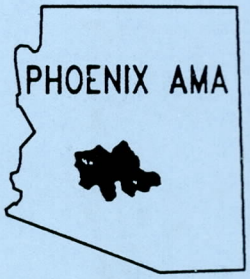
ARIZONA DEPARTMENT OF WATER RESOURCES

A REGIONAL GROUNDWATER FLOW MODEL OF THE SALT RIVER VALLEY - PHASE II

PHOENIX ACTIVE MANAGEMENT AREA

NUMERICAL MODEL, CALIBRATION, AND RECOMMENDATIONS



BY

STEVEN W. CORELL, and EDWIN F. CORKHILL

HYDROLOGY DIVISION

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Abstract

The Arizona Department of Water Resources has developed a groundwater flow model for the Phoenix Active Management Area which focuses on the hydrologic system of the Salt River Valley, one of the most intensive water use areas of Arizona. The goal of the hydrologic study and modeling effort was to develop a quantitative tool to test various groundwater management scenarios.

The model was developed using the U.S. Geological Survey Modular Three-Dimensional Finite Difference Groundwater Flow Model (MODFLOW). The model simulates steady-state groundwater flow (circa 1900) and transient-state groundwater flow (1983 - 1988). The model has three layers and simulates groundwater underflow, groundwater pumpage, seepage to and from perennial river reaches, and groundwater recharge from agricultural irrigation, major flood events, and canals. Model Layer 1 is the uppermost layer and corresponds to the Upper Alluvial Unit, model Layer 2 corresponds to the Middle Alluvial Unit, and model Layer 3 corresponds to the Lower Alluvial Unit.

The model was calibrated for both steady-state and transient-state groundwater flow conditions. The model reasonably simulates groundwater flow directions and water levels. The model simulates a net increase in the volume of groundwater in storage for the six-year transient simulation period of approximately 640,000 acre-feet compared to a conceptual change in the volume of groundwater in storage of 670,000 acre-feet. A sensitivity analysis was conducted to determine how variations of the model input components effect the final model solution.

Recommendations are provided to improve future data collection and analysis efforts. The recommendations include: 1) improved estimates of agricultural recharge, 2) incorporate a re-wetting option in the model code to permit the model to resaturate "dewatered" cells, 3) update the model as data become available to improve its performance for use as a planning tool, 4) extend the transient calibration period, 5) revision and enlargement of the Salt River Valley water level measurement index line, 6) develop more understanding concerning the complex relationship between "composite" water level changes and actual groundwater storage changes in the model area, 7) incorporate a subsidence package in the model code to simulate compaction resulting from groundwater storage changes in compressible beds, 8) seasonalize model pumpage and recharge, 9) development of a more comprehensive aquifer test database, 10) improvement of the current stream gage network in the Salt River Valley.

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CHAPTER ONE. INTRODUCTION

I. INTRODUCTION

The Arizona Department of Water Resources (ADWR) has developed a regional groundwater flow model of the Salt River Valley, which is located in the Phoenix Active Management Area (AMA). The model study was conducted in two phases. Phase I consisted of the hydrologic and geologic characterization of the study area. Phase I also included an analysis of groundwater pumpage, recharge, evapotranspiration, and underflow. The Phase I data and analysis are documented in, A Regional Groundwater Flow Model of the Salt River Valley - Phase I Phoenix AMA - Hydrogeologic Framework and Basic Data Report (Corkhill and others, 1993). Phase II, documented in this report, discusses the development and calibration of the numerical computer model, as well as recommendations for future modeling updates.

II. OBJECTIVES, GOALS, SCOPE

The goal of the SRV groundwater modeling effort is to provide an analytical tool capable of quantifying the effects of various groundwater management and conservation scenarios on the groundwater supplies within the study area. The Phase I objectives were to 1) perform a comprehensive search and collection of all current and historic hydrologic, geologic, and land use parameters, 2) develop a groundwater database of the assembled data, 3) develop a three-dimensional groundwater flow model, 4) develop recommendations concerning future data

collections and model improvement efforts. The Phase I objectives were successfully achieved and are documented in the Phase I report (Corkhill and others, 1993). The Phase II objectives were to construct a preliminary groundwater flow model and identify areas of data uncertainty and model limitations that need to be addressed in future model updates. To achieve these objectives, goals were established and are as follows:

1) Develop a three-dimensional computer model that reasonably simulates the groundwater flow system within the modeled area.

2) Outline the model's proper uses and limitations.

3) Provide recommendations to improve future data collection, analysis efforts, and model updates.

III. PURPOSE

The purpose of the Phase II report is to document the development and calibration of the numerical computer model and the sensitivity analysis, as well as to make recommendations for future modeling updates.

IV. FUTURE USE OF MODEL

Future uses of the SRV model may include the following, but not limited to:

1) The Phoenix AMA will utilize the model as an analytical tool capable of quantifying the effects of various groundwater management and conservation scenarios on the groundwater supplies within the study area. As an example, the model was used to simulate the impacts of potential groundwater recharge projects in the WSRV sub-basin by the U.S. Bureau of Reclamation.

2) The model provides a cumulative source of hydrologic and geologic data for the Phoenix AMA. The model is intended for use by interested parties, as a framework for other models in the SRV.

3) Restructure the model to incorporate use of the subsidence package, water water quality work, seasonal stresses, and to recognize new water level and geology data.

V. MODEL AREA

The Phoenix Active Management Area (AMA) is located in Central Arizona. Active Management Areas (AMAs) are areas in which intensive groundwater management is required to address severe impacts on groundwater supplies due to extensive groundwater withdrawals. The Phoenix AMA includes 5,646 square miles (Figure 1), and includes seven hydrologic sub-basins: East Salt River Valley (ESRV), West Salt River Valley (WSRV), Hassayampa, Rainbow Valley, Fountain Hills, Lake Pleasant, and Carefree. The ESRV and WSRV sub-basins which are collectively referred to as the Salt River Valley (SRV) are the focus of this model study. The area modeled within the SRV is approximately 2,240 square miles. The model area covers the largest and most populous urban area in Arizona and includes Phoenix, the state's largest city.

Also included within the model area are the cities of Tempe, Scottsdale, Mesa, Glendale, Chandler, Peoria, and many smaller cities and Indian communities.

The climate of the model area is semi-arid with hot summers, mild winters, and average annual precipitation of 7 inches to 8 inches (ADWR, 1991). The model area is drained by three major streams -- the Salt, Gila, and Agua Fria Rivers. The Salt River below Granite Reef Dam is ephemeral, flowing only in response to local flooding and releases from upstream reservoirs. The Gila River below Ashurst-Hayden Dam to near its confluence with the Salt River is also ephemeral, flowing only in response to flooding and reservoir releases. Below the confluence with the Salt River, the Gila River flows perennially due to effluent discharge from the City of Phoenix 91st Avenue Wastewater Treatment Plant and from groundwater discharge to the river channel. The Agua Fria River is also ephemeral within the model area downstream of New Waddel Dam.

CHAPTER TWO. CONCEPTUAL MODEL

I. HYDROGEOLOGIC FRAMEWORK

The hydrogeologic setting of the Salt River Valley (SRV) is described in reports by Laney and Hahn (1986) on the hydrogeology of the eastern part of the SRV and Brown and Pool (1989) on the hydrogeology of the western part of the SRV. Part of the information presented in this section was obtained from these sources. A more detailed discussion of the hydrogeology is provided in the SRV Phase I report (Corkhill and others, 1993).

The SRV consists of two distinct but interconnected alluvial groundwater basins. The western alluvial basin is approximately equivalent the West Salt River Valley (WSRV) sub-basin of the Phoenix AMA; the eastern alluvial basin includes the Eastern Salt River Valley sub-basin of the Phoenix AMA and the northern part of the Maricopa Stanfield (MST) sub-basin of the Pinal AMA. The alluvial basins are connected between South Mountain and the Sierra Estrella Mountains and between South Mountain and the Papago Buttes (Figure 1).

The alluvial basins are defined and partially surrounded by predominantly north to northwest trending fault-block mountain ranges. The alluvial basins and most of the surrounding mountains characteristic of present-day Basin and Range physiography were formed during a period of high-angle block faulting that occurred between approximately 15 and 8 million years ago (Shafiquallah and others, 1980). South Mountain is a northeast-trending arch structure that was formed prior to Basin and Range faulting (Reynolds, 1985).

The rocks that form the mountain ranges surrounding and underlying the alluvial basins are composed predominantly of crystalline rocks of Precambrian to middle Tertiary age and extrusive rocks of middle Tertiary to Quaternary age (Brown and Pool, 1989). The crystalline and extrusive rocks form nearly impermeable boundaries to groundwater flow and are collectively referred to in this report as the Hydrologic Bedrock Unit (HBU).

The crystalline rocks of the HBU are composed of various metamorphic and granitic rocks, including schist, gneiss, metavolcanics, quartzite, granite and other granitic rocks of Precambrian and middle Tertiary age. The extrusive rocks include middle to late Tertiary volcanic rocks of rhyolitic to basaltic composition and basalt flows of middle Tertiary to Quaternary age. The HBU may locally contain and transmit small quantities of water where fractured, but is not regarded as an aquifer on a regional scale.

The mountain ranges surrounding the basins also include sedimentary rocks of Late Tertiary age referred to as the Red Unit (Arteaga and others, 1968). The Red Unit has also been referred to in the literature as the Tempe Beds (Schulten and others, 1979) and the Camel's Head Formation (Cordy and others, 1978). The Red Unit occurs at Mount McDowell, the Papago Buttes, the head of Camelback Mountain, and in the subsurface in east Phoenix and Scottsdale overlying the HBU. The Red Unit consists of reddish-colored, well-cemented breccia, conglomerate, sandstone and siltstone (Laney and Hahn, 1986). The breccia and conglomerate are poorly sorted, with particle sizes ranging from clay to boulders up to 15 feet in diameter. The sandstone and siltstone are better sorted and stratified. The upper part of the unit locally contains interbedded volcanic flows and pyroclastic rocks. The Red Unit has been interpreted as consisting primarily of alluvial fan deposits.

The Red Unit was deposited prior to high-angle normal faulting that formed the alluvial basins. The origin of the unit at the Papago Buttes may be related to the development of the South Mountain arch structure (Reynolds, 1985). The age of the Red Unit may range from 17.5 to 22 million years, based on radiometric dating of volcanic rocks within the unit (Laney and Hahn, 1986).

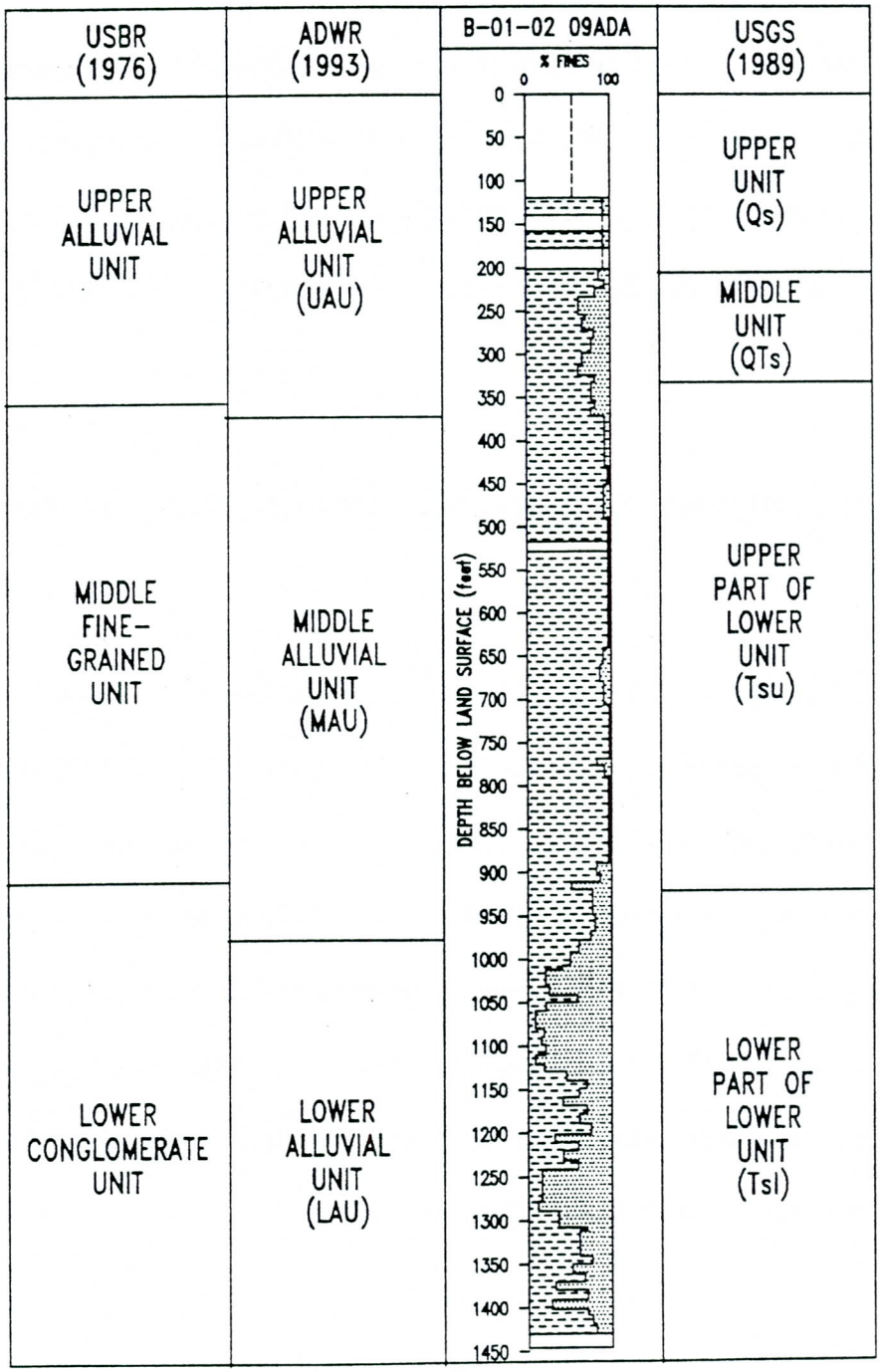
Because the Red Unit is limited in areal extent and typically well-cemented, it is not a significant source of water on a regional scale. In Paradise Valley, however, the unit yields more water to wells than do the overlying units, probably due to fracturing and faulting (Arteaga and others, 1968). The Red Unit has therefore been included with the basin-fill deposits for modeling purposes.

II. BASIN-FILL DEPOSITS AND HYDROGEOLOGIC UNITS DEFINED FOR THE MODEL

The three hydrogeologic units defined for the SRV model are partially equivalent to similar units defined in previous investigations by the USBR (1976) and the USGS (Laney and Hahn, 1986; Brown and Pool, 1989). There are however, differences in definition of hydrogeologic units between the USBR, USGS, and ADWR based on the objectives of each investigation. Figure 2 illustrates the differences in definition of hydrogeologic units between the USBR, USGS, and ADWR for a particle-size log from an irrigation well located at B-01-09 ada2. For a more detailed discussion on the differences in definition of hydrogeologic units refer to the SRV Phase I report (Corkhill and others, 1993).

FIGURE 2

EXAMPLE PARTICLE-SIZE LOG WHICH SHOWS THE CORRELATION BETWEEN ADWR HYDROGEOLOGIC UNITS, USGS, AND USBR GEOLOGIC UNITS



The alluvial basins of the SRV consist of thick basin-fill deposits of unconsolidated to semiconsolidated clastic sediment of Late Tertiary to Quaternary age that overly the Red Unit. Radiometric dating of volcanic rocks within the basin fill suggest that the basin-fill deposits were formed between 15.8 and 3.3 million years ago (Laney and Hahn, 1986).

The basin-fill deposits range in thickness from 0 feet near the basin margins to over 10,000 feet in the central areas of the basins. The thickest basin-fill deposits in the WSRV are near Luke Air Force Base, where the structure and lithology of the basin-fill deposits have been influenced by a massive evaporite deposit referred to as the Luke Salt Body (Eaton and others, 1972). The thickest basin-fill deposits in the ESRV occur to the east of Gilbert, where a total thickness of over 9,000 feet has been recorded by geothermal exploration drilling. The basin-fill deposits in the ESRV also exceed 7,000 feet in thickness east of Scottsdale and 5,000 feet in thickness east of the Union Hills.

The basin-fill deposits consist of interbedded sequences of conglomerate, gravel, sand, silt, clay and evaporites. These clastic sediments represent sequences of weakly consolidated to unconsolidated alluvial fan, playa and fluvial deposits formed during the development of the alluvial basins. In general, the basin-fill deposits become finer grained toward the central areas of the alluvial basins and tend to become more coarse upward. These observed lithologic relationships are interpreted as representing alluvial fan and playa deposits formed in closed basins during the early and middle stages of basin development, followed by fluvial and alluvial fan deposits formed during the late stages of basin development after the establishment of through-flowing drainages (Brown and Pool, 1989). The basin-fill deposits comprise the regional aquifer in the SRV and are the primary focus of the modeling effort. The basin-fill deposits were

subdivided into three hydrogeologic units for modeling purposes. The three hydrogeologic units are designated in ascending order: 1) Lower Alluvial Unit (LAU), 2) Middle Alluvial Unit (MAU), 3) Upper Alluvial Unit (UAU). The stratigraphic relationships among the three hydrogeologic units of the basin-fill deposits, the Red Unit, and the Hydrologic Bedrock Unit are presented in Figure 3. The hydrogeologic units defined for the model are discussed in the following sections.

A. Lower Alluvial Unit (LAU)

The Lower Alluvial Unit (LAU) overlies or is in fault contact with the Hydrologic Bedrock Unit and the Red Unit. The LAU consists mainly of conglomerate and gravel near the basin margins, grading into mudstone, gypsiferous and anhydritic mudstone and anhydrite in the central areas of the basins. The LAU locally contains interbedded volcanic rocks. The LAU is interpreted as consisting of alluvial fan deposits near the mountain fronts grading into fluvial, playa and evaporite deposits in the central areas of the basins. Sediment within the unit was probably derived from the surrounding mountains. Radiometric dating of volcanic rocks within the LAU indicate that the unit may be as old as 16.6 million years (Brown and Pool, 1989).

The LAU ranges from 0 feet thickness near the basin margins to several thousands of feet thick in the central areas of the basins. Due to a lack of deep drilling data, no attempt was made to map the thickness of the LAU below 3,000 feet below land surface, the assigned maximum depth of the model.

The Luke Salt Body located in the WSRV is interpreted as having formed as an evaporite

deposit during deposition of the LAU. Movement of the Luke Salt Body has had an effect on the thickness and structure of both the LAU and the overlying MAU. Although available data indicate that the Luke Salt Body is part of the LAU, it is considered to represent a hydraulic barrier and has been included within the hydrologic bedrock unit for modeling purposes.

The LAU was deposited during the early stages of development of the alluvial basins. The increasing thickness and decreasing particle size of the LAU with increasing distance from the mountain fronts suggest that the alluvial basins were closed during deposition of the unit.

Hydraulic conductivity estimates for the LAU range from about 5 to 60 feet/day, based on aquifer test results and specific capacity data. Figure 4 presents the calibrated areal distribution of hydraulic conductivity for the LAU. The LAU is modeled as a semi-confined aquifer with a constant storage coefficient of 0.005. Initial estimates of specific yield for the LAU were based on an emprical quantitative relationship between mean hydraulic conductivity and mean particle-size (Laney and Hahn, 1986). Specific yield estimates for the unit range from about 3 to 15 percent. Figure 5 presents the areal distribution of the calibrated specific yield values.

B. Middle Alluvial Unit (MAU)

The Middle Alluvial Unit (MAU) overlies the LAU. The MAU consists mainly of clay, silt, mudstone, and gypsiferous mudstone with some interbedded sand and gravel. Near the margins of the alluvial basins the MAU consists mainly of sand and gravel and is difficult or impossible to distinguish from the other units. Like the LAU, the MAU is interpreted as

consisting of alluvial fan deposits near the mountain fronts grading into fluvial, playa and evaporite deposits in the central areas of the basins. The lithology of the MAU consists predominantly of silt and clay however, which suggests that the unit consists primarily of playa deposits. Sediment within the unit was probably derived from surrounding mountains.

In general, the MAU thickens toward the central areas of the basins. The unit ranges from 0 feet thickness near the basin margins to 1,600 feet thick in the deeper parts of the basins. In the ESRV, the MAU is thickest southeast of Gilbert, an area which corresponds to the deepest part of the basin. In the WSRV, the MAU is thickest south and east of the Luke Salt Body.

The MAU was deposited during the middle stages of development of the alluvial basins. The increasing thickness and decreasing particle size of the MAU with increasing distance from the mountain fronts suggest that the alluvial basins were still closed and subsiding during deposition of the unit.

Hydraulic conductivity estimates for the MAU range from about 5 to 50 feet/day, based on aquifer test results and specific capacity data. Figure 6 presents the calibrated areal distribution of hydraulic conductivity for the MAU. The MAU is modeled primarily as a semi-confined aquifer with a constant storage coefficient of 0.005. Initial estimates of specific yield for the MAU were based on an emprical quantitative relationship between mean hydraulic conductivity and mean particle-size (Laney and Hahn, 1986). Specific yield estimates for the unit range from about 3 to 14 percent. Figure 7 presents the areal distribution of the calibrated specific yield values for the MAU.

C. Upper Alluvial Unit (UAU)

The Upper Alluvial Unit (UAU) overlies the MAU. The UAU consists mainly of silt, sand, and gravel. The composition of the UAU is dominated by sand and gravel near the present-day Salt and Gila Rivers, near the former course of the Salt River east and south of South Mountain, and near the margins of the alluvial basins. In other areas, the unit is typically dominated by silt and sand.

The UAU was deposited during the final stages of development of the alluvial basins. The relatively uniform thickness of the unit and association of coarser-grained sediments with the locations of major drainages suggest that the unit was deposited by the ancestral Salt and Gila Rivers after the establishment of through-flowing drainages. Deposition also occurred from alluvial fans along the mountain fronts. The UAU is interpreted as consisting of alluvial channel, terrace, floodplain, and alluvial fan deposits. Sediment within the unit was derived from the ancestral Salt and Gila Rivers and other streams, and from the surrounding mountains.

The total thickness of the UAU is relatively uniform and does not show the same trends characteristic of the MAU and LAU. The UAU is typically between 200 and 300 feet thick in the ESRV and between 300 and 400 feet thick in the WSRV. The unit is between 100 and 200 feet thick near the Salt and Gila Rivers and becomes thinner near mountain fronts.

Hydraulic conductivity estimates for the UAU have been obtained from aquifer test results and specific capacity data. The hydraulic conductivity of the UAU ranges from about 20 to 250 feet/day and is highest near the Salt and Gila Rivers (Figure 8). The UAU is modeled as an unconfined aquifer. Initial estimates of specific yield for the UAU were based on an emprical

quantitative relationship between mean hydraulic conductivity and mean particle-size (Laney and Hahn, 1986). Specific yield estimates for the unit range from about 8 to 22 percent. Figure 9 presents the areal distribution of the calibrated specific yield values for the UAU.

III. THE PREDEVELOPMENT HYDROLOGIC SYSTEM (CIRCA 1900)

Prior to the arrival of non-Indian settlers in the SRV during the 1860's and 1870's the hydrologic system was assumed to be in a state of equilibrium. The long-term inflows and outflows were probably in balance, and water levels remained more or less constant with time (steady-state). After the Civil War many non-Indian settlers arrived in the SRV and began to divert the surface waters of the Salt and Gila Rivers. Approximately 60,000 acres were irrigated under the Arizona Canal system by 1885 (Davis, 1897).

By 1900 the over-application of agricultural irrigation water and canal seepage had caused water levels to rise above predevelopment levels in many parts of the irrigated SRV. However, Lee (1905) reported that water levels had declined prior to 1905 due to a prevailing drought and also because of the increasing number of wells in use. The configuration of the water table, circa 1900, is shown in Figure 10. Although the effects of irrigation seepage and drought conditions on the groundwater levels of the early 1900's are unknown, it is probable that the effects were minimal and the water levels measured by Lee (1905) adequately represent predevelopment conditions (Thomsen and Porcello, 1991). Groundwater flow in the predevelopment system is assumed to have been primarily horizontal. Vertical head differences probably occurred in zones of inflow or outflow, but these zones are not known to be extensive or mappable (Freethey and

Anderson, 1986).

The predevelopment hydrologic system of the SRV has been studied to serve as the time-frame for the steady-state calibration of the groundwater flow model. The various components of groundwater inflow and outflow have been identified and analyzed for the predevelopment hydrologic system (circa 1900). The components include underflow, perennial and ephemeral stream channel infiltration, mountain front recharge, and evapotranspiration. A predevelopment groundwater budget developed for the SRV study area is presented in Table 1. For a more detailed discussion of the predevelopment hydrologic system the reader is referred to the SRV Phase I report (Corkhill and others, 1993).

Table 1

Predevelopment Groundwater Budget For SRV Study Area
(Figures Rounded to Nearest 1000 Acre-Feet)

INFLOW	AF/YR
Perennial Stream Channel Recharge	81,000
Underflow into SRV Model Area	31,000
Ephemeral Stream Channel Recharge	20,000
Mountain Front Recharge	7,000
TOTAL INFLOW	139,000
OUTFLOW	**AF/YR**
Perennial Stream Channel Discharge	61,000
Evapotranspiration	76,000
Underflow out of SRV Model Area	2,000
TOTAL OUTFLOW	139,000

IV. THE MODERN HYDROLOGIC SYSTEM -- 1983 TO 1988

The modern hydrologic flow system in the SRV has been shaped by the activities of man. The system is dominated by regional pumping centers, and recharge supplied mainly from agricultural practices, canals, and occasional flood events. It is a dynamic system which responds to the stresses of pumpage and recharge by adjusting the volume of groundwater in storage. Since 1900 groundwater overdraft has reduced the volume of groundwater in storage by approximately 23 million acre-feet, based on changes in water levels, and has caused large declines in the water table in most areas (Figure 11).

Today's groundwater flow system is exceedingly complex. The UAU has been substantially dewatered in many areas, and vertical hydraulic gradients have developed in many locations. Vertical hydraulic head differences exceeding 100 feet have been measured between the UAU and LAU in the Scottsdale area where significant dewatering of the UAU has occurred and groundwater is now pumped from the lower fine-grained sediments of the MAU, LAU, and Red Unit (ADWR, 1990). The vertical gradient has developed in this area as the hydraulic head in the lower fine-grained sediments has been reduced due to pumpage. The head has not equilibrated vertically through the aquifer due to the low hydraulic conductivity of the intervening fine-grained sediments. For this reason a long-term vertical flow regime has been established. Vertical gradients in most other parts of the study area are not as well known, but have been estimated from 1983 unit-specific and composite water level data. Unit-specific water level maps based on Groundwater Site Inventory (GWSI) water levels measured between October of 1982 and March of 1983 have been produced for the UAU and the MAU (Figures 12 and 13).

Available data indicate MAU and LAU water levels for 1983 were essentially the same, except in the Scottsdale, Chandler Heights, Deer Valley, and Litchfield Park areas where MAU water levels ranged from 20 to 40 feet higher than LAU water levels. These locations are areas where heavy pumpage occurs.

The modern hydrologic system of the SRV (1983 to 1988) has been studied to serve as the time-frame for the transient-state calibration of the modern groundwater flow model. These years were selected due to the availability of water level data as the ADWR Basic Data Section conducted a basin wide water level survey in these years. The various components of groundwater inflow and outflow have been identified and analyzed for the modern hydrologic system. The components include underflow, multiple sources of recharge, pumpage, evapotranspiration, and storage change treated as a residual. A conceptual groundwater budget for the SRV study area transient calibration period (1983 to 1988) is presented in Table 2. A brief discussion of the various components of inflow and outflow is provided below. A more detailed discussion is provided in the SRV Phase I report (Corkhill and others, 1993).

Table 2

Conceptual Groundwater Budget For The SRV Model Area
Transient-State Calibration (1983-1988)

(Figures Rounded to Nearest 1,000 Acre-Feet)

Inflow	1983	1984	1985	1986	1987	1988
Underflow[1]	24,000	24,000	24,000	24,000	24,000	24,000
Ag Irrigation Recharge[2]	688,000	688,000	688,000	688,000	688,000	688,000
Urban Irrigation Recharge[3]	52,000	52,000	52,000	52,000	52,000	52,000
Canal Recharge[2]	167,000	172,000	172,000	131,000	123,000	126,000
Artificial Lake Recharge[2]	7,000	11,000	13,000	13,000	13,000	13,000
Effluent Recharge	34,000	25,000	24,000	40,000	45,000	46,000
Major Drainage Recharge	725,000	157,000	309,000	27,000	28,000	19,000
Mountain-Front Recharge	11,000	11,000	11,000	11,000	11,000	11,000
Ephemeral Stream Recharge	11,000	11,000	11,000	11,000	11,000	11,000
TOTAL INFLOW	**1,719,000**	**1,151,000**	**1,304,000**	**997,000**	**995,000**	**990,000**
Outflow	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**
Underflow	28,000	28,000	28,000	28,000	28,000	28,000
Pumpage	796,000	1,329,000	1,011,000	980,000	927,000	987,000
Evapotranspiration	48,000	48,000	48,000	48,000	48,000	48,000
TOTAL OUTFLOW	**872,000**	**1,405,000**	**1,087,000**	**1,056,000**	**1,003,000**	**1,063,000**

Total Estimated Inflow 1983 - 88 = 7,156,000 Acre-Feet
Total Estimated Outflow 1983 - 88 = 6,486,000 Acre-Feet
Inflow - Outflow (1983 - 88) = +670,000 Acre-Feet

[1] Note: Total Groundwater Underflow In from Table 3 = 35,000 acre-feet, this total includes (Groundwater Underflow + Ephemeral Stream Recharge).

[2] Totals may vary from the totals presented in the SRV Phase I report (Corkhill and others, 1993) because these totals are for the model area only, in addition some estimates were modified during the model calibration.

[3] Includes irrigated municipal lands and turfed areas.

A. Groundwater Flow And Underflow

In the ESRV groundwater flow entering the sub-basin is directed toward three regional pumping centers. Groundwater depressions in the East Mesa-Gilbert and Queen Creek-Chandler Heights areas are the result of long-term overdraft of the groundwater aquifer by agricultural irrigation. Groundwater flow is also directed toward a groundwater depression in the northwest Scottsdale and Paradise Valley areas caused by long-term municipal and urban irrigation pumpage.

By 1983 a groundwater divide had formed in the East Phoenix and Tempe area (Figures 12, 13, 14, and 15). The divide has formed in response to long-term regional pumping in the ESRV and WSRV sub-basins and is localized where the bedrock is very shallow, and its presence indicates that the sub-basins are essentially hydraulically isolated from each other in that area. In the Maricopa area groundwater now flows southward from the Phoenix AMA toward a major agricultural pumping center located in the Maricopa-Stanfield sub-basin of the Pinal AMA.

In the WSRV groundwater entering the sub-basin also flows toward areas of intense regional pumpage (Figures 13 and 15). Large groundwater depressions caused by municipal and agricultural pumpage have formed in Deer Valley and in the Goodyear-Litchfield Park areas. Groundwater underflow into and out of the SRV model area occurs at the basin boundaries, as illustrated by Figure 16 for the period 1983 to 1988. Underflows were assumed to remain unchanged from predevelopment levels in areas where modern water levels and hydraulic gradients remained relatively unchanged from predevelopment conditions. Underflows were estimated along the southern model boundary from flux values simulated in the Pinal AMA Regional Groundwater Flow Model (Corkhill and Hill, 1990). The total estimated underflow

entering the study area for the 1983 to 1988 period was approximately 35,000 acre-feet per year. The total estimated underflow exiting the study area for the 1983 to 1988 period was 28,000 acre-feet per year. Table 3 illustrates groundwater underflow in and out of the SRV study area and the location, refer to Figure 5 for the location.

Table 3

Estimated Groundwater Underflow & Ephemeral Stream Channel Infiltration Within the SRV Study Area (1983 - 1988) (Acre-Feet/Year)

(Figures rounded to the nearest 1,000 Acre-Feet)

Groundwater Underflow Location	Acre-Feet/Year
IN	
Gila River Near Sacaton	7,000
Gila River Near Florence	3,000
Hassayampa River Near Morristown	3,000
Hassayampa River Near Buckeye/Arlington	11,000
New River [1]	3,000
Skunk Creek[1]	2,000
Cave Creek (N. Phoenix)[1]	2,000
Cave Creek (Paradise Valley)[1]	2,000
Queen Creek[1]	2,000
Total In	**35,000**
OUT	
Santa Cruz River Near Maricopa	25,000
Gila River Near Arlington	3,000
Total Out	**28,000**

[1] These values are combination of ephemeral stream channel infiltration and groundwater underflow.

B. Groundwater Recharge

Recharge represents the major inflow to the modern groundwater system. Sources of groundwater recharge within the SRV study area were identified and the maximum potential recharge from each source was estimated. The maximum potential recharge for each recharge source was calculated to provide a high-end estimate for the potential range of recharge. The maximum potential recharge values served as initial transient model inputs, during model calibration some of the maximum potential recharge values were reduced. The major components of groundwater recharge within the SRV study area include agricultural and urban irrigation, canal seepage, artificial lake seepage, effluent discharge to river channels, and naturally occurring recharge from flood flows along the major drainages and mountain fronts. The maximum potential recharge values for all major recharge components are listed in Table 2. Refer to the SRV Phase I report (Corkhill and others, 1993) for a more detailed discussion of the methodologies used to estimate underflow, recharge, pumpage, and evapotranspiration.

C. Pumpage

Groundwater pumpage represents the major outflow from the modern groundwater system within the SRV study area. Approximately 80 percent of pumpage within the SRV study area is for agriculture, the remaining pumpage is divided between municipal and industrial use. The municipal pumpage comprises approximately 14 percent of the total pumpage, and industrial use approximately 6 percent. Pumpage by individual groundwater users was analyzed and

summarized as a major component of the conceptual water budget. Annual totals of groundwater pumped for 1983 to 1988 are presented in Table 2.

D. Evapotranspiration

Evapotranspiration occurs from phreatophyte growth along the Salt and Gila Rivers and represents the only other significant outflow from the modern groundwater system. The primary factors controlling phreatophyte growth are depth to water and flood events (Graf, 1980). The maximum water use per model cell was calculated based on estimates of phreatophyte acreage, density, and depth to water (Corkhill and others, 1993). The estimated maximum total evapotranspiration loss was 48,000 acre-feet per year for the transient-state model period of 1983 to 1988.

CHAPTER THREE. NUMERICAL MODEL

This model has been used to simulate the steady-state groundwater flow conditions of the predevelopment era (circa 1900), and the transient flow conditions of the modern era (1983 to 1988). The model is quasi three-dimensional, and simulates the three major hydrogeologic units (UAU, MAU, and LAU) using three model layers. The model simulates groundwater underflow into and out of the model area, groundwater recharge, pumpage, evapotranspiration, and seepage losses from and to the aquifer along the perennial reaches of the Salt and Gila Rivers. A description of the model development follows.

I. SELECTION OF THE MODEL CODE

The model code selected to simulate groundwater flow was the Modular Three-Dimensional Finite Difference Groundwater Flow Model, or MODFLOW, developed by the U.S. Geological Survey (McDonald and Harbaugh, 1988). Criteria considered for the selection of this model code include:

1) the modular format of MODFLOW allows independent examination of specific hydrologic features,

2) the model code is flexible and can accomodate hydraulic interconnection between multiple hydrogeologic units,

3) documentation of the model code is relatively complete and comprehensive, and

4) the model has been widely used in the hydrologic professional community and is generally accepted as a valid model to simulate groundwater flow. A detailed explanation of the mathematical theory, optional packages, and solution techniques are provided in the MODFLOW documentation (McDonald and Harbaugh, 1988).

II. MODEL SIMULATION PERIODS

The model has been used to simulate the steady-state groundwater flow conditions of the predevelopment era (circa 1900). The model was also used to simulate transient-state groundwater flow conditions between 1983 and 1988.

III. GENERAL MODEL CHARACTERISTICS

The model was constructed using seven packages offered by MODFLOW. The packages used were: 1) the BASIC package, 2) the Block Center Flow package (BCF), 3) the WELL package, 4) the RECHARGE package, 5) the RIVER package, 6) the EVAPOTRANSPIRATION (ET) package, and 7) the Strongly Implicit Procedure (SIP) package. A brief description of each MODFLOW package and how they relate to the modeling of the hydrogeologic system is presented. The discretization of time for the transient simulation period consisted of using six time-steps per stress period, with each stress period corresponding to one calendar year. Six stress periods were simulated from 1983 to 1988. The model unit of length was feet, and of time was days. The general characteristics of the SRV model are presented in Table 4.

The BASIC package established the orientation of the active model area, boundary conditions, initial water levels, and the discretization of time.

The BCF package simulated the hydrogeologic framework of the model area. This package contains the basic geologic inputs to the model and computed the conductance components of the finite-difference equation which determine flow between adjacent cells. It also

computed the terms that determine the rate of movement of water to and from storage.

The WELL package simulated groundwater pumpage from the aquifer at specified volumetric rates during specific stress periods. The WELL package was also used to simulate constant fluxes across some of the model boundaries.

The RECHARGE package simulated the areal distribution of recharge. Recharge simulated included agricultural and urban irrigation, canal seepage, artificial lake seepage, and flood flows along major rivers.

The RIVER package was used to simulate the ordinary day-to-day exchange of water between the river and the groundwater system along perennial reaches of the Salt and Gila Rivers. The model incorporated the RIVER package downstream of the 91st Avenue Wastewater Treatment Plant where the Gila and Salt Rivers are perennial due to effluent discharge into the channel. The RIVER package was not used to simulate groundwater recharge from flood events since most of this recharge occurred along ephemeral reaches which were simulated with the RECHARGE package.

The ET package simulated the effects of plant transpiration and direct evaporation in removing water from the saturated groundwater regime.

The SIP package was used to implement the Strongly Implicit Procedure, a numerical method for solving the large system of simultaneous linear equations by iteration. For a complete discussion of each MODFLOW package refer to McDonald and Harbaugh (1988).

Table 4

GENERAL CHARACTERISTICS OF THE SALT RIVER VALLEY MODEL

MODEL CHARACTERISTIC	DESCRIPTION	MODEL UNIT
Steady-State Calibration	circa 1900 - Predevelopment	
Transient Calibration	1983 - 1988	Time = Days
Model Grid	62 Rows by 90 Columns	Length = Feet
Layer 1 (UAU)	Unconfined Aquifer	Length = Feet
Layer 2 (MAU)	Confined/Unconfined Aquifer	
Layer 3 (LAU)	Confined/Unconfined Aquifer	
Horizontal Hydraulic Conductivity	No Horizontal Anisotropy	Feet/Day
Vertical Hydraulic Leakance	Provided Using VCONT	1/Day
Specific Yield	Volume of water yielded per unit area per unit change in water table elevation	Dimensionless
Storage Coefficient	Volume of water yielded per unit area per unit change in confined aquifer potentiometric surface elevation	
Recharge	Applied to uppermost active cell	Feet/Day
Pumpage	Distributed to all Model Layers	$Feet^3/Day$
Model Cell Types	No-Flow, Constant and Variable Head	
Boundary Conditions	Constant Head, Constant Flux	
Numerical Solution Technique	Strongly Implicit Procedure	0.01 Feet Closure Criteria

A. Model Grid

The SRV model grid is 62 rows by 90 columns, with 3 layers and is aligned with the local baseline and meridian. Model cells are one mile in length and width, and closely overly the Township-Range-Section (TRS) grid in most locations. Each model layer corresponds to a single hydrogeologic unit. The active model domain includes most of the ESRV and WSRV sub-basins of the Phoenix AMA, and the northernmost portion of Maricopa-Stanfield sub-basin of the Pinal AMA. The active model domain encompasses 2,240 square miles. The model grid is illustrated in Figure 17.

B. Model Layers And Aquifer Conditions

Three model layers were used to represent the hydrogeologic system. The uppermost layer, Layer 1, corresponds to the Upper Alluvial Unit (UAU). The UAU is modeled as an unconfined aquifer. The middle layer, Layer 2, corresponds to the Middle Alluvial Unit (MAU). The MAU is modeled as a confined/unconfined aquifer, confined when the overlying UAU is saturated and unconfined when the UAU is dewatered. The bottom layer, Layer 3, corresponds to the Lower Alluvial Unit (LAU). The Red Unit which occurs in the subsurface in East Phoenix and Scottsdale is included in the LAU due to its similar hydraulic properties and limited areal extent. The LAU is also modeled as a confined/unconfined aquifer, confined when the overlying MAU is saturated and unconfined when the MAU is dewatered. Near the basin margins, the bottom of Layer 3 corresponds to the geologic contact of basin-fill

deposits with the Hydrologic Bedrock Unit near the basin margins. Toward the basin centers where basin-fill deposits are very thick, the bottom of Layer 3 parallels the land surface elevation with a maximum depth of 3,000 feet below land surface. The maximum thickness of 3,000 feet below land surface was selected, in part, because there are no pumping wells in the model study area deeper than 3,000 feet. The hydraulic conductivity and storativity of the LAU are probably low below that depth due to consolidation caused by higher overburden pressures.

The thickness of each model layer is defined by the elevation of each hydrogeologic unit contact. These elevations were obtained by discretizing the geologic contour maps developed in the SRV Phase I report (Corkhill and others, 1993). The geologic data for the SRV study area included 350 particle size logs, over 2,200 driller's logs, 140 geophysical logs, and monitoring well logs from groundwater contamination sites. The data were obtained from various sources, including ADWR files, the USGS, the Arizona Oil and Gas Conservation Commission, and various water providers.

C. Boundary Conditions

The selection of proper model boundary cell types is essential to the accuracy of the model. Boundary cells define the hydrologic conditions along the model borders. There are two fundamental types of model cells, active and inactive cells. Inactive model cells simulate "no-flow" conditions, where groundwater flow into or out of the model cell is not allowed. In the model no-flow cells generally correspond to impermeable bedrock outcrops.

There are two types of active cells used in the model, 1) variable head, and 2) constant head. Variable head cells permit the water-level elevation to change with time. Variable head cells comprise the active simulated region within the model. Constant head cells fix the water-level elevation at a constant specified elevation.

Constant head cells were specified at locations along the model boundary where groundwater underflow enters or leaves the model domain. Constant heads were chosen for boundaries where water levels did not change appreciably from predevelopment levels. Constant head cells were located in the WSRV sub-basin near Arlington where groundwater underflow occurs. Constant flux conditions have been simulated along the southern model boundary, and at certain locations along the eastern and northern boundaries of the model. Constant flux conditions were simulated at these locations either because invariant underflow and mountain front recharge conditions exist, or boundary fluxes were estimated from previous model studies (Wickham and Corkhill, 1989). Figure 17 illustrates the model grid and the various types of boundary cells and conditions simulated in the SRV model.

D. Vertical Leakance

The vertical leakance between Layers 1 and 2, and between Layers 2 and 3 was modeled using the VCONT option. MODFLOW requires VCONT to be calculated independently, and input as an array in the BCF package. VCONT was calculated by the following equation:

$$VCONT_{1\text{-}2} = \frac{1}{\frac{(V_1)/2}{K_{v1}} + \frac{(V_2)/2}{K_{v2}}}$$

Where:

$VCONT_{1-2}$: Vertical leakance between Layers 1 and 2
V_1 : Saturated thickness of Layer 1 (feet)
V_2 : Saturated thickness of Layer 2 (feet)
K_{v1}: Vertical hydraulic conductivity of Layer 1 (feet/day)
K_{v2}: Vertical hydraulic conductivity of Layer 2 (feet/day)
Units: 1/day

The final calibrated ratios of horizontal hydraulic conductivity to vertical hydraulic conductivity for Layers 1, 2, and 3 is given below.

Layer 1 Horizontal:Vertical K ratio = 20:1
Layer 2 Horizontal:Vertical K ratio = 100:1
Layer 3 Horizontal:Vertical K ratio = 50:1

See Appendix III for the magnitude and distribution of VCONT in the model.

E. Groundwater Flow Modeling Limitations and Assumptions

The SRV model has some inherent limitations which must be considered. These limitations and assumptions may contain some inaccuracies. The following groundwater flow modeling assumptions were made in order to simplify problems where data uncertainties exist or were necessary due to lack of data. Throughout the modeling process prior assumptions have been revised to reflect the current level of information known about the SRV study area. The limitations and assumptions associated with the SRV model include:

- The SRV groundwater flow model is a regional model and is not intended to provide site-specific determinations of hydrologic conditions.
- Available groundwater level data adequately represent the flow system within the model domain. Water level distributions reflect the stresses (natural and artificial) imposed on the hydrologic system by pumpage, recharge, and fluxes along the boundaries of the model domain.

- Static water level measurements taken during the winter months are representative of the study area when the hydrologic system is considered to be the most quiescent.

- Wells perforated in multiple hydrogeologic units are withdrawing water from each hydrogeologic unit. The amount of water that each hydrogeologic unit contributes is dependent on the hydraulic conductivity and perforated saturated thickness of that hydrogeologic unit as compared to the hydraulic conductivity of the overall saturated thickness of the hydrogeologic unit(s) the well is perforated in. The precise proportion and distribution of water flowing into perforations in wells in this area are unknown. Therefore the amount of water each hydrogeologic unit contributes to the well was estimated using the following equation:

(1) $$Q_n = \frac{K_n \times b_n}{T_t} \times Q_t \times 100$$

And:

(2) $$Q_n = Q_1 + Q_2 + Q_3 + \ldots + Q_n$$

(3) $$T_t = K_1b_1 + K_2b_2 + K_3b_3 + \ldots + K_nb_n$$

Where:

Q_n = percentage of total well pumpage contributed by hydrogeologic unit n

K_n = hydraulic conductivity of hydrogeologic unit n

b_n = saturated perforated thickness of hydrogeologic unit n

T_t = total transmissivity of saturated perforated hydrogeologic units

Q_t = total pumpage from well

Although equation (1) ignores well losses and the effects of partial penetration, due to the complexity and extent of the well field in the study area and the lack of any other data, this type of limiting and simplifying assumption was necessary.

- Evaporation of water from the water table is considered negligible. This is due to the fact that the depth to water in most of the study area is greater than 20 feet: therefore this assumption is appropriate.

- Recharge from precipitation is considered negligible in the study area. Depth to water considerations preclude effective recharge by direct precipitation. High intensity, short term precipitation events are more likely to contribute to flash floods rather than recharge the groundwater. This is because soil moisture that occurs close to land surface would tend to evaporate, thereby reducing the relative conductivity and inhibiting flow through the unsaturated zone. In addition, annual precipitation averages less than 8 inches in the

study area and is generally less than 0.1 inch per event, while annual open-water evaporation averages more than 6 feet.

- Hydraulic heads computed within each model cell represents the average head within the volume of that cell. Model cell size is critical to the accuracy of simulating the real groundwater system. Model cells in the SRV model are one square mile (640 acres) and vary in thickness from a few tens of feet to hundreds of feet.

IV. BASIC DATA REQUIREMENTS

The SRV Phase I Report (Corkhill and others, 1993) summarizes the hydrogeologic data available within the SRV model study area. These data were analyzed, summarized, and discretized for use in the model. An example of the discretization method is as follows: A geologic elevation contour map of the contact elevation between the UAU and MAU was created from available well log data. The model grid was superimposed over the geologic contact map and an elevation value was assigned (discretized) for each model cell. In areas where model cells lay between elevation contours, the elevation for the model cell was interpolated based upon the distance of the cell center from each contour. Table 5 summarizes the hydrologic and geologic data inputs for the model.

At this point it is important to mention the fact that there are several large areas of data deficiency in the model area (Figure 18). These peripheral areas are largely undeveloped desert land within the model area where few wells have been drilled. Due to the lack of well data our knowledge of the geology, aquifer parameters, and water levels is severely limited in these areas. For this reason the model input data and output heads for these areas are regarded with less confidence than other parts of the model area.

Table 5
Summary of Hydrologic and Geologic Model Input Data

Model Input Data	Steady -State	Transient	Description	Source of Data
Water Levels	✓		Predevelopment	Anderson (1968), Lee (1905) Thomsen & Baldys (1985)
		✓	1983 & 1989 (Winter)	ADWR-GWSI
Recharge		✓	1983-1988 Ag	AAS, ADWR, ROGR, & IGFR reports
		✓	1983-1988 Major Drainages	SCIP, SRP, USBR, USGS, US Army Corps of Engineers
		✓	1983-1988 Canals	SRP, CAP, BIC, RID, MWD, RWCD, SCIP
		✓	1983-1988 Urban Irrigation	Phoenix AMA, SRP
		✓	1983-1988 Artificial Lakes	Phoenix AMA
		✓	1983-1988 Effluent Recharge	City of Phoenix
	✓		Pre-Development	Thomsen & Porcello (1991)
		✓	1983-1988 Mountain Front	Thomsen & Porcello (1991)
Pumpage		✓	1983 (Non-Indian)	Major Groundwater Users
		✓	1984-1988 (Non-Indian)	ADWR-ROGR
		✓	1983-1988 (Indian SRPMIC, GRIC)	Mostly estimated. Some data provided by SRPMIC.
Evapotranspiration	✓		Predevelopment	ADWR, USGS
		✓	1983-1988	ADWR
Aquifer Parameters	✓	✓	Hydraulic Conductivity Specific Yield Storage Coefficient	Particle Size data, Anderson (1990), Pump test & Specific Capacity data
Hydrogeologic Contact Elevations	✓	✓	Top & Bottom of Model Layers	Particle size logs, Drillers logs, Geophysical logs.

AAS: Arizona Agricultural Statisitics
ADWR: Arizona Department of Water Resources
BIC: Buckeye Irrigation Company
CAP: Central Arizona Project
GRIC: Gila River Indian Community
GWSI: Groundwater Site Inventory
IGFR: Irrigation Grandfathered Rights
MWD: Maricopa Water District
RID: Roosevelt Irrigation District
ROGR: Registry of Groundwater Rights
RWCD: Roosevelt Water Company District
SCIP: San Carlos Irrigation Project
SRP: Salt River Project
SRPMIC: Salt River Pima Maricopa Indian Community
USBR: US Bureau of Reclamation
USGS: US Geological Survey

A. Water Levels

The water-level data for the steady-state model simulation was adapted mainly from the depth to water map constructed by Lee (1905), and predevelopment water level maps constructed by Anderson (1968), and by Thomsen and Baldys (1985). The configuration of the water table circa 1900 is illustrated in Figure 10. This map is assumed to be representative of predevelopment groundwater levels. Figure 10 represents the initial water levels for each model cell for the steady-state model. The same water-level elevation was used for all three model layers as it was assumed there was little vertical hydraulic gradient in the predevelopment era.

The transient model simulation (1983 to 1988) required initial and final water level data, and hydrographs for the transient period. Unit-specific water level maps were created for each model layer. Figures 12 and 13 are UAU and MAU unit-specific water level maps, based on GWSI water levels of wells perforated in specific hydrogeologic units for winter 1983 (initial water levels). Figures 14 and 15 are the water level maps of the UAU and MAU for winter 1989 (final water levels). Initial and final water level maps for the LAU are not presented in this report, because only slight vertical hydraulic gradients exist between the MAU and LAU in most locations. Therefore the MAU water levels are generally representative of the LAU water levels. See Appendix III for a listing of water level data used for model input.

B. Aquifer Parameters

Initial hydraulic conductivity (K) estimates were developed using aquifer test data from groundwater contamination site studies, specific capacity data from GWSI and other sources, recovery test data from the Salt River Project (SRP), and particle size data from the USGS. Hydraulic conductivity values of all model layers were adjusted during the calibration of the steady-state model. Figures 4, 6, and 8 (see also Appendix III) represent the areal distributions of calibrated hydraulic conductivity values for the LAU, MAU, and UAU respectively.

Storativity estimates (specific yield and storage coefficient) for transient simulations were provided from aquifer test data and other sources. Estimates of specific yield were obtained for various material types from published data. Estimates of the potential range of storage coefficient were also obtained from published data.

The UAU was modeled strictly as an unconfined aquifer, and therefore no storage coefficient was assigned. The MAU and LAU were modeled as fully convertible model layers which could switch between confined and unconfined aquifer conditions depending upon the elevation of the water level of each layer relative to the layer's upper elevation. The primary storage term assigned to both the MAU and LAU for confined conditions was a blanket value storage coefficient of 0.005. The secondary storage term assigned to the MAU and LAU for unconfined conditions was the specific yield. Figures 5, 7, and 9 represent the areal distributions of calibrated specific yield values for the LAU, MAU, and UAU respectively.

C. Recharge

Recharge represents the major inflow to the modern groundwater system. The sources of recharge identified and simulated in the model include incidental recharge from agricultural and urban irrigation, canal seepage, artificial lakes, treated effluent discharged into river channels, and naturally occurring recharge from flood flows along the major drainages and mountain fronts within the SRV. The maximum potential recharge for each source was estimated to provide a high end limit for the potential range of recharge values. The maximum potential recharge values served as initial transient model inputs, during the model calibration some of the maxiumum potential recharge values were reduced. The maximum potential recharge values are outlined in the conceptual water budget, Table 2. The areal distribution of total recharge for 1983 to 1988 is illustrated in Figure 19.

The methodologies used to determine the maximum potential recharge values outlined above are discussed in detail in the SRV Phase I Report (Corkhill and others, 1993). However, a major modification has been made in the methodology used to estimate the volume of agricultural recharge. This modification was prompted mainly due to the lack of agreement between the 1983 to 1988 groundwater storage change of approximately -0.6 million acre-feet estimated from the conceptual water budget (SRV Phase I Report, Table 24) and the groundwater storage change of approximately 1.9 million acre-feet estimated from measured water level changes from 1983 to 1988. Due to this discrepancy it became clear that the outflow from the system was overestimated and/or the system inflow was underestimated, or that the change-in-storage was overestimated.

The question of whether the change-in-storage based on measured water-level changes and assumed values of specific yield was overestimated is important to raise. Since most water level data were generally derived from "composite" wells which are screened or perforated over large depth intervals, and because some vertical hydraulic gradients existed throughout the model area it was not possible to estimate water table changes with absolute certainty. For this reason, and also due to the fact that the specific yield estimates also provide additional uncertainty it is important to state that the estimated change-in-storage based on water level changes provides only a reasonable "first" estimate of storage changes, not necessarily the "best" estimate in many instances. The reader is referred to Wickham and Corkhill (1989) for additional discussion of problems associated with storage-change estimates in the Pinal AMA.

Although there was some uncertainty concerning the estimated change-in-storage based on water level changes it still seemed likely that the discrepancy between the conceptual change-in-storage and the estimated change was due, at least in part, to the overestimation of system outflow and/or underestimation of system inflow.

On the outflow side of the equation pumpage was the only major category that merited consideration. But, since most pumpage was measured and reported to the ADWR as required by the GWMA (Groundwater Management Act) it was believed that the pumpage volumes were relatively accurate. Thus, it seemed more likely that the original recharge estimates were most likely underestimated. When the relative volumes of the various recharge components were compared it was clear that only recharge from major flood flows or agricultural irrigation could account for the deficit between the conceptual and measured storage changes. Although there was substantial uncertainty concerning recharge from major flood flows (Corkhill and others,

1993) this category was not believed to be substantially underestimated. The uncertainty associated with these estimates was largely due to the lack of sufficient stream gage data, or infiltration rate data for the major drainages in the model area. However, the methodologies used to make the estimates were designed to calculated the maximum recharge volumes which were potentially available. Therefore, since the volume of recharge from flood flows was theoretically estimated at the maximum potential level it seemed unlikely that the discrepancy could exist in this category.

With the elimination of all other likely possibilities it seemed likely that the volume of agricultural recharge which actually reached the aquifers of the SRV during the model calibration period was greater than originally estimated. Further research led to the conclusion that the transit time of deep percolating water in the vadose zone had to be accounted for in the calculation of agricultural recharge which actually reaches the water table in the SRV model area. The following discussion documents that research.

Originally, it was assumed that the agricultural recharge that occurred during the model calibration period immediately reached the aquifer. This assumption was required because MODFLOW is strictly a saturated flow model, and has no provision for simulating unsaturated flow conditions in the vadose zone. It is appropriate to make this assumption in areas where the depth-to-water is shallow (Buckeye area), and percolating water passes through the vadose zone in a relatively short period of time (less than the length of the stress period). This assumption is also appropriate in areas where a steady-state vertical flow system has been established in the vadose zone and the annual volume of agricultural recharge remains essentially constant. Under these conditions, the volume of water which is currently recharged would equal the volume of

0recharge which is reaching the aquifer, regardless of the actual length of time required for water to percolate through the vadose zone to the water table.

Unfortunately, in much of the SRV model area it has been found that neither of the previously mentioned conditions currently exist, and it was not possible to calibrate the model with the originally estimated volumes of agricultural recharge (those volumes are listed in Table 4 of the SRV Phase I Report). The assumptions were not reasonable in the SRV study area for the following reasons. First, the 1983 average depth-to-water of 207 feet under agricultural lands in the SRV model area was significant. Under these conditions percolating water may take several years to reach the water table (Table 6).

Second, the assumption that the annual volume of agricultural recharge has remained constant with time no longer applies in the model area. This is shown by examination of a compilation of cropped acreage in the model area (Table 7). The cropping data shows that there was a major decrease in cropped agricultural acreage in 1982, which has continued up to the present time. Consequently, annual agricultural water use and recharge is far less than it was in the recent past.

TABLE 6

DEPTH-TO-WATER AND ESTIMATED LAG TIMES UNDER AGRICULTURAL LANDS IN THE SRV MODEL AREA

DEPTH-TO-WATER INTERVAL (FEET) (1)	NUMBER OF SQUARE MILES (2)	ESTIMATED (YEARS) LAG TIME (3)
0 < DTW < = 50	175	0 - 2.5
50 < DTW < = 100	198	2.5 - 5.0
100 < DTW < = 150	228	5.0 - 7.5
150 < DTW < = 200	127	7.5 - 10.0
200 < DTW < = 250	53	10.0 - 12.5
250 < DTW < = 300	47	12.5 - 15.0
300 < DTW < = 350	77	15.0 - 17.5
350 < DTW < = 400	70	17.5 - 20.0
400 < DTW < = 450	85	20.0 - 22.5
450 < DTW < = 500	109	22.5 - 25.0
500 < DTW	16	> 25.0
	1185 Sq. Miles	

(1) Depth to water in 1983.

(2) Number of model cells which had some agricultural recharge during the period 1983-1988. Model cells are one square mile in size. However, the entire model cell is not neccessarily completely irrigated agricultural acreage.

(3) Average depth to water under agricultural lands was 207 feet. Median depth to water under agricultural lands was 150 feet (that is, half of all agricultural model cells had depths-to-water of more than or less than 150 feet).

(4) Based on a 20 foot/year downward macroscopic velocity, which was calculated as:

$$V_M = V_D/\theta$$

Where: V_M = Macroscopic Velocity
V_D = Darcy Velocity
θ = Volumetric Water Content

TABLE 7

ESTIMATED CROPPED AGRICULTURAL ACREAGE, WATER USE, AND MAXIMUM POTENTIAL RECHARGE. IN MARICOPA COUNTY, AND THE PINAL COUNTY PORTION OF THE GILA INDIAN RESERVATION

(1953 TO 1980)

	1953	1958	1963	1968	1973	1977	1978	1979	1980
AG ACRES IN MARICOPA C. & GRIC (1)	576051	576607	561790	496130	497530	478110	451040	468600	505160
AG ACRES IN SRV MODEL AREA (2)	449320	449754	438196	386981	388073	372926	351811	365508	394025
					ACRE FEET				
AG WATER USE IN MARICOPA C. & GRIC (3) (4)	3339855	3207353	3093188	2840320	2840846	2798413	2633856	2729595	2792879
AG WATER USE IN SRV MODEL AREA (5)	2605087	2501735	2412687	2215450	2215860	2182762	2054407	2129084	2178446
					ACRE FEET				
MAX. POT. AG RECHARGE IN MARICOPA C. & GRIC (6)(7)	1269145	1218794	1175411	1079322	1079521	1063397	1000865	1037246	1061294
MAX. POT. AG RECHARGE IN STUDY AREA (8)	989933	950659	916821	841871	842027	829450	780675	809052	827809
AVERAGE AG ACRES IN SRV MODEL AREA 1968 - 1981 (9)	381723								

(1981 TO 1991)

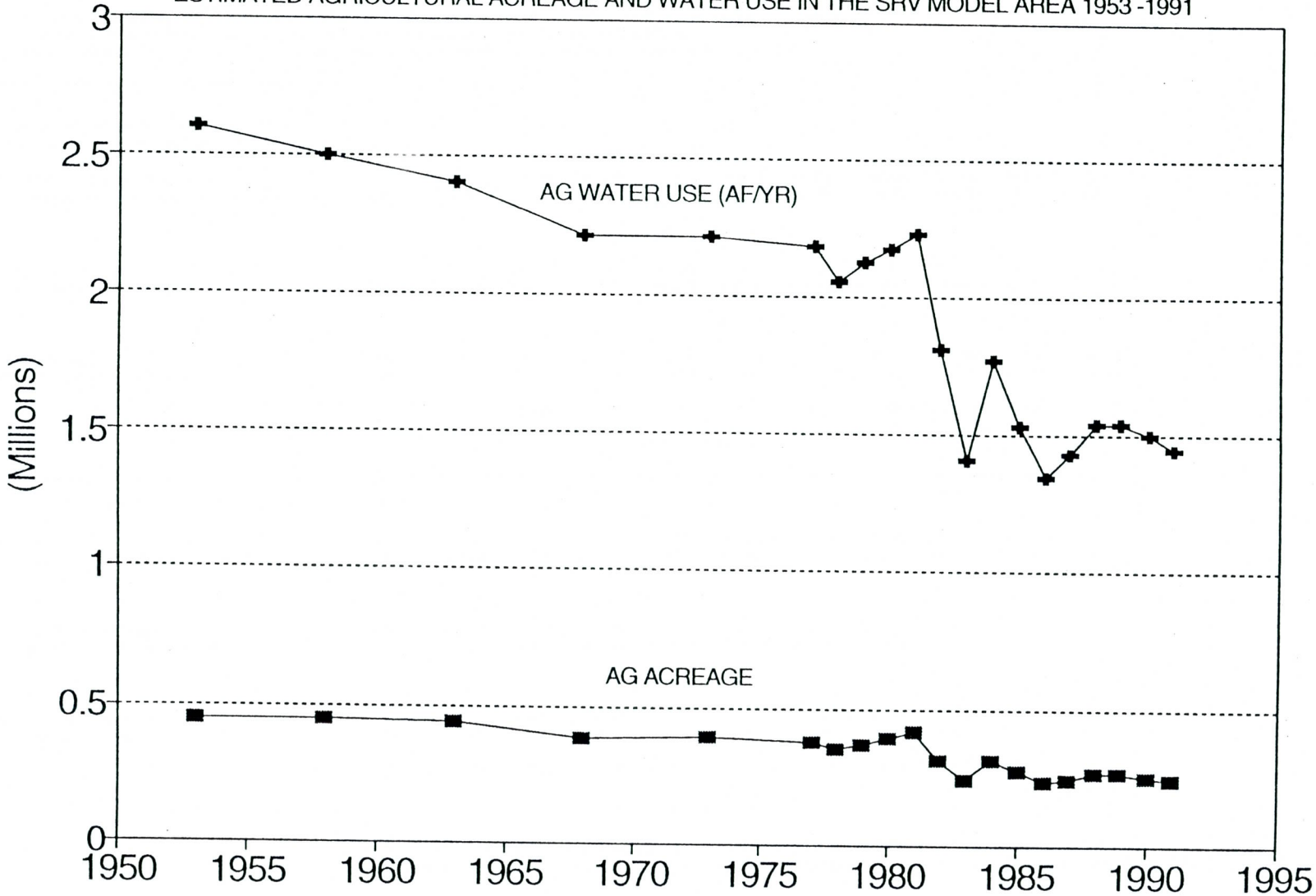
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
AG ACRES IN MARICOPA C. & GRIC (1)	529150	401970	310860	400290	347950	293690	310830	335325	336470	323950	306570
AG ACRES IN SRV MODEL AREA (2)	412737	313537	242471	312226	271401	229078	242447	261554	262447	252681	239125
						ACRE FEET					
AG WATER USE IN MARICOPA C. & GRIC (3) (4)	2862585	2323687	1798227	2268069	1960560	1722733	1831528	1978637	1970808	1925233	1847532
AG WATER USE IN SRV MODEL AREA (5)	2232816	1812476	1402617	1769093	1529237	1343732	1428592	1543337	1537230	1501682	1441075
						ACRE FEET					
MAX. POT. AG RECHARGE IN MARICOPA C. & GRIC (6)(7)	1087782	883001	683326	861866	745013	654638	695980	751882	748907	731588	702062
MAX. POT. AG RECHARGE IN STUDY AREA (8)	848470	688741	532994	672256	581110	510618	542865	586468	584147	570639	547609
AVERAGE AG RECHARGE IN SRV MODEL AREA 1968 - 1981 (10)	825622										
AVERAGE AG RECHARGE PER ACRE IN SRV MODEL AREA	2.2										

NOTES:

1) Ag acres in Maricopa County and Pinal County portion of the Gila Indian Reservation (GRIC) estimated from Arizona Agricultural Statistics Reports (1953-1991).
2) Ag acres in SRV Study Area estimated to be 78 percent of Maricopa County and GRIC total in 1979, this ratio assumed constant for all years.
3) Ag water use in Maricopa County and GRIC based on crop specific acreages, crop-specific consumptive uses, and an estimated average Irrigation Efficiency of 62 percent.
4) 62 percent average Irrigation Efficiency is a weighted average efficiency for all irrigation districts in the Phoenix AMA for the year 1979 (Source: ADWR Phoenix AMA 1st Man. Plan, 1984). The weighted average is proportional to the 1975-1979 reported average acreage and Irrigation Efficiency for each district in the AMA.
5) 78 percent of the Maricopa County and GRIC total.
6) Maximum potential recharge in Maricopa County and GRIC is equal to the ag water use multiplied by (1 - Irrigation Efficiency).
7) Irrigation Efficiencies have improved since 1979, and recharge for more recent years may be over-estimated.
8) 78 percent of the Maricopa County and GRIC total.
9) Average ag recharge 1968 - 1981 is the mean of the 1968,1973,1977,1978,1979,1980,1981 totals.
10) Average ag recharge 1982 - 1991 is the mean of 1982 TO 1991 totals.

FIGURE 20

ESTIMATED AGRICULTURAL ACREAGE AND WATER USE IN THE SRV MODEL AREA 1953 -1991



Estimated Agricultural Acreage from Arizona Agricultural Statistics Reports (1953 to 1991).

Since neither of the assumptions were satisfied during the model calibration period, it was necessary to develop estimates of the time required for water to pass through the vadose zone to the water table. Bouwer (1982) has provided a simplified model of vertical flow through the vadose zone which can be used to calculate vertical groundwater velocities. The Bouwer model assumes that individual pulses of downward percolation flow in the vadose zone flatten out with increasing depth so that eventually a uniform, steady downward flow is approached. The depth where essentially steady, uniform flow is reached may be on the order of the 50 to 100 feet (Bouwer, 1982).

When steady flow is reached, there are no pressure gradients and the only driving force is gravity (Bouwer, 1982). Under these conditions the vertical hydraulic gradient is one, and the actual macroscopic velocity of the downward percolating water (average linear velocity) can be found by dividing the downward flow rate (Darcy velocity) by the volumetric water content (Bouwer, 1982). In the SRV Model area the average estimated maximum potential deep percolation rate was about 2.0 feet/year (Table 7). If it is assumed that the volumetric water content in the vadose zone is 0.1, the actual downward flow rate or macroscopic velocity of the water in the zone of uniform flow would be 20 feet/year.

Field studies have also provided estimates of downward flow rates in the vadose zone. Bowman and Rice (1984) have used chemical tracers to estimate the macroscopic velocity of downward-percolating water in confined and open fields. The results of their confined field experiments showed that chemical tracer velocities were on the average 60 percent greater than the macroscopic calculated from the Darcy velocity and the average water content. The tracer velocities in the open field experiments ranged from two-to-six times greater than the calculated

macroscopic velocities (Bowman and Rice, 1984). The results of the Bowman and Rice studies indicate that water and chemicals can move through the subsurface via preferential pathways, thereby bypassing a significant portion of the water stored in the soil profile.

In another study researchers drilled a well above the water table in an open agricultural field west of Phoenix and estimated deep seepage rates (Evans and Warrick, 1980). These researchers made estimates of seepage rates by: 1) using measured unsaturated hydraulic conductivities and Darcy's equation, 2) measurement of temperature profiles and using the shape of the temperature-depth curve, and 3) measurement of the tritium concentration of soil water and relating it to the history of precipitation tritium concentration. The pore velocities ranged from 57 to 130 cm/year (Evans and Warrick, 1980). Using a value of 60 cm/year percolating water would take 55 years to pass through a depth of 33 meters.

The results of the field experiments are varied, and indicate that the macroscopic velocity of downward-percolating water may have a broad range of values, ranging from less than 1 meter/year to two-to-six times greater than the calculated value using the Darcy equation and the volumetric water content. While the results are varied, all methods indicate that the macroscopic flow rates through the vadose zone are small, and transit time through the vadose zone must be considered in situations where the depth-to-water is great, and substantial changes in annual recharge rates have occurred.

For the purposes of this analysis it has been assumed the approach provided by using the Darcy velocity and the volumetric water content represents a reasonable estimate of downward percolation rates through the vadose zone. Therefore, it is assumed that the average macroscopic velocity of water percolating downward through the vadose zone is approximately 20 feet/year

in the model area. Using this rate average lag times have been calculated for various water table depths (Table 6). It can be seen that the lag time based on an average depth-to-water of about 200 feet is ten years, or 7.5 years if based on the median depth-to-water of 150 feet. Under either of these scenarios it is clear that in most of the agricultural area of the model the water reaching the water table at any time during the 6 year model calibration period (1983-1988) would have actually began its downward flow prior to 1982. Under these conditions it is appropriate to apply agricultural recharge to the model for the period 1983 to 1988 at rates representative of the level of agriculture prior to 1982.

The estimated agricultural acreage and water use from 1953 to 1991 is tabulated in Table 7, and shown graphically in Figure 20 (1983 to 1988). It is clear from the data that agricultural acreage, and consequently agricultural water use and recharge, substantially decreased in 1982. It is also clear that the average cropped acreage was rather constant for the period 1968 through 1981. Due to the consistency of the cropped acreage, and the estimated lag times of 7.5 to 10 years for water to reach the water table over much of the agricultural area of the model it was assumed that the average deep percolation which occurred from 1968 to 1981 was generally representative of the agricultural recharge which actually reached the water table during the model calibration period 1983 to 1988.

The average cropped agricultural acreage in the model area was about 382,000 acres for the period 1968 to 1981. Using crop-specific consumptive use values and estimated average irrigation efficiency of 62 percent it was estimated that as much as 825,000 acre-feet/year may have been recharged over the agricultural lands in the study area during the period 1968 to 1981. It is this total which was initially applied as recharge during the model calibration period 1983-

1988. It was recognized that the 1968 to 1981 application rates would be overestimated for areas with shallow depths to water, such as in the Buckeye and Roosevelt Irrigation District areas. Therefore, agricultural recharge was decreased during the model calibration in these and other areas where the volumes proved excessive. The final calibrated agricultural recharge total applied to the model was 688,000 acre-feet/year. Figure 21 illustrates the calibrated agricultural recharge volume per model cell per year for the 1983 to 1988 calibration period.

D. Pumpage

There was little groundwater pumpage during the predevelopment era, therefore groundwater pumpage was not simulated in steady-state calibration. Significant groundwater pumpage was simulated for the transient model calibration. Annual well pumpage was totalled for each model cell and summarized into a single volumetric pumpage rate (ft^3/day).

Groundwater pumpage represents the major outflow of the overall water budget for the transient simulations. Well specific measured pumpage data for 1983 were obtained from major groundwater users such as irrigation districts, municipalities, and water companies. Estimates of non-irrigation district agricultural, industrial, Indian, and small well (exempt) pumpage were added to the 1983 total. Well-specific pumpage data for 1984 to 1988 were obtained from the ADWR ROGR database. The 1984 to 1988 totals were adjusted to add Indian and exempt well pumpage. Annual pumpage totals are listed in Table 3. The areal distribution of total pumpage per model cell is illustrated in Figure 22 for the period 1983 to 1988.

The aquifer specific (vertical) distribution of pumpage was established by use of a weighting technique explained below. A weighting percentage was developed for each model cell based on well perforation intervals, and hydraulic conductivity values.

GWSI well perforation records for each section were analyzed and summed, then correlated to the saturated stratigraphic column of each section. The percentage of perforations open to each aquifer was determined relative to the total perforated interval. Perforated interval percentages were also estimated for those wells with no perforation data, based on adjacent wells with perforation data.

Hydraulic conductivities were also factored into determining the weighted aquifer pumpage. A blanket (constant) value of average hydraulic conductivity was assigned to each aquifer only for the purpose of determining aquifer specific pumpage, model runs incorporated cell specific hydraulic conductivity values. These values were multiplied by the percentage of perforated interval open to each aquifer to provide a combined weighting factor for each aquifer in each model cell.

The total pumpage in each section was distributed to specific aquifers based upon the combined weighting percentages. The same weighting percentages were used for all years. An example of the aquifer specific pumpage weighting technique follows:

FOR A WELL IN MODEL CELL "N"

Relative ratios of horizontal hydraulic conductivity:

$K_{UAU} = 4.50$	Perforated Interval Percentage	UAU% = 0.40
$K_{MAU} = 1.00$	For Model Cell N:	MAU% = 0.50
$K_{LAU} = 1.75$		LAU% = 0.10

Total Reported & Estimated Pumpage Within Model Cell N = 2,500 acre-feet

UAU PUMPAGE = $((K_{UAU} \times UAU\%)/((K_{UAU} \times UAU\%) + (K_{MAU} \times MAU\%) + (K_{LAU} \times LAU\%))) \times 2{,}500$ AF

$((4.5 \times 0.4)/((4.5 \times 0.4) + (1.0 \times 0.5) + (1.75 \times 0.1))) \times 2{,}500 =$ <u>1818 AF</u>

MAU PUMPAGE = $((K_{MAU} \times MAU\%)/((K_{UAU} \times UAU\%) + (K_{MAU} \times MAU\%) + (K_{LAU} \times LAU\%))) \times 2{,}500$ AF

$((1.0 \times 0.5)/((4.5 \times 0.4) + (1.0 \times 0.5) + (1.75 \times 0.1))) \times 2{,}500 =$ <u>505 AF</u>

LAU PUMPAGE = $((K_{LAU} \times LAU\%)/((K_{UAU} \times UAU\%) + (K_{MAU} \times MAU\%) + (K_{LAU} \times LAU\%))) \times 2{,}500$ AF

$((1.75 \times 0.1)/((4.5 \times 0.4) + (1.0 \times 0.5) + (1.75 \times 0.1))) \times 2{,}500 =$ <u>177 AF</u>

E. Evapotranspiration

Evapotranspiration from phreatophyte growth has occurred along the Salt, Gila, and Santa Cruz Rivers during both the predevelopment and modern eras. However, substantial changes have occurred in the riparian community since the predevelopment era. Indigenious species of plants have been replaced, and the areal extent of phreatophyte growth has been reduced due to water level declines (Graf, 1980).

Due to the changes in the riparian community since the predevelopment era it was necessary to develop separate estimates of evapotranspiration rates and distributions for the steady-state and transient calibration periods. Appendix III of this report contains a listing of the maximum evapotranspirations rates and distributions which were input to the model. Refer to the SRV Phase I report (Corkhill and others, 1993) for a more complete discussion of the methodologies used to estimate evapotranspiration rates and distributions.

CHAPTER FOUR. MODEL CALIBRATION

I. STEADY STATE CALIBRATION

A. Details of Calibration

The SRV groundwater flow model was initially calibrated to the steady-state conditions which characterized the predevelopment era. The primary purpose of the steady-state calibration was to refine the original estimates of hydraulic conductivity and river conductances. The steady-state calibration also provided estimates of invariant boundary fluxes and mountain front recharge which were later used as transient model inputs.

Initial hydraulic conductivity values were developed using aquifer test data from groundwater contamination site studies, specific capacity data from GWSI and other sources, recovery test data from the Salt River Project (SRP), and particle size data from the USGS. The final calibrated hydraulic conductivity arrays which were used as model inputs for transient simulations are presented in Figures 4, 6, and 8 (see also Appendix III). Initial estimates of river conductances were calculated for each model cell which contained reaches of the Salt, Gila, and Santa Cruz Rivers. The initial estimates of river conductance per river cell were equal to the product of the reach length, width, and estimated vertical hydraulic conductivity divided by the estimated river bed thickness. The final calibrated river conductances are presented in Figure 23, and are listed by model cell in Appendix III.

All steady-state boundary fluxes were represented by constant-head cells. These fluxes included groundwater underflow, ephemeral stream channel infiltration, and mountain front recharge. Unchanging (invariant) boundary fluxes were later simulated at the calibrated steady-state rates in the transient model calibration.

Identical steady-state water level arrays were used for the initial heads for all layers since it was assumed that there was little to no vertical hydraulic gradient between the layers. Figure 10 presents the water levels used for initial heads in the steady-state calibration.

The steady-state calibration process involved making adjustments to hydraulic conductivity values and river conductance values to obtain an acceptable match between model simulated water levels and measured water levels. In addition, water budget fluxes were compared to the independent estimates to assure that inflows and outflows were maintained within an acceptable range of values. Figures 24, 25, and 26 show the final model simulated steady-state water levels overplotted with the measured steady-state water levels. In most locations a reasonable match was achieved.

B. Water Budgets

The volumetric water budget also served as a check of model calibration. The volumetric water budget serves as an independent check of the overall acceptability of the model solution (McDonald and Harbaugh, 1988). Acceptable steady-state model solutions should have small differences between total inflows and outflows. The water budget from the final steady-state run had a percent discrepancy between total inflows and total outflows of less than 0.01 percent.

The final steady-state model water budget is compared to the conceptual water budget for the predevelopment era (circa 1900) in Table 8. The total model simulated fluxes were within 13 percent of the independent estimates of the conceptual water budget. The two budgets compare favorably in most categories, indicating that the model reasonably simulated steady-state groundwater flow conditions of the predevelopment era.

TABLE 8

STEADY-STATE WATER BUDGETS COMPARISON
FINAL SS CALIBRATION RUN Vs. CONCEPTUAL
(Rounded to nearest 100 Acre-Feet/Year)

INFLOW	Final SS Model Run	Conceptual	Percent Difference
Perennial Stream Channel Recharge	103,200	81,000	+22%
Other System Inflows[1]	57,100	58,100	-2%
Total Inflow	**160,300**	**139,000**	**+13%**
OUTFLOW			
Perennial Stream Channel Discharge	84,700	61,000	+28%
Evapotranspiration	73,300	76,000	-4%
Other System Outflows[2]	2,300	2,000	+13%
Total Outflow	**160,300**	**139,000**	**+13%**

[1] Other System Inflows Includes: Underflow, Ephemeral Stream Channel Infiltration, and Mountain Front Recharge.

[2] Other System Outflows Includes: Underflow at Arlington.

C. Steady-State Calibration Error Analysis

An error analysis was performed by subtracting the final model simulated water levels from the initial water levels (being steady-state, the initial water levels should closely match the final simulated water levels). The analysis consisted of determining the mean absolute difference in head per cell (the error), the standard deviation, and the absolute maximum head difference. The results of the analysis showed that the mean absolute error per model cell was less than 9 feet, and the standard deviation was less than 10 feet (Table 9). This magnitude of mean absolute error per cell was regarded as very acceptable. In addition, the ratio of the standard deviation to the total head loss in the system is small, indicating that the errors are only a small part of the overall model response (Anderson and Woessner, 1992).

TABLE 9

STATISTICAL SUMMARY OF STEADY STATE MODEL ERROR
MEASURED WATER LEVELS (CIRCA 1900) - FINAL CALIBRATED STEADY STATE HEADS

LAYER	HEAD DIFFERENCE (H1900-SSL1)	NUMBER OF CELLS	MEAN ABSOLUTE DIFFERENCE IN HEAD/CELL (Ft)	STANDARD DEVIATION (Ft)	ABSOLUTE MAXIMUM HEAD DIFFERENCE (Ft)
1	H1900 - SSL1	1688	8.89	9.62	71.00
2	H1900 - SSL2	1945	8.72	9.11	71.00
3	H1900 - SSL3	2038	8.90	9.22	71.00

H1900 = Water Level per model cell circa 1900
SSL1 = Steady-state model simulated water level per cell--Layer 1

II. TRANSIENT CALIBRATION

A. Details of Calibration

Following the steady-state calibration the model was calibrated to the transient groundwater flow conditions of the period, winter 1983 (initial transient water levels) to winter 1989 (final transient water levels). The main purpose of the transient calibration was to adjust storativities and recharge rates, and also to demonstrate that the model could reasonably simulate the effects of changing hydrologic stresses.

The transient-state calibration consisted of identifying areas within the model that did not adequately simulate the observed field measured heads and the conceptual water budget and then modifying the model input data. The input data was modified to achieve a better match between the model calibrated heads and observed field measured water levels, and between the simulated fluxes and the conceptual water budget fluxes listed in Table 2. Data were modified based on the level of confidence of the original data. In general, the qualitative order of confidence in the original data was that estimates of recharge and vertical hydraulic conductivity were considered to be of least confidence and geologic contact elevations and the areal distribution of pumpage data were regarded with the most confidence. Table 10 illustrates the qualitative order of confidence of all the SRV Model input data.

Table 10

Qualitative Level of Confidence Ranking of The Original SRV Model Input Data

MODEL INPUT DATA	CONFIDENCE RANKING[1]
Areal Distribution of Pumpage	Most Confidence
Geologic Contacts	
Horizontal Hydraulic Conductivity	
Water Level Data -- 1983	
Water Level Data -- 1989	
Evapotranspiration Rate	
Specific Yield (short-term)	
Storage Coefficient	
River Conductance	
Vertical Distribution of Water Level Data	
Vertical Distribution of Pumpage	
Recharge Estimates	
Vertical Hydraulic Conductivity	Least Confidence

[1] Rankings of data confidence levels are subjective in nature, and are based on professional judgement rather than any scientific or statistical measure of confidence.

Measured water level data (from the period October 1982 to March 1983) were mapped and used as initial head inputs for the transient model calibration (Figures 12, and 13, also Appendix III). Initial head arrays were prepared for each model layer. Model Layers 2 and 3 heads were identical except in the vicinity of major groundwater depressions where model Layer 2 heads range 20 feet to 40 feet higher than model Layer 3 heads.

The use of measured water level data as initial head conditions for transient model simulations is not a common practice, except under special conditions. Normally it is desirable to simulate the steady-state period which immediately precedes the transient period which is to be simulated. The calibrated steady-state water levels are then used as initial head inputs for the transient model simulation. By following this procedure the initial water levels for the transient simulations are "pre-conditioned" and consistent with other model inputs. The modeler is assured that the water level changes which occur during the transient model simulation are a product of the changing stresses, and are not caused by adjustments of the model simulated water levels to an inconsistent initial head distribution (Franke, Reilly, and Bennett, 1987).

In the case of this modeling study it was impractical to analyze and simulate the entire 100 year period of groundwater development in the SRV. It was believed that the uncertainty in estimating recharge and pumpage data for over 100 years was at least as great as the uncertainty in utilizing measured water level data for initial transient head conditions. In addition, no recent periods were identified in which steady-state conditions existed throughout the entire model area. For these reasons the use of measured water level data was viewed as a necessary compromise between theory and practicality. It is also important to realize that the impact of using measured water levels for initial conditions diminishes with the length of simulation time. Since the model

is being developed to simulate long-term future water use scenarios the influence of the initial conditions diminishes as the simulation progresses, so errors associated with selecting possibly erroneous initial conditions will be small provided sufficient simulated time has elapsed (Anderson and Woessner, 1992).

Other inputs to the transient model included the hydraulic conductivity (K) arrays which were developed during the steady-state calibration. It should be noted that the K-arrays were the same as those developed in the steady-state calibration, however the transmissivities of each layer were almost always less than the steady-state transmissivities due to the dewatering of the alluvial units. The ratios of horizontal hydraulic conductivity to vertical hydraulic conductivity, VCONT, which were developed during the steady-state calibration were also used in the calculation of the transient-state VCONT's. However, transient-state VCONT's were generally greater than steady-state VCONT's because of the dewatering of the alluvial units which decreased the saturated thickness or vertical flow path length (refer page 29 for a discussion of VCONT).

River conductances developed during the steady-state model calibration were used for the transient-state model inputs. However, the number of model cells used to simulate perennial flow conditions were substantially reduced due to the fact that the perennial reaches of the Salt and Gila Rivers have decreased from the predevelopment era. Perennial reaches were simulated on the Salt River downstream of the 91st Avenue Wastewater Treatment Plant, and the perennial reach of the Gila River from approximately 2 miles upstream of the Salt/Gila River confluence to the southwestern model boundary near Arlington.

The transient model calibration was considered complete when the final simulated water levels and flow directions reasonably matched the final measured water levels. Figures 27, 28,

and 29 show the model simulated final water levels overplotted with the final field measured water levels. Figures 30, 31, and 32 are water level difference maps, final model calibrated water levels minus measured water levels, for the UAU, MAU, and LAU. In addition, water budget fluxes were compared to the independent estimates to assure that inflows and outflows were maintained within an acceptable range of values.

B. Water Budgets

A comparison of volumetric water budgets also served as a check of model calibration. The volumetric water budget serves as an independent check of the overall acceptability of the model solution (McDonald and Harbaugh, 1988). An acceptable transient model solution should have small differences between total inflows and total outflows including the changes in storage. The percent discrepancy between total inflows and total outflows is calculated using the following formula (McDonald and Harbaugh, 1988):

$$D = \frac{100(IN - OUT)}{(IN + OUT)/2}$$

Where:

D = Percent Error term
IN = Total Inflow to the system
OUT = Total Outflow from the system

If the model equations are correctly solved, the percent error term should be small. The water budget from the final transient model run had a percent discrepancy between total inflows and total outflows (adjusted for storage changes) of less than 0.01 percent. The final transient state model budget is compared to the conceptual water budget for the period 1983 to 1988 in Table

11. The model simulated an increase in groundwater in storage of approximately 640,000 acre-feet compared to approximately 670,000 acre-feet in the conceptual water budget. It can be seen that the two budgets compare favorably in most categories, and also indicates that the model reasonably simulated the applied stresses.

TABLE 11

TRANSIENT-STATE (1983-1988) WATER BUDGET COMPARISON
FINAL TRANSIENT CALIBRATED RUN VS. CONCEPTUAL WATER BUDGET

(ROUNDED TO NEAREST 1000 ACRE-FEET/YEAR)

INFLOW	FINAL TR MODEL BUDGET	CONCEPTUAL BUDGET	PERCENT DIFFERENCE
Other System Inflows[1]	77,000	66,000	+14%
Wells[2]	197,000	210,000	+12%
Recharge[3]	6,607,000	6,880,000[9]	-5%
Perrenial Stream Channel Recharge[4]	132,000	NE[5]	0%
Total Inflow	**7,013,000**	**7,156,000**	-3%
OUTFLOW			
Other System Outflows[6]	8,000	18,000	-56%
Wells[7]	6,022,000	6,192,000	-3%
Evapotranspiration[8]	288,000	288,000	0%
Perennial Stream Channel Discharge	53,000	NE[5]	0%
Total Outflow	**6,371,000**	**6,486,000**	-5%
Total Inflow - Total Outflow	+642,000	+670,000	

1. Other System Inflows: Includes underflow in at South Hassayampa.
2. WELLS (INFLOW): Includes underflow at North Hassayampa, Sacaton, Florence, Superstition Mountain Front Recharge, McDowell Mountain Front Recharge, and Ephemeral Stream infiltration.
3. RECHARGE: Includes recharge from - Agriculture, Urban Irrigation, Canals, Artificial Lakes, Effluent, and Major Drainage Recharge.
4. PERENNIAL STREAM CHANNEL RECHARGE: Infiltration of the perennial reach of the Gila River downstream of the 91st Avenue Wastewater Treatment Plant. The perennial stream channel recharge value of the conceptual budget was obtained from SRV model results.
5. NE: Not estimated in the conceptual budget.
6. Other System Outflows: Includes underflow at Arlington.
7. WELLS (OUTFLOW): Includes all pumpage, also includes a simulated flux to the Maricopa-Stanfield sub basin in the final transient-state calibrated model run.
8. EVAPOTRANSPIRATION: For the conceptual budget, this value is the maximum EVT rate.
9. The conceptual budget recharge total differs from the conceptual budget recharge total of the SRV Phase I report as this total reflects only active model cells.

C. Hydrographs

It should be noted that the final transient calibration was also evaluated by comparing model simulated water level data for selected model cells to hydrographs from wells located within the cell areas (Appendix II). This provides a better understanding of model behavior in specific areas of the model domain.

D. Transient Calibration Error Analysis

An error analysis of model accuracy was also conducted for the transient model. An error analysis of final calibrated transient-state model run water levels was performed by subtracting the final calibrated water levels from water levels based on field measurements. The error analysis consisted of determining the mean absolute difference (error) in head per model cell, the standard deviation, and the absolute maximum head difference. Table 12 provides a statistical summary of the transient model accuracy. Table 13 presents the percentage of model cell heads that are above, equal to, or below the final measured water levels. The mean absolute error in head per model cell for the transient model simulation was less than 20 feet. This magnitude of error is considered acceptable in consideration of the complexity of the modern groundwater flow system, and also in consideration of the overall head loss in the model which indicates that the errors are only a small part of the overall model response (Anderson and Woessner, 1992).

Table 12

STATISTICAL SUMMARY OF TRANSIENT MODEL ERROR
1989 MEASURED WATER LEVELS MINUS FINAL CALIBRATED TRANSIENT WATER LEVELS

LAYER	HEAD DIFFERENCE (H1989-TRL1)	NUMBER OF CELLS	ABSOLUTE AVG. DIFFERENCE IN HEAD/CELL (Ft)	STANDARD DEVIATION (Ft)	ABSOLUTE MAXIMUM HEAD DIFFERENCE (Ft)
1	H1989 - TRL1	1044	14.71	12.71	83.00
2	H1989 - TRL2	1749	20.39	19.48	170.00
3	H1989 - TRL3	2036	22.15	22.20	189.00

H1989 = Water level per model cell circa 1989
TRL1 = Transient-state model simulated water level per model cell--Layer 1 (1989)

Table 13

PERCENTAGE OF MEASURED WATER LEVELS ABOVE\EQUAL\BELOW
CALIBRATED WATER LEVELS
1989 MEASURED WATER LEVELS MINUS CALIBRATED WATER LEVELS

LAYER	MEASURED WATER LEVELS RELATIVE TO CALIBRATED WATER LEVELS	NUMBER OF CELLS	PERCENTAGE	NUMBER OF ACTIVE CELLS BY LAYER
1	ABOVE	715	68%	1044
	EQUAL	18	2%	
	BELOW	311	30%	
2	ABOVE	1088	62%	1749
	EQUAL	34	2%	
	BELOW	627	36%	
3	ABOVE	1239	61%	2036
	EQUAL	44	2%	
	BELOW	753	37%	

E. Transient Calibration Error Sources

It should be noted that all estimated hydrologic and geologic model input data are potential sources of calibration error. The water level and agricultural recharge data are believed to the greatest source of potential calibration error and are discussed below.

1. Water Levels

One potential source of calibration error is the water level data. Due to the lack of aquifer unit-specific peizometer or monitor wells (except in a few local areas) the 1983 and 1988 measured head data were generally derived from "composite" wells, which are screened or perforated over large depth intervals. In most cases the wells were grouped into aquifer unit-specific groups depending upon their completion intervals relative to the local stratigraphic section. Using this methodology it was possible to produce unit-specific water level maps which were used for initial and ending heads.

Although it was possible to prepare unit-specific water level maps from the composite well data it is recognized that the large completion intervals and existing vertical hydraulic gradients can cause potential problems in the interpretation of water level changes. It is possible that some of the water level changes which have been interpreted as water table changes may in fact be confined aquifer responses and not truly representative of the water table response.

Since most of the estimated groundwater storage changes in the model area were related to water table fluctuations rather than pressure fluctuations in the confined aquifer it was possible

that storage changes may have been overestimated due to the possible inclusion of confined responses. This observation may also help explain the difference between the conceptual change in storage of +670,000 acre-feet (Table 3), and the estimated change in storage based on water level changes which was approximately 1.9 million acre-feet.

2. Agricultural Recharge

A potential source of calibration error was the lag time estimated for agricultural recharge to reach the water table. As previously mentioned, it was believed that the original recharge rates which ignored lag time were underestimated. Further research led to the conclusion that the transit time of deep percolating water in the vadose zone had to be accounted for in the calculation of agricultural recharge which actually reached the water table during the calibration period.

An analysis and review of theoretical and field data was presented to provide some background on the concept of lag time, and an average macroscopic velocity of 20 feet per year was proposed for downward percolating water. At this point it should be stated that the proposed vertical velocity was only a very general estimate of a parameter which is highly variable throughout the model area, and therefore was likely to have impacted model results.

Another potential source of calibration error was in estimating agricultural water use volumes and irrigation efficiences. The methodologies used to calculate the maximum potential recharge from agricultural irrigation were developed utilizing cropped acreage summaries, water use data, irrigation efficiency data, and cropped acreage distributions determined from the

interpretation of aerial photographs and LandSat digital images. Although the data and methodologies used were acceptable from both a theoretical and practical standpoint, there was never-the-less some uncertainty concerning the estimates which should be considered when evaluating the model results. The reader is referred to the SRV Phase I report (Corkhill and others, 1993) for detailed discussion of the methodology used to determine the relative distribution of agricultural recharge in the model area.

CHAPTER FIVE. SENSITIVITY ANALYSIS

I. INTRODUCTION

A sensitivity analysis was conducted on the Salt River Valley (SRV) Groundwater Flow model to determine the relative sensitivity of the model solution to changes in various model input parameters. The sensitivity analysis was designed to identify which input parameters exert the most influence over the model solution and, therefore, could potentially generate the largest errors. A better understanding of input parameter sensitivities will help guide the future use and development of the model.

II. PROCEDURES USED

The procedure used to test the sensitivity of the model to input parameter changes consisted of designating the final heads and change-in-storage from the 1983 to 1988 final calibration run as the basecase final conditions. Subsequent model simulations (sensitivity runs) were then made in which a single major input parameter was varied over a reasonable range of potential values. The final heads and change-in-storage from the sensitivity runs were compared to the basecase final conditions to provide a quanitative measure of model sensitivity. The choice of parameter changes was based on consideration of the parameter's overall significance as either a component of the water budget, or as a structural component of the model. Table 14 lists the model input parameters which were varied for the sensitivity analysis and summarizes the results.

TABLE 14

RELATIVE RANKING OF MODEL SENSITIVITY TO CHANGES OF MODEL INPUT PARAMETERS
BASED ON COMBINED HEAD AND STORAGE CHANGES OF SENSITIVITY SIMULATIONS TO ORIGINAL CALIBRATION VALUES

	Layer 1				Layer 2				Layer 3				TOTALS AND NORMALIZATION FACTORS					
Model Input Parameter Change	MEAN ABSOLUTE RESIDUAL (MAR) (1)	MAR x TOTAL ACTIVE LAYER 1 CELLS	STANDARD DEVIATION OF RESIDUAL (SDR) (2)	SDR x TOTAL ACTIVE LAYER 1 CELLS	MEAN ABSOLUTE RESIDUAL (MAR) (1)	MAR x TOTAL ACTIVE LAYER 2 CELLS	STANDARD DEVIATION OF RESIDUALS (SDR) (2)	SDR x TOTAL ACTIVE LAYER 2 CELLS	MEAN ABSOLUTE RESIDUAL (MAR) (1)	MAR x TOTAL ACTIVE LAYER 3 CELLS	STANDARD DEVIATION OF RESIDUALS (SDR) (2)	SDR x TOTAL ACTIVE LAYER 3 CELLS	TOTAL ABSOLUTE RESIDUAL ALL ACTIVE CELLS (3)	NORMALIZED ABSOLUTE TOTAL RESIDUAL (4)	PERCENT CHANGE IN STORAGE (5)	NORMALIZED ABSOLUTE PERCENT CHANGE IN STORAGE (6)	COMBINED NORMAL FACTORS (7)	RELATIVE SENSITIVITY RANKING
Agricultural Recharge x 1.25	7.6	7934	6.2	6473	8.1	14167	7.9	13817	6.9	14048	6.6	13438	36150	1.00	141	1.00	2.00	MOST SENSITIVE
Agricultural Recharge x 0.75	7.4	7726	6.1	6368	7.7	13467	7.2	12593	6.6	13438	6.1	12420	34631	0.96	-140	0.99	1.95	1
Canal Recharge x 2.0	6.4	6682	8.3	8665	5.9	10319	8.2	14342	5.6	11402	8.7	17713	28402	0.79	114	0.81	1.59	1
Pumpage x 0.9	3.5	3654	2.4	2506	4.9	8570	3.7	6471	4.6	9366	3.7	7533	21590	0.60	81	0.57	1.17	1
Storage Coefficient x 10.0	4.9	5116	5.9	6160	6.5	11369	6.8	11893	7.1	14456	9.0	18324	30040	0.83	4	0.03	0.86	1
Canal Recharge x 0.5	3.2	3341	4.1	4280	2.8	4897	3.9	6821	2.7	5497	4.0	8144	13735	0.38	-67	0.40	0.78	1
Boundary Conditions (3)	1.4	1462	6.3	6577	4.1	7171	11.1	19414	5.1	10394	12.1	24636	19016	0.53	14	0.10	0.63	1
Salt River Recharge x 0.5	2.5	2610	4.7	4907	1.8	3148	4.1	7171	1.6	3258	3.7	7533	9016	0.25	-49	0.35	0.60	1
Hydraulic Conductivity x 1.25	2.9	3028	3.3	3445	4.5	7871	5.4	9445	4.7	9569	5.5	11198	20467	0.57	3	0.02	0.59	1
Specific Yield x 0.75	2.9	3028	3.8	3967	3.8	6646	4.0	6996	3.8	7737	3.9	7940	17411	0.48	-1	0.01	0.49	1
Hydraulic Conductivity x 0.75	2.4	2506	2.8	2923	3.6	6296	4.0	6996	3.8	7737	4.2	8551	17539	0.46	-3	0.02	0.48	1
Specific Yield x 1.25	1.9	1984	2.5	2610	2.6	4547	2.7	4722	2.6	5294	2.6	5294	11825	0.33	1	0.01	0.33	1
Salt River Recharge x 0.75	1.2	1253	2.4	2506	0.9	1574	2.1	3673	0.8	1629	1.9	3868	4456	0.12	-25	0.18	0.30	1
Storage Coefficient x 0.1	0.9	940	1.1	1148	1.1	1924	1.2	2099	1.1	2240	1.3	2647	5103	0.14	-1	0.01	0.15	1
River Conductance x 10.0	0.6	626	1.6	1670	0.3	525	1.1	1924	0.3	611	1.0	2036	1762	0.05	-6	0.04	0.09	1
Evapotranspiration Rate x 0.5	0.4	418	0.7	731	0.2	350	0.6	1049	0.2	407	0.5	1018	1175	0.03	8	0.04	0.08	1
River Conductance x 0.1	0.7	731	2.0	2098	0.4	700	0.4	700	0.3	611	0.3	611	2041	0.06	1	0.01	0.06	1
Evapotranspiration Rate x 2.0	0.6	626	1.1	1148	0.3	525	0.8	1399	0.3	611	0.8	1629	1762	0.05	-1	0.01	0.06	LEAST SENSITIVE

NOTES:

(1) Mean Absolute Residual (MAR) is the mean of the absolute value of residual head differences between the final calibrated heads and the sensitivity heads for each active model cell.

(2) Standard Deviation of Residuals (SDR) is the standard deviation of the residuals from the mean absolute residual.

(3) Total absolute residual of all active cells for all layers is a measure of the total model-wide head residual caused by each input parameter change.
Layer 1 = 1044 active cells.
Layer 2 = 1749 active cells.
Layer 3 = 2036 active cells.

(4) Total absolute residuals normalized as a percentage of the maximum total absolute residual.

(5) Percent change in storage is the relative percent change in storage of each sensitivity simulation compared to the change in storage of the final calibrated run (+0.63 MAF).

(6) Absolute values of the percent change in storage normalized as a percentage of the maximum percent change in storage.

(7) Combined normal factor is the sum of the normalized total absolute residual and percent change in storage factors. The combined normal factor is indicative of the relative sensitivity to the described input parameter change.

The sensitivity data provided in Table 14 are most appropriately discussed in relative terms. For that reason, a semi-quantitaive measure of relative model sensitivity has been developed. Examination of Table 14 reveals the various model input parameters to be ranked by decreasing sensitivity. The rankings are based on the sum of two important measures of model change: the total absolute residual, and the absolute percent change-in-storage.

The total absolute residual is a measure of the model-wide head changes which result from a specific parameter change. The head residual is defined as the difference between the final heads of the calibrated basecase, and the final heads of the sensitivity runs. The total absolute head residual was calculated by multiplying the mean absolute head residual for each model layer by the total number of active model cells in each layer, and then summing the individual layer totals. The calculated totals were then normalized to the the maximum total residual of 36,150 feet (Table 14).

The absolute percent change-in-storage is a measure of the model-wide storage changes which result from a specific parameter change. This quantity is the absolute value of the percent increase or decrease of the simulated change-in-storage of each sensitivity run compared to the change-in-storage of the basecase calibration run (+0.63 MAF). The calculated values were normalized to the maximum storage change of 141 percent (Table 14).

The relative sensitivity rankings provided by Table 14 are based on the observed changes in two important categories of model output. The rankings provide a "feel" for the model's relative sensitivity to the selected changes, and thus indicate which input parameters are of greater importance and merit further study. The rankings show that the model was most sensitive to changes in agricultural recharge, and least sensitive to changes in evapotranspiration and river

conductance. Although the sensitivity analysis indicates that agricultural recharge was the most influential of the model input parameters examined, it should be recognized that the magnitude of the changes varied from parameter to parameter, because the magnitude of the stresses varied, and therefore influenced model results. Furthermore, the rankings could be based on other measures of model change, or a different weighting of the data evaluated. It is also important to realize that the changes which produced apparently minor model wide impacts may have produced significant impacts on the local level. A discussion of the individual sensitivity runs follows.

III. DISCUSSION OF RESULTS

A. Agricultural Recharge

Although substantial research has been conducted to derive estimates of agricultural recharge, moderate uncertainty still exists concerning the estimates. Earlier in this report the concept of time-lag was introduced and discussed as being an important factor relating to agricultural recharge rates. It was also mentioned that the original estimates of agricultural recharge described in the SRV Phase I report (Corkhill, and others, 1993) were found to be underestimated due to lag conditions. The revised estimates of agricultural recharge from 1983 to 1988 totaled 4,128,000 acre-feet, and represent 59 percent of the total recharge applied to the model (Table 11). In recognition of the uncertainty of the current estimates it seemed reasonable to vary the calibrated agricultural recharge rates by plus or minus 25 percent to observe the impacts on heads and storage.

The increase in agriculture recharge of 25 percent (+1,003,000 acre-feet, 1983-89) produced the greatest head and storage changes of any of the parameter changes made (Table 14). Heads rose an average of 6 to 7 feet throughout most of the agricultural area of the model. Areas with the greatest head rise included the Mesa, Chandler, and Queen Creek of the ESRV, and the Luke Sink of the WSRV. Heads in Layers 1, 2, and 3 rose a maximum of 35, 50, and 34 feet, respectively. The change-in-storage was 141 percent greater than the calibrated basecase (Table 14).

As expected, the 25 percent decrease in agricultural recharge (-1,003,000 acre-feet, 1983-89) produced almost the exact opposite effect as the 25 percent increase. Heads declined by an average of 6 to 7 feet in the agricultural area of the model. The locations of major head decline matched the areas of major rise described earlier for the 25 percent increase. Maximum head declines in Layers 1, 2, and 3 were 33, 42, and 29 feet, respectively. The change-in-storage was 140 percent less than the calibrated basecase (Table 14).

The major importance of agricultural recharge was re-emphasized by the sensitivity analysis. The results showed that reasonable variations in agricultural recharge rates had major impacts on the model solution. The results clearly indicate that this is an area which requires future study.

B. Canal Recharge

The derivation of recharge estimates from canal seepage is documented in the SRV Phase I Report (Corkhill, and others 1993). The 1983 to 1988 total estimated canal recharge was 1,133,000 acre-feet, which represents about 16 percent of the recharge applied to the model

(Table 11). These estimates were calculated either as the product of an assumed infiltration rate and wetted area, or by water budget methodology. Although wetted areas could be estimated with relative accuracy there was definite uncertainty concerning some of the infiltration rates applied. Additionally, in certain instances water diversion and delivery data was of questionable accuracy; thus creating some uncertainty concerning recharge estimates based upon water budget methodology. For these reasons model sensitivity to canal recharge was examined by varying recharge by a factor of two; thus creating sensitivity scenarios in which canal recharge was doubled or halved.

The 100 percent increase in canal recharge (+853,000 acre-feet, 1983-89) produced major head and storage changes in much of the model area. Heads rose an average of 5 to 6 feet throughout most of the the model area. Major head rises (greater than 30 feet) occurred in the agricultural area served by the SCIP canal system in the ESRV. In the WSRV major head rises (10 to 20 feet) occured in the northern part of the SRP area near the Arizona and Grand canals. Major rises (20 to 30 feet) also occured in the agricultural area served by the RID and BIC canals. The change-in-storage was 114 percent greater than the calibrated basecase (Table 14).

The 50 percent reduction in canal recharge (-426,000 acre-feet, 1983-89) produced head declines which averaged 2 to 3 feet throughout most of the model area. Major head declines occurred in the SCIP area (10 to 30 feet), the northern SRP area in the WSRV (5 to 10 feet), and in the RID-BIC areas (10 to 20 feet). The change-in-storage was 57 percent less than the calibrated basecase (Table 14).

The results of the sensitivity analysis show that the model is almost as sensitive to a 100 percent increase in canal recharge, as it is to a plus or minus 25 percent change in agricultural recharge. Therefore, any future study of model recharge data should also include this most important category.

C. Pumpage

In comparison to other model inputs the annual pumpage totals were regarded with a fairly high degree of confidence (Table 11). The confidence in the pumpage data is primarily due to the fact that pumpage was based, for the most part, on reported measurements rather than estimated rates and empirical relationships. However, due to its relative magnitude as the major outflow from the groundwater system even small percent inaccuracies in pumpage translate into large volumes of water. Due to the lack of agreement between the change-in-storage of the conceptual water budget (+670,000 acre-feet for 1983-1989, see Table 11), and the estimated change-in-storage from the observed water level changes (1.9 million acre-feet) it seemed unlikely that pumpage could be signifanctly greater than the calibrated basecase totals. For that reason, only a 10 percent reduction in pumpage was simulated for the sensitivity analysis.

The 10 percent reduction in groundwater pumpage (581,000 acre-feet, 1983-1989) caused water level rises throughout the model area. Heads rose an average of 3 to 4 feet in all model layers (Table 14). Maximum head increases for Layers 1-3 were 13, 29, and 26 feet, respectively. The areas of significant water level rise corresponded to the major agricultural pumping centers. The direct relationship between head change and specific yield was very evident in this simulation as the simulated water level rises increased dramatically beyond the

UAU "dewatering" line where specific yield values decrease from the UAU to the MAU. The change-in-storage was 81 percent greater than the change-in-storage of the calibrated basecase (Table 14).

The results of the sensitivity analysis did show that a 10 percent decrease in simulated pumpage would have a significant impact on model results. However, the probability that pumpage could be overestimated by 10 percent must be evaluated against other information. A 1986 study of reported pumpage conducted by ADWR Basic Data Section showed that reported pumpage and power divider estimates for the ED2 (Pinal) and Hassayampa irrigation areas were actually underreported for those two areas by about 7 percent (ADWR, 1986). This is an observation which is contrary to the premise of this particular sensitivity simulation. However, Basic Data surveys also indicate that power dividers are rated at about a plus or minus 10 percent accuracy. So it is possible that pumpage could be overreported in other areas. In summary, pumpage data is of relatively high certainity compared to other model stress data, however the sensitivity analysis does show that even small percent inaccuracies could produce significant changes to the model water budget and head solution.

D. Storage Coefficient

Since confined aquifer conditions exist for well over half the active model cells it was important to test the impact of varying the storage coefficient on the model solution. The calibrated value of storage coefficient of .005 for both the MAU and the LAU is generally considered to be representative of semi-confined conditions. The calibrated value of storage coefficient was varied by an order of magnitude to test the model's sensitivity to this parameter.

The order of magnitude increase in storage coefficient produced major head changes in several areas of the model; with large head declines and rises both noted. Major head declines (10 to 30 feet) were noted in all model layers for the central part of the ESRV, and in the Luke area of the WSRV. Head rises of 5 to 15 feet were noted in much of the extreme eastern and northern sections of the model. There was a general correlation between areas of rise occuring only outside the UAU dewatering line, however areas of head decline were found both within and beyond the UAU dewatering line. Although major head changes resulted from the increase in storage coefficient, there was only a 4 percent increase in the simulated change-in-storage (Table 14).

The order of magnitude decrease in storage coefficient had far less impact than the previoulsly mentioned order of magnitude increase. Model wide head rises and falls averaged less than 2 feet. The areas of rise and fall were reversed from the general patterns observed due to the order of magnitude increase. The simulated change-in-storage was one percent less than the calibrated change-in-storage (Table 14).

The results of the sensitivity analysis indicates that the model is relatively sensitive to an order of magnitude increase in storage coefficient, but far less sensitive to a order of magnitude decrease. The calibrated storage coefficient of .005 lies at the threshold between semi-confined and unconfined conditions. Some researchers with the USGS have suggested that the value may be too small (particularly for the MAU) due to the great thickness of compressible sediments, and the comparatively large values of specific storage (.0001-.00001 1/ft) which have been determined from studies in the area (Pool, 1994). The data indicate that further study of storage coefficient is warranted.

E. Boundary Conditions

The selection of appropriate boundary conditions is an important part of model construction. Earlier in this report it was mentioned that constant fluxes were selected to simulate mountain front recharge, groundwater underflow, and emphemeral stream channel infiltration at most of the transient model boundaries. The choice of using constant flux boundaries to simulate recharge and underflow conditions was based on the annual consistency of these fluxes. Although the choice of constant flux boundaries seemed appropriate for the transient model calibration period, it was necessary to confirm the decision. Therefore, a sensitivity run was made to determine the impact of changing the constant flux boundary cells to constant head cells.

The results of this modification indicated that on a regional level the model budget and heads are relatively insensitive to changes in boundary conditions. However, on the local level model heads were sensitive in areas immediately adjacent to the boundaries. In general, water levels rose near most model boundaries; although heads declined at the southern model boundary near Sacaton where underflow enters the model area along the channel of the Gila River, and in the Paradise Valley area where mountain front recharge occurs along the McDowell Mountains. The change-in-storage of the sensitivity run was 14 percent greater than than the calibrated basecase (Table 14).

In general, the model heads were only slightly effected by the change in boundary conditions. In view of these results it seems appropriate to accept the currently chosen set of boundary conditions as reasonable. However, future long-term simulations may require modificifications to the currently simulated fluxes.

F. Salt River Recharge

The maximum potential recharge from flood flows on the Salt River was estimated to be about 760,000 acre-feet for the model calibration period 1983-1988 (Corkhill, and others, 1993). That volume represents 11 percent of the total recharge applied to the model (Table 11). Due to its relative importance as a source of recharge the model's sensitivity to variations in Salt River recharge was tested. Earlier in this report (page 35) it was mentioned that recharge from flood flows was not thought to be significantly underestimated because the estimates were derived using methodologies designed to calculate the maximum recharge volumes which were potentially available. For that reason, the sensitivity runs were chosen to simulate 25 and 50 percent reductions in Salt River recharge.

The 25 percent reduction in Salt River recharge (-170,000 acre-feet, 1983-1988) caused head declines which averaged 1 to 3 feet throughout the model area (Table 14). Maximum head declines ranged from 5 to 15 feet in the immediate vicinity of the Salt River. The maximum declines were located in the ESRV. Declines decreased to the west along the channel of the Salt River, and were less than one foot in the vicinity of the 91st Avenue Wastewater Treatment Plant (where recharge from flood flows is negligible due to the shallow depth-to-water). The change-in-storage of the sensitivity run was 25 percent less than the change-in-storage of the calibrated basecase (Table 14).

The 50 percent reduction in Salt River recharge (-340,000 acre-feet, 1983-1988) caused head declines which averaged 2 to 6 feet throughout the model area (Table 14). Maximum head declines ranged from 10 to 30 feet in the immediate vicinity of the Salt River. The maximum declines occurred in the ESRV, and were 33, 31, and 29 feet for model Layers 1-3, respectively.

The change-in-storage of the sensitivity run was 49 percent less than the change-in-storage of the calibrated basecase (Table 14).

The results of this series of sensitivity runs showed that 25 and 50 percent reductions in recharge from Salt River flood flows had only moderate model wide impact on the simulated heads. The area of significant head decline was generally confined to a strip of model cells which extended about 3 or 4 miles on either side of the river. Although the results indicate that the regional impacts were minor, the local impacts near the river were quite significant. The local impacts of Salt River recharge are especially important due to the river's close proximity to the cities of Phoenix, Tempe, and Mesa. Water levels and groundwater flow directions are of particular importance and interest in these areas because of major environmental and economic considerations. Since a high degree of model accuracy is desirable in this area it is important to develop good estimates of Salt River recharge. It is likely that estimates of recharge from past flood events may never be subtantially improved, however it is possible to significantly improve estimates of recharge from future flood events by establishing and maintaining a system of stream gages along the Salt River and its tributaries in the model area. Indeed, accurate estimates of Salt River recharge are essential to any future model updates, and real effort should be expended to collect the data necessary to quantify recharge from future flood events.

G. Hydraulic Conductivity

Hydraulic conductivity is a fundamental structural component of any groundwater model. The relative distribution and magnitude of hydraulic conductivities are major factors controlling the flow of groundwater. Due to this importance, two sensitivity runs were made to examine the impacts of varying the calibrated hydraulic conductivity values by plus or minus 25 percent.

The 25 percent increase in hydraulic conductivity had only slight impact on the model results. The overall head distribution and flow directions were basically unchanged from the basecase conditions. The mean absolute head change varied from 3 to 5 feet throughout the model area (Table 14). Simulated heads declined along the Salt River where recharge greatly exceeded pumpage, and heads rose in the regional sink areas (Luke, East Mesa, etc.) where pumpage exceeded recharge (Figure 33). Increases in underflow both to and from constant head cells, and an increase in river leakage (gaining conditions) were the only water budget fluxes that changed significantly in comparison to the basecase values. The change-in-storage of the sensitivity run was 3 percent greater than the change-in-storage of the basecase (Table 14).

Likewise, the 25 percent reduction in hydraulic conductivity had little impact on model results. The overall head distribution and flow directions were basically unchanged from the basecase conditions. The mean absolute head change varied from 3 to 5 feet throughout the model area (Table 14). The simulated heads declined slightly in areas where pumpage exceeded recharge, and heads rose slightly in areas where recharge exceeded pumpage (Figure 33). The only changes that were significant in terms of water budget components were decreases in the volume of underflow both to and from constant head cells, and a decrease in river leakage as outflow (gaining conditions). However, it should be noted that neither change was significant

in comparison to total inflows or outflows. The change-in-storage of the sensitivity run was 3 percent less than the change-in-storage of the calibrated basecase (Table 14).

The analysis indicates that the model is generally insensitive on a regional scale to reasonable changes in hydraulic conductivity. However, the model does show more sensitivity on a local level.

H. Specific Yield

The specific yield is another fundamental structural input parameter of the model. The magnitude and distribution of specific yield defines the storage properties of the water table aquifer throughout the model area. Due to this importance, two sensitivity runs were made to examine the impacts of varying the specific yield values by plus or minus 25 percent.

The 25 percent increase in specific yield produced significant head changes in only a few areas of the model. Areas most affected include the Gila River area near Sacaton where heads declined 7 feet to 12 feet in all layers. Heads also declined by as much as 11 feet in the East Mesa area. Heads from 5 feet to 8 feet in the Paradise Valley area. In general, the model showed greater sensitivity in certain areas where there was a predominate local imbalance between pumpage and recharge (Figure 33). Model wide head changes averaged 2 to 3 feet (Table 14). The change-in-storage of the sensitivity run was 1 percent greater than the change-in-storage of the calibrated basecase (Table 14).

The 25 percent reduction in specific yield produced more head change than the 25 percent increase in specific yield. Areas most affected include the Gila River area near Sacaton (Figure 1) where heads rose 10 feet to 19 feet in all layers. Heads also rose over 10 feet in the

East Mesa area. Head declines of 5 to 14 feet occurred in the Paradise Valley area. Model wide head changes averaged 2 to 4 feet (Table 14). The change-in-storage of the sensitivity run was 1 percent less than the change-in-storage of the calibrated basecase.

The results indicate that the model is relatively insensitive to reasonable variations of specific yield. However, greater local sensitivity was noted. The relative lack of sensitivity to reasonable variations of this parameter suggest that additional efforts to quantify specific yield may not produce appreciable model improvement.

I. River Conductance

The perennial reaches of the Salt and Gila Rivers were simulated during the transient model calibration period using the MODFLOW River package. One important input parameter supplied to the River package is the vertical leakance, or river conductance. Original estimates of river conductances were based on the wetted area of the stream, an assumed stream bed thickness, and an assumed stream bed vertical hydraulic conductivity. The original conductance values were modified extensively during the steady-state calibration, and were used unchanged as transient model inputs. Due to the substantial modification of original estimates it was necessary to test the model's sensitivity to changes in river conductance. This was accomplished by varying river conductances by an order of magnitude from the calibrated values.

The order of magnitude increase in the river conductance caused only minor head changes in the immediate vicinity of the river; with water level rises of 1 to 3 feet were generally noted. Model wide head rises averaged less than 1 foot (Table 14). The increase in river conductance did cause substantial increases in river fluxes. The increased conductance produced an increase

of about 50 percent in river recharge in areas where "losing" conditions exist, and an increase of about 115 percent in river seepage from the aquifer ("gaining" conditions). The simulated change-in-storage was 6 percent greater than the calibrated basecase (Table 14).

The order of magnitude decrease in river conductance produced slightly greater head changes than the order of magnitude increase. Water level declines ranged from 3 to 13 feet near the river. However, model wide head declines averaged less than 1 foot (Table 14). The decrease in river conductance produced a decrease of about 67 percent in river recharge, and a decrease of about 83 percent discharge to the river. The simulated change-in-storage was 1 percent greater than the calibrated basecase (Table 14).

The results of these two sensitivity runs show that the model was less sensitive to the selected values of river conductance than might otherwise be expected. Since fluxes between the river and the aquifer are directly porportional to both the river conductance and the head differential between the river stage and the aquifer head, larger flux changes might be expected for order of magnitude conductance changes. However, this was not the case, and the smaller than anticipated flux changes indicate that the head differential is small and adjusts to the conductance changes in a manner that tends to buffer or counteract the effects of the conductance changes. The results indicate that changes of river conductance have only minor local impact near the rivers, and negligible model wide impact.

J. Evapotranspiration Rate

Evapotranspiration from phreatophyte growth was the largest outflow from the pre-development groundwater system (Corkhill and others, 1993). During the last 100 years the phreatophyte community of the model area has experienced many changes. Native species of plants have been replaced by more dominant species like tamarisk, and much phreatophyte growth has been cleared from the river flood plains (Graf, 1980). Due to the reduced size and and changes in plant species it was necessary to use different estimates of evapotranspiration rates for the modern transient calibration, than those used for the predevelopment steady-state calibration. The model's sensitivity to changes of maximum evapotranspiration rates was examined by varying the rates by a factor of two.

The 100 percent increase in evapotranspiration rates caused water level declines of 1 to 6 feet in and near the area of phreatophyte growth along the Salt and Gila Rivers (see Figure 21, SRV Phase I report). Model wide head declines averaged less than 1 foot (Table 14). The 6 year evapotranspiration total increased by 83 percent from about 288,000 acre-feet for the calibrated basecase (Table 11), to about 527,000 acre-feet for the sensitivity run. The increase in ET rates caused "gaining" river fluxes to decrease by about 100 percent, and "losing" fluxes to increase by 113 percent. The simulated change-in-storage was 1 percent less than the calibrated basecase (Table 14).

The 50 percent reduction in evapotranspiration rates caused water level rises of 2 to 3 feet in and near the area of phreatophyte growth. Model wide head rises averaged less than 1 foot (Table 14). The 6 year evapotranspiration total decreased by about 48 percent to 151,000 acre-feet. The reduction in rates caused "gaining" river fluxes to increase by 66 percent, and

"losing" fluxes to decrease by 46 percent. The simulated change-in-storage was 6 percent greater than the calibrated basecase (Table 14).

The results of the sensitivity analysis indicate that, on the regional level, the model is relatively insensitive to changes in the maximum evapotranspiration rate. But, on the local level the model shows more sensitivity. Maximum head changes were less than 10 feet for either sensitivity run, and model wide head changes averaged less than 1 foot (Table 14). Most simulated fluxes were essentially unchanged, however seepage fluxes between the river and the aquifer were significantly changed. On the local level the results demonstrated the important interconnection between river and the phreatophyte community. However, the results indicate that substantial modification of ET rates would probably provide minimal model wide effect.

IV. SUMMARY

The sensitivity analysis has provided valuable information concerning the model's response to various parameter changes. A relative ranking of the model's sensitivity to parameter changes was developed. The rankings were based on the sum of two important measures of relative model change: the total absolute residual, and the absolute percent change-in-storage. The results indicated that the model was most sensitive to changes in agricultural recharge and least sensitive to changes in maximum evapotranspiration rates (Table 14).

The sensitivity analysis has demonstrated that the model solution is acceptably stable over a reasonable range of input parameter variation. The results have also indicated which parameters exert the most influence on the model solution, and therefore merit future study and refinement.

CHAPTER SIX. SUMMARY AND RECOMMENDATIONS

I. SUMMARY

This report documents the SRV model construction, final calibration, and sensitivity analysis. The purpose of the SRV groundwater modeling effort is to provide an analytical tool capable of quantifying the effects of various groundwater management and conservation scenarios on the groundwater supplies within the study area. The SRV model provides a regional understanding of the interrelationships between the groundwater flow system and groundwater pumpage and recharge.

The SRV model reasonably simulates both steady-state and transient-state groundwater flow conditions within the ESRV and WSRV sub-basins of the Phoenix AMA. The transient model simulated a net increase in the volume of water in storage of approximately +640,000 acre-feet for the six year period of 1983 to 1988 compared to a conceptual change in storage of +670,000 acre-feet.

The SRV model provides a cumulative source of hydrologic and geologic data for the Phoenix AMA. The model is also to be used as planning tool to study the impacts of various groundwater management and conservation scenarios. Currently, the model is being used to simulate the impacts of potential groundwater recharge projects in the West SRV sub-basin. Eventually, contaminant transport capabilities may be added to the model. It is important to keep in mind that the model is regional and therefore is not a tool for the specific siting of individual recovery or injection wells and individual monitor wells.

In summary, the SRV Phase I and Phase II activities are now complete. A three-dimensional groundwater flow model has been developed which provides the ADWR the capability of simulating groundwater conditions in the model area. In addition, future model updates have been planned to provide additional capability and accuracy to this already effective management tool. The future use of this model and its associated database will assist the Department in developing effective management strategies well into the future.

II. RECOMMENDATIONS

The SRV Phase II modeling study has identified several data deficiencies which partially limit the models' predictive accuracy. Recommendations are provided to improve future data collection and analysis efforts. The recommendations include the following: 1) improved estimates of agricultural recharge, 2) incorporate a re-wetting option in the model code to permit the model to resaturate "dewatered" cells, 3) update the model as data become available to improve its performance for use as a planning tool, 4) extend the transient calibration period, 5) revision and enlargement of the Salt River Valley water level measurement index line, 6) develop more understanding concerning the complex relationship between "composite" water level changes and actual groundwater storage changes in the model area, 7) incorporate a subsidence package in the model code to simulate compaction resulting from groundwater storage changes in compressible beds, 8) seasonalize model pumpage and recharge, 9) development of a more comprehensive aquifer test database, 10) improvement of the current

stream gage network in the Salt River Valley. A more detailed discussion of these recommendations follows.

1) Estimates of agricultural recharge should be improved. In evaluating the impact of agricultural recharge the concept of lag-time has been introduced. Considering the relative volume of agricultural recharge to all other sources of recharge, it seems important to investigate the concept of "lagged" recharge in more detail. This should include additional field studies which would provide data concerning average deep percolation rates, volumetric water content, and tracer velocities. Also, more detailed studies of older cropped acreage data (air photos, and irrigation district cropping and water use reports) would be useful.

2) Incorporate a re-wetting option (BCF2) in the model code to permit the model to resaturate "dewatered" cells. As originally published, MODFLOW could simulate the desaturation of variable-head cells, which resulted in their conversion to no-flow cells, but could not simulate the resaturation of cells (McDonald, Harbaugh, Orr, and Ackerman). That is, a no-flow cell could not be converted to variable head. However, such a conversion is desirable in many situations. For example, one might wish to simulate pumping that desaturates some cells followed by the recovery of water levels after pumping is stopped. An optional package, BCF2, that allows cells to convert from no-flow to variable-head can be added to the model to simulate just such a situation.

3) Update the model as data become available to improve its performance for use as

a planning tool. The continuing acquisition of new field data is necessary for future model improvements as many questions exist regarding unit-specific water levels and aquifer parameters.

4) The transient calibration period should be extended to winter 1991-1992. The ADWR conducted an extensive water level survey in 1991-1992 within the SRV study area. As outlined in (2), 1988 data were extremely meager and few water levels were measured from MAU and LAU wells. Use of the 1991-1992 water level data as final heads would provide a more accurate representation of water levels to calibrate to as compared to the 1988 final heads. Extending the transient calibration period would also allow the stresses of pumpage and recharge to act on the groundwater flow system longer and improve the model calibration.

5) Revision and enlargement of the Salt River Valley water level measurement index line. Unit-specific water level data were found to be lacking during the data collection and analysis phase of this study (Phase I). The water level data collected for 1983 was relatively comprehensive due to the large amount of water level measurements that were made. However, the 1988 data were extremely meager and few water levels were measured from MAU and LAU wells. Due to the necessity of obtaining representative water levels from all units in each year it is recommended that the ADWR Phoenix AMA index line be expanded and revised to provide a more representative sample of both the vertical and areal distribuition of water levels.

6) Develop more understanding concerning the complex relationship between "composite" water level changes and actual groundwater storage changes in the model area. A clear need has been demonstrated in this study and other model studies (Wickham and Corkhill, 1989), to improve estimates of the change in the volume of groundwater in storage. Since "composite" wells supply the vast majority of water level data in the model area it is necessary to determine how changes in storage actually relate to water level changes in these wells. A possible solution to this problem may be found in the use of gravity measurement techniques. As mentioned in the SRV Phase I report (Corkhill and others, 1993) gravity change measurements have been conducted by the USGS in other locations (Tucson area, Pinal Creek area, Eloy area) to estimate groundwater storage changes. Based on the results of these studies it is reasonable to propose that a pilot study should be initiated to test the feasibility of using gravity techniques in conjuntion with water level changes to estimate groundwater storage changes in the model area.

7) Incorporate a subsidence package in the model code to simulate compaction resulting from groundwater storage changes in compressible beds. The removal of groundwater by pumpage may result in compaction of compressible fine-grained beds that are within or adjacent to the aquifers. Compaction of the sediments and resulting land subsidence may be permanent if the head declines result in vertical stresses beyond the previous maximum stress. The process of permanent compaction is not routinely included in the simulation of groundwater flow (Leake and Prudic, 1988). As there are areas within the SRV model which have experienced large scale groundwater declines, simulation of aquifer compaction would be an improvement to the model.

8) The accuracy of the model could also be improved by seasonalizing (dividing) the pumpage and recharge into winter and summer stresses (two stress periods per year). This would serve to lessen the discrepancy between well hydrographs and model cell heads.

9) Development of a more comprehensive aquifer test database. Hydraulic conductivity data were found to be lacking in most parts of the study area. Aquifer test data are by far the best type of information available estimating hydraulic conductivities. For this reason it is recommended that the ADWR engage in a long-term program to collect and analyze this type of data. The data collected would improve present knowledge of hydraulic conductivities. For a more detailed discussion on the implementation of this recommendation refer to the SRV Phase I report (Corkhill and others, 1993).

10) Improvement of the current stream gage network in the Salt River Valley. Stream gage data were found to be significantly lacking during the data collection phase (Phase I). The analysis of stream channel infiltration was made much more difficult and questionable due to this shortcoming. Examination of the volume of releases from the Granite Reef Dam and Ashurst-Hayden Dams during the period 1983-1988 reveals the flood flows on these rivers represent a significant recharge source which needs to be better quantified.

Since stream channel recharge from flood flows represents a potentially important component of inflow to the groundwater system it is recommended that the current number of stream gages in the SRV study area be increased. The new gages should be strategically located in order to better quantify infiltration along several reaches of the major drainages in the area.

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APPENDIX I FIGURES

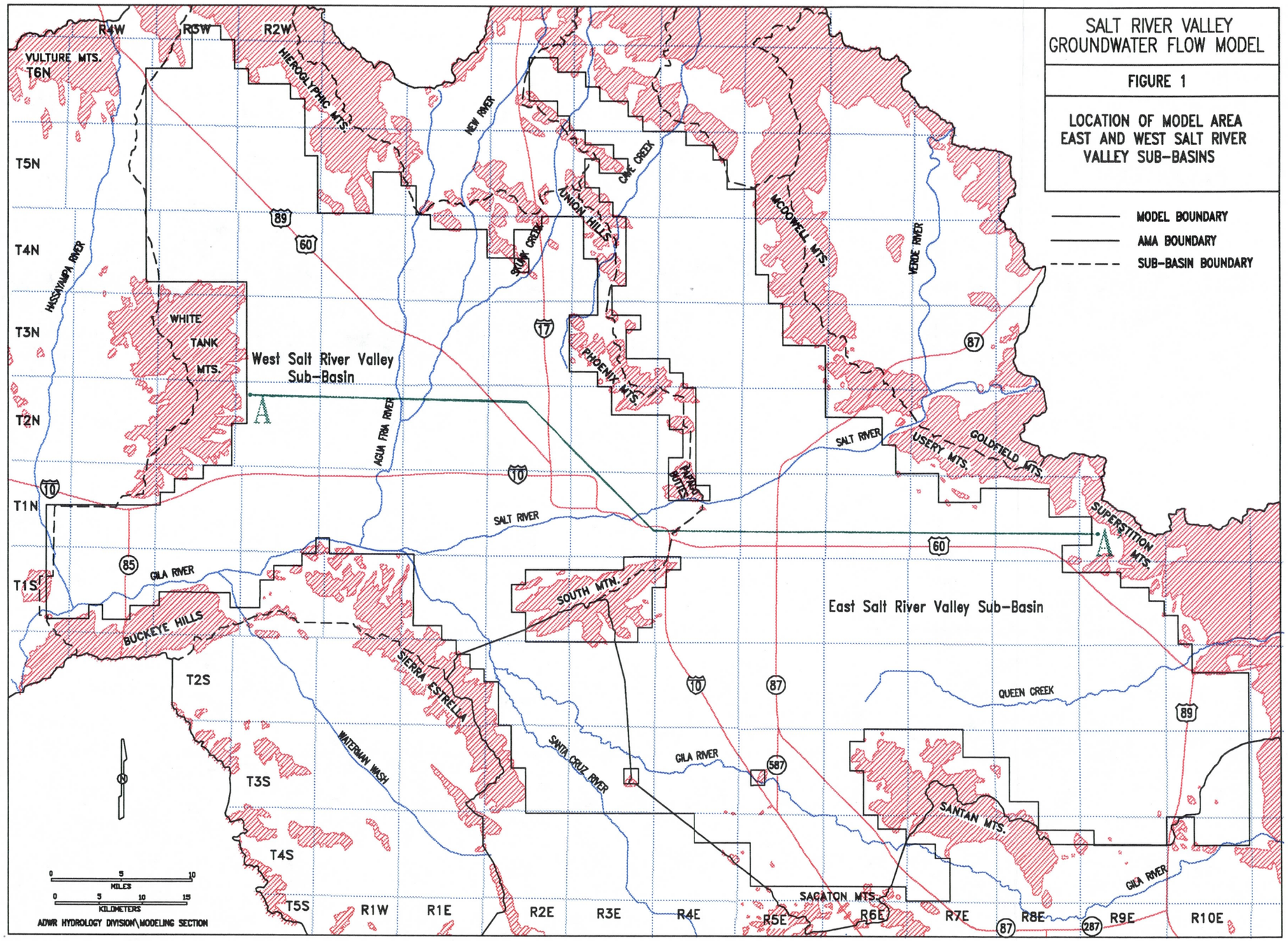
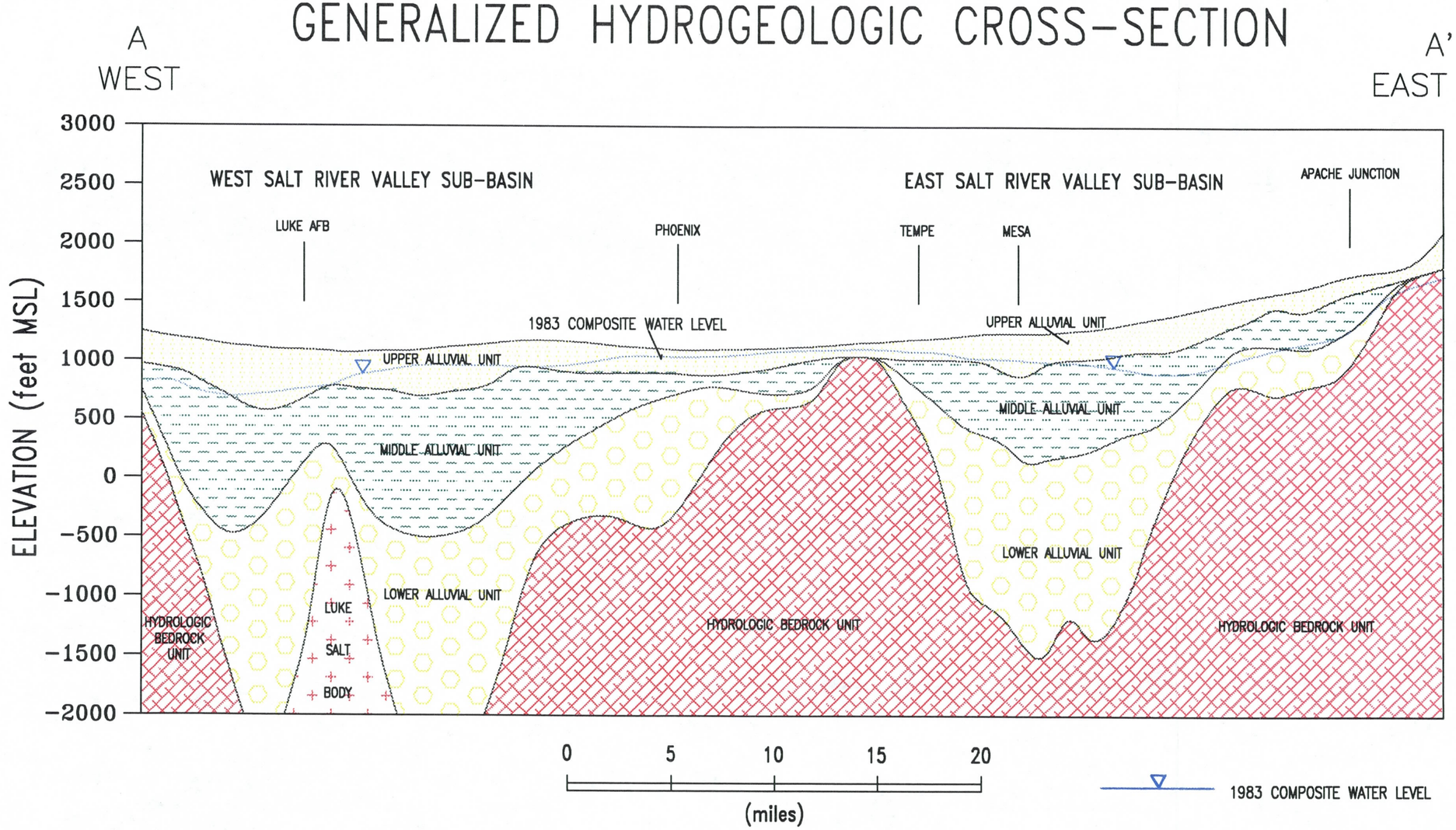

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 1
LOCATION OF MODEL AREA
EAST AND WEST SALT RIVER
VALLEY SUB-BASINS
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
R4W
R5W
R2W
VULTURE MTS.
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
HIEROGLYPHIC MTS.
NEW RIVER
OAK CREEK
UNION HILLS
SKUNK CREEK
MCDOWELL MTS.
VERDE RIVER
HASSAYAMPA RIVER
WHITE TANK MTS.
West Salt River Valley Sub-Basin
A
AGUA FRIA RIVER
PHOENIX MTS.
SALT RIVER
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
GILA RIVER
BUCKEYE HILLS
SOUTH MTN.
East Salt River Valley Sub-Basin
SIERRA ESTRELLA
WATERMAN WASH
SANTA CRUZ RIVER
QUEEN CREEK
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION

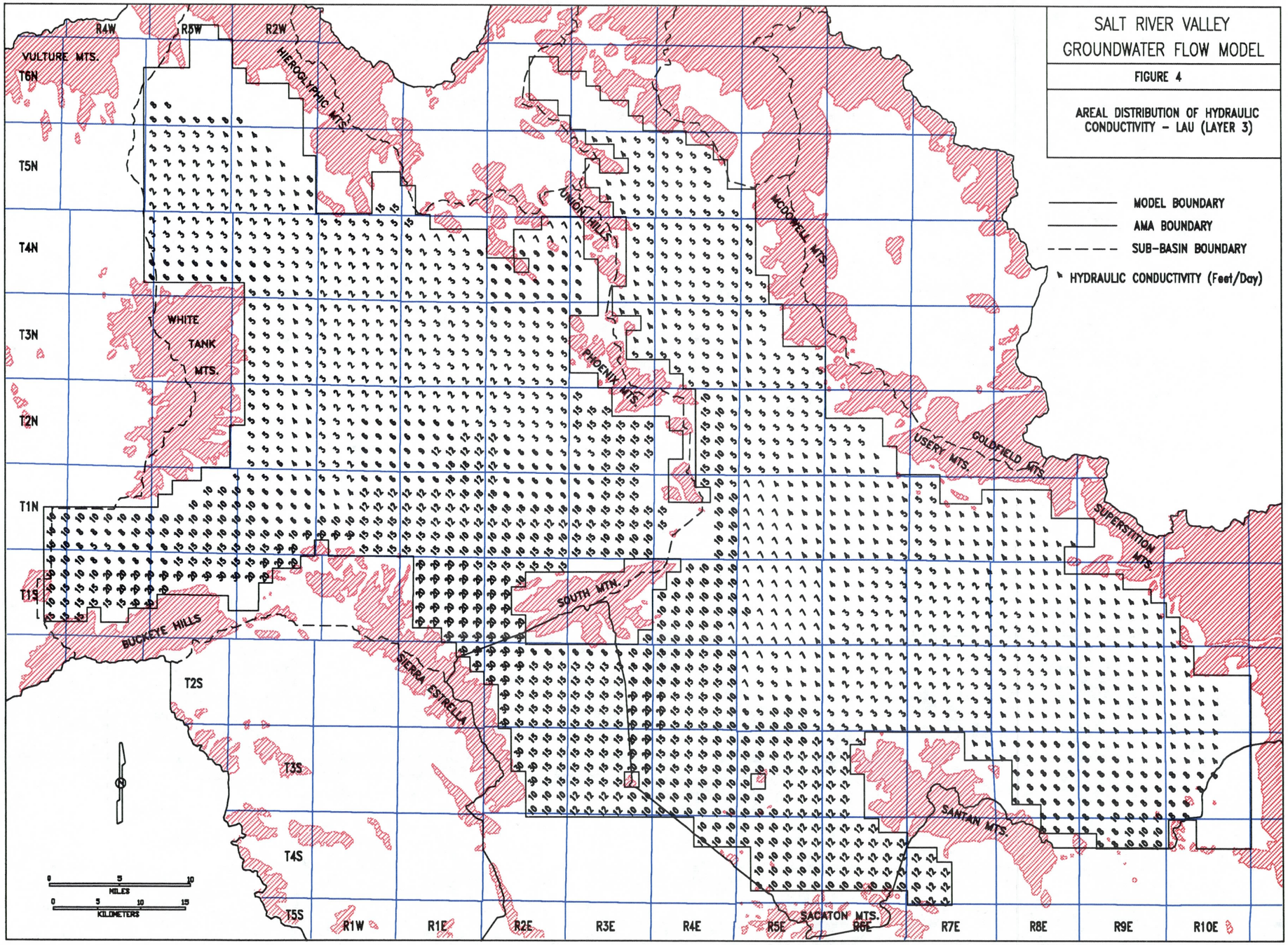
FIGURE 3

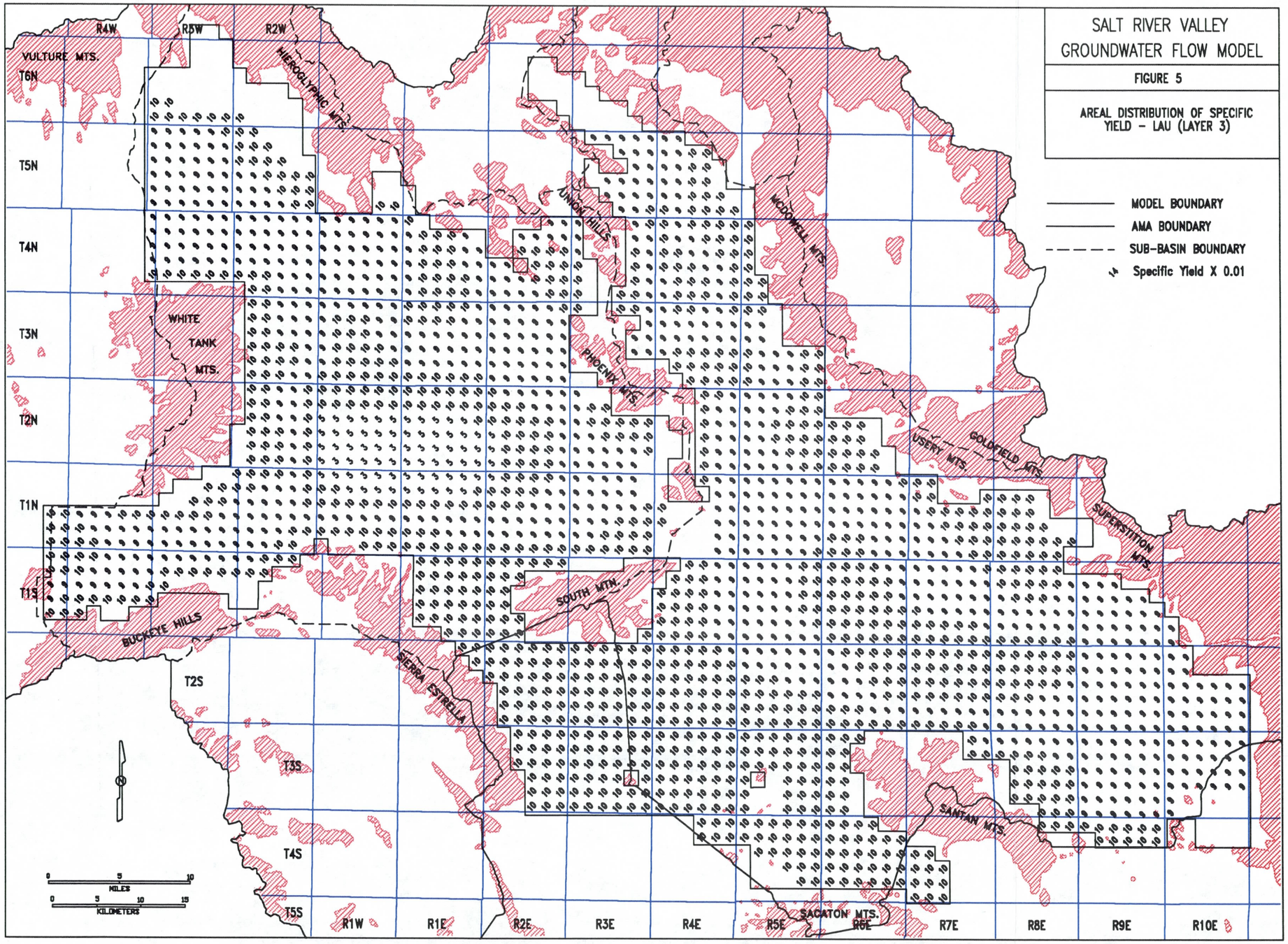
SALT RIVER VALLEY
GENERALIZED HYDROGEOLOGIC CROSS-SECTION

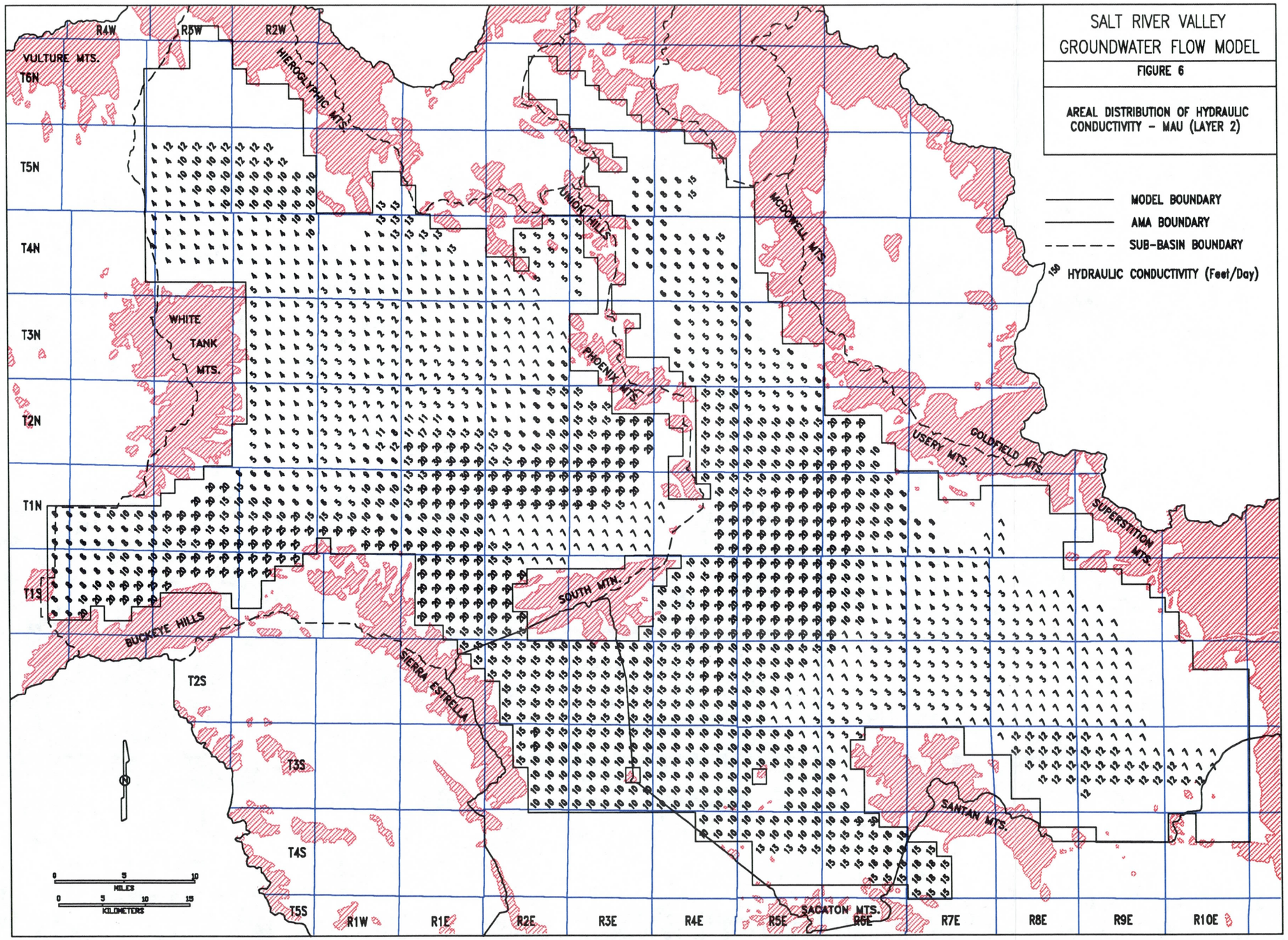


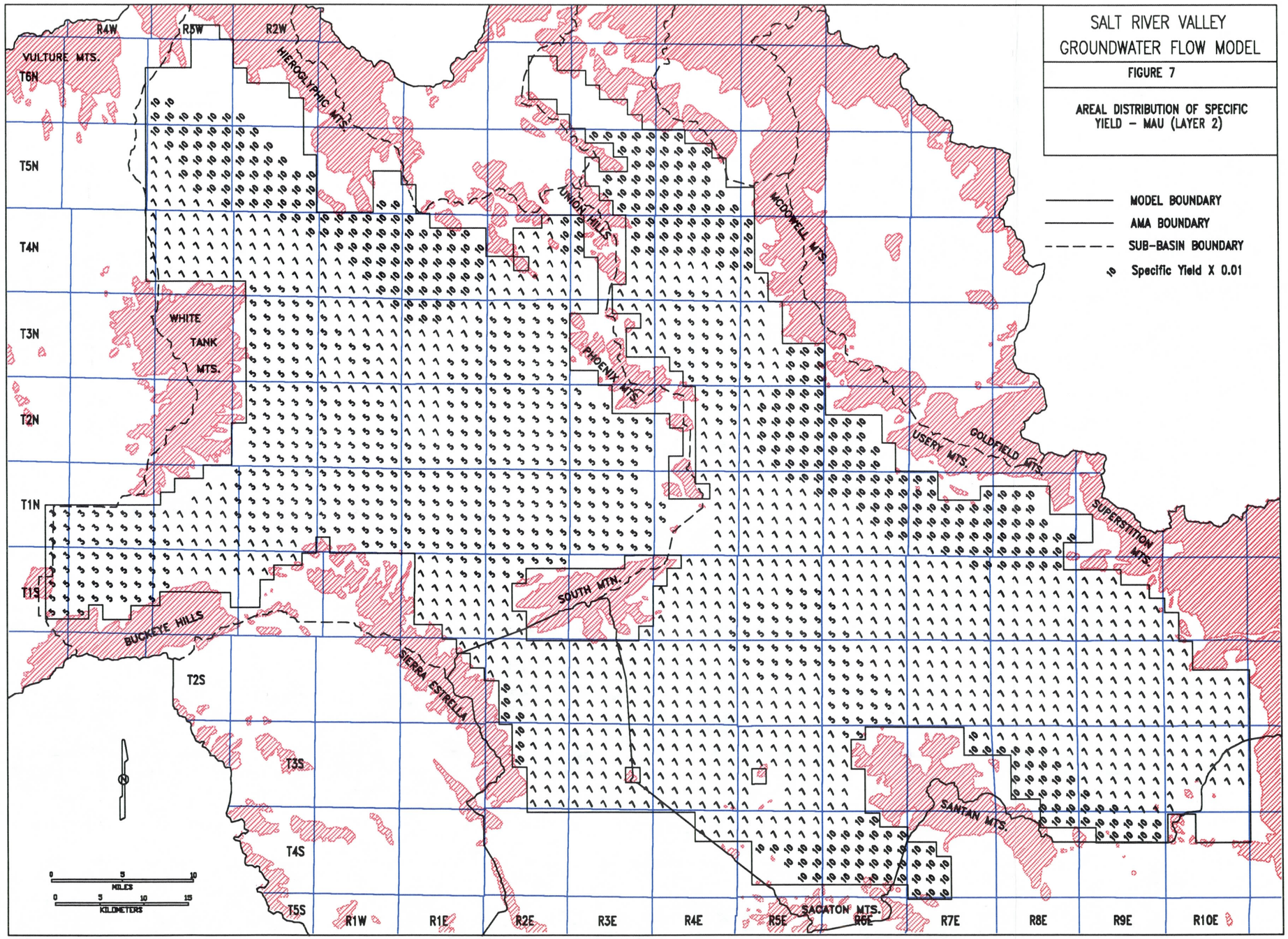
ADWR HYDROLOGY DIVISION\MODELING SECTION

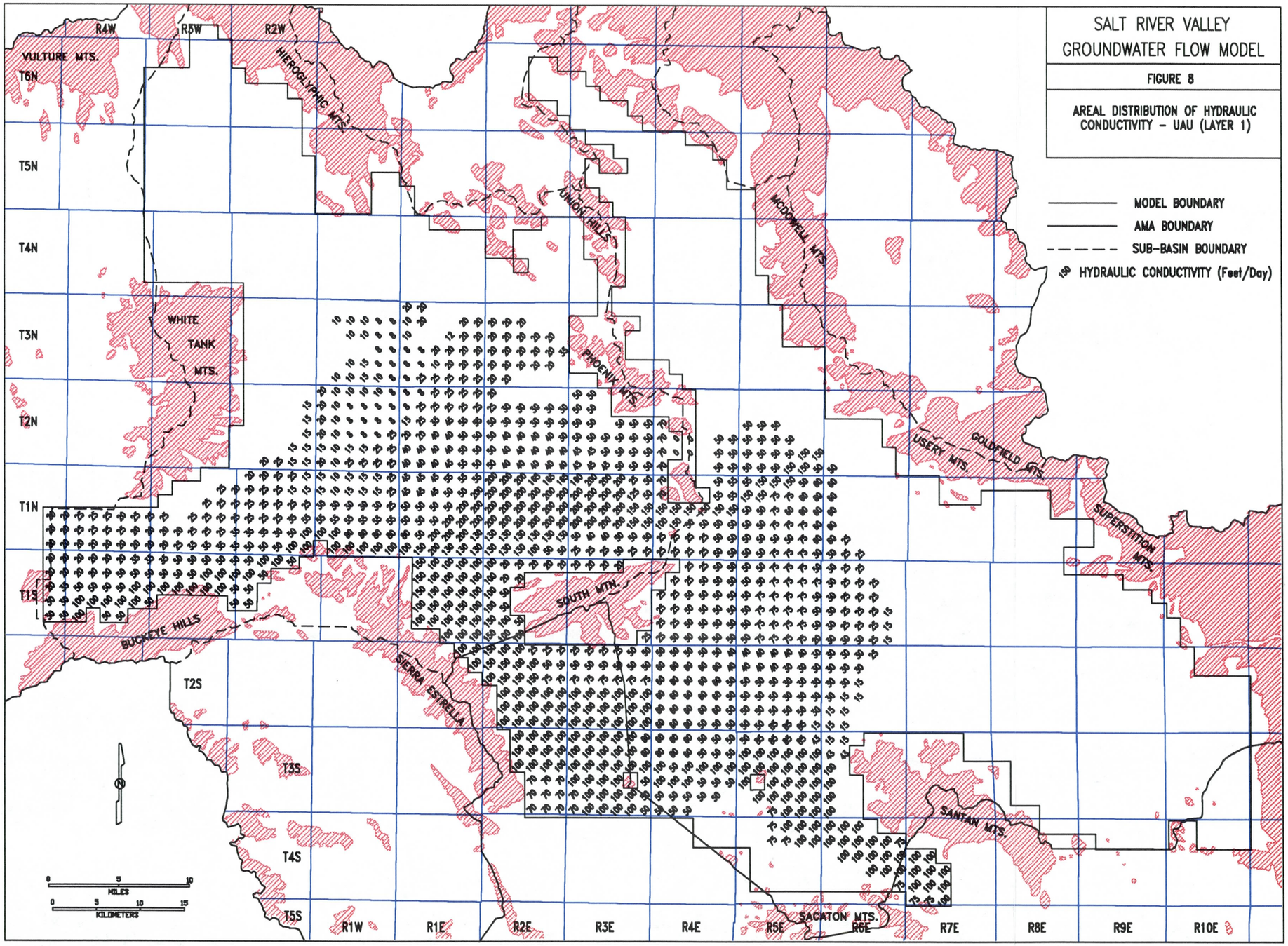
VERTICAL EXAGGERATION = 30 X

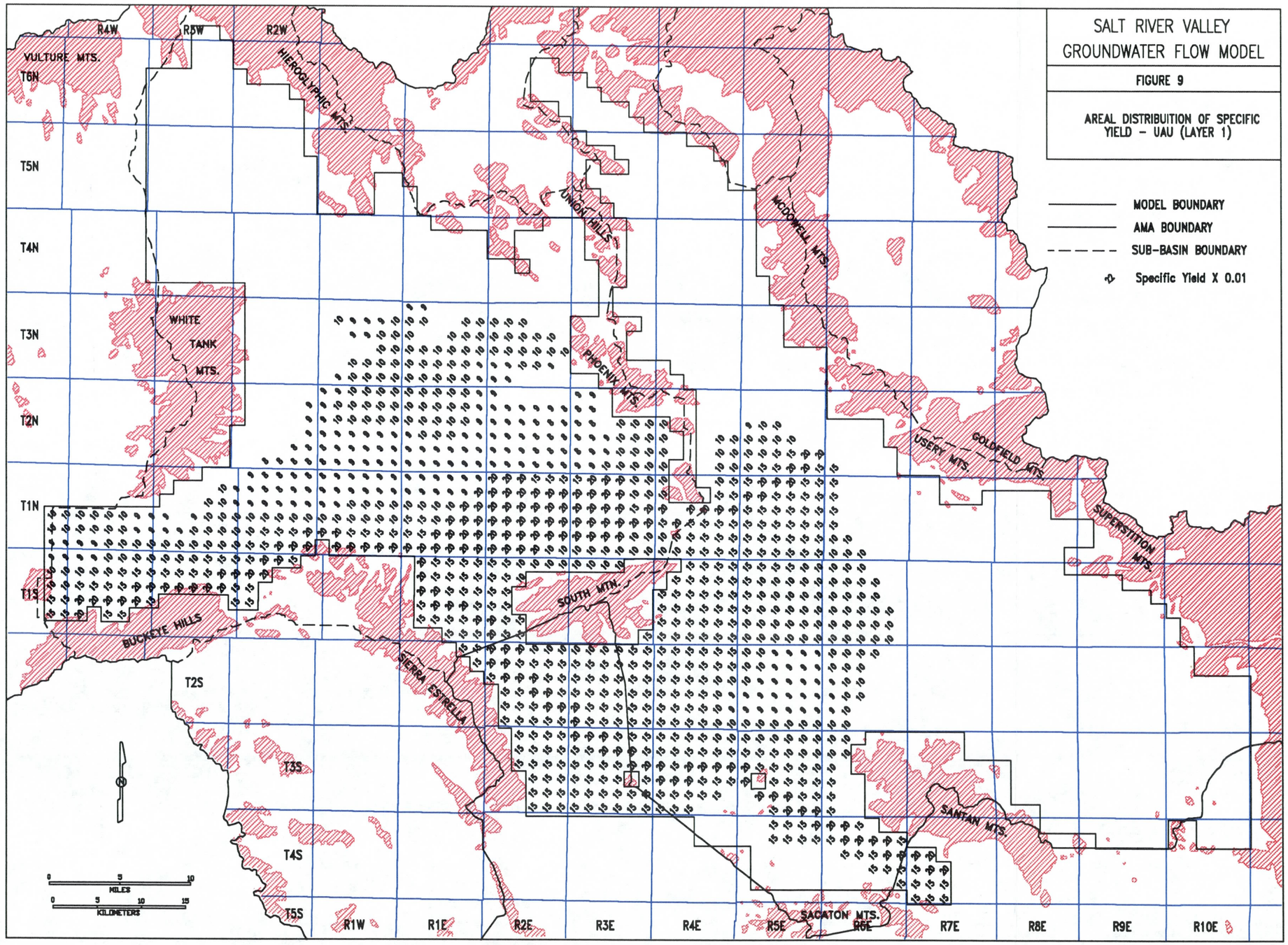

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 4
AREAL DISTRIBUTION OF HYDRAULIC CONDUCTIVITY - LAU (LAYER 3)
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
HYDRAULIC CONDUCTIVITY (Feet/Day)
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
R4W
R5W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
MILES
KILOMETERS

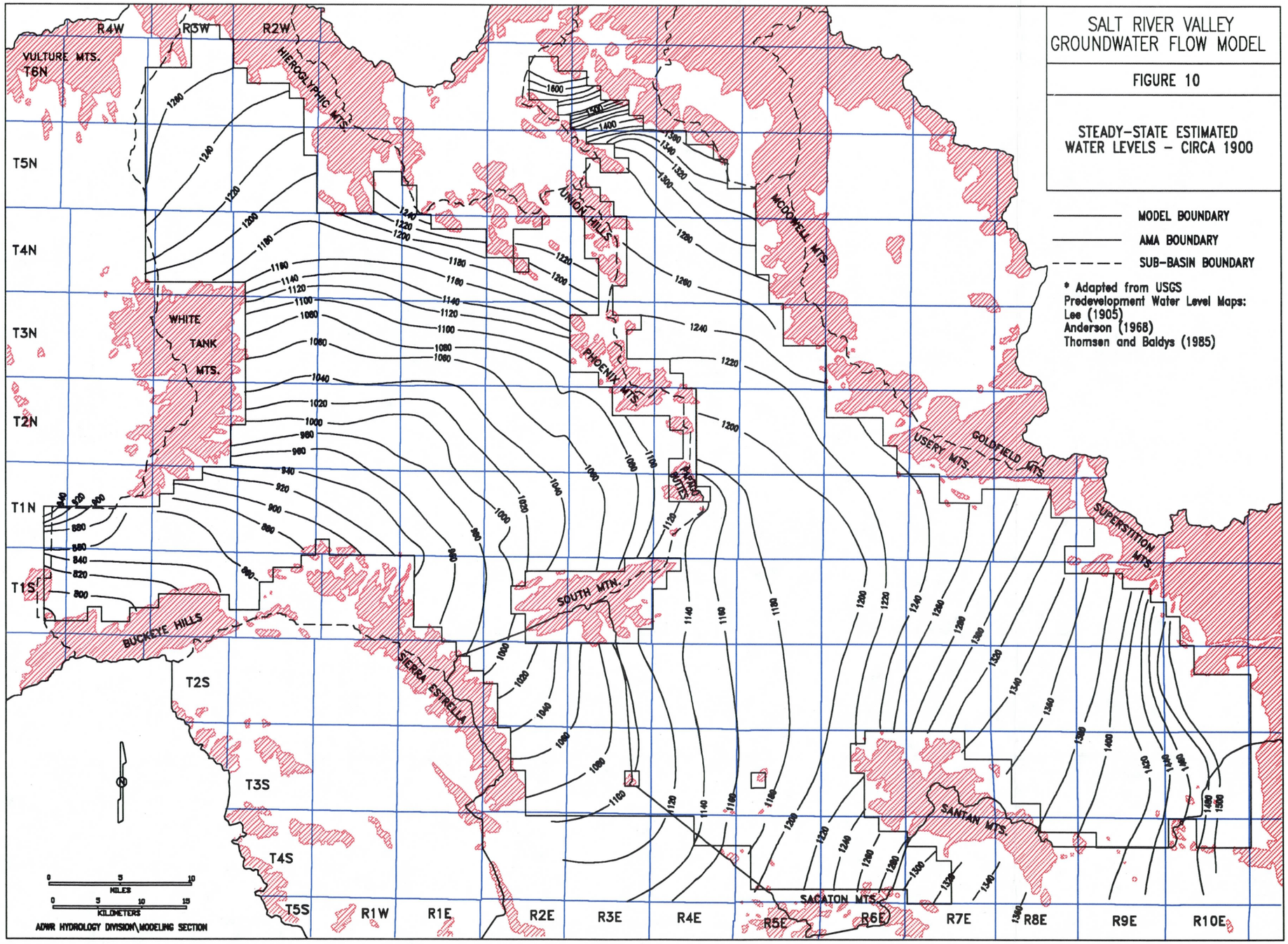

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 5
AREAL DISTRIBUTION OF SPECIFIC YIELD - LAU (LAYER 3)
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
Specific Yield X 0.01
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
McDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
MILES
KILOMETERS

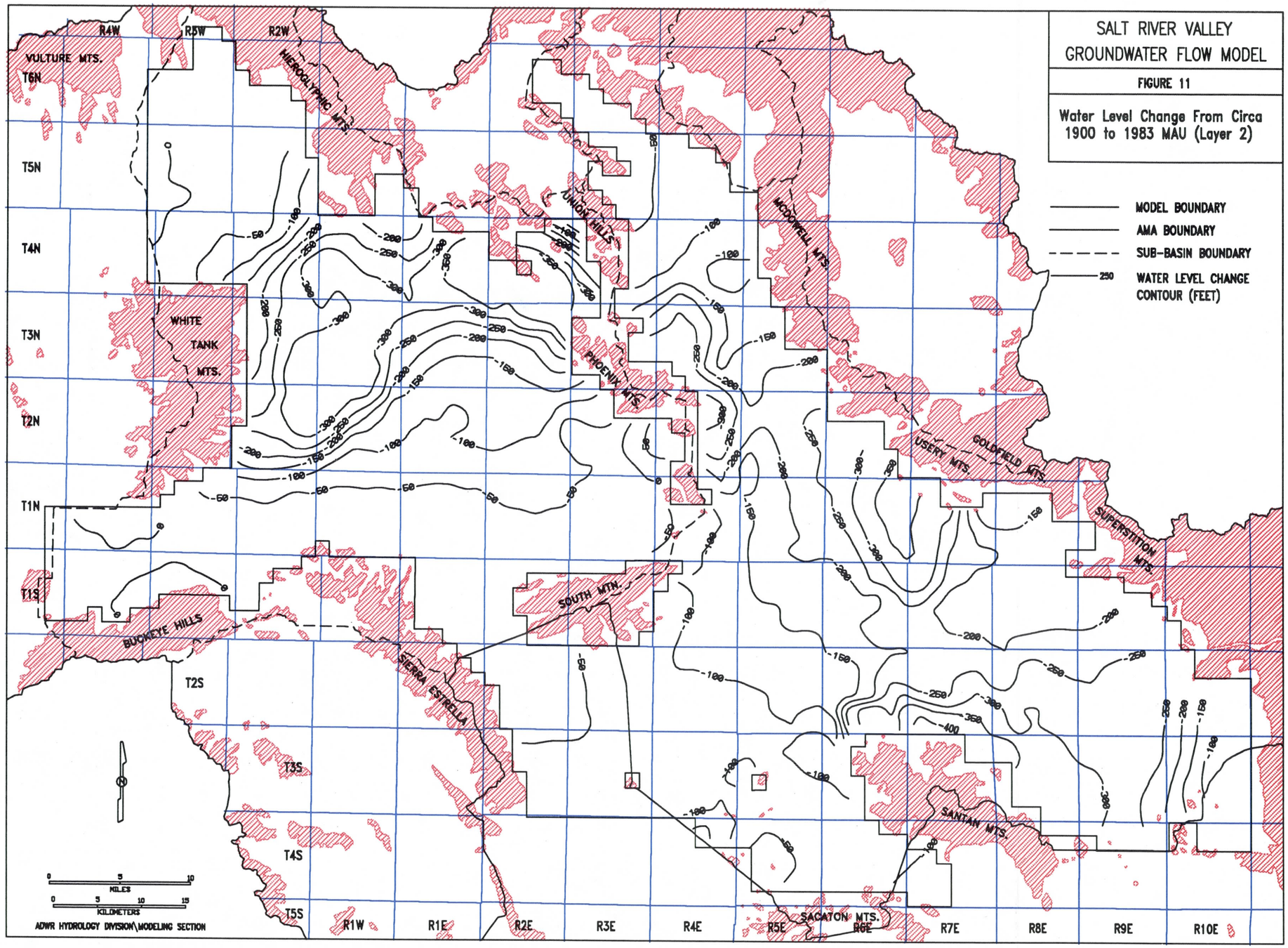

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 6
AREAL DISTRIBUTION OF HYDRAULIC CONDUCTIVITY - MAU (LAYER 2)
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
HYDRAULIC CONDUCTIVITY (Feet/Day)
R4W
R5W
R2W
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
MILES
KILOMETERS


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 7
AREAL DISTRIBUTION OF SPECIFIC YIELD – MAU (LAYER 2)
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
Specific Yield X 0.01
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
R4W
R5W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
MILES
KILOMETERS


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 8
AREAL DISTRIBUTION OF HYDRAULIC CONDUCTIVITY - UAU (LAYER 1)
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
HYDRAULIC CONDUCTIVITY (Feet/Day)
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
MILES
KILOMETERS


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 9
AREAL DISTRIBUITION OF SPECIFIC YIELD - UAU (LAYER 1)
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
Specific Yield X 0.01
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
MILES
KILOMETERS


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 10
STEADY-STATE ESTIMATED
WATER LEVELS - CIRCA 1900
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
* Adapted from USGS
Predevelopment Water Level Maps:
Lee (1905)
Anderson (1968)
Thomsen and Baldys (1985)
R4W
R5W
R2W
VULTURE MTS.
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
HIEROGLYPHIC MTS.
WHITE TANK MTS.
UNION HILLS
PHOENIX MTS.
PAPAGO BUTTE
MCDOWELL MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 11
Water Level Change From Circa 1900 to 1983 MAU (Layer 2)
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
250 WATER LEVEL CHANGE CONTOUR (FEET)
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
MILES
KILOMETERS
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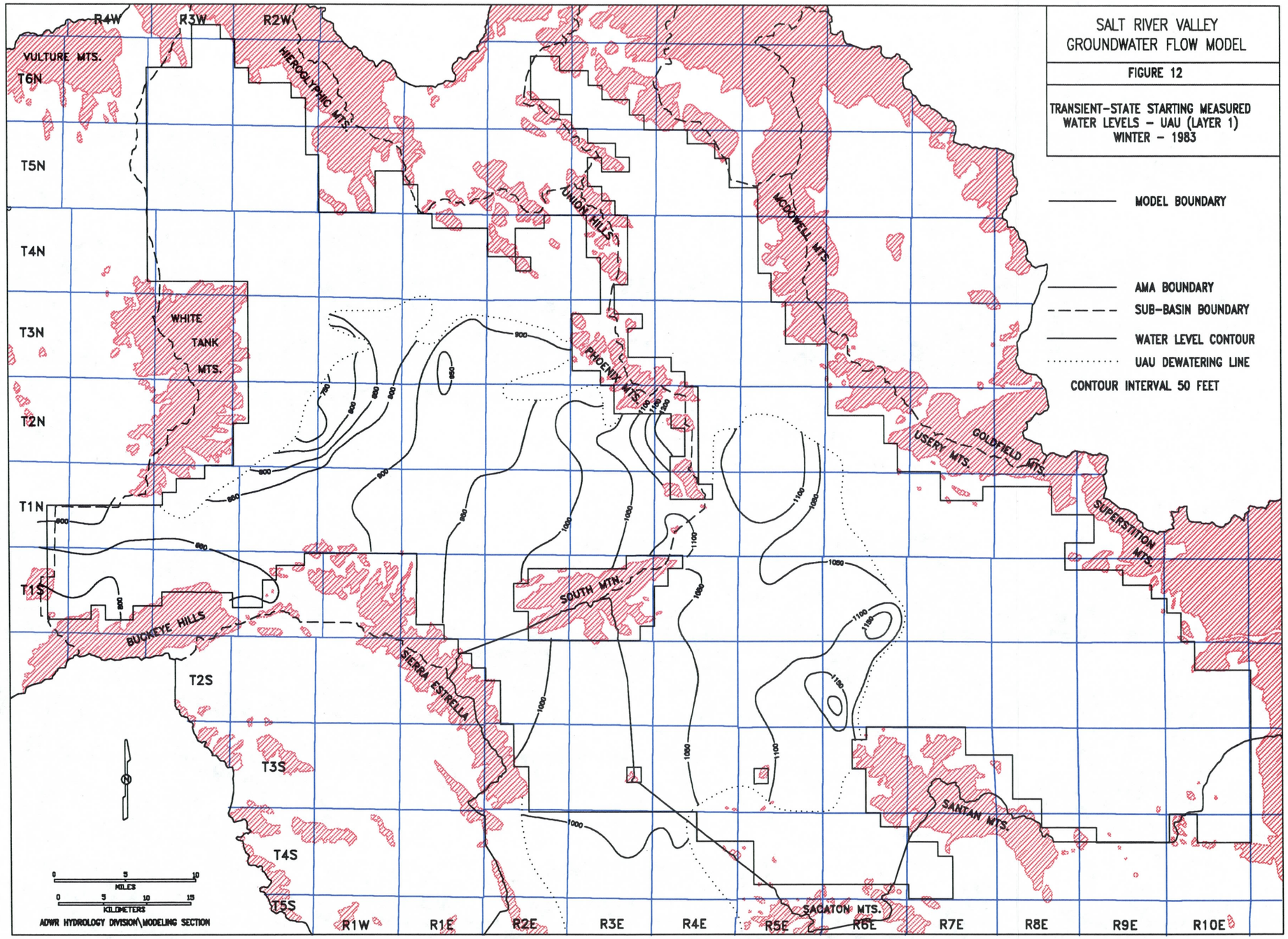
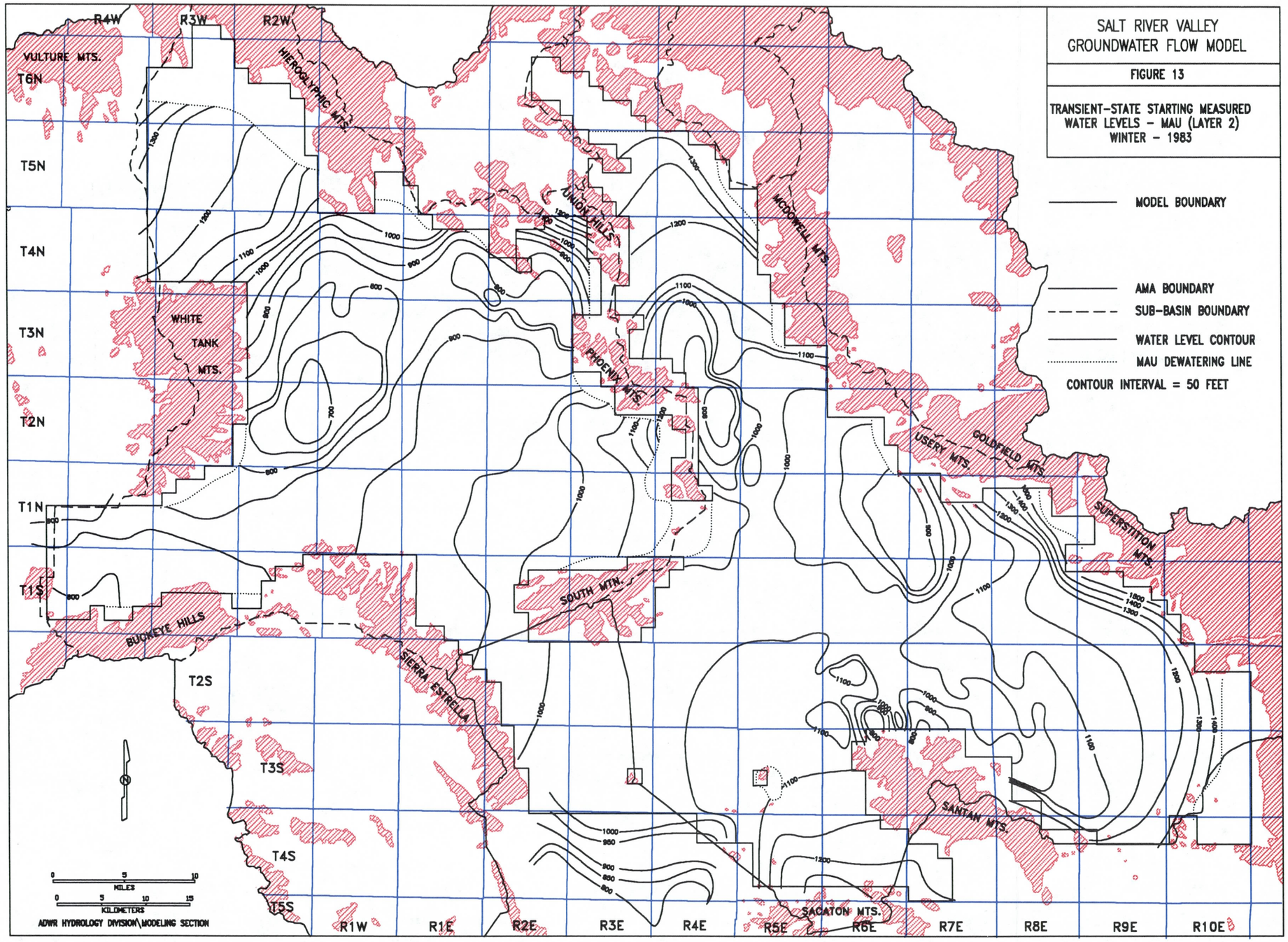
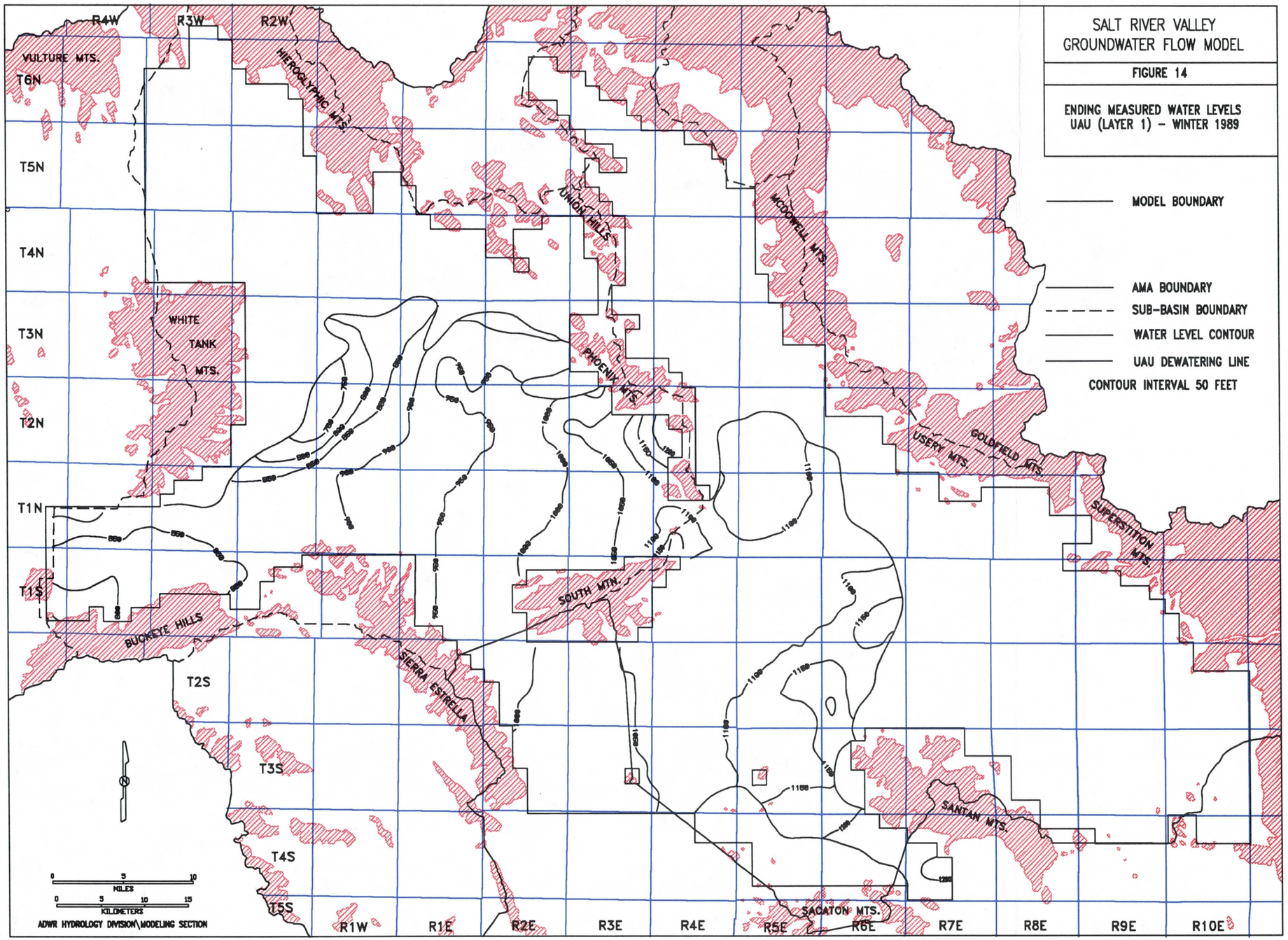
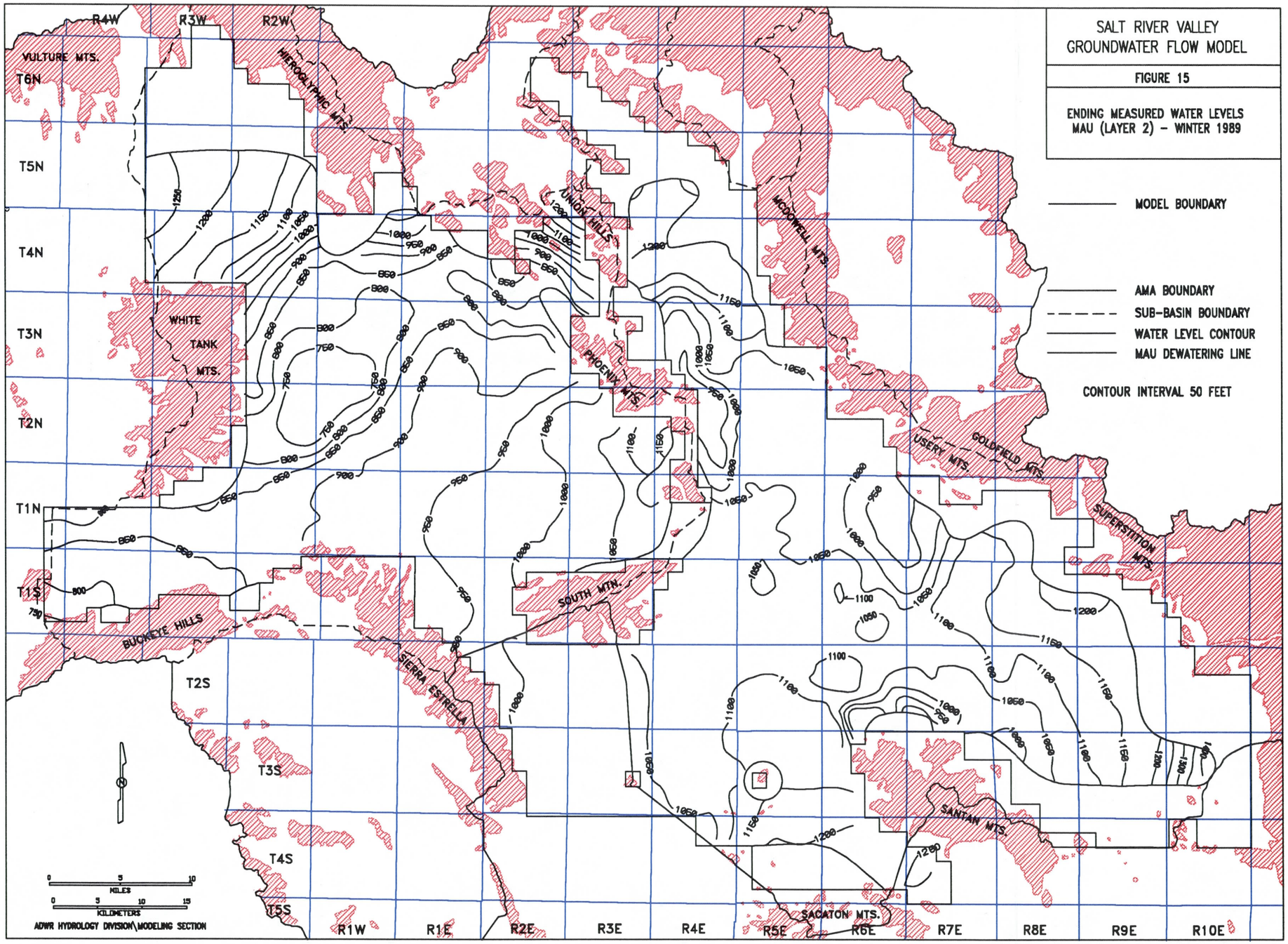
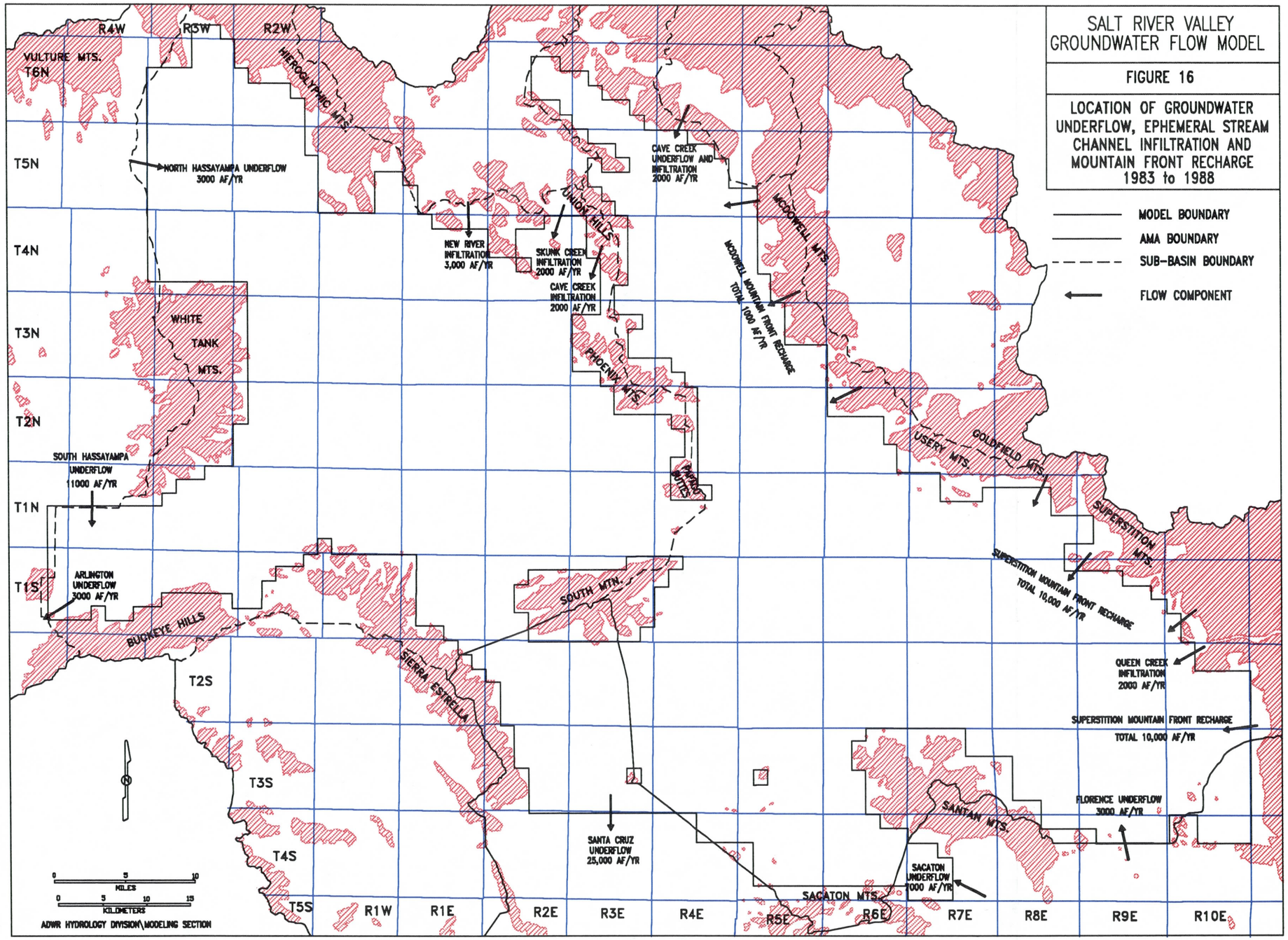
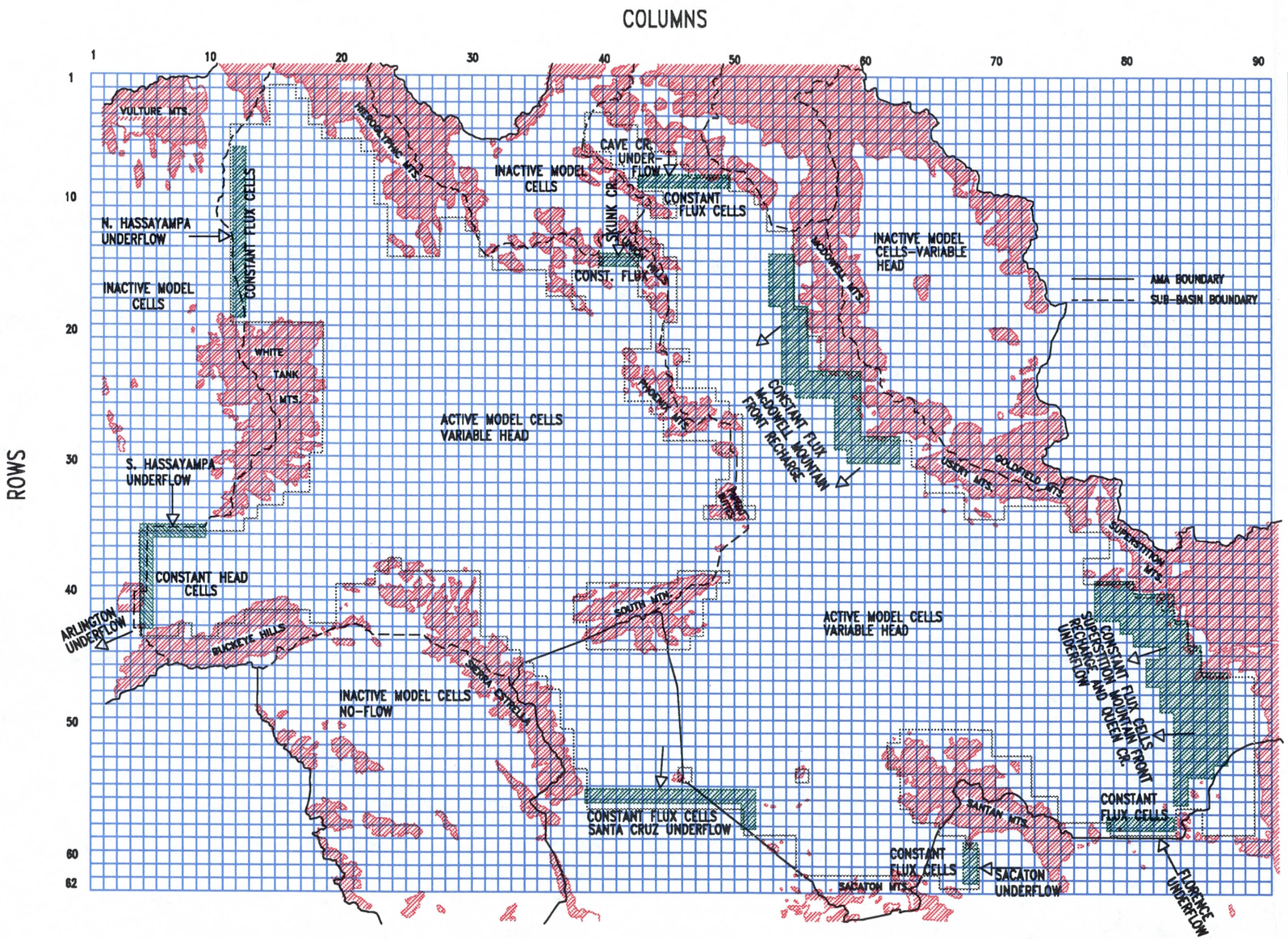

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 12
TRANSIENT-STATE STARTING MEASURED
WATER LEVELS - UAU (LAYER 1)
WINTER - 1983
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
WATER LEVEL CONTOUR
UAU DEWATERING LINE
CONTOUR INTERVAL 50 FEET
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
WIEROOLTHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 13
TRANSIENT-STATE STARTING MEASURED WATER LEVELS - MAU (LAYER 2) WINTER - 1983
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
WATER LEVEL CONTOUR
MAU DEWATERING LINE
CONTOUR INTERVAL = 50 FEET
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 14
ENDING MEASURED WATER LEVELS
UAU (LAYER 1) - WINTER 1989
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
WATER LEVEL CONTOUR
UAU DEWATERING LINE
CONTOUR INTERVAL 50 FEET
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 15
ENDING MEASURED WATER LEVELS
MAU (LAYER 2) - WINTER 1989
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
WATER LEVEL CONTOUR
MAU DEWATERING LINE
CONTOUR INTERVAL 50 FEET
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 16
LOCATION OF GROUNDWATER UNDERFLOW, EPHEMERAL STREAM CHANNEL INFILTRATION AND MOUNTAIN FRONT RECHARGE 1983 to 1988
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
FLOW COMPONENT
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
HIEROGLYPHIC MTS.
WHITE TANK MTS.
NORTH HASSAYAMPA UNDERFLOW 3000 AF/YR
SOUTH HASSAYAMPA UNDERFLOW 11000 AF/YR
ARLINGTON UNDERFLOW 3000 AF/YR
BUCKEYE HILLS
NEW RIVER INFILTRATION 3,000 AF/YR
SKUNK CREEK INFILTRATION 2000 AF/YR
CAVE CREEK INFILTRATION 2000 AF/YR
CAVE CREEK UNDERFLOW AND INFILTRATION 2000 AF/YR
UNION HILLS
PHOENIX MTS.
PAYSON MTS.
MCDOWELL MTS.
MCDOWELL MOUNTAIN FRONT RECHARGE TOTAL 1000 AF/YR
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SUPERSTITION MOUNTAIN FRONT RECHARGE TOTAL 10,000 AF/YR
SOUTH MTN.
SIERRA ESTRELLA
QUEEN CREEK INFILTRATION 2000 AF/YR
SUPERSTITION MOUNTAIN FRONT RECHARGE TOTAL 10,000 AF/YR
FLORENCE UNDERFLOW 3000 AF/YR
SANTAN MTS.
SANTA CRUZ UNDERFLOW 25,000 AF/YR
SACATON UNDERFLOW 7000 AF/YR
SACATON MTS.
0 5 10 MILES
0 5 10 15 KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION



SALT RIVER VALLEY GROUNDWATER FLOW MODEL

FIGURE 17

LOCATION OF MODEL GRID, TYPES AND LOCATIONS OF MODEL CELLS

* CONSTANT FLUX CELLS SIMULATED AS CONSTANT HEAD IN STEADY-STATE

CONSTANT HEAD CELL

CONSTANT FLUX CELL

MODEL BOUNDARY

SCALE

0 10 20

(miles)

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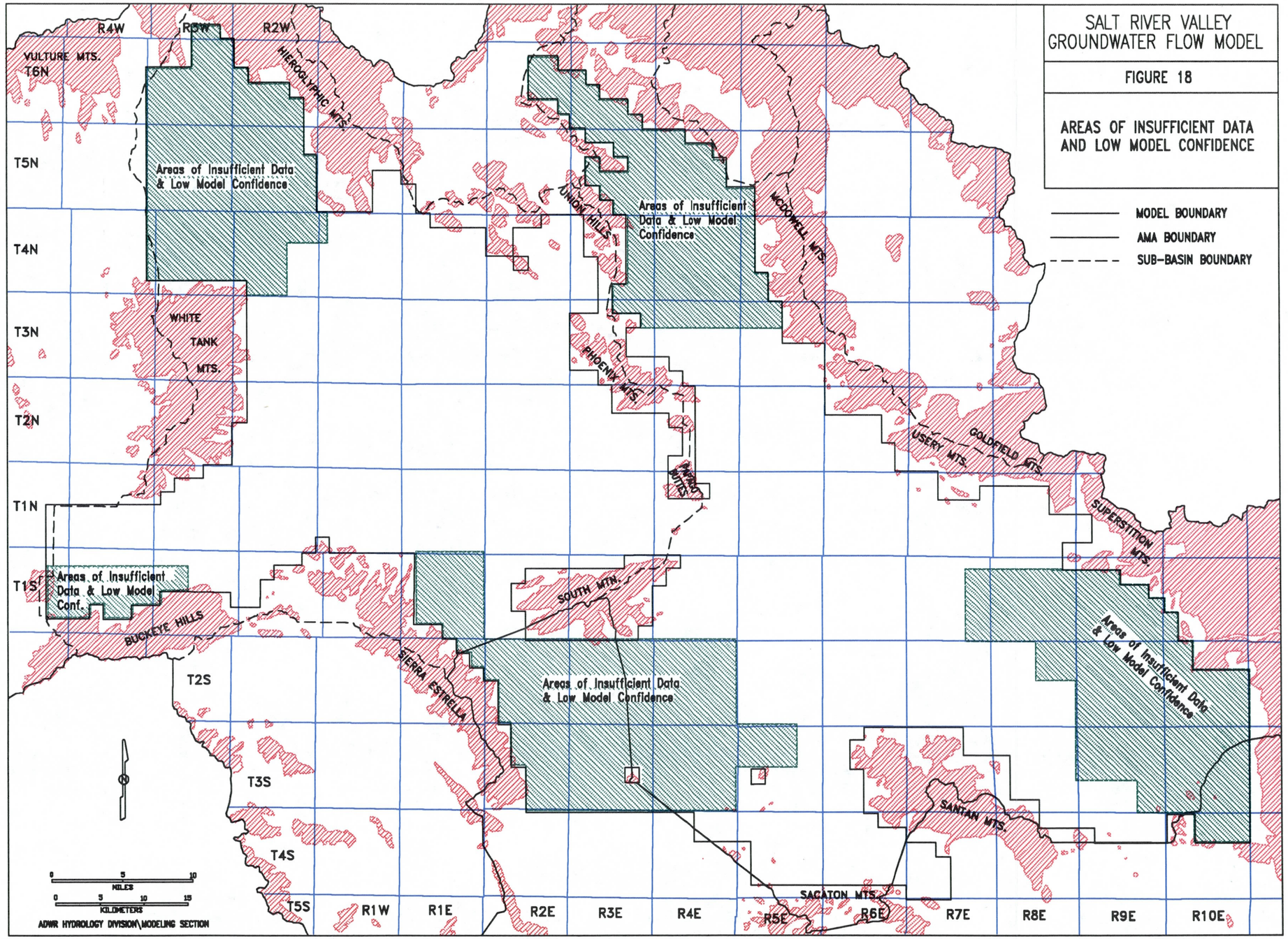
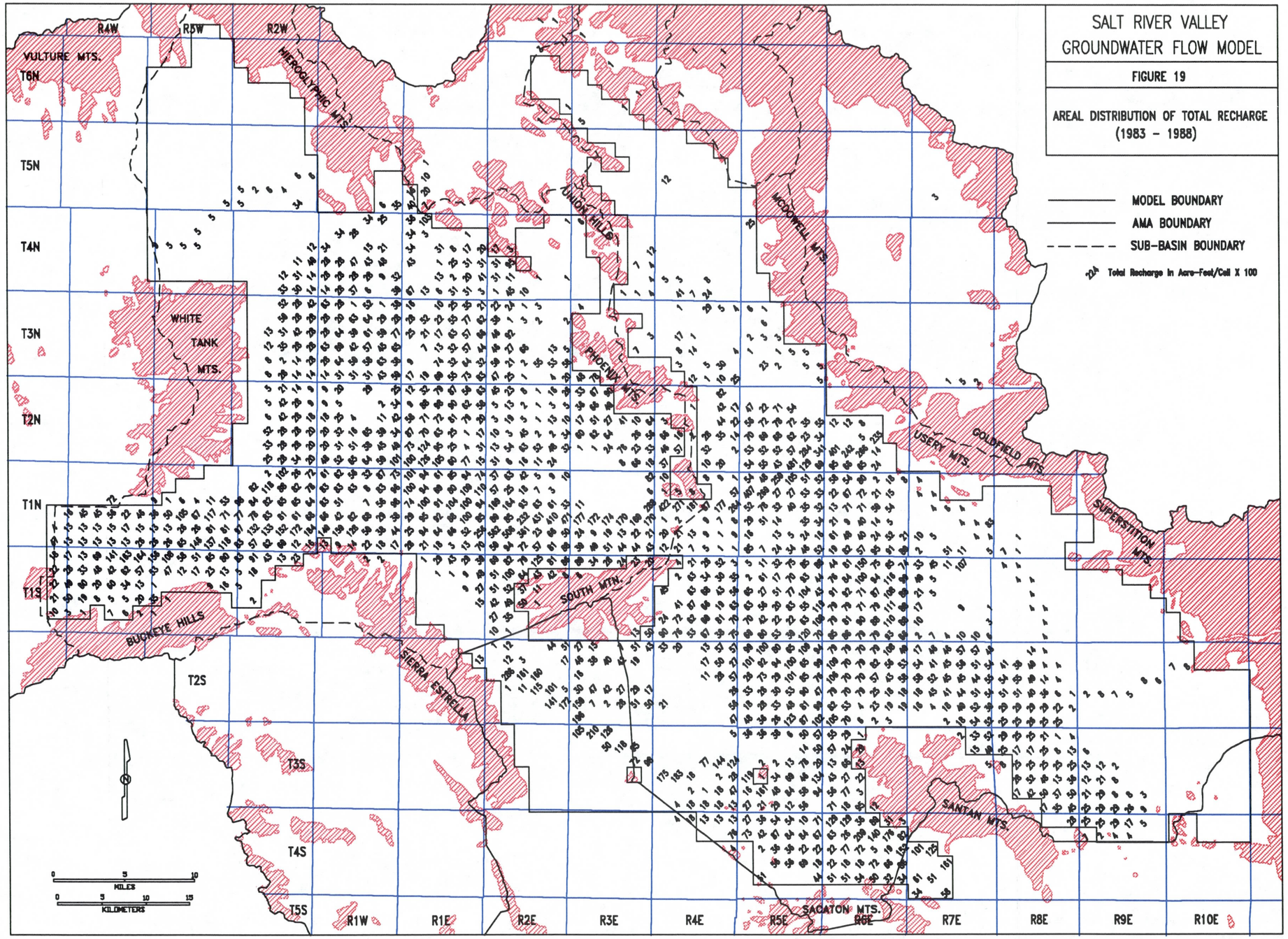
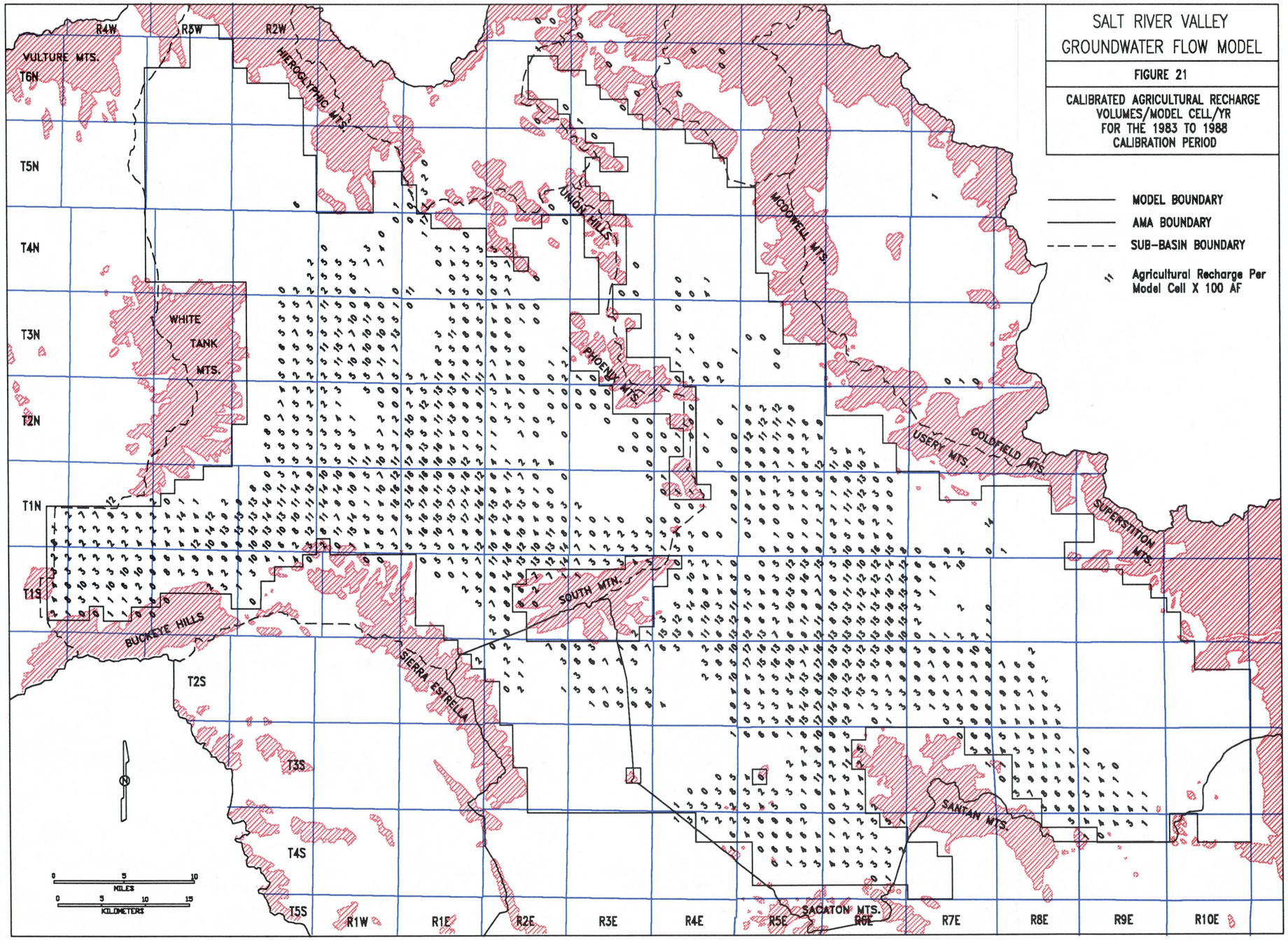
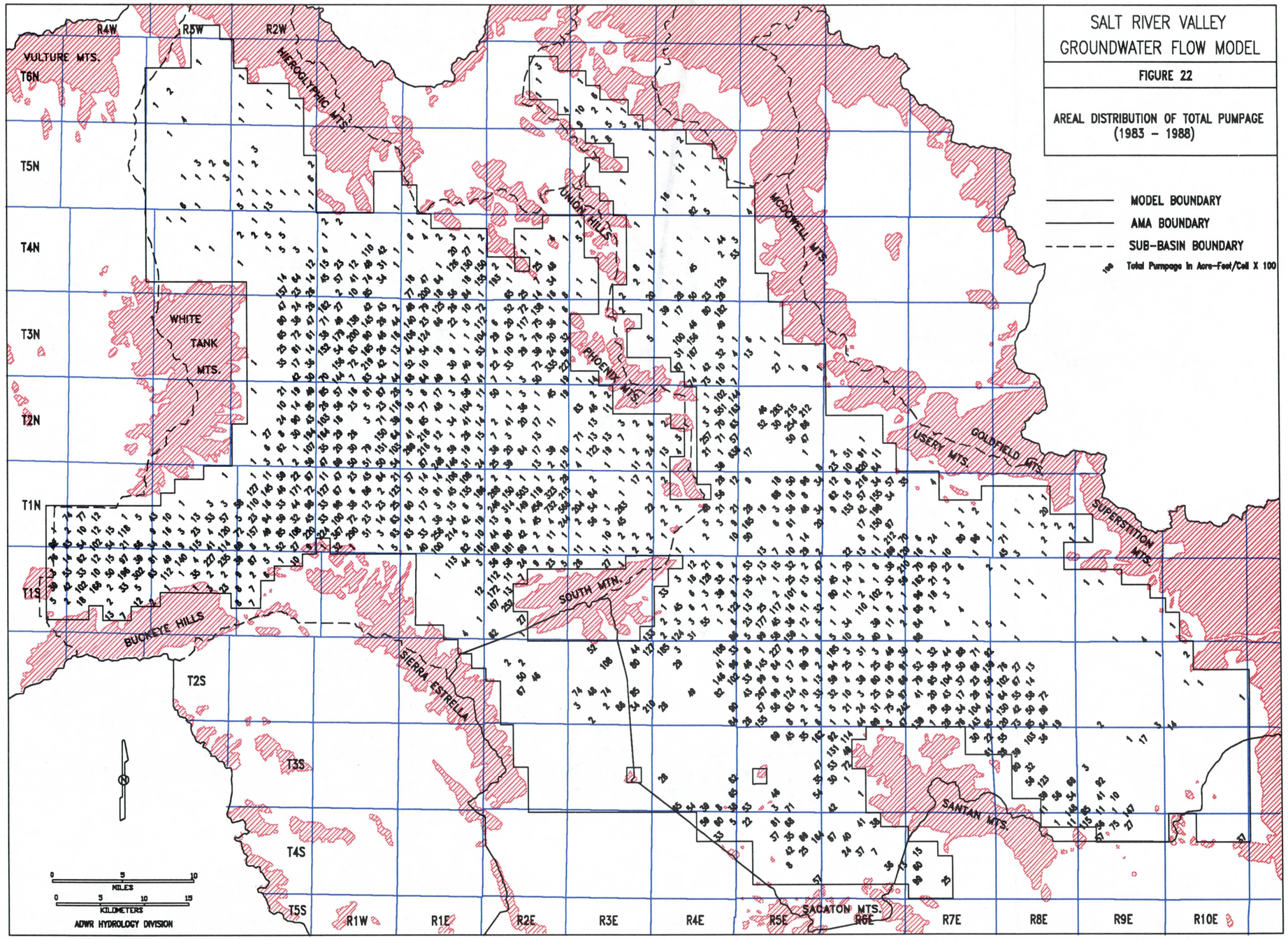
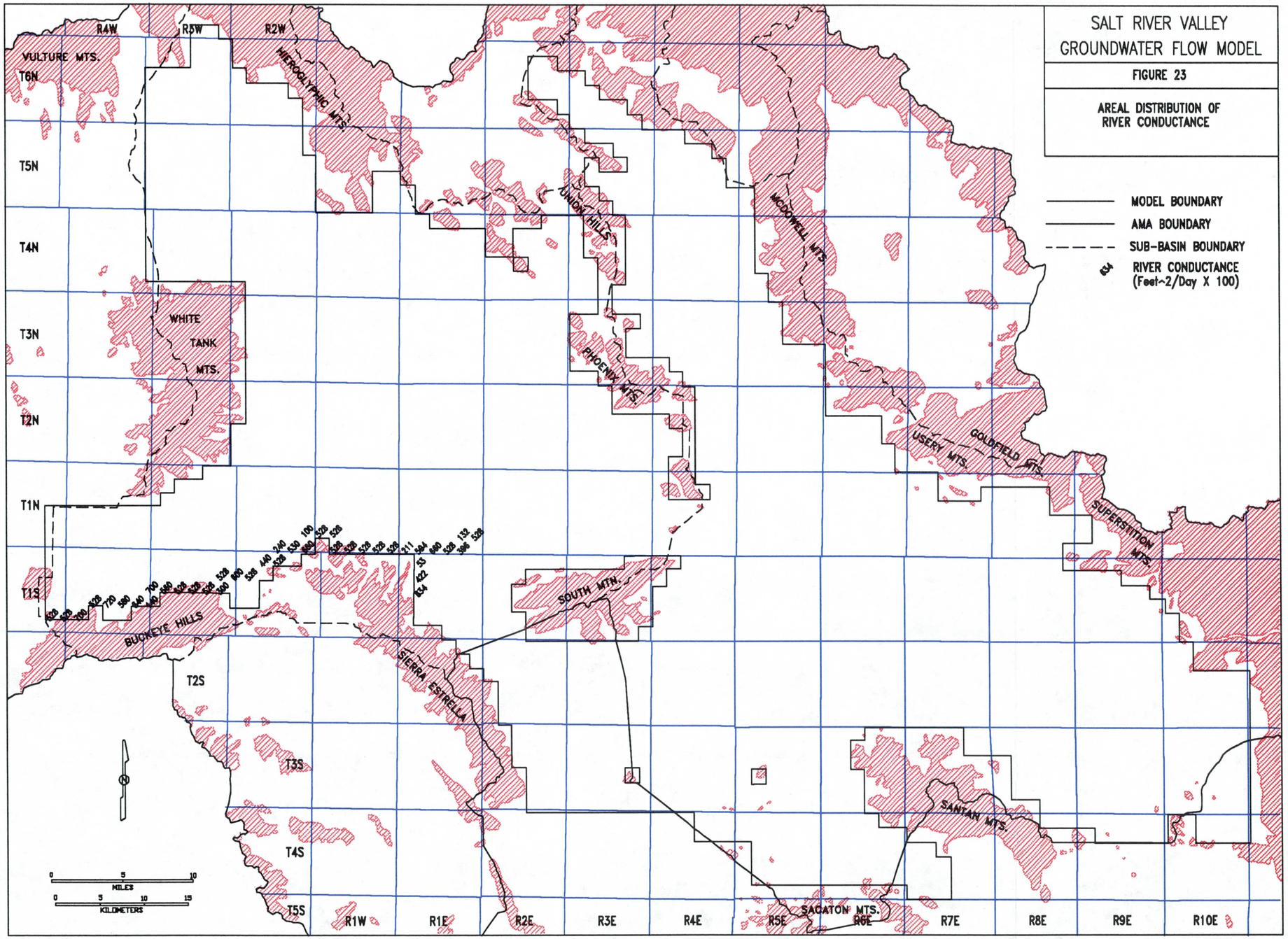
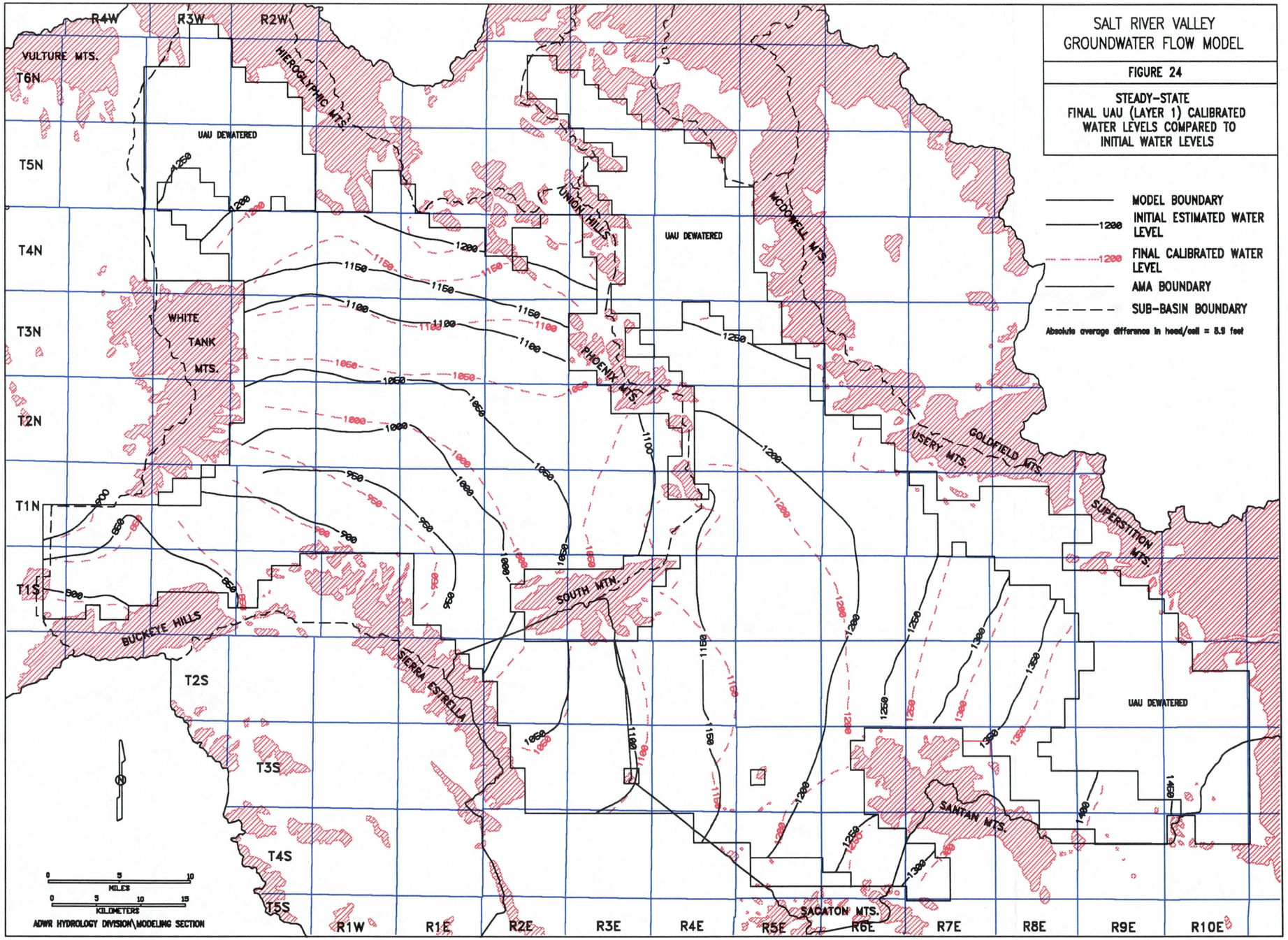

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 18
AREAS OF INSUFFICIENT DATA
AND LOW MODEL CONFIDENCE
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
HIEROGLYPHIC MTS.
Areas of Insufficient Data & Low Model Confidence
WHITE TANK MTS.
UNION HILLS
PHOENIX MTS.
WHITE MTS.
MCDOWELL MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
Areas of Insufficient Data & Low Model Conf.
BUCKEYE HILLS
SOUTH MTN.
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION

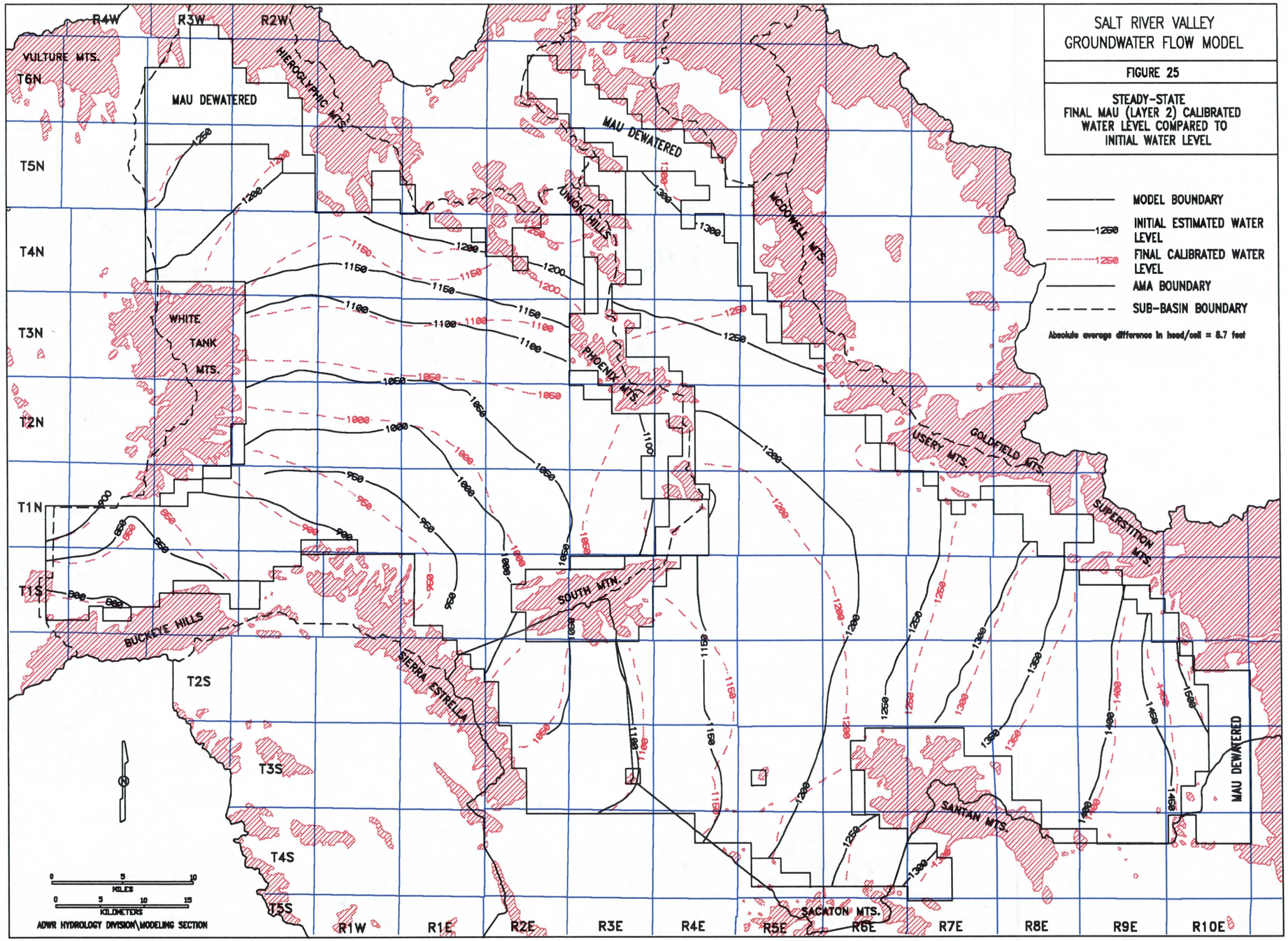

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 19
AREAL DISTRIBUTION OF TOTAL RECHARGE
(1983 - 1988)
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
Total Recharge in Acre-Feet/Cell X 100
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
MEROLYTHIC MTS.
WHITE TANK MTS.
UNION HILLS
PHOENIX MTS.
McDOWELL MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS

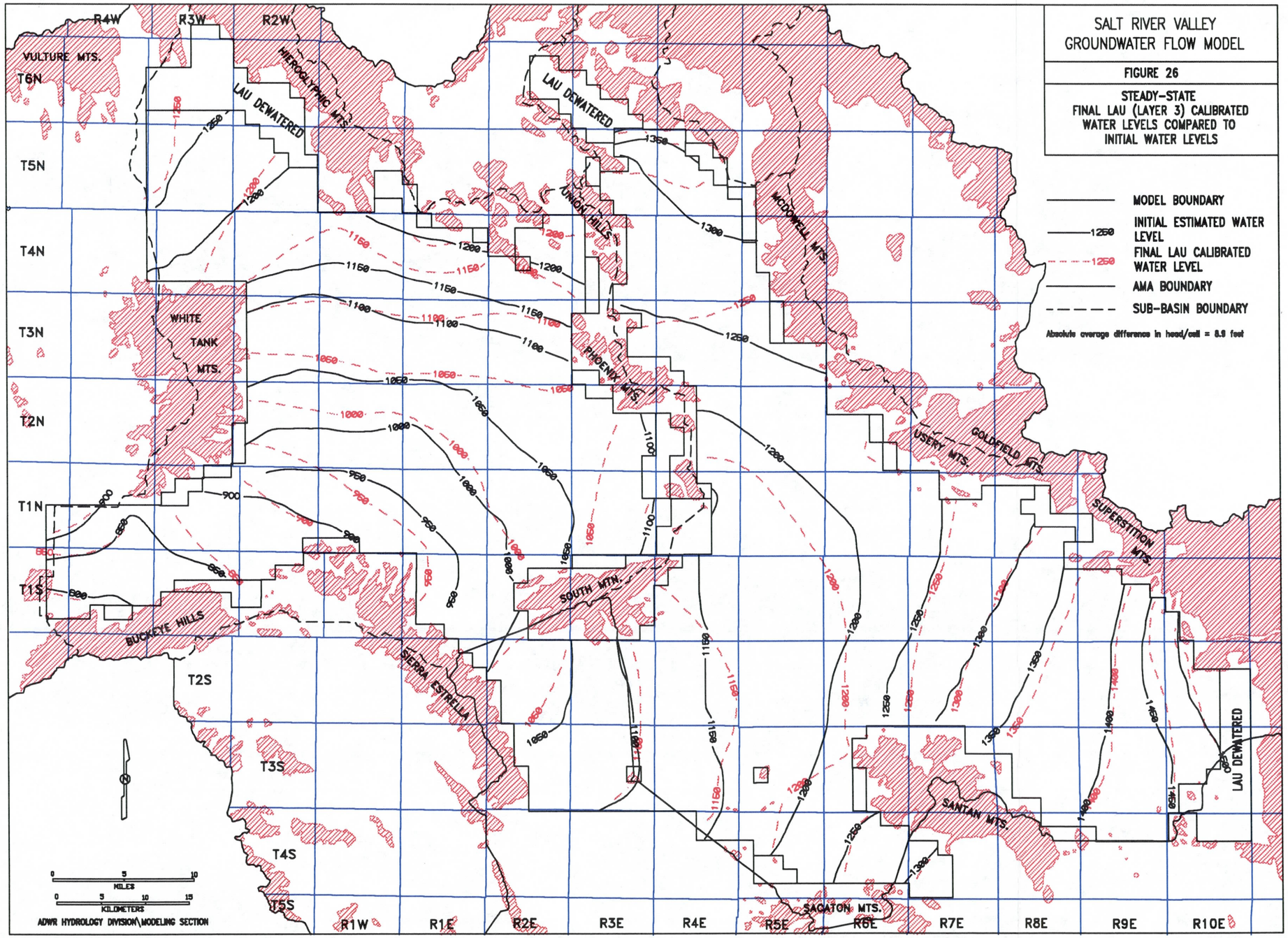

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 21
CALIBRATED AGRICULTURAL RECHARGE VOLUMES/MODEL CELL/YR FOR THE 1983 TO 1988 CALIBRATION PERIOD
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
Agricultural Recharge Per Model Cell X 100 AF
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
MILES
KILOMETERS

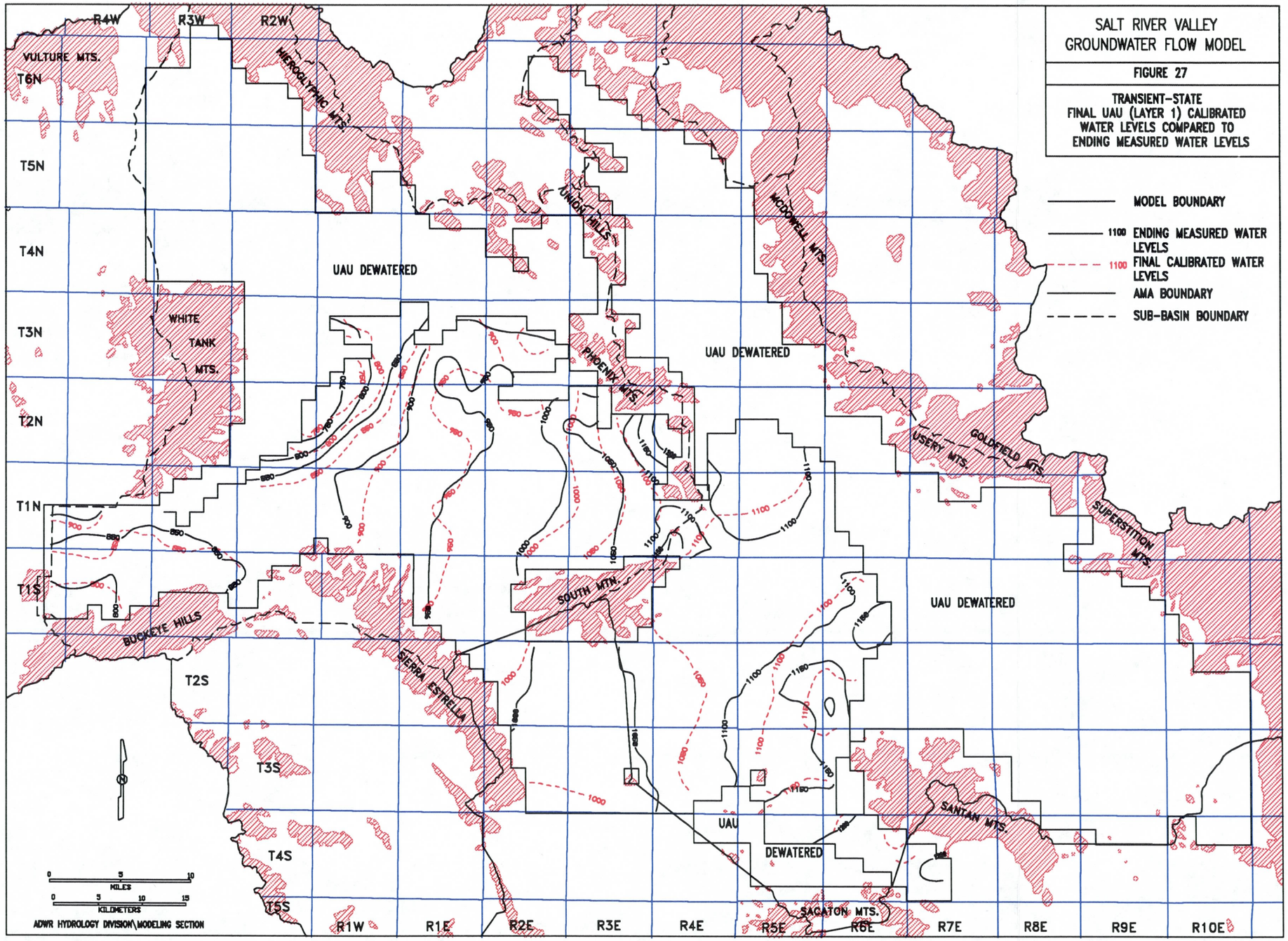

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 22
AREAL DISTRIBUTION OF TOTAL PUMPAGE
(1983 - 1988)
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
Total Pumpage In Acre-Feet/Cell X 100
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
WHITE TANK MTS.
HIEROGLYPHIC MTS.
UNION HILLS
PHOENIX MTS.
McDOWELL MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION

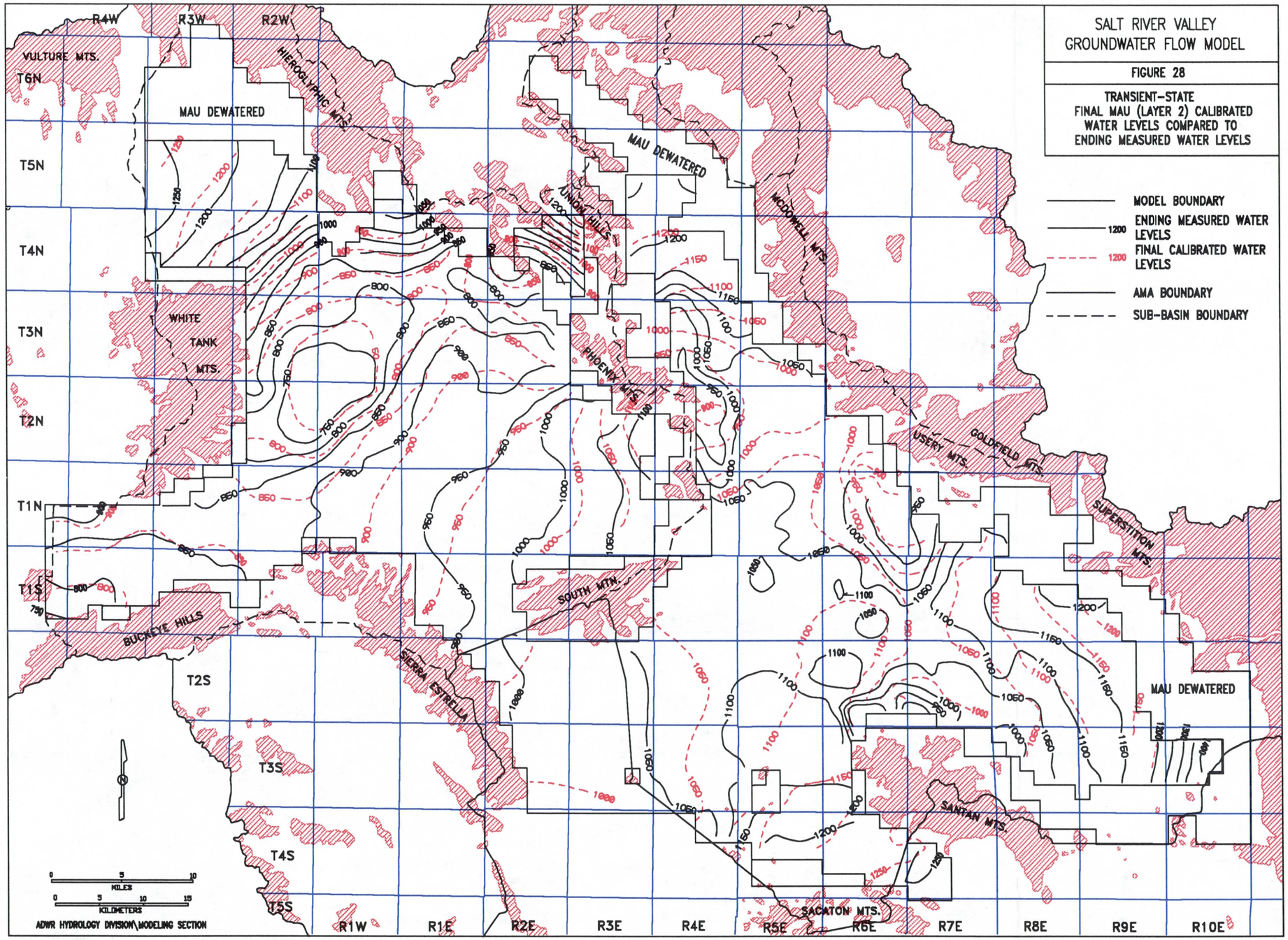

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 23
AREAL DISTRIBUTION OF
RIVER CONDUCTANCE
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
RIVER CONDUCTANCE
(Feet^2/Day X 100)
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS

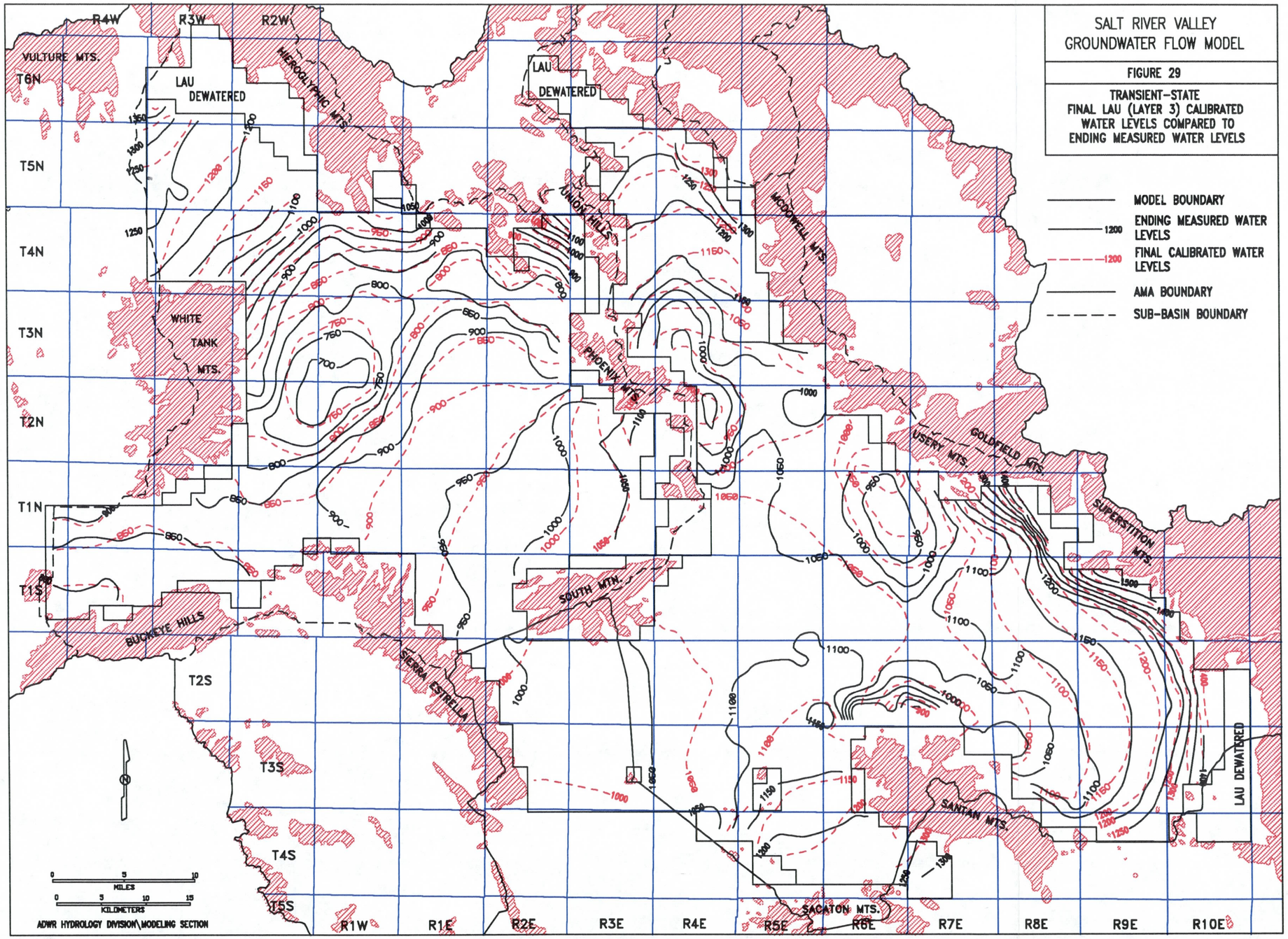

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 24
STEADY-STATE
FINAL UAU (LAYER 1) CALIBRATED
WATER LEVELS COMPARED TO
INITIAL WATER LEVELS
MODEL BOUNDARY
1200 INITIAL ESTIMATED WATER LEVEL
1200 FINAL CALIBRATED WATER LEVEL
AMA BOUNDARY
SUB-BASIN BOUNDARY
Absolute average difference in head/cell = 8.9 feet
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
HIEROGLYPHIC MTS.
UAU DEWATERED
WHITE TANK MTS.
UNION HILLS
PHOENIX MTS.
MCDOWELL MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION

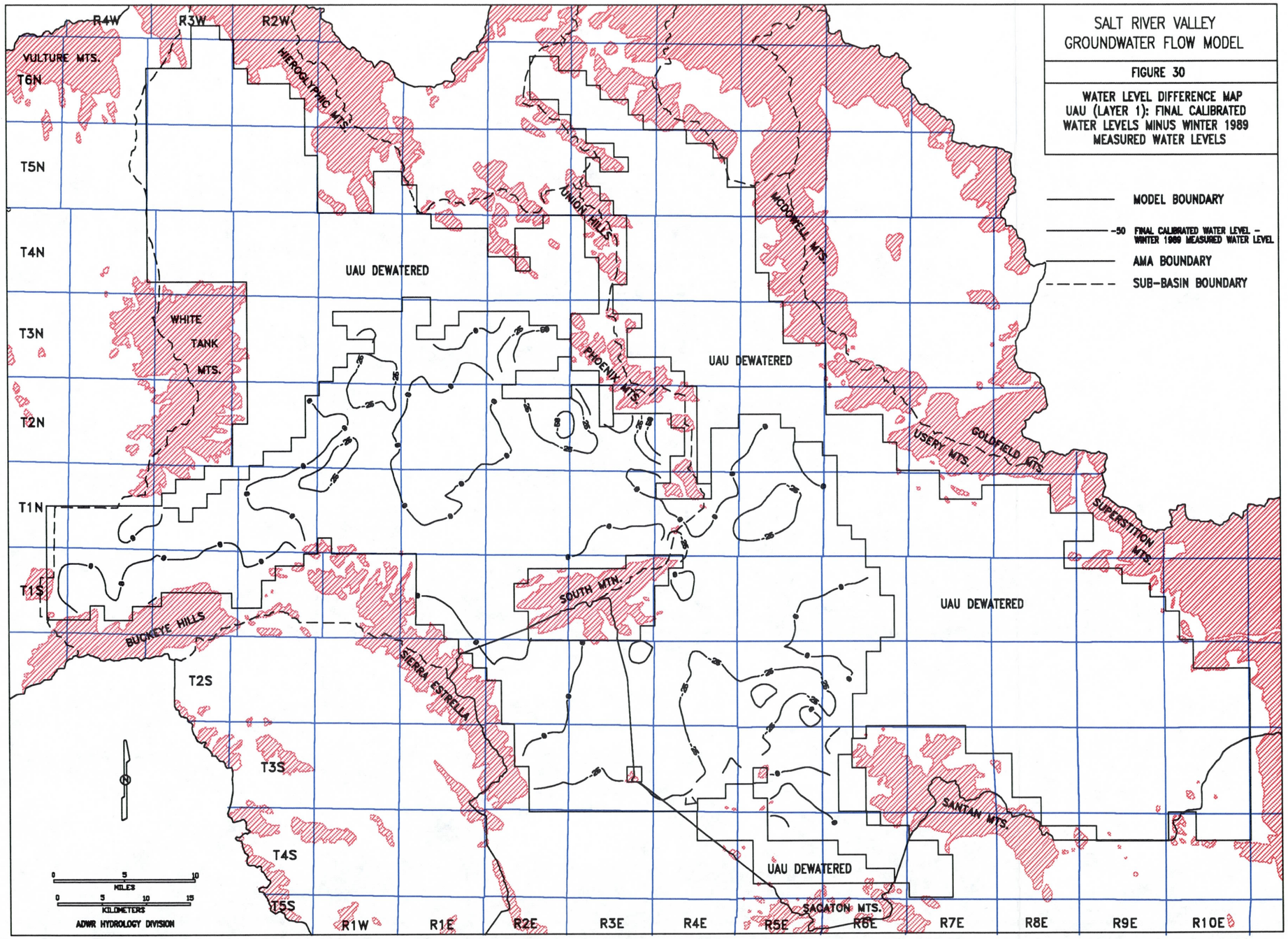

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 25
STEADY-STATE
FINAL MAU (LAYER 2) CALIBRATED
WATER LEVEL COMPARED TO
INITIAL WATER LEVEL
MODEL BOUNDARY
1250 INITIAL ESTIMATED WATER LEVEL
1250 FINAL CALIBRATED WATER LEVEL
AMA BOUNDARY
SUB-BASIN BOUNDARY
Absolute average difference in head/cell = 8.7 feet
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
MAU DEWATERED
HIEROGLYPHIC MTS.
WHITE TANK MTS.
UNION HILLS
PHOENIX MTS.
MCDOWELL MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION

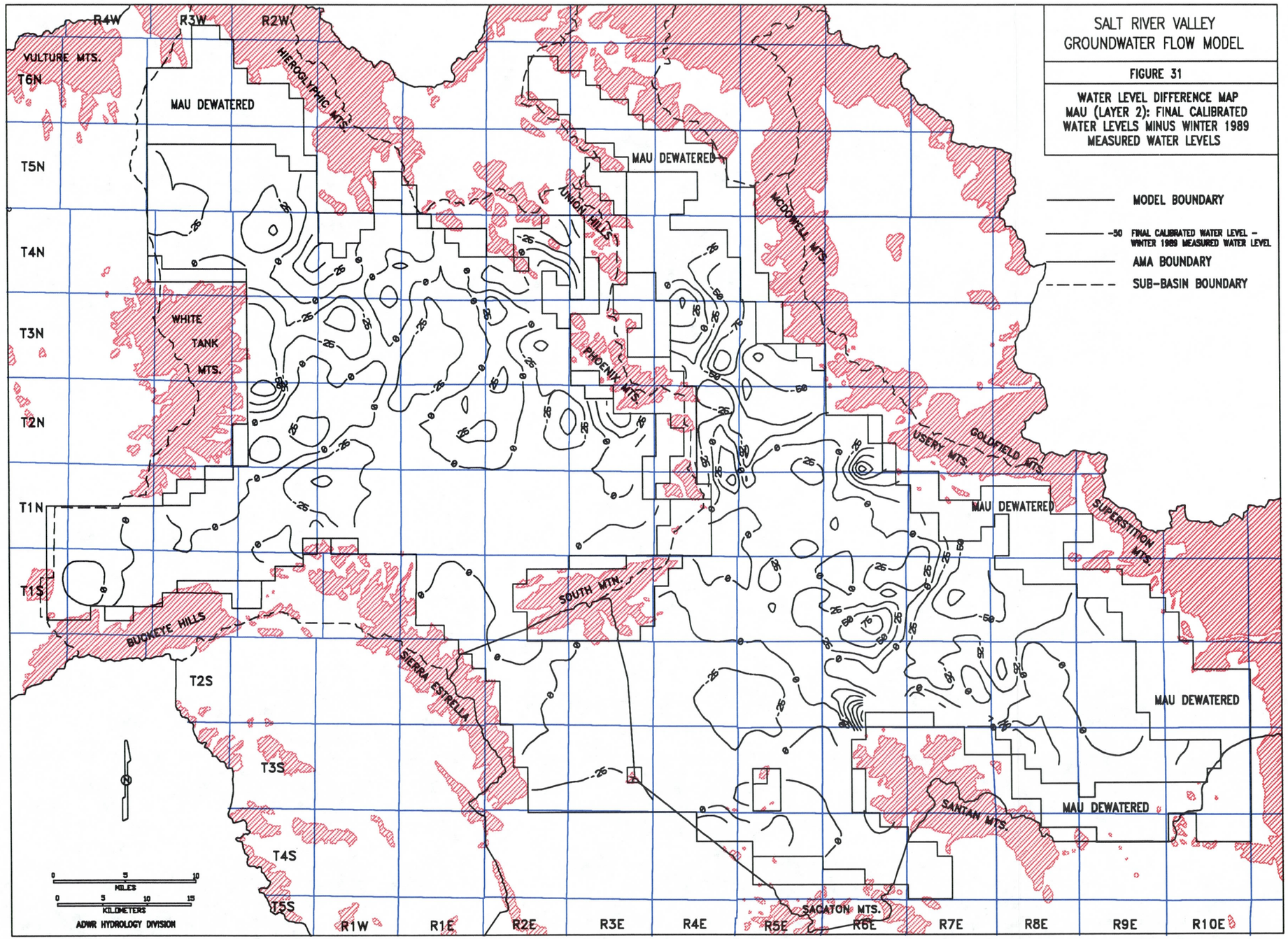

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 26
STEADY-STATE
FINAL LAU (LAYER 3) CALIBRATED
WATER LEVELS COMPARED TO
INITIAL WATER LEVELS
MODEL BOUNDARY
INITIAL ESTIMATED WATER LEVEL
FINAL LAU CALIBRATED WATER LEVEL
AMA BOUNDARY
SUB-BASIN BOUNDARY
Absolute average difference in head/cell = 8.9 feet
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
HIEROGLYPHIC MTS.
LAU DEWATERED
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION

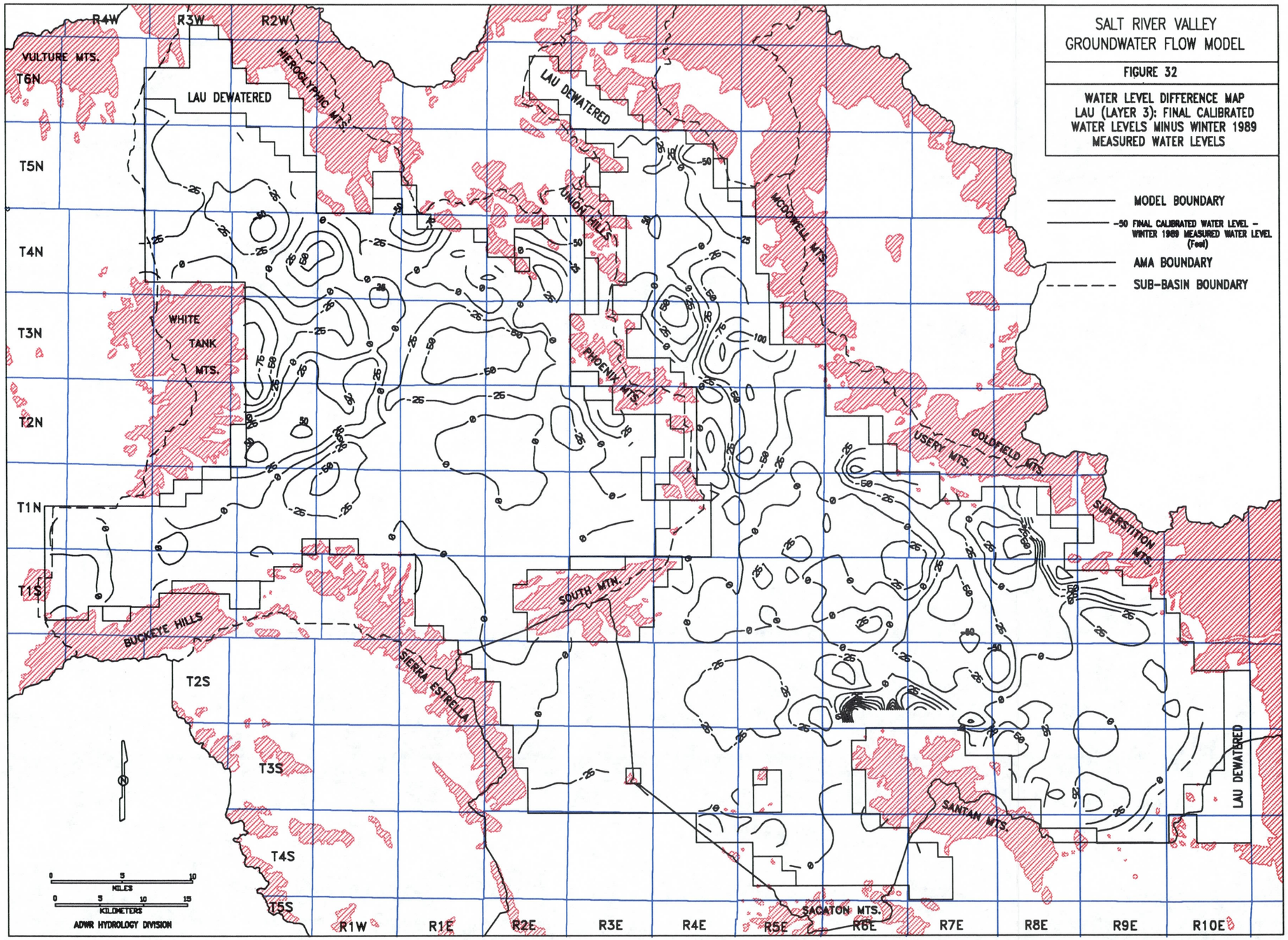

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 27
TRANSIENT-STATE
FINAL UAU (LAYER 1) CALIBRATED
WATER LEVELS COMPARED TO
ENDING MEASURED WATER LEVELS
MODEL BOUNDARY
1100 ENDING MEASURED WATER LEVELS
1100 FINAL CALIBRATED WATER LEVELS
AMA BOUNDARY
SUB-BASIN BOUNDARY
R4W
R3W
R2W
VULTURE MTS.
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
MEROLITHIC MTS.
UNION HILLS
McDOWELL MTS.
UAU DEWATERED
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
UAU DEWATERED
SACATON MTS.
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION

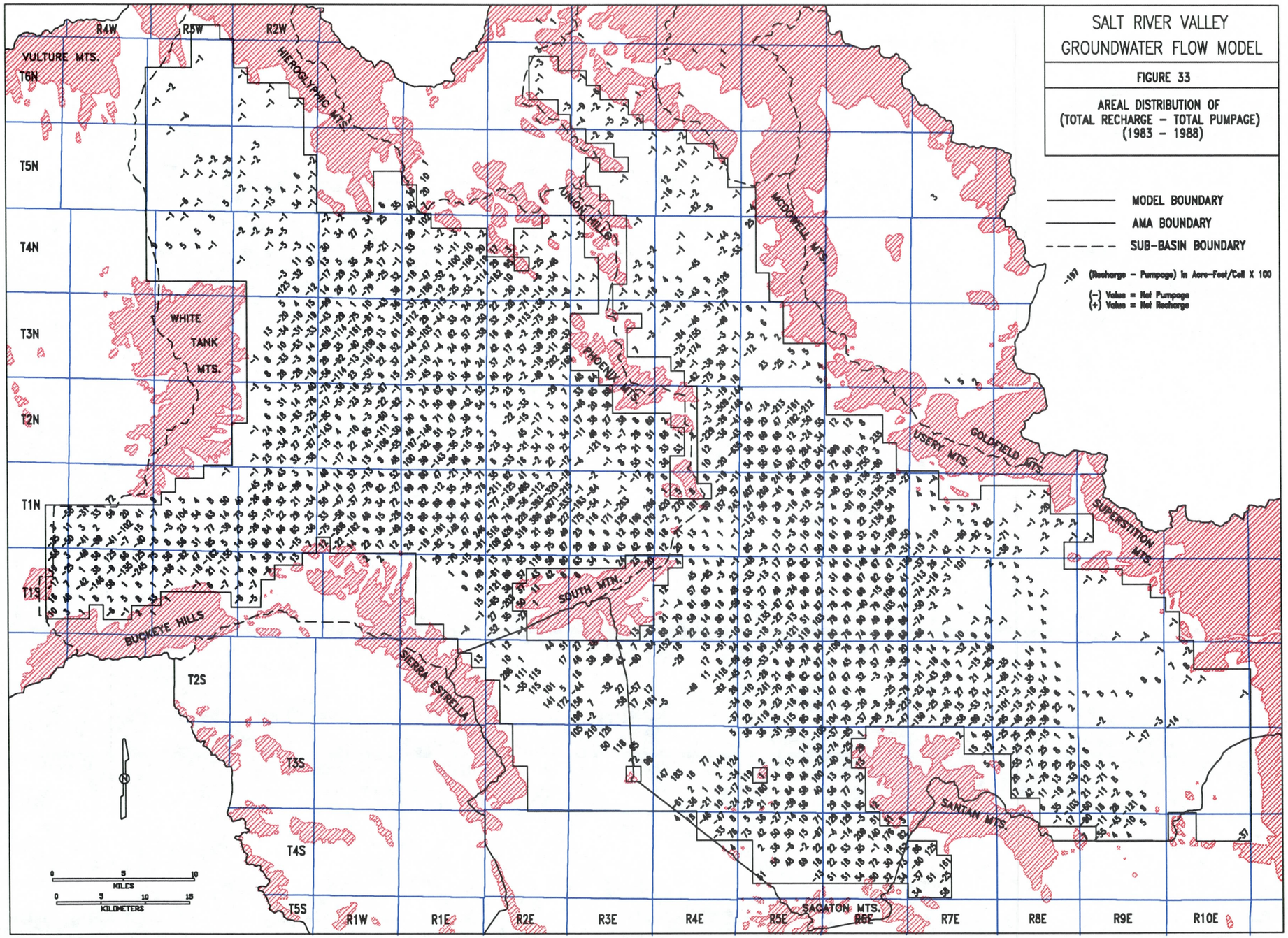

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 28
TRANSIENT-STATE
FINAL MAU (LAYER 2) CALIBRATED
WATER LEVELS COMPARED TO
ENDING MEASURED WATER LEVELS
MODEL BOUNDARY
1200 ENDING MEASURED WATER LEVELS
1200 FINAL CALIBRATED WATER LEVELS
AMA BOUNDARY
SUB-BASIN BOUNDARY
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
HIEROGLYPHIC MTS.
MAU DEWATERED
WHITE TANK MTS.
UNION HILLS
PHOENIX MTS.
MCDOWELL MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 29
TRANSIENT-STATE
FINAL LAU (LAYER 3) CALIBRATED
WATER LEVELS COMPARED TO
ENDING MEASURED WATER LEVELS
MODEL BOUNDARY
ENDING MEASURED WATER LEVELS
FINAL CALIBRATED WATER LEVELS
AMA BOUNDARY
SUB-BASIN BOUNDARY
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
LAU DEWATERED
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION\MODELING SECTION

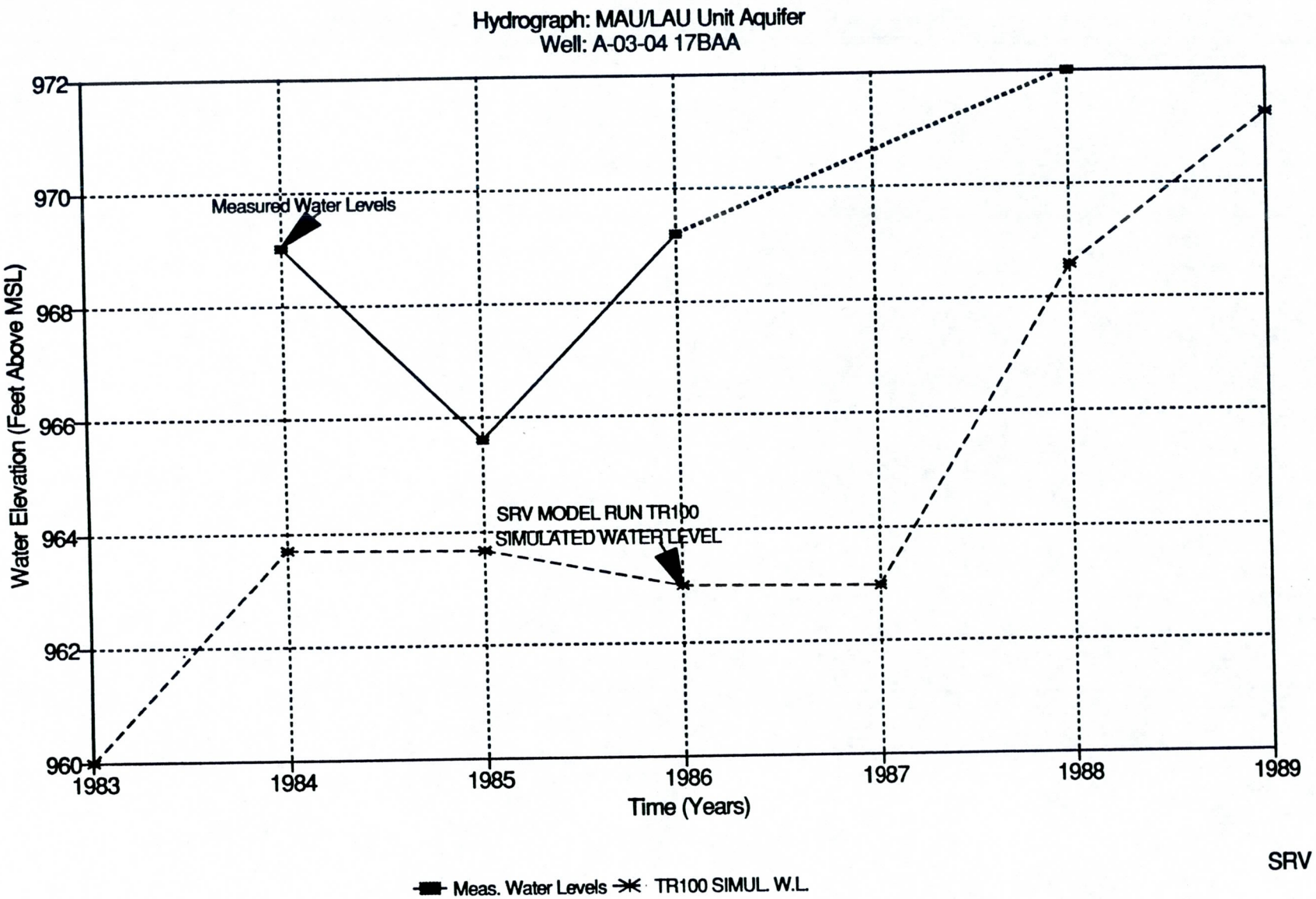

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 30
WATER LEVEL DIFFERENCE MAP
UAU (LAYER 1): FINAL CALIBRATED
WATER LEVELS MINUS WINTER 1989
MEASURED WATER LEVELS
MODEL BOUNDARY
-50 FINAL CALIBRATED WATER LEVEL - WINTER 1989 MEASURED WATER LEVEL
AMA BOUNDARY
SUB-BASIN BOUNDARY
R4W
R3W
R2W
VULTURE MTS.
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
UAU DEWATERED
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION


SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 31
WATER LEVEL DIFFERENCE MAP
MAU (LAYER 2): FINAL CALIBRATED
WATER LEVELS MINUS WINTER 1989
MEASURED WATER LEVELS
MODEL BOUNDARY
-50 FINAL CALIBRATED WATER LEVEL - WINTER 1989 MEASURED WATER LEVEL
AMA BOUNDARY
SUB-BASIN BOUNDARY
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
HIEROGLYPHIC MTS.
MAU DEWATERED
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION

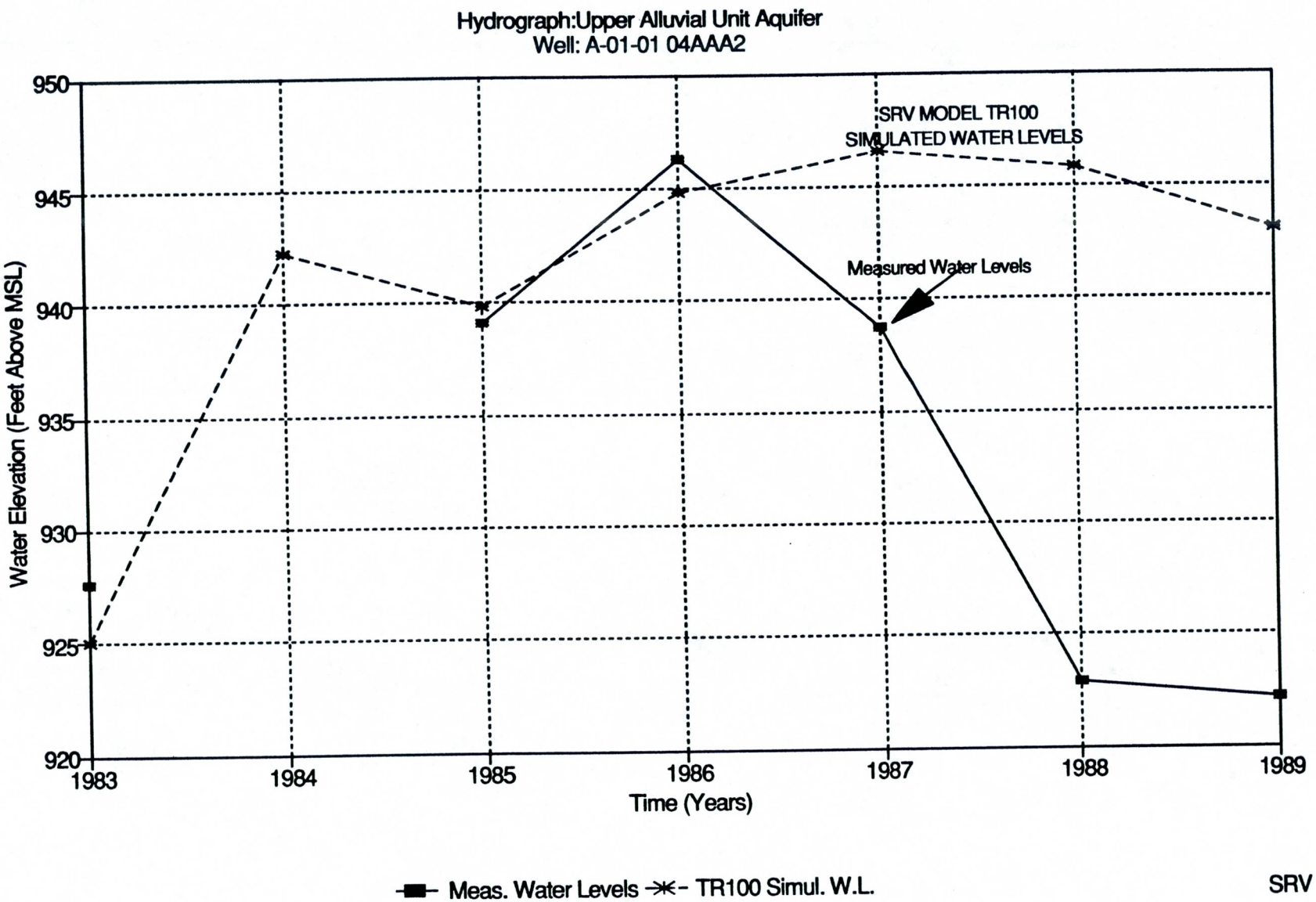

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 32
WATER LEVEL DIFFERENCE MAP
LAU (LAYER 3): FINAL CALIBRATED
WATER LEVELS MINUS WINTER 1989
MEASURED WATER LEVELS
MODEL BOUNDARY
-50 FINAL CALIBRATED WATER LEVEL - WINTER 1989 MEASURED WATER LEVEL (Feet)
AMA BOUNDARY
SUB-BASIN BOUNDARY
R4W
R3W
R2W
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
VULTURE MTS.
LAU DEWATERED
HIEROGLYPHIC MTS.
UNION HILLS
MCDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
BUCKEYE HILLS
SOUTH MTN.
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
MILES
KILOMETERS
ADWR HYDROLOGY DIVISION

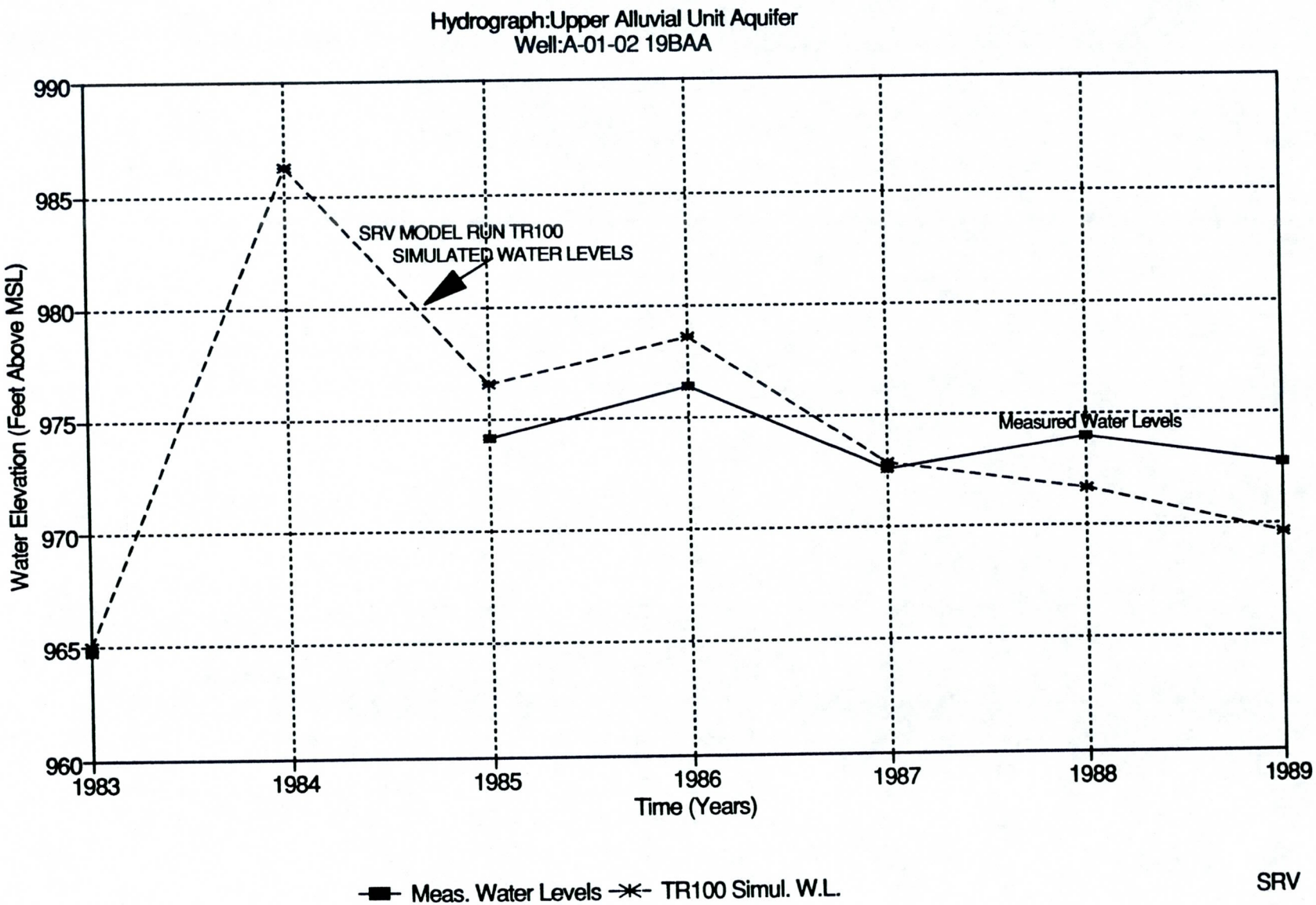

SALT RIVER VALLEY
GROUNDWATER FLOW MODEL
FIGURE 33
AREAL DISTRIBUTION OF
(TOTAL RECHARGE - TOTAL PUMPAGE)
(1983 - 1988)
MODEL BOUNDARY
AMA BOUNDARY
SUB-BASIN BOUNDARY
-197 (Recharge - Pumpage) in Acre-Feet/Cell X 100
(-) Value = Net Pumpage
(+) Value = Net Recharge
R4W
R5W
R2W
VULTURE MTS.
HIEROGLYPHIC MTS.
UNION HILLS
McDOWELL MTS.
WHITE TANK MTS.
PHOENIX MTS.
USERY MTS.
GOLDFIELD MTS.
SUPERSTITION MTS.
SOUTH MTN.
BUCKEYE HILLS
SIERRA ESTRELLA
SANTAN MTS.
SACATON MTS.
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
R1W
R1E
R2E
R3E
R4E
R5E
R6E
R7E
R8E
R9E
R10E
N
0 5 10
MILES
0 5 10 15
KILOMETERS

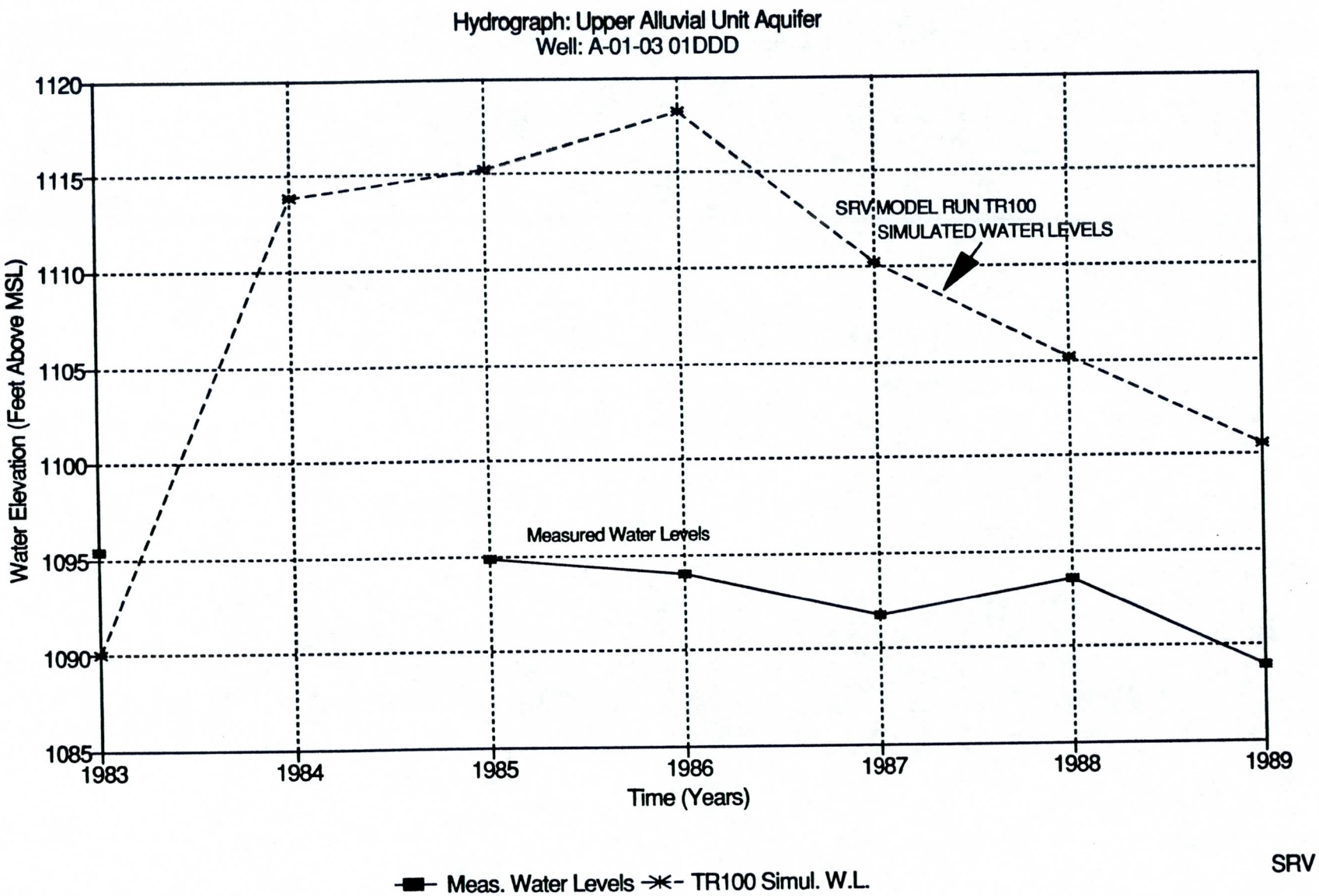
APPENDIX II HYDROGRAPHS


Hydrograph: MAU/LAU Unit Aquifer
Well: A-03-04 17BAA
Water Elevation (Feet Above MSL)
972
970
968
966
964
962
960
1983
1984
1985
1986
1987
1988
1989
Time (Years)
Measured Water Levels
SRV MODEL RUN TR100
SIMULATED WATER LEVEL
Meas. Water Levels
TR100 SIMUL. W.L.

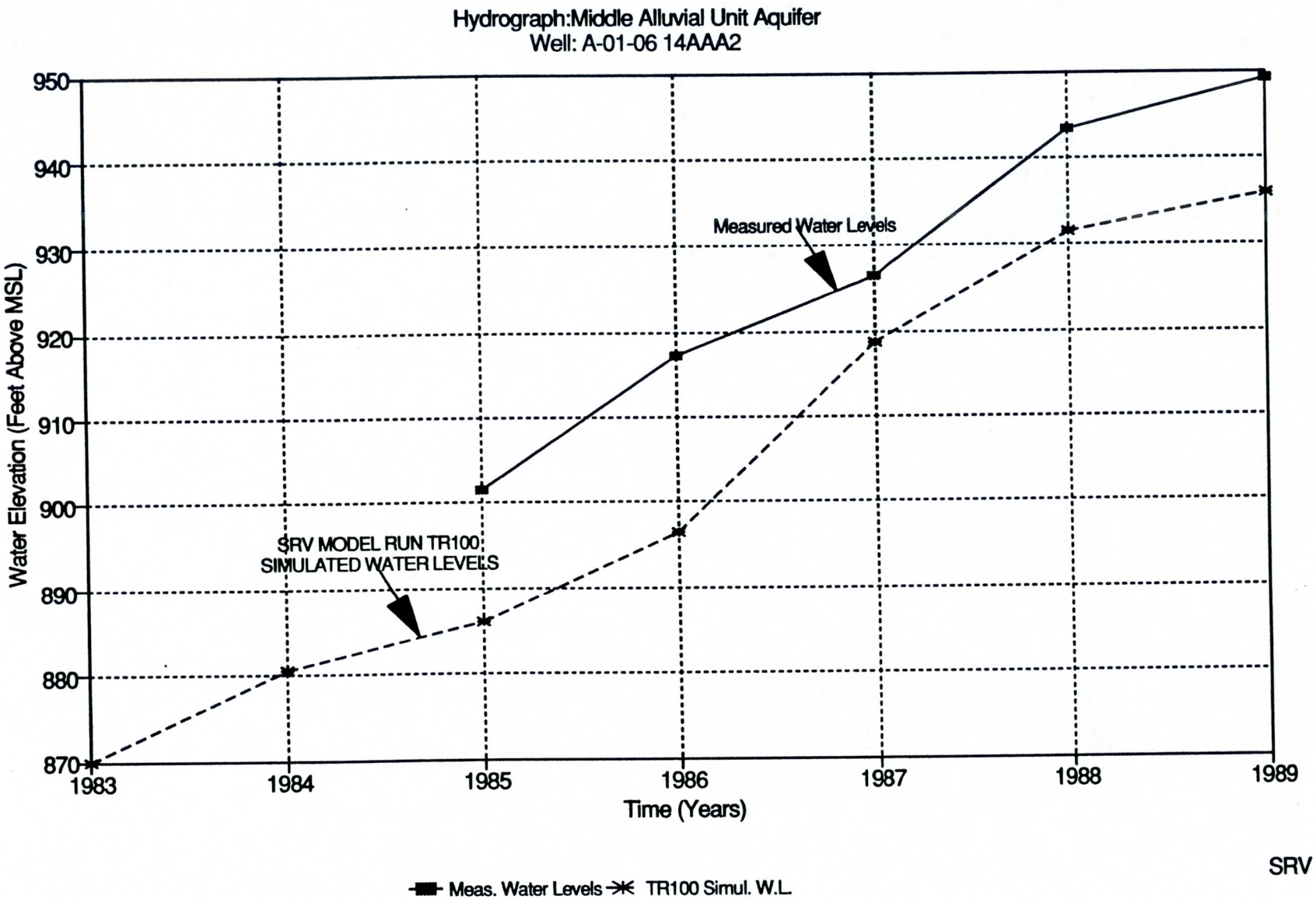
SRV


Hydrograph:Upper Alluvial Unit Aquifer
Well: A-01-01 04AAA2
SRV MODEL TR100
SIMULATED WATER LEVELS
Measured Water Levels
Water Elevation (Feet Above MSL)
950
945
940
935
930
925
920
1983
1984
1985
1986
1987
1988
1989
Time (Years)
Meas. Water Levels
TR100 Simul. W.L.
SRV

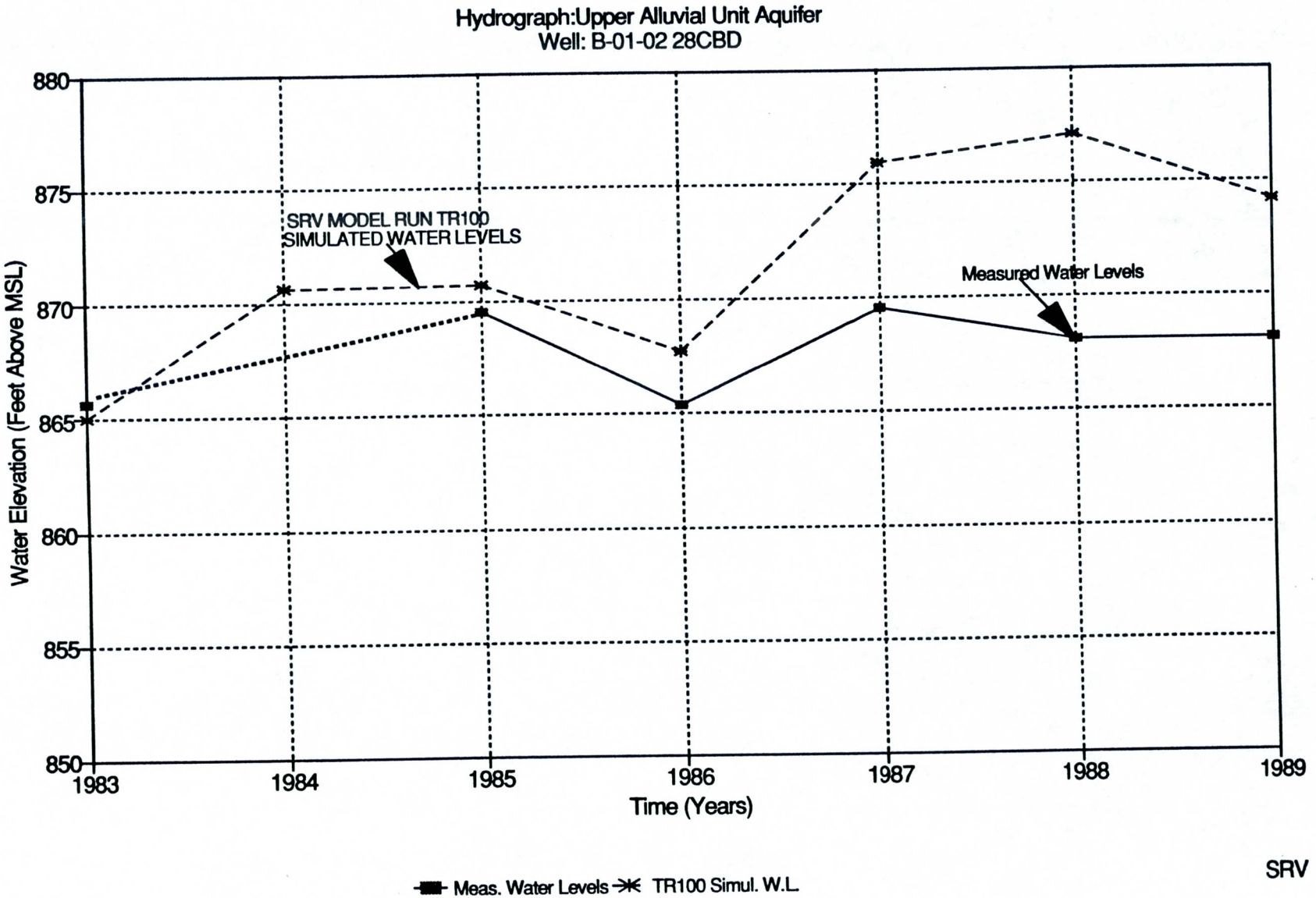

Hydrograph:Upper Alluvial Unit Aquifer
Well:A-01-02 19BAA
990
985
980
975
970
965
960
Water Elevation (Feet Above MSL)
SRV MODEL RUN TR100
SIMULATED WATER LEVELS
Measured Water Levels
1983
1984
1985
1986
1987
1988
1989
Time (Years)
Meas. Water Levels
TR100 Simul. W.L.
SRV


Hydrograph: Upper Alluvial Unit Aquifer
Well: A-01-03 01DDD
Water Elevation (Feet Above MSL)
1120
1115
1110
1105
1100
1095
1090
1085
1983
1984
1985
1986
1987
1988
1989
Time (Years)
SRV MODEL RUN TR100
SIMULATED WATER LEVELS
Measured Water Levels
Meas. Water Levels
TR100 Simul. W.L.

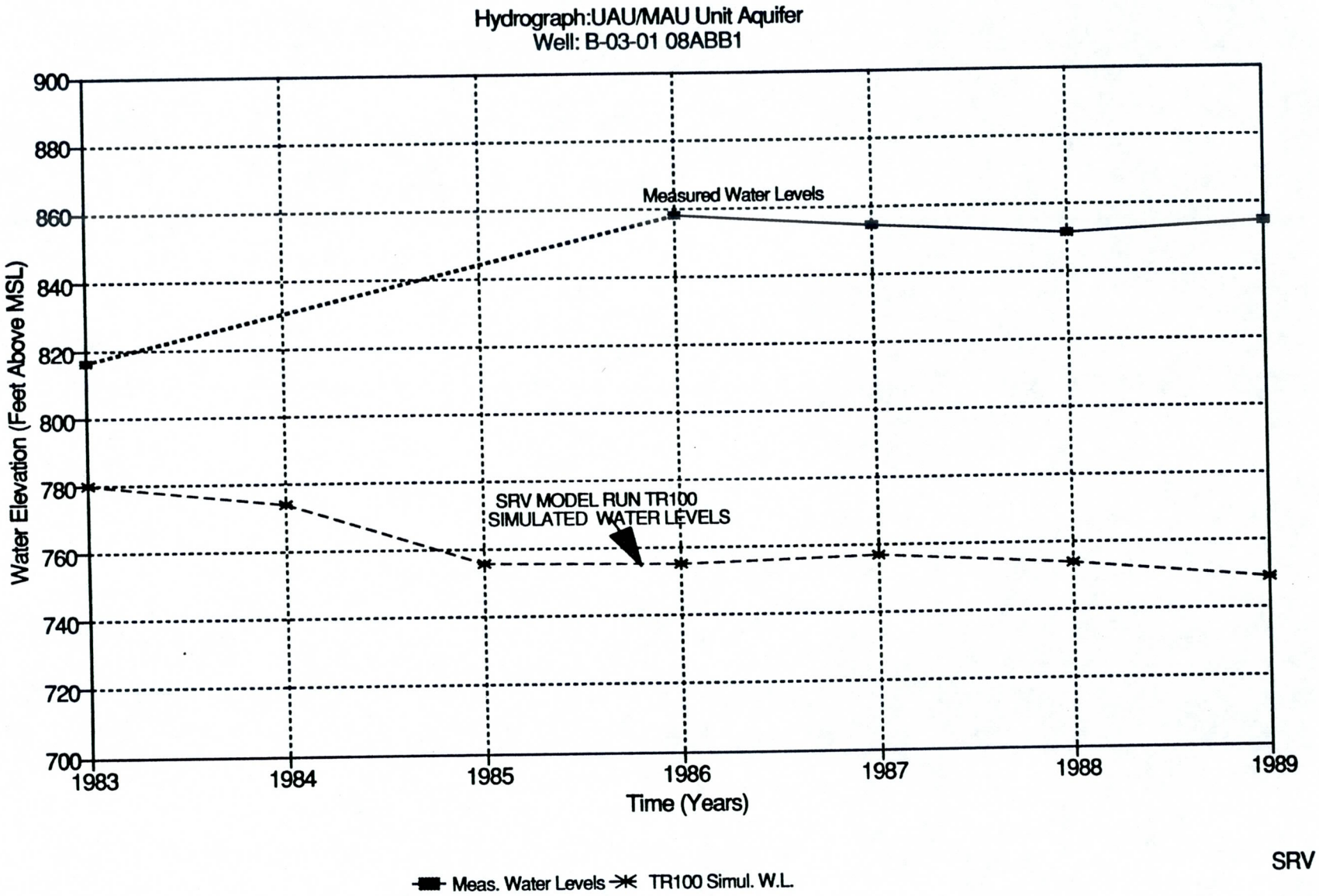
SRV


Hydrograph:Middle Alluvial Unit Aquifer
Well: A-01-06 14AAA2
Water Elevation (Feet Above MSL)
950
940
930
920
910
900
890
880
870
1983
1984
1985
1986
1987
1988
1989
Time (Years)
Measured Water Levels
SRV MODEL RUN TR100
SIMULATED WATER LEVELS
Meas. Water Levels
TR100 Simul. W.L.

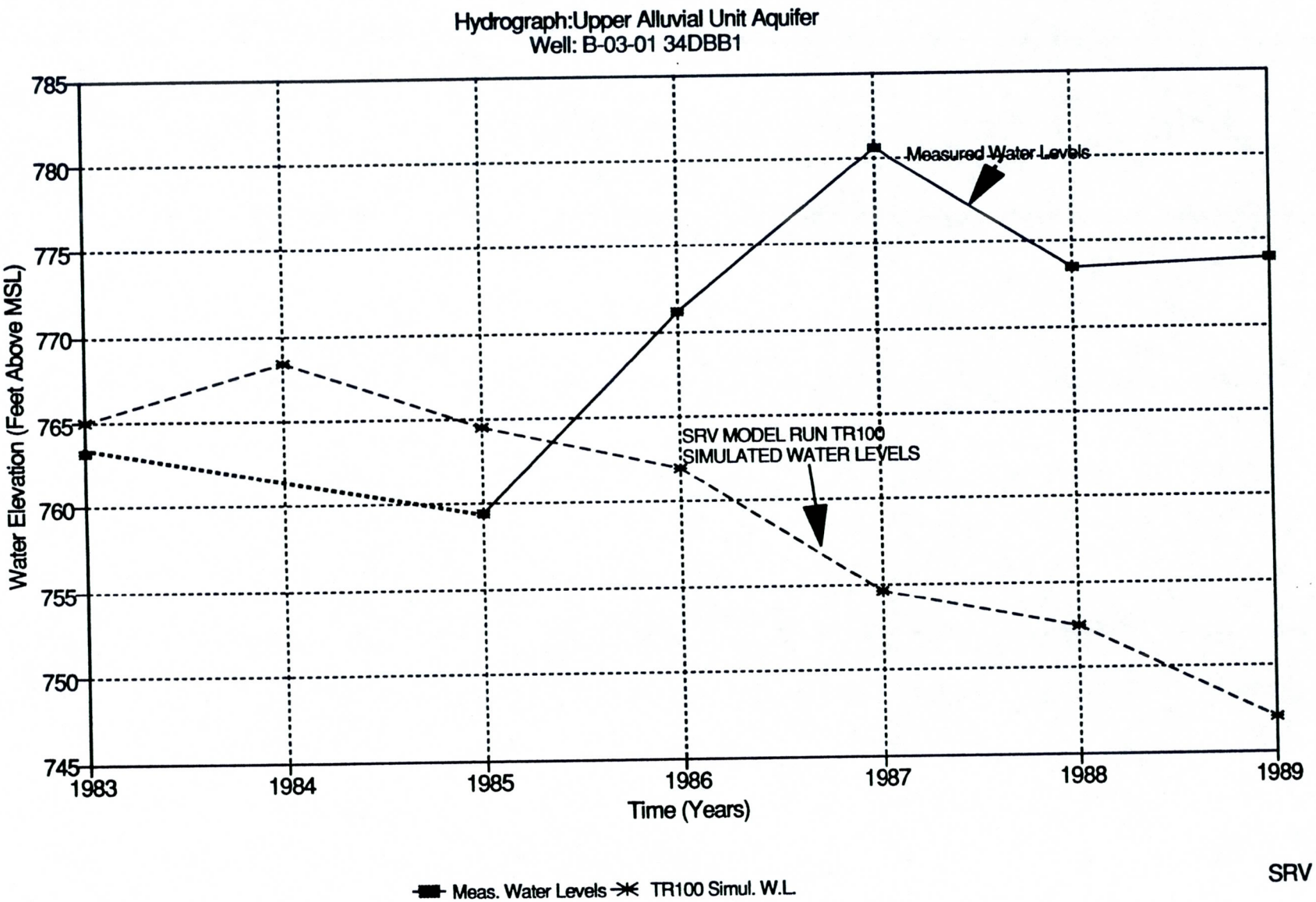
SRV


Hydrograph:Upper Alluvial Unit Aquifer
Well: B-01-02 28CBD
880
875
870
865
860
855
850
Water Elevation (Feet Above MSL)
SRV MODEL RUN TR100
SIMULATED WATER LEVELS
Measured Water Levels
1983
1984
1985
1986
1987
1988
1989
Time (Years)
Meas. Water Levels
TR100 Simul. W.L.

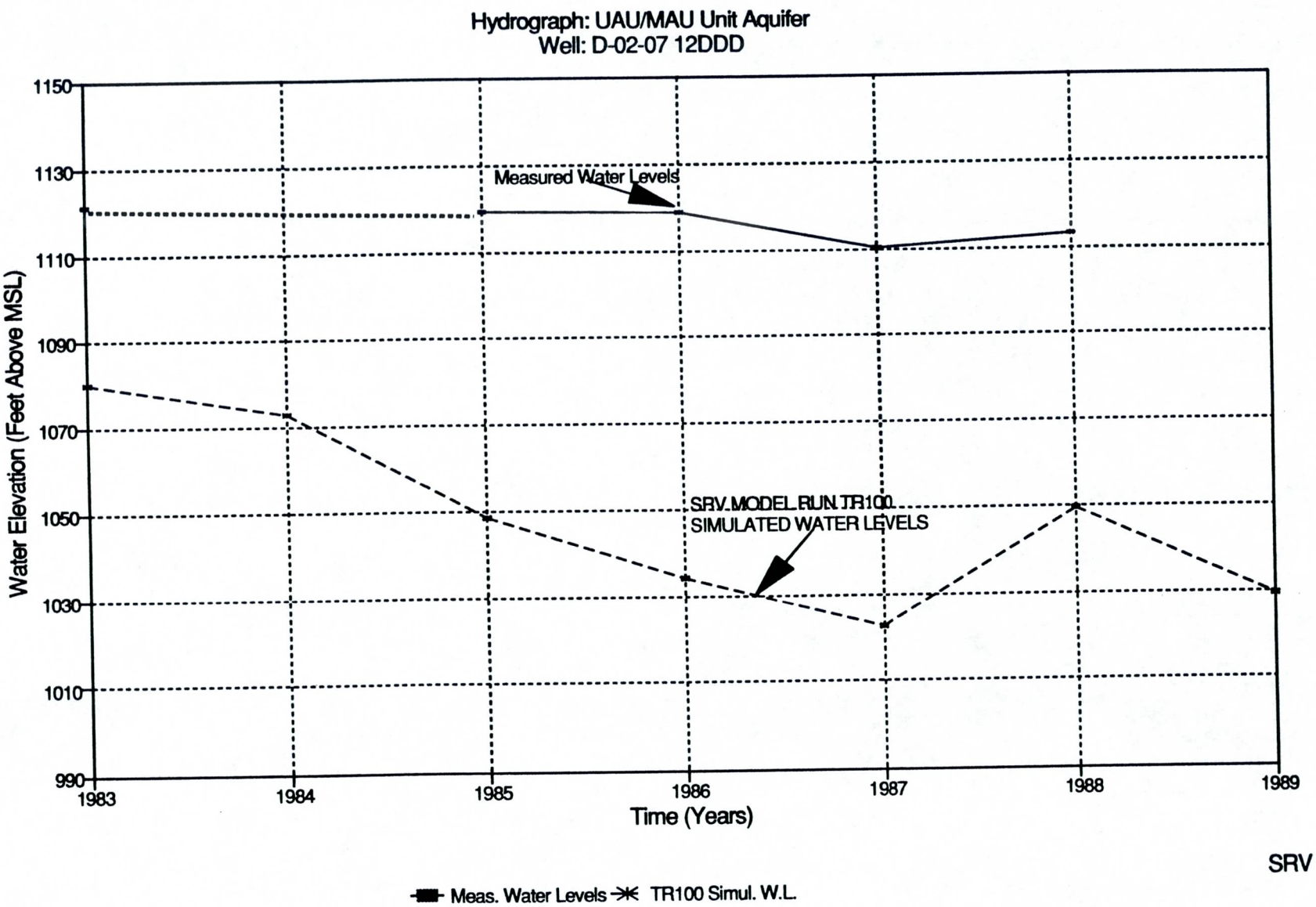
SRV


Hydrograph:UAU/MAU Unit Aquifer
Well: B-03-01 08ABB1
Water Elevation (Feet Above MSL)
900
880
860
840
820
800
780
760
740
720
700
1983
1984
1985
1986
1987
1988
1989
Time (Years)
Measured Water Levels
SRV MODEL RUN TR100
SIMULATED WATER LEVELS
Meas. Water Levels
TR100 Simul. W.L.

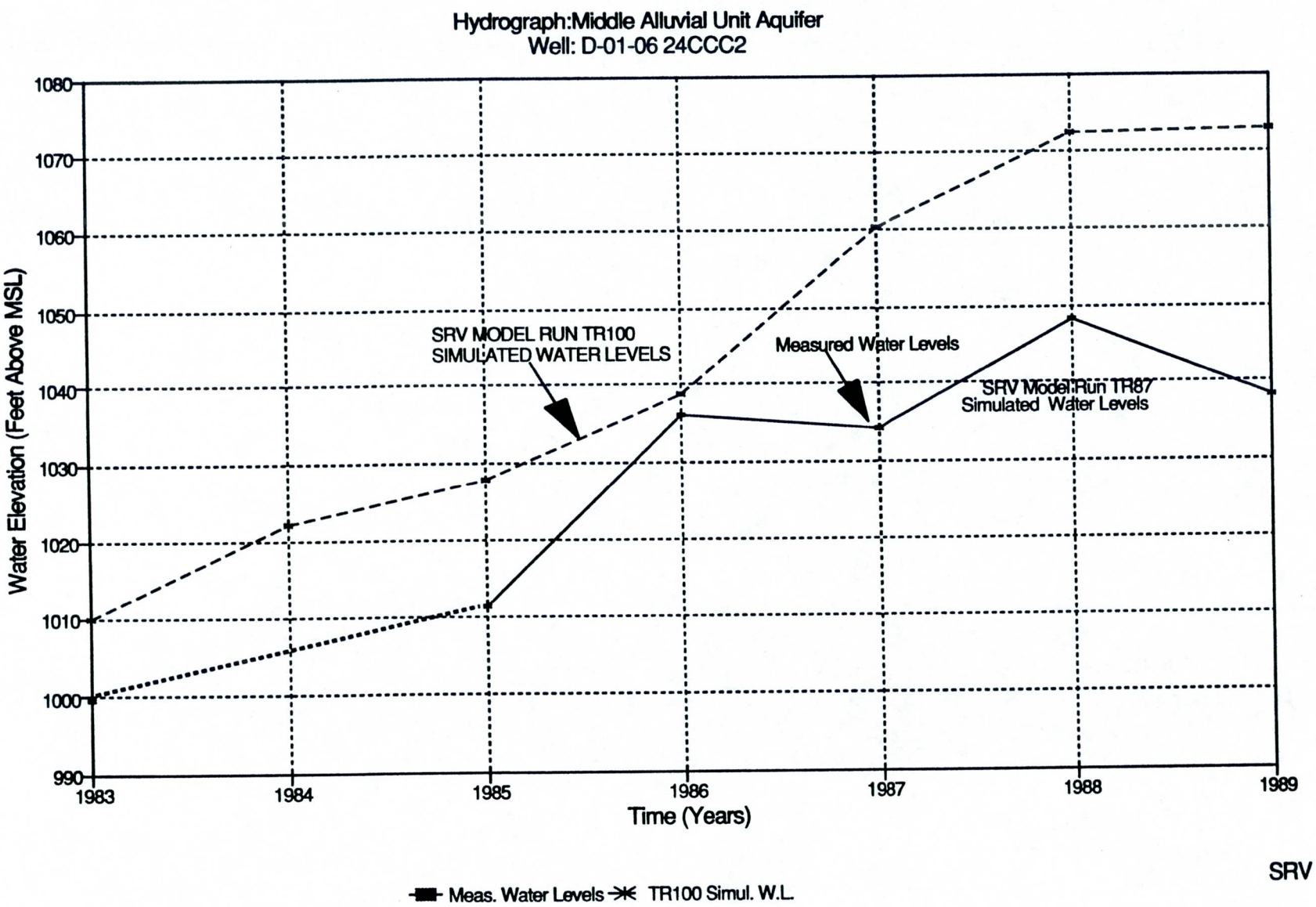
SRV


Hydrograph:Upper Alluvial Unit Aquifer
Well: B-03-01 34DBB1
Water Elevation (Feet Above MSL)
785
780
775
770
765
760
755
750
745
1983
1984
1985
1986
1987
1988
1989
Time (Years)
Measured Water Levels
SRV MODEL RUN TR100
SIMULATED WATER LEVELS
Meas. Water Levels
TR100 Simul. W.L.

SRV


Hydrograph: UAU/MAU Unit Aquifer
Well: D-02-07 12DDD
Measured Water Levels
SRV MODEL RUN TR100
SIMULATED WATER LEVELS
Water Elevation (Feet Above MSL)
1150
1130
1110
1090
1070
1050
1030
1010
990
1983
1984
1985
1986
1987
1988
1989
Time (Years)
Meas. Water Levels
TR100 Simul. W.L.

SRV


Hydrograph:Middle Alluvial Unit Aquifer
Well: D-01-06 24CCC2
Water Elevation (Feet Above MSL)
1080
1070
1060
1050
1040
1030
1020
1010
1000
990
1983
1984
1985
1986
1987
1988
1989
Time (Years)
SRV MODEL RUN TR100
SIMULATED WATER LEVELS
Measured Water Levels
SRV Model Run TR87
Simulated Water Levels
Meas. Water Levels
TR100 Simul. W.L.

SRV

APPENDIX III Distribution of Initial Water Levels, Ending Water Levels, Hydraulic Conductivity, VCONT, Specific Yield, Transmissivity Maximum Evapotranspiration Rate, and River Conductance

Description of fields in SRV PHASE2.DBF report which follows:

Field Name	Description
Cell	SRV Model Cell Number
Row	Model Row
Col	Model Column
Location	Cadastral Location
SELV	Land Surface Elevation
UELV	UAU Bottom Elevation
MELV	MAU Bottom Elevation
LELV	LAU Bottom Elevation
H83U	1983 UAU Measured Water Level
H83M	1983 MAU Measured Water Level
H83L	1983 LAU Measured Water Level
H89U	1989 UAU Measured Water Level
H89M	1989 MAU Measured Water Level
H89L	1989 LAU Measured Water Level
KHU	Horizontal Hydraulic Conductivity UAU (feet/day)
KHM	Horizontal Hydraulic Conductivity MAU (feet/day)
KHL	Horizontal Hydraulic Conductivity LAU (feet/day)
VCONT1	Vertical Conductivity - Layer 1 to Layer 2 (1/day)
VCONT2	Vertical Conductivity - Layer 2 to Layer 3 (1/day)
SYU	Specific Yield UAU (× 0.01)
SYM	Specific Yield MAU (× 0.01)
SYL	Specific Yield LAU (× 0.01)
T89U	Transmissivity 1989 UAU (x 100 ft^2/day)
T89M	Transmissivity 1989 MAU (x 100 ft^2/day)
T89L	Transmissivity 1989 LAU (x 100 ft^2/day)
MAX EVT	Maximum Evapotranspiration Rate × 0.00001 (Feet/Day)
RIVER COND	River Conductance ($feet^2$/day)

* All elevations are relative to Mean Sea Level.

UAU = Upper Alluvial Unit
MAU = Middle Alluvial Unit
LAU = Lower Alluvial Unit

SRV PHASE2.DBF

CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
2915	33	35	A010101	1050	680	-460	-1950	950	950	950	960	960	954	55	20	12	0.000345	0.000168	9	5	5	154	228	179	0	0
2914	33	34	A010102	1040	680	-520	-1960	940	940	940	947	951	944	55	30	18	0.000488	0.000250	9	5	5	147	360	259	0	0
2913	33	33	A010103	1030	670	-570	-1970	935	935	935	933	945	944	55	30	18	0.000473	0.000249	9	5	5	145	372	252	0	0
2912	33	32	A010104	1020	660	-600	-1980	925	925	925	924	935	935	45	20	6	0.000312	0.000112	9	5	3	119	252	83	0	0
2911	33	31	A010105	1020	630	-580	-1980	920	920	920	924	929	932	45	13	6	0.000212	0.000095	9	5	3	132	157	84	0	0
2910	33	30	A010106	1000	660	-570	-2000	915	915	915	924	925	929	45	13	6	0.000209	0.000094	9	5	3	119	160	86	0	0
3000	34	30	A010107	1000	680	-420	-1750	920	920	920	929	933	928	45	13	12	0.000233	0.000143	9	5	5	112	143	160	0	0
3001	34	31	A010108	1000	650	-470	-2000	925	925	925	932	937	933	45	20	12	0.000350	0.000167	9	5	5	127	224	184	0	0
3002	34	32	A010109	1010	620	-510	-1990	940	935	935	945	945	943	45	20	12	0.000345	0.000169	9	5	5	146	226	178	0	0
3003	34	33	A010110	1020	630	-520	-1980	945	945	945	951	955	953	50	20	12	0.000340	0.000169	9	5	5	161	230	175	0	0
3004	34	34	A010111	1020	610	-500	-1980	950	950	950	958	962	954	50	30	18	0.000521	0.000256	9	5	5	174	333	266	0	0
3005	34	35	A010112	1030	660	-450	-1970	955	955	955	964	969	959	200	30	18	0.000536	0.000252	20	5	10	608	333	274	0	0
3095	35	35	A010113	1020	700	-430	-1980	955	955	955	963	968	959	200	20	12	0.000352	0.000165	20	5	10	526	226	186	0	0
3094	35	34	A010114	1010	700	-470	-1990	950	950	950	958	963	954	200	20	12	0.000340	0.000164	20	5	10	516	234	182	0	0
3093	35	33	A010115	1000	700	-470	-2000	945	945	945	952	956	949	50	20	12	0.000336	0.000164	10	5	10	126	234	184	0	0
3092	35	32	A010116	990	680	-440	-1560	940	940	940	947	951	945	50	20	12	0.000351	0.000195	10	5	10	134	224	134	0	0
3091	35	31	A010117	990	650	-390	-1310	935	930	930	942	942	936	50	20	12	0.000376	0.000221	10	5	10	146	208	110	0	0
3090	35	30	A010118	990	700	-280	-1060	925	925	925	933	939	931	50	13	12	0.000262	0.000185	10	5	10	117	127	94	0	0
3180	36	30	A010119	960	650	-140	-410	930	920	920	936	932	925	50	8	15	0.000200	0.000186	15	5	9	143	63	41	0	0
3181	36	31	A010120	980	680	-260	-620	935	935	935	940	947	939	50	10	15	0.000210	0.000189	15	5	9	130	94	54	0	0
3182	36	32	A010121	990	710	-370	-910	940	940	940	947	951	944	50	10	12	0.000184	0.000153	10	5	9	119	108	65	0	0
3183	36	33	A010122	1000	700	-420	-1400	945	945	945	952	956	949	200	10	12	0.000178	0.000131	20	5	9	504	112	118	0	0
3184	36	34	A010123	1000	700	-430	-2000	955	955	955	963	967	958	200	10	12	0.000177	0.000112	20	5	9	526	113	188	0	0
3185	36	35	A010124	1010	740	-410	-1990	960	960	960	968	972	963	200	10	12	0.000174	0.000111	20	5	9	456	115	190	0	0
3275	37	35	A010125	1000	730	-380	-1700	965	965	965	973	976	968	130	10	10	0.000180	0.000113	20	5	9	316	111	132	99	52800
3274	37	34	A010126	990	700	-390	-1510	960	960	960	968	971	964	200	10	10	0.000183	0.000121	20	5	9	536	109	112	63	13200
3273	37	33	A010127	980	670	-350	-990	950	950	950	957	961	954	200	10	10	0.000196	0.000149	20	5	9	574	102	64	0	0
3272	37	32	A010128	970	700	-260	-480	945	945	945	950	956	949	200	10	15	0.000208	0.000194	20	5	10	500	96	33	0	0
3271	37	31	A010129	970	735	-100	-200	940	935	935	945	946	939	50	10	15	0.000237	0.000230	15	5	10	105	84	15	0	0
3270	37	30	A010130	960	700	-20	-120	930	920	920	935	933	924	80	8	15	0.000221	0.000214	15	5	10	188	58	15	0	0
3360	38	30	A010131	940	760	640	420	930	920	920	935	932	924	100	20	15	0.003155	0.001500	20	5	10	175	24	33	516	21100
3361	38	31	A010132	950	780	400	120	940	935	935	945	946	939	150	20	15	0.001041	0.000706	20	5	10	248	76	42	443	59400
3362	38	32	A010133	950	700	-100	-450	945	940	940	950	950	944	200	20	15	0.000497	0.000387	20	5	10	500	160	53	371	66000
3363	38	33	A010134	960	670	-280	-740	950	950	950	955	960	954	130	20	10	0.000417	0.000284	20	5	10	371	190	46	329	52800
3364	38	34	A010135	980	730	-340	-1170	960	960	960	967	969	963	130	20	10	0.000371	0.000211	20	5	10	308	214	83	97	39600
3365	38	35	A010136	990	730	-350	-1260	970	965	965	977	974	968	130	20	10	0.000368	0.000201	20	5	10	321	216	91	1	0
2921	33	41	A010201	1080	820	490	-1370	985	985	985	996	992	990	165	20	6	0.001198	0.000117	15	3	9	290	66	112	0	0
2920	33	40	A010202	1070	750	320	-1930	970	970	970	982	980	974	165	20	6	0.000919	0.000096	15	3	10	383	86	135	0	0
2919	33	39	A010203	1070	640	80	-1930	965	965	965	981	984	969	165	20	6	0.000704	0.000102	15	3	10	563	112	121	0	0
2918	33	38	A010204	1070	620	-190	-1930	955	955	955	973	974	959	200	20	6	0.000490	0.000108	20	3	10	706	162	104	0	0
2917	33	37	A010205	1060	750	-340	-1940	955	950	950	972	966	954	200	20	6	0.000366	0.000106	20	3	10	444	218	96	0	0
2916	33	36	A010206	1050	700	-410	-1950	950	950	950	964	963	954	200	20	12	0.000359	0.000167	20	5	5	528	222	185	0	0
3006	34	36	A010207	1040	700	-400	-1960	955	955	955	965	970	959	200	30	18	0.000542	0.000250	20	5	10	530	330	281	0	0
3007	34	37	A010208	1050	700	-330	-1950	960	955	955	976	972	959	200	30	9	0.000578	0.000161	20	3	10	552	309	146	0	0
3008	34	38	A010209	1050	640	-200	-1950	960	955	955	978	973	959	200	30	9	0.000706	0.000160	20	3	10	676	252	158	0	0
3009	34	39	A010210	1060	630	100	-1940	970	960	960	986	976	964	200	30	9	0.001111	0.000153	20	3	10	712	159	184	0	0
3010	34	40	A010211	1060	750	320	-1840	975	975	975	987	986	979	200	30	9	0.001374	0.000149	20	3	9	474	129	194	0	0
3011	34	41	A010212	1060	820	460	-1340	990	980	980	1001	988	984	200	30	9	0.001643	0.000179	20	3	9	362	108	162	0	0
3101	35	41	A010213	1060	800	440	-1110	990	990	990	1000	998	994	200	30	18	0.001641	0.000363	20	3	9	400	108	279	0	0
3100	35	40	A010214	1050	710	330	-1500	980	980	980	991	989	984	200	30	18	0.001546	0.000315	20	3	9	562	114	329	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3099	35	39	A010215	1050	700	110	-1950	975	970	970	988	983	974	200	30	18	0.001003	0.000260	20	3	9	576	177	371	0	0
3098	35	38	A010216	1040	750	-120	-1960	965	965	965	979	980	969	200	30	18	0.000685	0.000250	20	3	10	458	261	331	0	0
3097	35	37	A010217	1030	740	-300	-1970	955	955	955	967	970	959	200	30	18	0.000573	0.000247	20	3	10	454	312	301	0	0
3096	35	36	A010218	1030	730	-380	-1970	965	960	960	974	975	964	200	30	18	0.000537	0.000246	20	5	10	488	333	286	0	0
3186	36	36	A010219	1020	700	-350	-1980	965	965	965	973	978	968	200	7	12	0.000133	0.000092	20	5	9	546	74	196	0	0
3187	36	37	A010220	1020	700	-220	-1980	970	970	970	979	982	973	200	7	12	0.000152	0.000098	20	3	9	558	64	211	14	0
3188	36	38	A010221	1020	770	-50	-1680	975	970	970	985	982	973	200	7	12	0.000170	0.000108	20	3	9	430	57	196	44	0
3189	36	39	A010222	1030	770	150	-1270	980	980	980	990	990	983	200	7	12	0.000225	0.000135	20	3	9	440	43	170	0	0
3190	36	40	A010223	1040	780	330	-910	990	990	990	999	998	993	200	7	12	0.000310	0.000172	20	3	9	438	32	149	0	0
3191	36	41	A010224	1050	800	470	-600	1000	995	995	1007	1002	998	200	7	12	0.000422	0.000218	20	3	9	414	23	128	0	0
3281	37	41	A010225	1060	830	540	-40	1010	1010	1010	1016	1015	1013	130	7	10	0.000480	0.000284	20	5	9	242	20	58	0	0
3280	37	40	A010226	1040	820	400	-360	995	990	990	1003	996	993	130	7	10	0.000332	0.000204	20	5	9	238	29	76	0	0
3279	37	39	A010227	1030	780	220	-670	990	990	990	998	998	993	130	7	10	0.000249	0.000161	20	5	9	283	39	89	0	0
3278	37	38	A010228	1020	780	10	-1080	985	980	980	994	990	983	130	7	10	0.000181	0.000122	20	5	9	278	54	109	2	0
3277	37	37	A010229	1010	700	-180	-1390	980	980	980	988	990	983	130	7	10	0.000159	0.000107	20	5	9	374	62	121	47	0
3276	37	36	A010230	990	700	-330	-1710	975	975	975	983	985	978	130	7	10	0.000136	0.000093	20	5	9	368	72	138	49	0
3366	38	36	A010231	1000	700	-340	-1100	975	975	975	982	983	978	130	15	10	0.000287	0.000186	20	5	10	367	156	76	0	0
3367	38	37	A010232	1010	760	-120	-790	980	980	980	987	988	983	130	15	10	0.000339	0.000217	20	5	10	295	132	67	0	0
3368	38	38	A010233	1010	780	100	-490	990	985	985	997	992	988	130	7	10	0.000205	0.000158	20	5	10	282	48	59	0	0
3369	38	39	A010234	1040	800	300	-160	1000	1000	1000	1006	1005	1003	100	7	15	0.000278	0.000231	20	5	10	206	35	69	0	0
3370	38	40	A010235	1070	820	470	220	1010	1010	1010	1017	1015	1013	50	7	15	0.000394	0.000343	10	5	10	99	25	38	0	0
3371	38	41	A010236	1090	800	610	490	1020	1020	1020	1026	1024	1023	50	7	15	0.000714	0.000642	10	5	10	113	13	18	0	0
2927	33	47	A010301	1120	1000	0	0	1090	0	0	1086	0	0	50	0	0	0.000000	0.000000	10	0	0	43	0	0	0	0
2926	33	46	A010302	1120	950	880	780	1060	1060	1060	1062	1065	1066	25	20	15	0.004566	0.002927	10	5	9	28	14	15	0	0
2925	33	45	A010303	1110	900	820	610	1040	1030	1030	1045	1035	1036	200	20	15	0.004831	0.001818	20	5	9	290	16	32	0	0
2924	33	44	A010304	1100	870	800	170	1020	1020	1020	1026	1026	1026	200	20	15	0.005479	0.000816	20	5	9	312	14	95	0	0
2923	33	43	A010305	1090	860	700	-310	1010	1010	1010	1017	1017	1017	200	20	6	0.002454	0.000217	20	5	9	314	32	61	0	0
2922	33	42	A010306	1080	860	600	-820	1000	1000	1000	1009	1007	1006	160	20	6	0.001518	0.000152	15	5	9	238	52	85	0	0
3012	34	42	A010307	1070	860	550	-830	1000	1000	1000	1009	1007	1005	200	30	9	0.001910	0.000230	20	5	9	298	93	124	0	0
3013	34	43	A010308	1080	860	620	-370	1010	1010	1010	1016	1016	1016	200	30	9	0.002454	0.000317	20	5	9	312	72	89	0	0
3014	34	44	A010309	1090	870	700	90	1020	1020	1020	1026	1025	1025	200	20	15	0.002312	0.000694	20	5	9	312	34	92	0	0
3015	34	45	A010310	1100	900	750	500	1040	1030	1030	1044	1035	1035	200	20	15	0.002618	0.001263	20	5	9	288	30	38	0	0
3016	34	46	A010311	1110	950	870	770	1060	1050	1050	1061	1057	1055	125	20	15	0.004789	0.002727	10	5	9	139	16	15	0	0
3017	34	47	A010312	1120	1000	0	0	1080	0	0	1076	0	0	50	0	0	0.000000	0.000000	10	0	0	38	0	0	0	0
3107	35	47	A010313	1120	970	820	680	1080	1060	1060	1086	1068	1064	150	7	15	0.000927	0.000766	20	5	10	174	11	21	0	0
3106	35	46	A010314	1110	930	710	610	1060	1050	1050	1064	1056	1054	150	7	15	0.000633	0.000575	15	5	9	201	15	15	0	0
3105	35	45	A010315	1100	900	680	370	1040	1040	1040	1045	1046	1044	200	15	15	0.001351	0.000800	20	5	9	290	33	47	0	0
3104	35	44	A010316	1080	850	630	30	1030	1030	1030	1035	1035	1034	200	15	15	0.001347	0.000577	20	5	9	370	33	90	0	0
3103	35	43	A010317	1070	850	580	-330	1020	1010	1010	1025	1015	1014	200	30	18	0.002181	0.000583	20	5	9	350	81	164	0	0
3102	35	42	A010318	1060	810	520	-740	1010	1000	1000	1018	1006	1005	200	30	18	0.002027	0.000448	20	5	9	416	87	227	0	0
3192	36	42	A010319	1050	810	570	-400	1020	1010	1010	1025	1015	1013	200	7	12	0.000580	0.000268	20	5	9	430	17	116	0	0
3193	36	43	A010320	1070	860	630	-180	1025	1020	1020	1029	1024	1023	200	7	12	0.000606	0.000300	20	5	9	338	16	97	0	0
3194	36	44	A010321	1080	860	680	80	1030	1030	1030	1034	1034	1033	200	7	15	0.000773	0.000438	20	5	9	348	13	90	0	0
3195	36	45	A010322	1090	890	700	310	1045	1040	1040	1050	1046	1043	200	7	15	0.000733	0.000498	20	5	10	320	13	59	0	0
3196	36	46	A010323	1100	940	720	470	1060	1060	1060	1066	1068	1063	150	7	15	0.000633	0.000503	20	5	10	189	15	38	0	0
3197	36	47	A010324	1120	990	720	600	1080	1070	1070	1088	1078	1073	150	7	15	0.000517	0.000470	20	5	10	147	19	18	0	0
3287	37	47	A010325	1130	1000	850	670	1070	1070	1070	1080	1078	1073	50	7	10	0.000921	0.000657	10	5	10	40	11	18	0	0
3286	37	46	A010326	1120	950	850	670	1060	1060	1060	1068	1066	1063	50	7	10	0.001358	0.000859	10	5	10	59	7	18	0	0
3285	37	45	A010327	1110	900	800	510	1050	1050	1050	1055	1053	1053	50	7	10	0.001344	0.000695	20	5	10	78	7	29	0	0
3284	37	44	A010328	1100	880	800	400	1030	1030	1030	1033	1033	1033	40	7	10	0.001642	0.000636	20	5	10	61	6	40	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3283	37	43	A010329	1090	880	750	290	1025	1025	1025	1029	1028	1028	40	7	15	0.001036	0.000590	20	5	9	60	9	69	0	0
3282	37	42	A010330	1070	810	680	170	1020	1020	1020	1025	1024	1023	50	7	15	0.001030	0.000562	20	5	9	108	9	77	0	0
3372	38	42	A010331	1120	800	760	640	1035	1025	1025	1040	1028	1028	25	7	15	0.002634	0.002059	10	5	10	60	3	18	0	0
3373	38	43	A010332	1120	840	800	700	1035	1025	1025	1040	1028	1028	25	7	15	0.002749	0.002211	10	5	10	50	3	15	0	0
3374	38	44	A010333	1150	890	850	750	1030	1030	1030	1035	1033	1033	25	7	10	0.002926	0.001867	10	5	10	36	3	10	0	0
3375	38	45	A010334	1140	970	890	780	1050	1050	1050	1057	1053	1053	50	7	10	0.001702	0.001181	10	5	10	44	6	11	0	0
3376	38	46	A010335	1140	920	870	770	1070	1060	1060	1080	1067	1063	25	7	10	0.002397	0.001647	10	5	10	40	4	10	0	0
3377	38	47	A010336	1160	1000	890	790	1090	1070	1070	1103	1077	1073	25	7	10	0.001217	0.000966	10	5	10	26	8	10	0	0
2933	33	53	A010401	1200	1070	590	10	1110	970	950	1120	953	990	55	15	5	0.000016	0.000240	15	7	9	28	54	29	0	0
2932	33	52	A010402	1200	1030	690	300	1080	980	960	1089	980	995	50	10	10	0.000014	0.000412	10	7	9	30	29	39	0	0
2931	33	51	A010403	1250	1020	950	850	0	1020	1000	0	1042	1030	50	10	15	0.000000	0.001935	10	7	10	0	7	15	0	0
2928	33	48	A010406	1160	1080	0	0	1120	0	0	1113	0	0	70	0	0	0.000000	0.000000	10	0	0	23	0	0	0	0
3018	34	48	A010407	1140	1050	0	0	1100	0	0	1096	0	0	70	0	0	0.000000	0.000000	10	0	0	32	0	0	0	0
3022	34	52	A010411	1180	1050	690	600	1090	1050	1050	1102	1056	1086	55	10	10	0.000011	0.000494	15	7	9	29	36	9	0	0
3023	34	53	A010412	1190	1050	620	-240	1105	1030	1030	1119	1032	1070	55	15	10	0.000014	0.000284	15	7	9	38	62	86	0	0
3113	35	53	A010413	1170	1030	690	350	1100	1055	1055	1116	1071	1095	150	20	10	0.000232	0.000588	20	7	9	129	68	34	0	0
3112	35	52	A010414	1160	1050	710	630	1090	1055	1055	1105	1067	1088	150	20	10	0.000233	0.000952	20	7	9	83	68	8	0	0
3111	35	51	A010415	1150	1040	0	0	1080	0	0	1094	0	0	150	0	0	0.000000	0.000000	20	0	0	81	0	0	0	0
3110	35	50	A010416	1150	1030	0	0	1080	0	0	1092	0	0	150	0	0	0.000000	0.000000	20	0	0	93	0	0	0	0
3108	35	48	A010418	1130	1000	830	690	1090	1070	1070	1099	1079	1074	150	7	15	0.001631	0.000691	20	5	10	149	12	21	0	0
3198	36	48	A010419	1130	1020	790	690	1100	1070	1070	1109	1079	1073	100	7	15	0.001206	0.000553	15	5	10	89	16	15	0	0
3199	36	49	A010420	1140	1040	0	0	1120	0	0	1132	0	0	150	0	0	0.000000	0.000000	20	0	0	138	0	0	0	0
3200	36	50	A010421	1160	1040	0	0	1090	0	0	1104	0	0	50	0	0	0.000000	0.000000	15	0	0	32	0	0	0	0
3201	36	51	A010422	1160	1030	0	0	1080	0	0	1096	0	0	50	0	0	0.000000	0.000000	15	0	0	33	0	0	0	0
3202	36	52	A010423	1180	1010	870	650	1080	1070	1070	1096	1086	1090	50	20	10	0.000529	0.001111	15	7	9	43	28	22	0	0
3203	36	53	A010424	1190	1010	730	400	1090	1055	1055	1107	1081	1094	50	20	10	0.000273	0.000656	15	7	9	49	56	33	0	0
3293	37	53	A010425	1190	1000	700	410	1080	1050	1050	1100	1085	1082	50	20	10	0.000255	0.000678	15	7	9	50	60	29	0	0
3292	37	52	A010426	1180	1020	910	660	1080	1060	1060	1097	1082	1084	50	20	10	0.000668	0.001111	15	7	9	39	22	25	0	0
3291	37	51	A010427	1170	1040	0	0	1080	0	0	1097	0	0	25	0	0	0.000000	0.000000	15	0	0	14	0	0	0	0
3290	37	50	A010428	1160	1050	0	0	1100	0	0	1116	0	0	25	0	0	0.000000	0.000000	15	0	0	17	0	0	0	0
3289	37	49	A010429	1150	1070	0	0	1160	0	0	1175	0	0	25	0	0	0.000000	0.000000	10	0	0	26	0	0	0	0
3288	37	48	A010430	1140	1030	0	0	1080	0	0	1092	0	0	25	0	0	0.000000	0.000000	10	0	0	16	0	0	0	0
3378	38	48	A010431	1170	1040	0	0	1130	0	0	1145	0	0	25	0	0	0.000000	0.000000	10	0	0	26	0	0	0	0
3379	38	49	A010432	1190	1070	0	0	1180	0	0	1199	0	0	25	0	0	0.000000	0.000000	10	0	0	32	0	0	0	0
3380	38	50	A010433	1180	1050	0	0	1100	0	0	1120	0	0	25	0	0	0.000000	0.000000	15	0	0	18	0	0	0	0
3381	38	51	A010434	1180	1040	0	0	1080	0	0	1101	0	0	25	0	0	0.000000	0.000000	15	0	0	15	0	0	0	0
3382	38	52	A010435	1190	1030	980	670	1080	1055	1055	1101	1081	1082	50	20	10	0.013793	0.001111	15	7	9	36	10	31	0	0
3383	38	53	A010436	1190	1010	720	370	1070	1050	1050	1091	1083	1081	50	20	10	0.002670	0.000625	15	7	9	41	58	35	0	0
2939	33	59	A010501	1280	1000	640	-1720	1050	955	955	1080	1021	1017	60	20	4	0.000248	0.000064	15	10	9	48	72	94	0	0
2938	33	58	A010502	1230	980	660	-1770	1090	980	980	1116	1042	1033	50	20	4	0.000127	0.000063	15	10	9	68	64	97	0	0
2937	33	57	A010503	1220	1010	660	-1780	1120	1000	1000	1141	1050	1049	150	10	4	0.000066	0.000059	20	10	9	197	35	98	0	0
2936	33	56	A010504	1200	1080	590	-1800	1130	1010	1010	1149	1046	1056	150	10	4	0.000047	0.000059	20	7	9	104	46	96	0	0
2935	33	55	A010505	1210	1080	730	-1390	1130	1030	1030	1145	1043	1073	150	10	7	0.000072	0.000110	20	7	9	98	31	148	0	0
2934	33	54	A010506	1200	1080	690	-750	1120	1080	1060	1132	1080	1102	55	15	7	0.000152	0.000155	15	7	9	29	59	101	0	0
3024	34	54	A010507	1200	1060	650	-330	1110	1030	1030	1126	1040	1072	150	15	7	0.000087	0.000210	20	7	9	99	59	69	0	0
3025	34	55	A010508	1200	1060	610	-1120	1115	1020	1020	1134	1050	1063	150	15	7	0.000085	0.000133	20	7	9	111	66	121	0	0
3026	34	56	A010509	1210	1050	560	-1590	1120	1000	1000	1141	1060	1048	75	20	7	0.000098	0.000114	15	7	9	68	98	151	0	0
3027	34	57	A010510	1220	1010	620	-1780	1110	1000	1000	1137	1070	1052	75	20	4	0.000104	0.000063	15	7	9	95	78	96	0	0
3028	34	58	A010511	1250	1010	600	-1750	1090	990	990	1122	1050	1043	60	20	4	0.000100	0.000064	15	7	9	67	82	94	0	0
3029	34	59	A010512	1270	1020	580	-1730	1050	970	970	1088	1034	1030	60	20	4	0.000103	0.000065	15	10	9	41	88	92	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3119	35	59	A010513	1260	1010	370	-1140	1030	975	975	1072	1035	1030	60	20	4	0.000071	0.000091	15	7	9	37	128	60	0	0
3118	35	58	A010514	1250	1000	480	-1330	1060	990	990	1098	1047	1043	60	20	4	0.000084	0.000079	15	7	9	59	104	72	0	0
3117	35	57	A010515	1250	1010	610	-1350	1100	990	990	1132	1050	1045	60	20	4	0.000104	0.000076	15	7	9	73	80	78	0	0
3116	35	56	A010516	1250	1020	500	-1150	1105	1000	1000	1131	1061	1048	75	20	7	0.000087	0.000140	15	7	9	83	104	116	0	0
3115	35	55	A010517	1230	1030	660	-970	1105	1015	1015	1126	1055	1058	50	20	7	0.000228	0.000149	15	7	9	48	74	114	0	0
3114	35	54	A010518	1190	1030	620	-200	1105	1050	1050	1123	1075	1099	50	20	7	0.000189	0.000253	15	7	9	47	82	57	0	0
3204	36	54	A010519	1200	1010	590	-50	1100	1050	1050	1121	1083	1089	50	20	7	0.000184	0.000300	15	7	9	56	84	45	0	0
3205	36	55	A010520	1220	1010	420	-980	1100	1030	1030	1126	1072	1070	50	20	7	0.000132	0.000154	15	7	9	58	118	98	0	0
3206	36	56	A010521	1240	1000	370	-1060	1100	1005	1005	1131	1051	1045	75	20	7	0.000064	0.000150	15	7	9	98	126	100	0	0
3207	36	57	A010522	1240	890	300	-1180	1070	995	995	1108	1046	1037	75	20	7	0.000061	0.000148	15	7	9	164	118	104	0	0
3208	36	58	A010523	1240	850	90	-1470	1050	990	990	1092	1047	1040	75	20	4	0.000052	0.000086	15	7	9	182	152	62	0	0
3209	36	59	A010524	1240	1000	170	-1580	1030	970	970	1075	1031	1022	60	20	4	0.000050	0.000077	15	7	9	45	166	70	0	0
3299	37	59	A010525	1240	970	120	-1760	1030	980	980	1078	1040	1031	60	20	4	0.000046	0.000072	15	7	9	65	170	75	0	0
3298	37	58	A010526	1230	930	-110	-1770	1030	990	990	1075	1047	1037	75	20	4	0.000040	0.000077	15	7	9	109	208	66	0	0
3297	37	57	A010527	1230	1000	-30	-1500	1050	1010	1010	1090	1059	1049	50	20	7	0.000057	0.000128	15	7	9	45	206	103	0	0
3296	37	56	A010528	1230	950	120	-1170	1060	1010	1010	1094	1052	1049	50	20	7	0.000074	0.000150	15	7	9	72	166	90	0	0
3295	37	55	A010529	1210	1000	290	-990	1080	1020	1020	1107	1060	1058	50	20	7	0.000110	0.000158	15	7	9	54	142	90	0	0
3294	37	54	A010530	1200	990	400	-200	1090	1030	1030	1111	1067	1067	50	20	7	0.000132	0.000276	15	7	9	61	118	42	0	0
3384	38	54	A010531	1200	1000	480	-460	1060	1030	1030	1085	1066	1065	50	20	7	0.001511	0.000215	15	7	9	43	104	66	0	0
3385	38	55	A010532	1210	980	310	-1140	1050	1020	1020	1080	1058	1058	50	20	7	0.001174	0.000146	15	7	9	50	134	102	0	0
3386	38	56	A010533	1210	970	100	-1570	1040	1010	1010	1075	1049	1049	75	20	7	0.000602	0.000123	15	7	9	79	174	117	0	0
3387	38	57	A010534	1210	950	-30	-1790	1040	1010	1010	1080	1062	1049	75	20	7	0.000608	0.000114	15	7	9	98	196	123	0	0
3388	38	58	A010535	1210	900	90	-1790	1030	940	940	1075	998	986	75	20	4	0.000501	0.000073	15	7	9	131	162	75	0	0
3389	38	59	A010536	1230	910	290	-1770	1030	980	980	1075	1042	1031	30	20	4	0.000627	0.000069	15	7	10	50	124	82	0	0
2945	33	65	A010601	1500	1150	1000	800	0	0	880	0	0	943	35	9	4	0.000000	0.000000	9	10	10	0	0	6	0	0
2944	33	64	A010602	1430	1100	800	630	0	870	870	0	943	935	40	10	4	0.000000	0.000708	15	10	9	0	14	7	0	0
2943	33	63	A010603	1380	940	600	280	0	900	900	0	977	968	40	10	4	0.000000	0.000286	15	10	9	0	34	13	0	0
2942	33	62	A010604	1350	1000	290	40	0	920	920	0	993	990	40	10	4	0.000000	0.000212	15	10	9	0	70	10	0	0
2941	33	61	A010605	1320	790	330	-1180	0	945	945	0	1016	1015	60	20	4	0.000000	0.000094	15	10	9	0	92	60	0	0
2940	33	60	A010606	1300	900	500	-1700	1030	955	955	1065	1024	1022	60	20	4	0.000191	0.000068	15	10	9	99	80	88	0	0
3030	34	60	A010607	1290	1010	300	-1460	1030	970	970	1072	1039	1032	60	20	4	0.000068	0.000079	15	10	9	37	142	70	0	0
3031	34	61	A010608	1310	900	100	-990	0	945	945	0	1019	1012	40	20	4	0.000000	0.000113	15	10	9	0	160	44	0	0
3032	34	62	A010609	1330	1020	400	-270	0	900	900	0	971	966	40	10	4	0.000000	0.000150	15	10	9	0	57	27	0	0
3033	34	63	A010610	1370	790	590	160	0	880	880	0	952	945	40	10	4	0.000000	0.000271	10	10	9	0	20	17	0	0
3034	34	64	A010611	1410	1010	700	80	0	870	870	0	940	934	40	10	4	0.000000	0.000212	10	10	9	0	24	25	0	0
3035	34	65	A010612	1470	1100	810	290	0	870	870	0	939	934	25	8	4	0.000000	0.000276	10	10	9	0	10	21	0	0
3125	35	65	A010613	1430	1080	660	140	0	870	870	0	938	936	30	8	5	0.000000	0.000256	10	10	9	0	22	26	0	0
3124	35	64	A010614	1390	1000	580	-390	0	870	870	0	939	933	40	10	4	0.000000	0.000133	10	10	9	0	36	39	0	0
3123	35	63	A010615	1350	900	470	-550	0	875	875	0	943	937	40	10	4	0.000000	0.000119	10	10	9	0	43	41	0	0
3122	35	62	A010616	1320	1050	300	-780	0	910	910	0	977	972	40	10	4	0.000000	0.000102	10	10	9	0	68	43	0	0
3121	35	61	A010617	1290	1000	100	-1000	0	945	945	0	1015	1008	40	20	4	0.000000	0.000111	15	7	9	0	180	44	0	0
3120	35	60	A010618	1270	1010	200	-1130	1030	960	960	1076	1031	1020	60	20	4	0.000054	0.000098	15	7	9	40	162	53	0	0
3210	36	60	A010619	1260	1010	190	-1040	1030	995	995	1080	1059	1052	60	20	4	0.000050	0.000103	15	7	9	42	164	49	0	0
3211	36	61	A010620	1270	1020	220	-1430	0	950	950	0	1016	1008	25	20	4	0.000000	0.000082	10	7	9	0	159	66	0	0
3212	36	62	A010621	1290	1030	310	-1310	0	925	925	0	985	984	40	10	4	0.000000	0.000076	10	7	9	0	68	65	0	0
3213	36	63	A010622	1330	1080	390	-980	0	900	900	0	964	960	40	10	4	0.000000	0.000090	10	10	9	0	57	55	0	0
3214	36	64	A010623	1360	1080	410	-450	0	870	870	0	937	930	40	10	4	0.000000	0.000130	10	10	9	0	53	34	0	0
3215	36	65	A010624	1390	1080	550	-10	0	870	870	0	936	933	30	8	5	0.000000	0.000208	10	10	9	0	31	28	0	0
3305	37	65	A010625	1370	1080	450	-380	0	870	870	0	935	927	30	8	5	0.000000	0.000148	10	10	9	0	39	42	0	0
3304	37	64	A010626	1340	1080	530	-790	0	880	880	0	947	939	40	10	4	0.000000	0.000100	10	10	9	0	42	53	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3303	37	63	A010627	1310	1080	520	-1310	0	900	900	0	970	961	40	10	4	0.000000	0.000075	10	7	9	0	45	73	0	0
3302	37	62	A010628	1280	1020	460	-1720	0	950	950	0	1020	1010	25	10	4	0.000000	0.000062	10	7	10	0	56	87	0	0
3301	37	61	A010629	1260	990	380	-1740	1020	970	970	1072	1040	1029	25	20	4	0.000063	0.000068	10	7	10	21	122	85	0	0
3300	37	60	A010630	1240	990	280	-1760	1030	980	980	1080	1043	1035	60	20	4	0.000063	0.000069	10	7	10	54	142	82	0	0
3390	38	60	A010631	1240	940	380	-1760	1030	980	980	1079	1047	1035	30	20	4	0.000770	0.000068	10	7	10	42	112	86	0	0
3391	38	61	A010632	1250	970	500	-1750	1040	980	980	1092	1060	1038	25	20	4	0.000825	0.000066	10	7	10	31	94	90	0	0
3392	38	62	A010633	1270	1000	610	-1730	1030	965	965	1083	1050	1024	25	10	4	0.000512	0.000061	10	7	10	21	39	94	0	0
3393	38	63	A010634	1300	1050	600	-1700	0	940	940	0	1020	998	25	4	4	0.000000	0.000054	10	7	9	0	17	92	0	0
3394	38	64	A010635	1320	1100	480	-1400	0	900	900	0	967	957	25	4	4	0.000000	0.000059	10	7	9	0	19	75	0	0
3395	38	65	A010636	1350	1090	300	-970	0	880	880	0	946	935	15	4	3	0.000000	0.000056	10	7	9	0	26	38	0	0
2947	33	67	A010705	1660	1400	1250	960	0	0	1000	0	0	1063	35	9	5	0.000000	0.000000	9	10	10	0	0	5	0	0
2946	33	66	A010706	1580	1270	1100	880	0	0	940	0	0	1003	35	9	5	0.000000	0.000000	9	10	10	0	0	6	0	0
3036	34	66	A010707	1520	1200	950	640	0	0	900	0	0	963	35	8	5	0.000000	0.000000	9	10	10	0	0	16	0	0
3037	34	67	A010708	1580	1300	1100	890	0	0	960	0	0	1021	35	9	5	0.000000	0.000000	9	10	10	0	0	7	0	0
3041	34	71	A010712	1710	1560	1520	1210	0	0	1240	0	0	1242	35	10	4	0.000000	0.000000	9	10	10	0	0	1	0	0
3131	35	71	A010713	1660	1490	1260	960	0	0	1170	0	0	1165	35	7	4	0.000000	0.000000	9	10	10	0	0	8	0	0
3130	35	70	A010714	1640	1500	1240	960	0	0	1120	0	0	1125	35	7	4	0.000000	0.000000	9	10	10	0	0	7	0	0
3129	35	69	A010715	1600	1550	1290	970	0	0	1060	0	0	1080	35	7	4	0.000000	0.000000	9	10	10	0	0	4	0	0
3128	35	68	A010716	1560	1350	1100	860	0	0	1000	0	0	1039	35	7	4	0.000000	0.000000	9	10	10	0	0	7	0	0
3127	35	67	A010717	1520	1250	1020	810	0	0	930	0	0	986	35	9	5	0.000000	0.000000	9	10	10	0	0	9	0	0
3126	35	66	A010718	1480	1150	900	600	0	0	880	0	0	947	30	8	5	0.000000	0.000000	10	10	9	0	0	15	0	0
3216	36	66	A010719	1430	1150	710	350	0	880	880	0	940	938	30	8	5	0.000000	0.000349	10	10	9	0	18	18	0	0
3217	36	67	A010720	1470	1220	890	600	0	920	920	0	970	972	30	9	5	0.000000	0.000619	10	10	9	0	7	15	0	0
3218	36	68	A010721	1510	1300	1100	810	0	0	970	0	0	1009	30	7	4	0.000000	0.000000	10	10	10	0	0	8	0	0
3219	36	69	A010722	1550	1350	1140	780	0	0	1020	0	0	1040	30	7	4	0.000000	0.000000	10	10	10	0	0	10	0	0
3220	36	70	A010723	1580	1490	1130	680	0	0	1060	0	0	1065	50	7	4	0.000000	0.000000	10	10	10	0	0	15	0	0
3221	36	71	A010724	1610	1400	1110	760	0	0	1110	0	0	1103	55	7	4	0.000000	0.000000	9	10	10	0	0	14	0	0
3311	37	71	A010725	1580	1300	1050	730	0	1065	1065	0	1110	1057	30	7	4	0.000000	0.000475	10	10	10	0	4	13	0	0
3310	37	70	A010726	1500	1350	1050	100	0	0	1060	0	0	1060	30	7	4	0.000000	0.000000	10	10	10	0	0	38	0	0
3309	37	69	A010727	1510	1350	1030	690	0	0	1020	0	0	1040	30	7	4	0.000000	0.000000	10	10	10	0	0	14	0	0
3308	37	68	A010728	1480	1260	980	700	0	0	970	0	0	1009	30	7	4	0.000000	0.000000	10	10	9	0	0	11	0	0
3307	37	67	A010729	1440	1220	900	520	0	910	910	0	955	958	30	9	5	0.000000	0.000511	10	10	9	0	5	19	0	0
3306	37	66	A010730	1400	1150	600	-20	0	880	880	0	940	932	30	8	5	0.000000	0.000206	10	10	9	0	27	31	0	0
3396	38	66	A010731	1380	1180	490	-620	0	880	880	0	930	928	15	4	5	0.000000	0.000096	10	7	9	0	18	56	0	0
3397	38	67	A010732	1420	1220	850	70	0	900	900	0	940	943	15	9	5	0.000000	0.000239	10	7	9	0	8	39	0	0
3398	38	68	A010733	1450	1300	830	350	0	960	960	0	1018	1005	30	4	4	0.000000	0.000216	10	10	9	0	8	19	0	0
3399	38	69	A010734	1480	1250	850	380	0	1030	1030	0	1088	1070	30	4	4	0.000000	0.000193	10	10	9	0	10	19	0	0
3400	38	70	A010735	1510	1280	990	-140	0	1060	1060	0	1111	1080	30	7	4	0.000000	0.000132	10	10	10	0	8	45	0	0
3401	38	71	A010736	1550	1300	1020	650	0	1080	1080	0	1125	1080	30	7	4	0.000000	0.000365	10	10	10	0	7	15	0	0
3042	34	72	A010807	1740	1620	1580	1190	0	0	1300	0	0	1295	35	10	4	0.000000	0.000000	9	10	10	0	0	4	0	0
3043	34	73	A010808	1870	1740	1690	1270	0	0	1400	0	0	1395	35	10	4	0.000000	0.000000	9	10	10	0	0	5	0	0
3044	34	74	A010809	1850	1730	1680	1250	0	0	1500	0	0	1495	35	7	4	0.000000	0.000000	9	10	10	0	0	10	0	0
3134	35	74	A010816	1790	1680	1530	1340	0	0	1430	0	0	1425	35	7	4	0.000000	0.000000	9	10	10	0	0	3	0	0
3133	35	73	A010817	1740	1630	1450	1190	0	0	1300	0	0	1295	35	7	4	0.000000	0.000000	9	10	10	0	0	4	0	0
3132	35	72	A010818	1690	1580	1380	1070	0	0	1220	0	0	1215	35	7	4	0.000000	0.000000	9	10	10	0	0	6	0	0
3222	36	72	A010819	1650	1450	1100	800	0	1150	1150	0	1195	1145	38	7	4	0.000000	0.000448	9	10	10	0	7	12	0	0
3223	36	73	A010820	1710	1550	1210	830	0	0	1180	0	0	1175	38	7	4	0.000000	0.000000	9	10	10	0	0	14	0	0
3224	36	74	A010821	1750	1600	1310	1050	0	0	1220	0	0	1215	38	7	4	0.000000	0.000000	9	10	10	0	0	7	0	0
3225	36	75	A010822	1770	1650	1510	1350	0	0	1500	0	0	1495	38	7	4	0.000000	0.000000	9	10	10	0	0	6	0	0
3317	37	77	A010825	1780	1680	1550	1280	0	0	1500	0	0	1495	38	7	4	0.000000	0.000000	9	10	10	0	0	9	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3316	37	76	A010826	1740	1610	1480	1240	0	0	1500	0	0	1495	38	7	4	0.000000	0.000000	9	10	10	0	0	10	0	0
3315	37	75	A010827	1720	1590	1400	1120	0	0	1270	0	0	1265	38	7	4	0.000000	0.000000	9	10	10	0	0	6	0	0
3314	37	74	A010828	1700	1550	1300	1000	0	0	1150	0	0	1145	38	7	4	0.000000	0.000000	9	10	10	0	0	6	0	0
3313	37	73	A010829	1660	1450	1150	810	0	0	1120	0	0	1114	38	7	4	0.000000	0.000000	9	10	10	0	0	12	0	0
3312	37	72	A010830	1620	1310	900	720	0	1070	1070	0	1115	1063	30	7	4	0.000000	0.000427	10	10	10	0	15	7	0	0
3402	38	72	A010831	1580	1300	1080	880	0	1090	1090	0	1135	1082	30	7	4	0.000000	0.000757	10	10	10	0	4	8	0	0
3403	38	73	A010832	1620	1420	1110	750	0	0	1100	0	0	1093	38	7	4	0.000000	0.000000	9	10	10	0	0	14	0	0
3404	38	74	A010833	1580	1490	1210	680	0	0	1130	0	0	1124	38	7	4	0.000000	0.000000	9	10	10	0	0	18	0	0
3405	38	75	A010834	1620	1500	1320	740	0	0	1170	0	0	1165	38	7	4	0.000000	0.000000	9	10	10	0	0	17	0	0
3406	38	76	A010835	1690	1590	1400	1200	0	0	1400	0	0	1395	38	7	4	0.000000	0.000000	9	10	10	0	0	8	0	0
2375	27	35	A020101	1130	750	-420	-1870	935	930	930	951	900	932	25	3	2	0.000051	0.000027	9	5	10	50	35	29	0	0
2374	27	34	A020102	1120	740	-480	-1880	935	930	930	949	910	932	25	3	2	0.000049	0.000026	10	5	10	52	37	28	0	0
2373	27	33	A020103	1100	700	-510	-1900	950	925	925	959	912	927	25	3	2	0.000049	0.000027	10	5	10	65	36	28	0	0
2372	27	32	A020104	1080	690	-500	-1920	950	920	920	958	911	921	25	3	2	0.000050	0.000027	10	7	10	67	36	28	0	0
2371	27	31	A020105	1080	750	-440	-1920	910	905	905	916	903	906	8	2	2	0.000033	0.000210	10	7	10	13	24	30	0	0
2370	27	30	A020106	1080	750	-320	-1120	880	880	880	888	881	880	8	2	2	0.000037	0.000270	10	7	10	11	21	16	0	0
2460	28	30	A020107	1040	760	-320	-1160	890	890	890	898	890	891	8	2	2	0.000037	0.000270	10	7	10	11	22	17	0	0
2461	28	31	A020108	1050	780	-460	-1950	910	910	910	916	909	912	25	3	2	0.000048	0.000025	10	7	10	34	37	30	0	0
2462	28	32	A020109	1070	700	-530	-1930	920	910	910	928	900	913	25	3	2	0.000049	0.000026	10	7	10	57	37	28	0	0
2463	28	33	A020110	1080	790	-550	-1920	935	930	930	945	916	932	25	3	2	0.000045	0.000025	10	5	10	39	40	27	0	0
2464	28	34	A020111	1100	760	-500	-1900	935	935	935	951	921	937	25	3	2	0.000047	0.000026	10	5	10	48	38	28	0	0
2465	28	35	A020112	1120	780	-430	-1880	935	935	935	953	922	939	25	4	2	0.000066	0.000030	9	5	10	43	48	29	0	0
2555	29	35	A020113	1110	780	-450	-1890	925	915	915	945	908	918	55	4	3	0.000065	0.000037	9	5	10	91	49	43	0	0
2554	29	34	A020114	1090	800	-500	-1910	935	935	935	952	923	938	55	4	2	0.000061	0.000030	10	5	5	84	52	28	0	0
2553	29	33	A020115	1070	750	-570	-1930	930	930	930	940	916	932	45	9	6	0.000136	0.000077	10	5	5	86	119	82	0	0
2552	29	32	A020116	1060	720	-570	-1940	920	910	910	928	902	917	35	11	6	0.000169	0.000086	10	7	5	73	142	82	0	0
2551	29	31	A020117	1050	780	-500	-1950	910	900	900	916	900	905	25	11	6	0.000170	0.000840	10	7	5	34	141	87	0	0
2550	29	30	A020118	1030	770	-350	-1370	890	890	890	898	897	895	15	11	6	0.000193	0.001070	10	7	5	19	123	61	0	0
2640	30	30	A020119	1020	700	-470	-1780	890	890	890	898	901	900	20	11	6	0.000185	0.000930	9	7	5	40	129	79	0	0
2641	30	31	A020120	1040	700	-550	-1960	910	905	905	916	911	915	20	17	9	0.000264	0.001320	10	7	5	43	213	127	0	0
2642	30	32	A020121	1050	700	-610	-1950	915	915	915	923	915	923	40	13	6	0.000196	0.000094	10	7	5	89	170	80	0	0
2643	30	33	A020122	1060	770	-600	-1940	920	910	910	930	907	916	40	13	6	0.000188	0.000092	10	5	5	64	178	80	0	0
2644	30	34	A020123	1080	780	-530	-1920	920	910	910	935	904	914	50	13	12	0.000197	0.000126	9	5	5	78	170	167	0	0
2645	30	35	A020124	1100	750	-460	-1900	915	915	915	935	913	918	50	13	12	0.000213	0.000131	9	5	5	93	157	173	0	0
2735	31	35	A020125	1080	730	-470	-1920	930	925	925	947	929	929	50	13	12	0.000215	0.000131	9	5	5	109	156	174	0	0
2734	31	34	A020126	1070	760	-540	-1930	925	920	920	937	921	924	50	20	12	0.000305	0.000163	9	5	5	89	260	167	0	0
2733	31	33	A020127	1060	720	-600	-1940	920	915	915	927	917	924	40	20	12	0.000299	0.000164	9	5	5	83	264	161	0	0
2732	31	32	A020128	1040	670	-620	-1960	915	915	915	920	921	925	40	20	12	0.000304	0.000166	9	5	3	100	258	161	0	0
2731	31	31	A020129	1030	660	-600	-1970	905	905	905	910	913	917	40	20	9	0.000311	0.001440	9	5	3	100	252	123	0	0
2730	31	30	A020130	1020	690	-550	-1980	900	895	895	906	904	907	40	20	9	0.000317	0.001410	9	5	3	86	248	129	0	0
2820	32	30	A020131	1010	700	-610	-1990	910	910	910	913	913	924	40	13	6	0.000196	0.000093	9	5	3	85	170	83	0	0
2821	32	31	A020132	1020	680	-620	-1980	915	915	915	918	922	926	40	20	9	0.000302	0.000142	9	5	3	95	260	122	0	0
2822	32	32	A020133	1030	650	-630	-1970	920	920	920	919	928	930	40	30	9	0.000454	0.000171	9	5	3	108	384	121	0	0
2823	32	33	A020134	1050	670	-600	-1950	925	925	925	924	933	934	45	30	18	0.000460	0.000251	9	5	5	114	381	243	0	0
2824	32	34	A020135	1050	740	-540	-1950	935	930	930	943	936	934	55	30	18	0.000461	0.000244	9	5	5	112	384	254	0	0
2825	32	35	A020136	1060	700	-470	-1940	940	935	935	953	942	939	50	20	12	0.000336	0.000167	9	5	5	127	234	176	0	0
2381	27	41	A020201	1190	1000	710	290	0	950	930	0	970	936	50	15	5	0.000000	0.000345	9	3	9	0	39	21	0	0
2380	27	40	A020202	1190	1000	720	-110	0	940	920	0	946	928	30	15	3	0.000000	0.000131	9	3	9	0	34	25	0	0
2379	27	39	A020203	1190	980	450	-340	0	940	940	0	940	948	30	8	3	0.000000	0.000104	9	3	9	0	39	24	0	0
2378	27	38	A020204	1180	950	80	-570	0	930	930	0	910	938	30	4	3	0.000000	0.000062	9	5	9	0	33	20	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
2377	27	37	A020205	1170	960	-100	-1180	0	930	930	0	900	936	30	4	3	0.000000	0.000046	9	5	9	0	40	32	0	0
2376	27	36	A020206	1150	800	-280	-1850	935	930	930	952	900	934	20	4	2	0.000074	0.000030	9	5	10	30	43	31	0	0
2466	28	36	A020207	1140	880	-330	-1860	935	935	935	955	924	939	25	4	3	0.000066	0.000036	9	5	10	19	48	46	0	0
2467	28	37	A020208	1150	900	-150	-1200	935	935	935	956	930	939	30	4	3	0.000076	0.000046	9	5	10	17	42	32	0	0
2468	28	38	A020209	1160	860	-20	-590	940	935	935	961	932	941	30	4	3	0.000091	0.000063	9	3	10	30	35	17	0	0
2469	28	39	A020210	1170	900	270	-380	960	935	935	981	952	940	30	8	3	0.000253	0.000107	9	3	9	24	50	20	0	0
2470	28	40	A020211	1170	940	500	-150	980	950	950	999	970	955	30	8	3	0.000362	0.000122	9	3	9	18	35	20	0	0
2471	28	41	A020212	1170	920	600	270	1000	1000	1000	1015	1025	1006	30	8	5	0.000493	0.000274	8	3	9	29	26	17	0	0
2561	29	41	A020213	1170	930	570	70	1040	1030	1030	1054	1060	1035	30	10	5	0.000544	0.000233	8	3	9	37	36	25	0	0
2560	29	40	A020214	1150	890	410	-300	985	960	960	1004	995	964	30	8	3	0.000330	0.000112	8	3	10	34	38	21	0	0
2559	29	39	A020215	1150	850	180	-550	970	940	940	992	960	944	30	8	3	0.000237	0.000097	8	3	10	43	54	22	0	0
2558	29	38	A020216	1150	800	-50	-1000	940	935	935	965	956	940	30	4	3	0.000094	0.000054	9	3	10	50	34	29	0	0
2557	29	37	A020217	1140	860	-200	-1560	930	930	930	959	930	934	30	4	3	0.000075	0.000041	9	5	10	30	42	41	0	0
2556	29	36	A020218	1120	800	-350	-1880	925	920	920	953	916	923	50	4	3	0.000069	0.000037	9	5	10	77	46	46	0	0
2646	30	36	A020219	1110	710	-400	-1890	920	915	915	948	918	918	50	13	12	0.000232	0.000136	9	5	5	119	144	179	0	0
2647	30	37	A020220	1120	800	-240	-1880	935	930	930	961	942	934	40	8	6	0.000153	0.000075	9	5	10	64	83	98	0	0
2648	30	38	A020221	1130	810	-70	-1520	950	945	945	974	965	949	40	8	3	0.000181	0.000057	9	3	10	66	70	44	0	0
2649	30	39	A020222	1130	820	170	-1070	970	955	955	991	985	959	40	8	3	0.000244	0.000069	8	3	10	68	52	37	0	0
2650	30	40	A020223	1120	860	400	-680	990	975	975	1009	1005	979	40	10	3	0.000429	0.000088	8	3	10	60	46	32	0	0
2651	30	41	A020224	1120	900	560	-330	1040	1020	1020	1055	1040	1024	30	10	3	0.000573	0.000110	8	3	9	47	34	27	0	0
2741	31	41	A020225	1110	850	530	-840	1000	990	990	1011	1010	994	40	10	3	0.000611	0.000077	8	3	9	64	32	41	0	0
2740	31	40	A020226	1110	820	350	-1240	975	975	975	988	1000	979	40	10	6	0.000419	0.000111	8	3	10	67	47	95	0	0
2739	31	39	A020227	1100	800	120	-1700	970	960	960	990	985	964	40	10	6	0.000290	0.000091	8	3	10	76	68	109	0	0
2738	31	38	A020228	1100	750	-100	-1900	950	950	950	972	970	954	40	8	6	0.000186	0.000078	9	3	10	89	68	108	0	0
2737	31	37	A020229	1100	700	-300	-1900	935	935	935	957	947	938	40	13	6	0.000256	0.000095	9	5	10	103	130	96	0	0
2736	31	36	A020230	1090	730	-410	-1910	930	925	925	950	932	928	50	13	12	0.000226	0.000133	9	5	5	110	148	180	0	0
2826	32	36	A020231	1070	700	-410	-1930	940	935	935	956	945	939	50	13	12	0.000232	0.000134	9	5	5	128	144	182	0	0
2827	32	37	A020232	1080	720	-320	-1920	945	945	945	965	958	948	40	13	6	0.000247	0.000094	9	3	10	98	135	96	0	0
2828	32	38	A020233	1080	720	-110	-1920	955	955	955	975	975	959	40	20	6	0.000469	0.000104	9	3	10	102	166	109	0	0
2829	32	39	A020234	1080	750	100	-1920	965	965	965	980	987	969	40	20	6	0.000596	0.000100	8	3	10	92	130	121	0	0
2830	32	40	A020235	1090	800	320	-1760	975	975	975	987	995	979	40	20	6	0.000804	0.000101	8	3	10	75	96	125	0	0
2831	32	41	A020236	1090	830	500	-1210	985	985	985	997	992	990	40	20	6	0.001158	0.000126	8	3	9	67	66	103	0	0
2383	27	43	A020305	1200	890	0	0	980	0	0	993	0	0	50	0	0	0.000000	0.000000	9	0	0	52	0	0	0	0
2382	27	42	A020306	1180	950	760	560	980	960	960	994	985	967	50	15	15	0.001564	0.001034	9	3	9	22	29	30	0	0
2472	28	42	A020307	1160	950	700	600	1030	1020	1020	1045	1042	1026	50	15	15	0.001177	0.001000	8	3	9	48	38	15	0	0
2473	28	43	A020308	1170	990	870	770	1000	1000	1000	1013	1010	1004	50	15	15	0.002488	0.001765	8	5	10	12	18	15	0	0
2474	28	44	A020309	1190	1030	970	890	0	1000	1000	0	1007	1002	50	15	15	0.000000	0.004286	9	5	10	0	6	12	0	0
2567	29	47	A020313	1260	1040	990	940	1170	1150	1150	1181	1130	1138	50	20	15	0.006623	0.004800	10	5	10	71	10	8	0	0
2566	29	46	A020314	1210	1010	960	910	1100	1100	1100	1113	1071	1071	50	20	15	0.006993	0.004800	10	5	10	52	10	8	0	0
2565	29	45	A020315	1170	1030	930	870	1060	1050	1050	1072	1035	1032	50	20	15	0.003906	0.002857	10	5	10	21	20	9	0	0
2564	29	44	A020316	1160	1030	950	860	0	1020	1020	0	1019	1012	50	15	15	0.000000	0.002609	9	5	10	0	10	14	0	0
2563	29	43	A020317	1140	960	850	640	1025	1025	1025	1037	1028	1027	50	15	15	0.002634	0.001395	8	5	10	39	17	32	0	0
2562	29	42	A020318	1140	940	690	440	1040	1030	1030	1054	1050	1034	50	15	15	0.001172	0.000800	8	5	9	57	38	38	0	0
2652	30	42	A020319	1110	930	680	10	1040	1040	1040	1052	1044	1044	50	10	3	0.000786	0.000146	8	5	9	61	25	20	0	0
2653	30	43	A020320	1120	950	800	270	1050	1045	1045	1062	1045	1047	50	15	5	0.001923	0.000317	9	5	9	56	23	27	0	0
2654	30	44	A020321	1130	980	880	580	1070	1060	1060	1082	1057	1054	50	20	15	0.003731	0.001333	9	5	10	51	20	45	0	0
2655	30	45	A020322	1140	980	920	840	1080	1070	1070	1091	1055	1055	50	20	15	0.005882	0.003529	10	5	10	56	12	12	0	0
2656	30	46	A020323	1170	1000	950	870	1120	1120	1120	1131	1097	1100	50	20	15	0.006711	0.003871	10	5	10	66	10	12	0	0
2657	30	47	A020324	1200	1020	980	900	1180	1160	1160	1190	1140	1148	50	20	15	0.007576	0.004286	10	5	10	85	8	12	0	0
2747	31	47	A020325	1190	990	950	850	1150	1150	1150	1156	1151	1147	50	20	15	0.007576	0.003750	10	5	10	83	8	15	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
2746	31	46	A020326	1160	990	920	820	1100	1100	1100	1108	1100	1096	50	20	15	0.005076	0.002927	10	5	9	59	14	15	0	0
2745	31	45	A020327	1140	990	900	740	1070	1070	1070	1079	1071	1070	50	20	15	0.004149	0.002034	10	5	9	45	18	24	0	0
2744	31	44	A020328	1110	985	850	330	1050	1050	1050	1060	1045	1046	50	20	15	0.002853	0.000830	9	5	9	38	27	78	0	0
2743	31	43	A020329	1100	960	770	-100	1040	1040	1040	1050	1040	1042	45	10	3	0.001033	0.000122	9	5	9	41	19	26	0	0
2742	31	42	A020330	1110	900	660	-490	1020	1020	1020	1031	1024	1024	45	10	3	0.000815	0.000093	8	5	9	59	24	35	0	0
2832	32	42	A020331	1090	870	620	-740	1000	1000	1000	1010	1006	1006	45	20	6	0.001529	0.000159	9	5	9	63	50	82	0	0
2833	32	43	A020332	1090	890	730	-260	1020	1010	1010	1027	1013	1017	45	20	6	0.002332	0.000221	9	5	9	62	32	59	0	0
2834	32	44	A020333	1100	900	810	200	1030	1020	1020	1037	1022	1027	45	20	15	0.003939	0.000805	10	5	9	62	18	92	0	0
2835	32	45	A020334	1120	920	860	620	1050	1050	1050	1057	1057	1057	50	20	15	0.005682	0.001818	10	5	9	69	12	36	0	0
2836	32	46	A020335	1140	920	880	800	1080	1065	1065	1086	1070	1072	50	20	15	0.007576	0.004286	10	5	9	83	8	12	0	0
2837	32	47	A020336	1160	940	0	0	1120	0	0	1121	0	0	50	0	0	0.000000	0.000000	10	0	0	91	0	0	0	0
2393	27	53	A020401	1300	1050	550	-1000	0	930	910	0	950	935	20	10	4	0.000000	0.000086	8	5	9	0	40	62	0	0
2392	27	52	A020402	1290	1100	700	40	0	890	870	0	910	894	20	15	5	0.000000	0.000254	8	5	10	0	32	33	0	0
2391	27	51	A020403	1320	1110	850	570	0	900	880	0	920	900	20	15	10	0.000000	0.001154	8	5	10	0	11	28	0	0
2481	28	51	A020410	1320	1110	850	570	0	900	880	0	925	906	50	15	15	0.000000	0.001579	9	5	10	0	11	42	0	0
2482	28	52	A020411	1280	1050	700	280	0	880	860	0	908	888	50	15	10	0.000000	0.000606	9	5	9	0	31	42	0	0
2483	28	53	A020412	1280	1090	490	-720	0	910	890	0	936	918	50	10	5	0.000000	0.000123	9	5	9	0	45	61	0	0
2573	29	53	A020413	1260	1040	450	-440	0	950	930	0	977	962	50	10	5	0.000000	0.000144	9	5	9	0	53	45	0	0
2572	29	52	A020414	1280	1100	600	430	0	880	860	0	907	888	50	15	10	0.000000	0.000736	9	5	9	0	46	17	0	0
2571	29	51	A020415	1330	1110	850	630	0	900	880	0	928	908	50	15	15	0.000000	0.001875	9	7	10	0	12	33	0	0
2568	29	48	A020418	1280	1070	0	0	1210	0	0	1219	0	0	70	0	0	0.000000	0.000000	10	0	0	104	0	0	0	0
2658	30	48	A020419	1240	1040	0	0	1210	0	0	1217	0	0	70	0	0	0.000000	0.000000	10	0	0	124	0	0	0	0
2661	30	51	A020422	1280	1090	880	820	0	930	910	0	962	942	50	15	15	0.000000	0.003750	10	7	10	0	12	9	0	0
2662	30	52	A020423	1250	1080	650	260	1095	890	870	1101	916	901	50	15	10	0.000025	0.000563	10	7	9	11	40	39	0	0
2663	30	53	A020424	1250	1080	600	-360	1105	950	930	1111	965	966	50	10	5	0.000012	0.000153	10	7	9	16	37	48	0	0
2753	31	53	A020425	1240	1080	500	-260	1110	920	900	1117	912	938	50	10	5	0.000009	0.000169	10	7	9	19	41	38	0	0
2752	31	52	A020426	1230	1080	600	110	1100	920	900	1107	934	932	50	15	10	0.000019	0.000436	10	7	9	14	50	49	0	0
2751	31	51	A020427	1260	1050	850	810	0	950	930	0	988	960	50	15	15	0.000000	0.002500	10	7	10	0	21	6	0	0
2748	31	48	A020430	1210	1050	0	0	1200	0	0	1202	0	0	70	0	0	0.000000	0.000000	10	0	0	106	0	0	0	0
2838	32	48	A020431	1180	1060	0	0	1150	0	0	1149	0	0	70	0	0	0.000000	0.000000	10	0	0	62	0	0	0	0
2841	32	51	A020434	1250	1040	920	750	0	1000	980	0	1022	1009	50	15	15	0.000000	0.001818	10	7	10	0	15	26	0	0
2842	32	52	A020435	1220	1070	680	320	1100	950	930	1108	950	962	50	15	10	0.000022	0.000556	10	7	9	19	41	36	0	0
2843	32	53	A020436	1220	1080	510	-100	1115	1000	980	1123	967	1019	50	10	5	0.000008	0.000182	10	7	9	22	46	31	0	0
2399	27	59	A020501	1410	1250	800	-590	0	990	970	0	1032	991	35	6	3	0.000000	0.000076	9	10	10	0	14	42	0	0
2398	27	58	A020502	1400	1200	620	-1600	0	990	970	0	1030	990	35	5	3	0.000000	0.000045	10	10	10	0	21	67	0	0
2397	27	57	A020503	1370	1150	490	-1630	0	990	970	0	1023	990	35	5	3	0.000000	0.000044	10	10	9	0	27	64	0	0
2396	27	56	A020504	1340	1110	350	-1660	0	1010	1010	0	1038	1037	35	5	3	0.000000	0.000043	10	10	9	0	34	60	0	0
2395	27	55	A020505	1310	1080	320	-1690	0	1010	1010	0	1032	1038	35	5	3	0.000000	0.000042	10	7	9	0	36	60	0	0
2394	27	54	A020506	1300	1070	400	-1700	0	1030	1010	0	1050	1037	35	5	4	0.000000	0.000051	9	7	9	0	33	84	0	0
2484	28	54	A020507	1280	1100	390	-1720	0	990	970	0	1016	1000	50	5	5	0.000000	0.000060	9	7	9	0	31	106	0	0
2485	28	55	A020508	1290	1080	380	-1710	0	1005	1005	0	1033	1033	50	5	5	0.000000	0.000060	10	10	9	0	33	105	0	0
2486	28	56	A020509	1310	1090	410	-1690	0	1005	1005	0	1036	1034	50	5	5	0.000000	0.000061	10	10	9	0	31	105	0	0
2487	28	57	A020510	1330	1130	540	-1670	0	980	960	0	1025	990	50	6	5	0.000000	0.000068	10	10	10	0	29	111	0	0
2488	28	58	A020511	1350	1150	630	-1650	0	970	950	0	1020	981	50	6	3	0.000000	0.000046	10	10	10	0	23	68	0	0
2489	28	59	A020512	1370	1190	780	-1630	0	970	950	0	1016	983	50	6	3	0.000000	0.000046	9	10	10	0	14	72	0	0
2579	29	59	A020513	1340	1090	790	-1660	0	970	950	0	1019	993	50	15	3	0.000000	0.000048	15	10	10	0	34	74	0	0
2578	29	58	A020514	1320	1110	710	-1680	0	970	950	0	1015	990	50	15	3	0.000000	0.000048	10	10	10	0	46	72	0	0
2577	29	57	A020515	1310	1110	650	-1690	0	990	970	0	1030	1009	50	10	3	0.000000	0.000047	10	10	10	0	38	70	0	0
2576	29	56	A020516	1290	1090	550	-1710	1135	1010	1010	1141	1044	1049	50	10	3	0.000086	0.000047	10	10	10	26	49	68	0	0
2575	29	55	A020517	1270	1080	410	-1730	1130	1005	1005	1135	1032	1044	50	10	5	0.000066	0.000073	10	10	9	28	62	107	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
2574	29	54	A020518	1270	1070	400	-1730	1120	980	960	1125	1018	999	50	10	5	0.000068	0.000074	9	7	9	28	62	107	0	0
2664	30	54	A020519	1240	1090	420	-1510	1120	1000	980	1126	1015	1019	50	10	5	0.000068	0.000080	10	7	9	18	60	97	0	0
2665	30	55	A020520	1260	1080	500	-1740	1135	1020	1020	1142	1035	1061	50	10	5	0.000076	0.000072	10	10	9	31	54	112	0	0
2666	30	56	A020521	1270	1070	610	-1730	1135	1010	1010	1143	1038	1052	50	10	5	0.000098	0.000073	10	10	10	37	43	117	0	0
2667	30	57	A020522	1280	1060	660	-1720	1120	1000	1000	1128	1039	1043	50	10	3	0.000116	0.000046	10	10	10	34	38	71	0	0
2668	30	58	A020523	1290	1050	700	-1710	0	980	980	0	1029	1024	50	10	3	0.000000	0.000047	15	10	10	0	33	72	0	0
2669	30	59	A020524	1290	1040	700	-1710	0	970	970	0	1031	1022	50	10	3	0.000000	0.000047	15	10	10	0	33	72	0	0
2759	31	59	A020525	1250	1010	650	-1750	1050	980	980	1074	1045	1039	150	10	4	0.000120	0.000120	20	10	10	96	36	96	0	0
2758	31	58	A020526	1250	1010	690	-1750	1090	990	990	1104	1043	1040	150	10	4	0.000122	0.000120	20	10	10	141	32	98	0	0
2757	31	57	A020527	1250	1040	710	-1750	1120	1000	1000	1130	1033	1045	50	10	4	0.000075	0.000059	15	10	10	45	32	98	0	0
2756	31	56	A020528	1250	1070	660	-1750	1135	1010	1010	1144	1029	1054	50	10	5	0.000112	0.000072	15	10	9	37	37	121	0	0
2755	31	55	A020529	1250	1090	590	-1750	1135	1030	1030	1143	1037	1073	50	10	5	0.000090	0.000072	10	10	9	27	45	117	0	0
2754	31	54	A020530	1240	1090	490	-1260	1125	1090	1070	1132	1084	1111	50	10	5	0.000066	0.000085	10	7	9	21	59	88	0	0
2844	32	54	A020531	1230	1100	600	-900	1130	1080	1060	1139	1050	1102	50	10	5	0.000082	0.000101	10	7	9	20	45	75	0	0
2845	32	55	A020532	1230	1110	690	-1690	1135	1040	1040	1145	1000	1081	50	10	5	0.000063	0.000073	15	7	9	18	31	119	0	0
2846	32	56	A020533	1230	1090	710	-1770	1135	1030	1030	1150	1049	1074	50	10	5	0.000063	0.000071	15	10	9	30	34	124	0	0
2847	32	57	A020534	1230	1040	720	-1770	1120	1000	1000	1138	1040	1048	150	10	4	0.000071	0.000129	20	10	9	147	32	100	0	0
2848	32	58	A020535	1240	990	690	-1760	1090	960	960	1110	1020	1013	150	20	4	0.000150	0.000123	20	10	10	180	60	98	0	0
2849	32	59	A020536	1250	900	650	-1750	1050	960	960	1076	1027	1021	50	20	4	0.000292	0.000124	15	10	10	88	50	96	0	0
2582	29	62	A020616	1320	1240	900	820	0	950	950	0	1019	1011	50	20	3	0.000000	0.001263	15	10	10	0	24	2	0	0
2581	29	61	A020617	1310	1190	900	410	0	950	950	0	1017	1006	50	20	3	0.000000	0.000238	15	10	10	0	23	15	0	0
2580	29	60	A020618	1340	1100	850	-910	0	960	960	0	1019	1010	50	20	3	0.000000	0.000067	15	10	10	0	34	53	0	0
2670	30	60	A020619	1270	1050	740	-1730	0	960	960	0	1026	1019	50	10	3	0.000000	0.000106	15	10	10	0	29	74	0	0
2671	30	61	A020620	1270	1090	810	-330	0	940	940	0	1010	1005	50	20	3	0.000000	0.000202	15	10	10	0	40	34	0	0
2672	30	62	A020621	1290	1150	900	500	0	940	940	0	1012	1008	50	20	5	0.000000	0.000876	15	10	10	0	22	20	0	0
2763	31	63	A020627	1300	1150	900	750	0	930	930	0	1003	1000	150	10	4	0.000000	0.001020	20	10	10	0	10	6	0	0
2762	31	62	A020628	1280	1080	850	290	0	930	930	0	1005	1005	150	10	4	0.000000	0.000556	20	10	10	0	16	22	0	0
2761	31	61	A020629	1270	1000	780	-930	0	940	940	0	1013	1011	150	20	4	0.000000	0.000200	20	10	10	0	44	68	0	0
2760	31	60	A020630	1260	1010	550	-1740	0	960	960	0	1030	1026	150	20	4	0.000000	0.000125	20	10	10	0	92	92	0	0
2850	32	60	A020631	1260	900	500	-1740	1030	960	960	1060	1030	1029	50	20	4	0.000190	0.000127	15	10	10	80	80	90	0	0
2851	32	61	A020632	1290	850	630	-1110	0	940	940	0	1011	1011	40	20	4	0.000000	0.000088	15	10	10	0	44	70	0	0
2852	32	62	A020633	1360	1010	600	-40	0	930	930	0	1004	1004	40	10	4	0.000000	0.000177	15	10	10	0	40	26	0	0
2853	32	63	A020634	1380	1070	650	480	0	920	920	0	994	991	40	10	4	0.000000	0.000415	15	10	10	0	34	7	0	0
1835	21	35	A030101	1220	900	130	-380	0	830	810	0	810	819	20	4	3	0.000000	0.000077	10	7	9	0	27	15	0	0
1834	21	34	A030102	1200	920	140	-800	0	850	850	0	840	855	20	4	3	0.000000	0.000060	10	7	10	0	28	28	0	0
1833	21	33	A030103	1190	880	150	-1410	0	840	840	0	829	840	15	4	3	0.000000	0.000046	10	10	10	0	27	47	0	0
1832	21	32	A030104	1200	830	150	-1800	0	830	830	0	816	826	20	4	2	0.000000	0.000030	10	10	10	0	27	39	0	0
1831	21	31	A030105	1200	800	150	-1800	820	820	820	823	805	799	20	4	2	0.000123	0.000031	9	10	10	5	26	39	0	0
1830	21	30	A030106	1190	800	140	-1810	820	810	810	825	785	788	20	4	2	0.000121	0.000310	9	10	10	5	26	39	0	0
1920	22	30	A030107	1170	700	20	-1830	820	820	820	825	785	798	10	2	3	0.000058	0.000310	10	10	10	13	14	56	0	0
1921	22	31	A030108	1170	800	10	-1830	840	840	840	843	830	820	20	4	3	0.000101	0.000040	10	10	10	9	32	55	0	0
1922	22	32	A030109	1170	880	10	-1830	0	850	850	0	838	846	20	4	3	0.000000	0.000039	10	10	10	0	33	55	0	0
1923	22	33	A030110	1170	890	10	-1680	0	870	870	0	860	872	12	4	2	0.000000	0.000031	10	7	10	0	34	34	0	0
1924	22	34	A030111	1190	850	10	-1010	900	870	870	896	864	874	20	4	3	0.000095	0.000053	10	7	9	9	34	31	0	0
1925	22	35	A030112	1210	840	10	-560	900	860	860	896	840	868	20	4	3	0.000096	0.000066	10	5	9	11	33	17	0	0
2015	23	35	A030113	1190	850	-170	-960	930	900	900	930	870	907	20	4	5	0.000078	0.000060	10	5	9	16	41	40	0	0
2014	23	34	A030114	1170	850	-250	-1480	930	900	900	930	893	903	20	4	3	0.000073	0.000042	10	7	9	16	44	37	0	0
2013	23	33	A030115	1160	900	-260	-1840	910	900	900	911	891	901	12	4	3	0.000069	0.000036	10	7	9	1	46	47	0	0
2012	23	32	A030116	1140	930	-220	-1860	0	880	880	0	873	880	20	4	2	0.000000	0.000029	10	7	9	0	44	33	0	0
2011	23	31	A030117	1150	870	-150	-1850	0	850	850	0	845	841	20	4	2	0.000000	0.000030	10	7	9	0	40	34	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
2010	23	30	A030118	1150	710	-60	-1850	840	830	830	845	810	808	10	2	2	0.000052	0.000240	10	7	9	14	15	36	0	0
2100	24	30	A030119	1130	800	-100	-1870	845	840	840	852	830	820	8	2	2	0.000044	0.000220	10	7	9	4	18	35	0	0
2101	24	31	A030120	1130	800	-300	-1870	880	870	870	885	865	860	8	2	2	0.000036	0.000021	10	7	9	7	22	31	0	0
2102	24	32	A030121	1120	900	-390	-1880	920	900	900	924	901	901	20	3	3	0.000046	0.000029	10	7	9	5	39	45	0	0
2103	24	33	A030122	1140	850	-400	-1860	940	920	920	942	910	922	20	4	3	0.000064	0.000036	10	7	9	18	50	44	0	0
2104	24	34	A030123	1160	800	-380	-1840	940	920	920	942	901	922	20	4	3	0.000067	0.000037	10	5	9	28	47	44	0	0
2105	24	35	A030124	1170	860	-280	-1580	940	920	920	942	890	925	20	4	3	0.000070	0.000040	10	5	9	16	46	39	0	0
2195	25	35	A030125	1160	810	-350	-1840	940	930	930	946	900	934	20	3	2	0.000052	0.000026	9	5	9	27	35	30	0	0
2194	25	34	A030126	1140	780	-420	-1860	940	930	930	946	910	932	20	3	2	0.000050	0.000026	10	5	9	33	36	29	0	0
2193	25	33	A030127	1130	800	-430	-1870	950	920	920	956	910	922	20	3	3	0.000049	0.000031	10	5	9	31	37	43	0	0
2192	25	32	A030128	1110	850	-430	-1890	950	910	910	956	905	911	10	2	3	0.000031	0.000023	10	7	9	11	26	44	0	0
2191	25	31	A030129	1110	800	-380	-1890	900	890	890	906	888	881	8	2	3	0.000034	0.000024	10	7	9	8	24	45	0	0
2190	25	30	A030130	1130	800	-180	-1870	855	850	850	862	848	838	8	2	2	0.000041	0.000220	10	7	9	5	20	34	0	0
2280	26	30	A030131	1100	760	-280	-1400	865	865	865	873	864	855	8	2	2	0.000038	0.000250	10	7	10	9	21	22	0	0
2281	26	31	A030132	1090	720	-420	-1910	910	900	900	917	895	902	25	2	2	0.000035	0.000021	10	7	10	49	23	30	0	0
2282	26	32	A030133	1100	730	-480	-1900	950	930	930	957	921	931	25	2	2	0.000033	0.000021	10	7	10	57	24	28	0	0
2283	26	33	A030134	1110	700	-480	-1890	950	930	930	958	917	932	25	3	2	0.000051	0.000027	10	5	10	65	35	28	0	0
2284	26	34	A030135	1120	700	-450	-1880	940	935	935	949	915	937	25	3	2	0.000052	0.000027	10	5	10	62	35	29	0	0
2285	26	35	A030136	1140	750	-400	-1860	935	935	935	946	905	938	25	3	2	0.000052	0.000027	9	5	10	49	35	29	0	0
1841	21	41	A030201	1330	1030	830	680	0	0	770	0	0	773	15	7	9	0.000000	0.000000	10	5	10	0	0	8	0	0
1840	21	40	A030202	1310	980	770	510	0	0	750	0	0	756	20	7	9	0.000000	0.000000	10	5	9	0	0	22	0	0
1839	21	39	A030203	1290	930	650	310	0	770	750	0	772	761	20	7	9	0.000000	0.000555	10	5	9	0	9	31	0	0
1838	21	38	A030204	1270	840	420	140	0	790	770	0	790	786	15	7	9	0.000000	0.000292	10	5	9	0	26	25	0	0
1837	21	37	A030205	1250	820	280	-50	0	810	790	0	780	809	15	7	9	0.000000	0.000213	10	7	9	0	35	30	0	0
1836	21	36	A030206	1230	890	160	-220	0	800	780	0	770	794	15	4	9	0.000000	0.000110	10	7	9	0	24	34	0	0
1926	22	36	A030207	1220	870	120	-380	880	860	860	880	800	872	20	4	5	0.000108	0.000085	10	5	9	2	27	25	0	0
1927	22	37	A030208	1240	870	250	-230	880	860	860	882	820	874	20	5	5	0.000164	0.000118	10	5	9	2	29	24	0	0
1928	22	38	A030209	1260	860	380	-90	870	800	780	873	790	793	20	7	5	0.000333	0.000187	10	5	9	3	29	24	0	0
1929	22	39	A030210	1280	880	450	80	0	800	780	0	802	791	20	7	5	0.000000	0.000230	10	3	9	0	25	19	0	0
1930	22	40	A030211	1290	860	550	290	0	800	780	0	804	789	20	7	5	0.000000	0.000324	10	5	9	0	18	13	0	0
1931	22	41	A030212	1300	1000	800	620	0	0	750	0	0	757	35	7	5	0.000000	0.000000	10	5	9	0	0	7	0	0
2021	23	41	A030213	1280	880	500	380	0	760	740	0	767	751	35	7	5	0.000000	0.000407	10	3	9	0	19	6	0	0
2020	23	40	A030214	1270	830	350	20	880	880	860	888	886	872	20	7	5	0.000290	0.000197	10	3	9	12	34	17	0	0
2019	23	39	A030215	1260	800	280	-140	890	880	860	896	880	872	20	7	5	0.000266	0.000172	10	3	9	19	36	21	0	0
2018	23	38	A030216	1240	800	250	-260	900	900	900	905	880	911	20	7	5	0.000251	0.000154	10	5	9	21	39	26	0	0
2017	23	37	A030217	1220	860	180	-410	900	900	900	904	860	911	20	7	5	0.000205	0.000128	10	5	9	9	48	30	0	0
2016	23	36	A030218	1200	830	-20	-600	910	900	900	911	860	909	20	4	5	0.000094	0.000074	10	5	9	16	34	29	0	0
2106	24	36	A030219	1190	800	-100	-1210	930	930	930	934	880	938	20	4	3	0.000088	0.000049	10	5	9	27	36	33	0	0
2107	24	37	A030220	1200	810	150	-980	930	920	920	937	870	930	20	7	3	0.000209	0.000071	10	5	9	25	46	34	0	0
2108	24	38	A030221	1230	800	310	-770	920	920	920	929	900	931	20	7	3	0.000281	0.000080	10	5	9	26	34	32	0	0
2109	24	39	A030222	1240	770	140	-560	920	900	880	929	900	893	20	7	5	0.000219	0.000125	10	3	9	32	44	35	0	0
2110	24	40	A030223	1260	860	300	-290	910	860	840	919	873	855	20	7	5	0.000248	0.000144	10	3	9	12	39	30	0	0
2111	24	41	A030224	1260	880	500	-40	900	850	830	910	866	844	35	7	5	0.000399	0.000192	10	3	9	11	26	27	0	0
2201	25	41	A030225	1260	1050	600	160	0	890	870	0	902	884	35	8	5	0.000000	0.000249	9	3	9	0	24	22	0	0
2200	25	40	A030226	1230	830	350	-270	915	890	870	927	902	885	20	8	5	0.000329	0.000164	9	3	9	19	38	31	0	0
2199	25	39	A030227	1230	830	280	-620	910	900	880	922	890	893	20	7	5	0.000252	0.000119	10	3	9	18	39	45	0	0
2198	25	38	A030228	1210	820	270	-990	920	910	910	931	880	922	20	7	3	0.000251	0.000069	10	5	9	22	39	38	0	0
2197	25	37	A030229	1190	800	20	-1260	940	920	920	950	860	931	20	7	2	0.000177	0.000046	9	5	9	30	55	26	0	0
2196	25	36	A030230	1170	780	-170	-1630	940	930	930	949	880	936	20	3	2	0.000063	0.000029	9	5	9	34	29	29	0	0
2286	26	36	A030231	1160	770	-220	-1840	940	930	930	952	890	938	20	3	2	0.000060	0.000027	9	5	9	36	30	32	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
2287	26	37	A030232	1180	900	-30	-1320	945	920	920	958	875	928	20	4	2	0.000086	0.000036	9	5	9	12	36	26	0	0
2288	26	38	A030233	1200	980	200	-800	0	925	925	0	893	935	20	4	3	0.000000	0.000057	9	5	9	0	28	30	0	0
2289	26	39	A030234	1210	1000	300	-420	0	925	905	0	918	916	30	7	3	0.000000	0.000096	9	3	9	0	43	22	0	0
2290	26	40	A030235	1210	1000	500	-160	0	900	880	0	906	892	30	8	3	0.000000	0.000125	9	3	9	0	32	20	0	0
2291	26	41	A030236	1210	1070	710	260	0	910	890	0	921	900	50	8	5	0.000000	0.000286	9	3	9	0	17	23	0	0
1847	21	47	A030301	1440	1300	1200	860	0	0	1080	0	0	1074	20	6	4	0.000000	0.000000	9	7	9	0	0	9	0	0
1846	21	46	A030302	1430	1290	1170	960	0	0	1150	0	0	1146	20	6	4	0.000000	0.000000	9	7	10	0	0	7	0	0
1845	21	45	A030303	1420	1290	1180	1000	0	0	1185	0	0	1183	20	5	4	0.000000	0.000000	9	7	10	0	0	7	0	0
1842	21	42	A030306	1350	1060	950	820	0	0	850	0	0	852	30	5	9	0.000000	0.000000	10	7	10	0	0	3	0	0
1937	22	47	A030312	1420	1250	1150	890	0	0	1040	0	0	1043	20	6	4	0.000000	0.000000	9	7	9	0	0	6	0	0
2027	23	47	A030313	1400	1200	1080	810	0	0	1030	0	0	1038	20	6	4	0.000000	0.000000	9	7	9	0	0	9	0	0
2026	23	46	A030314	1440	1300	1200	970	0	0	1060	0	0	1068	20	6	4	0.000000	0.000000	9	7	9	0	0	4	0	0
2116	24	46	A030323	1440	1300	1160	970	0	0	1060	0	0	1066	20	6	5	0.000000	0.000000	9	7	9	0	0	5	0	0
2117	24	47	A030324	1400	1250	1140	920	0	0	1020	0	0	1027	20	6	5	0.000000	0.000000	9	7	9	0	0	5	0	0
1853	21	53	A030401	1520	1300	820	80	0	1120	1120	0	1118	1123	35	8	5	0.000000	0.000179	9	7	10	0	24	37	0	0
1852	21	52	A030402	1500	1280	500	-750	0	1070	1070	0	1069	1072	20	5	5	0.000000	0.000084	9	7	9	0	28	63	0	0
1851	21	51	A030403	1490	1210	540	-1090	0	1050	1050	0	1051	1051	20	5	5	0.000000	0.000075	8	5	9	0	26	82	0	0
1850	21	50	A030404	1470	1200	600	-530	0	990	970	0	992	970	20	5	5	0.000000	0.000105	8	5	10	0	20	57	0	0
1849	21	49	A030405	1460	1260	760	-20	0	990	970	0	992	967	20	6	5	0.000000	0.000172	8	5	10	0	14	39	0	0
1848	21	48	A030406	1450	1280	1050	450	0	0	1000	0	0	994	20	6	4	0.000000	0.000000	9	7	9	0	0	22	0	0
1938	22	48	A030407	1430	1250	1000	450	0	0	1000	0	0	1002	20	6	4	0.000000	0.000000	9	7	9	0	0	22	0	0
1939	22	49	A030408	1430	1240	600	-30	0	980	960	0	984	961	20	6	5	0.000000	0.000158	8	5	9	0	23	32	0	0
1940	22	50	A030409	1430	1200	500	-500	0	980	960	0	983	961	20	5	5	0.000000	0.000102	8	5	9	0	24	50	0	0
1941	22	51	A030410	1440	1200	400	-960	0	1000	980	0	1001	982	20	5	5	0.000000	0.000078	8	5	9	0	30	68	0	0
1942	22	52	A030411	1450	1220	400	-650	0	1070	1070	0	1068	1073	20	5	5	0.000000	0.000084	9	5	9	0	33	53	0	0
1943	22	53	A030412	1460	1260	670	50	0	1110	1110	0	1105	1118	20	5	4	0.000000	0.000121	9	7	9	0	22	25	0	0
2033	23	53	A030413	1410	1200	610	-390	0	1100	1100	0	1092	1113	20	5	4	0.000000	0.000090	9	7	9	0	24	40	0	0
2032	23	52	A030414	1410	1210	400	-590	0	1070	1070	0	1066	1080	20	5	5	0.000000	0.000086	9	5	9	0	33	50	0	0
2031	23	51	A030415	1400	1200	380	-640	0	1000	980	0	1001	988	20	5	5	0.000000	0.000088	8	5	9	0	31	51	0	0
2030	23	50	A030416	1400	1190	580	-170	0	950	930	0	956	937	20	5	5	0.000000	0.000134	8	5	9	0	19	38	0	0
2029	23	49	A030417	1400	1210	750	170	0	960	940	0	966	945	20	6	5	0.000000	0.000215	9	5	9	0	13	29	0	0
2028	23	48	A030418	1400	1200	990	600	0	0	990	0	0	995	20	6	4	0.000000	0.000000	9	7	9	0	0	16	0	0
2118	24	48	A030419	1390	1180	980	700	0	0	990	0	0	996	20	6	5	0.000000	0.000000	9	7	9	0	0	14	0	0
2119	24	49	A030420	1370	1200	800	370	0	960	940	0	967	947	20	6	5	0.000000	0.000287	9	5	10	0	10	22	0	0
2120	24	50	A030421	1370	1180	600	60	0	930	910	0	937	918	20	5	5	0.000000	0.000167	8	5	10	0	17	27	0	0
2121	24	51	A030422	1370	1190	450	-370	0	1000	980	0	1004	991	20	5	5	0.000000	0.000104	8	5	10	0	28	41	0	0
2122	24	52	A030423	1370	1180	300	-430	0	1090	1070	0	1086	1083	20	5	5	0.000000	0.000087	9	5	10	0	39	37	0	0
2123	24	53	A030424	1380	1090	520	-980	0	1090	1070	0	1084	1086	20	5	4	0.000000	0.000066	9	5	10	0	28	60	0	0
2213	25	53	A030425	1350	1050	380	-1250	0	1050	1030	0	1051	1048	20	5	4	0.000000	0.000059	9	5	10	0	34	65	0	0
2212	25	52	A030426	1340	1120	300	-500	0	1080	1060	0	1084	1076	20	5	5	0.000000	0.000085	8	5	10	0	39	40	0	0
2211	25	51	A030427	1340	1150	500	-80	0	1000	980	0	1006	992	20	5	5	0.000000	0.000127	8	5	10	0	25	29	0	0
2210	25	50	A030428	1340	1150	700	240	0	930	910	0	938	919	20	6	5	0.000000	0.000237	8	5	10	0	14	23	0	0
2209	25	49	A030429	1360	1210	850	650	0	960	940	0	967	947	20	6	5	0.000000	0.000522	9	5	10	0	7	10	0	0
2300	26	50	A030433	1330	1140	850	660	0	930	910	0	942	922	20	6	5	0.000000	0.000619	8	5	10	0	6	10	0	0
2301	26	51	A030434	1310	1120	670	180	0	920	900	0	932	916	20	15	5	0.000000	0.000305	8	5	10	0	39	25	0	0
2302	26	52	A030435	1310	1090	420	-250	0	950	930	0	963	950	20	15	5	0.000000	0.000195	8	5	10	0	81	34	0	0
2303	26	53	A030436	1320	1020	380	-1280	0	1000	980	0	1012	1001	20	5	4	0.000000	0.000060	8	5	10	0	32	66	0	0
1855	21	55	A030505	1540	1440	1340	1090	0	0	1160	0	0	1170	35	8	5	0.000000	0.000000	9	7	10	0	0	4	0	0
1854	21	54	A030506	1530	1370	1120	790	0	1140	1140	0	1138	1146	35	8	5	0.000000	0.000563	9	7	10	0	1	17	0	0
1944	22	54	A030507	1470	1320	960	470	0	1130	1130	0	1125	1142	35	8	4	0.000000	0.000242	9	7	9	0	13	20	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
1945	22	55	A030508	1500	1370	1220	850	0	0	1140	0	0	1154	35	8	3	0.000000	0.000000	9	7	9	0	0	9	0	0
2035	23	55	A030517	1440	1280	1160	-160	0	0	1110	0	0	1127	35	8	3	0.000000	0.000000	9	7	9	0	0	39	0	0
2034	23	54	A030518	1420	1210	900	-330	0	1100	1100	0	1096	1116	20	8	4	0.000000	0.000112	9	7	9	0	16	49	0	0
2124	24	54	A030519	1390	1110	790	-1510	0	1030	1010	0	1026	1028	20	5	4	0.000000	0.000060	9	7	10	0	12	92	0	0
2125	24	55	A030520	1400	1180	780	-1300	0	1030	1030	0	1015	1048	20	5	3	0.000000	0.000050	10	7	9	0	12	62	0	0
2126	24	56	A030521	1420	1170	350	-680	0	1070	1070	0	1057	1088	35	5	3	0.000000	0.000063	9	7	9	0	35	31	0	0
2127	24	57	A030522	1500	1200	900	300	0	1080	1080	0	1077	1096	35	6	3	0.000000	0.000154	9	10	9	0	11	18	0	0
2128	24	58	A030523	1620	1290	1240	1020	0	0	1100	0	0	1110	35	6	3	0.000000	0.000000	9	10	10	0	0	3	0	0
2129	24	59	A030524	1660	1310	1270	1060	0	0	1100	0	0	1105	35	6	3	0.000000	0.000000	9	10	10	0	0	1	0	0
2219	25	59	A030525	1560	1300	1200	960	0	0	1040	0	0	1045	35	6	3	0.000000	0.000000	9	10	10	0	0	3	0	0
2218	25	58	A030526	1500	1210	900	100	0	1030	1030	0	1046	1040	35	6	3	0.000000	0.000129	9	10	10	0	9	24	0	0
2217	25	57	A030527	1440	1150	510	-960	0	1020	1020	0	1026	1035	35	5	3	0.000000	0.000058	9	10	9	0	26	44	0	0
2216	25	56	A030528	1390	1090	190	-1610	0	1020	1020	0	1021	1039	20	5	3	0.000000	0.000043	10	7	9	0	42	54	0	0
2215	25	55	A030529	1370	1080	400	-1630	0	1030	1030	0	1030	1049	20	5	3	0.000000	0.000043	10	7	9	0	32	61	0	0
2214	25	54	A030530	1360	1020	500	-1640	0	1030	1010	0	1030	1029	20	5	4	0.000000	0.000054	9	5	10	0	26	86	0	0
2304	26	54	A030531	1330	1070	420	-1670	0	1040	1020	0	1054	1042	35	5	4	0.000000	0.000052	9	5	10	0	32	84	0	0
2305	26	55	A030532	1340	1070	320	-1660	0	1020	1020	0	1035	1044	35	5	3	0.000000	0.000043	10	7	9	0	36	59	0	0
2306	26	56	A030533	1370	1090	300	-1630	0	1010	1010	0	1025	1030	35	5	3	0.000000	0.000043	10	7	9	0	36	58	0	0
2307	26	57	A030534	1460	1150	550	-1540	0	1010	1010	0	1030	1027	35	5	3	0.000000	0.000045	10	10	9	0	24	63	0	0
2308	26	58	A030535	1440	1210	800	-760	0	1010	1010	0	1032	1019	35	5	3	0.000000	0.000066	9	10	10	0	12	47	0	0
2309	26	59	A030536	1480	1300	980	480	0	1020	1020	0	1050	1030	35	6	3	0.000000	0.000222	9	10	10	0	4	15	0	0
1290	15	30	A040106	1250	1030	950	710	0	1070	1070	0	1045	1045	40	13	15	0.000000	0.001413	10	10	10	0	10	36	0	0
1380	16	30	A040107	1230	1000	960	280	0	1010	1010	0	983	982	40	13	5	0.000000	0.000281	10	10	9	0	3	34	0	0
1381	16	31	A040108	1310	1030	960	460	0	1010	1010	0	986	984	40	13	7	0.000000	0.000506	10	10	10	0	3	35	0	0
1382	16	32	A040109	1330	1030	910	510	0	950	950	0	937	925	20	13	7	0.000000	0.000632	10	10	10	0	4	28	0	0
1383	16	33	A040110	1340	1020	900	540	0	0	870	0	0	855	15	13	7	0.000000	0.000000	10	10	10	0	0	22	0	0
1384	16	34	A040111	1320	980	900	640	0	0	860	0	0	850	15	13	7	0.000000	0.000000	10	10	9	0	0	15	0	0
1475	17	35	A040113	1310	870	830	660	0	0	820	0	0	820	15	13	9	0.000000	0.000000	10	10	9	0	0	14	0	0
1474	17	34	A040114	1300	900	820	200	0	0	800	0	0	790	15	13	3	0.000000	0.000000	10	10	9	0	0	18	0	0
1473	17	33	A040115	1300	990	790	20	0	820	820	0	820	805	15	13	3	0.000000	0.000153	10	10	10	0	4	23	0	0
1472	17	32	A040116	1290	1000	780	-40	0	880	880	0	869	858	20	4	3	0.000000	0.000124	10	10	10	0	4	25	0	0
1471	17	31	A040117	1290	990	800	-60	0	930	930	0	899	896	40	4	2	0.000000	0.000081	10	10	10	0	4	17	0	0
1470	17	30	A040118	1210	980	790	-190	0	940	940	0	903	902	40	4	5	0.000000	0.000148	10	10	9	0	5	49	0	0
1560	18	30	A040119	1220	940	550	-780	0	900	900	0	869	866	20	4	2	0.000000	0.000048	9	10	9	0	13	27	0	0
1561	18	31	A040120	1260	950	550	-710	0	870	870	0	842	840	20	4	2	0.000000	0.000051	9	10	10	0	12	25	0	0
1562	18	32	A040121	1270	930	550	-660	0	840	840	0	832	820	20	4	2	0.000000	0.000053	9	10	10	0	11	24	0	0
1563	18	33	A040122	1270	930	600	-560	0	800	780	0	800	770	15	4	3	0.000000	0.000082	9	10	10	0	8	35	0	0
1564	18	34	A040123	1270	880	640	-330	0	790	770	0	802	765	15	4	3	0.000000	0.000100	9	10	9	0	6	29	0	0
1565	18	35	A040124	1270	850	675	120	0	790	770	0	801	780	15	4	3	0.000000	0.000165	9	10	9	0	5	17	0	0
1655	19	35	A040125	1240	830	270	-260	0	790	770	0	795	779	15	4	3	0.000000	0.000920	10	10	9	0	21	16	0	0
1654	19	34	A040126	1240	850	400	-680	0	790	770	0	790	770	15	4	3	0.000000	0.000072	9	10	10	0	16	32	0	0
1653	19	33	A040127	1240	860	400	-960	0	800	780	0	796	770	15	4	3	0.000000	0.000061	9	10	10	0	16	41	0	0
1652	19	32	A040128	1240	900	390	-1160	0	820	820	0	809	802	20	4	2	0.000000	0.000040	9	10	10	0	17	31	0	0
1651	19	31	A040129	1240	900	390	-1260	0	810	810	0	790	788	20	4	2	0.000000	0.000039	9	10	10	0	16	33	0	0
1650	19	30	A040130	1210	900	400	-1360	0	850	850	0	820	828	20	4	2	0.000000	0.000036	9	10	9	0	17	35	0	0
1740	20	30	A040131	1200	860	270	-1800	0	840	840	0	812	818	20	4	2	0.000000	0.003000	9	10	9	0	22	41	0	0
1741	20	31	A040132	1220	870	270	-1780	0	820	820	0	800	798	20	4	2	0.000000	0.000031	9	10	10	0	21	41	0	0
1742	20	32	A040133	1220	900	280	-1680	0	820	820	0	807	805	20	4	2	0.000000	0.000032	9	10	10	0	21	39	0	0
1743	20	33	A040134	1210	840	260	-1220	0	820	820	0	813	813	15	4	3	0.000000	0.000052	9	10	10	0	22	44	0	0
1744	20	34	A040135	1210	890	200	-770	0	810	790	0	806	796	15	4	3	0.000000	0.000064	10	10	10	0	24	29	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
1745	20	35	A040136	1220	880	200	-330	0	780	760	0	775	769	15	4	3	0.000000	0.000086	10	7	9	0	23	16	0	0
1301	15	41	A040201	1460	1030	990	950	0	1150	1150	0	1156	1157	15	5	7	0.000000	0.001842	10	10	9	0	2	3	0	0
1300	15	40	A040202	1450	940	850	810	0	1100	1100	0	1106	1108	15	5	7	0.000000	0.000959	10	7	9	0	5	3	0	0
1388	16	38	A040209	1400	830	680	630	0	910	910	0	916	917	15	5	7	0.000000	0.000596	10	7	9	0	8	4	0	0
1389	16	39	A040210	1400	800	600	550	0	930	930	0	938	939	15	5	7	0.000000	0.000459	10	7	9	0	10	4	0	0
1390	16	40	A040211	1420	920	700	620	0	980	980	0	990	988	15	5	7	0.000000	0.000402	10	7	9	0	11	6	0	0
1391	16	41	A040212	1430	1040	800	750	0	1030	1030	0	1036	1036	15	5	7	0.000000	0.000403	10	10	9	0	12	4	0	0
1481	17	41	A040213	1420	970	550	500	0	930	930	0	936	934	15	5	9	0.000000	0.000254	10	10	10	0	19	5	0	0
1480	17	40	A040214	1390	900	480	400	0	900	900	0	907	907	15	5	9	0.000000	0.000226	10	7	10	0	21	7	0	0
1479	17	39	A040215	1380	850	400	350	0	850	850	0	857	860	15	5	9	0.000000	0.000216	10	7	10	0	23	5	0	0
1478	17	38	A040216	1360	900	700	650	0	870	870	0	877	878	15	5	9	0.000000	0.000544	10	7	10	0	9	5	0	0
1566	18	36	A040219	1280	880	700	580	0	830	810	0	840	819	15	4	9	0.000000	0.000511	10	7	9	0	6	11	0	0
1567	18	37	A040220	1280	950	800	700	0	860	840	0	865	848	15	7	9	0.000000	0.001416	10	7	9	0	5	9	0	0
1569	18	39	A040222	1340	1000	700	640	0	810	810	0	816	818	15	5	9	0.000000	0.000789	10	7	10	0	6	5	0	0
1570	18	40	A040223	1390	830	400	290	0	820	820	0	826	826	15	5	9	0.000000	0.000222	10	7	10	0	21	10	0	0
1571	18	41	A040224	1400	880	500	400	0	860	860	0	864	864	15	5	9	0.000000	0.000258	10	7	10	0	18	9	0	0
1661	19	41	A040225	1380	890	620	480	0	800	800	0	801	802	15	5	9	0.000000	0.000457	10	7	10	0	9	13	0	0
1660	19	40	A040226	1360	1000	800	560	0	0	770	0	0	775	15	5	9	0.000000	0.000000	10	7	10	0	0	19	0	0
1659	19	39	A040227	1330	1080	780	600	0	800	800	0	805	805	15	5	9	0.000000	0.001429	10	7	10	0	1	16	0	0
1658	19	38	A040228	1310	1140	750	640	0	840	820	0	846	831	15	7	9	0.000000	0.001054	10	7	9	0	7	10	0	0
1657	19	37	A040229	1280	980	650	480	0	840	820	0	846	829	15	7	9	0.000000	0.000547	10	7	9	0	14	15	0	0
1656	19	36	A040230	1260	870	400	160	0	810	790	0	815	799	15	4	9	0.000000	0.000173	10	7	9	0	17	22	0	0
1746	20	36	A040231	1250	850	240	-50	0	750	730	0	748	743	15	4	9	0.000000	0.000139	10	7	9	0	20	26	0	0
1747	20	37	A040232	1270	900	350	170	0	800	780	0	815	799	15	7	9	0.000000	0.000269	10	7	9	0	33	16	0	0
1748	20	38	A040233	1290	1000	410	290	0	800	780	0	809	796	15	7	9	0.000000	0.000321	10	7	9	0	28	11	0	0
1749	20	39	A040234	1310	1000	700	530	0	770	750	0	771	760	20	7	9	0.000000	0.001029	10	7	9	0	5	15	0	0
1750	20	40	A040235	1340	1000	820	650	0	0	760	0	0	764	20	5	9	0.000000	0.000000	10	7	10	0	0	10	0	0
1751	20	41	A040236	1350	1000	800	650	0	0	760	0	0	762	15	5	9	0.000000	0.000000	10	7	10	0	0	10	0	0
1307	15	47	A040301	1680	1460	1200	-50	0	1220	1220	0	1227	1198	20	8	5	0.000000	0.000157	9	10	10	0	2	62	0	0
1306	15	46	A040302	1630	1470	1170	450	0	1220	1220	0	1226	1200	20	8	5	0.000000	0.000256	9	10	9	0	4	36	0	0
1302	15	42	A040306	1500	1200	1150	1100	0	1200	1200	0	1205	1206	15	5	7	0.000000	0.001474	10	10	9	0	3	4	0	0
1392	16	42	A040307	1460	1150	1090	1040	0	1120	1120	0	1125	1124	15	5	7	0.000000	0.002090	10	10	9	0	2	4	0	0
1396	16	46	A040311	1600	1450	1180	600	0	1210	1210	0	1217	1190	20	8	5	0.000000	0.000324	9	10	9	0	3	29	0	0
1397	16	47	A040312	1640	1460	1180	-360	0	1200	1200	0	1207	1179	20	8	5	0.000000	0.000128	9	10	9	0	2	77	0	0
1487	17	47	A040313	1590	1450	1160	-160	0	1180	1180	0	1187	1160	20	8	5	0.000000	0.000149	9	10	9	0	2	66	0	0
1486	17	46	A040314	1560	1430	1170	560	0	1195	1195	0	1202	1175	20	8	5	0.000000	0.000312	9	10	10	0	3	31	0	0
1482	17	42	A040318	1450	1110	950	900	0	1000	1000	0	1005	1004	15	5	7	0.000000	0.001474	10	10	9	0	3	4	0	0
1572	18	42	A040319	1430	1000	750	700	0	940	940	0	944	942	30	5	9	0.000000	0.000490	10	7	10	0	10	5	0	0
1576	18	46	A040323	1520	1400	1160	870	0	1180	1180	0	1187	1164	20	6	4	0.000000	0.000505	9	7	10	0	2	12	0	0
1577	18	47	A040324	1550	1430	1170	300	0	1175	1175	0	1182	1159	20	6	5	0.000000	0.000228	9	7	9	0	1	43	0	0
1667	19	47	A040325	1510	1410	1220	1020	0	0	1185	0	0	1173	20	6	4	0.000000	0.000000	9	7	9	0	0	6	0	0
1666	19	46	A040326	1480	1400	1280	1030	0	0	1170	0	0	1159	20	6	4	0.000000	0.000000	9	7	10	0	0	5	0	0
1662	19	42	A040330	1400	970	750	670	0	900	900	0	901	900	30	5	9	0.000000	0.000581	10	7	10	0	8	7	0	0
1752	20	42	A040331	1380	1030	810	750	0	850	850	0	851	850	30	5	9	0.000000	0.001765	10	7	10	0	2	5	0	0
1755	20	45	A040334	1440	1250	1170	1030	0	0	1185	0	0	1178	20	5	4	0.000000	0.000000	9	7	10	0	0	6	0	0
1756	20	46	A040335	1460	1330	1230	1030	0	0	1170	0	0	1161	20	6	4	0.000000	0.000000	9	7	10	0	0	5	0	0
1757	20	47	A040336	1480	1350	1200	1000	0	0	1130	0	0	1118	20	6	4	0.000000	0.000000	9	7	9	0	0	5	0	0
1313	15	53	A040401	2090	1820	1400	900	0	0	1270	0	0	1248	35	15	5	0.000000	0.000000	9	10	10	0	0	17	0	0
1312	15	52	A040402	2020	1800	1270	320	0	0	1210	0	0	1185	35	15	5	0.000000	0.000000	9	10	10	0	0	43	0	0
1311	15	51	A040403	1940	1750	1280	-660	0	0	1200	0	0	1169	35	15	5	0.000000	0.000000	9	10	10	0	0	91	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
1310	15	50	A040404	1870	1700	1290	-1130	0	0	1195	0	0	1163	20	8	5	0.000000	0.000000	9	10	10	0	0	115	0	0
1309	15	49	A040405	1810	1600	1270	-1190	0	0	1195	0	0	1169	20	8	5	0.000000	0.000000	9	10	9	0	0	118	0	0
1308	15	48	A040406	1740	1500	1200	-1060	0	1220	1220	0	1225	1198	20	8	5	0.000000	0.000088	9	10	10	0	2	113	0	0
1398	16	48	A040407	1690	1490	1190	-1310	0	1200	1200	0	1205	1179	20	8	5	0.000000	0.000080	9	10	10	0	1	124	0	0
1399	16	49	A040408	1740	1550	1170	-1260	0	1190	1190	0	1194	1168	20	8	5	0.000000	0.000081	9	10	9	0	2	121	0	0
1400	16	50	A040409	1790	1600	1160	-1210	0	1180	1180	0	1184	1155	20	8	5	0.000000	0.000084	9	10	9	0	2	118	0	0
1401	16	51	A040410	1850	1650	1090	-1150	0	1180	1180	0	1183	1156	35	8	5	0.000000	0.000085	9	10	10	0	7	112	0	0
1402	16	52	A040411	1930	1700	1080	70	0	1185	1185	0	1188	1164	35	15	5	0.000000	0.000185	9	10	10	0	16	51	0	0
1403	16	53	A040412	1990	1750	1310	690	0	0	1190	0	0	1169	35	15	5	0.000000	0.000000	9	10	10	0	0	24	0	0
1493	17	53	A040413	1880	1650	1200	450	0	0	1190	0	0	1179	35	15	5	0.000000	0.000000	9	10	10	0	0	36	0	0
1492	17	52	A040414	1820	1580	990	-180	0	1185	1185	0	1188	1170	35	8	5	0.000000	0.000141	9	10	10	0	16	59	0	0
1491	17	51	A040415	1760	1550	970	-1240	0	1175	1175	0	1178	1158	20	8	5	0.000000	0.000081	9	10	9	0	17	111	0	0
1490	17	50	A040416	1710	1530	1030	-1290	0	1170	1170	0	1173	1152	20	8	5	0.000000	0.000080	9	10	9	0	11	116	0	0
1489	17	49	A040417	1670	1490	1100	-1330	0	1170	1170	0	1174	1151	20	8	5	0.000000	0.000079	9	10	10	0	6	122	0	0
1488	17	48	A040418	1630	1470	1150	-1360	0	1175	1175	0	1179	1155	20	8	5	0.000000	0.000079	9	10	10	0	2	126	0	0
1578	18	48	A040419	1580	1420	1110	-420	0	1170	1170	0	1173	1155	20	6	5	0.000000	0.000123	9	7	10	0	4	77	0	0
1579	18	49	A040420	1610	1430	1010	-890	0	1155	1155	0	1158	1141	20	8	5	0.000000	0.000096	9	7	10	0	12	95	0	0
1580	18	50	A040421	1640	1440	930	-1360	0	1160	1160	0	1163	1147	20	8	5	0.000000	0.000078	9	7	10	0	19	115	0	0
1581	18	51	A040422	1680	1450	850	-1320	0	1170	1170	0	1172	1160	20	8	5	0.000000	0.000078	9	7	9	0	26	109	0	0
1582	18	52	A040423	1720	1490	900	-760	0	1185	1185	0	1188	1177	35	8	5	0.000000	0.000099	9	10	9	0	23	83	0	0
1583	18	53	A040424	1770	1550	1010	290	0	1185	1185	0	1189	1178	35	8	5	0.000000	0.000213	9	10	10	0	14	36	0	0
1673	19	53	A040425	1670	1450	880	180	0	1180	1180	0	1181	1177	35	8	5	0.000000	0.000186	9	7	10	0	24	35	0	0
1672	19	52	A040426	1630	1400	780	-930	0	1180	1180	0	1183	1176	20	5	5	0.000000	0.000080	9	7	9	0	20	86	0	0
1671	19	51	A040427	1610	1350	750	-1390	0	1150	1150	0	1152	1145	20	5	5	0.000000	0.000068	9	7	10	0	20	107	0	0
1670	19	50	A040428	1580	1350	810	-900	0	1110	1110	0	1112	1103	20	5	5	0.000000	0.000087	9	7	10	0	15	86	0	0
1669	19	49	A040429	1550	1350	900	50	0	1100	1100	0	1103	1090	20	6	5	0.000000	0.000169	9	7	10	0	12	43	0	0
1668	19	48	A040430	1530	1400	1100	580	0	1140	1140	0	1143	1129	20	6	4	0.000000	0.000279	9	7	9	0	3	21	0	0
1758	20	48	A040431	1490	1350	1050	700	0	1080	1080	0	1084	1070	20	6	4	0.000000	0.000410	9	7	9	0	2	14	0	0
1759	20	49	A040432	1500	1280	800	250	0	1020	1020	0	1023	1013	20	6	4	0.000000	0.000190	8	5	10	0	13	22	0	0
1760	20	50	A040433	1520	1280	700	-610	0	1030	1030	0	1032	1027	20	5	5	0.000000	0.000102	8	5	10	0	17	66	0	0
1761	20	51	A040434	1540	1280	650	-1240	0	1080	1080	0	1081	1078	20	5	5	0.000000	0.000073	8	5	10	0	22	95	0	0
1762	20	52	A040435	1560	1300	610	-920	0	1120	1120	0	1120	1119	20	5	5	0.000000	0.000078	9	7	9	0	26	77	0	0
1763	20	53	A040436	1580	1350	800	100	0	1150	1150	0	1149	1150	35	8	5	0.000000	0.000176	9	7	10	0	28	35	0	0
1314	15	54	A040506	2160	1890	1790	1460	0	0	1350	0	0	1328	35	15	5	0.000000	0.000000	9	10	10	0	0	0	0	0
1404	16	54	A040507	2100	1800	1650	1350	0	0	1270	0	0	1258	35	15	5	0.000000	0.000000	9	10	10	0	0	0	0	0
1494	17	54	A040518	1980	1700	1470	1120	0	0	1200	0	0	1191	35	15	5	0.000000	0.000000	9	10	10	0	0	4	0	0
1584	18	54	A040519	1850	1590	1350	1010	0	0	1190	0	0	1185	35	8	5	0.000000	0.000000	9	10	10	0	0	9	0	0
1675	19	55	A040529	1760	1550	1470	1260	0	0	1180	0	0	1180	35	8	5	0.000000	0.000000	9	7	10	0	0	0	0	0
1674	19	54	A040530	1710	1490	1290	880	0	0	1180	0	0	1178	35	8	5	0.000000	0.000000	9	7	10	0	0	15	0	0
1764	20	54	A040531	1600	1410	1200	810	0	0	1160	0	0	1161	35	8	5	0.000000	0.000000	9	7	10	0	0	18	0	0
1765	20	55	A040532	1640	1500	1420	1190	0	0	1170	0	0	1173	35	8	5	0.000000	0.000000	9	7	10	0	0	0	0	0
767	9	47	A050301	1880	1630	1530	1100	0	0	1290	0	0	1266	35	8	5	0.000000	0.000000	9	10	9	0	0	8	0	0
766	9	46	A050302	1840	1590	1480	990	0	0	1300	0	0	1276	35	8	5	0.000000	0.000000	9	10	9	0	0	14	0	0
765	9	45	A050303	1840	1600	1450	1040	0	0	1310	0	0	1281	25	7	4	0.000000	0.000000	10	10	9	0	0	10	0	0
764	9	44	A050304	1800	1640	1500	1050	0	0	1320	0	0	1289	25	7	4	0.000000	0.000000	10	10	9	0	0	10	0	0
763	9	43	A050305	1800	1680	1630	1300	0	0	1335	0	0	1304	25	7	4	0.000000	0.000000	10	10	9	0	0	0	0	0
855	10	45	A050310	1780	1600	1540	980	0	0	1300	0	0	1272	25	7	4	0.000000	0.000000	10	10	9	0	0	12	0	0
856	10	46	A050311	1820	1570	1430	920	0	0	1285	0	0	1261	35	8	5	0.000000	0.000000	9	10	9	0	0	17	0	0
857	10	47	A050312	1840	1570	1410	910	0	0	1275	0	0	1253	35	8	5	0.000000	0.000000	9	10	9	0	0	17	0	0
947	11	47	A050313	1820	1550	1300	660	0	0	1250	0	0	1228	35	8	5	0.000000	0.000000	9	10	9	0	0	28	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
946	11	46	A050314	1780	1560	1460	780	0	0	1270	0	0	1247	35	8	5	0.000000	0.000000	9	10	9	0	0	23	0	0
1034	12	44	A050321	1680	1590	1490	1110	0	0	1290	0	0	1268	25	7	4	0.000000	0.000000	10	10	9	0	0	6	0	0
1035	12	45	A050322	1720	1580	1380	920	0	0	1275	0	0	1253	25	7	4	0.000000	0.000000	10	10	9	0	0	13	0	0
1036	12	46	A050323	1740	1510	1160	550	0	1260	1260	0	1264	1239	35	8	5	0.000000	0.000272	9	10	9	0	8	31	0	0
1037	12	47	A050324	1800	1510	940	320	0	1245	1245	0	1247	1224	35	8	5	0.000000	0.000200	9	10	9	0	25	31	0	0
1127	13	47	A050325	1760	1490	900	160	0	1235	1235	0	1241	1214	35	8	5	0.000000	0.000173	9	10	9	0	27	37	0	0
1126	13	46	A050326	1700	1500	1000	470	0	1245	1245	0	1249	1225	35	8	5	0.000000	0.000239	9	10	9	0	20	27	0	0
1125	13	45	A050327	1780	1550	1470	1020	0	0	1260	0	0	1240	25	7	4	0.000000	0.000000	10	10	9	0	0	9	0	0
1124	13	44	A050328	1720	1580	1530	1120	0	0	1275	0	0	1257	25	7	4	0.000000	0.000000	10	10	9	0	0	5	0	0
1215	14	45	A050334	1630	1500	1300	1030	0	0	1250	0	0	1232	25	7	4	0.000000	0.000000	10	10	9	0	0	8	0	0
1216	14	46	A050335	1660	1480	1100	440	0	1235	1235	0	1239	1215	35	8	5	0.000000	0.000241	9	10	9	0	11	33	0	0
1217	14	47	A050336	1720	1470	1020	10	0	1230	1230	0	1236	1209	20	8	5	0.000000	0.000157	9	10	10	0	17	51	0	0
769	9	49	A050405	1980	1720	1670	1280	0	0	1305	0	0	1281	35	8	5	0.000000	0.000000	9	10	9	0	0	0	0	0
768	9	48	A050406	1900	1660	1580	1200	0	0	1300	0	0	1276	35	8	5	0.000000	0.000000	9	10	9	0	0	4	0	0
858	10	48	A050407	1920	1670	1500	1020	0	0	1270	0	0	1248	35	8	5	0.000000	0.000000	9	10	9	0	0	11	0	0
859	10	49	A050408	2000	1680	1520	1230	0	0	1280	0	0	1259	35	8	5	0.000000	0.000000	9	10	9	0	0	1	0	0
860	10	50	A050409	2120	1790	1720	1370	0	0	1510	0	0	1488	35	15	5	0.000000	0.000000	9	10	10	0	0	6	0	0
861	10	51	A050410	2220	2020	1970	1470	0	0	1350	0	0	1328	35	15	5	0.000000	0.000000	9	10	10	0	0	0	0	0
951	11	51	A050415	2180	1880	1800	1430	0	0	1330	0	0	1308	35	15	5	0.000000	0.000000	9	10	10	0	0	0	0	0
950	11	50	A050416	2080	1780	1540	1100	0	0	1290	0	0	1267	35	15	5	0.000000	0.000000	9	10	10	0	0	8	0	0
949	11	49	A050417	1980	1660	1450	880	0	0	1250	0	0	1228	35	8	5	0.000000	0.000000	9	10	9	0	0	17	0	0
948	11	48	A050418	1900	1600	1280	700	0	0	1245	0	0	1223	35	8	5	0.000000	0.000000	9	10	9	0	0	26	0	0
1038	12	48	A050419	1880	1580	910	180	0	1235	1235	0	1239	1213	35	8	5	0.000000	0.000176	9	10	9	0	26	37	0	0
1039	12	49	A050420	1960	1650	1000	280	0	1240	1240	0	1244	1217	35	8	5	0.000000	0.000196	9	10	9	0	20	36	0	0
1040	12	50	A050421	2060	1780	1240	560	0	1250	1250	0	1254	1225	35	15	5	0.000000	0.000291	9	10	10	0	2	33	0	0
1041	12	51	A050422	2160	1850	1520	1160	0	0	1300	0	0	1276	35	15	5	0.000000	0.000000	9	10	10	0	0	6	0	0
1132	13	52	A050426	2180	1950	1600	1180	0	0	1330	0	0	1305	35	15	5	0.000000	0.000000	9	10	10	0	0	6	0	0
1131	13	51	A050427	2100	1850	1270	520	0	0	1270	0	0	1242	35	15	5	0.000000	0.000000	9	10	10	0	0	36	0	0
1130	13	50	A050428	2020	1750	1200	-280	0	1240	1240	0	1244	1212	35	15	5	0.000000	0.000133	9	10	10	0	7	74	0	0
1129	13	49	A050429	1920	1650	1050	-480	0	1225	1225	0	1230	1200	35	8	5	0.000000	0.000114	9	10	9	0	14	77	0	0
1128	13	48	A050430	1840	1550	790	-340	0	1230	1230	0	1234	1207	35	8	5	0.000000	0.000119	9	10	9	0	36	57	0	0
1218	14	48	A050431	1780	1520	1020	-720	0	1225	1225	0	1230	1203	20	8	5	0.000000	0.000100	9	10	10	0	17	87	0	0
1219	14	49	A050432	1860	1630	1150	-1140	0	1220	1220	0	1224	1193	20	8	5	0.000000	0.000084	9	10	9	0	6	115	0	0
1220	14	50	A050433	1950	1750	1300	-1050	0	0	1215	0	0	1182	20	15	5	0.000000	0.000000	9	10	10	0	0	112	0	0
1221	14	51	A050434	2020	1820	1390	-80	0	0	1230	0	0	1199	35	15	5	0.000000	0.000000	9	10	10	0	0	64	0	0
1222	14	52	A050435	2090	1880	1410	640	0	0	1270	0	0	1243	35	15	5	0.000000	0.000000	9	10	10	0	0	30	0	0
1223	14	53	A050436	2170	1890	1480	1250	0	0	1350	0	0	1328	35	15	5	0.000000	0.000000	9	10	10	0	0	4	0	0
2909	33	29	B010101	990	630	-580	-2010	910	910	910	925	925	926	25	9	6	0.000146	0.000079	9	5	3	74	109	86	0	0
2908	33	28	B010102	980	640	-600	-2020	900	900	900	916	916	918	15	9	6	0.000142	0.000078	9	5	3	41	112	85	0	0
2907	33	27	B010103	990	630	-610	-2010	890	880	880	903	896	898	15	9	6	0.000142	0.000079	9	5	3	41	112	84	0	0
2906	33	26	B010104	990	660	-600	-1810	890	885	885	902	900	904	15	4	2	0.000063	0.000032	9	5	5	36	50	24	0	0
2905	33	25	B010105	990	700	-480	-1610	890	885	885	901	905	911	10	4	3	0.000067	0.000041	9	3	5	20	47	34	0	0
2904	33	24	B010106	1000	640	-400	-1200	885	870	870	896	897	899	15	4	5	0.000076	0.000059	8	3	5	38	42	40	0	0
2994	34	24	B010107	980	650	-240	-820	885	885	885	893	905	905	15	5	6	0.000110	0.000088	9	3	10	36	45	35	0	0
2995	34	25	B010108	980	650	-320	-920	890	890	890	898	909	909	10	5	4	0.000101	0.000074	9	5	10	25	49	24	0	0
2996	34	26	B010109	980	650	-420	-1120	900	895	895	910	912	913	15	5	4	0.000092	0.000066	9	5	5	39	54	28	0	0
2997	34	27	B010110	970	660	-420	-1230	905	900	900	917	917	917	15	10	12	0.000180	0.000141	9	5	5	39	108	97	0	0
2998	34	28	B010111	970	670	-350	-1430	910	905	905	924	921	920	15	10	12	0.000190	0.000136	9	5	5	38	102	130	0	0
2999	34	29	B010112	980	680	-370	-1570	920	910	910	933	925	920	25	10	12	0.000187	0.000129	9	5	5	63	105	144	0	0
3089	35	29	B010113	980	700	-180	-870	925	915	915	935	930	923	25	10	12	0.000223	0.000171	10	5	10	59	88	83	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3088	35	28	B010114	950	670	-60	-750	915	910	910	925	926	920	30	10	12	0.000268	0.000197	10	5	10	77	73	83	0	0
3087	35	27	B010115	970	630	-50	-530	910	900	900	919	916	913	30	10	12	0.000286	0.000227	10	5	10	87	68	58	0	0
3086	35	26	B010116	960	670	-100	-440	900	895	895	908	912	908	30	5	4	0.000129	0.000102	10	5	10	71	39	14	0	0
3085	35	25	B010117	960	680	-80	-390	890	890	890	896	908	908	30	5	4	0.000130	0.000105	9	5	10	65	38	12	0	0
3084	35	24	B010118	970	640	-80	-330	885	885	885	888	905	902	30	6	4	0.000164	0.000132	9	3	10	74	43	10	0	0
3174	36	24	B010119	940	670	290	40	880	880	880	884	897	893	55	15	10	0.000766	0.000529	10	3	9	118	57	25	0	0
3175	36	25	B010120	940	650	250	40	890	890	890	894	908	904	55	15	10	0.000726	0.000538	10	5	9	134	60	21	0	0
3176	36	26	B010121	960	650	240	30	900	895	895	904	912	905	55	10	10	0.000477	0.000388	10	5	9	140	41	21	0	0
3177	36	27	B010122	940	660	300	-60	905	900	900	910	917	910	55	10	15	0.000542	0.000417	10	5	9	138	36	54	0	0
3178	36	28	B010123	950	650	200	-150	915	910	910	922	926	918	55	8	15	0.000350	0.000294	10	5	9	150	36	53	0	0
3179	36	29	B010124	950	650	10	-250	925	910	910	932	924	916	55	8	15	0.000247	0.000226	10	5	9	155	51	39	0	0
3269	37	29	B010125	940	700	130	30	925	910	910	930	924	914	80	8	15	0.000279	0.000268	15	5	10	184	46	15	0	0
3268	37	28	B010126	930	700	400	230	915	910	910	920	924	914	80	20	15	0.001287	0.000968	15	5	10	176	60	26	0	0
3267	37	27	B010127	930	700	540	280	900	900	900	904	917	904	80	15	15	0.001791	0.001034	15	5	10	163	24	39	0	0
3266	37	26	B010128	920	700	470	320	895	895	895	899	912	899	80	20	30	0.001668	0.001429	15	5	10	159	46	45	4	0
3265	37	25	B010129	920	700	500	420	890	890	890	894	904	894	100	20	20	0.001927	0.001667	20	5	10	194	40	16	140	0
3264	37	24	B010130	910	720	580	430	880	880	880	882	892	884	100	20	20	0.002732	0.001860	20	5	10	162	28	30	81	0
3355	38	25	B010132	910	800	0	0	900	0	0	902	0	0	100	0	0	0.000000	0.000000	20	0	0	102	0	0	94	52800
3356	38	26	B010133	910	800	0	0	905	0	0	909	0	0	100	0	0	0.000000	0.000000	20	0	0	109	0	0	290	52800
3357	38	27	B010134	920	750	700	520	905	905	905	909	919	909	100	20	15	0.007117	0.002353	20	5	10	159	10	27	553	52800
3358	38	28	B010135	930	750	650	460	915	910	910	919	924	914	100	20	15	0.003752	0.001765	20	5	10	169	20	29	548	52800
3359	38	29	B010136	940	760	660	460	920	915	915	925	929	919	100	20	15	0.003759	0.001714	20	5	10	165	20	30	354	52800
2903	33	23	B010201	1000	650	-300	-870	870	850	830	881	883	861	15	4	4	0.000083	0.000065	8	3	10	35	38	23	0	0
2902	33	22	B010202	1010	690	-200	-720	850	840	820	865	870	849	25	5	4	0.000112	0.000082	8	3	9	44	45	21	0	0
2901	33	21	B010203	1030	700	-80	-570	825	825	805	843	851	828	25	4	6	0.000102	0.000085	8	3	10	36	31	29	0	0
2900	33	20	B010204	1050	740	50	-150	820	820	800	838	840	820	20	6	5	0.000173	0.000148	8	3	10	20	41	10	0	0
2899	33	19	B010205	1060	770	230	30	820	820	800	838	840	814	20	6	5	0.000221	0.000182	9	3	10	14	32	10	0	0
2989	34	19	B010208	1020	700	200	-110	845	835	815	860	849	828	20	6	8	0.000236	0.000195	9	3	10	32	30	25	0	0
2990	34	20	B010209	1010	570	70	-430	850	835	815	865	851	829	25	6	6	0.000234	0.000160	8	3	9	74	30	30	0	0
2991	34	21	B010210	990	660	-10	-580	865	850	830	877	869	847	25	6	8	0.000177	0.000136	8	3	9	54	40	46	0	0
2992	34	22	B010211	990	690	-80	-660	875	860	860	885	883	880	15	6	6	0.000153	0.000113	9	3	9	29	46	35	0	0
2993	34	23	B010212	980	650	-170	-730	880	870	870	888	893	893	15	5	6	0.000120	0.000095	9	3	10	36	41	34	0	0
3083	35	23	B010213	960	630	10	-340	880	880	880	884	898	896	25	6	6	0.000190	0.000151	9	3	10	64	37	21	0	0
3082	35	22	B010214	970	680	100	-330	875	870	870	879	886	885	25	8	6	0.000270	0.000185	9	3	9	50	46	26	0	0
3081	35	21	B010215	960	690	100	-390	865	860	860	874	874	874	25	8	8	0.000266	0.000192	9	3	9	46	47	39	0	0
3080	35	20	B010216	970	740	140	-450	860	850	830	870	864	844	25	10	8	0.000328	0.000206	9	3	9	33	60	47	0	0
3079	35	19	B010217	980	680	200	-370	860	850	830	870	864	843	25	10	10	0.000405	0.000261	9	3	9	48	48	57	0	0
3169	36	19	B010220	940	680	250	-290	860	860	860	866	873	872	25	15	10	0.000664	0.000359	10	5	9	47	65	54	0	0
3170	36	20	B010221	930	700	250	-140	865	865	865	871	875	876	25	10	8	0.000432	0.000288	10	5	9	43	45	31	0	0
3171	36	21	B010222	930	700	300	-20	865	865	865	867	867	874	25	10	8	0.000484	0.000333	10	5	9	42	40	26	0	0
3172	36	22	B010223	930	700	380	30	870	870	870	873	872	879	35	20	6	0.001178	0.000443	10	5	9	61	64	21	0	0
3173	36	23	B010224	930	680	300	30	875	875	875	879	880	886	55	15	6	0.000768	0.000418	10	3	9	109	57	16	0	0
3263	37	23	B010225	890	720	600	390	875	875	875	877	926	879	100	25	20	0.003914	0.001990	20	5	10	157	30	42	58	0
3262	37	22	B010226	900	750	650	350	870	870	870	872	872	874	50	25	10	0.004464	0.001053	15	5	10	61	25	30	3	0
3261	37	21	B010227	900	750	570	280	865	865	865	867	867	870	30	25	10	0.002510	0.000922	15	5	9	35	45	29	0	0
3260	37	20	B010228	890	735	400	160	865	865	865	867	873	873	35	25	10	0.001414	0.000787	15	5	9	46	84	24	0	0
3259	37	19	B010229	910	730	280	-90	860	860	860	862	871	870	35	25	10	0.001067	0.000548	10	5	9	46	113	37	0	0
3349	38	19	B010232	880	760	420	180	855	855	855	857	863	862	50	20	15	0.001151	0.000800	15	7	9	49	68	36	0	0
3350	38	20	B010233	880	750	600	430	860	860	860	862	866	867	50	20	15	0.002519	0.001519	15	7	9	56	30	26	0	0
3351	38	21	B010234	890	800	720	590	870	865	865	871	867	870	50	25	30	0.005747	0.003727	20	7	10	36	20	39	223	24000

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3352	38	22	B010235	890	820	780	590	870	870	870	869	872	874	100	25	20	0.011765	0.003150	20	7	10	49	10	38	125	53000
3353	38	23	B010236	890	820	0	0	880	0	0	878	0	0	100	0	0	0.000000	0.000000	20	0	0	58	0	0	80	66000
2898	33	18	B010301E	1080	860	500	300	0	830	810	0	848	825	20	6	5	0.000000	0.000267	9	5	10	0	21	10	0	0
2986	34	16	B010310E	1100	860	800	570	0	830	830	0	843	843	25	20	10	0.000000	0.001538	10	7	10	0	9	23	0	0
2987	34	17	B010311E	1080	800	600	350	840	830	830	852	845	844	25	20	10	0.001938	0.000889	10	7	10	13	40	25	0	0
2988	34	18	B010312E	1040	780	400	140	840	830	810	854	845	824	20	15	10	0.000771	0.000522	9	5	10	15	57	26	0	0
3078	35	18	B010313E	990	730	340	-160	850	850	850	860	865	863	25	10	10	0.000501	0.000313	9	5	9	33	39	50	0	0
3077	35	17	B010314E	1020	750	520	90	850	840	840	858	853	853	25	15	10	0.001240	0.000543	10	7	10	27	35	43	0	0
3076	35	16	B010315E	1030	790	700	330	850	830	830	856	842	841	25	20	10	0.004016	0.000870	10	7	10	17	18	37	0	0
3075	35	15	B010316E	1040	890	800	640	0	840	840	0	851	851	25	20	10	0.000000	0.002000	9	7	10	0	10	16	0	0
3163	36	13	B010319E	1000	820	700	470	855	855	855	854	855	863	25	20	10	0.003185	0.001143	9	7	10	9	24	23	0	0
3164	36	14	B010320E	1000	820	790	550	0	850	850	0	861	861	25	20	10	0.000000	0.001481	9	7	10	0	6	24	0	0
3165	36	15	B010321E	990	830	770	340	855	850	850	855	860	860	25	20	10	0.006250	0.000816	9	7	10	6	12	43	0	0
3166	36	16	B010322E	980	700	600	80	855	850	850	857	861	860	25	20	10	0.003205	0.000645	10	7	10	39	20	52	0	0
3167	36	17	B010323E	970	700	400	-130	855	850	850	858	862	861	25	15	10	0.000942	0.000430	10	7	9	40	45	53	0	0
3168	36	18	B010324E	950	670	280	-280	855	855	855	862	868	867	25	10	10	0.000494	0.000299	10	5	9	48	39	56	0	0
3258	37	18	B010325E	910	700	280	-150	860	860	860	862	870	870	35	15	10	0.000692	0.000404	10	7	9	57	63	43	0	0
3257	37	17	B010326E	920	685	350	-110	855	855	855	857	866	864	25	15	10	0.000844	0.000441	10	7	9	43	50	46	0	0
3256	37	16	B010327E	930	665	450	-30	855	855	855	855	864	863	25	15	10	0.001262	0.000522	10	7	9	48	32	48	0	0
3255	37	15	B010328E	940	730	600	90	855	855	855	854	864	863	25	20	10	0.002667	0.000625	10	7	9	31	26	51	0	0
3254	37	14	B010329E	940	760	640	140	855	855	855	854	863	862	20	20	10	0.002878	0.000645	9	7	9	19	24	50	0	0
3253	37	13	B010330E	950	730	560	150	855	855	855	854	860	861	20	15	10	0.001589	0.000628	9	7	9	25	26	41	0	0
3343	38	13	B010331E	950	700	410	-30	840	840	840	839	844	841	20	10	8	0.000658	0.000354	10	5	9	28	29	35	0	0
3344	38	14	B010332E	900	700	580	50	840	840	840	839	846	842	25	15	15	0.002193	0.000779	10	7	9	35	18	80	0	0
3345	38	15	B010333E	890	750	500	90	850	850	850	849	857	854	35	15	15	0.001160	0.000659	10	7	9	35	38	62	0	0
3346	38	16	B010334E	880	740	410	150	850	850	850	850	858	855	35	20	15	0.001168	0.000795	10	7	9	39	66	39	0	0
3347	38	17	B010335E	870	740	430	170	855	855	855	857	864	861	35	20	15	0.001238	0.000828	10	7	9	41	62	39	0	0
3348	38	18	B010336E	870	760	300	20	860	855	855	862	863	861	35	20	15	0.000848	0.000619	10	7	9	36	92	42	0	0
3157	36	7	B010419E	980	790	200	-60	940	940	940	937	938	941	25	6	10	0.000201	0.000180	10	3	9	37	35	26	0	0
3158	36	8	B010420E	990	850	300	-10	930	930	930	927	928	931	25	6	10	0.000217	0.000187	10	3	9	19	33	31	0	0
3159	36	9	B010421E	1010	760	370	60	870	870	870	866	868	872	25	10	10	0.000502	0.000367	10	3	9	27	39	31	0	0
3160	36	10	B010422E	1020	760	440	150	860	860	860	857	858	863	20	10	10	0.000606	0.000430	10	5	10	19	32	29	0	0
3161	36	11	B010423E	1000	800	520	300	870	870	870	868	868	873	25	10	10	0.000700	0.000513	9	5	10	17	28	22	0	0
3162	36	12	B010424E	1000	800	600	370	860	860	860	858	858	864	25	10	10	0.000977	0.000635	9	5	10	15	20	23	0	0
3252	37	12	B010425E	950	705	460	50	850	850	850	848	852	855	20	10	10	0.000771	0.000444	9	5	9	29	25	41	0	0
3251	37	11	B010426E	960	685	400	-140	850	850	850	848	854	854	20	10	10	0.000663	0.000360	9	5	9	33	29	54	0	0
3250	37	10	B010427E	970	655	320	-260	860	860	860	857	858	863	25	8	8	0.000460	0.000256	10	5	9	51	27	46	0	0
3249	37	9	B010428E	970	685	270	-330	860	860	860	857	858	862	25	8	8	0.000375	0.000224	10	3	9	43	33	48	0	0
3248	37	8	B010429E	960	710	180	-340	870	870	870	867	868	871	25	8	8	0.000296	0.000203	10	3	9	39	42	42	0	0
3247	37	7	B010430E	950	700	30	-300	870	870	870	867	868	870	25	6	8	0.000177	0.000151	10	3	10	42	40	26	0	0
3337	38	7	B010431E	920	660	-20	-580	840	840	840	837	837	840	20	6	8	0.000174	0.000135	9	3	10	35	41	45	0	0
3338	38	8	B010432E	920	670	120	-610	840	840	840	837	838	839	20	8	5	0.000284	0.000141	9	3	10	33	44	37	0	0
3339	38	9	B010433E	920	690	200	-630	850	850	850	848	848	848	20	8	5	0.000318	0.000139	10	3	9	32	39	42	0	0
3340	38	10	B010434E	920	700	225	-630	850	850	850	848	848	850	20	8	8	0.000329	0.000177	10	5	9	30	38	68	0	0
3341	38	11	B010435E	920	720	320	-480	840	840	840	838	843	841	20	8	8	0.000391	0.000200	10	5	9	24	32	64	0	0
3342	38	12	B010436E	910	720	380	-240	840	840	840	838	843	841	20	10	8	0.000568	0.000275	10	5	9	24	34	50	0	0
3155	36	5	B010523E	1000	720	200	-20	910	910	910	907	908	911	20	6	10	0.000226	0.000205	10	3	10	37	31	22	0	0
3156	36	6	B010524E	990	750	200	-40	910	910	910	907	908	911	20	6	10	0.000214	0.000193	10	3	10	31	33	24	0	0
3246	37	6	B010525E	960	700	10	-240	870	870	870	867	868	870	20	6	10	0.000171	0.000157	10	3	10	33	41	25	0	0
3245	37	5	B010526E	970	680	30	-160	880	880	880	877	878	880	20	6	10	0.000181	0.000170	10	3	10	39	39	19	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3335	38	5	B010535E	910	690	-70	-280	860	860	860	856	857	860	20	6	10	0.000156	0.000146	9	3	10	33	46	21	0	0
3336	38	6	B010536E	930	660	-140	-370	850	850	850	847	847	850	20	6	10	0.000148	0.000138	9	3	10	37	48	23	0	0
2369	27	29	B020101	1060	770	10	-190	860	860	860	869	859	857	8	2	2	0.000104	0.008300	10	7	10	8	15	4	0	0
2368	27	28	B020102	1080	800	370	80	820	760	740	830	760	738	10	3	2	0.000306	0.014500	10	7	10	3	12	6	0	0
2367	27	27	B020103	1090	690	180	-1410	780	715	695	795	723	697	10	3	2	0.000230	0.004100	10	7	10	11	15	32	0	0
2366	27	26	B020104	1090	600	-60	-1910	750	710	690	770	719	700	10	3	2	0.000177	0.003500	10	7	10	17	20	37	0	0
2365	27	25	B020105	1100	560	-300	-1900	705	700	680	733	713	698	10	3	2	0.000137	0.003700	9	7	10	17	26	32	0	0
2364	27	24	B020106	1120	600	-460	-1880	700	690	670	733	710	692	20	3	3	0.000113	0.004800	9	5	10	27	32	43	0	0
2454	28	24	B020107	1100	570	-600	-1900	710	680	660	748	714	687	20	3	3	0.000102	0.004900	9	5	10	36	35	39	0	0
2455	28	25	B020108	1080	560	-430	-1420	705	700	680	735	725	706	10	3	2	0.000119	0.004800	10	5	10	18	30	20	0	0
2456	28	26	B020109	1080	690	-150	-920	760	740	720	782	756	738	8	2	2	0.000094	0.005000	10	5	10	7	17	15	0	0
2457	28	27	B020110	1090	760	120	-410	800	770	750	815	780	754	8	2	2	0.000124	0.006800	10	5	10	4	13	11	0	0
2458	28	28	B020111	1070	800	300	70	830	820	800	842	829	802	8	2	2	0.000159	0.011000	10	5	10	3	10	5	0	0
2459	28	29	B020112	1040	750	20	-460	880	880	880	889	885	882	8	2	2	0.000108	0.006600	10	7	10	11	15	10	0	0
2549	29	29	B020113	1030	760	-50	-1070	875	870	870	885	880	876	8	7	6	0.000329	0.014000	10	5	5	10	57	61	0	0
2548	29	28	B020114	1050	800	100	-950	850	850	830	864	860	837	8	7	6	0.000390	0.014500	10	5	5	5	49	63	0	0
2547	29	27	B020115	1060	750	-50	-440	830	820	800	848	827	810	8	7	6	0.000338	0.022300	10	5	5	8	56	23	0	0
2546	29	26	B020116	1100	690	-300	-400	780	770	750	802	792	765	8	2	2	0.000080	0.007300	10	5	5	9	20	2	0	0
2545	29	25	B020117	1060	650	-600	-740	720	720	700	750	754	722	10	3	3	0.000095	0.008600	10	5	5	10	38	4	0	0
2544	29	24	B020118	1070	600	-730	-1930	700	670	650	740	712	692	20	3	3	0.000090	0.004700	9	3	5	28	40	36	0	0
2634	30	24	B020119	1050	600	-700	-1950	700	690	670	736	736	715	20	3	3	0.000092	0.004700	9	3	5	27	39	38	0	0
2635	30	25	B020120	1030	660	-630	-1470	770	750	730	800	790	770	10	3	3	0.000092	0.005600	9	3	5	14	39	25	0	0
2636	30	26	B020121	1050	670	-420	-1950	840	830	810	860	852	831	8	2	2	0.000072	0.003100	9	3	5	15	22	31	0	0
2637	30	27	B020122	1040	700	-300	-1960	870	850	830	887	864	846	8	7	6	0.000264	0.009500	9	5	5	15	70	100	0	0
2638	30	28	B020123	1040	730	-280	-1360	870	870	870	884	885	882	8	11	9	0.000405	0.018900	9	5	5	12	111	97	0	0
2639	30	29	B020124	1020	700	-350	-1280	875	875	875	885	889	887	25	8	6	0.000298	0.014000	9	5	5	46	84	56	0	0
2729	31	29	B020125	1000	700	-510	-2000	890	885	885	900	902	899	25	12	9	0.000385	0.015000	9	5	3	50	145	134	0	0
2728	31	28	B020126	1020	700	-500	-1980	880	875	875	895	894	891	25	12	9	0.000389	0.015100	9	5	3	49	144	133	0	0
2727	31	27	B020127	1020	650	-500	-1980	875	875	875	889	890	894	15	8	6	0.000267	0.010200	9	5	3	36	92	89	0	0
2726	31	26	B020128	1020	650	-550	-1980	875	870	870	889	890	894	15	3	2	0.000099	0.003600	9	3	3	36	36	29	0	0
2725	31	25	B020129	1020	640	-620	-1980	850	820	800	872	851	840	10	3	3	0.000093	0.004600	9	3	3	23	38	41	0	0
2724	31	24	B020130	1030	660	-570	-1970	770	750	730	798	792	775	15	3	3	0.000097	0.004600	8	3	5	21	37	42	0	0
2814	32	24	B020131	1020	650	-470	-1680	840	830	810	859	864	852	20	3	3	0.000106	0.000520	8	3	5	42	34	36	0	0
2815	32	25	B020132	1000	660	-600	-2000	880	870	870	893	892	899	10	4	3	0.000124	0.000510	9	3	3	23	50	42	0	0
2816	32	26	B020133	1000	640	-610	-2000	880	875	875	893	895	899	25	4	2	0.000126	0.000400	9	3	3	63	50	28	0	0
2817	32	27	B020134	1000	620	-610	-2000	885	885	885	899	902	903	25	9	6	0.000284	0.001090	9	5	3	70	111	83	0	0
2818	32	28	B020135	990	690	-610	-2010	890	890	890	904	909	907	25	9	6	0.000271	0.001060	9	5	3	54	117	84	0	0
2819	32	29	B020136	1000	740	-610	-2000	900	900	900	910	915	915	25	9	6	0.000262	0.001050	9	5	3	43	122	83	0	0
2363	27	23	B020201	1130	720	-500	-1570	0	680	660	0	706	686	20	3	3	0.000000	0.005300	9	5	10	0	36	32	0	0
2362	27	22	B020202	1170	800	-300	-830	0	700	680	0	726	705	15	4	4	0.000000	0.010500	9	3	9	0	41	21	0	0
2361	27	21	B020203	1190	920	-80	-410	0	750	730	0	777	758	15	4	5	0.000000	0.014600	9	3	9	0	34	17	0	0
2360	27	20	B020204	1210	940	350	150	0	850	850	0	877	878	15	4	5	0.000000	0.024200	9	3	10	0	21	10	0	0
2359	27	19	B020205	1250	970	750	550	0	840	840	0	863	860	15	5	5	0.000000	0.069000	9	3	10	0	6	10	0	0
2449	28	19	B020208	1210	940	700	500	0	800	800	0	820	831	15	5	5	0.000000	0.066700	9	3	10	0	6	10	0	0
2450	28	20	B020209	1180	910	300	100	0	780	780	0	813	814	15	4	5	0.000000	0.025000	9	3	10	0	21	10	0	0
2451	28	21	B020210	1160	860	-100	-400	0	720	700	0	754	735	15	4	5	0.000000	0.015100	9	3	9	0	34	15	0	0
2452	28	22	B020211	1140	800	-380	-810	0	690	670	0	724	703	15	4	4	0.000000	0.010700	9	3	9	0	44	17	0	0
2453	28	23	B020212	1110	620	-550	-1590	680	670	650	720	708	678	15	4	4	0.000136	0.007200	9	3	10	15	47	42	0	0
2543	29	23	B020213	1090	660	-550	-1510	670	670	650	715	716	695	15	4	4	0.000132	0.007400	9	3	10	8	48	38	0	0
2542	29	22	B020214	1110	800	-300	-740	0	680	660	0	721	701	15	4	4	0.000000	0.011300	9	3	9	0	41	18	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
2541	29	21	B020215	1130	850	-50	-350	0	710	690	0	750	730	15	4	5	0.000000	0.016000	9	3	9	0	32	15	0	0
2540	29	20	B020216	1160	860	350	150	0	730	710	0	769	749	15	4	5	0.000000	0.029600	9	3	10	0	17	10	0	0
2539	29	19	B020217	1230	910	700	510	0	750	730	0	784	763	15	5	5	0.000000	0.083300	9	3	10	0	4	10	0	0
2629	30	19	B020220	1200	890	650	450	0	740	720	0	771	752	15	5	5	0.000000	0.069000	9	3	10	0	6	10	0	0
2630	30	20	B020221	1140	870	300	100	0	735	715	0	773	753	15	4	5	0.000000	0.026900	9	3	10	0	19	10	0	0
2631	30	21	B020222	1110	840	-50	-350	0	720	700	0	761	740	15	4	5	0.000000	0.015800	9	3	10	0	32	15	0	0
2632	30	22	B020223	1090	780	-280	-760	0	680	660	0	726	710	15	5	4	0.000000	0.012800	9	3	9	0	50	19	0	0
2633	30	23	B020224	1070	660	-500	-1580	680	670	650	720	715	700	15	4	4	0.000138	0.007100	9	3	10	9	46	43	0	0
2723	31	23	B020225	1050	630	-420	-1400	730	710	690	760	758	740	15	4	4	0.000151	0.007900	8	3	10	20	42	39	0	0
2722	31	22	B020226	1070	700	-280	-760	730	720	700	760	775	755	15	5	4	0.000203	0.012700	8	3	9	9	49	19	0	0
2721	31	21	B020227	1080	790	-100	-290	0	745	725	0	784	765	25	4	5	0.000000	0.016000	8	3	10	0	35	10	0	0
2720	31	20	B020228	1120	800	200	20	0	735	715	0	770	748	20	4	5	0.000000	0.023600	8	3	10	0	23	9	0	0
2719	31	19	B020229	1170	850	500	320	0	760	740	0	789	767	20	5	5	0.000000	0.045500	9	3	10	0	14	9	0	0
2809	32	19	B020232	1120	810	320	120	0	770	750	0	792	770	20	5	5	0.000000	0.003080	9	3	10	0	24	10	0	0
2810	32	20	B020233	1090	720	80	-120	765	765	745	788	796	769	20	6	5	0.000372	0.002730	8	3	10	14	38	10	0	0
2811	32	21	B020234	1060	720	-120	-390	770	770	750	793	804	784	25	4	6	0.000190	0.001570	8	3	10	18	34	16	0	0
2812	32	22	B020235	1040	680	-270	-730	780	780	760	802	822	804	15	5	4	0.000208	0.001310	8	3	9	18	48	18	0	0
2813	32	23	B020236	1020	670	-380	-1080	800	800	780	821	842	822	15	4	4	0.000150	0.000910	8	3	10	23	42	28	0	0
1829	21	29	B030101	1150	810	110	-1850	0	800	800	0	775	778	10	2	2	0.000000	0.003000	9	10	9	0	13	39	0	0
1828	21	28	B030102	1180	840	90	-1820	0	780	780	0	762	760	10	3	2	0.000000	0.003400	9	7	9	0	20	38	0	0
1827	21	27	B030103	1190	850	70	-1810	0	780	780	0	785	773	10	3	2	0.000000	0.003400	9	7	9	0	21	38	0	0
1826	21	26	B030104	1210	850	50	-1790	0	800	800	0	819	798	15	3	2	0.000000	0.003400	9	7	9	0	23	37	0	0
1825	21	25	B030105	1230	820	10	-1770	0	820	820	0	845	823	10	3	2	0.000000	0.003400	10	7	9	0	24	36	0	0
1824	21	24	B030106	1250	900	10	-1680	0	790	790	0	812	797	10	3	2	0.000000	0.003600	10	7	9	0	24	34	0	0
1914	22	24	B030107	1230	870	-160	-1770	0	790	790	0	815	796	10	3	2	0.000000	0.003600	10	5	9	0	29	32	0	0
1915	22	25	B030108	1210	750	-110	-1790	790	780	780	804	815	781	10	3	2	0.000139	0.003600	10	7	10	5	26	34	0	0
1916	22	26	B030109	1190	800	20	-1810	815	770	770	829	790	766	10	3	2	0.000160	0.003400	9	7	10	3	23	37	0	0
1917	22	27	B030110	1170	800	30	-1830	820	770	770	833	775	759	10	4	2	0.000215	0.003600	9	7	10	3	30	37	0	0
1918	22	28	B030111	1150	750	40	-1850	820	780	780	829	762	760	8	2	2	0.000112	0.003100	9	7	9	6	14	38	0	0
1919	22	29	B030112	1160	690	40	-1840	820	800	800	827	775	778	8	2	2	0.000121	0.003200	10	7	9	11	13	38	0	0
2009	23	29	B030113	1120	710	-20	-1880	830	810	810	837	786	786	8	2	2	0.000108	0.003100	10	7	9	10	15	37	0	0
2008	23	28	B030114	1140	740	10	-1860	820	770	770	829	750	750	8	2	2	0.000108	0.003100	10	7	9	7	15	37	0	0
2007	23	27	B030115	1150	760	10	-1850	810	770	770	823	775	756	10	4	2	0.000211	0.003600	9	7	10	6	30	37	0	0
2006	23	26	B030116	1180	700	-30	-1820	750	750	750	763	761	744	10	3	2	0.000163	0.003500	9	7	10	6	22	36	0	0
2005	23	25	B030117	1190	800	-200	-1810	0	740	740	0	760	741	10	3	2	0.000000	0.003600	10	5	10	0	29	32	0	0
2004	23	24	B030118	1210	860	-300	-1790	0	750	750	0	770	755	10	3	3	0.000000	0.004700	10	5	9	0	32	45	0	0
2094	24	24	B030119	1180	860	-380	-1820	0	730	730	0	742	734	10	3	3	0.000000	0.004700	10	5	9	0	34	43	0	0
2095	24	25	B030120	1170	810	-250	-1830	0	730	730	0	739	730	10	3	2	0.000000	0.003600	10	5	10	0	30	32	0	0
2096	24	26	B030121	1150	800	-90	-1850	0	740	740	0	753	734	10	3	2	0.000000	0.003500	10	5	10	0	25	35	0	0
2097	24	27	B030122	1130	830	10	-1870	0	750	750	0	754	736	10	4	2	0.000000	0.003600	10	5	10	0	30	38	0	0
2098	24	28	B030123	1120	800	10	-1880	820	780	780	829	760	760	8	2	2	0.000104	0.003000	10	7	10	2	15	38	0	0
2099	24	29	B030124	1100	800	10	-1900	830	830	830	838	810	809	8	2	2	0.000101	0.003000	10	7	9	3	16	38	0	0
2189	25	29	B030125	1090	800	100	-1410	840	830	830	848	826	810	8	2	2	0.000114	0.003600	10	7	10	4	14	30	0	0
2188	25	28	B030126	1110	700	120	-1890	820	750	730	829	749	717	8	2	2	0.000135	0.003100	10	7	10	10	12	40	0	0
2187	25	27	B030127	1120	700	50	-1880	770	710	690	783	719	683	15	4	2	0.000243	0.003500	10	5	10	12	26	39	0	0
2186	25	26	B030128	1140	700	-40	-1860	750	720	700	763	733	695	10	3	2	0.000161	0.003500	10	5	10	6	22	36	0	0
2185	25	25	B030129	1150	720	-220	-1850	0	720	700	0	726	702	10	3	2	0.000000	0.003500	10	7	10	0	28	33	0	0
2184	25	24	B030130	1160	800	-400	-1840	0	710	690	0	711	694	10	3	3	0.000000	0.004700	10	7	9	0	33	43	0	0
2274	26	24	B030131	1140	730	-410	-1860	0	700	680	0	710	687	10	3	3	0.000000	0.004700	9	7	10	0	34	44	0	0
2275	26	25	B030132	1120	660	-210	-1880	705	705	685	730	712	695	10	3	2	0.000137	0.003600	9	7	10	7	26	33	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
2276	26	26	B030133	1120	600	-20	-1880	750	710	690	769	715	692	10	3	2	0.000188	0.003500	10	7	10	17	19	37	0	0
2277	26	27	B030134	1100	620	100	-1900	765	715	695	779	719	690	15	4	2	0.000299	0.003500	10	7	10	24	21	40	0	0
2278	26	28	B030135	1090	670	270	-910	810	750	730	820	749	723	10	4	2	0.000379	0.005800	10	7	10	15	16	24	0	0
2279	26	29	B030136	1070	720	100	-430	850	840	840	858	839	832	8	2	2	0.000126	0.007000	10	7	10	11	12	11	0	0
1823	21	23	B030201	1270	1000	-20	-1110	0	790	790	0	808	800	15	3	3	0.000000	0.006300	10	5	9	0	25	33	0	0
1822	21	22	B030202	1290	1030	10	-580	0	810	810	0	823	821	15	4	4	0.000000	0.011500	10	5	9	0	33	24	0	0
1821	21	21	B030203	1320	960	70	-230	0	850	850	0	860	861	15	4	5	0.000000	0.015700	10	5	9	0	32	15	0	0
1820	21	20	B030204	1360	1000	500	300	0	900	900	0	902	912	15	4	5	0.000000	0.028600	10	5	10	0	16	10	0	0
1819	21	19	B030205	1440	1080	880	680	0	950	950	0	952	962	15	5	5	0.000000	0.074100	10	5	10	0	4	10	0	0
1909	22	19	B030208	1440	1080	880	680	0	930	930	0	927	943	15	5	5	0.000000	0.080000	10	5	10	0	2	10	0	0
1910	22	20	B030209	1370	1000	500	300	0	890	890	0	887	902	15	4	5	0.000000	0.029100	10	5	10	0	15	10	0	0
1911	22	21	B030210	1310	960	150	-150	0	820	820	0	822	832	15	4	5	0.000000	0.017600	10	5	9	0	27	15	0	0
1912	22	22	B030211	1270	980	-80	-630	0	800	800	0	812	812	15	4	4	0.000000	0.011200	10	5	9	0	36	22	0	0
1913	22	23	B030212	1250	910	-120	-1250	0	790	790	0	810	800	15	3	3	0.000000	0.005900	10	5	9	0	28	34	0	0
2003	23	23	B030213	1230	890	-260	-1370	0	760	760	0	774	770	15	3	3	0.000000	0.005600	10	5	9	0	31	33	0	0
2002	23	22	B030214	1260	970	-170	-670	0	770	770	0	782	783	15	4	4	0.000000	0.011100	10	5	9	0	38	20	0	0
2001	23	21	B030215	1300	920	-60	-340	0	810	810	0	810	823	15	4	5	0.000000	0.014600	10	5	9	0	35	14	0	0
2000	23	20	B030216	1350	1000	400	200	0	880	880	0	860	893	15	4	5	0.000000	0.025000	10	5	10	0	18	10	0	0
1999	23	19	B030217	1420	1070	880	680	0	920	920	0	913	934	15	5	5	0.000000	0.083300	10	5	10	0	2	10	0	0
2089	24	19	B030220	1380	1050	800	600	0	890	890	0	882	906	15	5	5	0.000000	0.069000	10	5	10	0	4	10	0	0
2090	24	20	B030221	1320	1000	400	200	0	860	860	0	846	874	15	4	5	0.000000	0.025800	10	5	10	0	18	10	0	0
2091	24	21	B030222	1280	970	-100	-400	0	790	790	0	790	803	15	4	5	0.000000	0.014200	10	5	10	0	36	15	0	0
2092	24	22	B030223	1240	940	-230	-760	0	750	750	0	761	762	15	4	4	0.000000	0.010600	10	5	10	0	40	21	0	0
2093	24	23	B030224	1210	890	-360	-1440	0	730	730	0	746	739	15	3	3	0.000000	0.005500	10	5	9	0	33	32	0	0
2183	25	23	B030225	1190	860	-370	-1510	0	700	680	0	712	690	15	3	3	0.000000	0.005400	10	7	9	0	32	34	0	0
2182	25	22	B030226	1220	900	-250	-810	0	730	730	0	743	744	15	4	4	0.000000	0.010400	10	5	10	0	40	22	0	0
2181	25	21	B030227	1250	950	-50	-350	0	760	760	0	771	776	15	4	5	0.000000	0.015200	10	5	10	0	33	15	0	0
2180	25	20	B030228	1290	990	300	100	0	850	850	0	847	867	15	4	5	0.000000	0.022500	10	5	10	0	22	10	0	0
2179	25	19	B030229	1350	1040	800	600	0	870	870	0	865	888	15	5	5	0.000000	0.074100	10	5	10	0	3	10	0	0
2269	26	19	B030232	1300	1000	800	600	0	850	850	0	851	869	15	5	5	0.000000	0.080000	9	5	10	0	3	10	0	0
2270	26	20	B030233	1250	970	350	150	0	830	830	0	844	849	15	4	5	0.000000	0.025000	9	5	10	0	20	10	0	0
2271	26	21	B030234	1220	930	-10	-380	0	750	750	0	772	771	15	4	5	0.000000	0.015200	9	5	10	0	31	19	0	0
2272	26	22	B030235	1190	860	-200	-840	0	720	700	0	740	721	15	4	4	0.000000	0.010300	9	5	9	0	38	26	0	0
2273	26	23	B030236	1160	780	-400	-1590	0	690	670	0	710	690	15	3	3	0.000000	0.005300	9	5	9	0	33	36	0	0
1289	15	29	B040101	1340	1040	1000	740	0	1050	1050	0	1030	1028	20	13	5	0.000000	0.000688	10	10	9	0	4	13	0	0
1288	15	28	B040102	1330	1060	1020	580	0	1050	1050	0	1041	1032	20	13	5	0.000000	0.000432	10	10	9	0	3	22	0	0
1287	15	27	B040103	1350	1080	1040	550	0	0	1000	0	0	998	20	17	5	0.000000	0.000000	10	10	9	0	0	22	0	0
1286	15	26	B040104	1360	1080	1040	560	0	0	980	0	0	979	20	17	5	0.000000	0.000000	10	10	9	0	0	21	0	0
1285	15	25	B040105	1380	1090	1050	550	0	0	970	0	0	971	20	17	5	0.000000	0.000000	10	10	9	0	0	21	0	0
1284	15	24	B040106	1400	1120	1010	450	0	0	970	0	0	972	20	17	5	0.000000	0.000000	10	10	9	0	0	26	0	0
1374	16	24	B040107	1360	1120	960	60	0	0	900	0	0	904	20	4	3	0.000000	0.000000	10	10	9	0	0	25	0	0
1375	16	25	B040108	1350	1130	1000	80	0	0	900	0	0	902	20	4	3	0.000000	0.000000	10	10	9	0	0	25	0	0
1376	16	26	B040109	1330	1100	1000	80	0	0	950	0	0	952	20	4	3	0.000000	0.000000	10	10	9	0	0	26	0	0
1377	16	27	B040110	1320	1030	950	100	0	960	960	0	955	958	20	4	3	0.000000	0.000139	10	10	9	0	0	26	0	0
1378	16	28	B040111	1300	1020	950	120	0	980	980	0	960	962	20	4	3	0.000000	0.000137	10	10	9	0	0	25	0	0
1379	16	29	B040112	1300	1000	950	200	0	1000	1000	0	978	975	20	13	3	0.000000	0.000155	10	10	9	0	4	23	0	0
1469	17	29	B040113	1240	990	750	-290	0	920	920	0	893	892	20	4	3	0.000000	0.000093	10	10	9	0	6	31	0	0
1468	17	28	B040114	1270	1030	700	-400	0	910	910	0	890	892	20	4	3	0.000000	0.000085	10	10	9	0	8	33	0	0
1467	17	27	B040115	1280	1020	750	-490	0	910	910	0	905	907	20	4	2	0.000000	0.000057	10	10	9	0	6	25	0	0
1466	17	26	B040116	1300	1050	840	-500	0	880	880	0	883	882	20	4	2	0.000000	0.000058	10	10	9	0	2	27	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
1465	17	25	B040117	1310	1110	890	-490	0	0	850	0	0	854	10	4	2	0.000000	0.000000	10	10	9	0	0	27	0	0
1464	17	24	B040118	1320	1120	800	-510	0	850	850	0	865	861	10	4	2	0.000000	0.000059	10	7	9	0	3	26	0	0
1554	18	24	B040119	1310	1120	550	-820	0	830	830	0	850	849	15	4	2	0.000000	0.000048	10	7	9	0	12	27	0	0
1555	18	25	B040120	1290	1100	600	-940	0	820	820	0	834	830	10	4	2	0.000000	0.000045	10	7	9	0	9	31	0	0
1556	18	26	B040121	1270	1040	550	-1030	0	840	840	0	847	843	15	4	2	0.000000	0.000043	10	10	9	0	12	32	0	0
1557	18	27	B040122	1250	1030	450	-1030	0	870	870	0	868	866	20	4	2	0.000000	0.000042	10	10	9	0	17	30	0	0
1558	18	28	B040123	1240	1000	500	-1010	0	890	890	0	870	872	20	4	2	0.000000	0.000042	10	10	9	0	15	30	0	0
1559	18	29	B040124	1200	970	520	-900	0	900	900	0	875	874	20	4	2	0.000000	0.000044	9	10	9	0	14	28	0	0
1649	19	29	B040125	1200	910	380	-1470	0	850	850	0	824	828	20	4	2	0.000000	0.000340	9	10	9	0	18	37	0	0
1648	19	28	B040126	1230	950	340	-1620	0	830	830	0	810	812	20	4	2	0.000000	0.000330	9	10	9	0	19	39	0	0
1647	19	27	B040127	1230	970	200	-1720	0	820	820	0	820	816	10	4	2	0.000000	0.000310	10	10	9	0	25	38	0	0
1646	19	26	B040128	1250	970	200	-1630	0	820	820	0	829	822	10	3	2	0.000000	0.000300	10	7	9	0	19	37	0	0
1645	19	25	B040129	1270	1000	250	-1360	0	810	810	0	824	819	15	4	2	0.000000	0.000370	10	7	9	0	23	32	0	0
1644	19	24	B040130	1290	1050	200	-1080	0	810	810	0	828	826	15	4	2	0.000000	0.000420	10	7	9	0	25	26	0	0
1734	20	24	B040131	1270	990	90	-1380	0	790	790	0	805	800	10	3	2	0.000000	0.004100	10	7	9	0	21	29	0	0
1735	20	25	B040132	1250	940	90	-1750	0	820	820	0	834	826	15	4	2	0.000000	0.003600	10	7	9	0	30	37	0	0
1736	20	26	B040133	1230	990	100	-1770	0	800	800	0	812	800	15	3	2	0.000000	0.003400	10	7	9	0	21	37	0	0
1737	20	27	B040134	1210	940	140	-1790	0	780	780	0	782	775	20	4	2	0.000000	0.003600	9	7	9	0	26	39	0	0
1738	20	28	B040135	1200	900	200	-1800	0	780	780	0	762	762	20	4	2	0.000000	0.003500	9	10	9	0	22	40	0	0
1739	20	29	B040136	1160	870	260	-1840	0	800	800	0	775	778	20	4	2	0.000000	0.003400	9	10	9	0	21	42	0	0
1283	15	23	B040201	1410	1130	880	210	0	1010	1010	0	1014	1012	20	10	3	0.000000	0.000160	10	10	9	0	13	20	0	0
1282	15	22	B040202	1430	1150	700	-120	0	1060	1060	0	1062	1062	20	10	3	0.000000	0.000116	10	10	9	0	36	25	0	0
1281	15	21	B040203	1440	1130	570	-480	0	1120	1120	0	1119	1122	20	10	2	0.000000	0.000063	10	10	9	0	55	21	0	0
1280	15	20	B040204	1460	1150	500	-640	0	1150	1150	0	1147	1152	20	4	2	0.000000	0.000045	10	7	9	0	26	23	0	0
1279	15	19	B040205	1480	1170	480	-730	0	1160	1160	0	1154	1163	20	4	2	0.000000	0.000042	10	7	9	0	27	24	0	0
1278	15	18	B040206	1500	1180	470	-930	0	1170	1170	0	1167	1173	20	4	2	0.000000	0.000038	10	7	9	0	28	28	0	0
1368	16	18	B040207	1480	1170	440	-800	0	1150	1150	0	1150	1153	20	4	3	0.000000	0.000052	10	7	9	0	28	37	0	0
1369	16	19	B040208	1450	1150	400	-730	0	1140	1140	0	1137	1143	20	4	3	0.000000	0.000054	10	7	9	0	29	34	0	0
1370	16	20	B040209	1430	1120	400	-690	0	1130	1130	0	1129	1133	20	4	3	0.000000	0.000055	10	7	9	0	29	33	0	0
1371	16	21	B040210	1420	1120	500	-600	0	1080	1080	0	1082	1083	20	4	3	0.000000	0.000061	10	7	9	0	23	33	0	0
1372	16	22	B040211	1400	1100	600	-450	0	1010	1010	0	1017	1014	20	4	3	0.000000	0.000072	10	7	9	0	17	32	0	0
1373	16	23	B040212	1380	1150	800	-120	0	950	950	0	960	955	20	10	3	0.000000	0.000119	10	10	9	0	16	28	0	0
1463	17	23	B040213	1350	1130	600	-570	0	880	880	0	896	893	20	4	3	0.000000	0.000075	10	7	9	0	12	35	0	0
1462	17	22	B040214	1370	1120	450	-630	0	950	950	0	961	959	20	4	3	0.000000	0.000066	10	7	9	0	20	32	0	0
1461	17	21	B040215	1380	1100	340	-650	0	1000	1000	0	1005	1006	20	4	3	0.000000	0.000061	10	7	9	0	27	30	0	0
1460	17	20	B040216	1410	1110	310	-620	0	1050	1050	0	1052	1055	20	4	3	0.000000	0.000059	10	7	9	0	30	28	0	0
1459	17	19	B040217	1440	1130	370	-600	0	1100	1100	0	1102	1104	20	4	3	0.000000	0.000058	10	7	9	0	29	29	0	0
1458	17	18	B040218	1460	1150	460	-590	0	1120	1120	0	1122	1125	20	4	3	0.000000	0.000059	10	7	9	0	26	32	0	0
1548	18	18	B040219	1440	1160	520	140	0	1080	1080	0	1085	1086	20	4	6	0.000000	0.000117	10	7	9	0	23	23	0	0
1549	18	19	B040220	1420	1130	400	20	0	1050	1050	0	1055	1057	20	4	6	0.000000	0.000103	10	7	9	0	26	23	0	0
1550	18	20	B040221	1400	1100	260	-200	0	1000	1000	0	1005	1005	20	4	6	0.000000	0.000090	10	7	9	0	30	28	0	0
1551	18	21	B040222	1370	1070	200	-530	0	950	950	0	955	958	20	4	3	0.000000	0.000065	10	7	9	0	30	22	0	0
1552	18	22	B040223	1350	1080	220	-660	0	880	880	0	893	893	20	4	3	0.000000	0.000064	10	7	9	0	27	26	0	0
1553	18	23	B040224	1330	1090	350	-730	0	830	830	0	849	849	20	4	3	0.000000	0.000067	10	7	9	0	20	32	0	0
1643	19	23	B040225	1310	1060	160	-840	0	820	820	0	836	836	20	4	3	0.000000	0.000600	10	7	9	0	27	30	0	0
1642	19	22	B040226	1330	1070	150	-630	0	860	860	0	873	872	20	4	4	0.000000	0.000730	10	7	9	0	29	31	0	0
1641	19	21	B040227	1350	1060	160	-200	0	900	900	0	905	909	20	4	5	0.000000	0.000900	10	7	9	0	30	18	0	0
1640	19	20	B040228	1370	1100	600	270	0	950	950	0	955	958	20	4	8	0.000000	0.001850	10	7	10	0	14	26	0	0
1639	19	19	B040229	1400	1110	910	600	0	1000	1000	0	1005	1008	20	4	6	0.000000	0.004140	10	7	10	0	4	19	0	0
1638	19	18	B040230	1440	1150	1050	840	0	0	1050	0	0	1059	20	4	6	0.000000	0.000000	10	7	10	0	0	13	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
1729	20	19	B040232	1430	1080	880	680	0	970	970	0	973	979	20	5	5	0.000000	0.069000	10	5	10	0	5	10	0	0
1730	20	20	B040233	1360	1000	500	300	0	920	920	0	923	928	20	4	5	0.000000	0.027600	10	5	10	0	17	10	0	0
1731	20	21	B040234	1330	990	200	-20	0	870	870	0	877	879	20	4	5	0.000000	0.018900	10	5	9	0	27	11	0	0
1732	20	22	B040235	1310	1050	80	-590	0	830	830	0	845	840	20	4	4	0.000000	0.011300	10	5	9	0	31	27	0	0
1733	20	23	B040236	1290	1030	80	-960	0	810	810	0	826	821	20	4	3	0.000000	0.007600	10	7	9	0	30	31	0	0
1277	15	17	B040301	1520	1190	500	-1230	0	1180	1180	0	1181	1184	20	4	2	0.000000	0.000033	10	7	9	0	27	35	0	0
1276	15	16	B040302	1540	1180	550	-1460	0	1190	1190	0	1193	1194	20	4	2	0.000000	0.000030	10	7	9	0	25	40	0	0
1275	15	15	B040303	1560	1180	600	-1440	0	1200	1200	0	1208	1205	20	4	2	0.000000	0.000031	10	7	9	0	23	41	0	0
1274	15	14	B040304	1580	1190	700	-1420	0	1220	1220	0	1231	1225	20	4	2	0.000000	0.000031	10	7	9	0	20	42	0	0
1273	15	13	B040305	1600	1280	800	-1150	0	1230	1230	0	1240	1236	20	4	2	0.000000	0.000034	10	7	9	0	18	39	0	0
1363	16	13	B040308	1580	1400	950	-670	0	1220	1220	0	1228	1226	20	4	3	0.000000	0.000059	10	7	9	0	11	49	0	0
1364	16	14	B040309	1560	1270	820	-990	0	1210	1210	0	1219	1215	20	4	3	0.000000	0.000050	10	7	9	0	16	54	0	0
1365	16	15	B040310	1540	1200	700	-1210	0	1190	1190	0	1197	1195	20	4	3	0.000000	0.000045	10	7	9	0	20	57	0	0
1366	16	16	B040311	1520	1180	600	-1150	0	1170	1170	0	1174	1175	20	4	3	0.000000	0.000046	10	7	9	0	23	53	0	0
1367	16	17	B040312	1500	1180	500	-1000	0	1150	1150	0	1152	1155	20	4	3	0.000000	0.000048	10	7	9	0	26	45	0	0
1457	17	17	B040313	1480	1170	570	-570	0	1130	1130	0	1134	1135	20	4	3	0.000000	0.000061	10	7	9	0	23	34	0	0
1456	17	16	B040314	1500	1200	700	-600	0	1150	1150	0	1155	1155	20	4	3	0.000000	0.000061	10	7	9	0	18	39	0	0
1455	17	15	B040315	1520	1270	800	-610	0	1170	1170	0	1176	1175	20	4	3	0.000000	0.000061	10	7	9	0	15	42	0	0
1454	17	14	B040316	1540	1350	920	-410	0	1190	1190	0	1197	1196	20	4	3	0.000000	0.000069	10	7	9	0	11	40	0	0
1453	17	13	B040317	1560	1430	1050	-140	0	1210	1210	0	1217	1216	20	4	3	0.000000	0.000084	10	7	9	0	7	36	0	0
1543	18	13	B040320	1590	1430	1160	590	0	1190	1190	0	1197	1196	20	4	6	0.000000	0.000364	10	7	9	0	1	34	0	0
1544	18	14	B040321	1560	1380	1020	410	0	1170	1170	0	1177	1176	20	4	6	0.000000	0.000226	10	7	9	0	6	37	0	0
1545	18	15	B040322	1530	1300	900	230	0	1150	1150	0	1156	1158	20	4	6	0.000000	0.000169	10	7	9	0	10	40	0	0
1546	18	16	B040323	1490	1230	800	190	0	1130	1130	0	1135	1138	20	4	6	0.000000	0.000150	10	7	9	0	13	37	0	0
1547	18	17	B040324	1460	1190	660	160	0	1100	1100	0	1105	1106	20	4	6	0.000000	0.000132	10	7	9	0	18	30	0	0
1637	19	17	B040325	1480	1190	1090	890	0	0	1080	0	0	1089	20	4	6	0.000000	0.000000	10	7	10	0	0	12	0	0
1636	19	16	B040326	1520	1240	1140	940	0	0	1100	0	0	1109	20	4	6	0.000000	0.000000	10	7	10	0	0	10	0	0
1635	19	15	B040327	1570	1300	1200	1000	0	0	1130	0	0	1139	20	4	6	0.000000	0.000000	10	7	10	0	0	8	0	0
1634	19	14	B040328	1610	1390	1290	1070	0	0	1150	0	0	1158	20	4	6	0.000000	0.000000	10	7	10	0	0	5	0	0
1633	19	13	B040329	1640	1430	1340	1100	0	0	1180	0	0	1188	20	4	6	0.000000	0.000000	10	7	10	0	0	5	0	0
1272	15	12	B040401E	1620	1370	900	-660	0	1250	1250	0	1258	1256	20	4	2	0.000000	0.000042	10	7	9	0	14	31	0	0
1362	16	12	B040412E	1600	1430	1050	-350	0	1240	1240	0	1247	1246	20	4	3	0.000000	0.000071	10	7	9	0	8	42	0	0
1452	17	12	B040413E	1580	1450	1150	130	0	1220	1220	0	1227	1226	20	4	3	0.000000	0.000107	10	7	9	0	3	31	0	0
1542	18	12	B040424E	1600	1450	1270	900	0	0	1210	0	0	1216	20	4	6	0.000000	0.000000	10	7	9	0	0	19	0	0
1632	19	12	B040425E	1680	1450	1380	1150	0	0	1190	0	0	1196	20	4	6	0.000000	0.000000	10	7	10	0	0	3	0	0
1198	14	28	B050135	1360	1090	1050	860	0	1070	1070	0	1064	1052	20	13	15	0.000000	0.002541	10	10	10	0	2	29	0	0
1199	14	29	B050136	1350	1080	1040	850	0	1070	1070	0	1060	1048	20	13	15	0.000000	0.002315	10	10	10	0	3	29	0	0
739	9	19	B050205	1780	1500	1290	830	0	0	1195	0	0	1194	25	12	4	0.000000	0.000000	10	10	10	0	0	15	0	0
738	9	18	B050206	1780	1500	1280	610	0	0	1205	0	0	1205	25	12	4	0.000000	0.000000	10	10	10	0	0	24	0	0
828	10	18	B050207	1720	1420	1140	240	0	1200	1200	0	1201	1201	25	12	4	0.000000	0.000170	10	10	10	0	7	36	0	0
829	10	19	B050208	1720	1410	1150	470	0	1190	1190	0	1190	1189	25	12	4	0.000000	0.000226	10	10	10	0	5	27	0	0
830	10	20	B050209	1700	1400	1150	700	0	1180	1180	0	1179	1179	25	12	4	0.000000	0.000340	10	10	10	0	3	18	0	0
921	11	21	B050215	1640	1350	1100	670	0	1160	1160	0	1159	1158	25	12	4	0.000000	0.000340	10	10	10	0	7	17	0	0
920	11	20	B050216	1640	1370	1050	380	0	1175	1175	0	1174	1174	25	12	4	0.000000	0.000212	10	10	10	0	15	27	0	0
919	11	19	B050217	1650	1370	1010	110	0	1190	1190	0	1189	1190	25	12	4	0.000000	0.000157	10	10	10	0	21	36	0	0
918	11	18	B050218	1670	1370	1000	-130	0	1200	1200	0	1200	1201	25	12	4	0.000000	0.000127	10	10	10	0	24	45	0	0
1008	12	18	B050219	1620	1340	850	-510	0	1190	1190	0	1189	1192	20	10	2	0.000000	0.000053	10	10	9	0	34	27	0	0
1009	12	19	B050220	1600	1340	890	-200	0	1190	1190	0	1188	1191	20	10	2	0.000000	0.000066	10	10	9	0	30	22	0	0
1010	12	20	B050221	1580	1320	910	80	0	1180	1180	0	1179	1179	25	10	4	0.000000	0.000153	10	10	10	0	27	33	0	0
1011	12	21	B050222	1580	1310	980	380	0	1150	1150	0	1149	1149	25	10	4	0.000000	0.000217	10	10	10	0	17	24	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
1012	12	22	B050223	1560	1300	1030	660	0	1120	1120	0	1119	1118	25	10	4	0.000000	0.000362	10	10	10	0	9	15	0	0
1013	12	23	B050224	1560	1300	1100	860	0	1080	1080	0	1080	1078	25	10	8	0.000000	0.000000	10	10	10	0	0	17	0	0
1103	13	23	B050225	1500	1200	1030	800	0	1070	1070	0	1071	1069	25	10	8	0.000000	0.001088	10	10	10	0	4	18	0	0
1102	13	22	B050226	1510	1200	900	380	0	1100	1100	0	1099	1099	25	10	4	0.000000	0.000235	10	10	10	0	20	21	0	0
1101	13	21	B050227	1530	1230	820	100	0	1140	1140	0	1139	1139	25	10	4	0.000000	0.000164	10	10	10	0	32	29	0	0
1100	13	20	B050228	1530	1270	780	-220	0	1170	1170	0	1168	1171	20	10	3	0.000000	0.000097	10	10	9	0	39	30	0	0
1099	13	19	B050229	1550	1310	750	-480	0	1180	1180	0	1177	1182	20	10	2	0.000000	0.000057	10	10	9	0	43	25	0	0
1098	13	18	B050230	1580	1330	700	-770	0	1190	1190	0	1186	1192	20	10	2	0.000000	0.000048	10	10	9	0	49	29	0	0
1188	14	18	B050231	1530	1270	570	-920	0	1180	1180	0	1177	1183	20	10	2	0.000000	0.000046	10	10	9	0	61	30	0	0
1189	14	19	B050232	1510	1250	585	-660	0	1170	1170	0	1167	1173	20	10	2	0.000000	0.000054	10	10	9	0	58	25	0	0
1190	14	20	B050233	1510	1200	640	-460	0	1160	1160	0	1158	1162	20	10	2	0.000000	0.000061	10	10	9	0	52	22	0	0
1191	14	21	B050234	1480	1170	700	-170	0	1130	1130	0	1129	1131	20	10	2	0.000000	0.000077	10	10	9	0	43	17	0	0
1192	14	22	B050235	1470	1190	770	120	0	1100	1100	0	1099	1100	25	10	4	0.000000	0.000175	10	10	10	0	33	26	0	0
1193	14	23	B050236	1460	1190	920	510	0	1050	1050	0	1051	1050	25	10	4	0.000000	0.000311	10	10	10	0	13	16	0	0
737	9	17	B050301	1790	1500	1300	490	0	0	1220	0	0	1222	25	12	4	0.000000	0.000000	10	10	10	0	0	29	0	0
736	9	16	B050302	1790	1510	1300	410	0	0	1230	0	0	1233	20	12	3	0.000000	0.000000	10	10	9	0	0	25	0	0
735	9	15	B050303	1810	1530	1320	430	0	0	1230	0	0	1237	20	12	3	0.000000	0.000000	10	10	9	0	0	24	0	0
734	9	14	B050304	1810	1550	1330	480	0	0	1240	0	0	1249	20	12	3	0.000000	0.000000	10	10	9	0	0	23	0	0
733	9	13	B050305	1810	1590	1330	560	0	0	1270	0	0	1278	20	12	3	0.000000	0.000000	10	10	9	0	0	22	0	0
732	9	12	B050306	1800	1600	1300	620	0	0	1300	0	0	1307	20	12	3	0.000000	0.000000	10	10	9	0	0	20	0	0
822	10	12	B050307	1760	1510	1090	160	0	1280	1280	0	1285	1287	20	4	3	0.000000	0.000099	10	7	9	0	8	28	0	0
823	10	13	B050308	1760	1490	1110	60	0	1250	1250	0	1254	1257	20	12	3	0.000000	0.000107	10	10	9	0	17	32	0	0
824	10	14	B050309	1760	1470	1150	-40	0	1240	1240	0	1244	1247	20	12	3	0.000000	0.000097	10	10	9	0	11	36	0	0
825	10	15	B050310	1740	1440	1150	-90	0	1230	1230	0	1234	1236	20	12	3	0.000000	0.000094	10	10	9	0	10	37	0	0
826	10	16	B050311	1740	1420	1150	-60	0	1220	1220	0	1223	1223	20	12	3	0.000000	0.000096	10	10	9	0	9	36	0	0
827	10	17	B050312	1730	1430	1150	50	0	1210	1210	0	1211	1212	20	12	3	0.000000	0.000106	10	10	9	0	7	33	0	0
917	11	17	B050313	1670	1350	1000	-380	0	1210	1210	0	1211	1212	20	10	2	0.000000	0.000055	10	10	9	0	21	28	0	0
916	11	16	B050314	1680	1320	1000	-570	0	1220	1220	0	1223	1223	20	10	2	0.000000	0.000048	10	10	9	0	22	31	0	0
915	11	15	B050315	1690	1310	990	-650	0	1220	1220	0	1224	1224	20	10	2	0.000000	0.000046	10	10	9	0	23	33	0	0
914	11	14	B050316	1710	1350	950	-590	0	1230	1230	0	1234	1236	20	10	2	0.000000	0.000048	10	10	9	0	28	31	0	0
913	11	13	B050317	1720	1400	930	-420	0	1250	1250	0	1255	1256	20	4	2	0.000000	0.000048	10	7	9	0	13	27	0	0
912	11	12	B050318	1740	1420	900	-260	0	1280	1280	0	1285	1286	20	4	2	0.000000	0.000052	10	7	9	0	15	23	0	0
1002	12	12	B050319	1710	1340	780	-620	0	1270	1270	0	1276	1276	20	4	2	0.000000	0.000042	10	7	9	0	20	28	0	0
1003	12	13	B050320	1690	1290	800	-860	0	1250	1250	0	1255	1256	20	4	2	0.000000	0.000038	10	7	9	0	18	33	0	0
1004	12	14	B050321	1670	1230	800	-1130	0	1220	1220	0	1224	1225	20	10	2	0.000000	0.000038	10	10	9	0	42	39	0	0
1005	12	15	B050322	1650	1210	810	-1200	0	1220	1220	0	1224	1224	20	10	2	0.000000	0.000037	10	10	9	0	40	40	0	0
1006	12	16	B050323	1640	1250	820	-1060	0	1220	1220	0	1222	1223	20	10	2	0.000000	0.000039	10	10	9	0	40	38	0	0
1007	12	17	B050324	1630	1330	830	-800	0	1210	1210	0	1211	1212	20	10	2	0.000000	0.000045	10	10	9	0	38	33	0	0
1097	13	17	B050325	1580	1260	690	-1120	0	1200	1200	0	1200	1202	20	10	2	0.000000	0.000040	10	10	9	0	51	36	0	0
1096	13	16	B050326	1600	1190	690	-1400	0	1210	1210	0	1212	1213	20	10	2	0.000000	0.000035	10	10	9	0	50	42	0	0
1095	13	15	B050327	1620	1180	690	-1380	0	1220	1220	0	1224	1224	20	10	2	0.000000	0.000035	10	10	9	0	49	41	0	0
1094	13	14	B050328	1640	1190	690	-1360	0	1270	1270	0	1276	1275	20	4	2	0.000000	0.000031	10	7	9	0	20	41	0	0
1093	13	13	B050329	1660	1230	720	-1210	0	1240	1240	0	1246	1246	20	4	2	0.000000	0.000033	10	7	9	0	20	39	0	0
1092	13	12	B050330	1680	1290	760	-820	0	1260	1260	0	1267	1266	20	4	2	0.000000	0.000038	10	7	9	0	20	32	0	0
1182	14	12	B050331	1650	1300	770	-950	0	1260	1260	0	1267	1266	20	4	2	0.000000	0.000036	10	7	9	0	20	34	0	0
1183	14	13	B050332	1630	1210	720	-1320	0	1240	1240	0	1249	1246	20	4	2	0.000000	0.000032	10	7	9	0	20	41	0	0
1184	14	14	B050333	1620	1180	620	-1380	0	1230	1230	0	1239	1235	20	4	2	0.000000	0.000031	10	7	9	0	22	40	0	0
1185	14	15	B050334	1590	1180	550	-1410	0	1210	1210	0	1216	1214	20	4	2	0.000000	0.000031	10	7	9	0	25	39	0	0
1186	14	16	B050335	1580	1180	550	-1420	0	1200	1200	0	1202	1204	20	4	2	0.000000	0.000031	10	7	9	0	25	39	0	0
1187	14	17	B050336	1550	1200	550	-1280	0	1190	1190	0	1190	1193	20	10	2	0.000000	0.000038	10	10	9	0	64	37	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
648	8	18	B060231	1850	1600	1400	1000	0	0	1210	0	0	1209	25	12	8	0.000000	0.000000	10	10	10	0	0	17	0	0
553	7	13	B060329	1930	1700	1650	1280	0	0	1330	0	0	1337	25	12	8	0.000000	0.000000	10	10	10	0	0	5	0	0
552	7	12	B060330	1920	1750	1650	1320	0	0	1370	0	0	1377	25	12	8	0.000000	0.000000	10	10	10	0	0	5	0	0
642	8	12	B060331	1860	1690	1550	1060	0	0	1330	0	0	1337	20	12	8	0.000000	0.000000	10	10	10	0	0	22	0	0
643	8	13	B060332	1860	1670	1580	1060	0	0	1300	0	0	1308	20	12	8	0.000000	0.000000	10	10	10	0	0	20	0	0
644	8	14	B060333	1880	1620	1550	980	0	0	1260	0	0	1269	20	12	8	0.000000	0.000000	10	10	10	0	0	23	0	0
645	8	15	B060334	1870	1600	1500	920	0	0	1245	0	0	1252	20	12	8	0.000000	0.000000	10	10	10	0	0	27	0	0
646	8	16	B060335	1860	1590	1460	860	0	0	1235	0	0	1238	25	12	8	0.000000	0.000000	10	10	10	0	0	30	0	0
647	8	17	B060336	1850	1600	1420	900	0	0	1225	0	0	1227	25	12	8	0.000000	0.000000	10	10	10	0	0	26	0	0
3442	39	22	C010203E	900	830	780	600	870	865	865	871	867	872	50	25	20	0.009259	0.003077	15	7	10	21	13	36	42	0
3441	39	21	C010204E	880	810	720	580	870	860	860	872	862	866	100	25	20	0.005376	0.002817	20	7	10	62	23	28	491	52800
3440	39	20	C010205E	870	760	710	570	860	855	855	862	858	860	100	25	20	0.009091	0.003636	20	7	10	102	13	28	291	44000
3439	39	19	C010206E	870	770	650	370	855	855	855	857	859	858	50	25	15	0.003891	0.001415	15	7	9	44	30	42	0	0
3529	40	19	C010207E	860	780	720	560	850	850	850	852	852	852	100	25	20	0.007874	0.003125	20	7	10	72	15	32	265	52800
3530	40	20	C010208E	880	800	740	680	860	860	860	862	862	862	50	25	20	0.007576	0.005128	20	7	10	31	15	12	168	0
3619	41	19	C010218E	900	800	0	0	850	0	0	852	0	0	50	0	0	0.000000	0.000000	15	0	0	26	0	0	0	0
3709	42	19	C010219E	930	820	0	0	860	0	0	862	0	0	50	0	0	0.000000	0.000000	15	0	0	21	0	0	0	0
3438	39	18	C010301E	870	760	630	370	850	850	850	852	855	854	50	20	15	0.002915	0.001319	15	7	9	46	26	39	0	0
3437	39	17	C010302E	860	760	620	490	850	850	850	852	856	854	50	20	15	0.002717	0.001765	15	7	9	46	28	20	0	0
3436	39	16	C010303E	860	760	600	470	840	840	840	840	847	840	50	25	15	0.002976	0.001863	15	7	9	40	40	20	0	0
3435	39	15	C010304E	860	760	570	380	840	840	840	839	846	841	50	20	15	0.002037	0.001263	10	7	9	40	38	29	0	0
3434	39	14	C010305E	860	700	530	280	840	840	840	839	845	836	50	20	15	0.002208	0.001188	10	7	9	70	34	38	0	0
3433	39	13	C010306E	870	710	500	180	840	840	840	839	844	833	35	10	8	0.000920	0.000488	10	5	9	45	21	26	0	0
3523	40	13	C010307E	840	660	580	440	830	830	830	829	833	819	50	20	20	0.004274	0.002667	15	5	10	85	16	28	153	0
3524	40	14	C010308E	840	700	600	510	840	840	840	839	843	831	50	20	20	0.003597	0.002759	15	7	10	70	20	18	223	0
3525	40	15	C010309E	850	770	640	550	840	840	840	840	845	833	50	25	20	0.003650	0.002685	15	7	10	35	33	18	333	0
3526	40	16	C010310E	840	760	680	540	840	840	840	841	845	836	100	25	30	0.005952	0.003614	15	7	10	81	20	42	550	0
3527	40	17	C010311E	850	740	700	550	840	840	840	842	845	839	100	25	30	0.011111	0.004878	20	7	10	102	10	45	692	52800
3528	40	18	C010312E	870	760	710	570	840	840	840	842	843	841	100	25	30	0.009259	0.004615	20	7	10	82	13	42	508	60000
3618	41	18	C010313E	890	770	0	0	850	0	0	852	0	0	50	0	0	0.000000	0.000000	15	0	0	41	0	0	0	0
3617	41	17	C010314E	880	720	0	0	840	0	0	841	0	0	100	0	0	0.000000	0.000000	20	0	0	121	0	0	42	30000
3616	41	16	C010315E	860	760	0	0	835	0	0	836	0	0	100	0	0	0.000000	0.000000	20	0	0	76	0	0	272	52800
3615	41	15	C010316E	840	770	0	0	830	0	0	831	0	0	100	0	0	0.000000	0.000000	20	0	0	61	0	0	342	52800
3614	41	14	C010317E	830	770	0	0	825	0	0	825	0	0	100	0	0	0.000000	0.000000	20	0	0	55	0	0	675	52800
3613	41	13	C010318E	820	700	600	520	820	820	820	819	822	813	100	25	20	0.004717	0.003333	20	5	10	119	25	16	722	56000
3708	42	18	C010324E	830	780	0	0	860	0	0	862	0	0	50	0	0	0.000000	0.000000	15	0	0	41	0	0	0	0
3432	39	12	C010401E	870	700	450	90	840	840	840	839	843	835	35	10	8	0.000775	0.000421	10	5	9	49	25	29	0	0
3431	39	11	C010402E	870	700	390	-30	830	830	830	828	831	829	35	8	8	0.000506	0.000308	10	5	9	45	25	34	0	0
3430	39	10	C010403E	880	700	350	-120	830	830	830	828	828	829	20	10	8	0.000551	0.000311	10	5	9	26	35	38	0	0
3429	39	9	C010404E	880	700	395	-290	830	830	830	828	828	829	20	10	8	0.000629	0.000273	10	5	9	26	31	55	0	0
3428	39	8	C010405E	890	670	170	-390	840	840	840	837	837	839	20	6	8	0.000235	0.000169	9	3	10	33	30	45	0	0
3427	39	7	C010406E	890	670	10	-410	840	840	840	837	836	840	20	6	10	0.000179	0.000153	9	3	10	33	40	42	0	0
3517	40	7	C010407E	860	700	140	-140	830	830	830	827	826	830	20	6	10	0.000211	0.000186	10	3	10	25	34	28	0	0
3518	40	8	C010408E	860	700	250	10	830	830	830	828	827	830	20	8	10	0.000348	0.000293	10	5	9	26	36	24	0	0
3519	40	9	C010409E	850	740	360	170	800	800	800	798	798	799	20	8	20	0.000416	0.000383	10	5	9	12	30	38	0	0
3520	40	10	C010410E	840	750	430	260	820	820	820	818	818	819	50	10	20	0.000620	0.000552	15	5	9	34	32	34	0	0
3521	40	11	C010411E	840	700	470	340	830	830	830	828	830	827	50	10	20	0.000850	0.000762	15	5	9	64	23	26	7	0
3522	40	12	C010412E	840	660	530	380	830	830	830	828	832	822	50	20	20	0.002786	0.001951	15	5	9	84	26	30	99	0
3612	41	12	C010413E	820	660	570	480	820	820	820	819	821	815	100	25	20	0.005102	0.003419	20	5	10	159	23	18	915	70000
3611	41	11	C010414E	820	700	540	430	820	820	820	819	820	818	100	20	20	0.002427	0.001860	20	5	9	119	32	22	822	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3610	41	10	C010415E	810	720	510	360	810	810	810	809	809	809	50	20	20	0.001842	0.001404	15	5	9	45	42	30	369	0
3609	41	9	C010416E	820	720	450	320	790	790	790	789	788	790	50	10	20	0.000733	0.000661	15	5	9	35	27	26	134	0
3608	41	8	C010417E	830	720	380	230	800	800	800	798	797	800	50	10	15	0.000583	0.000513	15	5	9	39	34	23	0	0
3607	41	7	C010418E	830	700	290	100	810	810	810	807	806	810	50	8	15	0.000387	0.000347	15	5	9	54	33	29	0	0
3697	42	7	C010419E	800	700	400	220	790	790	790	788	786	790	100	10	15	0.000663	0.000556	20	5	10	88	30	27	738	0
3698	42	8	C010420E	800	720	500	330	790	790	790	789	787	790	100	20	15	0.001795	0.001200	20	5	10	69	44	26	792	52800
3699	42	9	C010421E	800	740	600	400	790	790	790	789	788	790	100	20	15	0.002817	0.001463	20	5	10	49	28	30	730	72000
3700	42	10	C010422E	800	730	610	440	810	810	810	810	809	810	100	20	15	0.003247	0.001714	20	5	10	80	24	26	639	58000
3701	42	11	C010423E	820	720	600	520	810	810	810	810	810	809	100	20	30	0.003236	0.002727	20	5	10	90	24	24	451	64000
3702	42	12	C010424E	800	740	610	500	810	810	810	810	810	810	50	20	30	0.002950	0.002400	15	5	10	35	26	33	75	14000
3790	43	10	C010427E	780	750	0	0	810	0	0	810	0	0	50	0	0	0.000000	0.000000	15	0	0	30	0	0	46	0
3789	43	9	C010428E	820	750	0	0	790	0	0	790	0	0	50	0	0	0.000000	0.000000	15	0	0	20	0	0	84	0
3787	43	7	C010430E	800	720	600	500	770	770	770	771	766	770	100	20	15	0.003279	0.002143	20	5	10	51	24	15	313	70000
3426	39	6	C010501E	900	690	-70	-340	840	840	840	836	836	840	20	6	10	0.000156	0.000143	9	3	10	29	46	27	0	0
3425	39	5	C010502E	880	730	-20	-290	840	840	840	836	836	840	20	6	10	0.000159	0.000144	9	3	10	21	45	27	0	0
3515	40	5	C010511E	850	720	70	-200	820	820	820	817	816	820	20	6	10	0.000183	0.000164	10	3	10	19	39	27	0	0
3516	40	6	C010512E	850	700	80	-200	830	830	830	826	826	830	20	6	10	0.000191	0.000170	10	3	10	25	37	28	0	0
3606	41	6	C010513E	830	690	200	-50	810	810	810	807	806	810	35	8	15	0.000323	0.000287	10	5	9	41	39	38	0	0
3605	41	5	C010514E	840	720	150	-110	800	800	800	798	796	800	20	8	10	0.000278	0.000237	10	5	9	16	46	26	0	0
3695	42	5	C010523E	800	710	250	20	790	790	790	789	786	790	30	8	10	0.000345	0.000290	15	5	9	24	37	23	73	0
3696	42	6	C010524E	810	700	320	130	790	790	790	788	786	790	30	8	15	0.000416	0.000372	15	5	10	26	30	29	202	0
3786	43	6	C010525E	790	710	400	290	760	760	760	759	756	760	50	8	15	0.000513	0.000472	15	5	10	25	25	17	690	52800
3785	43	5	C010526E	780	720	350	180	750	750	750	749	746	750	30	8	15	0.000431	0.000385	15	5	10	9	30	26	618	52800
3455	39	35	D010101	990	700	-290	-810	970	960	960	975	966	968	100	20	15	0.000400	0.000299	15	5	10	275	198	78	0	0
3454	39	34	D010102	980	680	-270	-820	960	955	955	965	961	959	100	20	20	0.000416	0.000327	15	5	10	285	190	110	0	0
3453	39	33	D010103	970	680	-150	-460	950	945	945	955	951	949	100	15	20	0.000358	0.000317	15	5	10	275	125	62	0	0
3452	39	32	D010104	960	720	150	-50	945	940	940	950	947	944	100	20	20	0.000691	0.000597	15	7	10	230	114	40	13	0
3451	39	31	D010105	950	740	450	300	940	940	940	945	947	944	150	20	20	0.001354	0.001096	20	7	10	308	58	30	346	5300
3541	40	31	D010108	950	730	500	400	940	940	940	945	946	944	150	20	20	0.001698	0.001429	20	7	10	323	46	20	645	42200
3542	40	32	D010109	960	710	200	80	945	940	940	950	946	944	100	20	20	0.000770	0.000702	15	7	10	240	102	24	0	0
3543	40	33	D010110	970	700	-50	-230	950	940	940	955	945	945	100	20	20	0.000526	0.000476	15	7	10	255	150	36	0	0
3544	40	34	D010111	990	680	-180	-510	960	950	950	965	955	955	100	20	20	0.000459	0.000390	15	5	10	285	172	66	0	0
3545	40	35	D010112	1010	700	-190	-490	970	960	960	975	965	967	100	20	20	0.000444	0.000385	15	5	10	275	178	60	0	0
3635	41	35	D010113	1000	700	-140	-340	990	950	950	995	955	958	100	20	20	0.000470	0.000426	15	7	10	295	168	40	0	0
3634	41	34	D010114	980	680	-100	-320	960	940	940	965	945	947	100	20	20	0.000506	0.000449	15	7	10	285	156	44	0	0
3633	41	33	D010115	970	700	50	-80	950	940	940	955	945	946	100	20	20	0.000606	0.000559	15	7	10	255	130	26	0	0
3632	41	32	D010116	960	710	300	200	945	940	940	950	945	945	150	20	20	0.000961	0.000870	20	7	10	360	82	20	214	0
3631	41	31	D010117	960	730	560	460	940	940	940	945	945	944	150	20	20	0.002278	0.001818	20	7	10	323	34	20	788	63400
3721	42	31	D010120	1010	730	650	550	940	940	940	945	945	945	100	20	20	0.004525	0.003077	15	7	10	215	16	20	59	0
3722	42	32	D010121	1000	720	500	380	945	940	940	950	945	946	150	20	20	0.001770	0.001429	20	7	10	345	44	24	896	0
3723	42	33	D010122	970	710	200	70	950	940	940	955	945	947	150	20	20	0.000775	0.000696	20	7	10	368	102	26	749	0
3724	42	34	D010123	980	690	10	-120	960	940	940	965	945	948	150	20	20	0.000582	0.000537	20	7	10	413	136	26	263	0
3725	42	35	D010124	990	690	-70	-210	970	940	940	975	945	949	100	20	20	0.000519	0.000482	15	7	10	285	152	28	20	0
3815	43	35	D010125	990	660	-30	-150	970	940	940	975	946	949	150	20	20	0.000573	0.000533	20	7	10	473	138	24	595	0
3814	43	34	D010126	990	700	100	-20	960	940	940	965	947	948	100	20	20	0.000655	0.000606	15	7	10	265	120	24	509	0
3813	43	33	D010127	990	710	400	280	950	940	940	955	946	948	100	20	20	0.001252	0.001081	15	7	10	245	62	24	254	0
3812	43	32	D010128	1040	720	610	510	945	940	940	950	945	947	100	20	20	0.003361	0.002500	15	7	10	230	22	20	35	0
3811	43	31	D010129	1140	730	680	580	940	940	940	945	945	946	100	20	20	0.006849	0.004000	15	7	10	215	10	20	0	0
3903	44	33	D010134	1050	720	600	500	950	940	940	955	947	948	100	15	30	0.002364	0.002069	15	7	10	235	18	30	0	0
3904	44	34	D010135	1000	710	300	180	960	940	940	965	948	949	100	15	30	0.000719	0.000682	15	7	10	255	62	36	77	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3905	44	35	D010136	1000	700	80	-10	970	950	950	975	958	960	100	15	30	0.000478	0.000467	15	7	10	275	93	27	408	0
3461	39	41	D010201	1110	820	780	680	1030	1030	1030	1036	1034	1033	20	7	15	0.002559	0.002211	10	5	10	43	3	15	0	0
3460	39	40	D010202	1090	820	700	590	1020	1020	1020	1025	1024	1023	20	7	15	0.001045	0.000961	10	5	10	41	8	17	0	0
3459	39	39	D010203	1060	780	500	360	1010	1010	1010	1015	1014	1013	20	7	15	0.000473	0.000448	10	5	10	47	20	21	0	0
3458	39	38	D010204	1040	770	250	40	1000	1000	1000	1005	1005	1003	20	7	15	0.000261	0.000246	10	5	10	47	36	32	0	0
3457	39	37	D010205	1030	780	10	-270	980	980	980	985	986	985	20	15	15	0.000375	0.000330	15	5	10	41	116	42	0	0
3456	39	36	D010206	1010	770	-200	-560	975	970	970	980	976	976	100	15	15	0.000307	0.000261	15	5	10	210	146	54	0	0
3546	40	36	D010207	1020	740	-50	-230	975	970	970	980	975	976	100	20	20	0.000500	0.000455	15	5	10	240	158	36	0	0
3547	40	37	D010208	1030	760	240	120	980	980	980	983	985	986	20	20	20	0.000709	0.000690	15	5	10	45	104	24	0	0
3548	40	38	D010209	1050	770	500	400	1000	1000	1000	1002	1005	1005	20	20	10	0.001266	0.001081	10	5	10	46	54	10	0	0
3637	41	37	D010217	1030	770	380	280	990	980	980	990	985	988	50	20	20	0.000981	0.000909	15	7	10	110	78	20	0	0
3636	41	36	D010218	1020	740	20	-80	980	970	970	985	975	978	100	20	20	0.000548	0.000519	15	7	10	245	144	20	0	0
3726	42	36	D010219	1020	740	30	-70	980	960	960	984	965	970	100	20	20	0.000556	0.000526	15	7	10	244	142	20	0	0
3727	42	37	D010220	1020	770	370	270	980	980	980	977	985	990	50	20	20	0.000960	0.000889	15	7	10	104	80	20	0	0
3818	43	38	D010228	1110	800	700	610	980	980	980	980	990	980	50	20	20	0.003497	0.002759	15	7	10	90	20	18	0	0
3817	43	37	D010229	1050	750	350	250	980	980	980	980	989	992	100	20	20	0.000978	0.000889	15	7	10	230	80	20	0	0
3816	43	36	D010230	1020	700	40	-80	980	960	960	984	967	970	150	20	20	0.000599	0.000556	20	7	10	426	132	24	59	0
3906	44	36	D010231	1000	680	10	-110	980	980	980	984	989	992	150	15	30	0.000444	0.000429	20	7	10	456	101	36	566	0
3907	44	37	D010232	1030	710	160	40	990	990	990	992	1000	1002	100	15	30	0.000537	0.000517	15	7	10	282	83	36	36	0
3908	44	38	D010233	1070	750	600	500	990	990	990	990	1001	990	100	15	30	0.001908	0.001714	15	7	10	240	23	30	0	0
3465	39	45	D010303	1250	950	0	0	1040	0	0	1050	0	0	20	0	0	0.000000	0.000000	10	0	0	20	0	0	0	0
3464	39	44	D010304	1220	900	0	0	1040	0	0	1047	0	0	20	0	0	0.000000	0.000000	10	0	0	29	0	0	0	0
3463	39	43	D010305	1220	850	0	0	1040	0	0	1047	0	0	20	0	0	0.000000	0.000000	10	0	0	39	0	0	0	0
3462	39	42	D010306	1160	800	0	0	1040	0	0	1045	0	0	20	0	0	0.000000	0.000000	10	0	0	49	0	0	0	0
3917	44	47	D010336	1190	890	760	640	1035	1030	1030	1057	1051	1053	25	10	10	0.001412	0.001053	15	7	10	42	13	12	0	0
3473	39	53	D010401	1190	1020	810	270	1070	1045	1045	1097	1079	1076	50	20	10	0.003670	0.000533	15	7	9	39	42	54	0	0
3472	39	52	D010402	1190	1010	880	710	1070	1055	1055	1095	1084	1082	50	20	10	0.005731	0.001333	15	7	9	43	26	17	0	0
3471	39	51	D010403	1190	1030	940	790	1070	1050	1050	1092	1075	1074	25	10	10	0.004149	0.001212	15	7	10	16	9	15	0	0
3470	39	50	D010404	1210	1030	900	770	1070	1050	1050	1091	1073	1073	25	10	10	0.002933	0.001026	15	7	10	15	13	13	0	0
3559	40	49	D010408	1280	1010	860	780	1035	1035	1035	1056	1056	1058	25	10	10	0.002597	0.001053	15	7	10	12	15	8	0	0
3560	40	50	D010409	1210	1010	890	720	1035	1035	1035	1056	1057	1059	25	10	10	0.003226	0.000976	15	7	10	12	12	17	0	0
3561	40	51	D010410	1190	1020	850	780	1060	1045	1045	1082	1071	1070	50	15	10	0.003432	0.001348	15	7	10	31	26	7	0	0
3562	40	52	D010411	1190	1000	700	620	1060	1040	1040	1081	1066	1067	50	20	10	0.002584	0.001053	15	7	9	41	60	8	0	0
3563	40	53	D010412	1190	1000	890	-120	1060	1040	1040	1084	1071	1070	50	20	10	0.006689	0.000357	15	7	9	42	22	101	0	0
3653	41	53	D010413	1190	980	580	-490	1060	1030	1030	1085	1058	1059	50	20	10	0.001038	0.000272	15	7	9	53	80	107	0	0
3652	41	52	D010414	1190	980	630	70	1060	1030	1030	1083	1056	1057	50	20	10	0.001205	0.000440	15	7	9	52	70	56	0	0
3651	41	51	D010415	1190	1010	680	190	1060	1045	1045	1082	1070	1070	50	20	10	0.002367	0.000488	15	7	10	36	66	49	0	0
3650	41	50	D010416	1210	1000	750	310	1045	1045	1045	1067	1068	1069	50	15	10	0.002349	0.000517	15	7	10	34	38	44	0	0
3649	41	49	D010417	1250	1000	890	560	1040	1040	1040	1062	1062	1064	25	10	10	0.003436	0.000727	15	7	10	16	11	33	0	0
3648	41	48	D010418	1290	990	910	750	1040	1035	1035	1061	1057	1058	25	10	10	0.004545	0.001250	15	7	10	18	8	16	0	0
3738	42	48	D010419	1270	970	880	650	1040	1035	1035	1062	1058	1059	25	10	10	0.003953	0.000976	15	7	10	23	9	23	0	0
3739	42	49	D010420	1230	980	900	370	1040	1040	1040	1063	1063	1064	25	15	10	0.006356	0.000628	15	7	10	21	12	53	0	0
3740	42	50	D010421	1200	950	800	160	1050	1045	1045	1073	1069	1069	50	15	10	0.003704	0.000476	15	7	10	62	23	64	0	0
3741	42	51	D010422	1180	950	690	-50	1060	1045	1045	1083	1069	1069	50	20	10	0.002882	0.000400	15	7	10	67	52	74	0	0
3742	42	52	D010423	1180	920	690	-260	1060	1035	1035	1084	1060	1060	50	20	10	0.002170	0.000339	15	7	9	82	46	95	0	0
3743	42	53	D010424	1190	910	600	-560	1055	1030	1030	1080	1057	1058	50	20	10	0.001401	0.000272	15	7	9	85	62	116	0	0
3833	43	53	D010425	1190	890	690	-710	1055	1035	1035	1081	1061	1061	50	20	7	0.001534	0.000182	15	5	9	96	40	98	0	0
3832	43	52	D010426	1180	890	780	-350	1055	1035	1035	1079	1060	1059	50	20	10	0.002865	0.000323	15	7	9	95	22	113	0	0
3831	43	51	D010427	1170	890	810	-140	1060	1035	1035	1083	1058	1058	50	20	10	0.007463	0.000388	15	7	10	97	16	95	0	0
3830	43	50	D010428	1170	900	750	80	1065	1040	1040	1088	1064	1063	50	20	10	0.004535	0.000488	15	7	10	94	30	67	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3829	43	49	D010429	1200	930	750	360	1050	1045	1045	1074	1069	1069	25	20	10	0.003663	0.000702	15	7	10	36	36	39	0	0
3828	43	48	D010430	1230	920	810	630	1045	1030	1030	1068	1053	1054	25	10	10	0.003077	0.001000	15	7	10	37	11	18	0	0
3918	44	48	D010431	1180	900	700	480	1045	1030	1030	1068	1053	1054	25	10	10	0.001792	0.000645	15	7	10	42	20	22	0	0
3919	44	49	D010432	1180	910	590	230	1050	1040	1040	1074	1064	1064	50	20	10	0.002336	0.000588	15	7	10	82	64	36	0	0
3920	44	50	D010433	1170	890	480	-80	1060	1035	1035	1084	1059	1059	50	20	10	0.001830	0.000412	15	7	10	97	82	56	0	0
3921	44	51	D010434	1170	870	610	-260	1060	1030	1030	1084	1054	1054	50	20	10	0.002755	0.000354	15	7	10	107	52	87	0	0
3922	44	52	D010435	1170	880	790	-450	1055	1025	1025	1080	1051	1050	50	20	10	0.002980	0.000301	15	7	9	100	18	124	0	0
3923	44	53	D010436	1180	890	800	-820	1055	1040	1040	1081	1066	1067	50	20	7	0.005873	0.000166	15	5	9	96	18	113	0	0
3479	39	59	D010501	1230	930	420	-1770	1050	1010	1010	1093	1071	1062	50	20	4	0.000712	0.000067	10	7	10	82	102	88	0	0
3478	39	58	D010502	1220	920	120	-1780	1050	1010	1010	1090	1066	1055	75	20	7	0.000583	0.000114	10	7	10	128	160	133	0	0
3477	39	57	D010503	1210	910	-90	-1790	1045	1040	1040	1083	1080	1079	75	20	7	0.000589	0.000117	15	7	9	130	200	119	0	0
3476	39	56	D010504	1210	970	200	-1790	1040	1000	1000	1075	1039	1039	75	20	7	0.000829	0.000111	15	7	9	79	154	139	0	0
3475	39	55	D010505	1210	990	690	-1470	1050	1010	1010	1081	1048	1047	50	20	7	0.001584	0.000118	15	7	9	46	60	151	0	0
3474	39	54	D010506	1200	1000	600	-800	1060	1045	1045	1089	1083	1079	50	20	7	0.001953	0.000167	15	7	9	45	80	98	0	0
3564	40	54	D010507	1200	990	580	-1050	1060	1050	1050	1085	1085	1083	50	20	7	0.001899	0.000146	15	7	9	48	82	114	0	0
3565	40	55	D010508	1200	970	310	-1800	1050	1000	1000	1080	1036	1036	50	20	7	0.000689	0.000109	10	7	9	55	132	148	0	0
3566	40	56	D010509	1210	940	70	-1790	1050	970	970	1081	1007	1009	75	20	7	0.000507	0.000113	10	7	9	106	174	130	0	0
3567	40	57	D010510	1210	950	10	-1790	1050	1045	1045	1085	1083	1084	75	20	7	0.000442	0.000114	10	7	9	101	188	126	0	0
3568	40	58	D010511	1220	940	260	-1780	1055	1025	1025	1093	1074	1070	75	20	7	0.000656	0.000111	10	7	10	115	136	143	0	0
3569	40	59	D010512	1230	910	400	-1770	1060	1025	1025	1100	1078	1077	75	20	7	0.000721	0.000111	10	7	10	143	102	152	0	0
3659	41	59	D010513	1230	890	420	-1770	1070	1000	1000	1103	1045	1049	50	20	7	0.001604	0.000111	10	5	10	107	94	153	0	0
3658	41	58	D010514	1230	910	300	-1770	1060	1015	1015	1092	1053	1060	75	20	7	0.001278	0.000112	10	5	10	137	122	145	0	0
3657	41	57	D010515	1220	930	90	-1780	1055	1030	1030	1087	1067	1069	75	20	7	0.000938	0.000114	10	5	9	118	168	131	0	0
3656	41	56	D010516	1210	950	110	-1790	1055	1020	1020	1086	1055	1058	75	20	7	0.000940	0.000113	10	7	9	102	168	133	0	0
3655	41	55	D010517	1200	960	280	-1800	1055	1020	1020	1084	1053	1055	75	20	7	0.000659	0.000110	10	7	9	93	136	146	0	0
3654	41	54	D010518	1190	970	450	-1210	1060	1040	1040	1087	1069	1073	50	20	7	0.000797	0.000138	15	7	9	59	104	116	0	0
3744	42	54	D010519	1190	940	480	-1160	1055	1035	1035	1082	1063	1065	50	20	10	0.000872	0.000190	15	5	9	71	92	164	0	0
3745	42	55	D010520	1200	970	400	-1800	1060	1035	1035	1089	1066	1070	75	20	7	0.000780	0.000108	10	5	9	89	114	154	0	0
3746	42	56	D010521	1210	950	310	-1790	1060	1045	1045	1090	1080	1084	75	20	7	0.000627	0.000110	10	5	9	105	128	147	0	0
3747	42	57	D010522	1220	920	250	-1780	1060	1030	1030	1091	1064	1070	75	20	7	0.001168	0.000112	10	5	9	128	134	142	0	0
3748	42	58	D010523	1230	890	300	-1770	1060	1015	1015	1091	1047	1061	75	20	7	0.001316	0.000113	10	5	10	151	118	145	0	0
3749	42	59	D010524	1240	910	420	-1760	1055	1030	1030	1087	1069	1080	50	20	7	0.001559	0.000111	10	5	10	89	98	153	0	0
3839	43	59	D010525	1240	990	460	-1760	1060	1030	1030	1091	1068	1080	50	20	7	0.001478	0.000108	10	5	10	51	106	155	0	0
3838	43	58	D010526	1230	980	400	-1770	1060	1020	1020	1091	1053	1066	75	20	7	0.001359	0.000109	10	5	9	83	116	152	0	0
3837	43	57	D010527	1220	970	400	-1780	1060	1030	1030	1090	1064	1072	75	20	7	0.001380	0.000109	10	5	9	90	114	153	0	0
3836	43	56	D010528	1210	960	450	-1790	1060	1040	1040	1090	1074	1079	75	20	7	0.000836	0.000108	10	5	9	98	102	157	0	0
3835	43	55	D010529	1210	1000	500	-1690	1060	1020	1020	1088	1052	1053	75	20	7	0.000880	0.000110	10	5	9	66	100	153	0	0
3834	43	54	D010530	1190	950	590	-1210	1055	1030	1030	1082	1058	1060	50	20	7	0.001123	0.000136	10	5	9	66	72	126	0	0
3924	44	54	D010531	1190	900	670	-1160	1055	1045	1045	1082	1073	1075	50	20	7	0.002140	0.000141	10	5	9	91	46	128	0	0
3925	44	55	D010532	1210	910	590	-1590	1060	1045	1045	1088	1076	1079	75	20	7	0.001881	0.000116	10	5	9	134	64	153	0	0
3926	44	56	D010533	1210	930	510	-1790	1060	1035	1035	1089	1068	1074	75	20	7	0.001844	0.000108	10	5	9	119	84	161	0	0
3927	44	57	D010534	1220	960	470	-1780	1065	1040	1040	1096	1074	1082	75	20	7	0.001596	0.000108	10	5	9	102	98	158	0	0
3928	44	58	D010535	1230	990	430	-1770	1065	1050	1050	1097	1084	1096	75	20	7	0.001408	0.000108	10	5	9	80	112	154	0	0
3929	44	59	D010536	1240	1010	500	-1760	1070	1060	1060	1103	1095	1107	20	20	4	0.000798	0.000065	10	5	9	19	102	90	0	0
3485	39	65	D010601	1330	1080	-100	-1670	0	895	895	0	962	951	15	4	3	0.000000	0.000039	10	7	9	0	42	47	0	0
3484	39	64	D010602	1310	1070	-100	-1690	0	940	940	0	1010	996	25	4	3	0.000000	0.000038	10	7	9	0	44	48	0	0
3483	39	63	D010603	1280	1030	320	-1720	0	960	960	0	1050	1016	25	4	3	0.000000	0.000040	10	7	10	0	28	61	0	0
3482	39	62	D010604	1270	1000	490	-1730	1040	970	970	1094	1069	1027	25	10	4	0.000422	0.000061	10	7	10	24	51	89	0	0
3481	39	61	D010605	1250	990	510	-1750	1050	1010	1010	1100	1090	1067	25	10	4	0.000417	0.000061	10	7	10	28	48	90	0	0
3480	39	60	D010606	1240	960	490	-1760	1050	1020	1020	1096	1090	1075	30	20	4	0.000819	0.000066	10	7	10	41	94	90	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3570	40	60	D010607	1240	910	400	-1760	1060	1040	1040	1101	1102	1095	30	20	4	0.000755	0.000068	10	7	10	57	102	86	0	0
3571	40	61	D010608	1250	970	360	-1750	1055	1030	1030	1100	1105	1086	25	10	4	0.000341	0.000062	10	7	10	33	61	84	0	0
3572	40	62	D010609	1270	990	250	-1730	1055	1000	1000	1105	1080	1057	25	10	4	0.000233	0.000062	10	7	10	29	74	79	0	0
3573	40	63	D010610	1280	1010	100	-1720	1050	950	950	1105	1025	1007	25	4	3	0.000098	0.000039	10	7	10	24	36	55	0	0
3574	40	64	D010611	1300	1020	-210	-1700	0	970	970	0	1030	1026	15	4	3	0.000000	0.000037	10	7	10	0	49	45	0	0
3575	40	65	D010612	1320	1080	-500	-1680	0	930	930	0	990	990	15	4	3	0.000000	0.000036	10	7	9	0	60	35	0	0
3665	41	65	D010613	1310	1050	-580	-1690	0	1000	1000	0	1054	1060	15	4	3	0.000000	0.000034	10	7	9	0	65	33	0	0
3664	41	64	D010614	1300	1100	-390	-1700	0	1050	1050	0	1105	1106	15	4	3	0.000000	0.000035	10	7	10	0	60	39	0	0
3663	41	63	D010615	1280	1050	-50	-1720	1070	1010	1010	1115	1066	1066	25	4	3	0.000071	0.000037	10	7	10	16	44	50	0	0
3662	41	62	D010616	1270	990	130	-1730	1060	1020	1020	1100	1082	1075	25	10	4	0.000459	0.000063	10	7	10	28	86	74	0	0
3661	41	61	D010617	1260	990	210	-1740	1060	1050	1050	1098	1112	1104	25	10	4	0.000506	0.000062	10	7	10	27	78	78	0	0
3660	41	60	D010618	1250	950	340	-1750	1060	1000	1000	1094	1052	1053	30	20	4	0.001251	0.000069	10	7	10	43	122	84	0	0
3750	42	60	D010619	1250	1000	340	-1750	1055	1050	1050	1087	1095	1101	30	20	4	0.001186	0.000068	10	5	10	26	132	84	0	0
3751	42	61	D010620	1280	1000	220	-1720	1060	1040	1040	1092	1087	1091	25	10	3	0.000507	0.000050	10	7	10	23	78	58	0	0
3752	42	62	D010621	1280	1000	100	-1720	1070	1030	1030	1101	1074	1081	25	10	3	0.000439	0.000051	10	7	10	25	90	55	0	0
3753	42	63	D010622	1290	1100	-100	-1710	1120	1055	1055	1150	1095	1107	25	4	3	0.000078	0.000036	10	7	10	13	48	48	0	0
3754	42	64	D010623	1300	1110	-300	-1700	1130	1000	1000	1165	1040	1051	15	4	2	0.000063	0.000030	10	7	10	8	54	28	0	0
3755	42	65	D010624	1310	1050	-590	-1690	0	1010	1010	0	1050	1060	15	4	2	0.000000	0.000030	10	7	10	0	66	22	0	0
3845	43	65	D010625	1320	1110	-630	-1680	0	1030	1030	0	1066	1072	15	3	2	0.000000	0.000025	10	7	10	0	51	21	0	0
3844	43	64	D010626	1310	1120	-440	-1690	1150	990	990	1172	1027	1034	15	4	2	0.000052	0.000030	10	7	10	8	59	25	0	0
3843	43	63	D010627	1290	1100	-90	-1710	1170	980	980	1190	1002	1028	25	4	2	0.000079	0.000030	10	7	10	23	44	32	0	0
3842	43	62	D010628	1280	1050	200	-1720	1120	1020	1020	1146	1060	1069	25	10	2	0.000281	0.000036	10	7	10	24	85	38	0	0
3841	43	61	D010629	1270	1100	410	-1730	1110	1020	1020	1138	1068	1068	25	10	3	0.000354	0.000048	10	7	10	10	66	64	0	0
3840	43	60	D010630	1260	1050	490	-1740	1060	1030	1030	1091	1070	1079	30	20	4	0.000774	0.000065	10	5	10	12	112	89	0	0
3930	44	60	D010631	1260	1090	620	-1740	1100	1040	1040	1131	1080	1090	30	20	4	0.000993	0.000063	10	5	10	12	92	94	0	0
3931	44	61	D010632	1270	1100	590	-1730	1110	1025	1025	1137	1072	1076	30	7	3	0.000342	0.000045	10	5	10	11	34	70	0	0
3932	44	62	D010633	1280	1050	340	-1720	1140	1025	1025	1160	1063	1076	30	7	2	0.000204	0.000033	10	7	10	33	50	41	0	0
3933	44	63	D010634	1290	1090	80	-1710	1170	1025	1025	1185	1051	1071	25	3	2	0.000066	0.000026	10	7	10	24	29	36	0	0
3934	44	64	D010635	1310	1110	-400	-1690	1130	1025	1025	1145	1052	1066	15	3	2	0.000044	0.000025	10	7	10	5	44	26	0	0
3935	44	65	D010636	1320	1110	-720	-1680	0	1040	1040	0	1064	1075	15	3	2	0.000000	0.000024	10	7	10	0	54	19	0	0
3491	39	71	D010701	1510	1260	920	390	0	1080	1080	0	1125	1090	30	7	4	0.000000	0.000224	10	10	10	0	14	21	0	0
3490	39	70	D010702	1480	1250	800	180	0	1070	1070	0	1117	1100	30	4	4	0.000000	0.000138	10	10	9	0	13	25	0	0
3489	39	69	D010703	1450	1220	680	30	0	1050	1050	0	1108	1095	30	4	4	0.000000	0.000115	10	7	9	0	17	26	0	0
3488	39	68	D010704	1420	1250	600	-380	0	980	980	0	1052	1048	30	4	4	0.000000	0.000092	10	7	9	0	18	39	0	0
3487	39	67	D010705	1390	1150	500	-840	0	900	900	0	974	973	15	9	5	0.000000	0.000112	10	7	9	0	43	67	0	0
3486	39	66	D010706	1360	1100	50	-1420	0	890	890	0	954	950	15	4	3	0.000000	0.000044	10	7	9	0	36	44	0	0
3576	40	66	D010707	1340	1050	-500	-1660	0	895	895	0	955	956	15	4	3	0.000000	0.000037	10	7	9	0	58	35	0	0
3577	40	67	D010708	1370	1100	10	-1630	0	920	920	0	980	986	15	4	2	0.000000	0.000031	10	7	9	0	39	33	0	0
3578	40	68	D010709	1400	1150	300	-1400	0	1010	1010	0	1070	1071	30	4	2	0.000000	0.000033	10	7	9	0	31	34	0	0
3579	40	69	D010710	1420	1200	500	-880	0	1060	1060	0	1113	1104	30	4	2	0.000000	0.000041	10	7	9	0	25	28	0	0
3580	40	70	D010711	1460	1200	620	-640	0	1080	1080	0	1125	1110	30	4	2	0.000000	0.000047	10	7	9	0	20	25	0	0
3581	40	71	D010712	1480	1220	800	-170	0	1100	1100	0	1140	1110	30	7	2	0.000000	0.000070	10	7	9	0	24	19	0	0
3671	41	71	D010713	1470	1230	650	-1180	0	1110	1110	0	1140	1120	15	3	2	0.000000	0.000033	10	7	9	0	15	37	0	0
3670	41	70	D010714	1440	1190	480	-1560	0	1105	1105	0	1131	1130	15	3	2	0.000000	0.000028	10	7	9	0	20	41	0	0
3669	41	69	D010715	1410	1130	290	-1590	0	1100	1100	0	1140	1132	30	4	2	0.000000	0.000030	10	7	9	0	34	38	0	0
3668	41	68	D010716	1390	1100	10	-1610	0	1050	1050	0	1100	1097	30	4	2	0.000000	0.000030	10	7	9	0	44	32	0	0
3667	41	67	D010717	1360	1050	-300	-1640	0	1000	1000	0	1054	1055	15	4	2	0.000000	0.000030	10	7	9	0	54	27	0	0
3666	41	66	D010718	1330	1000	-540	-1670	0	950	950	0	1006	1011	15	4	2	0.000000	0.000031	10	7	9	0	62	23	0	0
3756	42	66	D010719	1330	1020	-600	-1670	0	1020	1020	0	1060	1065	15	4	2	0.000000	0.000030	10	7	10	0	65	21	0	0
3757	42	67	D010720	1360	1050	-400	-1640	0	1040	1040	0	1080	1082	15	4	2	0.000000	0.000030	10	7	9	0	58	25	0	0

SRV PHASE2.DBF

CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3758	42	68	D010721	1380	1080	-120	-1620	0	1090	1090	0	1120	1125	15	3	2	0.000000	0.000026	10	7	9	0	36	30	0	0
3759	42	69	D010722	1400	1120	110	-1600	0	1105	1105	0	1125	1130	15	3	2	0.000000	0.000026	10	7	9	0	30	34	0	0
3760	42	70	D010723	1440	1200	310	-1560	0	1110	1110	0	1125	1128	15	3	2	0.000000	0.000027	10	7	9	0	24	37	0	0
3761	42	71	D010724	1460	1220	500	-1540	0	1125	1125	0	1140	1125	15	3	2	0.000000	0.000028	10	7	9	0	19	41	0	0
3851	43	71	D010725	1450	1210	400	-1550	0	1120	1120	0	1128	1112	15	3	2	0.000000	0.000027	10	7	9	0	22	39	0	0
3850	43	70	D010726	1420	1210	240	-1580	0	1100	1100	0	1108	1100	15	3	2	0.000000	0.000027	10	7	10	0	26	36	0	0
3849	43	69	D010727	1400	1190	30	-1600	0	1095	1095	0	1104	1110	15	3	2	0.000000	0.000026	10	7	10	0	32	33	0	0
3848	43	68	D010728	1380	1100	-220	-1620	0	1050	1050	0	1070	1072	15	3	2	0.000000	0.000026	10	7	10	0	39	28	0	0
3847	43	67	D010729	1360	1090	-500	-1640	0	1050	1050	0	1075	1079	15	3	2	0.000000	0.000025	10	7	10	0	47	23	0	0
3846	43	66	D010730	1330	1080	-670	-1670	0	1040	1040	0	1072	1075	15	3	2	0.000000	0.000024	10	7	10	0	52	20	0	0
3936	44	66	D010731	1340	1110	-730	-1660	0	1050	1050	0	1072	1074	15	3	2	0.000000	0.000024	10	7	10	0	54	19	0	0
3937	44	67	D010732	1360	1130	-510	-1640	0	1060	1060	0	1080	1080	15	3	2	0.000000	0.000025	10	7	10	0	48	23	0	0
3938	44	68	D010733	1380	1150	-250	-1620	0	1070	1070	0	1072	1080	15	3	2	0.000000	0.000026	10	7	10	0	40	27	0	0
3939	44	69	D010734	1390	1200	10	-1610	0	1075	1075	0	1077	1080	15	3	2	0.000000	0.000026	10	7	10	0	32	32	0	0
3940	44	70	D010735	1420	1210	200	-1580	0	1080	1080	0	1080	1075	15	3	2	0.000000	0.000027	10	7	10	0	26	36	0	0
3941	44	71	D010736	1440	1210	310	-1560	0	1100	1100	0	1100	1092	15	3	2	0.000000	0.000027	10	7	10	0	24	37	0	0
3496	39	76	D010802	1660	1500	1310	840	0	0	1300	0	0	1295	30	7	4	0.000000	0.000000	9	10	10	0	0	18	0	0
3495	39	75	D010803	1630	1450	1290	540	0	0	1170	0	0	1164	30	7	4	0.000000	0.000000	9	10	10	0	0	25	0	0
3494	39	74	D010804	1610	1410	1210	420	0	0	1140	0	0	1134	30	7	4	0.000000	0.000000	9	10	10	0	0	29	0	0
3493	39	73	D010805	1590	1390	1130	490	0	0	1110	0	0	1103	30	7	4	0.000000	0.000000	9	10	10	0	0	25	0	0
3492	39	72	D010806	1550	1300	1100	950	0	0	1090	0	0	1082	30	7	4	0.000000	0.000000	10	10	10	0	0	5	0	0
3582	40	72	D010807	1520	1270	940	90	0	1105	1105	0	1140	1105	30	7	2	0.000000	0.000085	10	7	10	0	14	17	0	0
3583	40	73	D010808	1550	1320	1080	150	0	1130	1130	0	1165	1120	30	7	4	0.000000	0.000162	9	7	10	0	6	37	0	0
3584	40	74	D010809	1580	1360	1150	180	0	0	1150	0	0	1140	30	7	4	0.000000	0.000000	9	7	10	0	0	38	0	0
3585	40	75	D010810	1620	1400	1190	320	0	0	1180	0	0	1170	30	7	4	0.000000	0.000000	9	7	10	0	0	34	0	0
3586	40	76	D010811	1670	1410	1210	570	0	0	1200	0	0	1192	30	7	4	0.000000	0.000000	9	7	10	0	0	25	0	0
3587	40	77	D010812	1710	1480	1270	1010	0	0	1350	0	0	1347	30	7	4	0.000000	0.000000	9	7	9	0	0	10	0	0
3677	41	77	D010813	1680	1420	1140	480	0	1200	1200	0	1220	1195	30	7	4	0.000000	0.000220	9	7	9	0	6	26	0	0
3676	41	76	D010814	1620	1400	1100	220	0	1180	1180	0	1202	1173	30	7	4	0.000000	0.000165	9	7	9	0	7	35	0	0
3675	41	75	D010815	1610	1310	1080	-10	0	1170	1170	0	1195	1159	30	7	4	0.000000	0.000134	10	7	10	0	8	44	0	0
3674	41	74	D010816	1560	1290	1020	-190	0	1160	1160	0	1188	1145	30	7	4	0.000000	0.000117	10	7	10	0	12	48	0	0
3673	41	73	D010817	1540	1290	950	-460	0	1140	1140	0	1170	1129	30	7	4	0.000000	0.000098	10	7	10	0	15	56	0	0
3672	41	72	D010818	1510	1260	800	-710	0	1130	1130	0	1160	1126	15	3	2	0.000000	0.000041	10	7	9	0	11	30	0	0
3762	42	72	D010819	1490	1240	680	-1510	0	1135	1135	0	1157	1126	15	3	2	0.000000	0.000029	10	7	9	0	14	44	0	0
3763	42	73	D010820	1520	1260	800	-980	0	1140	1140	0	1165	1125	15	3	3	0.000000	0.000049	10	7	9	0	11	53	0	0
3764	42	74	D010821	1550	1280	890	-650	0	1150	1150	0	1175	1129	30	7	4	0.000000	0.000087	10	7	9	0	20	62	0	0
3765	42	75	D010822	1590	1300	910	-410	0	1160	1160	0	1182	1146	30	7	4	0.000000	0.000100	10	7	9	0	19	53	0	0
3766	42	76	D010823	1630	1320	980	-110	0	1170	1170	0	1190	1162	30	7	4	0.000000	0.000122	10	7	9	0	15	44	0	0
3767	42	77	D010824	1670	1400	1010	190	0	1175	1175	0	1193	1168	30	7	4	0.000000	0.000159	10	7	9	0	13	33	0	0
3857	43	77	D010825	1650	1330	900	-150	0	1160	1160	0	1175	1161	30	7	4	0.000000	0.000119	10	7	9	0	19	42	0	0
3856	43	76	D010826	1620	1300	800	-580	0	1150	1150	0	1165	1150	30	7	4	0.000000	0.000090	10	7	9	0	26	55	0	0
3855	43	75	D010827	1570	1280	780	-710	0	1150	1150	0	1168	1141	30	7	4	0.000000	0.000084	10	7	9	0	27	60	0	0
3854	43	74	D010828	1540	1260	710	-1060	0	1145	1145	0	1165	1132	15	3	3	0.000000	0.000045	10	7	9	0	14	53	0	0
3853	43	73	D010829	1500	1240	650	-1470	0	1140	1140	0	1160	1129	15	3	3	0.000000	0.000039	10	7	9	0	15	64	0	0
3852	43	72	D010830	1480	1220	540	-1520	0	1135	1135	0	1150	1120	15	3	2	0.000000	0.000028	10	7	9	0	18	41	0	0
3942	44	72	D010831	1460	1220	410	-1540	0	1120	1120	0	1132	1115	15	3	2	0.000000	0.000028	10	7	10	0	22	39	0	0
3943	44	73	D010832	1500	1240	510	-1500	0	1120	1120	0	1129	1120	15	3	3	0.000000	0.000037	10	7	10	0	19	60	0	0
3944	44	74	D010833	1530	1260	580	-1270	0	1120	1120	0	1130	1123	15	3	3	0.000000	0.000041	10	7	10	0	17	56	0	0
3945	44	75	D010834	1560	1280	600	-940	0	1120	1120	0	1135	1126	15	3	3	0.000000	0.000047	10	7	10	0	16	46	0	0
3946	44	76	D010835	1600	1290	690	-700	0	1130	1130	0	1142	1138	30	7	4	0.000000	0.000085	10	7	10	0	32	56	0	0

CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
3947	44	77	D010836	1640	1320	790	-460	0	1140	1140	0	1151	1144	30	7	4	0.000000	0.000097	10	7	10	0	25	50	0	0
3588	40	78	D010907	1760	1500	1390	1250	0	0	1400	0	0	1399	30	7	4	0.000000	0.000000	9	7	9	0	0	6	0	0
3589	40	79	D010908	1820	1600	1460	1320	0	0	1500	0	0	1494	30	7	4	0.000000	0.000000	9	7	9	0	0	6	0	0
3590	40	80	D010909	1850	1650	1500	1340	0	0	1500	0	0	1494	30	7	4	0.000000	0.000000	9	7	9	0	0	6	0	0
3682	41	82	D010914	1920	1700	1550	1270	0	0	1500	0	0	1491	30	7	4	0.000000	0.000000	9	7	9	0	0	9	0	0
3681	41	81	D010915	1880	1650	1440	1180	0	0	1450	0	0	1441	30	7	4	0.000000	0.000000	9	7	9	0	0	10	0	0
3680	41	80	D010916	1830	1600	1380	1130	0	0	1400	0	0	1392	30	7	4	0.000000	0.000000	9	7	9	0	0	10	0	0
3679	41	79	D010917	1780	1500	1310	1030	0	0	1300	0	0	1292	30	7	4	0.000000	0.000000	9	7	9	0	0	10	0	0
3678	41	78	D010918	1790	1480	1290	990	0	0	1250	0	0	1243	30	7	4	0.000000	0.000000	9	7	9	0	0	10	0	0
3768	42	78	D010919	1720	1420	1090	420	0	1180	1180	0	1195	1171	30	7	4	0.000000	0.000207	10	7	9	0	7	27	0	0
3769	42	79	D010920	1760	1480	1140	610	0	1190	1190	0	1202	1181	30	7	4	0.000000	0.000273	9	7	9	0	4	21	0	0
3770	42	80	D010921	1800	1500	1200	790	0	0	1200	0	0	1191	30	7	4	0.000000	0.000000	9	7	9	0	0	16	0	0
3771	42	81	D010922	1830	1590	1280	880	0	0	1270	0	0	1261	30	7	4	0.000000	0.000000	9	7	9	0	0	15	0	0
3772	42	82	D010923	1870	1650	1480	1170	0	0	1340	0	0	1331	30	7	4	0.000000	0.000000	9	7	9	0	0	6	0	0
3773	42	83	D010924	1950	1700	1570	1310	0	0	1400	0	0	1392	30	7	4	0.000000	0.000000	9	7	9	0	0	3	0	0
3863	43	83	D010925	1900	1650	1560	1270	0	0	1300	0	0	1293	30	7	4	0.000000	0.000000	9	7	9	0	0	1	0	0
3862	43	82	D010926	1870	1550	1400	1070	0	0	1200	0	0	1193	30	7	4	0.000000	0.000000	9	7	9	0	0	5	0	0
3861	43	81	D010927	1820	1500	1200	720	0	0	1190	0	0	1182	30	7	4	0.000000	0.000000	9	7	9	0	0	18	0	0
3860	43	80	D010928	1770	1470	1140	520	0	1180	1180	0	1191	1172	30	7	4	0.000000	0.000240	10	7	9	0	4	25	0	0
3859	43	79	D010929	1740	1440	1080	350	0	1175	1175	0	1186	1167	30	7	4	0.000000	0.000191	10	7	9	0	7	29	0	0
3858	43	78	D010930	1690	1400	990	90	0	1170	1170	0	1185	1163	30	7	4	0.000000	0.000145	10	7	9	0	14	36	0	0
3948	44	78	D010931	1680	1380	900	-170	0	1150	1150	0	1161	1152	30	7	4	0.000000	0.000118	10	7	9	0	18	43	0	0
3949	44	79	D010932	1720	1400	1000	70	0	1160	1160	0	1170	1153	30	7	4	0.000000	0.000144	10	7	9	0	12	37	0	0
3950	44	80	D010933	1760	1420	1090	260	0	1170	1170	0	1180	1163	30	7	4	0.000000	0.000174	10	7	9	0	6	33	0	0
3951	44	81	D010934	1800	1460	1180	550	0	0	1175	0	0	1168	30	7	4	0.000000	0.000000	10	7	9	0	0	25	0	0
3952	44	82	D010935	1840	1500	1230	720	0	0	1185	0	0	1178	30	7	4	0.000000	0.000000	9	7	9	0	0	18	0	0
3953	44	83	D010936	1850	1550	1480	1150	0	0	1200	0	0	1193	30	7	4	0.000000	0.000000	9	7	9	0	0	2	0	0
3864	43	84	D011030	1920	1700	1630	1390	0	0	1400	0	0	1394	30	7	4	0.000000	0.000000	9	7	9	0	0	0	0	0
3954	44	84	D011031	1880	1600	1530	1350	0	0	1300	0	0	1294	30	7	4	0.000000	0.000000	9	7	9	0	0	0	0	0
3995	45	35	D020101	1000	710	500	190	970	950	950	975	959	962	100	15	30	0.001377	0.001043	15	7	10	265	32	93	483	0
3994	45	34	D020102	1070	720	600	360	960	940	940	965	949	951	100	15	30	0.002358	0.001667	15	7	10	245	18	72	0	0
4085	46	35	D020112	1050	720	650	550	970	950	950	976	961	962	100	15	30	0.003871	0.003158	15	7	10	256	11	30	107	0
4001	45	41	D020201	1100	830	620	500	1005	1005	1005	1017	1020	1020	25	10	8	0.000893	0.000702	10	7	10	47	21	10	0	0
4000	45	40	D020202	1080	810	620	480	1000	1000	1000	1010	1014	1014	25	10	8	0.000975	0.000721	10	7	10	50	19	11	0	0
3999	45	39	D020203	1050	780	600	350	990	990	990	998	1003	1004	25	15	8	0.001462	0.000724	10	7	10	55	27	20	0	0
3998	45	38	D020204	1040	720	500	240	990	990	990	996	1002	1002	100	15	30	0.001315	0.001053	20	7	10	276	33	78	0	0
3997	45	37	D020205	1020	710	200	70	990	990	990	995	1001	1002	100	15	30	0.000579	0.000553	20	7	10	285	77	39	518	0
3996	45	36	D020206	1010	710	300	60	980	980	980	985	990	992	150	15	30	0.000722	0.000638	20	7	10	413	62	72	738	0
4086	46	36	D020207	1000	720	450	200	980	970	970	986	981	982	150	15	30	0.001090	0.000902	20	7	10	399	41	75	630	0
4087	46	37	D020208	1020	720	280	120	980	980	980	987	992	993	150	15	30	0.000674	0.000625	20	7	10	401	66	48	536	0
4088	46	38	D020209	1050	780	150	50	990	990	990	998	1003	1003	100	15	30	0.000471	0.000458	15	7	10	218	95	30	127	0
4089	46	39	D020210	1050	800	120	-50	990	990	990	1000	1004	1004	100	15	15	0.000438	0.000392	15	7	10	200	102	26	0	0
4090	46	40	D020211	1060	820	200	-90	1000	1000	1000	1012	1015	1014	50	15	15	0.000476	0.000392	15	7	10	96	93	44	0	0
4091	46	41	D020212	1070	840	200	-80	1005	1005	1005	1018	1021	1020	50	15	15	0.000462	0.000385	15	7	10	89	96	42	0	0
4181	47	41	D020213	1070	870	90	-430	1005	1005	1005	1020	1021	1019	75	15	15	0.000382	0.000288	15	7	10	113	117	78	0	0
4180	47	40	D020214	1070	860	90	-430	1000	1000	1000	1013	1015	1014	75	15	15	0.000387	0.000291	15	7	10	115	116	78	0	0
4179	47	39	D020215	1050	850	110	-300	990	990	990	1001	1004	1003	150	15	15	0.000404	0.000317	20	7	10	227	111	62	141	0
4178	47	38	D020216	1040	850	180	-60	980	980	980	990	993	993	150	15	15	0.000446	0.000380	20	7	10	210	101	36	373	0
4177	47	37	D020217	1040	810	400	240	980	970	970	989	982	983	150	15	30	0.000726	0.000667	20	7	10	269	62	48	456	0
4176	47	36	D020218	1020	720	600	520	980	960	960	988	972	973	100	15	30	0.002347	0.002143	15	7	10	268	18	24	365	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4267	48	37	D020220	1030	880	650	330	980	970	970	990	983	983	100	15	30	0.001288	0.000968	15	10	10	110	35	96	306	0
4268	48	38	D020221	1040	910	380	-160	980	980	980	991	993	993	100	15	15	0.000564	0.000375	15	7	10	81	80	81	196	0
4269	48	39	D020222	1040	910	200	-460	990	990	990	1002	1004	1003	100	15	15	0.000421	0.000288	20	7	10	92	107	99	313	0
4270	48	40	D020223	1050	890	90	-650	1000	1000	1000	1014	1015	1013	100	15	15	0.000373	0.000256	20	7	10	124	120	111	42	0
4271	48	41	D020224	1080	860	50	-720	1005	1005	1005	1020	1021	1019	100	15	15	0.000368	0.000251	15	7	10	160	122	116	0	0
4361	49	41	D020225	1050	850	70	-1050	1005	1005	1005	1020	1021	1019	100	15	15	0.000382	0.000224	20	7	10	170	117	168	82	0
4360	49	40	D020226	1050	880	170	-750	1005	1005	1005	1019	1020	1018	100	15	15	0.000420	0.000256	20	7	10	139	107	138	76	0
4359	49	39	D020227	1050	900	300	-550	1000	1000	1000	1013	1013	1012	100	15	15	0.000498	0.000293	15	7	10	113	90	128	6	0
4358	49	38	D020228	1050	900	510	-150	990	990	990	1001	1003	1002	100	15	15	0.000764	0.000417	15	7	10	101	59	99	208	0
4357	49	37	D020229	1100	880	790	500	980	980	980	991	993	992	100	15	30	0.003226	0.001846	15	10	10	111	14	87	56	0
4447	50	37	D020232	1200	870	810	700	980	980	980	991	992	992	100	15	30	0.004739	0.003429	15	10	10	121	9	33	0	0
4448	50	38	D020233	1050	880	600	-50	990	990	990	1001	1002	1002	100	15	15	0.001059	0.000496	15	10	10	121	42	98	129	0
4449	50	39	D020234	1050	880	370	-550	1000	1000	1000	1012	1013	1012	100	15	15	0.000584	0.000309	15	7	10	132	77	138	16	0
4450	50	40	D020235	1060	860	200	-840	1005	1005	1005	1018	1019	1017	100	15	15	0.000452	0.000254	15	7	10	158	99	156	0	0
4451	50	41	D020236	1070	840	90	-1030	1005	1005	1005	1019	1019	1018	100	15	15	0.000397	0.000229	15	7	10	179	113	168	0	0
4007	45	47	D020301	1150	890	700	450	1040	1030	1030	1061	1051	1051	50	10	10	0.001020	0.000635	15	7	10	86	19	25	0	0
4006	45	46	D020302	1150	890	800	550	1040	1030	1030	1059	1050	1050	50	10	10	0.002083	0.000930	15	7	10	85	9	25	0	0
4005	45	45	D020303	1150	890	800	650	1030	1030	1030	1049	1049	1049	25	10	8	0.001976	0.001088	10	7	10	40	9	12	0	0
4004	45	44	D020304	1160	890	800	660	1020	1020	1020	1037	1038	1038	25	10	8	0.001992	0.001127	10	7	10	37	9	11	0	0
4003	45	43	D020305	1140	880	800	640	1015	1015	1015	1031	1032	1032	25	10	8	0.002203	0.001111	10	7	10	38	8	13	0	0
4002	45	42	D020306	1130	860	650	530	1010	1010	1010	1024	1026	1025	25	10	8	0.000901	0.000702	10	7	10	41	21	10	0	0
4092	46	42	D020307	1090	870	200	-60	1010	1010	1010	1026	1026	1027	50	15	13	0.000442	0.000366	15	7	10	78	101	34	0	0
4093	46	43	D020308	1100	890	250	100	1015	1015	1015	1032	1032	1032	50	15	13	0.000463	0.000413	15	7	10	71	96	20	0	0
4094	46	44	D020309	1120	900	700	320	1020	1020	1020	1038	1038	1038	50	15	13	0.001448	0.000716	15	7	10	69	30	49	0	0
4095	46	45	D020310	1110	910	810	610	1030	1030	1030	1049	1049	1048	50	15	13	0.002799	0.001393	15	7	10	70	15	26	0	0
4096	46	46	D020311	1120	910	820	620	1040	1030	1030	1059	1049	1048	50	10	18	0.002101	0.001374	15	7	10	75	9	36	0	0
4097	46	47	D020312	1130	910	700	330	1040	1030	1030	1059	1049	1049	50	10	18	0.000929	0.000639	15	7	10	75	21	67	0	0
4187	47	47	D020313	1120	920	350	70	1040	1030	1030	1058	1048	1048	75	15	18	0.000522	0.000437	15	7	10	104	86	50	0	0
4186	47	46	D020314	1110	920	310	110	1030	1030	1030	1048	1048	1047	75	15	18	0.000488	0.000433	15	7	10	96	92	36	0	0
4185	47	45	D020315	1100	910	250	100	1030	1030	1030	1049	1049	1047	75	15	13	0.000451	0.000402	15	7	10	104	99	20	0	0
4184	47	44	D020316	1090	910	180	-110	1020	1020	1020	1038	1038	1037	75	15	13	0.000408	0.000334	15	7	10	96	110	38	0	0
4183	47	43	D020317	1080	890	110	-320	1015	1015	1015	1032	1032	1032	75	15	13	0.000382	0.000292	15	7	10	107	117	56	0	0
4182	47	42	D020318	1070	880	90	-430	1010	1010	1010	1026	1027	1026	75	15	13	0.000377	0.000275	15	7	10	110	119	68	0	0
4272	48	42	D020319	1090	880	50	-710	1010	1010	1010	1026	1027	1024	100	15	15	0.000360	0.000248	15	7	10	146	125	114	0	0
4273	48	43	D020320	1100	900	90	-600	1015	1015	1015	1032	1032	1031	100	15	15	0.000369	0.000260	15	7	10	132	122	104	0	0
4274	48	44	D020321	1110	910	110	-390	1020	1020	1020	1038	1038	1037	100	15	15	0.000373	0.000286	15	7	10	128	120	75	0	0
4275	48	45	D020322	1110	900	200	-90	1030	1030	1030	1050	1050	1047	100	15	15	0.000426	0.000355	15	7	10	150	105	44	0	0
4276	48	46	D020323	1120	910	310	-30	1030	1030	1030	1047	1047	1047	100	15	20	0.000497	0.000412	15	7	10	137	90	68	0	0
4277	48	47	D020324	1120	920	400	20	1040	1030	1030	1057	1047	1048	100	15	20	0.000573	0.000453	15	7	10	137	78	76	0	0
4367	49	47	D020325	1130	900	420	-20	1040	1030	1030	1057	1047	1047	100	15	20	0.000620	0.000465	15	7	10	157	72	88	0	0
4366	49	46	D020326	1120	890	380	-80	1030	1030	1030	1047	1047	1047	100	15	20	0.000583	0.000440	15	7	10	157	77	92	0	0
4365	49	45	D020327	1110	890	290	-240	1030	1030	1030	1049	1049	1047	100	15	15	0.000497	0.000347	15	7	10	159	90	80	0	0
4364	49	44	D020328	1100	890	200	-550	1020	1020	1020	1038	1038	1036	100	15	15	0.000432	0.000282	15	7	10	148	104	113	0	0
4363	49	43	D020329	1090	890	120	-910	1015	1015	1015	1032	1032	1030	100	15	15	0.000388	0.000233	15	7	10	142	116	155	0	0
4362	49	42	D020330	1080	870	90	-1020	1010	1010	1010	1026	1027	1024	100	15	15	0.000383	0.000225	20	7	10	156	117	167	69	0
4452	50	42	D020331	1080	840	120	-1020	1010	1010	1010	1025	1025	1023	100	15	15	0.000414	0.000233	20	7	10	185	108	171	83	0
4453	50	43	D020332	1090	850	210	-910	1020	1020	1020	1036	1037	1034	100	15	15	0.000465	0.000250	15	7	10	186	96	168	0	0
4454	50	44	D020333	1100	860	300	-600	1020	1020	1020	1037	1037	1036	100	15	15	0.000531	0.000297	15	7	10	177	84	135	0	0
4455	50	45	D020334	1110	870	350	-290	1025	1025	1025	1043	1043	1041	100	15	15	0.000572	0.000357	15	7	10	173	78	96	0	0
4456	50	46	D020335	1120	880	400	-80	1030	1030	1030	1047	1047	1046	100	15	20	0.000619	0.000455	15	7	10	167	72	96	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4457	50	47	D020336	1130	890	470	-20	1040	1030	1030	1058	1047	1047	100	15	20	0.000707	0.000497	15	7	10	168	63	98	0	0
4013	45	53	D020401	1180	880	820	-230	1060	1050	1050	1086	1076	1079	40	10	10	0.002899	0.000342	15	5	9	82	6	105	0	0
4012	45	52	D020402	1170	880	690	-440	1055	1045	1045	1081	1071	1071	50	20	10	0.001961	0.000303	15	7	10	101	38	113	0	0
4011	45	51	D020403	1160	870	530	-240	1055	1040	1040	1080	1065	1065	50	20	15	0.001127	0.000469	15	7	10	105	68	116	0	0
4010	45	50	D020404	1160	860	420	-40	1050	1035	1035	1074	1059	1059	50	20	18	0.000879	0.000575	15	7	10	107	88	83	0	0
4009	45	49	D020405	1150	850	400	150	1040	1035	1035	1063	1059	1059	50	15	18	0.000650	0.000541	15	7	10	107	68	45	0	0
4008	45	48	D020406	1150	870	530	250	1040	1035	1035	1062	1058	1058	50	15	18	0.000857	0.000657	15	7	10	96	51	50	0	0
4098	46	48	D020407	1140	910	540	140	1040	1035	1035	1060	1054	1054	60	15	18	0.000797	0.000559	15	7	10	90	56	72	0	0
4099	46	49	D020408	1150	900	270	50	1035	1035	1035	1058	1055	1055	60	15	18	0.000471	0.000416	15	7	10	95	95	40	0	0
4100	46	50	D020409	1160	890	420	-90	1050	1040	1040	1074	1064	1063	60	15	15	0.000628	0.000414	15	7	10	110	71	77	0	0
4101	46	51	D020410	1160	890	500	-140	1055	1045	1045	1080	1071	1071	60	20	15	0.000998	0.000490	15	7	10	114	78	96	0	0
4102	46	52	D020411	1180	890	650	-320	1055	1050	1050	1081	1077	1077	60	20	15	0.001594	0.000451	15	7	10	115	48	146	0	0
4103	46	53	D020412	1180	900	800	-550	1060	1055	1055	1087	1083	1086	40	10	10	0.001852	0.000258	15	7	10	75	10	135	0	0
4193	47	53	D020413	1180	950	800	-420	1060	1060	1060	1087	1090	1091	50	15	10	0.001916	0.000282	10	7	10	69	23	122	0	0
4192	47	52	D020414	1170	930	650	-330	1060	1055	1055	1087	1083	1083	60	20	15	0.001386	0.000429	10	7	10	94	56	147	0	0
4191	47	51	D020415	1160	910	530	-240	1055	1050	1050	1080	1070	1071	60	20	15	0.001027	0.000448	15	7	10	102	76	116	0	0
4190	47	50	D020416	1160	910	470	-90	1045	1045	1045	1068	1064	1064	60	15	15	0.000672	0.000417	15	7	10	95	66	84	0	0
4189	47	49	D020417	1150	910	400	10	1040	1040	1040	1060	1059	1059	60	15	18	0.000581	0.000446	15	7	10	90	77	70	0	0
4188	47	48	D020418	1140	920	330	40	1040	1035	1035	1059	1053	1053	60	15	18	0.000503	0.000422	15	7	10	83	89	52	0	0
4278	48	48	D020419	1140	920	420	40	1040	1035	1035	1058	1052	1053	60	15	20	0.000593	0.000467	15	7	10	83	75	76	0	0
4279	48	49	D020420	1150	920	500	10	1040	1040	1040	1059	1058	1058	60	15	15	0.000704	0.000451	15	7	10	83	63	74	0	0
4280	48	50	D020421	1150	930	530	-100	1050	1050	1050	1073	1068	1069	60	15	15	0.000739	0.000420	15	7	10	86	60	95	0	0
4281	48	51	D020422	1160	940	600	-190	1055	1055	1055	1080	1074	1074	60	20	15	0.001151	0.000462	15	7	10	84	68	119	0	0
4282	48	52	D020423	1170	950	700	-230	1060	1060	1060	1086	1080	1081	60	20	10	0.001554	0.000339	10	7	10	82	50	93	0	0
4283	48	53	D020424	1180	980	810	-320	1070	1070	1070	1097	1098	1098	50	15	10	0.001710	0.000295	9	7	10	59	26	113	0	0
4373	49	53	D020425	1180	990	830	-220	1075	1075	1075	1102	1097	1097	50	10	10	0.001224	0.000292	9	7	10	56	16	105	0	0
4372	49	52	D020426	1170	960	780	-180	1070	1065	1065	1095	1085	1085	60	10	15	0.001089	0.000400	10	7	10	81	18	144	0	0
4371	49	51	D020427	1160	950	690	-140	1060	1055	1055	1085	1074	1074	60	10	15	0.000759	0.000373	15	7	10	81	26	125	0	0
4370	49	50	D020428	1160	930	620	-40	1050	1050	1050	1073	1069	1069	60	10	15	0.000637	0.000377	15	7	10	86	31	99	0	0
4369	49	49	D020429	1150	920	590	10	1045	1040	1040	1064	1058	1058	60	15	15	0.000892	0.000484	15	7	10	86	50	87	0	0
4368	49	48	D020430	1140	910	480	40	1040	1035	1035	1058	1053	1053	60	15	20	0.000687	0.000504	15	7	10	89	65	88	0	0
4458	50	48	D020431	1140	890	500	40	1040	1035	1035	1058	1053	1052	60	15	20	0.000755	0.000533	15	7	10	101	59	92	0	0
4459	50	49	D020432	1140	900	650	40	1045	1040	1040	1064	1058	1058	60	10	15	0.000785	0.000441	15	7	10	98	25	92	0	0
4460	50	50	D020433	1150	910	690	10	1050	1050	1050	1073	1069	1068	60	10	15	0.000890	0.000448	15	7	10	98	22	102	0	0
4461	50	51	D020434	1160	950	750	-40	1060	1055	1055	1085	1074	1074	50	10	15	0.000978	0.000432	15	7	10	68	20	119	0	0
4462	50	52	D020435	1160	980	810	-40	1070	1065	1065	1096	1085	1084	50	10	10	0.001152	0.000336	10	7	10	58	17	85	0	0
4463	50	53	D020436	1170	1000	800	-30	1075	1075	1075	1102	1099	1098	50	10	10	0.000985	0.000325	10	7	10	51	20	83	0	0
4019	45	59	D020501	1230	1020	410	-1770	1075	1075	1075	1107	1109	1121	30	15	4	0.000487	0.000064	9	5	9	26	92	87	0	0
4018	45	58	D020502	1180	990	360	-1820	1070	1060	1060	1101	1094	1102	40	15	7	0.000472	0.000101	9	5	9	44	95	153	0	0
4017	45	57	D020503	1220	960	450	-1780	1070	1050	1050	1101	1084	1092	40	10	7	0.000388	0.000095	9	5	9	56	51	156	0	0
4016	45	56	D020504	1210	930	540	-1790	1055	1045	1045	1084	1078	1085	40	10	5	0.000505	0.000074	9	5	9	62	39	117	0	0
4015	45	55	D020505	1210	900	630	-1490	1060	1055	1055	1088	1087	1090	40	10	7	0.000719	0.000112	10	5	9	75	27	148	0	0
4014	45	54	D020506	1210	890	750	-1040	1055	1055	1055	1082	1083	1086	40	10	7	0.001349	0.000141	10	5	9	77	14	125	0	0
4104	46	54	D020507	1190	950	800	-910	1060	1060	1060	1088	1091	1093	40	10	7	0.001286	0.000146	10	5	9	55	15	120	0	0
4105	46	55	D020508	1200	950	670	-1200	1065	1065	1065	1094	1098	1101	40	10	5	0.000700	0.000093	10	5	9	58	28	94	0	0
4106	46	56	D020509	1210	950	510	-1570	1070	1060	1060	1100	1094	1100	40	10	5	0.000448	0.000079	9	5	9	60	44	104	0	0
4107	46	57	D020510	1220	920	370	-1780	1100	1060	1060	1131	1094	1102	30	10	4	0.000156	0.000062	9	5	9	63	55	86	0	0
4108	46	58	D020511	1230	910	260	-1770	1110	1055	1055	1140	1090	1098	30	10	4	0.000152	0.000063	9	5	9	69	65	81	0	0
4109	46	59	D020512	1250	1000	300	-1750	1120	1040	1040	1150	1076	1084	30	7	4	0.000100	0.000056	9	5	9	45	49	82	0	0
4199	47	59	D020513	1250	1000	150	-1750	1170	1070	1070	1196	1102	1115	30	7	4	0.000083	0.000056	9	7	9	59	60	76	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4198	47	58	D020514	1230	920	150	-1770	1150	1060	1060	1177	1094	1103	30	7	4	0.000099	0.000057	9	7	9	77	54	77	0	0
4197	47	57	D020515	1220	1000	210	-1680	1120	1070	1070	1148	1105	1112	30	10	4	0.000251	0.000063	9	5	9	44	79	76	0	0
4196	47	56	D020516	1210	1000	440	-1290	1100	1070	1070	1130	1106	1110	50	10	5	0.000355	0.000087	9	5	10	65	56	87	0	0
4195	47	55	D020517	1200	1000	700	-1000	1070	1065	1065	1099	1102	1103	50	15	5	0.000986	0.000105	9	5	10	50	45	85	0	0
4194	47	54	D020518	1190	1000	810	-640	1065	1065	1065	1093	1099	1100	50	15	7	0.001547	0.000172	10	7	10	47	29	102	0	0
4284	48	54	D020519	1190	1000	800	-510	1070	1070	1070	1098	1106	1107	50	10	4	0.000986	0.000109	9	7	10	49	20	52	0	0
4285	48	55	D020520	1200	1000	670	-700	1110	1075	1075	1138	1115	1113	50	10	4	0.000598	0.000098	9	7	10	69	33	55	0	0
4286	48	56	D020521	1210	1000	290	-1040	1120	1075	1075	1148	1116	1115	50	10	4	0.000280	0.000084	9	7	10	74	71	53	0	0
4287	48	57	D020522	1220	1010	-50	-1380	1130	1075	1075	1157	1109	1117	30	7	8	0.000131	0.000085	9	7	10	44	74	106	0	0
4288	48	58	D020523	1240	1000	-90	-1510	1150	1070	1070	1174	1101	1113	30	7	4	0.000068	0.000060	9	7	10	52	76	57	0	0
4289	48	59	D020524	1250	1050	50	-1400	1170	1065	1065	1190	1091	1110	30	7	4	0.000079	0.000062	9	7	10	42	70	58	0	0
4379	49	59	D020525	1250	1050	-10	-870	1150	1100	1100	1165	1118	1144	30	7	5	0.000131	0.000084	9	7	10	35	74	43	0	0
4378	49	58	D020526	1230	1040	-250	-1030	1120	1080	1080	1140	1108	1123	50	7	10	0.000108	0.000090	9	7	10	50	90	78	0	0
4377	49	57	D020527	1220	1030	-350	-830	1120	1075	1075	1144	1114	1117	50	7	10	0.000101	0.000090	9	7	10	57	97	48	0	0
4376	49	56	D020528	1210	1010	130	-640	1110	1075	1075	1136	1116	1113	50	7	10	0.000159	0.000122	9	7	10	63	62	77	0	0
4375	49	55	D020529	1200	990	510	-500	1110	1075	1075	1137	1115	1113	50	10	5	0.000413	0.000134	9	7	10	74	48	51	0	0
4374	49	54	D020530	1190	980	720	-310	1080	1075	1075	1107	1107	1106	50	10	8	0.000758	0.000221	9	7	10	64	26	82	0	0
4464	50	54	D020531	1190	990	680	-10	1080	1075	1075	1107	1105	1103	50	10	8	0.000638	0.000270	10	7	10	59	31	55	0	0
4465	50	55	D020532	1200	1000	480	-100	1100	1075	1075	1127	1112	1109	50	10	10	0.000382	0.000247	10	7	10	64	52	58	0	0
4466	50	56	D020533	1210	1010	150	-290	1110	1080	1080	1136	1120	1117	85	7	10	0.000162	0.000138	10	7	10	107	60	44	0	0
4467	50	57	D020534	1220	1030	-70	-390	1120	1080	1080	1144	1115	1120	85	7	10	0.000127	0.000116	10	7	10	97	77	32	0	0
4468	50	58	D020535	1240	1050	-100	-460	1120	1090	1090	1140	1118	1132	85	7	10	0.000122	0.000110	10	7	10	77	81	36	0	0
4469	50	59	D020536	1240	1060	10	-390	1120	1120	1120	1135	1138	1163	15	3	3	0.000057	0.000048	10	7	10	11	32	12	0	0
4025	45	65	D020601	1330	1130	-600	-1670	0	1055	1055	0	1078	1080	15	3	2	0.000000	0.000024	10	7	10	0	50	21	0	0
4024	45	64	D020602	1320	1120	-190	-1680	0	1045	1045	0	1071	1079	15	3	2	0.000000	0.000026	10	7	10	0	38	30	0	0
4023	45	63	D020603	1300	1110	300	-1700	1130	1040	1040	1145	1080	1080	25	3	2	0.000041	0.000027	10	7	10	9	23	40	0	0
4022	45	62	D020604	1290	1110	490	-1710	1130	1030	1030	1148	1088	1085	30	7	2	0.000129	0.000032	10	7	10	11	42	44	0	0
4021	45	61	D020605	1270	1090	610	-1730	1100	1040	1040	1125	1096	1097	30	7	2	0.000125	0.000031	10	5	10	11	34	47	0	0
4020	45	60	D020606	1260	1090	550	-1740	1100	1035	1035	1130	1075	1086	30	10	4	0.000212	0.000060	10	5	9	12	53	92	0	0
4110	46	60	D020607	1260	1080	420	-1740	1130	1100	1100	1158	1139	1148	30	7	4	0.000211	0.000055	10	5	9	23	46	86	0	0
4111	46	61	D020608	1280	1080	510	-1720	1120	1100	1100	1142	1145	1152	30	7	2	0.000245	0.000061	10	5	9	19	40	45	0	0
4112	46	62	D020609	1290	1100	590	-1710	1110	1100	1100	1126	1145	1146	30	7	2	0.000134	0.000061	10	5	10	8	36	46	0	0
4113	46	63	D020610	1310	1100	610	-1690	0	1045	1045	0	1087	1084	15	3	2	0.000000	0.000068	10	7	10	0	14	46	0	0
4114	46	64	D020611	1320	1090	300	-1680	0	1040	1040	0	1071	1065	15	3	2	0.000000	0.000027	10	7	10	0	23	40	0	0
4115	46	65	D020612	1340	1090	10	-1660	0	1030	1030	0	1060	1049	15	3	2	0.000000	0.000026	10	7	10	0	32	33	0	0
4205	47	65	D020613	1340	1110	350	-1660	0	1000	1000	0	1020	1005	15	3	2	0.000000	0.000028	10	7	10	0	20	40	0	0
4204	47	64	D020614	1330	1090	590	-1670	0	1030	1030	0	1058	1045	15	3	2	0.000000	0.000028	10	7	10	0	14	45	0	0
4203	47	63	D020615	1310	1080	590	-1690	0	1050	1050	0	1078	1080	15	3	2	0.000000	0.000068	10	5	10	0	15	46	0	0
4202	47	62	D020616	1300	1080	510	-1700	1100	1100	1100	1115	1129	1140	15	3	2	0.000055	0.000067	10	5	9	5	17	44	0	0
4201	47	61	D020617	1270	1080	410	-1730	1140	1100	1100	1158	1135	1144	30	7	2	0.000208	0.000062	10	5	9	23	47	43	0	0
4200	47	60	D020618	1280	1090	300	-1720	1150	1080	1080	1171	1113	1125	30	7	4	0.000099	0.000105	9	5	9	24	55	81	0	0
4290	48	60	D020619	1270	1100	200	-1220	1170	1060	1060	1188	1084	1105	30	7	5	0.000082	0.000076	9	5	9	26	62	71	0	0
4291	48	61	D020620	1280	1090	350	-1110	1140	1050	1050	1156	1073	1094	15	3	2	0.000085	0.000033	10	5	9	10	22	29	0	0
4292	48	62	D020621	1300	1090	430	-1050	1100	1085	1085	1113	1107	1124	15	3	2	0.000052	0.000034	10	5	9	3	20	30	0	0
4293	48	63	D020622	1320	1100	400	-1030	0	1065	1065	0	1084	1087	15	3	2	0.000000	0.000035	10	5	9	0	21	29	0	0
4294	48	64	D020623	1330	1120	450	-1170	0	1025	1025	0	1045	1035	15	3	2	0.000000	0.000034	10	5	10	0	18	32	0	0
4295	48	65	D020624	1350	1140	420	-850	0	940	940	0	950	930	15	3	2	0.000000	0.000041	10	7	10	0	16	25	0	0
4385	49	65	D020625	1370	1110	620	470	0	1000	950	0	1011	940	15	3	3	0.000000	0.000132	10	7	9	0	12	5	0	0
4384	49	64	D020626	1340	1100	600	60	0	900	850	0	911	860	15	3	3	0.000000	0.000105	10	5	9	0	9	16	0	0
4383	49	63	D020627	1320	1100	490	20	0	900	850	0	912	872	15	3	3	0.000000	0.000093	10	5	9	0	13	14	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4382	49	62	D020628	1300	1090	430	20	0	900	850	0	917	885	15	3	3	0.000000	0.000089	10	5	10	0	15	12	0	0
4381	49	61	D020629	1280	1050	350	-250	1150	1050	1050	1162	1068	1094	15	3	3	0.000085	0.000060	10	5	10	17	21	18	0	0
4380	49	60	D020630	1260	1080	200	-560	1220	1120	1120	1233	1133	1165	15	3	3	0.000068	0.000048	9	5	10	23	26	23	0	0
4470	50	60	D020631	1260	1020	290	-240	1180	1150	1150	1193	1164	1194	15	3	3	0.000081	0.000060	10	5	10	26	22	16	0	0
4471	50	61	D020632	1270	1000	470	-20	1140	1120	1120	1156	1137	1163	15	3	3	0.000112	0.000077	10	5	10	23	16	15	0	0
4472	50	62	D020633	1300	1040	600	250	0	900	850	0	915	888	15	3	3	0.000000	0.000126	10	5	10	0	9	11	0	0
4473	50	63	D020634	1330	1070	890	710	0	0	750	0	0	772	30	7	4	0.000000	0.000000	10	5	10	0	0	2	0	0
4474	50	64	D020635	1380	1100	1000	760	0	0	900	0	0	910	30	7	4	0.000000	0.000000	10	5	10	0	0	6	0	0
4475	50	65	D020636	1410	1150	1070	750	0	0	1000	0	0	995	30	7	4	0.000000	0.000000	10	7	10	0	0	10	0	0
4031	45	71	D020701	1430	1200	210	-1570	0	1080	1080	0	1074	1082	15	3	3	0.000000	0.000034	10	7	10	0	26	53	0	0
4030	45	70	D020702	1420	1190	130	-1580	0	1070	1070	0	1063	1070	15	3	3	0.000000	0.000033	10	7	10	0	28	51	0	0
4029	45	69	D020703	1400	1170	10	-1600	0	1080	1080	0	1077	1078	15	3	2	0.000000	0.000026	10	7	10	0	32	32	0	0
4028	45	68	D020704	1390	1150	-200	-1610	0	1065	1065	0	1068	1065	15	3	2	0.000000	0.000026	10	7	10	0	38	28	0	0
4027	45	67	D020705	1370	1180	-410	-1630	0	1065	1065	0	1066	1075	15	3	2	0.000000	0.000025	10	7	10	0	44	24	0	0
4026	45	66	D020706	1350	1140	-600	-1650	0	1060	1060	0	1080	1075	15	3	2	0.000000	0.000025	10	7	10	0	50	21	0	0
4116	46	66	D020707	1360	1190	-200	-1640	0	1040	1040	0	1042	1042	15	3	2	0.000000	0.000026	10	7	10	0	37	29	0	0
4117	46	67	D020708	1370	1200	-190	-1630	0	1050	1050	0	1050	1047	15	3	2	0.000000	0.000026	10	7	10	0	37	29	0	0
4118	46	68	D020709	1390	1180	-80	-1610	0	1050	1050	0	1047	1047	15	3	2	0.000000	0.000026	10	7	10	0	34	31	0	0
4119	46	69	D020710	1410	1140	30	-1590	0	1060	1060	0	1040	1060	15	3	2	0.000000	0.000027	10	7	10	0	30	32	0	0
4120	46	70	D020711	1430	1120	110	-1570	0	1070	1070	0	1046	1073	15	3	3	0.000000	0.000033	10	7	10	0	28	50	0	0
4121	46	71	D020712	1440	1100	180	-1560	0	1080	1080	0	1065	1089	15	3	3	0.000000	0.000034	10	7	10	0	27	52	0	0
4211	47	71	D020713	1450	1100	220	-1550	0	1030	1030	0	1026	1044	15	3	3	0.000000	0.000035	10	7	10	0	24	53	0	0
4210	47	70	D020714	1430	1120	190	-1570	0	1030	1030	0	1017	1038	15	3	3	0.000000	0.000035	10	7	10	0	25	53	0	0
4209	47	69	D020715	1410	1150	110	-1590	0	1050	1050	0	1036	1052	15	3	2	0.000000	0.000027	10	7	10	0	28	34	0	0
4208	47	68	D020716	1390	1190	100	-1610	0	1070	1070	0	1069	1055	15	3	2	0.000000	0.000027	10	7	10	0	29	34	0	0
4207	47	67	D020717	1380	1210	80	-1620	0	1040	1040	0	1020	1020	15	3	2	0.000000	0.000027	10	7	10	0	28	34	0	0
4206	47	66	D020718	1360	1180	110	-1640	0	1045	1045	0	1045	1026	15	3	2	0.000000	0.000027	10	7	10	0	28	35	0	0
4296	48	66	D020719	1370	1170	390	-630	0	950	950	0	930	914	15	3	2	0.000000	0.000045	10	7	10	0	16	20	0	0
4297	48	67	D020720	1390	1170	300	-710	0	1040	1040	0	995	994	15	3	2	0.000000	0.000040	10	7	10	0	21	20	0	0
4298	48	68	D020721	1400	1170	230	-1000	0	1040	1040	0	1010	1021	15	3	2	0.000000	0.000035	10	7	10	0	23	25	0	0
4299	48	69	D020722	1420	1170	200	-1580	0	1060	1060	0	1049	1060	15	3	2	0.000000	0.000027	10	7	10	0	25	36	0	0
4300	48	70	D020723	1430	1180	290	-1570	0	1030	1030	0	1029	1038	15	3	3	0.000000	0.000036	10	7	10	0	22	56	0	0
4301	48	71	D020724	1450	1200	360	-1550	0	1020	1020	0	1020	1035	15	3	3	0.000000	0.000037	10	7	10	0	20	57	0	0
4391	49	71	D020725	1450	1210	500	-1100	0	1000	1000	0	1015	1015	15	3	3	0.000000	0.000046	10	7	9	0	15	48	0	0
4390	49	70	D020726	1440	1200	420	-660	0	1000	1000	0	1000	1006	15	3	3	0.000000	0.000054	10	7	9	0	17	32	0	0
4389	49	69	D020727	1420	1180	340	20	0	995	995	0	987	980	15	3	3	0.000000	0.000074	10	7	9	0	19	10	0	0
4388	49	68	D020728	1410	1160	410	160	0	970	920	0	945	897	15	3	3	0.000000	0.000088	10	7	9	0	16	8	0	0
4387	49	67	D020729	1390	1140	510	390	0	900	850	0	869	812	15	3	3	0.000000	0.000133	10	7	9	0	11	4	0	0
4386	49	66	D020730	1380	1120	680	130	0	870	820	0	850	787	15	3	3	0.000000	0.000129	10	7	9	0	5	17	0	0
4476	50	66	D020731	1430	1180	1000	650	0	0	750	0	0	731	30	7	4	0.000000	0.000000	10	7	10	0	0	3	0	0
4477	50	67	D020732	1420	1190	900	650	0	0	800	0	0	777	30	7	4	0.000000	0.000000	10	7	10	0	0	5	0	0
4478	50	68	D020733	1420	1190	800	560	0	900	850	0	887	833	30	7	4	0.000000	0.000452	10	7	10	0	6	10	0	0
4479	50	69	D020734	1430	1180	730	510	0	925	925	0	919	925	30	7	4	0.000000	0.000361	10	7	10	0	13	9	0	0
4480	50	70	D020735	1460	1180	630	160	0	1060	1060	0	1063	1064	30	7	4	0.000000	0.000166	10	7	10	0	30	19	0	0
4481	50	71	D020736	1440	1200	820	-560	0	1050	1050	0	1050	1056	30	7	4	0.000000	0.000097	10	7	9	0	16	55	0	0
4037	45	77	D020801	1620	1310	700	-610	0	1130	1130	0	1141	1134	30	7	4	0.000000	0.000089	10	7	10	0	31	52	0	0
4036	45	76	D020802	1590	1280	580	-810	0	1120	1120	0	1131	1128	30	7	4	0.000000	0.000080	10	7	10	0	39	56	0	0
4035	45	75	D020803	1550	1230	490	-1050	0	1100	1100	0	1107	1112	15	3	3	0.000000	0.000043	10	7	10	0	19	46	0	0
4034	45	74	D020804	1520	1210	410	-1330	0	1090	1090	0	1093	1098	15	3	3	0.000000	0.000039	10	7	10	0	20	52	0	0
4033	45	73	D020805	1490	1210	390	-1510	0	1130	1130	0	1130	1136	15	3	3	0.000000	0.000036	10	7	10	0	22	57	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4032	45	72	D020806	1470	1210	320	-1530	0	1120	1120	0	1115	1124	15	3	3	0.000000	0.000035	10	7	10	0	24	56	0	0
4122	46	72	D020807	1460	1150	210	-1540	0	1120	1120	0	1110	1134	15	3	3	0.000000	0.000034	10	7	10	0	27	53	0	0
4123	46	73	D020808	1490	1180	300	-1510	0	1130	1130	0	1125	1143	15	3	3	0.000000	0.000035	10	7	10	0	25	54	0	0
4124	46	74	D020809	1520	1190	360	-1330	0	1070	1070	0	1069	1082	15	3	3	0.000000	0.000039	10	7	10	0	21	51	0	0
4125	46	75	D020810	1550	1220	450	-1080	0	1080	1080	0	1080	1088	15	3	3	0.000000	0.000043	10	7	10	0	19	46	0	0
4126	46	76	D020811	1580	1270	560	-820	0	1100	1100	0	1101	1101	30	7	4	0.000000	0.000080	10	7	10	0	38	55	0	0
4127	46	77	D020812	1610	1300	680	-610	0	1120	1120	0	1122	1116	30	7	4	0.000000	0.000089	10	7	10	0	31	52	0	0
4217	47	77	D020813	1610	1330	700	-620	0	1105	1105	0	1107	1097	30	7	4	0.000000	0.000090	10	7	9	0	28	53	0	0
4216	47	76	D020814	1580	1280	580	-770	0	1080	1080	0	1074	1070	30	7	4	0.000000	0.000083	10	7	10	0	35	54	0	0
4215	47	75	D020815	1550	1240	450	-1040	0	1075	1075	0	1067	1070	15	3	3	0.000000	0.000044	10	7	10	0	19	45	0	0
4214	47	74	D020816	1520	1200	320	-1280	0	1070	1070	0	1062	1068	15	3	3	0.000000	0.000039	10	7	10	0	22	48	0	0
4213	47	73	D020817	1500	1190	260	-1500	0	1110	1110	0	1101	1115	15	3	3	0.000000	0.000035	10	7	10	0	25	53	0	0
4212	47	72	D020818	1480	1120	220	-1520	0	1100	1100	0	1093	1110	15	3	3	0.000000	0.000034	10	7	10	0	26	52	0	0
4302	48	72	D020819	1470	1190	360	-1530	0	1050	1050	0	1050	1055	30	7	4	0.000000	0.000060	10	7	10	0	48	76	0	0
4303	48	73	D020820	1490	1210	300	-1510	0	1070	1070	0	1052	1053	30	7	4	0.000000	0.000059	10	7	10	0	53	72	0	0
4304	48	74	D020821	1520	1260	300	-1260	0	1070	1070	0	1058	1051	30	7	4	0.000000	0.000066	10	7	10	0	53	62	0	0
4305	48	75	D020822	1540	1290	440	-930	0	1070	1070	0	1058	1058	30	7	4	0.000000	0.000077	10	7	9	0	43	55	0	0
4306	48	76	D020823	1570	1300	600	-740	0	1080	1080	0	1071	1068	30	7	4	0.000000	0.000085	10	7	9	0	33	54	0	0
4307	48	77	D020824	1600	1340	710	-580	0	1100	1100	0	1102	1090	30	7	4	0.000000	0.000092	10	7	9	0	27	52	0	0
4397	49	77	D020825	1600	1390	730	-490	0	1080	1080	0	1080	1069	30	7	4	0.000000	0.000099	10	7	9	0	25	49	0	0
4396	49	76	D020826	1570	1340	630	-720	0	1070	1070	0	1063	1045	30	7	4	0.000000	0.000086	10	7	9	0	30	54	0	0
4395	49	75	D020827	1540	1300	400	-890	0	1050	1050	0	1030	1020	30	7	4	0.000000	0.000079	10	7	9	0	44	52	0	0
4394	49	74	D020828	1520	1290	310	-1180	0	1050	1050	0	1015	1015	30	7	4	0.000000	0.000069	10	7	9	0	49	60	0	0
4393	49	73	D020829	1490	1250	400	-1430	0	1050	1050	0	1030	1020	30	7	4	0.000000	0.000062	10	7	9	0	44	73	0	0
4392	49	72	D020830	1480	1210	500	-1520	0	1010	1010	0	1024	998	30	7	4	0.000000	0.000061	10	7	9	0	37	81	0	0
4482	50	72	D020831	1480	1210	660	-1180	0	1045	1045	0	1038	1025	30	7	4	0.000000	0.000070	10	7	9	0	26	74	0	0
4483	50	73	D020832	1500	1270	510	-1170	0	1040	1040	0	1000	999	30	7	4	0.000000	0.000070	10	7	9	0	34	67	0	0
4484	50	74	D020833	1520	1310	450	-1080	0	1100	1100	0	1040	1055	30	7	4	0.000000	0.000070	10	7	9	0	41	61	0	0
4485	50	75	D020834	1540	1300	460	-860	0	1050	1050	0	1010	1008	30	7	4	0.000000	0.000080	10	7	9	0	39	53	0	0
4486	50	76	D020835	1560	1350	610	-660	0	1075	1075	0	1067	1050	30	7	4	0.000000	0.000089	10	7	9	0	32	51	0	0
4487	50	77	D020836	1580	1400	740	-420	0	1080	1080	0	1072	1070	30	7	4	0.000000	0.000103	10	7	9	0	23	46	0	0
4043	45	83	D020901	1850	1500	1290	750	0	0	1190	0	0	1184	30	7	4	0.000000	0.000000	9	7	9	0	0	17	0	0
4042	45	82	D020902	1790	1480	1200	540	0	0	1180	0	0	1173	30	7	4	0.000000	0.000000	10	7	9	0	0	25	0	0
4041	45	81	D020903	1760	1440	1120	320	0	1170	1170	0	1180	1163	30	7	4	0.000000	0.000187	10	7	9	0	4	32	0	0
4040	45	80	D020904	1730	1400	1020	130	0	1155	1155	0	1165	1148	30	7	4	0.000000	0.000153	10	7	9	0	10	36	0	0
4039	45	79	D020905	1700	1390	950	-90	0	1145	1145	0	1155	1138	30	7	4	0.000000	0.000127	10	7	9	0	14	42	0	0
4038	45	78	D020906	1660	1340	820	-340	0	1140	1140	0	1150	1140	30	7	4	0.000000	0.000105	10	7	9	0	23	46	0	0
4128	46	78	D020907	1650	1350	800	-450	0	1130	1130	0	1139	1124	30	7	4	0.000000	0.000098	10	7	9	0	24	50	0	0
4129	46	79	D020908	1680	1390	900	-210	0	1135	1135	0	1144	1128	30	7	4	0.000000	0.000116	10	7	9	0	17	44	0	0
4130	46	80	D020909	1710	1400	1000	-10	0	1145	1145	0	1154	1138	30	7	4	0.000000	0.000136	10	7	9	0	11	40	0	0
4131	46	81	D020910	1750	1430	1100	230	0	1160	1160	0	1169	1154	30	7	4	0.000000	0.000170	10	7	9	0	5	35	0	0
4132	46	82	D020911	1800	1460	1190	470	0	0	1170	0	0	1165	30	7	4	0.000000	0.000000	10	7	9	0	0	28	0	0
4133	46	83	D020912	1820	1490	1280	650	0	0	1180	0	0	1175	30	7	4	0.000000	0.000000	10	7	9	0	0	21	0	0
4223	47	83	D020913	1810	1490	1270	580	0	0	1180	0	0	1176	30	7	4	0.000000	0.000000	10	7	9	0	0	24	0	0
4222	47	82	D020914	1770	1490	1180	370	0	0	1160	0	0	1156	30	7	4	0.000000	0.000000	10	7	9	0	0	31	0	0
4221	47	81	D020915	1740	1460	1090	140	0	1150	1150	0	1159	1146	30	7	4	0.000000	0.000157	10	7	9	0	5	38	0	0
4220	47	80	D020916	1720	1430	990	-70	0	1140	1140	0	1149	1135	30	7	4	0.000000	0.000130	10	7	9	0	11	42	0	0
4219	47	79	D020917	1680	1400	900	-270	0	1130	1130	0	1139	1122	30	7	4	0.000000	0.000112	10	7	9	0	17	47	0	0
4218	47	78	D020918	1650	1390	800	-450	0	1120	1120	0	1125	1112	30	7	4	0.000000	0.000099	10	7	9	0	23	50	0	0
4308	48	78	D020919	1640	1440	790	-410	0	1110	1110	0	1115	1102	30	7	4	0.000000	0.000102	10	7	9	0	23	48	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4309	48	79	D020920	1670	1430	880	-230	0	1120	1120	0	1128	1114	30	7	4	0.000000	0.000116	10	7	9	0	17	44	0	0
4310	48	80	D020921	1700	1460	960	-90	0	1135	1135	0	1143	1130	30	7	4	0.000000	0.000128	10	7	9	0	13	42	0	0
4311	48	81	D020922	1730	1490	1080	80	0	1150	1150	0	1158	1146	30	7	4	0.000000	0.000148	10	7	9	0	5	40	0	0
4312	48	82	D020923	1750	1500	1160	300	0	0	1160	0	0	1157	30	7	4	0.000000	0.000000	10	7	9	0	0	34	0	0
4313	48	83	D020924	1780	1520	1270	500	0	0	1175	0	0	1172	30	7	4	0.000000	0.000000	10	7	9	0	0	27	0	0
4403	49	83	D020925	1760	1530	1250	460	0	0	1170	0	0	1169	30	7	4	0.000000	0.000000	10	7	9	0	0	28	0	0
4402	49	82	D020926	1730	1520	1150	250	0	0	1155	0	0	1154	30	7	4	0.000000	0.000000	10	7	9	0	0	36	0	0
4401	49	81	D020927	1710	1510	1030	110	0	1140	1140	0	1148	1138	30	7	4	0.000000	0.000153	10	7	9	0	8	37	0	0
4400	49	80	D020928	1680	1500	920	-10	0	1130	1130	0	1138	1127	30	7	4	0.000000	0.000137	10	7	9	0	15	37	0	0
4399	49	79	D020929	1660	1480	860	-130	0	1120	1120	0	1125	1115	30	7	4	0.000000	0.000124	10	7	9	0	19	40	0	0
4398	49	78	D020930	1620	1440	790	-270	0	1105	1105	0	1108	1098	30	7	4	0.000000	0.000113	10	7	9	0	22	42	0	0
4488	50	78	D020931	1620	1440	790	-160	0	1100	1100	0	1093	1094	30	7	4	0.000000	0.000123	10	7	9	0	21	38	0	0
4489	50	79	D020932	1640	1480	840	-10	0	1120	1120	0	1122	1117	30	7	4	0.000000	0.000137	10	7	9	0	20	34	0	0
4490	50	80	D020933	1660	1510	900	100	0	1130	1130	0	1135	1128	30	7	4	0.000000	0.000151	10	7	9	0	16	32	0	0
4491	50	81	D020934	1680	1510	1000	180	0	1140	1140	0	1147	1139	30	7	4	0.000000	0.000163	10	7	9	0	10	33	0	0
4492	50	82	D020935	1710	1520	1130	310	0	1150	1150	0	1157	1149	30	7	4	0.000000	0.000190	10	7	9	0	2	33	0	0
4493	50	83	D020936	1750	1530	1250	450	0	0	1170	0	0	1169	30	7	4	0.000000	0.000000	10	7	9	0	0	29	0	0
4045	45	85	D021005	1920	1610	1540	1420	0	0	1330	0	0	1330	30	7	4	0.000000	0.000000	9	7	9	0	0	0	0	0
4044	45	84	D021006	1900	1590	1390	1200	0	0	1240	0	0	1235	30	7	4	0.000000	0.000000	9	7	9	0	0	1	0	0
4134	46	84	D021007	1880	1500	1360	890	0	0	1200	0	0	1195	30	7	4	0.000000	0.000000	9	7	9	0	0	12	0	0
4135	46	85	D021008	1920	1600	1430	1220	0	0	1280	0	0	1280	30	7	4	0.000000	0.000000	9	7	9	0	0	2	0	0
4227	47	87	D021015	1960	1760	1620	1380	0	0	1400	0	0	1395	30	7	4	0.000000	0.000000	10	7	9	0	0	1	0	0
4226	47	86	D021016	1900	1700	1500	1240	0	0	1350	0	0	1345	30	7	4	0.000000	0.000000	10	7	9	0	0	4	0	0
4225	47	85	D021017	1880	1600	1420	1130	0	0	1250	0	0	1245	30	7	4	0.000000	0.000000	10	7	9	0	0	5	0	0
4224	47	84	D021018	1840	1500	1350	760	0	0	1190	0	0	1186	30	7	4	0.000000	0.000000	10	7	9	0	0	17	0	0
4314	48	84	D021019	1810	1530	1350	690	0	0	1190	0	0	1186	30	7	4	0.000000	0.000000	10	7	9	0	0	20	0	0
4315	48	85	D021020	1850	1590	1410	980	0	0	1220	0	0	1215	30	7	4	0.000000	0.000000	10	7	9	0	0	9	0	0
4316	48	86	D021021	1890	1600	1480	1290	0	0	1300	0	0	1295	30	7	4	0.000000	0.000000	10	7	9	0	0	0	0	0
4317	48	87	D021022	1930	1700	1600	1380	0	0	1400	0	0	1395	30	7	4	0.000000	0.000000	10	7	9	0	0	1	0	0
4407	49	87	D021027	1920	1620	1520	1320	0	0	1400	0	0	1396	30	7	4	0.000000	0.000000	10	7	9	0	0	3	0	0
4406	49	86	D021028	1880	1580	1430	1130	0	0	1300	0	0	1296	30	7	4	0.000000	0.000000	10	7	9	0	0	7	0	0
4405	49	85	D021029	1830	1560	1400	910	0	0	1200	0	0	1196	30	7	4	0.000000	0.000000	10	7	9	0	0	11	0	0
4404	49	84	D021030	1790	1540	1330	600	0	0	1185	0	0	1183	30	7	4	0.000000	0.000000	10	7	9	0	0	23	0	0
4494	50	84	D021031	1780	1540	1310	590	0	0	1190	0	0	1191	30	7	4	0.000000	0.000000	10	7	9	0	0	24	0	0
4495	50	85	D021032	1810	1560	1350	820	0	0	1220	0	0	1220	30	7	4	0.000000	0.000000	10	7	9	0	0	16	0	0
4496	50	86	D021033	1860	1570	1390	1110	0	0	1300	0	0	1300	30	7	4	0.000000	0.000000	10	7	9	0	0	8	0	0
4497	50	87	D021034	1910	1660	1560	1310	0	0	1400	0	0	1400	30	7	4	0.000000	0.000000	10	7	9	0	0	4	0	0
4541	51	41	D030201	1080	830	110	-1020	1005	1005	1005	1017	1018	1017	100	15	15	0.000414	0.000233	15	7	10	187	108	170	0	0
4540	51	40	D030202	1070	850	220	-830	1005	1005	1005	1017	1017	1017	100	15	15	0.000473	0.000260	15	7	10	167	95	158	15	0
4539	51	39	D030203	1050	850	400	-450	1000	1000	1000	1012	1012	1012	100	20	15	0.000877	0.000393	15	7	10	162	90	128	161	0
4538	51	38	D030204	1080	860	700	180	990	990	990	1001	1002	1002	100	15	15	0.001830	0.000714	15	10	10	141	24	78	27	0
4628	52	38	D030209	1150	860	650	450	1000	1000	1000	1011	1012	1011	100	15	30	0.001401	0.001154	15	10	10	151	32	60	0	0
4629	52	39	D030210	1080	850	400	-220	1005	1005	1005	1016	1016	1016	100	20	15	0.000877	0.000463	15	7	10	166	90	93	91	0
4630	52	40	D030211	1060	840	250	-690	1005	1005	1005	1016	1016	1016	100	10	15	0.000337	0.000221	15	7	10	176	59	141	191	0
4631	52	41	D030212	1080	820	170	-920	1010	1010	1010	1021	1022	1021	100	10	15	0.000306	0.000197	15	7	10	201	65	164	20	0
4721	53	41	D030213	1080	810	230	-820	1010	1010	1010	1021	1021	1021	100	10	15	0.000342	0.000215	15	7	10	211	58	158	62	0
4720	53	40	D030214	1080	830	270	-520	1005	1005	1005	1016	1016	1016	100	10	15	0.000355	0.000243	15	7	10	186	56	119	79	0
4719	53	39	D030215	1140	850	400	140	1005	1005	1005	1017	1017	1017	100	10	30	0.000441	0.000405	15	7	10	167	45	78	0	0
4718	53	38	D030216	1220	860	760	520	1000	1000	1000	1011	1011	1011	100	15	30	0.002879	0.001875	15	10	10	151	15	72	0	0
4809	54	39	D030222	1200	870	440	400	1005	1005	1005	1016	1016	1016	70	10	30	0.000461	0.000458	15	7	10	102	43	12	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4810	54	40	D030223	1120	820	300	-280	1005	1005	1005	1014	1014	1014	70	10	15	0.000381	0.000280	15	7	10	136	52	87	0	0
4811	54	41	D030224	1080	800	310	-720	1010	1010	1010	1025	1025	1025	70	10	15	0.000403	0.000240	15	7	10	158	49	155	30	0
4901	55	41	D030225	1100	790	360	-600	1005	1005	1005	1026	1026	1026	70	10	10	0.000459	0.000220	15	7	10	165	43	96	0	0
4900	55	40	D030226	1150	820	410	-100	1005	1005	1005	1020	1020	1020	70	10	10	0.000482	0.000301	15	7	10	140	41	51	0	0
4899	55	39	D030227	1220	870	700	520	1005	1005	1005	1015	1015	1015	70	10	10	0.001150	0.000769	15	7	10	102	17	18	0	0
4989	56	39	D030234	1230	890	650	530	1000	1000	1000	1021	1021	1021	70	10	10	0.000823	0.000667	15	7	10	92	24	12	0	0
4990	56	40	D030235	1170	830	520	-530	1000	1000	1000	1021	1021	1021	70	10	10	0.000635	0.000240	15	7	10	134	31	105	0	0
4991	56	41	D030236	1120	800	410	-580	1000	1000	1000	1026	1026	1026	70	10	10	0.000505	0.000226	15	7	10	158	39	99	0	0
4547	51	47	D030301	1130	880	510	30	1040	1030	1030	1058	1048	1047	60	15	20	0.000794	0.000545	15	7	10	107	56	96	0	0
4546	51	46	D030302	1120	870	460	-30	1030	1030	1030	1048	1048	1046	100	15	20	0.000723	0.000505	15	7	10	178	62	98	0	0
4545	51	45	D030303	1110	860	410	-240	1025	1025	1025	1042	1042	1041	100	15	15	0.000659	0.000387	15	7	10	182	68	98	3	0
4544	51	44	D030304	1100	850	360	-650	1020	1020	1020	1037	1037	1035	100	15	15	0.000606	0.000302	20	7	10	187	74	152	55	0
4543	51	43	D030305	1080	840	290	-920	1020	1020	1020	1035	1035	1034	100	15	15	0.000540	0.000260	20	7	10	195	83	182	102	0
4542	51	42	D030306	1080	830	190	-1020	1015	1015	1015	1029	1029	1028	100	15	15	0.000465	0.000241	20	7	10	199	96	182	53	0
4632	52	42	D030307	1090	840	250	-1010	1015	1015	1015	1028	1028	1027	100	10	15	0.000337	0.000198	15	7	10	188	59	189	0	0
4633	52	43	D030308	1090	850	350	-810	1020	1020	1020	1034	1034	1033	100	10	15	0.000397	0.000226	15	7	10	184	50	174	0	0
4634	52	44	D030309	1080	860	410	-520	1025	1025	1025	1041	1041	1040	100	10	15	0.000441	0.000263	20	7	10	181	45	140	50	0
4635	52	45	D030310	1090	870	490	-110	1025	1025	1025	1042	1042	1041	100	10	15	0.000522	0.000345	20	7	10	172	38	90	72	0
4636	52	46	D030311	1100	880	530	100	1030	1030	1030	1047	1047	1046	100	10	20	0.000567	0.000437	20	7	10	167	35	86	22	0
4637	52	47	D030312	1110	890	550	310	1040	1030	1030	1058	1047	1047	60	10	20	0.000580	0.000500	15	7	10	101	34	48	16	0
4727	53	47	D030313	1120	900	800	620	1030	1030	1030	1048	1047	1047	100	10	20	0.001949	0.001379	20	7	10	148	10	36	96	0
4726	53	46	D030314	1110	890	800	610	1030	1030	1030	1047	1046	1046	100	10	20	0.002155	0.001455	20	7	10	157	9	38	0	0
4725	53	45	D030315	1100	880	550	200	1020	1025	1020	1041	1041	1041	100	10	15	0.000601	0.000448	15	7	10	161	33	53	0	0
4724	53	44	D030316	1100	850	500	-200	1020	1020	1020	1040	1040	1039	100	10	15	0.000566	0.000343	15	7	10	190	35	105	0	0
4723	53	43	D030317	1090	830	390	-610	1015	1020	1015	1033	1033	1033	100	10	15	0.000451	0.000259	15	7	10	203	44	150	0	0
4722	53	42	D030318	1080	830	300	-820	1010	1015	1010	1027	1027	1026	100	10	15	0.000375	0.000221	15	7	10	197	53	168	0	0
4812	54	42	D030319	1090	800	330	-710	1010	1010	1010	1026	1027	1026	100	10	15	0.000422	0.000245	15	7	10	226	47	156	5	0
4813	54	43	D030320	1100	820	410	-450	1010	1010	1010	1033	1033	1033	100	10	15	0.000483	0.000287	15	7	10	213	41	129	0	0
4814	54	44	D030321	1100	840	510	-50	1010	1010	1010	1040	1039	1039	100	10	15	0.000600	0.000387	15	7	10	200	33	84	0	0
4815	54	45	D030322	1100	870	770	600	1010	1010	1010	1025	1040	1040	100	10	15	0.001946	0.001277	15	7	10	155	10	26	0	0
4817	54	47	D030324	1130	920	820	630	1030	1030	1030	1048	1047	1046	50	10	10	0.001916	0.001026	15	7	10	64	10	19	4	0
4907	55	47	D030325	1150	930	730	450	1030	1030	1030	1048	1046	1049	50	10	10	0.000980	0.000588	15	7	10	59	20	28	0	0
4906	55	46	D030326	1140	900	800	640	1030	1030	1020	1047	1046	1048	100	10	10	0.001949	0.001111	15	7	10	147	10	16	0	0
4905	55	45	D030327	1130	850	750	630	1020	1020	1010	1041	1042	1041	100	10	12	0.001934	0.001333	15	7	10	191	10	14	0	0
4904	55	44	D030328	1110	820	490	10	1010	1010	1005	1039	1040	1040	100	10	12	0.000599	0.000377	15	7	10	219	33	58	0	0
4903	55	43	D030329	1110	790	400	-440	1005	1005	1005	1033	1033	1033	100	10	12	0.000507	0.000270	15	7	10	243	39	101	0	0
4902	55	42	D030330	1100	780	350	-700	1005	1005	1005	1026	1027	1027	70	10	12	0.000458	0.000231	15	7	10	172	43	126	77	0
4992	56	42	D030331	1110	780	370	-690	1000	1000	1000	1027	1028	1027	70	10	12	0.000480	0.000235	15	7	10	173	41	127	37	0
4993	56	43	D030332	1110	780	380	-490	1000	1000	1000	1033	1034	1034	100	10	12	0.000495	0.000262	15	7	10	253	40	104	0	0
4994	56	44	D030333	1120	800	390	-180	1005	1005	1005	1040	1040	1040	100	10	12	0.000483	0.000309	15	7	10	240	41	68	0	0
4995	56	45	D030334	1130	830	400	30	1005	1005	1005	1041	1042	1042	100	10	12	0.000461	0.000342	15	7	10	211	43	44	0	0
4996	56	46	D030335	1140	900	400	40	1010	1010	1010	1047	1046	1048	100	10	10	0.000398	0.000294	15	7	10	147	50	36	0	0
4997	56	47	D030336	1150	930	430	50	1025	1025	1025	1048	1045	1049	50	10	10	0.000397	0.000290	15	7	10	59	50	38	0	0
4553	51	53	D030401	1180	1010	840	80	1075	1075	1075	1103	1104	1101	50	10	10	0.001159	0.000364	10	7	10	47	17	76	0	0
4552	51	52	D030402	1180	990	850	30	1070	1065	1065	1096	1085	1084	50	10	10	0.001397	0.000364	10	7	10	53	14	82	0	0
4551	51	51	D030403	1170	950	790	20	1060	1055	1055	1085	1074	1074	50	10	15	0.001217	0.000480	15	7	10	68	16	116	0	0
4550	51	50	D030404	1160	910	700	60	1050	1050	1050	1074	1069	1068	60	10	15	0.000932	0.000472	15	7	10	98	21	96	0	0
4549	51	49	D030405	1150	890	640	50	1045	1040	1040	1064	1058	1058	60	10	15	0.000784	0.000448	15	7	10	104	25	89	0	0
4548	51	48	D030406	1140	890	570	40	1040	1035	1035	1058	1053	1052	60	10	15	0.000615	0.000403	15	7	10	101	32	80	0	0
4638	52	48	D030407	1130	890	600	130	1040	1035	1035	1058	1053	1052	60	10	15	0.000678	0.000448	15	7	10	101	29	71	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4639	52	49	D030408	1150	900	650	100	1045	1040	1040	1064	1058	1058	60	10	15	0.000785	0.000462	15	7	10	98	25	83	0	0
4640	52	50	D030409	1160	930	700	60	1050	1050	1050	1074	1069	1068	60	10	15	0.000855	0.000451	15	7	10	86	23	96	0	0
4641	52	51	D030410	1160	970	790	60	1060	1055	1055	1085	1074	1074	50	10	15	0.001089	0.000472	15	7	10	58	18	110	0	0
4642	52	52	D030411	1180	1000	840	80	1070	1060	1060	1097	1080	1079	50	10	10	0.001229	0.000370	15	7	10	49	16	76	0	0
4643	52	53	D030412	1190	1010	820	140	1070	1070	1070	1100	1102	1098	50	10	10	0.001040	0.000377	15	7	10	45	19	68	0	0
4733	53	53	D030413	1180	1020	830	180	1070	1060	1060	1100	1095	1088	100	10	10	0.001047	0.000388	20	7	10	80	19	65	0	0
4732	53	52	D030414	1170	1010	810	120	1070	1055	1055	1099	1075	1074	100	10	10	0.000994	0.000367	20	7	10	89	20	69	0	0
4731	53	51	D030415	1160	990	750	60	1060	1055	1055	1085	1074	1074	100	10	15	0.000829	0.000426	20	7	10	95	24	104	272	0
4730	53	50	D030416	1150	960	690	50	1050	1050	1050	1070	1068	1068	100	10	15	0.000736	0.000414	20	7	10	110	27	96	354	0
4729	53	49	D030417	1150	930	650	100	1045	1040	1040	1064	1057	1058	50	10	15	0.000703	0.000432	15	7	10	67	28	83	132	0
4728	53	48	D030418	1130	910	610	130	1040	1035	1035	1058	1052	1052	100	10	15	0.000661	0.000435	20	7	10	148	30	72	109	0
4818	54	48	D030419	1130	940	600	130	1040	1035	1035	1058	1051	1051	100	10	10	0.000585	0.000348	20	7	10	118	34	47	114	0
4819	54	49	D030420	1140	960	630	90	1045	1040	1040	1064	1056	1057	100	10	10	0.000603	0.000333	20	7	10	104	33	54	231	0
4820	54	50	D030421	1150	990	690	50	1050	1050	1050	1069	1066	1068	100	10	10	0.000664	0.000323	20	7	10	79	30	64	178	0
4821	54	51	D030422	1170	1010	730	70	1060	1055	1055	1080	1073	1073	50	10	10	0.000709	0.000328	15	7	10	35	28	66	23	0
4822	54	52	D030423	1170	1010	790	120	1070	1055	1055	1098	1074	1074	50	10	10	0.000899	0.000360	15	7	10	44	22	67	0	0
4823	54	53	D030424	1180	1020	820	380	1060	1055	1055	1090	1085	1082	50	10	10	0.000992	0.000476	15	7	10	35	20	44	0	0
4913	55	53	D030425	1180	1080	900	680	0	1060	1060	0	1090	1084	50	10	10	0.000000	0.000741	15	7	10	0	18	22	0	0
4912	55	52	D030426	1180	1060	780	280	1070	1055	1055	1090	1073	1073	50	10	10	0.000726	0.000381	15	7	10	15	28	50	0	0
4911	55	51	D030427	1170	1020	730	120	1070	1055	1055	1088	1070	1072	50	10	10	0.000685	0.000336	15	7	10	34	29	61	0	0
4910	55	50	D030428	1170	1000	690	70	1050	1050	1050	1069	1065	1068	50	10	10	0.000641	0.000323	15	7	10	35	31	62	0	0
4909	55	49	D030429	1160	980	620	60	1040	1035	1035	1059	1050	1055	50	10	10	0.000552	0.000313	15	7	10	40	36	56	0	0
4908	55	48	D030430	1150	960	550	100	1030	1030	1030	1049	1045	1050	50	10	10	0.000484	0.000315	15	7	10	45	41	45	0	0
4998	56	48	D030431	1160	960	500	60	1030	1030	1030	1049	1045	1050	50	10	10	0.000432	0.000294	15	7	10	45	46	44	0	0
4999	56	49	D030432	1170	1000	620	70	1040	1035	1035	1059	1050	1054	50	10	10	0.000524	0.000305	15	7	10	30	38	55	0	0
5000	56	50	D030433	1180	1030	700	130	1045	1035	1035	1062	1049	1052	50	10	10	0.000605	0.000325	15	7	10	16	33	57	0	0
5001	56	51	D030434	1180	1060	740	180	0	1070	1070	0	1084	1085	75	10	10	0.000000	0.000333	15	7	10	0	32	56	0	0
5002	56	52	D030435	1180	1080	790	580	0	1050	1050	0	1064	1064	75	10	10	0.000000	0.000548	15	7	10	0	27	21	0	0
5003	56	53	D030436	1190	1090	890	690	0	1060	1060	0	1090	1083	75	10	10	0.000000	0.000741	15	7	10	0	20	20	0	0
4559	51	59	D030501	1240	1070	210	-160	1130	1080	1080	1150	1104	1123	43	7	12	0.000162	0.000145	10	7	10	34	60	44	0	0
4558	51	58	D030502	1230	1050	150	-170	1120	1090	1090	1141	1120	1132	85	7	10	0.000155	0.000138	10	7	10	77	63	32	0	0
4557	51	57	D030503	1220	1030	200	-80	1110	1095	1095	1134	1129	1133	85	10	10	0.000240	0.000206	10	7	10	88	83	28	0	0
4556	51	56	D030504	1210	1010	350	210	1100	1095	1095	1127	1131	1131	85	10	10	0.000302	0.000274	10	7	10	99	66	14	0	0
4555	51	55	D030505	1200	1000	550	400	1090	1075	1075	1120	1110	1108	85	10	10	0.000442	0.000381	10	7	10	102	45	15	0	0
4554	51	54	D030506	1190	1000	650	190	1080	1075	1075	1110	1107	1104	50	10	10	0.000566	0.000345	10	7	10	55	35	46	0	0
4644	52	54	D030507	1190	1010	690	390	1080	1070	1070	1112	1104	1101	100	10	10	0.000622	0.000426	15	7	10	102	32	30	0	0
4645	52	55	D030508	1200	1010	750	600	1090	1070	1070	1122	1105	1103	100	10	10	0.000765	0.000597	15	7	10	112	26	15	0	0
4646	52	56	D030509	1210	1030	550	410	1100	1080	1080	1132	1115	1116	100	10	10	0.000415	0.000364	15	7	10	102	48	14	0	0
4647	52	57	D030510	1220	1050	400	20	1110	1080	1080	1140	1113	1119	100	10	12	0.000307	0.000247	10	7	10	90	65	46	0	0
4648	52	58	D030511	1230	1070	400	-70	1120	1080	1080	1144	1111	1120	100	10	12	0.000298	0.000231	10	7	10	74	67	56	0	0
4649	52	59	D030512	1240	1080	500	-60	1130	1080	1080	1152	1108	1121	100	7	12	0.000241	0.000188	10	7	10	72	41	67	0	0
4739	53	59	D030513	1230	1090	700	30	1120	1090	1090	1144	1122	1132	100	10	12	0.000512	0.000299	10	7	10	54	39	80	0	0
4738	53	58	D030514	1230	1080	600	80	1115	1095	1095	1145	1128	1134	100	10	12	0.000416	0.000287	15	7	10	65	48	62	0	0
4737	53	57	D030515	1220	1070	600	220	1110	1090	1090	1142	1124	1129	100	10	12	0.000425	0.000318	15	7	10	72	47	46	0	0
4736	53	56	D030516	1210	1050	950	710	1100	1080	1080	1135	1115	1116	100	10	10	0.001980	0.000909	15	7	10	85	10	24	0	0
4735	53	55	D030517	1200	1040	950	750	1090	1070	1070	1125	1107	1104	100	10	10	0.002198	0.001053	15	7	10	85	9	20	0	0
4734	53	54	D030518	1180	1030	810	580	1080	1060	1060	1113	1097	1091	100	10	10	0.000905	0.000597	20	7	10	83	22	23	0	0
4824	54	54	D030519	1180	1050	890	680	1070	1050	1050	1108	1088	1081	100	10	10	0.001247	0.000755	20	7	10	58	16	21	0	0
4826	54	56	D030521	1200	1070	0	0	1100	0	0	1138	0	0	100	0	0	0.000000	0.000000	15	0	0	68	0	0	0	0
4827	54	57	D030522	1210	1070	790	610	1105	1100	1100	1140	1137	1137	100	10	12	0.000713	0.000563	15	7	10	70	28	22	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4828	54	58	D030523	1220	1070	770	220	1110	1105	1105	1142	1140	1144	100	10	12	0.000665	0.000378	15	7	10	72	30	66	0	0
4829	54	59	D030524	1220	1090	810	170	1115	1105	1105	1145	1140	1146	100	10	12	0.000713	0.000366	15	7	10	55	28	77	0	0
4919	55	59	D030525	1230	1090	920	430	1120	1120	1120	1152	1157	1160	100	10	12	0.001172	0.000535	15	7	10	62	17	59	0	0
4918	55	58	D030526	1220	1080	890	470	1120	1120	1120	1152	1158	1159	100	10	12	0.001048	0.000548	15	7	10	72	19	50	0	0
4917	55	57	D030527	1210	1090	950	810	1120	1120	1120	1155	1160	1158	100	10	12	0.001422	0.001008	20	7	10	65	14	17	0	0
4916	55	56	D030528	1220	1070	0	0	1100	0	0	1138	0	0	100	0	0	0.000000	0.000000	20	0	0	68	0	0	0	0
4915	55	55	D030529	1200	1070	1000	900	1090	0	0	1130	0	0	100	10	10	0.000000	0.000000	20	0	0	60	0	0	0	0
4914	55	54	D030530	1190	1090	950	790	0	1085	1085	0	1123	1116	100	10	10	0.000000	0.000930	20	7	10	0	14	16	0	0
5004	56	54	D030531	1190	1090	950	790	0	1075	1075	0	1113	1107	75	10	10	0.000000	0.000976	15	7	10	0	14	16	0	0
5006	56	56	D030533	1210	1110	1000	810	1130	0	0	1162	0	0	75	10	10	0.000000	0.000000	15	0	0	39	0	0	0	0
5007	56	57	D030534	1210	1110	970	810	1130	1130	1130	1162	1170	1168	100	10	12	0.001425	0.000968	20	7	10	52	14	19	0	0
5008	56	58	D030535	1220	1100	980	620	1130	1130	1130	1162	1169	1169	100	10	12	0.001658	0.000741	20	7	10	62	12	43	0	0
5009	56	59	D030536	1240	1100	980	440	1130	1130	1130	1162	1169	1170	100	10	12	0.001658	0.000580	20	7	10	62	12	65	0	0
4562	51	62	D030604	1330	1090	750	630	0	1000	950	0	1017	985	15	3	3	0.000000	0.000194	10	5	10	0	8	4	0	0
4561	51	61	D030605	1280	1090	630	80	1150	1145	1145	1168	1164	1188	15	3	3	0.000130	0.000082	10	5	10	12	14	17	0	0
4560	51	60	D030606	1260	1080	430	-90	1150	1065	1065	1167	1087	1109	15	3	3	0.000094	0.000067	10	7	10	13	20	16	0	0
4650	52	60	D030607	1250	1090	700	10	1140	1095	1095	1161	1123	1138	43	7	12	0.000357	0.000237	10	7	10	31	27	83	0	0
4651	52	61	D030608	1280	1100	850	230	1140	1090	1090	1160	1115	1133	43	7	12	0.000580	0.000333	10	7	10	26	18	74	0	0
4741	53	61	D030617	1290	1180	1000	290	0	1090	1090	0	1120	1135	43	7	12	0.000000	0.000471	10	7	10	0	8	85	0	0
4740	53	60	D030618	1240	1110	880	140	1130	1095	1095	1154	1127	1140	100	10	12	0.000929	0.000382	10	7	10	44	23	89	0	0
4830	54	60	D030619	1240	1110	920	240	1120	1110	1110	1148	1145	1152	100	10	12	0.001052	0.000423	15	7	10	38	19	82	0	0
4831	54	61	D030620	1270	1200	1060	570	0	1115	1115	0	1146	1157	20	7	12	0.000000	0.000707	15	7	10	0	6	59	0	0
4921	55	61	D030629	1260	1160	1050	760	0	1120	1120	0	1156	1160	100	7	12	0.000000	0.000906	15	7	10	0	7	35	0	0
4920	55	60	D030630	1240	1100	1010	490	1120	1120	1120	1150	1158	1160	100	10	12	0.002212	0.000652	15	7	10	50	9	62	0	0
5010	56	60	D030631	1240	1100	1000	540	1130	1130	1130	1162	1169	1170	100	10	12	0.001988	0.000686	15	7	10	62	10	55	0	0
5011	56	61	D030632	1250	1150	1110	750	0	1130	1130	0	1169	1171	100	10	12	0.000000	0.001176	15	7	10	0	4	43	0	0
4571	51	71	D030701	1480	1200	1030	-20	0	0	1010	0	0	1010	30	7	4	0.000000	0.000000	10	7	9	0	0	41	0	0
4570	51	70	D030702	1500	1180	980	650	0	0	950	0	0	944	30	7	4	0.000000	0.000000	10	10	10	0	0	12	0	0
4660	52	70	D030711	1550	1400	1220	950	0	0	1000	0	0	990	30	7	4	0.000000	0.000000	10	10	10	0	0	2	0	0
4661	52	71	D030712	1510	1360	1290	590	0	0	990	0	0	990	30	7	4	0.000000	0.000000	10	10	10	0	0	16	0	0
4577	51	77	D030801	1580	1410	790	-270	0	1075	1075	0	1066	1067	50	12	8	0.000000	0.000222	10	7	9	0	33	85	0	0
4576	51	76	D030802	1550	1400	670	-550	0	1060	1060	0	1049	1038	50	12	8	0.000000	0.000184	10	7	9	0	45	98	0	0
4575	51	75	D030803	1530	1350	600	-650	0	1040	1040	0	1010	1014	50	12	8	0.000000	0.000174	10	7	9	0	49	100	0	0
4574	51	74	D030804	1510	1280	700	-690	0	1040	1040	0	990	993	50	12	8	0.000000	0.000174	10	7	9	0	35	111	0	0
4573	51	73	D030805	1490	1220	700	-710	0	1000	1000	0	960	960	50	12	8	0.000000	0.000177	10	7	9	0	31	113	0	0
4572	51	72	D030806	1480	1150	840	-510	0	990	990	0	970	970	30	7	4	0.000000	0.000105	10	7	9	0	9	54	0	0
4662	52	72	D030807	1490	1150	1110	510	0	0	990	0	0	971	30	7	4	0.000000	0.000000	10	10	10	0	0	18	0	0
4663	52	73	D030808	1490	1250	900	390	0	995	995	0	973	968	50	12	8	0.000000	0.000503	10	10	10	0	9	41	0	0
4664	52	74	D030809	1510	1300	910	10	0	1010	1010	0	989	985	50	12	8	0.000000	0.000310	10	10	10	0	9	72	0	0
4665	52	75	D030810	1520	1400	800	-200	0	1030	1030	0	1009	1008	50	12	8	0.000000	0.000245	10	10	10	0	25	80	0	0
4666	52	76	D030811	1550	1420	590	-250	0	1050	1050	0	1038	1042	50	12	8	0.000000	0.000220	10	7	9	0	54	67	0	0
4667	52	77	D030812	1570	1430	880	-80	0	1070	1070	0	1061	1067	50	12	8	0.000000	0.000264	10	7	9	0	22	77	0	0
4757	53	77	D030813	1560	1400	740	110	0	1070	1070	0	1063	1071	50	12	8	0.000000	0.000299	10	7	10	0	39	50	0	0
4756	53	76	D030814	1540	1400	800	100	0	1050	1050	0	1040	1048	50	12	8	0.000000	0.000310	10	10	10	0	29	56	0	0
4755	53	75	D030815	1520	1350	990	420	0	1030	1030	0	1018	1022	50	12	8	0.000000	0.000513	10	10	10	0	3	46	0	0
4754	53	74	D030816	1500	1330	1010	690	0	1020	1020	0	1000	1010	50	12	8	0.000000	0.000960	9	10	10	0	0	26	0	0
4753	53	73	D030817	1500	1300	1010	720	0	0	1010	0	0	1003	50	12	8	0.000000	0.000000	9	10	10	0	0	23	0	0
4843	54	73	D030820	1520	1250	1150	1020	0	0	1100	0	0	1102	50	12	8	0.000000	0.000000	9	10	10	0	0	7	0	0
4844	54	74	D030821	1510	1300	1150	1010	0	0	1030	0	0	1030	50	12	8	0.000000	0.000000	9	10	10	0	0	2	0	0
4845	54	75	D030822	1520	1300	980	720	0	1040	1040	0	1032	1053	50	12	8	0.000000	0.000941	9	10	10	0	6	21	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4846	54	76	D030823	1530	1250	1000	540	0	1055	1055	0	1048	1069	50	12	8	0.000000	0.000600	10	10	10	0	6	37	0	0
4847	54	77	D030824	1550	1300	900	360	0	1055	1055	0	1050	1065	50	12	8	0.000000	0.000429	10	10	10	0	18	43	0	0
4937	55	77	D030825	1540	1250	1140	630	0	0	1060	0	0	1085	50	12	8	0.000000	0.000000	10	10	10	0	0	36	0	0
4936	55	76	D030826	1520	1150	1100	1010	0	0	1055	0	0	1085	50	12	8	0.000000	0.000000	9	10	10	0	0	6	0	0
4935	55	75	D030827	1520	1200	1150	1090	0	0	1120	0	0	1135	50	12	8	0.000000	0.000000	9	10	10	0	0	4	0	0
4934	55	74	D030828	1510	1190	1150	1110	0	0	1150	0	0	1162	50	12	8	0.000000	0.000000	9	10	10	0	0	3	0	0
4933	55	73	D030829	1530	1190	1110	1030	0	0	1150	0	0	1155	50	12	8	0.000000	0.000000	9	10	10	0	0	6	0	0
5025	56	75	D030834	1520	1240	1200	1120	0	0	1200	0	0	1221	50	12	8	0.000000	0.000000	9	10	10	0	0	6	0	0
5026	56	76	D030835	1520	1240	1200	1120	0	0	1150	0	0	1169	50	12	8	0.000000	0.000000	9	10	10	0	0	4	0	0
5027	56	77	D030836	1530	1250	1170	830	0	0	1100	0	0	1120	50	12	8	0.000000	0.000000	9	10	10	0	0	23	0	0
4583	51	83	D030901	1730	1510	1200	520	0	0	1170	0	0	1171	30	7	4	0.000000	0.000000	10	7	9	0	0	26	0	0
4582	51	82	D030902	1700	1510	1100	440	0	1150	1150	0	1157	1150	30	7	4	0.000000	0.000223	10	7	9	0	4	26	0	0
4581	51	81	D030903	1670	1510	960	360	0	1140	1140	0	1147	1139	30	7	4	0.000000	0.000199	10	7	9	0	13	24	0	0
4580	51	80	D030904	1640	1500	880	220	0	1125	1125	0	1127	1124	30	7	4	0.000000	0.000170	10	7	9	0	17	26	0	0
4579	51	79	D030905	1620	1470	860	120	0	1110	1110	0	1106	1108	30	7	4	0.000000	0.000156	10	7	9	0	17	30	0	0
4578	51	78	D030906	1600	1450	850	-10	0	1095	1095	0	1089	1091	30	12	8	0.000000	0.000270	10	7	9	0	29	69	0	0
4668	52	78	D030907	1590	1440	1010	90	0	1090	1090	0	1085	1088	50	12	8	0.000000	0.000312	10	7	9	0	9	74	0	0
4669	52	79	D030908	1610	1420	950	200	0	1105	1105	0	1103	1103	50	12	8	0.000000	0.000334	10	7	9	0	18	60	0	0
4670	52	80	D030909	1630	1430	900	400	0	1120	1120	0	1119	1119	30	12	8	0.000000	0.000403	10	7	9	0	26	40	0	0
4671	52	81	D030910	1660	1490	910	530	0	1135	1135	0	1141	1136	30	7	4	0.000000	0.000251	10	7	9	0	16	15	0	0
4672	52	82	D030911	1690	1500	1050	560	0	1150	1150	0	1157	1152	30	7	4	0.000000	0.000265	10	7	9	0	7	20	0	0
4673	52	83	D030912	1710	1510	1130	600	0	1170	1170	0	1176	1173	30	7	4	0.000000	0.000278	10	7	9	0	3	21	0	0
4763	53	83	D030913	1700	1490	1100	750	0	1175	1175	0	1181	1180	30	12	8	0.000000	0.000711	10	7	9	0	10	28	0	0
4762	53	82	D030914	1670	1470	1020	820	0	1150	1150	0	1156	1154	50	12	8	0.000000	0.000857	10	7	9	0	16	16	0	0
4761	53	81	D030915	1640	1450	930	740	0	1135	1135	0	1141	1138	50	12	8	0.000000	0.000691	10	7	9	0	25	15	0	0
4760	53	80	D030916	1620	1400	1000	770	0	1115	1115	0	1114	1117	50	12	8	0.000000	0.000835	10	7	9	0	14	18	0	0
4759	53	79	D030917	1600	1400	1000	380	0	1100	1100	0	1098	1102	50	12	8	0.000000	0.000425	10	7	9	0	12	50	0	0
4758	53	78	D030918	1580	1400	890	170	0	1080	1080	0	1076	1081	50	12	8	0.000000	0.000329	10	7	9	0	22	58	0	0
4848	54	78	D030919	1570	1320	870	340	0	1070	1070	0	1067	1076	50	12	8	0.000000	0.000402	10	7	9	0	24	42	0	0
4849	54	79	D030920	1580	1350	970	480	0	1040	1040	0	1039	1043	50	12	8	0.000000	0.000549	10	7	9	0	8	39	0	0
4850	54	80	D030921	1610	1380	1100	910	0	1115	1115	0	1115	1117	50	12	8	0.000000	0.001524	10	7	9	0	2	15	0	0
4851	54	81	D030922	1630	1400	1030	880	0	1135	1135	0	1141	1139	50	12	8	0.000000	0.001103	10	7	9	0	13	12	0	0
4852	54	82	D030923	1650	1430	1000	800	0	1160	1160	0	1166	1162	50	12	8	0.000000	0.000774	10	7	9	0	20	16	0	0
4853	54	83	D030924	1680	1450	1050	880	0	1180	1180	0	1186	1182	50	12	8	0.000000	0.000932	10	7	9	0	16	14	0	0
4943	55	83	D030925	1660	1440	1300	1060	0	0	1200	0	0	1208	50	12	8	0.000000	0.000000	10	7	9	0	0	12	0	0
4942	55	82	D030926	1630	1420	1250	930	0	0	1160	0	0	1169	50	12	8	0.000000	0.000000	10	7	9	0	0	19	0	0
4941	55	81	D030927	1610	1400	1200	910	0	0	1140	0	0	1149	50	12	8	0.000000	0.000000	10	7	9	0	0	19	0	0
4940	55	80	D030928	1590	1380	1150	890	0	0	1120	0	0	1127	50	12	8	0.000000	0.000000	10	7	9	0	0	19	0	0
4939	55	79	D030929	1570	1370	1100	900	0	0	1080	0	0	1088	50	12	8	0.000000	0.000000	10	7	9	0	0	15	0	0
4938	55	78	D030930	1550	1350	1000	800	0	1070	1070	0	1066	1089	50	12	8	0.000000	0.001091	10	10	9	0	8	16	0	0
5028	56	78	D030931	1550	1320	1220	900	0	0	1070	0	0	1086	50	12	8	0.000000	0.000000	9	10	9	0	0	15	0	0
5029	56	79	D030932	1560	1350	1200	760	0	0	1100	0	0	1111	50	12	8	0.000000	0.000000	9	10	9	0	0	28	0	0
5030	56	80	D030933	1580	1370	1200	780	0	0	1130	0	0	1140	75	15	10	0.000000	0.000000	10	10	9	0	0	36	0	0
5031	56	81	D030934	1590	1390	1240	890	0	0	1160	0	0	1172	75	15	10	0.000000	0.000000	10	7	9	0	0	28	0	0
5032	56	82	D030935	1620	1400	1300	1020	0	0	1170	0	0	1181	75	15	10	0.000000	0.000000	10	7	9	0	0	16	0	0
5033	56	83	D030936	1640	1420	1370	1140	0	0	1220	0	0	1230	75	15	10	0.000000	0.000000	10	7	9	0	0	9	0	0
4587	51	87	D031003	1910	1610	1510	1310	0	0	1400	0	0	1404	30	7	4	0.000000	0.000000	10	7	9	0	0	4	0	0
4586	51	86	D031004	1850	1540	1300	1100	0	0	1300	0	0	1304	30	7	4	0.000000	0.000000	10	7	9	0	0	8	0	0
4585	51	85	D031005	1800	1530	1290	850	0	0	1230	0	0	1233	30	7	4	0.000000	0.000000	10	7	9	0	0	15	0	0
4584	51	84	D031006	1760	1520	1250	640	0	0	1190	0	0	1192	30	7	4	0.000000	0.000000	10	7	9	0	0	22	0	0

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CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
4674	52	84	D031007	1740	1510	1180	660	0	1195	1195	0	1200	1199	30	7	4	0.000000	0.000298	10	7	9	0	1	21	0	0
4675	52	85	D031008	1790	1520	1200	940	0	1250	1250	0	1255	1254	30	7	4	0.000000	0.000505	10	7	9	0	4	10	0	0
4676	52	86	D031009	1840	1530	1300	1090	0	1320	1320	0	1325	1324	30	7	4	0.000000	0.000687	10	7	9	0	2	8	0	0
4677	52	87	D031010	1900	1600	1500	1300	0	1400	1400	0	1405	1404	30	7	4	0.000000	0.000000	10	7	9	0	0	4	0	0
4767	53	87	D031015	1870	1620	1520	1300	0	1400	1400	0	1405	1405	30	7	8	0.000000	0.000000	10	7	9	0	0	8	0	0
4766	53	86	D031016	1800	1520	1320	1100	0	1330	1330	0	1335	1335	30	7	8	0.000000	0.001318	10	7	9	0	1	18	0	0
4765	53	85	D031017	1770	1510	1150	930	0	1270	1270	0	1275	1275	30	7	8	0.000000	0.000647	10	7	9	0	9	18	0	0
4764	53	84	D031018	1730	1500	1130	840	0	1200	1200	0	1205	1205	30	12	8	0.000000	0.000835	10	7	9	0	9	23	0	0
4854	54	84	D031019	1710	1470	1200	1010	0	1220	1220	0	1225	1226	50	12	8	0.000000	0.001477	10	7	9	0	3	15	0	0
4855	54	85	D031020	1740	1490	1340	1140	0	1280	1280	0	1285	1286	30	12	8	0.000000	0.000000	10	7	9	0	0	12	0	0
4856	54	86	D031021	1780	1580	1480	1280	0	1360	1360	0	1365	1366	30	12	8	0.000000	0.000000	10	7	9	0	0	7	0	0
4944	55	84	D031030	1680	1460	1360	1180	0	0	1250	0	0	1257	50	12	8	0.000000	0.000000	10	7	9	0	0	6	0	0
5034	56	84	D031031	1660	1440	1390	1160	0	0	1280	0	0	1289	50	12	8	0.000000	0.000000	10	7	9	0	0	10	0	0
5093	57	53	D040401	1200	1090	880	800	0	1050	1050	0	1080	1076	75	10	10	0.000000	0.000952	15	7	10	0	20	8	0	0
5092	57	52	D040402	1190	1080	790	690	0	1000	1000	0	1019	1019	75	10	10	0.000000	0.000769	15	7	10	0	23	10	0	0
5091	57	51	D040403	1180	1060	740	380	0	1000	1000	0	1018	1017	50	10	10	0.000000	0.000455	15	7	10	0	28	36	0	0
5181	58	51	D040410	1180	1070	800	530	0	970	970	0	989	989	50	10	10	0.000000	0.000656	15	7	10	0	19	27	0	0
5182	58	52	D040411	1190	1080	900	790	0	1000	1000	0	1022	1021	75	10	10	0.000000	0.001290	15	7	10	0	12	11	0	0
5183	58	53	D040412	1210	1100	920	810	0	1050	1050	0	1083	1080	75	10	10	0.000000	0.001081	15	7	10	0	16	11	0	0
5099	57	59	D040501	1230	1100	1050	530	1140	1140	1140	1180	1180	1181	100	10	12	0.003937	0.000750	20	7	10	80	5	62	0	0
5098	57	58	D040502	1230	1110	1060	730	1140	1140	1140	1180	1180	1181	100	10	12	0.003953	0.001067	15	7	10	70	5	40	0	0
5097	57	57	D040503	1220	1110	1060	820	1140	1140	1140	1182	1182	1179	100	10	12	0.003953	0.001333	15	7	10	72	5	29	0	0
5096	57	56	D040504	1220	1120	1030	920	1140	1140	1140	1180	1180	1181	75	10	10	0.002209	0.001379	15	7	10	45	9	11	0	0
5095	57	55	D040505	1220	1110	1010	920	0	1100	1100	0	1140	1140	75	10	10	0.000000	0.001481	15	7	10	0	10	9	0	0
5094	57	54	D040506	1210	1100	900	810	0	1070	1070	0	1106	1105	75	10	10	0.000000	0.000930	15	7	10	0	20	9	0	0
5184	58	54	D040507	1240	1110	980	840	0	1090	1090	0	1128	1128	75	10	10	0.000000	0.001111	15	7	10	0	13	14	0	0
5185	58	55	D040508	1250	1130	1060	950	0	1130	1130	0	1174	1174	75	10	10	0.000000	0.001600	15	7	10	0	7	11	0	0
5186	58	56	D040509	1250	1120	1070	950	1150	1150	1150	1199	1199	1189	75	10	10	0.003937	0.001818	15	7	10	59	5	12	0	0
5187	58	57	D040510	1260	1120	1070	860	1155	1155	1155	1201	1201	1202	75	10	10	0.003927	0.001290	15	7	10	61	5	21	0	0
5188	58	58	D040511	1250	1120	1070	850	1150	1150	1150	1192	1192	1193	100	10	12	0.003953	0.001412	15	7	10	72	5	26	0	0
5189	58	59	D040512	1250	1130	1050	650	1155	1155	1155	1196	1196	1197	100	10	12	0.002484	0.000811	15	7	10	66	8	48	0	0
5279	59	59	D040513	1300	1170	1120	700	0	1165	1165	0	1206	1207	75	15	12	0.000000	0.000976	15	10	10	0	8	50	0	0
5278	59	58	D040514	1310	1170	1120	910	0	1165	1165	0	1209	1209	75	13	10	0.000000	0.001433	15	10	10	0	7	21	0	0
5277	59	57	D040515	1310	1170	1130	1010	0	1160	1160	0	1211	1208	75	13	10	0.000000	0.002407	15	10	10	0	5	12	0	0
5276	59	56	D040516	1300	1170	1130	1050	0	1155	1155	0	1204	1205	75	13	10	0.000000	0.003377	15	10	10	0	5	8	0	0
5275	59	55	D040517	1290	1160	1120	1040	0	1150	1150	0	1195	1190	75	13	10	0.000000	0.003171	15	10	10	0	5	8	0	0
5367	60	57	D040522	1360	1220	1180	1060	0	0	1165	0	0	1211	75	13	10	0.000000	0.000000	15	10	10	0	0	12	0	0
5368	60	58	D040523	1360	1230	1190	960	0	0	1165	0	0	1209	75	13	10	0.000000	0.000000	15	10	10	0	0	23	0	0
5369	60	59	D040524	1350	1230	1190	750	0	0	1170	0	0	1212	75	13	10	0.000000	0.000000	15	10	10	0	0	44	0	0
5459	61	59	D040525	1410	1260	1220	910	0	0	1175	0	0	1218	75	13	10	0.000000	0.000000	15	10	10	0	0	31	0	0
5458	61	58	D040526	1430	1260	1220	1030	0	0	1170	0	0	1213	75	13	10	0.000000	0.000000	15	10	10	0	0	18	0	0
5103	57	63	D040603	1270	1170	1120	770	0	1160	1160	0	1198	1198	100	30	12	0.000000	0.001257	15	10	10	0	15	42	0	0
5102	57	62	D040604	1260	1160	1110	760	1165	1160	1160	1205	1200	1201	100	30	12	0.011928	0.001231	15	10	10	45	15	42	0	0
5101	57	61	D040605	1250	1130	1080	650	1150	1150	1150	1192	1192	1191	100	10	12	0.003968	0.000873	20	7	10	62	5	52	0	0
5100	57	60	D040606	1240	1110	1060	440	1145	1145	1145	1187	1187	1186	100	10	12	0.003945	0.000649	20	7	10	77	5	74	0	0
5190	58	60	D040607	1250	1130	1080	450	1160	1160	1160	1202	1202	1201	100	15	12	0.005894	0.000676	15	10	10	72	8	76	0	0
5191	58	61	D040608	1260	1140	1090	560	1165	1165	1165	1207	1207	1205	100	15	12	0.005911	0.000787	20	10	10	67	8	64	0	0
5192	58	62	D040609	1260	1140	1090	660	1170	1170	1170	1210	1210	1211	100	15	12	0.005894	0.000941	20	10	10	70	8	52	0	0
5193	58	63	D040610	1270	1150	1100	770	1175	1175	1175	1213	1213	1212	100	15	12	0.005911	0.001171	20	10	10	63	8	40	0	0
5194	58	64	D040611	1280	1180	1120	780	1185	1185	1185	1223	1223	1223	100	18	12	0.005982	0.001143	20	10	10	43	11	41	0	0

SRV PHASE2.DBF

CELL	ROW	COL	LOCATION	SELV	UELV	MELV	LELV	H83U	H83M	H83L	H89U	H89M	H89L	KHU	KHM	KHL	VCONT1	VCONT2	SYU	SYM	SYL	T89U	T89M	T89L	MAX EVT	RIVER COND
5195	58	65	D040612	1290	1190	1140	790	1195	1195	1195	1233	1233	1233	75	18	12	0.007166	0.001152	15	10	10	32	9	42	0	0
5285	59	65	D040613	1290	1170	1120	790	1195	1195	1195	1243	1243	1233	100	18	12	0.007073	0.001210	20	10	10	73	9	40	0	0
5284	59	64	D040614	1290	1170	1120	690	1195	1195	1195	1232	1232	1232	100	18	12	0.007073	0.000966	20	10	10	62	9	52	0	0
5283	59	63	D040615	1280	1160	1110	580	1185	1185	1185	1220	1220	1220	100	15	12	0.005911	0.000787	15	10	10	60	8	64	0	0
5282	59	62	D040616	1270	1150	1100	470	1180	1180	1180	1221	1221	1221	100	15	12	0.005894	0.000676	15	10	10	71	8	76	0	0
5281	59	61	D040617	1290	1170	1120	490	1175	1175	1175	1216	1216	1216	100	15	12	0.005982	0.000676	15	10	10	46	8	76	0	0
5280	59	60	D040618	1290	1180	1130	590	0	1170	1170	0	1211	1211	100	15	12	0.000000	0.000795	15	10	10	0	8	65	0	0
5370	60	60	D040619	1330	1190	1140	630	0	1175	1175	0	1217	1217	100	15	12	0.000000	0.000848	15	10	10	0	8	61	0	0
5371	60	61	D040620	1340	1190	1140	540	0	1180	1180	0	1221	1221	100	15	12	0.000000	0.000723	15	10	10	0	8	72	0	0
5372	60	62	D040621	1330	1200	1150	630	0	1185	1185	0	1226	1226	100	15	12	0.000000	0.000833	15	10	10	0	8	62	0	0
5373	60	63	D040622	1310	1180	1130	710	1195	1195	1195	1235	1235	1235	100	18	12	0.007123	0.000986	15	10	10	55	9	50	0	0
5374	60	64	D040623	1300	1170	1120	600	1200	1200	1200	1238	1238	1238	100	18	12	0.007048	0.000818	15	10	10	68	9	62	0	0
5375	60	65	D040624	1300	1160	1110	600	1200	1200	1200	1240	1240	1244	100	18	12	0.006998	0.000832	15	10	10	80	9	61	0	0
5465	61	65	D040625	1350	1180	1130	850	1200	1200	1200	1243	1246	1247	75	15	10	0.005906	0.001154	15	10	10	47	8	28	0	0
5464	61	64	D040626	1360	1210	1160	860	0	1200	1200	0	1241	1242	75	15	10	0.000000	0.001132	15	10	10	0	8	30	0	0
5463	61	63	D040627	1380	1230	1180	880	0	1195	1195	0	1236	1235	75	15	10	0.000000	0.001250	15	10	10	0	8	30	0	0
5462	61	62	D040628	1390	1240	1190	790	0	0	1190	0	0	1231	75	15	10	0.000000	0.000000	15	10	10	0	0	40	0	0
5461	61	61	D040629	1390	1250	1210	690	0	0	1185	0	0	1227	75	13	10	0.000000	0.000000	15	10	10	0	0	52	0	0
5460	61	60	D040630	1390	1260	1220	790	0	0	1180	0	0	1223	75	13	10	0.000000	0.000000	15	10	10	0	0	43	0	0
5287	59	67	D040717	1300	1170	1120	800	1200	1200	1200	1247	1250	1254	100	15	12	0.005894	0.001200	20	10	10	77	8	38	0	0
5286	59	66	D040718	1300	1170	1120	800	1200	1200	1200	1244	1246	1246	100	15	12	0.005894	0.001200	20	10	10	74	8	38	0	0
5376	60	66	D040719	1310	1160	1110	610	1200	1200	1200	1247	1249	1249	100	18	12	0.006998	0.000847	15	10	10	87	9	60	0	0
5377	60	67	D040720	1310	1150	1100	710	1200	1200	1200	1253	1254	1254	100	18	12	0.006950	0.001051	20	10	10	103	9	47	0	0
5378	60	68	D040721	1320	1140	1090	820	1195	1195	1195	1250	1250	1251	100	15	12	0.005808	0.001371	20	10	10	110	8	32	0	0
5468	61	68	D040728	1340	1130	1080	640	1190	1190	1190	1250	1247	1248	100	15	12	0.005792	0.000923	15	10	10	120	8	53	0	0
5467	61	67	D040729	1320	1140	1090	620	1195	1195	1195	1251	1251	1251	100	18	12	0.006926	0.000894	15	10	10	111	9	56	0	0
5466	61	66	D040730	1320	1160	1110	620	1200	1200	1200	1249	1251	1251	100	18	10	0.006998	0.000733	15	10	10	89	9	49	0	0
5556	62	66	D040731	1380	1160	1110	880	1195	1195	1195	1245	1248	1248	75	15	10	0.005837	0.001348	15	10	10	64	8	23	0	0
5557	62	67	D040732	1340	1140	1090	840	1190	1190	1190	1245	1246	1246	75	15	12	0.005769	0.001455	15	10	10	79	8	30	0	0
5558	62	68	D040733	1330	1130	1080	830	1190	1190	1190	1250	1248	1248	100	15	12	0.005792	0.001455	15	10	10	120	8	30	0	0
5117	57	77	D040801	1520	1300	1150	1020	0	0	1180	0	0	1190	50	12	8	0.000000	0.000000	9	10	10	0	0	10	0	0
5116	57	76	D040802	1520	1250	1200	1120	0	0	1250	0	0	1260	50	12	8	0.000000	0.000000	9	10	10	0	0	6	0	0
5115	57	75	D040803	1530	1260	1210	1130	0	0	1290	0	0	1292	50	12	8	0.000000	0.000000	9	10	10	0	0	6	0	0
5123	57	83	D040901	1640	1410	1360	1140	0	0	1250	0	0	1266	75	15	10	0.000000	0.000000	9	10	10	0	0	13	0	0
5122	57	82	D040902	1610	1390	1290	1010	0	0	1210	0	0	1226	75	15	10	0.000000	0.000000	9	10	10	0	0	22	0	0
5121	57	81	D040903	1580	1370	1220	980	0	0	1190	0	0	1208	75	15	10	0.000000	0.000000	9	10	10	0	0	23	0	0
5120	57	80	D040904	1560	1350	1200	960	0	0	1170	0	0	1189	50	12	8	0.000000	0.000000	9	10	10	0	0	18	0	0
5119	57	79	D040905	1540	1320	1220	1040	0	0	1140	0	0	1158	50	12	8	0.000000	0.000000	9	10	10	0	0	9	0	0
5118	57	78	D040906	1530	1300	1050	1030	0	0	1140	0	0	1155	50	12	8	0.000000	0.000000	9	10	10	0	0	2	0	0
5209	58	79	D040908	1530	1320	1270	1130	0	0	1200	0	0	1220	50	12	8	0.000000	0.000000	9	10	10	0	0	7	0	0
5210	58	80	D040909	1590	1350	1250	1090	0	0	1210	0	0	1230	50	12	8	0.000000	0.000000	9	10	10	0	0	11	0	0
5211	58	81	D040910	1570	1370	1220	970	0	0	1220	0	0	1240	75	15	10	0.000000	0.000000	9	10	10	0	0	25	0	0
5212	58	82	D040911	1600	1390	1290	1000	0	0	1250	0	0	1268	75	15	10	0.000000	0.000000	9	10	10	0	0	27	0	0
5213	58	83	D040912	1640	1410	1360	1140	0	0	1280	0	0	1298	75	15	10	0.000000	0.000000	9	10	10	0	0	16	0	0