressure head along the fold axis.

Effect of Faults on Groundwater Flow

Ojo Caliente Sandstone Member of Tesuque Formation

Impermeable boundary effects were observed in K2/K3, RP 2500/RP2000, and BOR6/BOR4 pumping tests (Table 3). K3/K2 and BOR6/BOR4 are located within approximately 0.5 mi (0.8 km) of the Seco Fault (Fig. 6). The Servilleta Formation is offset approximately 950 ft across the down-to-the-east Seco fault (Drakos et al, 2001). The Seco fault is interpreted as the

TABLE 3. Aquifer testing data from wells completed in Ojo Caliente Sandstone Member of Tesuque Formation, southern San Luis Basin. Well locations included in Appendix A.

Well Name	TD (ft)	Static DTW (ft)	Test length (min)	Q (gpm)	T (ft^2/day)	b (ft)	K (ft/day)	Storage coefficient	Boundaries observed	Source	Comments
K3 - K2	1796	271	10,000	400	200 (early) 90 (late)	960	0.2	1 x 10^{-3} to 2 x 10^{-2}	impermeable	BIA	calculations from obs well, r = 65 ft; no drawdown observed in overlying aquifer
RP2500/ RP2000	2500	152	11,965	400	250 (early) 60 (late)	1,200	0.2	1.4 x 10^{-3}	impermeable	GGI	calculations from obs well, r = 95 ft; no drawdown observed in overlying aquifer
Airport	1720	500	2,760	57	250	685	0.4	n.a.	none	GGI	well developed during test; T is suspect
BOR6/ BOR4	2020	610	10,059	365	640	810	0.8	7 x 10^{-3}	impermeable	BIA	T and S calc from BOR4 late obs well late time data; r = 103 ft
BOR7	2991	732	1,361	70	110	480	0.2	n.a.	none	BIA	

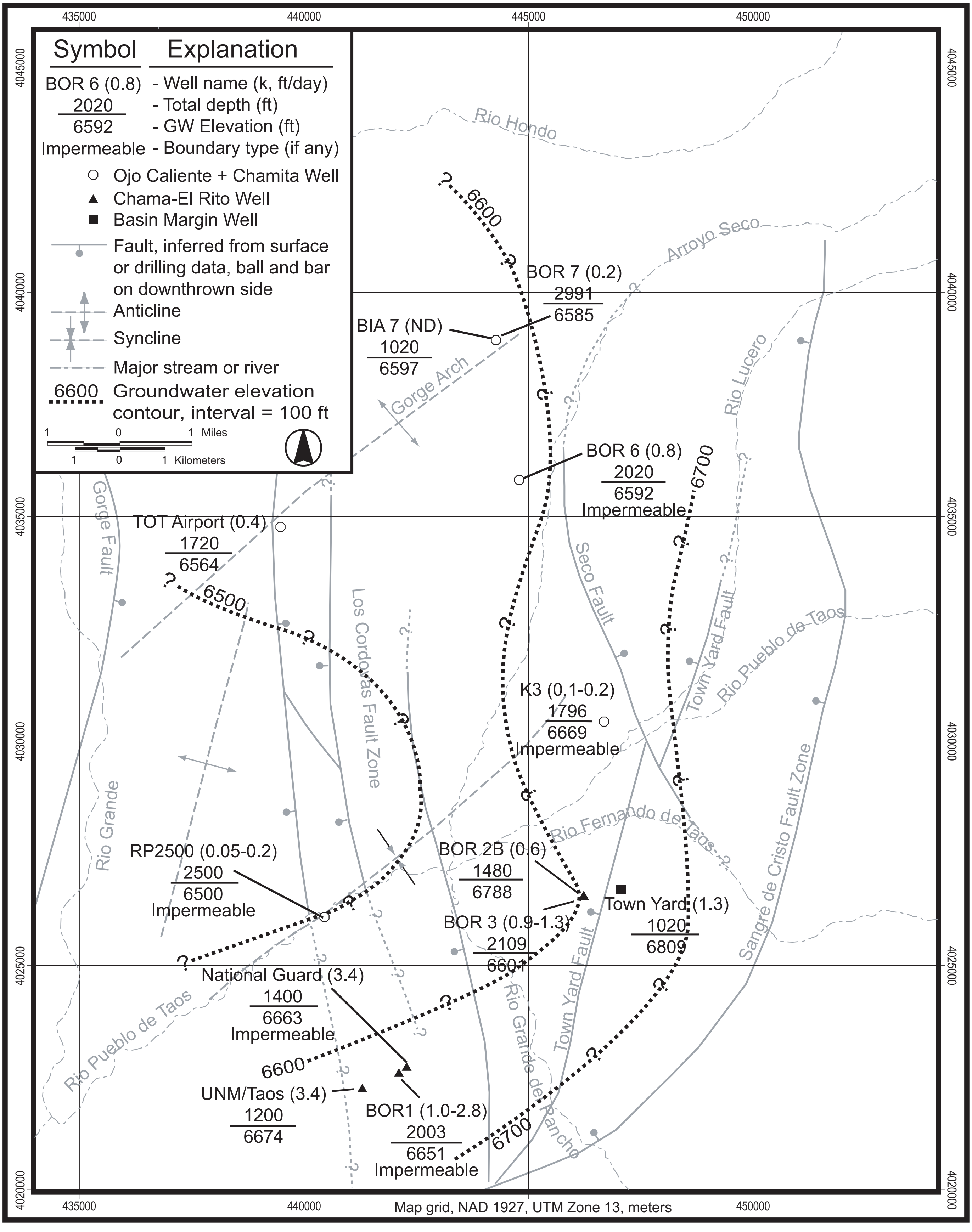

FIGURE 6. Potentiometric surface map and K values for deep basin-fill aquifer

TABLE 4. Aquifer testing data from wells completed in Chama-El Rito Member of Tesuque Formation, southern San Luis Basin. Well locations included in Appendix A.

Well Name	TD (ft)	Static DTW (ft)	Test length (min)	Q (gpm)	T (ft^2/day)	b (ft)	K (ft/day)	Storage coefficient	Boundaries observed	Source	Comments
UNM/Taos	1200	310	2737	60	670	200	3.4			GGI	possibly Chamita Fm?
NGDOM	1400	266	5,760	140	760	400	1.9	n.a.	impermeable	GGI	ddn observed in adjacent deep well (BOR1); no ddn in shallow completion
BOR1	2003	281	5,760	240	1400 (early) 520 (late)	510	1.9	n.a.	impermeable	GGI	early-time k = 2.8 ft/day; late time k = 1.0 ft/day; drawdown observed in adjacent shallow well (NGDOM)
BOR2B	1480	83	2,880	67	280	480	0.6	n.a.	none	GGI	no ddn in overlying or underlying aquifers
BOR3	2109	274	15,840	500	710 (early) 450 (late)	530	1.1	5×10^{-4}	none/possible facies change	GGI	early-time k = 1.3 ft/day; late time k = 0.9 ft/day; no drawdown observed in overlying aquifers

impermeable boundary observed in the K3 and BOR6 pumping tests. RP2500 is located between two of the Los Cordovas faults; one or both of which likely act as impermeable boundaries. As discussed above, similar impermeable boundary effects were not observed in the 180-ft deep Taos SJC well, located adjacent to RP2500. These data suggest that either 1) the Los Cordovas fault(s) near RP2500 exhibit much greater offset with depth, or 2) that impermeable boundary effects are offset by leakage into the shallow aquifer, but are not offset by leakage at depth. The Ojo Caliente has an apparent thickness of > 1200 ft (370 m) at RP2500 (Drakos and Hodgins, unpubl. GGI report for the Town of Taos, 2001), so either the fault plane is a very low-permeability zone, or offset at depth is significant.

Impermeable boundary effects were not observed in the Airport well and BOR7 pumping tests. Both tests were run for much shorter duration (less than 3000 min) at lower discharge than were the three Ojo Caliente tests discussed above (10,000 min or more; Table 3). The BOR7 test was likely not run long enough to observe the Seco fault as a possible boundary; however, from the very close proximity of the Airport well to the western Los Cordovas fault (Fig. 6) it is likely that the cone of depression would have intersected the fault plane during the pumping test. One possible explanation for the absence of an impermeable boundary is that offset on the western Los Cordovas fault is dying out to the north, and Ojo Caliente sediments are juxtaposed against one another across the fault.

Chama-El Rito Member of Tesuque Formation

Impermeable boundary effects were observed in one pumping test conducted in the Chama-El Rito Member of the Tesuque Formation (BOR1/NGDOM pumping tests; Table 4). The impermeable boundary observed in the BOR1/NGDOM pumping tests is likely the southern extension of one of the Los Cordovas faults. The possibility that the Los Cordovas faults extend south of the Rio Pueblo de Taos is suggested by Bauer and Kelson (this volume). Impermeable boundary effects are not observed in the UNM/Taos pumping test, suggesting that the impermeable boundary observed in the BOR1/NGDOM pumping tests are related to faults in the eastern rather than the western portion of the Los Cordovas fault zone (Fig. 6). The southern extension of the trace of the eastern Los Cordovas fault shown in Figures 4-6 is coincident with a fault interpreted from geophysical data from Reynolds (unpubl. consulting report to BIA, 1989).

A series of pumping tests were conducted on the BOR2/BOR3 well nest, located in relatively close proximity to the Town Yard fault (Fig. 6). Test data from BOR2B and BOR2C indicate that the Town Yard fault does not act as an impermeable boundary at this location. Test data from BOR3 were indicative of a weak negative boundary, suggesting a facies change from coarser-grained to finer-grained deposits at some distance from the well (Drakos, Hodgins, Lazarus, and Riesterer, unpubl. GGI report for the Town of Taos, 2002). The Town Yard fault may act as a recharge zone, where the buried Paleozoic sedimentary rock aquifer is in hydrologic communication with rift-filling sediments.

Aquifer Compartmentalization

Several of the intrabasin faults act as hydrologic boundaries, and result in some compartmentalization of the deep basin-fill aquifer. The Seco fault acts as an impermeable boundary, and may act to separate a northeast deeper aquifer system that has been recharged by modern to Holocene precipitation separated from a southwest deep aquifer system that has been recharged by older, possibly Pleistocene precipitation (Drakos et al., this volume). Data from high-precision temperature logs also indicates compartmentalization of the deep basin fill aquifer (Reiter and Sandoval, this volume). Some Los Cordovas fault splays act as impermeable boundaries (e.g. the eastern Los Cordovas fault near BOR1 and one or both of Los Cordovas faults near RP2500), whereas other faults do not appear to affect groundwater flow in the deep aquifer (e.g. the western Los Cordovas fault near the Airport well and near UNM/Taos). This may indicate variable cementation along the fault plane and/or variable offset along Los Cordovas fault strands.

Aquifer Anisotropy/Vertical Hydraulic Conductivity

Ojo Caliente Sandstone Member of Tesuque Formation

The RP2500/RP2000 and K3/K2 pumping test configurations included observation wells completed in both the Ojo Caliente and the overlying Agua Azul (Servilleta) aquifers. Drawdown was not observed in the overlying Agua Azul aquifer during 400 gpm, 10,000 to 12,000 min pumping tests. Without additional piezometers in the Chamita Formation sediments that overlie the Ojo Caliente, and with the presence of strong negative boundary effects observed in the pumping test data, K' in the Ojo Caliente-Chamita Formation aquifer system cannot be evaluated. During the time frame of the pumping tests, no connection was observed between the shallow (Agua Azul) and deep (Ojo Caliente) aquifers.

Chama-El Rito Member of Tesuque Formation

The BOR1/NGDOM and BOR2/BOR3 pumping test configurations included observation wells completed in both the producing interval and water-bearing zones in the overlying Tertiary deposits and shallow alluvial aquifers. Drawdown was not observed in the overlying shallow alluvium during any of the five tests conducted on BOR1, NGDOM, BOR2B, BOR2C, or BOR3 (Table 4). Hydrologic communication was observed between BOR1 and NGDOM during pumping tests on each well, indicating leakage between different producing intervals within the Chama-El Rito aquifer at that location. However, it is notable that no drawdown was observed in BOR2B (bottom of screened interval = 1480 ft) during the 15,840 min (11 day), 500 gpm pumping test on BOR3 (top of screened interval = 1604 ft). BOR3/BOR2 test data indicate that clay beds with very low K' are present within the Chama-El Rito Member at some locations. These preliminary data do not allow for a direct calculation of K' but show that K' likely varies significantly throughout the Chama-El Rito aquifer system. During the time frame of the pumping tests, no connection was observed between the Agua Azul or shallow alluvial aquifers and the Chama-El Rito aquifer.

BASIN MARGIN AQUIFER

Hydrologic Characteristics of the Basin Margin Aquifer

Wells completed into fractured sedimentary and crystalline rock aquifers, while not utilized extensively for municipal use, are utilized for individual domestic and small community water systems. Where fractured, these aquifers are productive but likely are limited in areal extent and are subject to dewatering of the fracture system. In the southern part of the study area, the basin margin aquifer has a moderate to high gradient of 0.1 to 0.7 ft/ft to the northwest (Bauer et al., 1999). Water table elevation contours from Bauer et al. (1999, Plate 1) indicate that the basin margin aquifer discharges to the shallow basin fill aquifer.

Limited aquifer testing data are available from three wells completed into fractured Paleozoic sedimentary rocks or fractured crystalline rocks, two of which are located in basin margin settings (Figure 5; Table 5). Well depths range from 400 to 1200 ft (120 to 365 m) in depth, and include the Town Yard well, drilled into the Paleozoic Alamitos Formation underlying the Tertiary sediments in the southeast part of the study area (Fig. 4, Table 5). Pumping tests were run for times ranging from 435 to 2880 min at Q ranging from 8 to 48 gpm (Table 5). Based on these limited test results, the fractured sedimentary rock and crystalline rock aquifers exhibit hydraulic conductivity (K) ranging from 0.1 to 2.8 ft/day. Data on S are not available. Head in the Ruckendorfer and Yaravitz wells is at a similar elevation to the head in the shallow alluvial aquifer (Fig. 5), indicating that these basin margin wells are discharging to the shallow alluvial aquifer

CONCLUSIONS

Two major aquifer systems are present in the Taos area. The shallow aquifer includes the Servilleta Formation and overlying alluvial deposits. The deeper aquifer includes Tertiary age rift-fill sediments below the Servilleta Formation. The shallow aquifer system includes unconsolidated alluvial fan and axial fluvial deposits overlying and interbedded with and including the Servilleta basalts and is subdivided into: 1) unconfined alluvium; 2) leaky-confined alluvium, and; 3) the Servilleta Formation. The deep Tertiary basin-fill aquifer includes the Chamita Formation, the Ojo Caliente Sandstone Member of the Tesuque Formation, the Chama-El Rito Member of the Tesuque Formation, and the Picuris Formation.

Hydraulic conductivity in the shallow unconfined alluvial aquifer ranges from 6.8 ± 5.9 ft/day for the unconfined alluvial facies to 12.0 ± 8.6 ft/day for the Agua Azul aquifer facies. The deep leaky-confined alluvial wells exhibit K values ranging from 0.1 to 17.4 ft/day, and fall into two distinct populations and geographic groupings. The low-K (mean K = 0.4 ft/day) deep aquifer facies corresponds to older Blueberry Hill mudflows or weathered fan deposits underlying the large Rio Hondo alluvial fan in the northern portion of the study area. The high-K (mean K = 11.4 ft/day) deep alluvial aquifer facies corresponds to young (?), less-weathered deposits underlying the small Rio Pueblo de Taos fan. A K' of 0.2 ft/day was calculated from a single test in the alluvial aquifer, and a K' of 0.02 ft/day through the USB was calculated from a single Agua Azul test. Storativity of the alluvial aquifer ranges from 10^{-4} to 10^{-2}.

The deep basin-fill aquifer system is subdivided into the Chama-El Rito and Ojo Caliente facies. Ojo Caliente wells exhibit K of 0.4 ± 0.25 ft/day. S values for Ojo Caliente wells

TABLE 5. Aquifer testing data from basin margin wells, southern San Luis Basin. Well locations included in Appendix A.

Well Name	TD (ft)	Static DTW (ft)	Test length (min)	Q (gpm)	ft2/day	b (ft)	T (ft^2/day)	Storage coefficient	Boundaries observed	Source	Comments
Yaravitz	400	93	2880	31	310	110	2.8	n.a.	none	GGI	fractured amphibolite/granite along fault
Town Yard	1020	115	435	48	400	300	1.3	n.a.	none	GGI	open hole test; preliminary data for Pz
Ruckendorfer	600	391	2880	8	20	170	0.1	n.a.	impermeable?	GGI	poor curve match; Pz sandstone aquifer

range from 10^{-3} to 10^{-2}. Chama-El Rito wells exhibit a K of 1.8 ± 1.0 ft/day. An S of 5 x 10^{-4} was calculated from the BOR3/BOR2 pumping test.

Faults typically do not act as impermeable boundaries in the shallow alluvial aquifer. However, the Seco fault and several of the Los Cordovas faults act as impermeable boundaries in deep basin-fill aquifer. The Town Yard fault is a zone of enhanced permeability or is coincident with a high-permeability zone in the shallow alluvial aquifer, and does not act as an impermeable boundary in the deep basin fill aquifer. Intrabasin faults with significant offset, such as the Seco fault, result in compartmentalization of the aquifer.

Groundwater flow direction in the composite Alluvial plus Servilleta aquifer system is from northeast to southwest and from east to west at 0.02 ft/ft. A broad groundwater trough is observed whose axis is north of Rio Pueblo de Taos and west of Rio Lucero This trough may correspond to an area of high-permeability fluvial deposits associated with the ancestral Rio Hondo, whose course was controlled by the Rio Pueblo de Taos syncline. An area exhibiting a downward vertical gradient in the shallow aquifer is observed between the Rio Hondo and Rio Lucero in the northern part of the study area. The limited available data suggest that groundwater flow direction in the deep aquifer is generally from east to west, at a relatively shallow gradient of approximately 0.004 ft/ft. Downward gradients are observed in the deep basin-fill aquifer except at the Rio Pueblo de Taos syncline, where upward gradients are observed at RP2500/RP2000 and K2/K3.

ACKNOWLEDGMENTS

The authors would like to acknowledge contributions to this effort by the following individuals or agencies. Gustavo Cordova and Tomás Benavidez from the Town of Taos and Nelson Cordova and Gil Suazo of Taos Pueblo provided impetus and support for the design and implementation of the deep drilling program and promoted an open exchange of technical data. The US Bureau of Reclamation provided funding under the direction of John Peterson for the deep drilling and testing program. Mark Lesh of Glorieta Geoscience, Inc. produced the figures, and Mustafa Chudnoff provided helpful review comments. Dr. Paul Bauer and Keith Kelson provided helpful discussions on the aquifer analogs. Dr. John Shomaker, Dr. John Hawley, and Dr. Brian Brister provided critical reviews of the manuscript.

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APPENDIX A

WELL LOCATIONS FOR TAOS AREA WELLS CITED IN THIS STUDY

	UTM NAD 27, zone 13, m.			UTM NAD 27, zone 13, m.	
WELL NAME	Easting	Northing	WELL NAME	Easting	Northing
Abeyta Well	448752	4024118	Howell	448470	4030712
Arroyo Hondo	452696	4046154	K2 - K3	446688	4030429
Arroyo Park	443740	4028440	Kit Carson	448900	4029260
Arroyo Seco	448745	4041260	La Percha	445760	4030300
Arroyos del Norte	446162	4042084	Landfill MW1	442758	4034011
Baranca del Pueblo	437160	4023520	Lerman	441824	4032655
Bear Stew	450352	4037199	Mariposa Ranch	445180	4040820
BIA 11	444775	4035824	McCarthy	446307	4038831
BIA 13	448320	4034830	Mesa Encantada	442346	4024531
BIA 13	449820	4029780	NGDOM	442290	4022740
BIA 14	449470	4030990	OW-6	449590	4033200
BIA 15	442470	4028200	Pettit Well	447925	4023423
BIA 17	448890	4038130	Porter	447769	4041305
BIA 2	449600	4033180	Quail Ridge	446472	4035777
BIA 20	447335	4035901	Ranchos Elem. Sch	446316	4023297
BIA 24	447500	4038340	R. Fernando de Taos	450851	4025541
BIA 9	444280	4038930	R.G. del Rancho	447172	4020228
BJV #1	441230	4023480	Rio Lucero	448028	4030617
BOR 1	442124	4022604	R. Pueblo de Taos	448731	4030516
BOR 4 Deep	444766	4035805	Riverbend	439120	4024530
BOR 6 #1	444797	4035805	Rose Gardiner	443027	4024817
BOR 6 #2	444797	4035805	RP 2000 Deep	440380	4026000
BOR2A	446247	4026541	RP 2500	440462	4026069
BOR2B/2C	446240	4026553	Ruckendorfer	449460	4023920
BOR3	446247	4026541	Taos SJC	440340	4026080
BOR5	447345	4035906	TOT #1	448626	4029394
BOR7	444280	4038930	TOT #2	448648	4029400
Cameron	446529	4034294	TOT #3	448941	4029690
Cielo Azul	446420	4040260	TOT #5	448631	4028835
Cielo Azul Deep	446400	4040250	Town Taos Airport	439480	4034760
Colonias Point	444910	4034920	Town Yard	447060	4026680
Cooper	443860	4029120	UNM/Taos	441310	4022260
Fred Baca Park	447225	4028617	Vista del Valle	443681	4023916
Hank Saxe	440507	4020477	Yaravitz	449826	4042805