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Development of a Groundwater Flow Model for the Big Wood River Aquifer: East Fork to Bellevue



Prepared for Harry S. Rinker and Dry Lot, LLC

February 3, 2009



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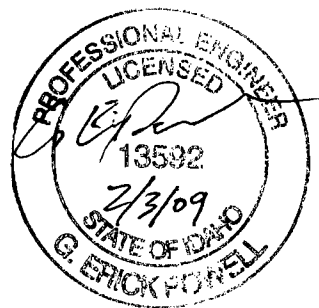
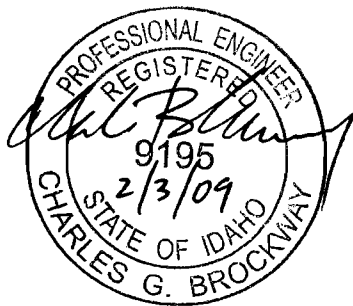


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Development of a Groundwater Flow Model for the Big Wood River Aquifer: East Fork to Bellevue

Brockway Engineering, PLLC

February 3, 2009

A. Background

A.1. Purpose

A groundwater flow model has been developed to assist in evaluation of the impact of proposed water right transfers and/or permits on groundwater levels and Big Wood River flows. The aquifer system is hydraulically interconnected with the Big Wood River throughout most of the valley, and with the eminent implementation of conjunctive management of groundwater and surface water, the determination of adverse or beneficial impacts on existing water rights is required to satisfy the non-injury requirements of I.C. 42-222. Current pending or proposed transfers of water rights contemplate the use of aquifer recharge to mitigate potential or current water supply shortages. Specifically, water right transfers contemplating aquifer recharge have been submitted by Dry Lot LLC for the Valley Club Homeowners Association and The Valley Club (golf course). Applications are being proposed by the Rinker Company for Peregrine Ranch Subdivision and, potentially, the City of Hailey. The Idaho Department of Water Resources has indicated that an appropriate numerical groundwater flow model is required to evaluate the hydrologic impacts of these transfers and the Department does not now have such a model to perform the analyses and would likely not have the resources and personnel to develop a model within three to five years. In order to expedite these applications, Dry Lot LLC and Rinker Company agreed to have a suitable model developed and the Director agreed to process the pending applications utilizing the results of the groundwater model. Dry Lot LLC and Rinker Company

retained Brockway Engineering to develop an approved model to include portions of the Big Wood River Aquifer which might be affected by the pending applications.

A.2. Project Scope

The groundwater model project was developed by Brockway Engineering to include the aquifer and the Big Wood River from Greenhorn Gulch on the north to the northern boundary of the City of Bellevue on the south. Tributary valleys were not modeled in the domain but the underflow from the major tributaries was included. Guidance for the technical development of the model was solicited from recognized hydrologists and groundwater modelers and a Technical Advisory Committee formed. A recognized ground water model code (MODFLOW) was selected and the required hydrologic data was collected and analyzed to provide input to the model for calibration and impact scenario simulation. A recognized data management program (GMS) was utilized as the interface for the model and all data is maintained in ArcGIS format. Input data were based primarily on published information; however discharge measurements to provide Big Wood River reach gain data were performed by Brockway Engineering. The model was configured and calibrated utilizing groundwater level targets and reach gain targets. Initial scenarios simulating the proposed Dry Lot LLC aquifer recharge and extraction proposal were performed.

A.3. Technical Advisory Committee

An Advisory Committee to provide input on the technical development and operational use of the Big Wood River Ground Water model was formed. The Committee included the following:

Table 1. Technical advisory committee.

Name	Affiliation	Location	Representing
Dr. Charles Brendeke	AMEC	Denver, Colorado	The Valley Club
Woody Friedlander	Dry Lot LLC	Hailey, Idaho	Valley Club Homeowners Association
Dr. Gary Johnson	Idaho Water Resources Research Institute	Idaho Falls, Idaho	IWRRI
Dr. David Tuthill	Director, Idaho Department of Water Resources	Boise, Idaho	IDWR
Alan Wylie	Idaho Department of Water Resources	Boise, Idaho	IDWR
Dr. G. Erick Powell	Brockway Engineering	Twin Falls, Idaho	Rinker Company, Dry Lot LLC
Dr. Charles G. Brockway	Brockway Engineering	Twin Falls, Idaho	Rinker Company, Dry Lot LLC
Dr. Charles E. Brockway	Brockway Engineering	Twin Falls, Idaho	Rinker Company, Dry Lot LLC

Technical committee comments to the draft version of this report are included in Appendix I.

B. Upper Big Wood Basin Description

B.1. Watershed Characteristics

The Big Wood River watershed above the study area lower boundary (near Broadford Bridge) encompasses 694 square miles of mostly mountainous terrain (Figure 1). The USGS Streamstats web tool was used to define the basin boundaries according to topographic divides, and to estimate various hydrologic characteristics. The basin delineation is shown in Figure 2 and the results of the Streamstats analysis are shown in Table 2.

Table 2. Drainage basin characteristics for the Big Wood River above Broadford Bridge.

Parameter	Value
Area that drains to a point on a stream	694 mi ²
Relief (maximum minus minimum elevation)	6700 ft
Mean Basin Elevation	7560 ft
Maximum Basin Elevation	11900 ft
Minimum Basin Elevation	5180 ft
Mean basin slope computed from 30 m DEM	42.4%
Slopes greater than 30 percent	73.4%
Percent of area covered by forest	39.5%
Mean annual precipitation in inches	28.1

B.2. Climate

The Hailey, Idaho climate is classified as a mountain desert regime, with dry sunny summers and generally mild winters. The annual precipitation is 15.5 inches per year with an annual snowfall of 80 inches (NWS, 2008). Precipitation occurs primarily during the months of November through March. The average summer temperature is 78 degrees fahrenheit and the average winter temperature is 23 degrees fahrenheit (NWS, 2008). The area is normally dry with an annual average humidity of 30%.

B.3. Land Usage

Most of the land within the Big Wood River drainage is mountainous, with the primary land uses being recreation within national forest lands, rangeland, and unirrigated pasture. The main valley floor and tributary valleys comprise about 4% of the total basin area. Current land uses within these areas consist of single-family rural residential developments, high-density residential and commercial uses within the three

municipalities of Ketchum, Hailey, and Bellevue, recreational use along the river corridor and in other areas, irrigated agriculture, and pasture.

Land usage has changed drastically over the past half-century as the area has become a prime recreational destination for both in-state and out-of-state visitors. For example, about 20,000 acres were under irrigation in the Big Wood and Silver Creek areas in the 1950s (Smith, 1959; USBR, 1956). Of this amount, Jones (1952) estimated that the irrigated area above Hailey was 9,405 acres. The vast majority of this land was irrigated with surface water. Wetzstein, et al. (2000) estimated that 6,400 acres were irrigated above Hailey as of 1996, a 32% reduction since the 1950s. The present total irrigated area calculated for the present modeling effort, is 6,637 acres above Hailey and 9,830 acres above Bellevue.

The source of water for irrigation has historically been surface water, but the past 40 years have seen a marked increase in groundwater withdrawal for irrigation, both as a supplemental source to surface water, or as a primary source. Whereas irrigation from groundwater prior to 1950 was essentially nil, the current estimate is that 3,617 acres north of Bellevue are irrigated to some extent with groundwater.

In addition to the overall decline in irrigated area and the increase of groundwater pumping for irrigation, the type of irrigation has shifted from agricultural to residential and municipal. Currently, it is estimated that 49% of the irrigation within the model domain occurs within a residential or municipal setting. See Section G.1.3 for additional details on this calculation.

These changes in land use have undoubtedly affected the groundwater and surface water balances, but only limited study of these changes has been made. Skinner et al. (2007) presents a statistical analysis of surface water and groundwater trends that may or may not be due to changes in land usage and population growth. The present modeling effort seeks to reflect current conditions to the extent possible.

B.4. Hydrogeologic Setting

Smith (1959), Luttrell and Brockway (1984), Frenzel (1989), and other have described the hydrogeology of the Big Wood River valley. The Big Wood aquifer is comprised of unconsolidated sediments of Quaternary age, situated in a narrow valley between steep hills to the west and east. Within the study area, these depositions are almost entirely alluvial in nature, but may also contain fluvioglacial sediments and localized lake-bed depositions. The sedimentary material consists mostly of gravel and cobble, with interbedded layers of sand and finer-grained depositions with embedded gravel. Consolidated rock formations underly the alluvial aquifer. This bedrock formation consists of either pre-Tertiary sedimentary units such as limestone, with igneous intrusions, or younger basalt flows present chiefly within the Silver Creek triangle. The bedrock formation is not highly fractured and is essentially non-water bearing, although isolated wells have been developed in the rock. For the purposes of analyzing the Big Wood aquifer, the bedrock may be assumed to be an impermeable bottom of the aquifer. Smith (1959) presents a typical geologic cross-section at Hailey, reproduced as Figure 3.

The characteristics of the aquifer have been investigated to a limited extent (see Section C for a complete literature review), but no full-scale evaluation of the aquifer and interrelated surface water flows has been made. Groundwater movement occurs generally from north to south, in alignment with the valley, and exists chiefly under unconfined flow conditions. Maximum depth of the alluvial material ranges from 40 feet near Ketchum to over 300 feet in the Silver Creek area. Most wells do not extend to bedrock. Depth to water in wells ranges from a few feet (usually near the Big Wood River) to over 200 feet. The groundwater has a high gradient averaging 0.008 ft/ft with reported hydraulic conductivities ranging from less than 100 ft/day to over 3,000 ft/day (see Section C). The aquifer is highly productive, and supports many irrigation wells and innumerable domestic wells. Irrigation well yields range from 100 gpm to over 3,000 gpm.

The groundwater is hydraulically connected with surface water in the Big Wood River over the entire study reach. The elevation of the river in relation to the immediately

adjacent groundwater elevation is such that the river is not perched except south of Bellevue in the Glendale area outside the model domain (Luttrell and Brockway, 1984). The magnitude of reach gain or loss and the location of gaining or losing reaches likely exhibits considerable seasonal variation as groundwater and surface water levels fluctuate (groundwater levels at a USGS observation well near Bellevue [Appendix F] indicate an amplitude of approximately 13 feet from high to low). The reach gain characteristics of the Big Wood River have not been adequately characterized on a seasonal or year-to-year basis by previous studies. Luttrell and Brockway (1984) found that the river gains from East Fork to Hailey and loses from Hailey to Glendale bridge, a finding that is corroborated by the present effort (see Section G.4.1).

Major tributaries which normally contribute surface flow to the Big Wood River within the study area include Deer Creek and Croy Creek. Other tributary basins which normally contain little or no surface flow except during very high runoff events include Ohio Gulch, Indian Creek, and Quigley Creek. All of these tributaries support an alluvial aquifer which has been developed for domestic and other purposes to a limited extent, and it is assumed that the tributaries contribute to the main valley aquifer via underflow. Other minor watersheds exist on both sides of the valley, and likely contribute to underflow. No major investigation of underflow from tributaries is available in the literature.

There are two outlets to the aquifer, the major one being at Picabo, where the alluvial system gives way to the basalts of the Eastern Snake River Plain Aquifer and the water table drops drastically as groundwater flows from the alluvium to the basalt. A secondary outflow exists on the west side of the valley near Stanton crossing.

C. Literature Review

Previous investigators have made significant efforts to characterize both the surface water and groundwater characteristics in the upper Big Wood drainage basin, beginning with Stearns et al. (1938) and ending with the most recent effort by the USGS to quantify data trends in water resources conditions through 2006 (Skinner et al., 2007).

Jones (1952) presented one of the earliest major evaluations of water resources in the valley. This publication mainly concerns streamflow gauging station records, but also presents information regarding physical basin features, water usage, history of irrigation development, and irrigated acreage estimates.

USBR (1956) studied the feasibility of developing supplemental irrigation water sources through the use of deep irrigation wells with or without seasonal storage reservoirs. This report includes estimates of irrigated acres and irrigation water requirements, and a relatively detailed description of the valley aquifer and groundwater occurrence and movement. The report includes the earliest known map of groundwater contours, which extends from Hailey to Silver Creek.

Smith (1959) is the first investigation to provide something close to a comprehensive evaluation of hydrogeologic conditions, land usage, surface water conditions, and groundwater resources in the area. This report includes several estimated valley cross-sections, estimates of aquifer hydraulic properties, estimates of groundwater discharge, groundwater contour maps, well hydrographs, and water quality data.

Smith (1960) is generally a descriptive report, with the purpose of assessing the hydrogeologic characteristics at various streamflow gauges along the Big Wood river that might impact the ability to determine total basin yield at that point.

Castelin and Chapman (1972) studied the Big Wood River - Silver Creek area, focusing on groundwater-surface water relationships, the nature of the artesian aquifer in that vicinity, and an assessment of groundwater pumping impacts on Silver Creek. The report also includes general hydrogeologic descriptions. This report is not directly related to the present modeling effort.

Moreland (1977) reported the results of extensive field investigations directed at more accurately determining the relationship between the alluvial aquifer in the Silver Creek area and the discharge in Silver Creek. This report is not directly related to the present modeling effort.

Luttrell and Brockway (1982) and Luttrell and Brockway (1984) investigated the groundwater characteristics in the Big Wood valley, including aquifer hydraulic properties and reach gain measurements in the Big Wood River. The study also included creation of groundwater contour maps, estimation of basin yield, and estimation of groundwater underflow.

Frenzel (1989) made a significant contribution to the knowledge base with this publication. The author conducted significant data collection and analysis to characterize the aquifer flow and groundwater-surface water interactions. The study included estimation of aquifer cross-sectional area, mass-measurement of water levels in 84 wells and water table contour map construction, estimates of aquifer hydraulic conductivity and groundwater discharge, river reach gain measurements, basin yield calculations, and water quality data collection.

Brockway et al. (1995) conducted an evaluation of the Big Wood River aquifer in the vicinity of Greenhorn Gulch and Timber Gulch. The modeling effort included a characterization of the aquifer physical and hydraulic properties and development of a model which incorporated the interaction between the tributary aquifers, the main aquifer, and the Big Wood River. The location of this study is just upstream of the north boundary of the present model domain.

Brockway and Kahlown (1994); Wetzstein, et al. (2000). These publications represent Phases 1 and 2, respectively, of a groundwater model development project for the Silver Creek triangle. Phase 1 included data collection and aquifer evaluation; Phase 2 was the model development effort. The aquifer in the Silver Creek triangle was characterized in terms of aquifer hydraulic properties, and was also segregated into three layers representing unconfined flow and the confined artesian flow supply the numerous flowing wells in the area.

Skinner, et al. (2007) provides the most recent investigation into water resource conditions in the Big Wood system. The main purpose of the report is to provide updated groundwater and surface water data, and evaluate the possible presence of statistically-significant trends in both data sets. The study also included a mass-

measurement of water levels in 98 wells leading to the development of a groundwater contour map. The contour map presented in this report represents the best available data for current conditions. Reach-gain measurements in the Big Wood River were attempted but are insufficiently detailed for the present modeling effort.

Brockway Engineering (1995 – 2008) has conducted numerous small-scale investigations for private clients pertaining to aquifer properties, well development potential, interference between wells, and local river-aquifer interactions. These studies often involved testing of new or existing wells. A rudimentary numerical groundwater model was developed in 2000 for the aquifer from Ohio Gulch to Hailey. This model was used in support of two proposed water right transfers involving a conversion from surface water to groundwater.

D. Model Framework

D.1. Model Code and Interface

The Big Wood Valley Groundwater model was developed using MODFLOW, a three-dimensional, cell centered, finite-difference, saturated flow numeric model developed by the United States Geological Survey (McDonald and Harbaugh, 1988). MODFLOW incorporates a modular structure, which allows for the model to be adapted for specific applications (Harbaugh et al., 2000). The original MODFLOW model was published in 1984 with subsequent versions released with the inclusion of additional modulars. MODFLOW-2000 distinguishes the version of MODFLOW used in comparison to the original MODFLOW code. Reference to MODFLOW throughout this document refer to MODFLOW-2000 with acknowledgements that MODFLOW-2000 was based on the original published MODFLOW model. MODFLOW-2000 is currently the most widely used numerical model for groundwater flow problems (Fetter, 2001).

MODFLOW simulates steady and non-steady state flow conditions under different aquifer conditions. External sources of flow into the groundwater model can include surface recharge, well injection, river or stream flow to aquifer, and specific flux or head at a boundary location. External sinks of flow from the groundwater model can include

evapotranspiration, well extraction, river or stream flow from aquifer, aquifer flow to drains and specific flux or head at a boundary location (Harbaugh et al., 2000).

The Groundwater Modeling System (GMS) was used as the graphical user interface for MODFLOW, thus allowing for the use of existing Geographical Information System (GIS) data sets (EMRL, 2005). GMS was originally developed by the U.S. Department of Defense in partnership with the U.S. Department of Energy, the U.S. Environmental Protection Agency, the U.S. Nuclear Regulatory Commission, and 20 academic partners (ERDC, 2008). GMS is a comprehensive tool that provides a visual model interface for model construction, site characterization, calibration, and post-processing (EMRL, 2005). The Big Wood Valley Aquifer groundwater model was developed using the conceptual model approach, which utilizes GIS data sets to delineate model attributes and then converts and maps the data layers to the corresponding MODFLOW cells for model execution.

D.2. Model Domain Definition

The Big Wood Valley Aquifer boundary used throughout this model is shown in Figure 4. The northern boundary is located south of the Golden Eagle Residential development near a narrowing of the valley by bedrock intrusions on the east valley wall. The northern boundary is south of the confluence of the Big Wood River and the East Fork of the Big Wood River and south of the Greenhorn Gulch tributary to the Big Wood Valley. This boundary location was selected because of the bedrock outcropping that exists on the valley's east side significantly reducing the amount of aquifer cross section at that location.

The southern boundary is located immediately north of Bellevue, Idaho. The location of the southern boundary eliminated the need to model areas of the Bellevue triangle, where published reports indicate increasingly complicated hydrogeology moving southward, including perching of the Big Wood River, a division of the groundwater between the east and west aquifer outlets, and an artesian aquifer. The southern boundary location was also selected based on the primary areas of concern at this time involving clients of Brockway Engineering PLLC and proposed water right transfers.

The proposed water right transfers for these clients were located within the model domain.

The groundwater model's east and west boundaries are located at the natural interface between the valley alluvium material and the mountains that confine the valley as shown in Figure 4. As discussed previously, the mountain bedrock consists of either pre-Tertiary sedimentary units such as limestone with igneous intrusions or younger basalt flows. The bedrock is assumed to be an impermeable groundwater barrier.

The following tributaries join the main Big Wood Valley within the model domain: Deer Creek, Indian Creek, Croy Creek, and Quigley Creek. Estimates of underflow to the Big Wood Valley aquifer were calculated from these four tributaries. The model boundary crosses each tributary up-gradient from the tributary confluence with the Big Wood Valley. The model boundary was located perpendicular to the ground water flow from the tributary valley into the Big Wood Valley aquifer.

The MODFLOW cell size was defined to be 100 ft by 100 ft throughout the model domain. The MODFLOW grid was aligned according to the compass, i.e. model columns aligned in a north/south orientation and model rows aligned in east/west orientation. Applying the model boundary to the MODFLOW grid resulted in 467 rows and 258 columns of MODFLOW cells being activated. The model domain consists of 33,452 active MODFLOW cells.

D.3. Time Domain Definition (3 possibilities, justification for choice)

The model developers discussed three options for collecting and imputing model data and evaluating the model results. Each option was discussed in detail with considerations to the availability of data, reliability of data, and purpose of the model results. All three scenarios are shown in Figure 5.

Time option one was to develop a groundwater model under steady state conditions. All inputs would be annual averages with no seasonal variation. Inputs for this option are the most reliable as the values are averages for all available data. However, modeling

the average conditions does not capture the seasonal trends and does not address the concerns of IDWR or protestants to the proposed transfers. This option was not selected due to the coarse nature of the model results and the seasonal trends not being captured.

Time option two was to develop a fully transient groundwater model. Under this option, all variables would have unique values for every time period and would vary from year to year over some selected "calibration period." This option reflects real life conditions and could produce the most robust and meaningful model; however, data requirements for a transient model are extensive and transient data for most variables was not available. The economic cost and time requirement to collect data for a fully transient analysis was beyond the scope of the modeling project. Collection of transient data would require several years of delay. This option was not selected due to the significant data requirements, economic costs to collect data, and time delay to collect data.

Time option three was to develop a quasi-transient groundwater model. This option is a hybrid between option one and option two. Under this option, variables will change on a monthly basis to capture seasonal trends, the monthly values will remain constant throughout the month, and will repeat annually. With this approach, inputs to the model are average monthly values. This option models the transient seasonal nature of the aquifer and requires more data than option one but significantly less data than option two. Given the purpose of this model, this option was selected because it addressed the need of showing the seasonal trends and response of the aquifer, while maximizing the use of available data. Data gaps such as Big Wood River flow measurements and Big Wood River water levels were indentified and collected where feasible given the time constraints.

D.4. Time step and stress period lengths

Stress periods refer to periods over which model inputs remain constant. Time steps refer to numerical computation periods. Stress periods were defined for each month, for a total of 12 stress periods per year. Each stress period was further divided into two time steps, for a total of 24 time steps per year. The time step duration was dependent

on the month length, e.g. February (28 days), was modeled with a time step of 14 days; while January (31 days), was modeled with a time step of 15.5 days. The time step graph is shown in Figure 6 illustrating the stress periods and time steps.

Model data were averaged to the defined stress periods. The most reliable and available transient data within the model domain were Big Wood River flow data at the USGS gage at Hailey. The USGS gaging station has published daily flow values in the Big Wood River. The USGS gaging station also summarizes the daily flow values into monthly averages; the monthly averages were used as model inputs rather than the more detailed daily flow values.

D.5. Vertical Discretization (layers)

The Big Wood Valley consists of alluvial material that is predominately uniform throughout the model domain according the well log reports. Although some well logs indicate layers of finer-grained material, the generally uniform nature of the aquifer did not justify the creation of more than one vertical layer in the model domain for the purposes of the present study. Therefore, the groundwater model was developed with one vertical layer.

In October 2008, the model developers met with a technical advisory committee regarding the model development. During this meeting, it was proposed that multiple vertical layers could result in a model with a better river/aquifer interaction. This suggestion was considered and evaluated. The model developers felt that the multiple layers could potentially improve the model accuracy of the river/aquifer interaction; however, creating additional layers introduced the following two difficulties: additional unknown variables were necessary to describe the multiple layer interaction and modeling of ET and recharge would have to be adjusted. After reviewing the options, it was determined to continue modeling the aquifer as a single layer MODFLOW model. Incorporating additional layers could be part of a future model refinement effort.

D.6. Model Cell Definition

Individual model cells have an approximate surface area of 100 ft by 100 ft with a variable vertical depth defined by the depth of the surface to the bedrock. Data parameters were conceptually mapped in GMS with GIS layers. GMS converted GIS data to corresponding MODFLOW cells with corresponding source/sink designation. The following MODFLOW source/sink packages used for this model: well package, evapotranspiration package, recharge package, river package, and specific head package. Underflow water movement between MODFLOW cells can occur in every direction. Section H (Water Balance) discusses the analysis of water sources and sinks within the model domain; on a smaller scale, the same water balance occurs in every MODFLOW cell. Figure 7 is a schematic of a single cell illustrating the water sources and sinks. Figure 7 will be discussed in detail in Section H.

D.7. Boundary Conditions

D.7.1. Specified Flux Boundaries

Annual underflow estimates for each tributary and boundary were calculated and compared to published data, if available. Variable flux was defined at the northern boundary and at the four main tributaries. No previous studies have attempted to estimate how the groundwater flow varies throughout a year. Therefore, the average annual flux was shaped to arrive at a monthly hydrograph based on the seasonal trends of calculated underflow, which was based on the static water levels measured at the USGS observation well located south of Bellevue, outside of the model domain (Figure 8). The USGS reports average monthly depths and average overall depth to groundwater surface for the observation well. Monthly ratios between the monthly static water levels and the average overall depth to groundwater were calculated. Monthly ratios of static water depths were applied to the southern underflow. Monthly cross sectional area and underflow were calculated. Ratios were developed between the average annual underflow and monthly shaped underflow. Underflow shaping is discussed in detail in Section F.3. Specific flux was defined in the conceptual model by an arc with the flux rate (ft³/day). GMS converts the conceptual model arc to a series of extraction or injection wells.

D.7.2. Specified Head Boundaries

Transient specific head was only defined at the southern model boundary. The seasonal trends of aquifer levels at the southern model boundary were based on water level data at the USGS observation well south of Bellevue. Discussion on the seasonal trends of the southern boundary is located in Section F.3.

D.7.3. Head-dependent River Boundaries

The Big Wood River flows through the model domain from north to south and portions of the computational domain are located east and west of the river. The Big Wood River was modeled with the river package as a source or sink of water to or from the aquifer. Irrigation canals were included within the model domain; however, all canals are on upland areas, i.e. perched, and do not function as head-dependent model boundaries.

D.7.4. Initial Conditions

Aquifer elevations used for initial conditions were originally set to the groundwater contours generated by Kriging interpolation of the static water levels reported in the well drilling reports and discussed in Section E.6. Following model calibration runs, the initial conditions elevations were slightly revised to be the ending groundwater elevations of the transient model. Subsequent model runs used the final calibrated groundwater elevations as the initial conditions for model evaluations.

E. Aquifer Characterization

E.1. Well Identification and Mapping

Idaho Department of Water Resources maintains a database of well driller reports for wells constructed in the State of Idaho. A search of IDWR's database was performed and well driller reports within the model domain were obtained. Approximately 566 well driller reports were compiled in a spreadsheet listing the location, well use, well depth, depth to water, pumping information (if provided), completed date, driller, pertinent well construction details, and depth to bedrock (if encountered).

Well locations on the well driller reports were reported by physical address, if one existed, and by the public land survey system to the nearest quarter-quarter. Each well driller report was reviewed and plotted in ArcMap based on the address or PLSS description or both. Often the location of the well could be further refined based on personal knowledge of the area or from visually identifying the well house from the aerial photo. Field verification of wells was not done and some wells may not be located precisely. The spreadsheet containing all of the well data was imported to ArcMap to provide well information spatially. Well information is provided in Appendix A.

After the well locations were refined, ground surface elevations were obtained for each well, based on the 1/3 arc second USGS National Elevation Dataset (NED). With the surface elevations obtained, elevations for the static water level and the bedrock could be calculated. The accuracy of NED data varies spatially because of the variable quality of the source DEM. The error statistic (root mean square) of the NED versus the 13,305 reference geodetic control points is 2.44 meters.

Out of the 566 wells identified by the well drillers report, only 70 wells extended through the alluvium to bedrock. The majority of the wells that did extend to bedrock are located near Indian Creek or the valley edges. The primary reason that wells do not fully penetrate the aquifer is that adequate yield can generally be obtained without doing so. This is often true even for larger-yielding wells. For this reason, well drilling record information does not provide an accurate description of the bedrock depth throughout most of the model domain.

IDWR (2008) provides comments regarding the well driller reports on the search tool on the website. IDWR identifies that the database contains most well driller reports dating back to July 1987, and records earlier than 1987 may not be available via world-wide-web. However, personal communication with IDWR staff suggests that the electronic conversion of all well logs may be essentially complete. It is possible that older historical documents may be in paper files or a microfiche file that have not been transferred to the database. A further search of all IDWR historical records would be useful to identify any historical driller reports not included in the database. Only the

current IDWR database was used to collect driller reports for the model development. IDWR also acknowledges that some well reports were never submitted to the department. Historically, IDWR requested the well drillers submit a report of the well construction, but the report was not required by the State. Since approximately 1965 the State has required that a well driller report be submitted for every well construction project.

Brockway Engineering has extensive first-hand knowledge of the area, and it is believed that all major wells have been included in the study.

E.2. Aquifer Bottom Elevation

Several published studies have presented bedrock contours for the southern portion of the model domain. Only Frenzel (1989) provided bedrock estimates for the entire model domain. Frenzel's bedrock figure is reproduced in Figure 9. However, the present effort used substantially more data points than previous studies; therefore exact correlation between published reports and 2009 model results was not expected.

Of the 566 wells evaluated within the model domain, only 70 wells extended into bedrock (Figure 10). These 70 wells were situated throughout the model domain, but were more likely found near Indian Creek or along the valley edges. A Kriging interpolation was conducted on these 70 bedrock elevations to obtain preliminary bedrock contours. The initial interpolation results were insufficient to be used as the bedrock elevations for the model, as the bedrock elevation at the valley edges were substantially lower than anticipated.

To more accurately model the interface between the alluvium and bedrock at the valley edges, approximately 40 bedrock points were added along the valley edges. These points were distributed equally along the model boundaries where the alluvium material is minimal and the elevation is dominated by the underlying bedrock of the mountains.

Again, the bedrock elevation data set was interpolated to the model grid by the Kriging method. This interpolation resulted in bedrock ridges running perpendicular to the valley

direction that resulted from insufficient data in the central valley. Bedrock ridges were eliminated by placing intermediate elevation points within the valley; intermediate elevation points were determined by linear interpolation between bedrock elevations (Appendix H).

The data set was again interpolated to the model grid using Kriging. This resulted in bedrock contours that were more consistent with published studies and more uniform slope through the model domain. Figure 11 contains the bedrock contours generated for the model. For comparison, Figure 9 contains the bedrock schematic from Frenzel (1989).

E.3. Hydraulic Conductivity Estimation

The hydraulic conductivity (K) of the alluvial material is of prime importance in development of the groundwater flow model. Estimates of K have been made by Smith (1959), Luttrell and Brockway (1984), Brockway, et al. (1995), Wetzstein, et al. (2000), Frenzel (1989), and Brockway Engineering (1995-2008). These studies have resulted in estimates ranging from <100 ft/day to over 3,000 ft/day. It was determined that a new, more comprehensive evaluation of hydraulic conductivity was needed for the present study utilizing available well pumping test data.

Available pumping test data takes two forms: 1) specific capacity data taken from the well drilling record, i.e. well discharge, drawdown, and time of pumping; and 2) tests conducted by Brockway Engineering for private clients, which result in a K value derived from time-drawdown data collected at the pumping well and at one or more observation wells.

There are two predominant features of wells drilled in the Big Wood valley. First, they are usually not drilled to bedrock. Second, the well casing is usually not perforated and if it is, the perforations do not extend across the entire saturated depth. Thus, nearly all wells should be characterized as partially penetrating. A well which only partially penetrates the aquifer will exhibit greater drawdown in the well bore for a given discharge, or conversely will yield a lower discharge for the same drawdown (Todd,

1980). As a result, a calculation of hydraulic conductivity which neglects partial penetration effects will tend to underestimate K. Depending on the degree of partial penetration the effect may be large or small but in any case will distort the results of an analysis such as the classical Theis approach. Because of the high productivity of the Big Wood aquifer, even higher-yielding wells are sometimes completed with no perforations or screens. This is the limiting case of partial penetration and will induce a very large effect. Efforts in the course of the present study to analyze wells without accounting for partial penetration effects have proven fruitless and result in a range of K covering 3 orders of magnitude.

A method has been developed by Bradbury and Rothschild (1985) which allows estimation of K from specific capacity data for partially-penetrating wells. This method is based on the Theis solution as modified by Sternberg (1973), and therefore all of the assumptions incorporated in the Theis solution are applicable. A brief description of the Bradbury and Rothschild method will be provided here.

The Jacob approximation to the Theis solution for unsteady flow in confined aquifers is

$$\frac{Q}{s} = \frac{4\pi T}{\ln\left(\frac{2.25Tt}{r^2 S}\right)} \quad (1)$$

where

Q = well discharge

s = drawdown in the well at time t

T = transmissivity of the aquifer

r = radius of well casing

S = storativity of the aquifer

Q/s is defined as the specific capacity of a well, or the volume of water available per unit of drawdown. To account for partial penetration of the aquifer by the well, Sternberg (1973) defined an unsteady state drawdown as

$$s = \frac{Q}{4\pi T} \left[\ln \left(\frac{2.25Tt}{r^2 S} \right) + 2s_p \right] \quad (2)$$

where s_p is a partial penetration factor given by Brons and Marting (1961) as follows:

$$s_p = \frac{1 - L/D}{L/D} \left[\ln \left(\frac{D}{R} \right) - \frac{G_L}{D} \right] \quad (3)$$

where

D = aquifer thickness

L = length of Open Interval of the Casing (sum of perforated sections)

G = a function of D and L, and is defined by

$$G_{L/D} = 2.948 - 7.3636 \frac{L}{D} + 11.447 \left(\frac{L}{D} \right)^2 - 4.675 \left(\frac{L}{D} \right)^3 \quad (4)$$

Equation (4) is a polynomial fitted to data by Brons and Marting (1961) by multiple regression with a correlation coefficient of 0.992. An iterative approach is used to solve equation (2) for T, and the hydraulic conductivity may then be calculated from $K = T / b$, where b = the saturated depth of the aquifer.

E.3.1. Specific capacity method – main valley

A subset of all available drilling records within the main Big Wood valley aquifer were selected for analysis based on the following criteria:

1. Single-family domestic wells were excluded, since the yield data reported by the driller is rarely measured and is essentially meaningless. Some larger wells for subdivisions were reported as “domestic” wells. If other criteria were met, these were included.
2. The well discharge was greater than the typical domestic well flow of 10 to 20 gpm. A minimum of 100 gpm was used as a target, but some slightly lower values were included.

3. The well was tested with a pump, not by blowing air with the drilling rig or bailing.
4. All pertinent data was reported on the log, including discharge, drawdown, and time of pumping.
5. A qualitative evaluation of the accuracy of the data was made based on the reasonableness of the driller's reported data.

A total of 22 well logs were selected for analysis. These wells are identified on Figure 12. The logs included domestic, municipal, subdivision, fire protection, and irrigation wells. At each well location, the saturated depth to the aquifer was estimated by consulting logs for surrounding wells which extended to bedrock. Storativity at each location cannot be calculated from specific capacity alone, and therefore must be assumed. Based on numerous controlled pumping tests conducted by Brockway Engineering in the valley, a storativity value of 0.15 has been found to be reasonable. This is within the range expected for unconfined alluvial aquifers.

A tabulation of the wells utilized for the hydraulic conductivity estimation is provided in Table 3, along with the calculated value for K. Table 3 includes five wells which were the subject of pumping tests and analysis by Brockway Engineering. The hydraulic conductivity for these wells was not estimated using the specific capacity method. As expected, there is considerable spread in the calculated values, but most are the same order of magnitude. A statistical summary of the results is provided in Table 4.

[illegible]

Table 4. Statistical summary of estimated hydraulic conductivity in main valley aquifer.

Mean	302 ft/d
Standard deviation	301 ft/d
Lower quintile	54 ft/d
Upper quintile	634 ft/d

The calculated hydraulic conductivity values are similar to those obtained by previous investigators. Estimates in Moreland (1977) ranged from 200 to 470 ft/day. Frenzel (1989) used two different methods and calculated a range of 60 to 880 ft/day, ultimately selecting 300 ft/day as a mean value for underflow calculations. Smith (1959) made an underflow calculation at Hailey but reported only a transmissivity of 133,700 ft²/day. Based on the aquifer saturated depth at Hailey, the implied hydraulic conductivity in Smith (1959) is approximately 615 ft/day. This is near the upper quintile value calculated in the present study and is not unreasonable.

Figure 12 shows the wells in Table 3 and the calculated hydraulic conductivity for each well. No spatial pattern is immediately evident. The apparent randomness is likely a result of natural variation in aquifer lithology, errors in reported yield and drawdown values, and inaccuracies inherent in the specific capacity method of estimating hydraulic conductivity.

Because no spatial patterns are evident, a constant average value of 300 ft/day was used for the model. Future refinement of the model may include additional controlled pumping tests, definition of hydraulic conductivity zones based on better well testing information, more statistical analysis of the hydraulic conductivity, and/or calibration of the hydraulic conductivity within a specified range.

E.3.2. Specific capacity method – tributaries

Suitable well test information for the tributary valley aquifers is sparse. Two wells in Deer Creek and three in Croy Creek were identified. Indian Creek near its mouth

contains several domestic wells which are unsuitable for this purpose. No wells are located in Quigley Creek. For these latter two tributaries, aquifer lithologic properties were used to estimate K based on typical published values. For Deer Creek and Croy Creek, the Bradbury and Rothchild methodology was applied to these wells. Table 5 shows the best estimate of hydraulic conductivity for the tributaries.

Table 5. Estimates of hydraulic conductivity for tributary valleys.

Deer Creek	178 ft/d
Croy Creek	11.6 ft/d
Indian Creek	10 ft/d
Quigley Creek	10 ft/d

E.4. Storativity

Controlled well testing conducted by Brockway Engineering for various projects has indicated that a storativity of 0.15 is generally appropriate for fitting theoretical curves to observed data. This value is within the range typically expected for unconfined alluvial aquifers, and no other data is available that would indicate a different value. Therefore, 0.15 was used for the entire model domain.

E.5. Aquifer Cross-Sections

Smith (1960) and Frenzel (1989) both report cross sectional data at Hailey. Published cross sections of these two studies were used as guides to compare to the 2008 model data. The model cross section at Hailey after the kriging interpolation of the bedrock elevation data resulted in a cross section area just slightly larger than 690,000 ft². Frenzel (1989) reported Hailey with a cross section of 820,000 ft² and Smith (1956) reported a cross section approximately 1,025,000 ft².

It was determined that the Frenzel estimate was the most plausible because more recent data and more data were used to generate aquifer characteristics. In addition, the Frenzel study is more widely used. Matching the 2009 model cross sectional area at Hailey with Frenzel (1989) would allow for comparison of model data with published

data. The bedrock contours of the model were lowered to yield a cross sectional area at Hailey of 820,500 ft² (Figure 13). The initial kriging interpolated bedrock elevations of the model were lowered approximately 25 feet to correspond to Frenzel's published cross sectional area.

The cross sectional areas of other locations were determined after the cross sectional area at Hailey was finalized. Table 6 presents the cross sectional area, static water top width, and maximum saturated depth of the northern boundary, southern boundary, and tributaries. The sections are illustrated in Figures 13 through 19.

Table 6: Model cross sectional area summary

Location	Cross Sectional Area (ft ²)	Static Water Top Width (ft)	Maximum Saturated Depth (ft)
Northern Boundary	267,000	3,110	126
Southern Boundary	1,054,000	6,740	198
Deer Creek Tributary	185,000	2,450	114
Indian Creek Tributary	54,000	770	106
Croy Creek Tributary	60,000	1,300	76
Quigley Creek Tributary	94,000	1,500	92
Hailey	820,500	6,400	181

E.6. Groundwater Contour Development

Groundwater contours were generated from the reported static water levels in the well driller reports for 566 wells within the model domain. Static water elevations were interpolated to the model grid by using the kriging interpolation method. Several outliers were identified as causing unreasonable skew of the results and were excluded from the interpolation. The interpolation results were smoothed by visual refinement. Figure 20 illustrates the groundwater contours generated through the Kriging interpolation. The groundwater contours were used as the observed groundwater elevations for calibrations.

Skinner et al. (2007), Frenzel (1989), and Smith (1959) published reports with groundwater contours for this portion of the Big Wood Valley. Figures 21, 22, and 23 contain the groundwater contours for these reports. The results from the kriging interpolation yielded similar groundwater contours at Hailey, Idaho for the model in comparison to these three investigations. Groundwater contours for Skinner et al., Frenzel, Smith, and the MODFLOW model area show a ground water elevation of approximately 5300 ft at Hailey. Skinner et al. used 22 wells with water level data to generate the groundwater contours found in Figure 21. The groundwater elevation at Hailey was approximately 5290 ft. Frenzel (1989) showed a groundwater elevation at Hailey of 5300 ft (Figure 22). Smith (1959) also showed a groundwater elevation at Hailey of 5300 ft (Figure 23). This compares with the groundwater contours generated for the model in Figure 20, where the groundwater elevation is slightly less than 5300 ft.

Groundwater contours were plotted north of Hailey by Skinner et al. (2007) and Frenzel (1989). Comparison between these reports and the generated contours were similar in the elevations, however the orientations were different. Differences in orientation was attributed to the use of fixed water elevations in the river, which resulted in water elevation contours generated for the model that only were allowed to move on the eastern side of the valley. Groundwater contours plotted by Skinner et al. (2007) are perpendicular to the valley flow, which corroborates with model results.

F. External Flux Calculation Methodology

F.1. Underflow at North Boundary

The external flux at the northern boundary was calculated using Darcy's Law. The cross sectional area (Table 6) at the northern boundary was determined to be 267,000 ft².

The water table gradient from the static water levels interpolated to the model cells was 0.0055 ft/ft. The hydraulic conductivity, as discussed, was assumed to be 300 ft/day.

Darcy's law can be expressed in the following equation:

$$Q = KiA \quad (6)$$

Where:

- K = Hydraulic conductivity (ft/day)
- i = Hydraulic gradient (ft/ft)
- A = Cross Sectional Area (ft²)
- Q = Flow Rate (ft³/day)

Evaluating Equation (6) yields a flow rate of 440,550 ft³/day. Converting the rate calculated to an annual volume results in 3,700 acre-ft/year.

F.2. Tributary Underflow

Underflow entering the model domain from major tributary valleys was estimated using Darcy's Law with the flow cross-section and gradient estimated from drilling records, and the hydraulic conductivities given in Table 7. The resulting values are also shown in Table 10. These fluxes were taken to be average values; a seasonal hydrograph for tributary underflows was developed as discussed in Section F.3. The hydraulic conductivity values in Table 7 were discussed and determined in Section E.3.

Table 7. Estimates of average annual underflow for tributary valleys.

	Cross Sectional Area (ft ²)	Hydraulic Conductivity (ft/day)	Gradient (ft/ft)	Underflow (ac-ft/yr)
Deer Creek	184,700	178	0.007	2,000
Croy Creek	60,570	11.6	0.005	30
Indian Creek	54,410	10	0.0075	35
Quigley Creek	93,860	10	0.005	40

F.3. Distributed Underflow

The seasonal variations in underflow were calculated from the reported seasonal average static water levels in the USGS observation well. The USGS observation well, located south of Bellevue City, began operation in 1954 and has been measured 870 times through the present. USGS reports the monthly average static water level as shown in Table 8. The monitoring well levels were extrapolated to the model's southern boundary. The static water level at the southern boundary was shaped so the

groundwater levels changed at same rate as the observation well. The changes to the southern boundary cross sectional area are also shown in Table 8. Changes in the cross sectional areas at the southern boundary result in changes to the underflow at the southern boundary. The total underflow at the southern boundary was divided by 12 to represent the average underflow per month. Ratios were obtained between the calculated monthly underflow value with the adjusted static water level and the average monthly underflow value.

Table 8: Development of monthly flow ratio to average monthly underflow based on the USGS observation well south of Bellevue.

Month	USGS Observation well SWL Depth (ft)	Southern Boundary Cross Sectional Area (ft ²)	Southern Boundary Underflow (acre- ft/month)	Monthly Flow ÷ Average monthly Flow
January	47.41	1,045,000	1,750	1.010
February	47.54	1,044,000	1,590	0.912
March	48.23	1,043,000	1,750	1.008
April	46.22	1,048,000	1,700	0.981
May	42.89	1,057,000	1,770	1.022
June	36.69	1,073,000	1,740	1.005
July	39.28	1,067,000	1,790	1.031
August	41.08	1,062,000	1,780	1.027
September	43.34	1,056,000	1,720	0.988
October	43.51	1,055,000	1,770	1.020
November	45.49	1,050,000	1,710	0.983
December	46.37	1,048,000	1,760	1.013
	Average	1,054,000	1,740	1.000
		Total	20,830 acft/year	

The ratio of seasonal flux (Table 8) was applied to the northern boundary average monthly flux value of 308.3 acft/month. In addition, the ratios were applied to all tributary underflows within the model domain. Calculated seasonal flux for the northern boundary are shown in Table 9, and seasonal flux values for tributary underflows are shown in Table 10.

Table 9: Underflow with adjusted seasonal trend

Month	Ratio (Table 8)	Northern Boundary		Southern Boundary	
		Underflow (acft/month)	Underflow (ft ³ /day)	Underflow (acft/month)	Underflow (ft ³ /day)
January	1.010	311.5	437,700	1,750	2,459,000
February	0.912	281.3	437,600	1,590	2,474,000
March	1.008	310.9	436,800	1,750	2,459,000
April	0.981	302.4	439,100	1,700	2,468,000
May	1.022	315.1	442,800	1,770	2,487,000
June	1.005	309.8	449,800	1,740	2,526,000
July	1.031	318.0	446,900	1,790	2,515,000
August	1.027	316.6	444,800	1,780	2,501,000
September	0.988	304.6	442,300	1,720	2,497,000
October	1.020	314.6	442,100	1,770	2,487,000
November	0.983	302.9	439,900	1,710	2,483,000
December	1.013	312.3	438,900	1,760	2,473,000
Average	1.000	308.3	441,550	1,740	2,486,000
	Total (acft/year)	3,700		20,830	

Table 10: Tributary Underflow with adjusted seasonal trend

Month	Ratio	Deer Creek		Indian Creek		Croy Creek		Quigley Creek	
		Underflow (acft/month)	Underflow (ft ³ /day)	Underflow (acft/month)	Underflow (ft ³ /day)	Underflow (acft/month)	Underflow (ft ³ /day)	Underflow (acft/month)	Underflow (ft ³ /day)
January	1.010	168.4	236,600	2.947	4,141	2.526	3,549	3.368	4,732
February	0.912	152.0	236,500	2.661	4,139	2.281	3,548	3.041	4,731
March	1.008	168.0	236,100	2.941	4,132	2.520	3,542	3.361	4,722
April	0.981	163.5	237,300	2.860	4,153	2.452	3,560	3.269	4,747
May	1.022	170.3	239,400	2.981	4,189	2.555	3,590	3.407	4,787
June	1.005	167.4	243,100	2.930	4,254	2.512	3,647	3.349	4,862
July	1.031	171.9	241,500	3.008	4,227	2.578	3,623	3.438	4,831
August	1.027	171.1	240,400	2.995	4,208	2.567	3,607	3.422	4,809
September	0.988	164.7	239,100	2.881	4,184	2.470	3,586	3.293	4,782
October	1.020	170.1	239,000	2.976	4,182	2.551	3,585	3.401	4,779
November	0.983	163.8	237,800	2.866	4,161	2.456	3,567	3.275	4,755
December	1.013	168.8	237,300	2.955	4,152	2.533	3,559	3.377	4,745
Average	1.000	166.7	238,700	2.917	4,177	2.500	3,580	3.333	4,774
	Total (acft/year)	2,000		35		30		40	

F.4. Precipitation

Precipitation data used for the model were obtained from the Western Regional Climate Center for three stations located within or near the study area. The stations and the period of record are Ketchum (1973 – 2007), Hailey 3NNW (1893 – 1981; sporadic data 1982-1988), and Picabo (1958 – 2007). All stations are part of the National Weather Service cooperative network. The Hailey station is the only station physically located within the model domain and it was assumed that this station will accurately represent the precipitation over the entire domain. Figure 24 shows the mean monthly precipitation calculated from the available data for Hailey, Ketchum, and Picabo. All data is provided in Appendix B.

The period 1970-2007 was chosen as a representation of current climatic conditions. The Hailey record is essentially complete through 1981, but contains very little data thereafter. Missing monthly values at Hailey for 1982 – 2007 were estimated using the Ketchum monthly data as a proxy. For each month, the ratio of the Ketchum monthly average to the Hailey monthly average was calculated using all overlapping data. This monthly ratio was then applied to the Ketchum monthly value for those months within the Hailey record containing greater than 3 missing values. The overall monthly mean at Hailey was then recalculated including the estimated data. The missing value estimation did not significantly change the monthly mean values, indicating that the observed data for Hailey is reasonably representative of the 1970-2007 period. The final values used as input to the model are shown in Table 11, which shows both depth of precipitation and the corresponding monthly volume by applying this depth over the domain area of 7661 acres.

Table 11. Precipitation data across the model domain (Hailey station with missing data estimated from Ketchum station).

Month	Depth (in)	Volume (ac-ft/month)
January	2.27	1450
February	1.57	1000
March	1.34	860
April	1.02	650
May	1.50	960
June	1.14	730
July	0.54	340
August	0.64	410
September	0.87	560
October	0.95	610
November	1.62	1030
December	2.07	1320
Total Annual	15.50	9910

G. Recharge, ET, and Point Withdrawals

G.1. Recharge

G.1.1. Definition

The MODFLOW recharge package was utilized to simulate the precipitation, irrigation water applied to the land surface, and seepage from Indian Creek within the model domain. If the model had more than one vertical layer, it would be necessary to define recharge as the quantity of water percolating through the vadose zone and reaching the aquifer. Since the Big Wood Valley Aquifer groundwater model contains one vertical layer, then recharge can be defined as the gross water input to the system at the land surface if the model also accounts for all water sinks, specifically ET, that will occur at that specific cell. All recharge values in this model were imputed as the gross total of water applied to the surface. Actual ET on cropland, turfgrass, and within riparian areas was modeled as discussed below.

G.1.2. Agricultural Lands

Large irrigation parcels are those areas within the model domain that are primarily agricultural or large tract irrigation as shown in Figure 25. Delineations of large irrigation parcels were made by identifying irrigated area based on the 2006 aerial photography and the 2008 Blaine County GIS parcel data; in addition, Brockway Engineering has first-hand knowledge of all irrigated lands in the domain and their extent. Forty-nine large irrigation parcels were identified within the model domain. Ownership and total gross area of parcels were determined from the Blaine County GIS parcel data.

Irrigation practices and water quantities on each parcel varied. The irrigation amount was calculated by the following process. First, the actual irrigated area was divided by gross area to obtain an irrigation percentage for each large irrigation parcel. Second, the typical crop being irrigated was identified by local knowledge of the area; in some cases more than one crop was grown. Crops being irrigated were one or more of the following: alfalfa, grain, pasture, or turf. Third, the irrigation requirement accounting for precipitation (P_{def}) near Hailey for the crop list was obtained (Allen and Robison, 2007), shown in Table 12. If more than one crop was identified on the parcel, then a weighted irrigation requirement was calculated based on area. Fourth, an irrigation efficiency of 65% was applied to all irrigation practices, which reflects the typical mix of wheel lines, hand lines, and center pivots and the generally lower efficiency in the valley due to low soil water holding capacity. Finally, the amount of irrigation water applied to each large parcel (from any source) was calculated by multiplying the irrigation percentage by the irrigation requirement divided by the irrigation efficiency, and this amount was applied to the entire parcel. The irrigation rates for all large irrigation parcels are located in Appendix C.

Uniform percentages were determined for each large irrigation parcel to allow for evaluations of future changes. The irrigation percentage for the large parcel can be adjusted by changing the associated values without having to re-delineated the irrigated area or agricultural zone.

Table 12: Average precipitation deficit (P_{def}) values (ft/day) per month for specific vegetation for irrigation quantities to meet actual ET (Allen and Robison, 2007).

Month	Alfalfa (Frequent Cuttings)	Irrigated Winter Grain	Pasture	Turf (Irrigated)
January	0.00	0.00	0.00	0.00
February	0.00	0.00	0.00	0.00
March	0.00	0.00	0.00	0.00
April	0.00180	0.00158	0.00177	0.00154
May	0.00778	0.00591	0.00833	0.00663
June	0.0163	0.0156	0.0146	0.0133
July	0.0181	0.0231	0.0187	0.0178
August	0.0149	0.0121	0.0155	0.0147
September	0.0104	0.00105	0.00886	0.00883
October	0.00217	0.000131	0.00154	0.00197
November	0.00	0.00	0.00	0.00
December	0.00	0.00	0.00	0.00
Total (ft/season)	2.11	1.49	2.03	1.88

G.1.3. Subdivisions

Subdivision designation was applied to all residential housing and urban developments, including the City of Hailey. All existing developments were assumed to be at full buildout for considerations of the model. Developments known to be in the planning stages were not included in the model, but were modeled as the current land use.

ArcMap was used to group individual lots into a large subdivision classification based on the development information from the Blaine County Parcel map and data. A total of 130 different developments were identified, ranging in size from a few lots to several hundred lots. Each subdivision was evaluated to ascertain the percentage of irrigation through the following process: The average irrigation area per lot was determined by irrigation delineation based on aerial photography. The average irrigation per lot was then multiplied by the number of lots to obtain the total irrigated area for the residential development. Finally, any irrigated common area within the development was added to the total irrigated area.

The irrigation water volumes were calculated by the following method: The irrigated area calculated as described above was divided by the total area to obtain an irrigation

percentage for each subdivision. Residential irrigation was assumed to be turf grass with irrigation demand accounting for precipitation shown in Table 12. An irrigation efficiency of 65% was applied to all subdivisions. The amount of irrigation water applied (from any source) was calculated by multiplying the irrigation percentage by the irrigation demand divided by the irrigation efficiency, and this amount was applied to the entire subdivision parcel. The treatment of subdivision irrigation was the same for all subdivisions regardless of the irrigation system, including the City of Hailey. All subdivision irrigation application rates are contained in Appendix C.

G.2. Evapotranspiration

G.2.1. Definition

The MODFLOW ET package was used to simulate the extraction of water from the aquifer due to evaporation and transpiration from growing vegetation (Jones, 2001). If the aquifer is modeled with two or more vertical layers, then the ET package will only model direct ET. Since the Big Wood Valley model has a single vertical layer, the ET package was used to model the Actual ET from all model cells. The extinction depth for the ET extraction was modeled with a depth of 150 feet considering that the model was constructed using a single model layer and the inputs, including precipitation and irrigation water, were included to satisfy the ET requirements.

As mentioned in the recharge section, all existing subdivisions were considered to be fully developed for the model consideration. Developments that are currently planned, but not implemented were modeled assuming the current land use.

G.2.2. Irrigated Areas

ET was defined for large irrigation parcels and subdivisions; it was assumed that sufficient water is available to meet the actual ET requirements. Different ET values were calculated for each individual large irrigation parcel and subdivision, based on the irrigation percentage, type of vegetation, impervious area, and riparian area. Average ET values were applied to the entire land for each delineated parcel. Actual ET values for specific crops were obtained from Allen and Robison (2007) for the Hailey Ranger

Station. These ET values were assumed to be constant throughout the model domain. Table 13 shows the actual ET values for the common land uses used in the model.

Table 13: Average Actual ET values (ft/day) per month for common land uses within the model domain (Allen and Robison, 2007).

Month	Alfalfa (Frequent Cuttings)	Irrigated Winter Grain	Pasture	Turf (Irrigated)	Bare Ground	Riparian Area	Urban Area
January	0.00108	0.00167	0.000909	0.000909	0.00172	0.00116	0.00172
February	0.00167	0.00263	0.00146	0.00146	0.00268	0.00177	0.00268
March	0.00230	0.00389	0.00222	0.00222	0.00348	0.00257	0.00348
April	0.00295	0.00717	0.00404	0.00374	0.00434	0.00424	0.00434
May	0.0111	0.0144	0.0177	0.0150	0.00480	0.00601	0.00480
June	0.0198	0.0297	0.0277	0.0258	0.00500	0.0129	0.00500
July	0.0192	0.0369	0.0305	0.0290	0.00151	0.0303	0.00151
August	0.0165	0.0206	0.0261	0.0250	0.00167	0.0299	0.001667
September	0.0122	0.00454	0.0160	0.0158	0.00222	0.0119	0.00222
October	0.00394	0.00303	0.00429	0.00449	0.00242	0.00379	0.00242
November	0.00154	0.00222	0.00126	0.00126	0.00212	0.00162	0.00212
December	0.000984	0.00141	0.000808	0.000808	0.00141	0.00106	0.00141
Total (ft/yr)	2.89	2.55	2.70	2.55	0.66	2.22	0.66

G.2.3. Non-Irrigated Areas

Included in the ET analysis are areas that were not actively irrigated, including bare ground, riparian areas, and urban areas. The ET values for these areas are included in Table 13 above. GIS delineation of the non-irrigated areas resulted in ratios, analogous to those of the irrigation percentage discussed previously.

Weighted ET values were calculated by combining the irrigated and non-irrigated percentages and multiplying the percentage by the ET values presented in Table 13. The weighted ET values for the respective area were applied to the entire area, not specifically to delineated irrigated/non-irrigated areas. Weighted ET values are found in Appendix D.

G.3. Point Groundwater Withdrawal

G.3.1. Agricultural Irrigation

The primary irrigation water source for large irrigation parcels is the Big Wood River. MODFLOW models the river/aquifer interaction through the river package, but MODFLOW is not intended to be a hydrologic model. Therefore the source of the irrigation water was not actively modeled, but the irrigation results were included, specifically using groundwater as a supplemental irrigation water source.

Surface water irrigation sources are subject to curtailment by the watermaster. The point in time at which surface water is curtailed depends on the priority date(s) of the irrigator's surface water right(s) and the natural available water supply in the river. When a surface water irrigation right is curtailed, the irrigator has two options: 1) cease irrigating, allowing the crop to be stressed and yield to be reduced, or 2) divert supplemental groundwater to the crop if an appropriate water right exists. The majority of agricultural water users have supplemental irrigation groundwater rights and continue irrigating throughout the growing season.

The large irrigation parcels were analyzed to determine if the large parcel had surface water irrigation rights based on information in the IDWR water rights database. The latest Snake River Basin adjudication recommendation was assumed to represent the best current evidence of the components of the water right. If a surface right existed, then the average curtailment date for that surface water right was determined by analyzing Water District 37 historical records from 1942 through 2008. If the large parcel also had a supplemental groundwater irrigation right, then an extraction well was included to continue irrigation throughout the irrigation season as illustrated in Figure 26, which shows the well extraction for a supplemental well. A few large parcels have only groundwater irrigation rights; in these situations the entire irrigation amount was modeled by an extraction well. The extraction rate was calculated by dividing the irrigation demand by the efficiency for these parcels. Figure 27 shows well extraction for irrigation on a parcel without surface irrigation. All well extraction data for large agricultural parcels can be found in Appendix E.

G.3.2. Subdivision Irrigation

In contrast with the large irrigation parcels, most subdivisions do not have surface water irrigation rights. If the subdivision did have a surface water irrigation right, then the average curtailment date was determined from Water District 37 historical records. In most situations, the irrigation water was supplied to the subdivision from groundwater wells with authorized groundwater rights.

If the irrigation water source was from groundwater, then an extraction well was implemented to divert the irrigation amount, discussed in Section G.1.3 (Recharge – Subdivision). For simplicity within the model, a single extraction well was used for subdivision irrigation use, regardless of whether water is supplied via individual wells or a community water system.

G.3.3. City of Hailey

The City of Hailey utilizes a water source from Indian Springs, located up the Indian Creek valley northeast of Hailey. The spring source is generally sufficient to meet in-house and commercial demands (Hellen, 2009). The City also has several groundwater municipal rights which are used to meet demands exceeding the spring supply which occur due to irrigation typically from May through September. The Indian Springs water used for potable water purposes is treated and the wastewater effluent injected into the Big Wood River. The potable water portion of the City of Hailey's water use was not actively modeled in the Big Wood Valley model. City areas with large scale irrigation, such as city parks and cemeteries, that use groundwater as the primary water source were modeled with diversions from individual wells located at the specific parcel. The City's residential irrigation diversions were modeled by groundwater diversions from city wells limited to the municipal groundwater rights.

G.3.4. Residential In-House Usage

Potable water use from groundwater outside of the City of Hailey was not included in the model. Nearly all water diverted from groundwater for in-house potable use is returned to the aquifer via individual septic systems. Approximately 10% or less is consumed,

and the total in-house consumptive use within the model domain relative to the magnitude of groundwater flow is insignificant (<0.2%).

G.4. Big Wood River Leakage (Reach Gain)

The interaction between the Big Wood River and the valley aquifer is dynamic. The river gains water from the aquifer and loses water to the aquifer depending on the time of year and location of the river reach.

G.4.1. River Discharge and Reach Gain Data

A USGS gaging station on the Big Wood River (13139510) is located near Hailey, at the Bullion Street Bridge. The station is a rated section at a stable location in the river. The USGS began collecting stage and discharge data in 1915 and has continued through the present. The original gauge measured the flow in the Big Wood River and Big Wood Slough separately and reported a "Big Wood River and Big Wood Slough Combined Discharge at Hailey, Idaho" from July 1915 to September 1973. Beginning in October 1973, the gauge reported the total flow in the Big Wood River. The average monthly flow rate (cfs) for the period of record of the Big Wood River gage near Hailey is presented in Table 14.

Table 14: Average monthly flow data for the Big Wood River near Hailey from daily flow data collected from July 1915 through September 2007.

Month	Flow Rate (cfs)	Gage Height (ft)
January	154	1.24
February	151	1.23
March	188	1.37
April	521	2.24
May	1,280	3.46
June	1,450	3.67
July	642	2.48
August	260	1.60
September	202	1.42
October	202	1.42
November	187	1.37
December	159	1.26

No other active gauging stations are present in the Big Wood River above the Stanton Crossing gage. The Stanton Crossing Gage is located approximately 20 river miles downstream of the Hailey gage, outside of the model domain.

Additional discharge measurements were made by Brockway Engineering in September 2008 to quantify the flow gain and/or loss within the model domain. Discharge measurements were made in the river channel and at all known diversions, return flows, and natural inflows. Figure 28 shows the measurement locations. Measurements in the river channel were made using a pygmy current meter according to standard U.S. Bureau of Reclamation procedures. All measurements were rated “excellent” according to the USBR criteria. The numbers at the measurement locations correspond to the sites listed in Table 15.

Table 15. Big Wood River flow measurements collected in September 2008 by Brockway Engineering. Method codes: C – pigmy current meter; V – visual inspection; BW – broad crested weir; PF – portable flume; E – estimated; CW – cippolletti weir.

Location	Location Description	River (cfs)	Inflow (cfs)	Outflow (cfs)	Method
1	Big Wood River below Golden Eagle Pump near north model boundary	122.68			C
2	Lufkin Diversion near Starweather Bridge			0.00	V
3	Hiawatha Canal			11.70	C
4	Purdum Slough at Zinc Spur			0.00	V
5	Big Wood River below Deer Creek Bridge	123.09			C
6	Purdum Slough Return at Cloverly		0.00		V
7	Aspen Lakes Diversion			1.69	BW
8	River Grove/Aspen Lakes Return at Ferrante's		0.50		PF
9	Indian Creek at Cropper Property		0.00		V
10	Big Wood River at Hailey Gage – USGS Provisional	134.00			C
11	Croy Creek at Mouth		0.00		V
12	Cove Canal			5.85	C
13	Bend of the River Spring Pump			0.45	E
14	Kohler Ditch			0.00	V
15	Rockwell Bypass			8.26	CW
16	Big Wood River below Star Bridge	105.62			C
17	Big Wood River below Broadford Bridge near south model boundary	78.71			C

The data in Table 16 summarizes the river gain or loss by accounting for surface water diversions or returns (Table 15). The reach from the northern model boundary to the Hailey gauge is a gaining reach (24.2 cfs gain) and the reach from the Hailey gauge to the southern model boundary is a losing reach (40.7 cfs loss). This result is consistent with previous studies (Table 16). The net river loss was 16.5 cfs over the entire model domain in September 2008.

Table 16: Summary of river reach gain or loss through the model domain as measured in September 2008.

Big Wood River Reach	Sept 2008 Measurements		Lutrell and Brockway, 1984	7/22/1954 USGS	9/24/2954 USGS
	River Gain (cfs)	% Change	% Change	% Change	% Change
Golden Eagle to Deer Creek	12.10	9.9%	6.3%		
Deer Creek to Hailey	12.10	9.8%	26.5%	14.4%	13.4%
Golden Eagle to Hailey	24.20	19.7%	34.5%		
Hailey to Star Bridge	-13.82	-10.3%			
Star Bridge to Broadford Road	-26.90	-25.5%			
Hailey to Broadford Road	-40.73	-30.4%	-13.5%		

G.4.2. River Elevations

The reach gain modeled by the river package in MODFLOW is a function of the river water surface elevation and the computed adjacent aquifer elevation. Accurate elevations of the Big Wood River were not available in published studies. Brockway Engineering retained the surveying firm Alpine Enterprises to determine the Big Wood River Elevations at seven locations throughout the model domain, as shown in Table 17 and Figure 29. The water surface elevations between surveyed locations were interpolated; however, adjustments were made to assure that the river water surface elevation was not higher than the adjacent land surface at any point. River cell elevations are presented in Appendix H. This was done by comparing the linearly-interpolated water surface elevations with the land surface from the NED. If the land surface elevation was lower than the river elevation, then the river elevation was adjusted to be lower the surface elevation. The resulting set of river elevations along the length of the river was used as the elevation parameter for the river package.

Table 17: Surveyed elevations at specific points along the Big Wood River.
Elevation datum is NAVD88.

Location No.	Description	Survey Marker Elevation (ft)	Water Surface Elevation (ft)
1	Greenhorn Bridge	5547.42	5529.7
2	Starweather Bridge	5509.78	5492.2
3	Deer Creek Bridge	5425.62	5407.2
4	Flying Heart Fisherman Access	5350.61	5350.6
5	Bullion Bridge	5317.13	5299.9
6	Star Bridge	5250.80	5233.5
7	Broadford Bridge	5175.40	5159.7

G.4.3. Initial River Conductance

The initial river conductance was determined by taking the hydraulic conductivity value of 300 ft/day and multiplying by river width of 20 ft and divided by the estimated thickness of the river bed (30 ft). The initial Big Wood River conductance was calculated to be 200 ft²/day/ft. The river conductance was adjusted through the calibration process with a goal of simulating the measured loss/gain by Brockway Engineering presented in Table 16.

G.5. Canal and Ditch Seepage

G.5.1. Overview of Ditch Systems

Irrigation from the Big Wood River in the groundwater model domain has historically been performed by diversion and distribution through cooperative ditch systems rather than through irrigation districts or canal companies, with the largest system in terms of acres being the Cove Canal. Individual water rights from the river are normally diverted into each ditch by the Watermaster of District 37 according to priority based on the discharge in the river. The watermaster normally does not have jurisdiction over deliveries from the primary ditch to individual water right holders. Each ditch typically has a board of directors and a ditchrider who administers deliveries to individual farms. Irrigation has occurred since 1880 with most viable irrigation rights having priorities

through 1886. Later rights are normally considered “flood” rights and are delivered only during spring high discharge periods.

Under this administrative procedure, the discharge in each canal varies throughout the season based on the distribution of priorities of individual rights, location of the canal within the valley, and individual orders for water. A compilation of cutoff dates for water rights of different priorities was prepared to determine the average cutoff date for each year since 1942. Using this compilation, the average cutoff date for all water rights within individual canals was compiled. This allows a determination of the seasonal distribution of water deliveries or canal discharge for estimation of canal losses and irrigation deliveries throughout the average season.

Canals and ditches are not lined and contribute water to the aquifer through seepage. This flux was modeled using the MODFLOW river package to duplicate the estimated seepage described below. The river conductance values for each canal section were calibrated to obtain similar canal seepage as calculated by the Worstell method for that canal section.

Some diversions from the river are for individual persons and consist of a single headgate or pump diversion. These diversions are normally small and adjacent to the river and, in some cases, were ignored for this project.

Each significant ditch within the model domain is shown on Figure 4 and described below, and the procedure used to estimate the seepage loss is outlined.

G.5.2. Mizer Ditch

This ditch diverts from the Big Wood River near the northern boundary of the model. The Mizer ditch serves only irrigated areas west of Highway 75 although historically it served the area now occupied by the Valley Club and the Valley Club Subdivision. The Mizer Ditch is 1.2 miles long with an average width of 7 feet. Underlying soils in the reach of the ditch were determined from USDA NRCS Soil Surveys and corresponding

seepage rates were estimated using the Worstell method as outlined in the Hubble Report used by IDWR.

G.5.3. Hiawatha Canal

The Hiawatha Canal diverts from the Big Wood River about 1.5 miles south of the north model boundary. This ditch serves approximately 44 users with individual water rights which includes the area east of Highway 75 extending south through the City of Hailey. The City of Hailey cemetery pump is the last diversion from the ditch. The Hiawatha Canal historically provided irrigation water south of Hailey to the Flying Hat Ranch south of the Hailey Airport. A total of 22.7 cfs of individual water rights with early priorities of 1883 or earlier have been delivered through this canal with an average discharge of 30 cfs and peak discharges over 40 cfs, according to records of Water District 37. The Hiawatha Canal is 5.0 miles long with an average width of 13.3 feet.

An analysis of estimated seepage losses using the Worstell method and USDA NRCS Soil Surveys was performed by Allen Merritt, manager of the IDWR Southern Region office in connection with a previous transfer of water rights from the Hiawatha Canal. This analysis was adopted for use in the current project to estimate the canal loss to the aquifer.

G.5.4. Cove Canal

The Cove Canal diverts from Big Wood River 1.0 miles downstream of Bullion Street in Hailey. The ditch serves several small users adjacent to the river and the 595-acre Flying Hat Ranch which lies west and east of Highway 75 between the airport and Bellevue. The Cove Canal historically continued southward through Bellevue and provided irrigation water to areas south of Bellevue. The canal now ends just below the last pumping station on the Flying Hat Ranch. The canal is approximately 2.8 miles long and 8.6 feet wide with underlying soils consisting of primarily gravelly silt loam. The Worstell method was utilized to estimate seepage losses from the Cove Canal.

G.5.5. Rockwell Bypass

The Rockwell Bypass Canal diverts from Big Wood River just upstream of the Star Bridge. This was built in 1936 to bypass the Broadford Slough which exhibited very high seepage loss. As a result, a saved water right was awarded by judicial decree based on the reduced seepage in the ditch compared to the slough. The Rockwell Bypass water right has been split many times and pieces of it are now spread throughout the Big Wood River. They are considered to be in priority and deliverable as long as the Rockwell Bypass channel is operable and capable of diverting some 17 cfs. This canal exits the domain of the groundwater model just west of the City of Bellevue as shown on Figure 4. The Rockwell Bypass canal within the model domain is 2.4 miles long and averages 8 feet wide. The Worstell method was utilized to estimate seepage losses from this canal.

Table 18: Canal conductance during irrigation season (April through October) for the canals sections.

Canal Section	Conductance (ft ² /day/ft)
Mizer Ditch	
Mizer Ditch 1	2.1
Mizer Ditch 2	4.2
Mizer Ditch 3	1.65
Hiawatha Canal	
Hiawatha Canal 1	96
Hiawatha Canal 1	21.6
Hiawatha Canal 3	21.6
Hiawatha Canal 4	21.6
Hiawatha Canal 5	21.6
Hiawatha Canal 6	0
Hiawatha Canal 7	0
Hiawatha Canal 8	0
Hiawatha Canal 9	0
Hiawatha Canal 10	9
Hiawatha Canal 11	7.3
Hiawatha Canal 12	4.8
Hiawatha Canal 13	4.8
Hiawatha Canal 14	4.8
Hiawatha Canal 15	4.8
Hiawatha Canal 16	4.8
Hiawatha Canal 17	4.8
Hiawatha Canal 18	4.8
Hiawatha Canal 19	4.8
Hiawatha Canal 20	4
Hiawatha Canal 21	1.84
Hiawatha Canal 22	1.06
Hiawatha Canal 23	1.06
Cove Canal	
Cove Canal 1	7.8
Cove Canal 2	4.5
Cove Canal 3	4.6
Cove Canal 4	5.1
Cove Canal 5	4.4
Cove Canal 6	3.1
Rockwell Bypass	
Rockwell Bypass 1	7.8
Rockwell Bypass 2	6.9
Rockwell Bypass 3	4.5
Rockwell Bypass 4	3.9
Rockwell Bypass 5	3.6
Rockwell Bypass 6	3.0
Rockwell Bypass 7	3.6
Rockwell Bypass 8	4.8

G.6. Drains

The water table is at or near the ground surface during certain periods of the year at several locations within the riparian zone of the river. A natural or man-made channel within these zones may act as a continuous or seasonal drain, which would remove water from the aquifer system. The only known channels which operate in this manner with any regularity are the Purdum Slough and the Flying Heart pond system. The Purdum Slough was dry during the fall of 2008 and the Flying Heart pond was flowing a small amount estimated to be no more than 100 gpm. Due to lack of data and the minor effect they are anticipated to have, these features were not included in the model as drains. They are close to the river and were treated as part of the river reach gain.

G.7. Underflow at South Boundary

The underflow at the southern model boundary was determined by the water balance calculation, discussed in Section H. The underflow was seasonally shaped based on the procedure discussed in Section F.3. The monthly average underflow value presented in Table 8 (1,740 ac-ft/month) and the corresponding seasonal flow values are based on the water balance underflow value. The southern boundary also has variable head elevations defined, which correspond to the elevation associated with the depth to the static water level.

G.8. Topographic data

Surface topography was obtained from the National Elevation Dataset (NED) maintained and distributed by the USGS. The NED dataset is available in raster format based on the USGS 7.5-minute quad sheet topography and additional remote sensing data at a scale of 1/3 arc second or approximately 10 m by 10 m. The NED data was then mapped to the model grid surface at a scale of 100 ft by 100 ft, or approximately the same scale as the NED data.

A single elevation value for a grid cell 100 ft by 100 ft derived from elevations based on 1/3 arc second raster data will have vertical errors. However, the NED was the best

elevation available data from the USGS for the model domain. Data were deemed adequate given the other variable uncertainties.

H. Water Balance

The first step in model calibration was to construct a water balance of the model domain. The inputs and outputs to the aquifer system were evaluated on an annual basis to determine the amount of underflow at the southern boundary. Figure 7 illustrates the water balance inflow and outflow evaluation for a specific model cell. The monthly inflows and outflows for the model are summarized in Tables 19 and 20. The outflow at the southern boundary was adjusted to match the inflow to the outflow on an annual basis. Table 19 contains the water balance inflows to the model for every month. Table 20 contains the water balance outflows from the model for every month.

Inputs to the water balance include underflow, precipitation, irrigation, river seepage, and canal seepage. It was assumed that the precipitation inputs to the model assist in satisfying the ET requirements or are recharged to the aquifer. No precipitation runoff is included in this model evaluation.

The southern boundary underflow initial estimate calculated using Darcy's Law was 15,050 ac-ft/year with an average cross sectional area of 1,054,000 square feet, a hydraulic gradient of 0.00568 ft/ft, and a hydraulic conductivity of 300 ft/day. Comparing the water balance in Tables 19 and 20, the underflow at the southern boundary was calculated to be 20,830 acft/year. The change in underflow was deemed reasonable, could easily be due to a higher value of hydraulic conductivity at the southern boundary (increase from 300 ft/day to 415 ft/day). A value of 415 ft/day is well within the range of uncertainty for this parameter. As a result, the model hydraulic conductivity at the southern portion of the model was raised to 415 ft/day, as shown in Figure 30.

Table 19: Water balance: Inflows (all values in acre-feet).

Month	Underflow					Precip	Irrigation		Seepage			Total
	Northern	Deer Creek	Indian Creek	Croy Creek	Quigley Creek		Subdivisions	Large Parcels	Canal	BWR	Indian Creek	
January	312	168	2.95	2.53	3.37	1,450	0.0	0.0	0.0	2,460	154	4,550
February	281	152	2.66	2.28	3.04	1,000	0.0	0.0	0.0	2,220	139	3,800
March	311	168	2.94	2.52	3.36	860	0.0	0.0	0.0	2,460	154	3,960
April	302	164	2.86	2.45	3.27	650	119	141	135	2,380	149	4,050
May	315	170	2.98	2.56	3.41	960	513	633	139	2,460	154	5,350
June	310	167	2.93	2.51	3.35	730	1,026	1,244	135	2,380	149	6,150
July	318	172	3.01	2.58	3.44	340	1,392	1,533	139	2,460	154	6,520
August	317	171	3.00	2.57	3.42	410	1,140	1,238	139	2,460	154	6,040
September	305	165	2.88	2.47	3.29	560	683	763	135	2,380	149	5,150
October	315	170	2.98	2.55	3.40	610	152	162	139	2,460	154	4,170
November	303	164	2.87	2.46	3.28	1,030	0.0	0.0	0.0	2,380	149	4,030
December	312	169	2.96	2.53	3.38	1,320	0.0	0.0	0.0	2,460	154	4,420
Average	308	167	2.92	2.50	3.33	827	419	476	80	2,410	151	4,850
Total	3,700	2,000	35	30	40	9,920	5,030	5,710	960	28,960	1,810	58,200

Table 20: Water balance: Outflows (all values in acre-feet).

Month	ET		Seepage	Well		Underflow	Total
	Subdivision	Large Parcels	BWR	Subdivision	Large Parcel	Southern	
January	117	107	1,490	0	0	1,750	3,460
February	166	150	1,340	0	0	1,590	3,250
March	249	234	1,490	0	0	1,750	3,720
April	331	336	1,440	116	2	1,700	3,930
May	738	902	1,490	513	10	1,770	5,420
June	1,070	1,530	1,440	993	19	1,740	6,790
July	1,030	2,030	1,490	1,390	26	1,790	7,760
August	910	1,830	1,490	1,140	102	1,780	7,250
September	614	990	1,440	661	174	1,720	5,600
October	271	341	1,490	152	130	1,770	4,150
November	144	141	1,440	0	0	1,710	3,440
December	98	95	1,490	0	0	1,760	3,440
Average	478	724	1,460	414	39	1,740	4,850
Total	5,740	8,690	17,500	4,970	463	20,830	58,200

I. Modeling Results

I.1. Model Calibration

I.1.1. Hydraulic Conductivity

The hydraulic conductivity throughout the model was fixed at a uniform 300 ft/day, as described in Section E.3, except for the very southern portion of the model where the hydraulic conductivity was raised to 415 ft/day based on the results from the water balance, as discussed in Section H.

I.1.2. River Conductance

The river conductance was adjusted through the calibration process to more accurately reproduce the river/aquifer interaction based on the September 2008 flow measurements. An initial river conductance value of 200 ft²/day/ft was used throughout the model domain. Measured flow data on the Big Wood River in September 2008 concluded that the aquifer was losing water to the river north of the USGS gage at Hailey and the aquifer was gaining water from the river south of the gage.

MODFLOW executions resulted in insufficient water lost from the aquifer to the river and an abundance of water seeping to the aquifer from the river. To more accurately reflect the measured conditions, the river conductance was doubled north of Hailey to result in more water leaving the aquifer to the river. The reverse approach was applied to the river conductance south of Hailey, where it was halved.

Figure 31 illustrates the areas of water loss from the aquifer to the river, shown in red, and water gain to the aquifer from the river, shown in blue.

I.1.3. Observed vs Computed Head

Static water levels reported on well drilling records were used to generate the observed water elevations throughout the model. The static water levels reported varied in time, season, and year. As a result, an average observed groundwater contour map was created, as discussed in Section E.6. The transient model groundwater elevations

results were compared to the steady state groundwater contour map. The interpolated groundwater elevations determined in Section E.6 were used as observation points for comparison in this section. The simulated transient model results are the calculated values used to compare against the observed values.

Figure 32 presents the observed versus calculated plot, with reasonable fit for the model throughout the domain. Individual symbols in Figure 32 represent individual points plotted with interpolated values on the x-axis and calculated values on the y-axis. Statistically comparing the observed and computed head allows the calculation of a root-mean-square error.

Figure 33 contains whisker plots of observed water elevation for day 120 of the transient model. The calibration target for each observed water elevation was ± 5 ft. Observed targets shown in green indicate that the calculated head at this location is within 5.0 ft of the observed water elevation. Yellow targets indicate that the calculated water head is between 5.0 and 10.0 ft of the observed water elevation. Red targets indicate that the calculated water elevation is greater than 10.0 ft of the observed water elevation.

I.1.4. Error Summary

The root mean square error of the calculated head compared to the observed heads for all time steps was 5.655 ft. Simulated water surface elevations for all time steps were compared to the interpolated water surface contours. Additional statistics of model error for all time steps include the mean error of -2.230 ft and the mean absolute error of 4.068 ft.

J. Data Deficiencies and Recommended Future Refinements

The best available data were utilized as the basis for the present groundwater modeling study and it is believed that a reasonably accurate model has resulted. This model could serve as the starting point for an eventual basin-wide model extending from Silver Creek to North Fork. However, significant data deficiencies remain and it is

recommended that a data collection effort be instigated to improve the accuracy of the model inputs and provide a basis for calibration of the model.

Big Wood River discharge. At present, a single gauge at Hailey is the sole source of systematic discharge readings above Stanton Crossing. Additional measurements are needed to quantify the reach gain magnitude and seasonal variability in order to provide calibration targets. It has been shown that the location and magnitude of gain or loss is nonuniform, and therefore a dense network of measurements is needed to accurately capture these patterns. At a minimum, additional data is needed at Bellevue, Star Bridge, Deer Creek, Golden Eagle, McCanville, Ketchum, Eagle Creek, and North Fork. This data would be best collected at rated stream sections with continuous recorders; alternatively, current meter measurements could be made at least monthly. At least two years of reach gain data should be collected during years with water supply close to normal.

Big Wood River water elevation. The elevation profile of the river is critical to accurate modeling of the aquifer-river interaction. One surveyed profile was completed in October 2008 with the river near its seasonal low. Additional profiles are needed over a range of discharges. The surveyed benchmarks on the bridge crossings can be used for this purpose.

Tributary surface flow. No stream gauges are currently active on any tributary. At a minimum, quarterly current meter measurements are needed on Croy Creek, Deer Creek, Greenhorn Creek, East Fork, Trail Creek, Warm Springs Creek, Adams Gulch, Lake Creek, and Eagle Creek.

Groundwater levels. Mass measurements should be made on a network of wells on quarterly basis for at least two years in order to quantify the seasonal fluctuation at various points in the aquifer and provide calibration targets. The wells should include major tributary valleys, in which data is extremely sparse. The wells should be surveyed to obtain a casing elevation.

Bedrock depth. An accurate determination of the aquifer bottom elevation and cross-section is difficult due to few wells extending to bedrock. This deficiency is especially problematic for calculation of underflow. It is recommended that a network of observation wells be drilled to bedrock to remedy this deficiency and use of geophysical methods should be considered.

Drain flows and artesian wells. This deficiency pertains to the Silver Creek and Black Slough areas, which will eventually be included within the basin-wide model. Discharge data are needed on the various spring-fed drains feeding Silver Creek and the Big Wood River. Current flow and pressure data are also needed on the numerous artesian wells which have been developed in the area.

With additional data as described above, the model can be refined and expanded. The most important refinements would be a more accurate bedrock map, and a calibrated non-uniform hydraulic conductivity and river conductance to better match observed water level and reach gain targets. Even with the additional data, the “quasi-transient” approach will still be the only feasible approach. Eventually, a fully-transient model may be possible, but this would require many years of systematic data collection to develop a calibration data set.

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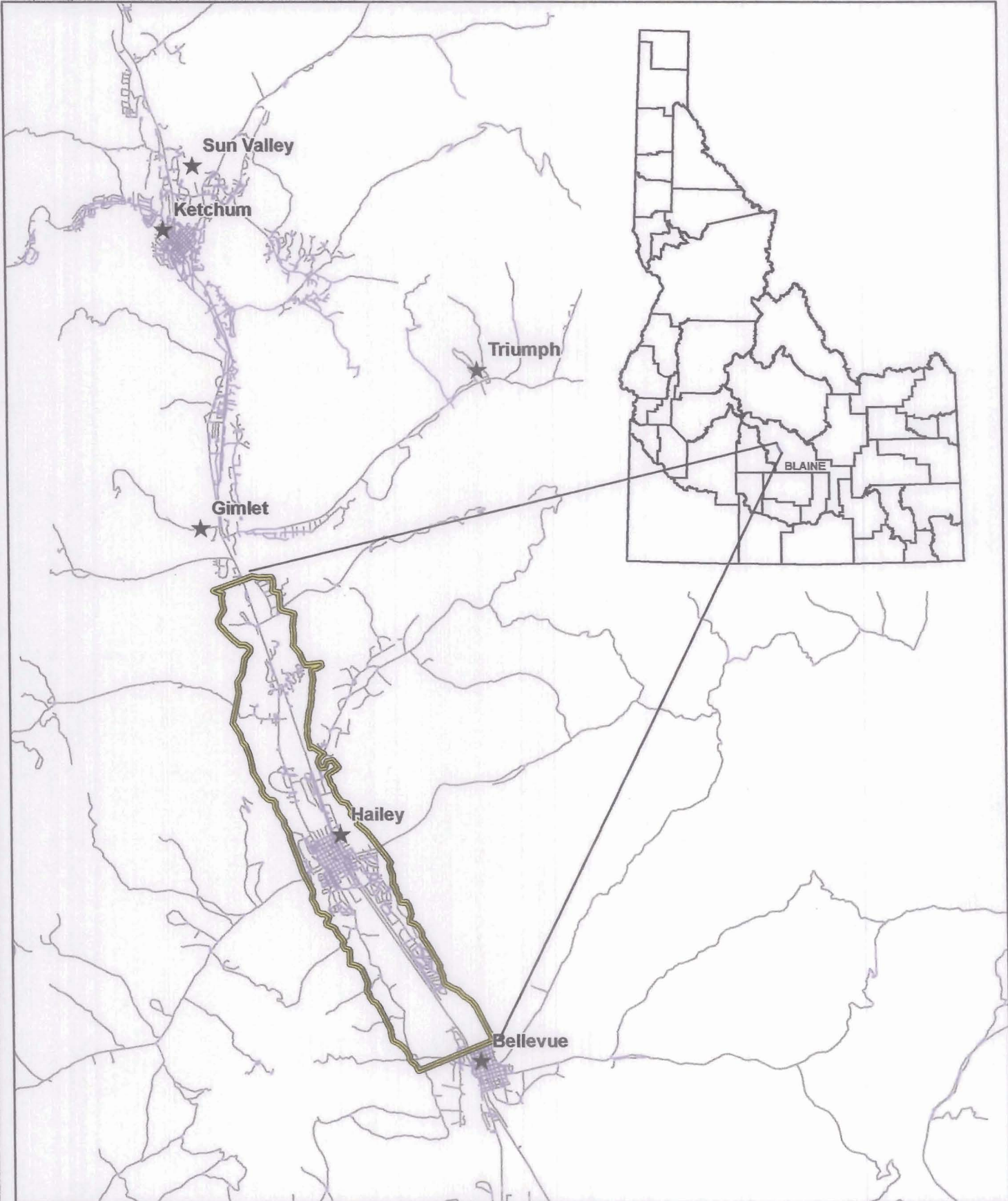
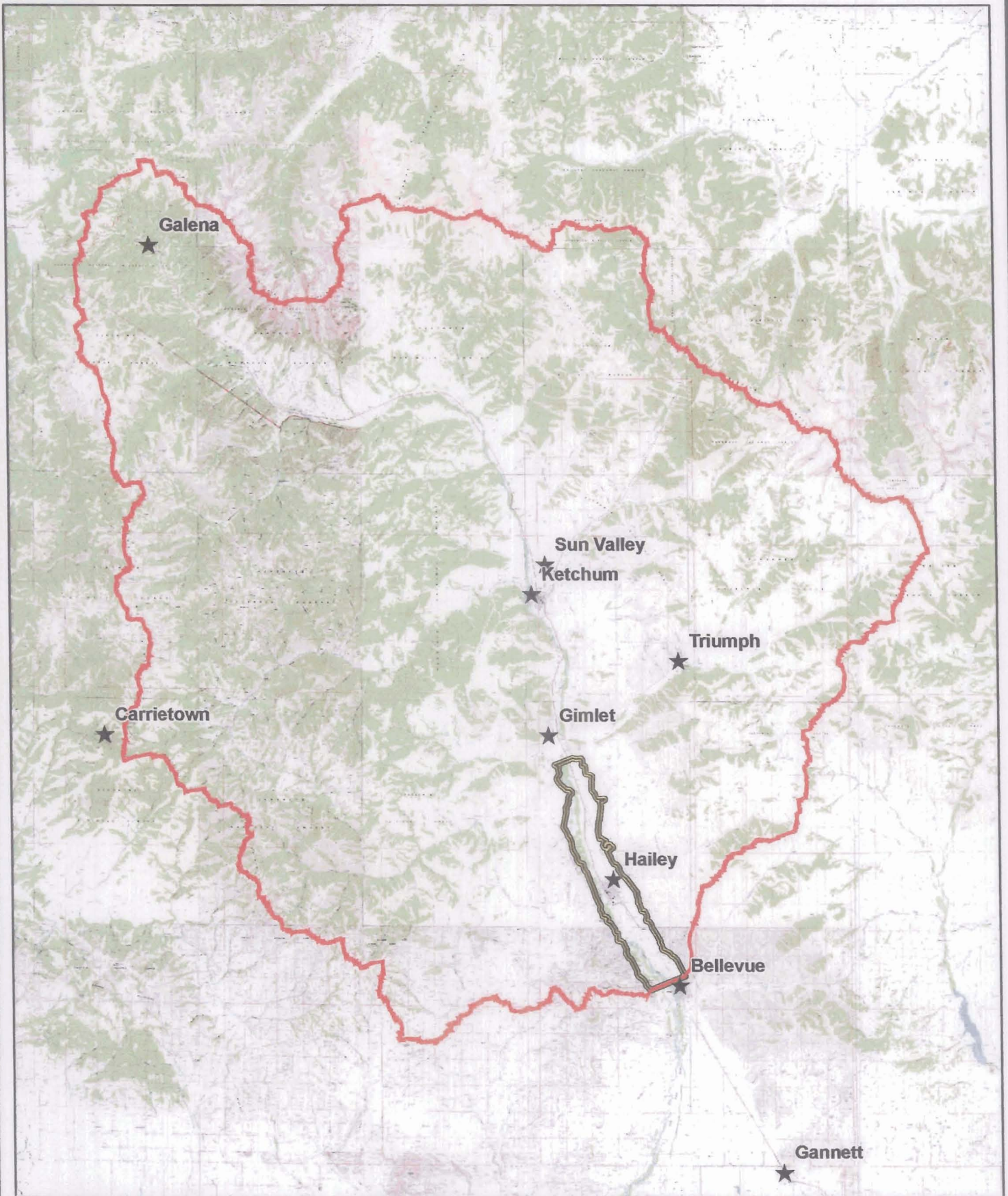


**FIGURE # 1 - VICINTY MAP
BIG WOOD GROUNDWATER MODEL**

 MODEL BOUNDARY





1 inch equals 5 miles

**FIGURE # 2 - WATERSHED
BIG WOOD GROUNDWATER MODEL
Topographical 7.5 min. Quad**

 **MODEL BOUNDARY**
Global Watershed



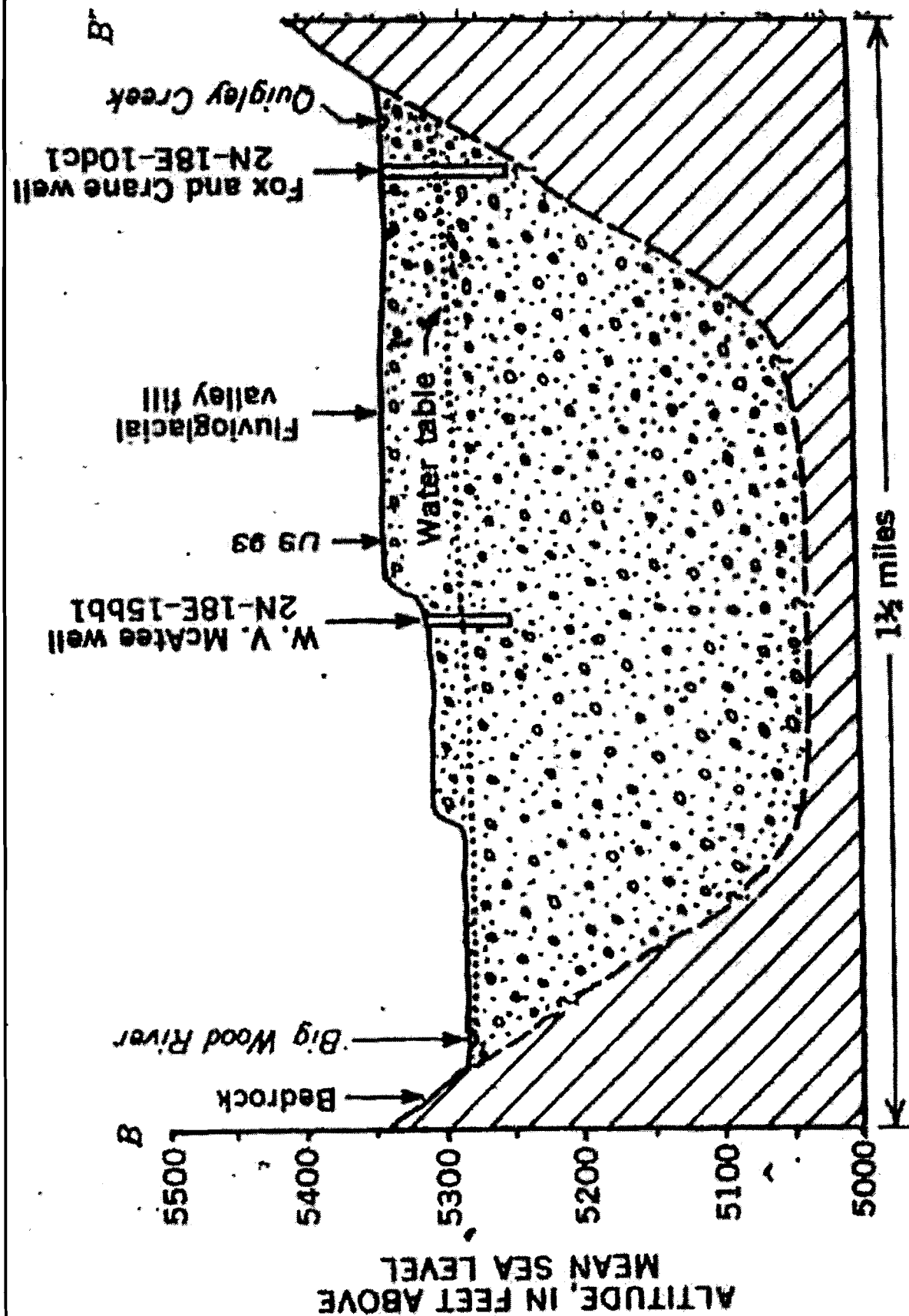


FIGURE 3: SMITH (1956) AQUIFER CROSS-SECTION AT HAILEY
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER



FIGURE #4 - Model Waterways
BIG WOOD GROUNDWATER MODEL
NAIP 2004 AERIAL

- | | |
|-------------------------|-----------------|
| MODEL BOUNDARY | Rockwell_Bypass |
| Hydrogr1_Hiawatha_Canal | Big_Wood_River |
| Cove_Canal | Streams |
| Mizer_Ditch | |



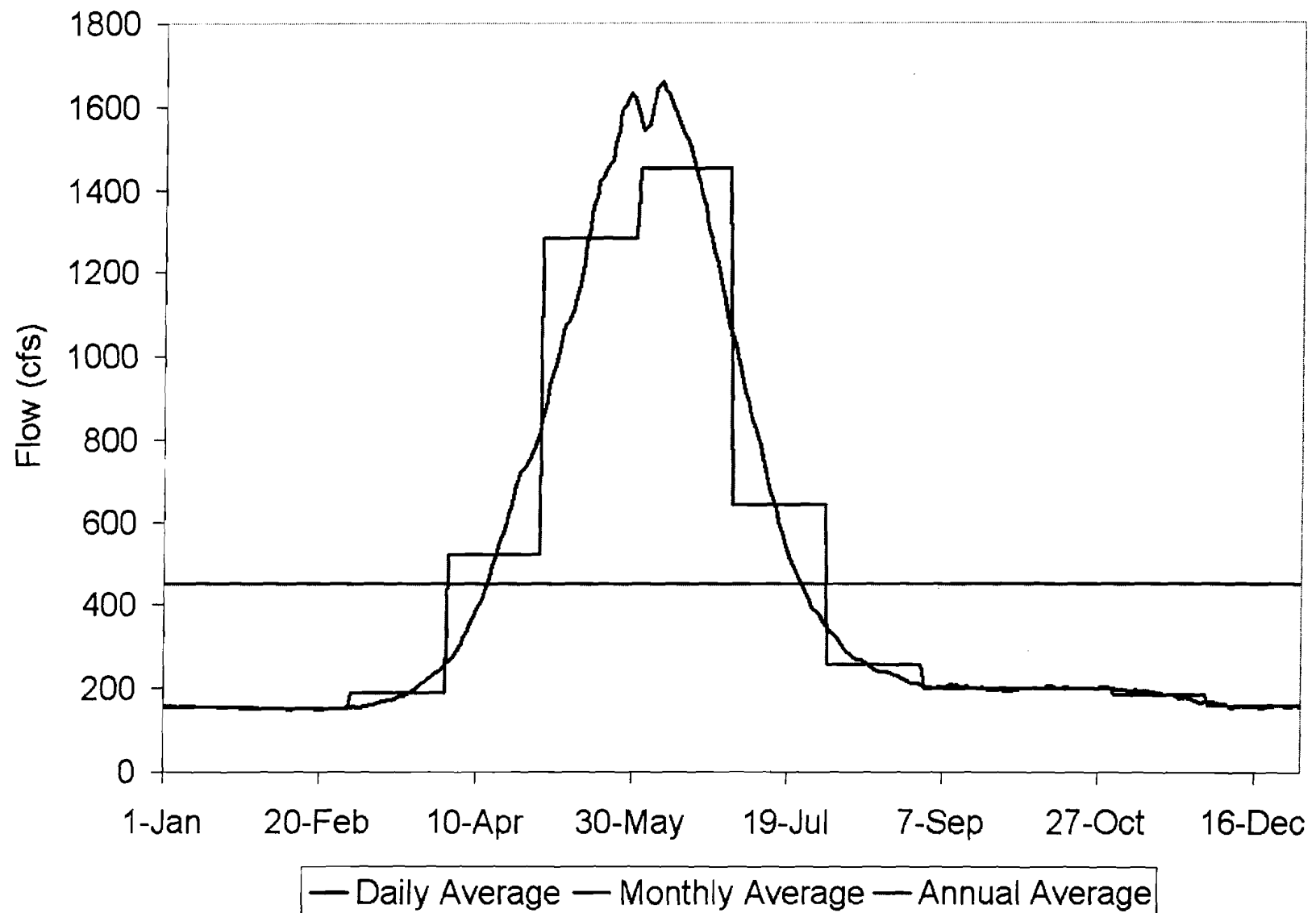


**FIGURE 5: COMPARISON OF BIG WOOD RIVER FLOW DATA FOR POTENTIAL TIME DOMAIN
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER**

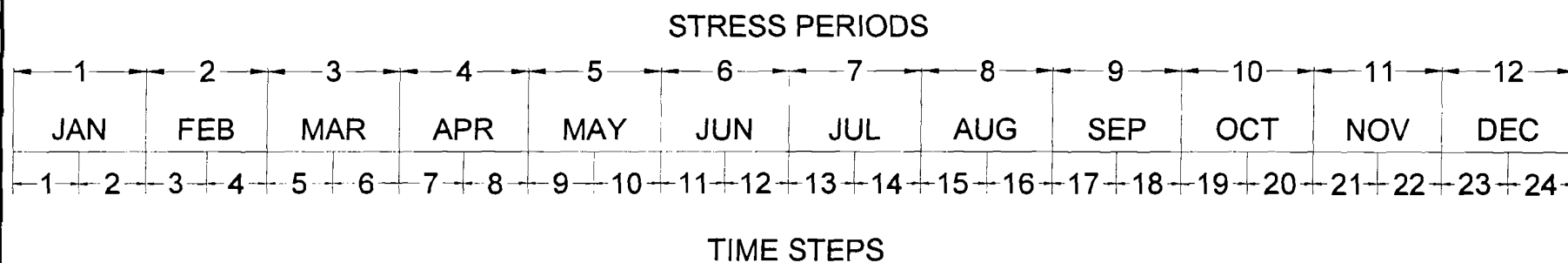


FIGURE 6: STRESS PERIODS AND TIME STEPS
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

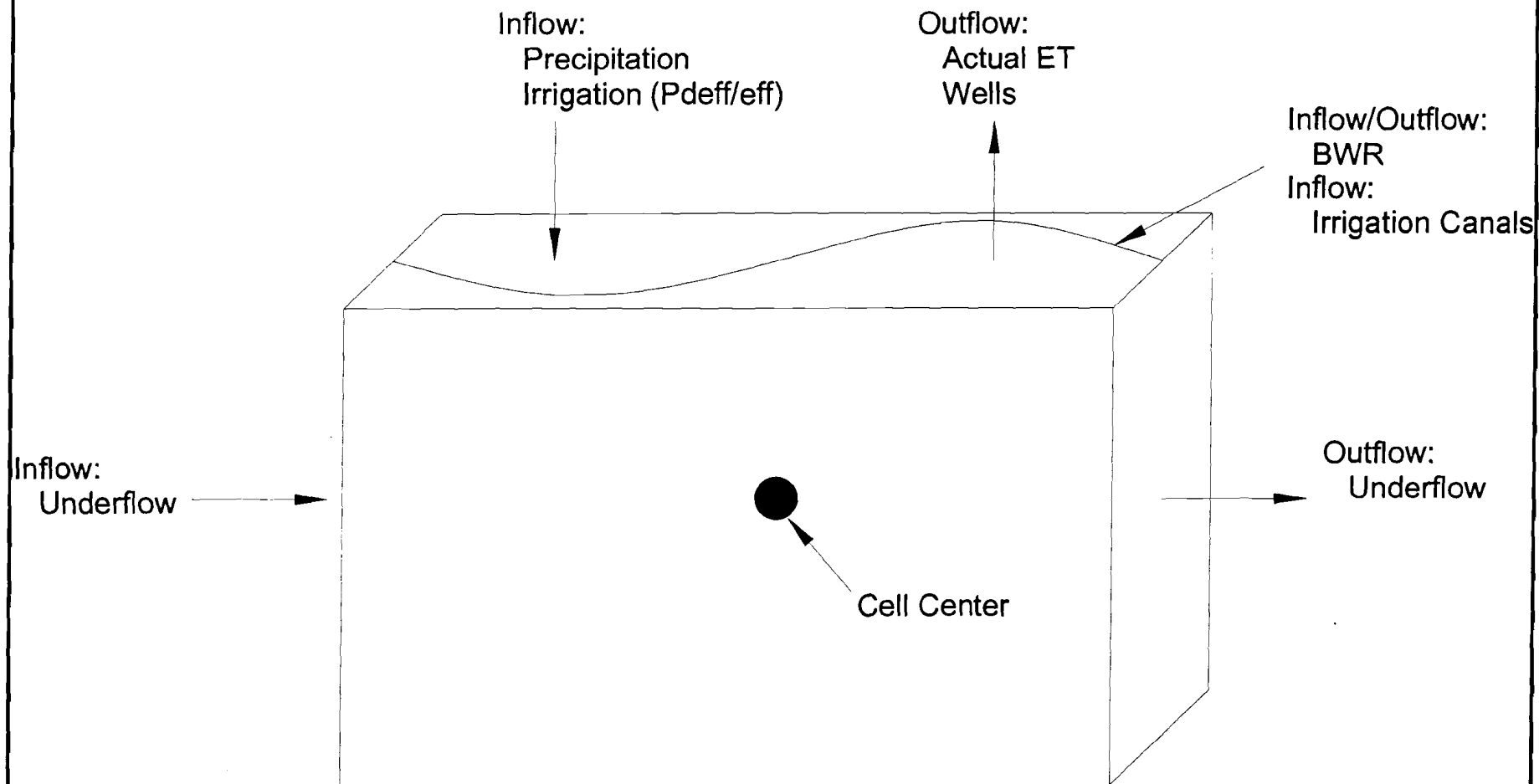


FIGURE 7: WATER BALANCE
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER



LEGEND
— MODFLOW BOUNDARY
○ USGS OBSERVATION WELL

FIGURE 8: USGS OBSERVATION WELL
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

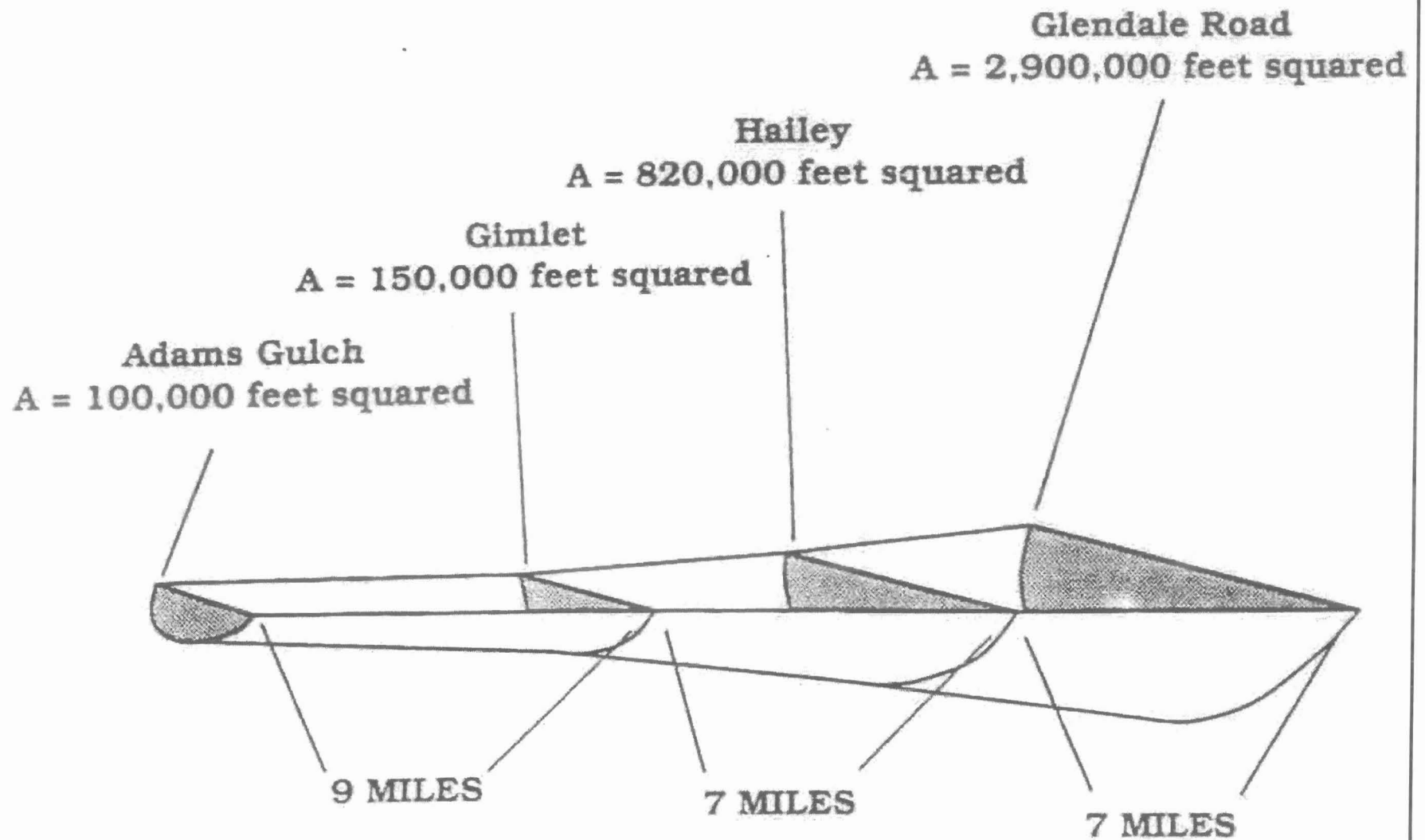


FIGURE 9: FRENZEL (1989) AQUIFER CROSS-SECTION AT HAILEY
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

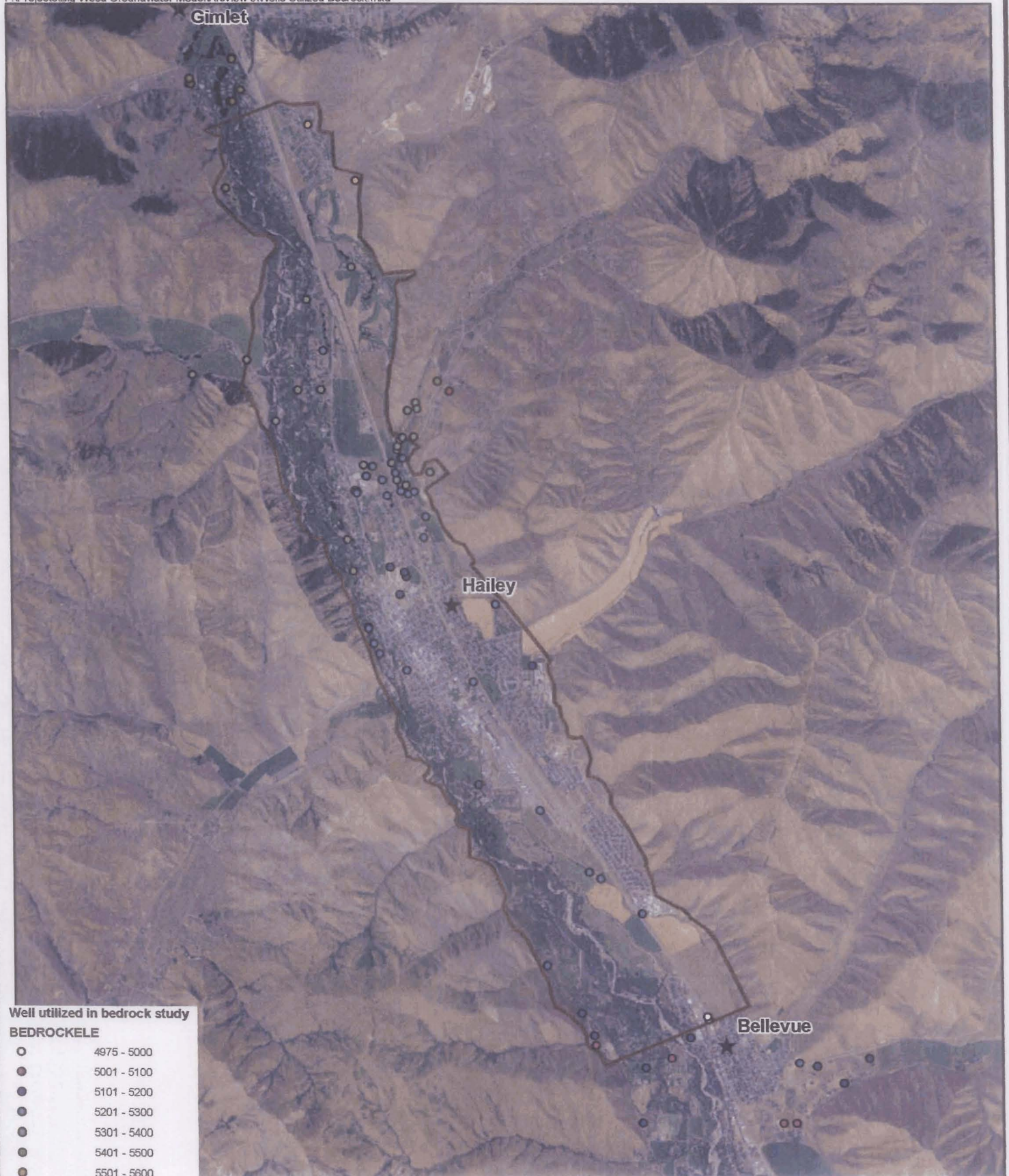


**FIGURE # 10 - Wells, Bedrock
BIG WOOD GROUNDWATER MODEL
NAIP 2004 AERIAL**



FIGURE 11: GENERATED BEDROCK CONTOURS
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

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Legend

Wells_Conductivity_(ft. per day)	● 301 - 400	● 701 - 800
○ 0 - 100	● 401 - 500	● 801 - 900
○ 101 - 200	● 501 - 600	● 901 - 1000
○ 201 - 300	● 601 - 700	■ MODEL BOUNDARY

FIGURE # 12 - Wells use for Hydrologic Conductivity Est.
BIG WOOD GROUNDWATER MODEL
NAIP 2004 AERIAL

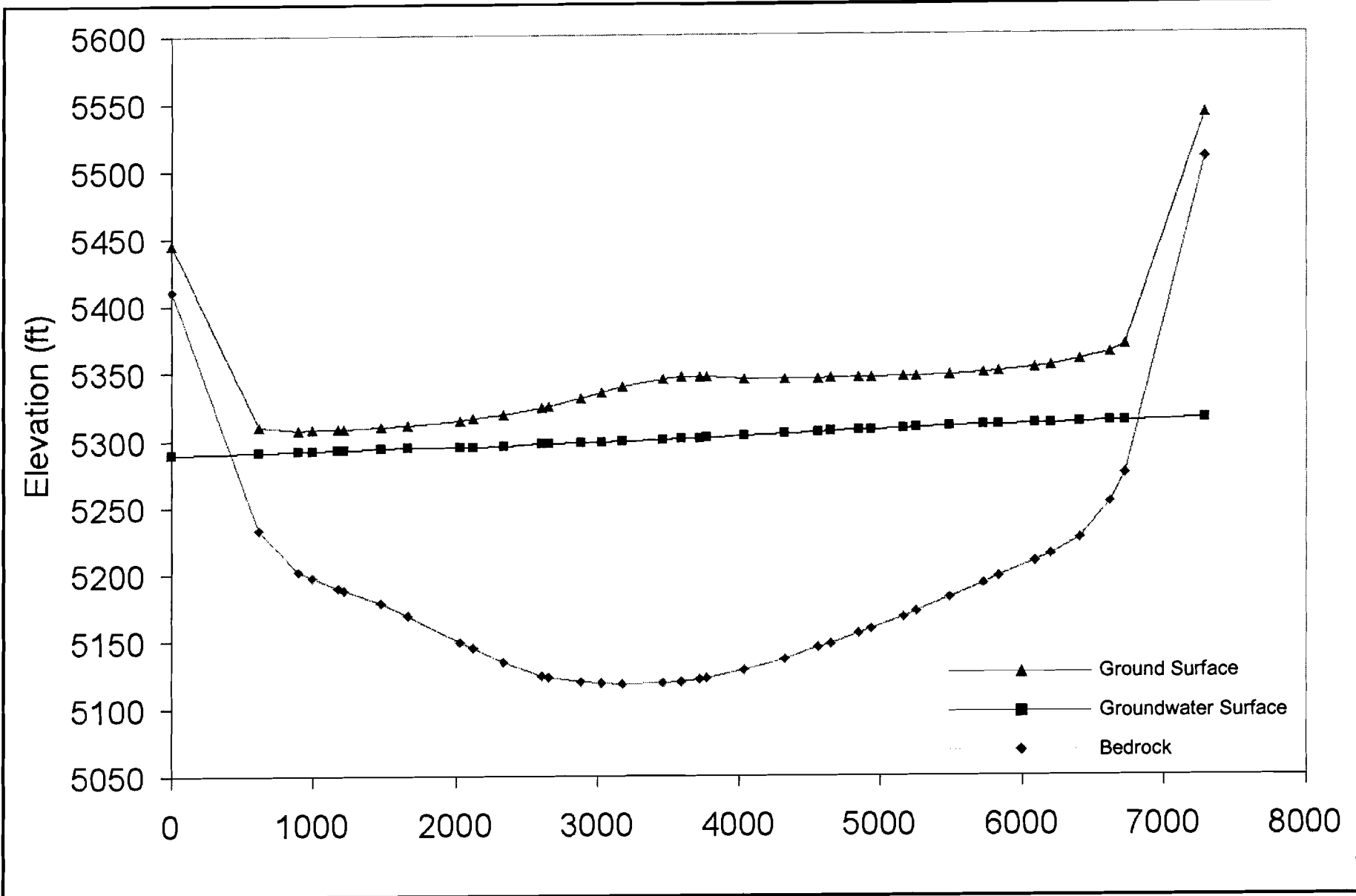


FIGURE 13: MODEL CROSS SECTION AT HAILEY
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

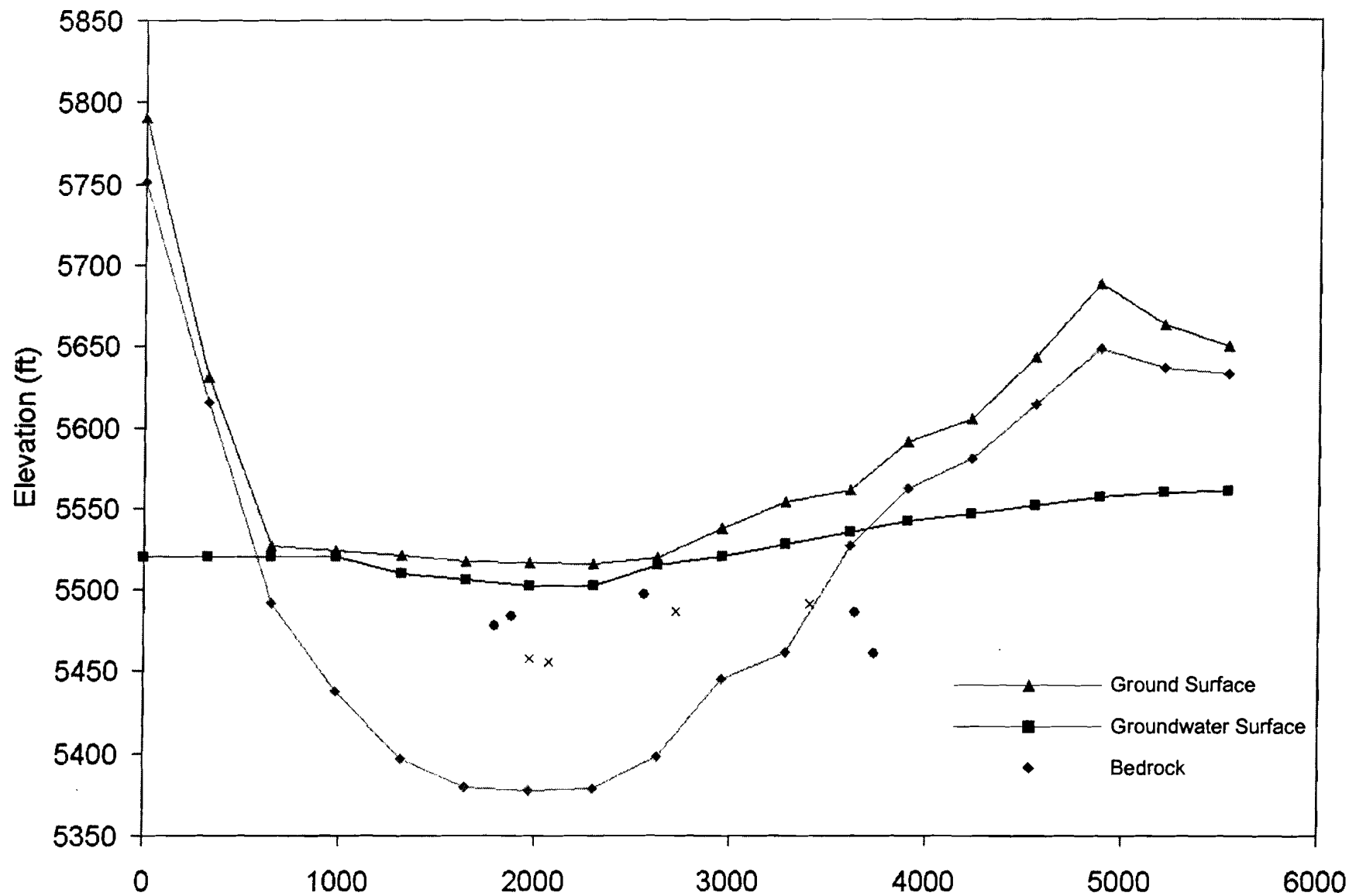


FIGURE 14: MODEL CROSS SECTION AT NORTHERN BOUNDARY
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

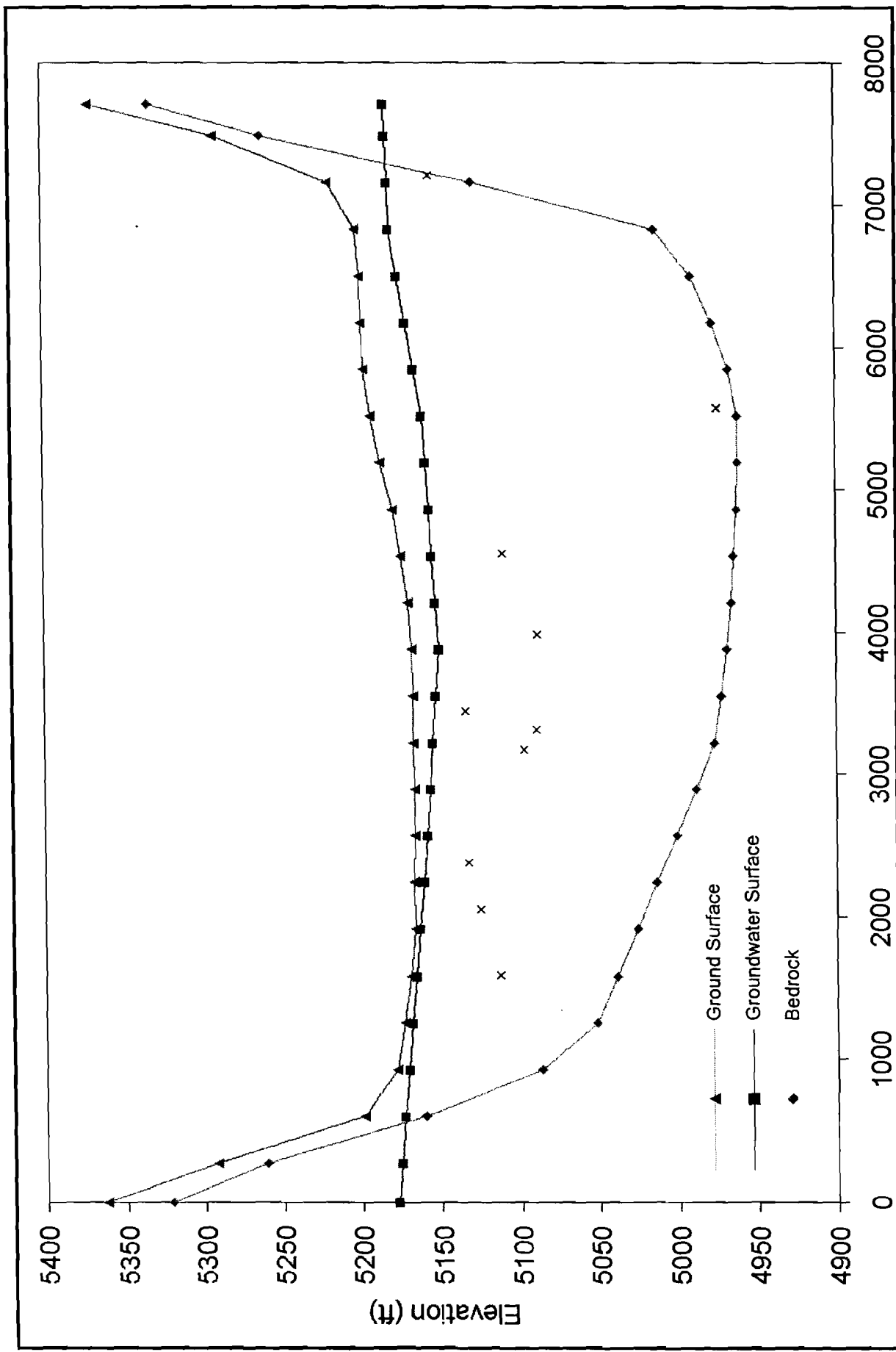


FIGURE 15: MODEL CROSS SECTION AT SOUTHERN BOUNDARY
MODFLOW GROUNDWATER MODEL
 BIG WOOD VALLEY AQUIFER

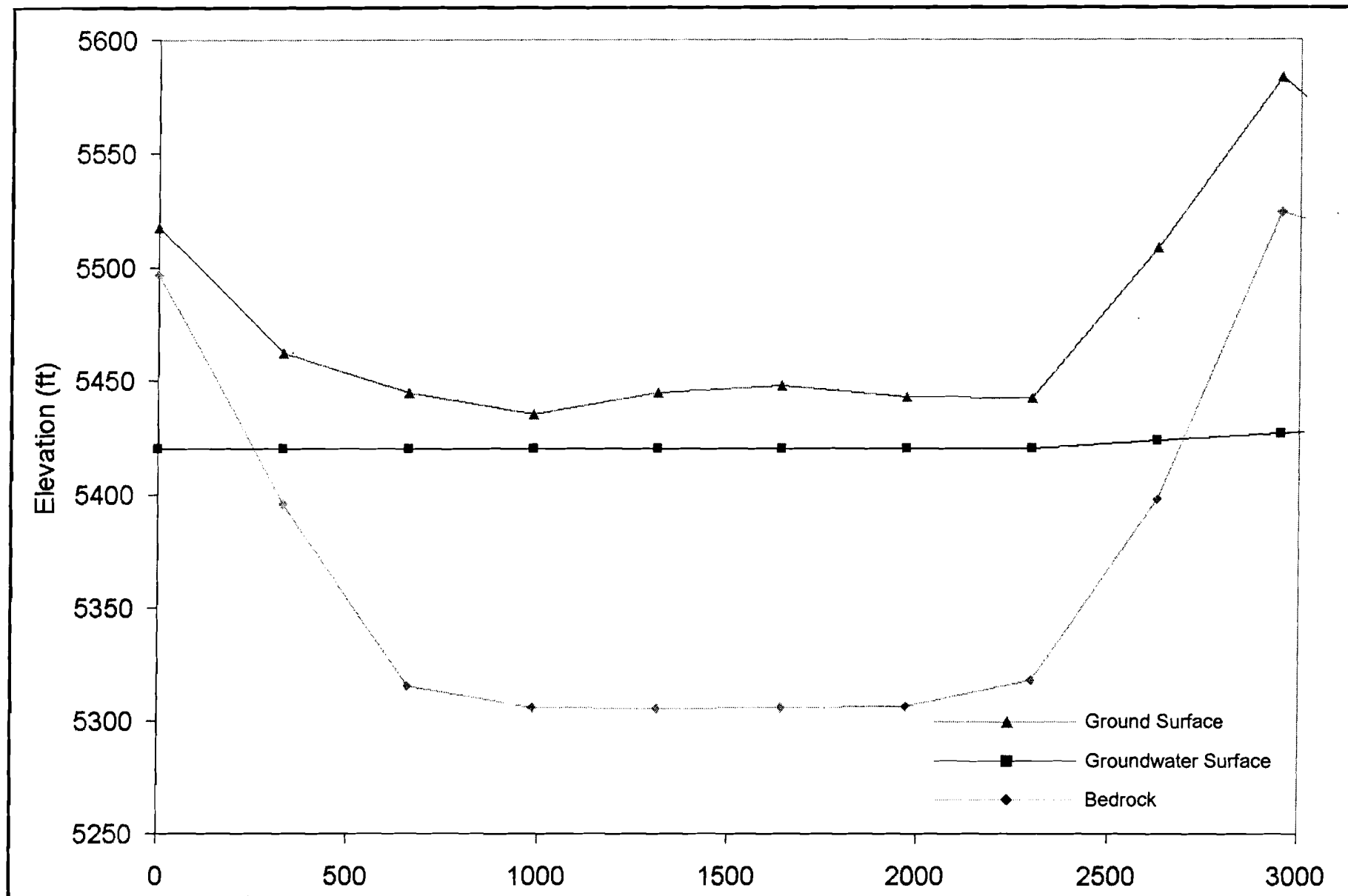


FIGURE 16: MODEL CROSS SECTION AT DEER CREEK
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

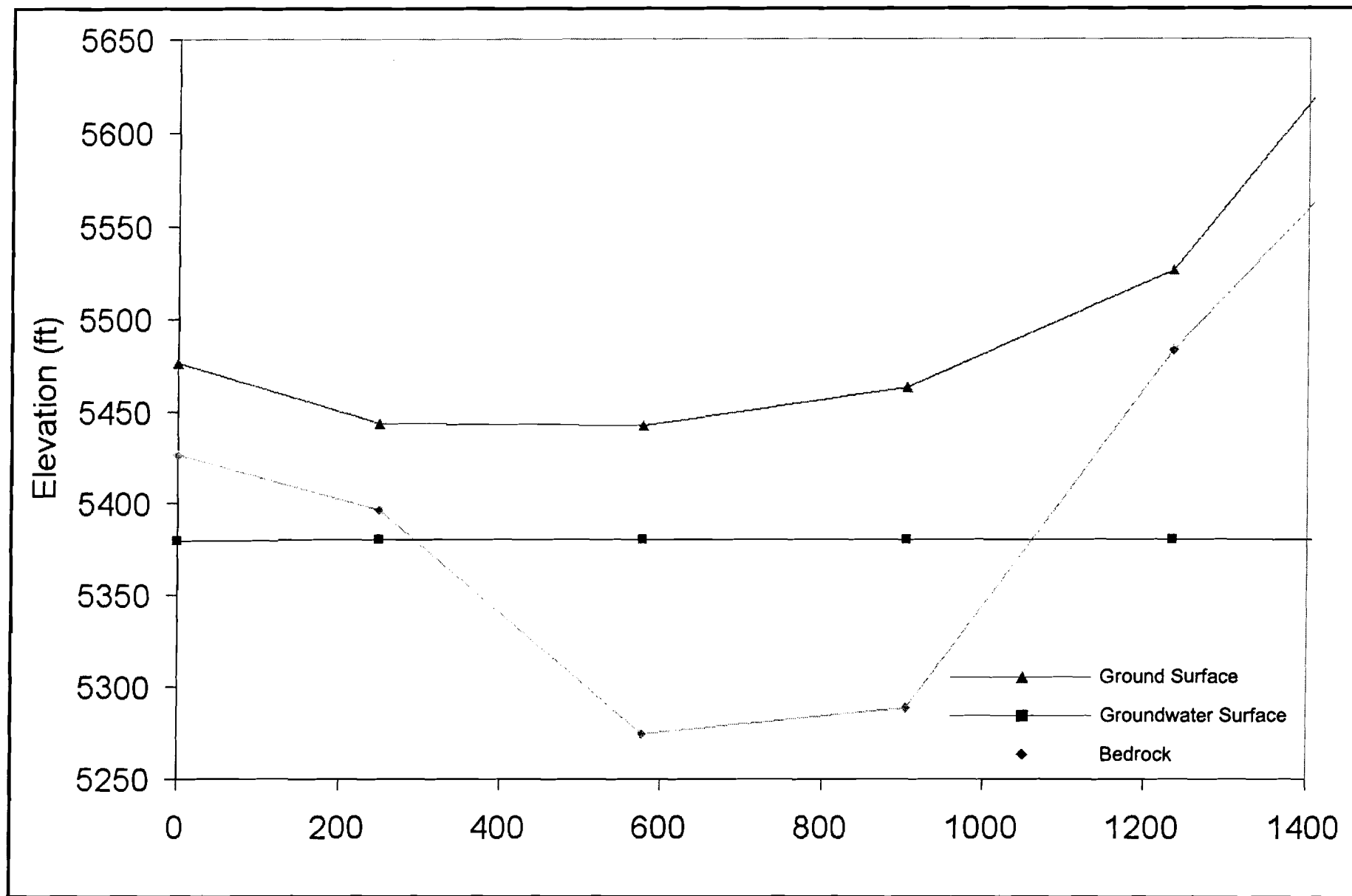


FIGURE 17: MODEL CROSS SECTION AT INDIAN CREEK
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

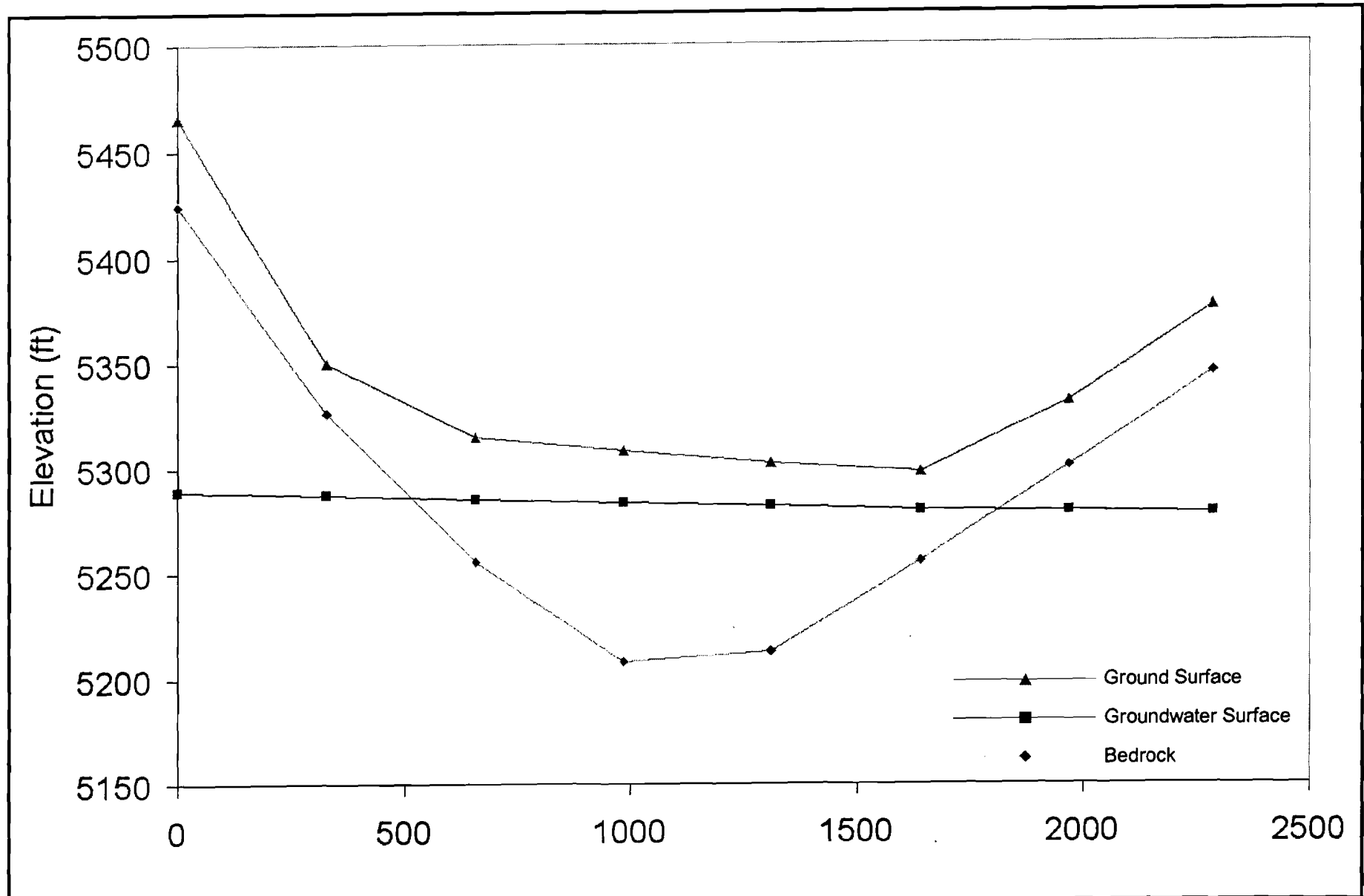


FIGURE 18: MODEL CROSS SECTION AT CROY CREEK
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

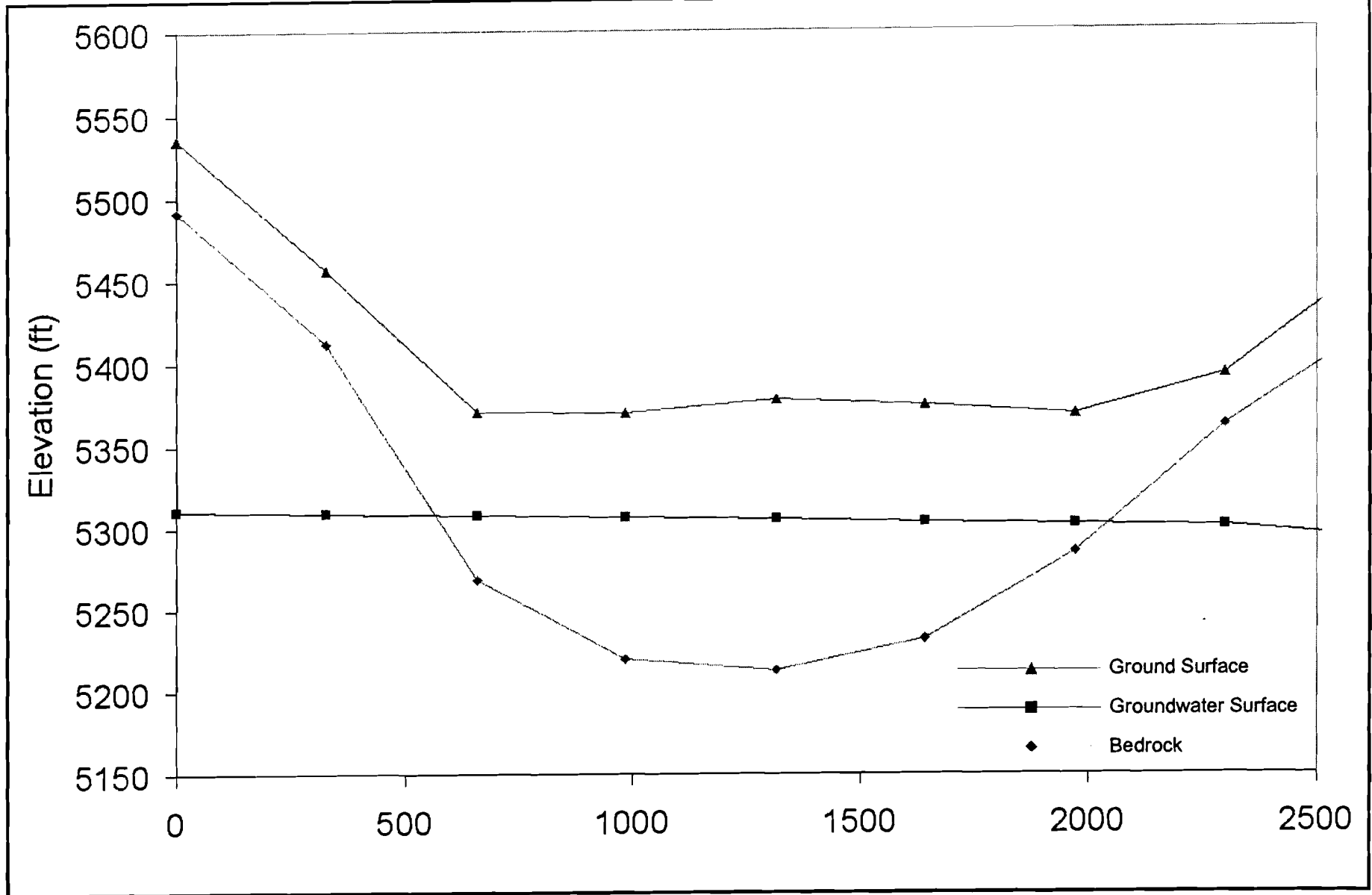


FIGURE 19: MODEL CROSS SECTION AT QUIGLEY CREEK
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER



FIGURE 20: GENERATED GROUNDWATER CONTOURS
MODFLOW GROUNDWATER MODEL

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BIG WOOD VALLEY AQUIFER



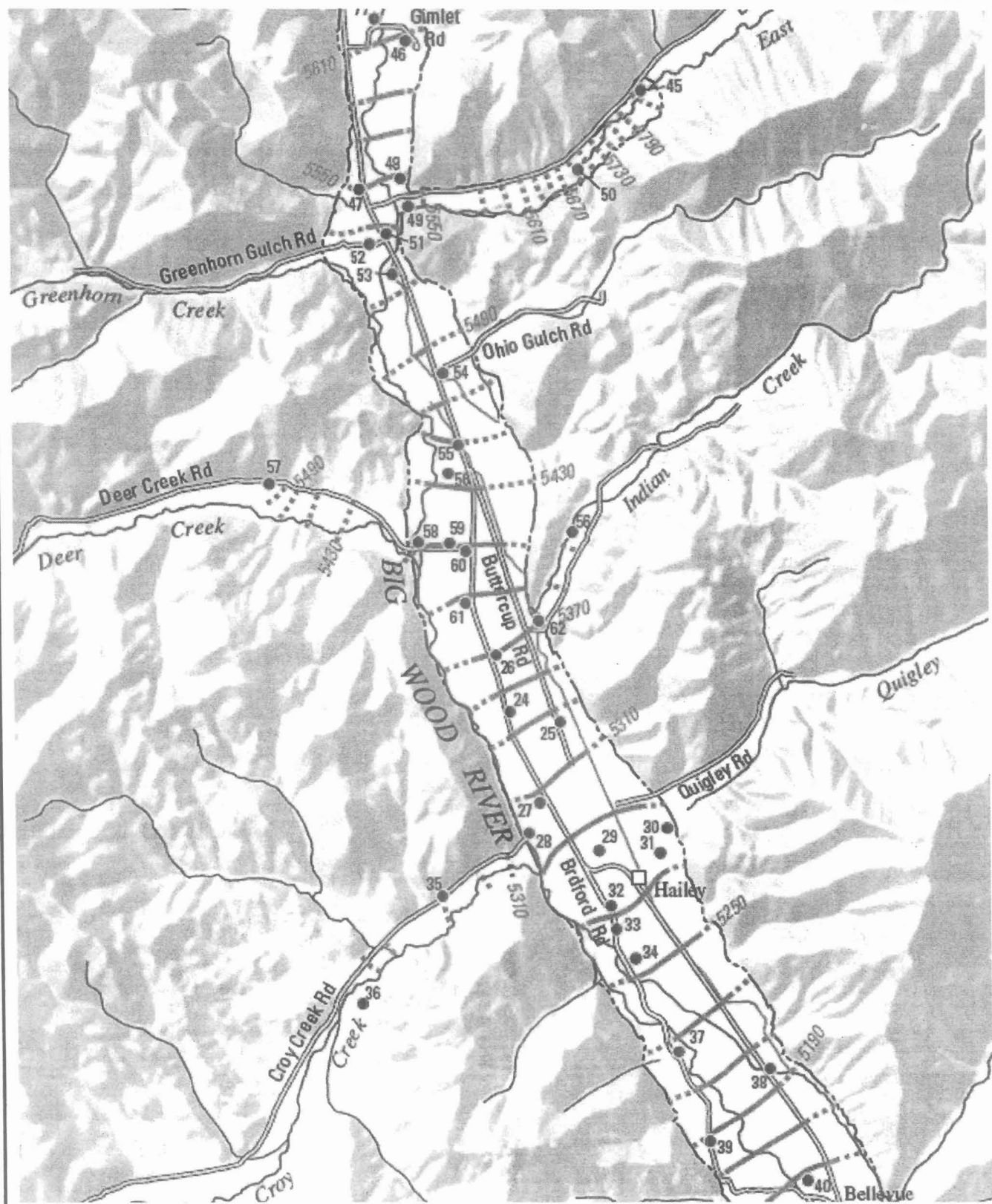


**FIGURE 21: SKINNER ET AL. (2007) GROUNDWATER CONTOURS
MODFLOW GROUNDWATER MODEL**

BIG WOOD VALLEY AQUIFER

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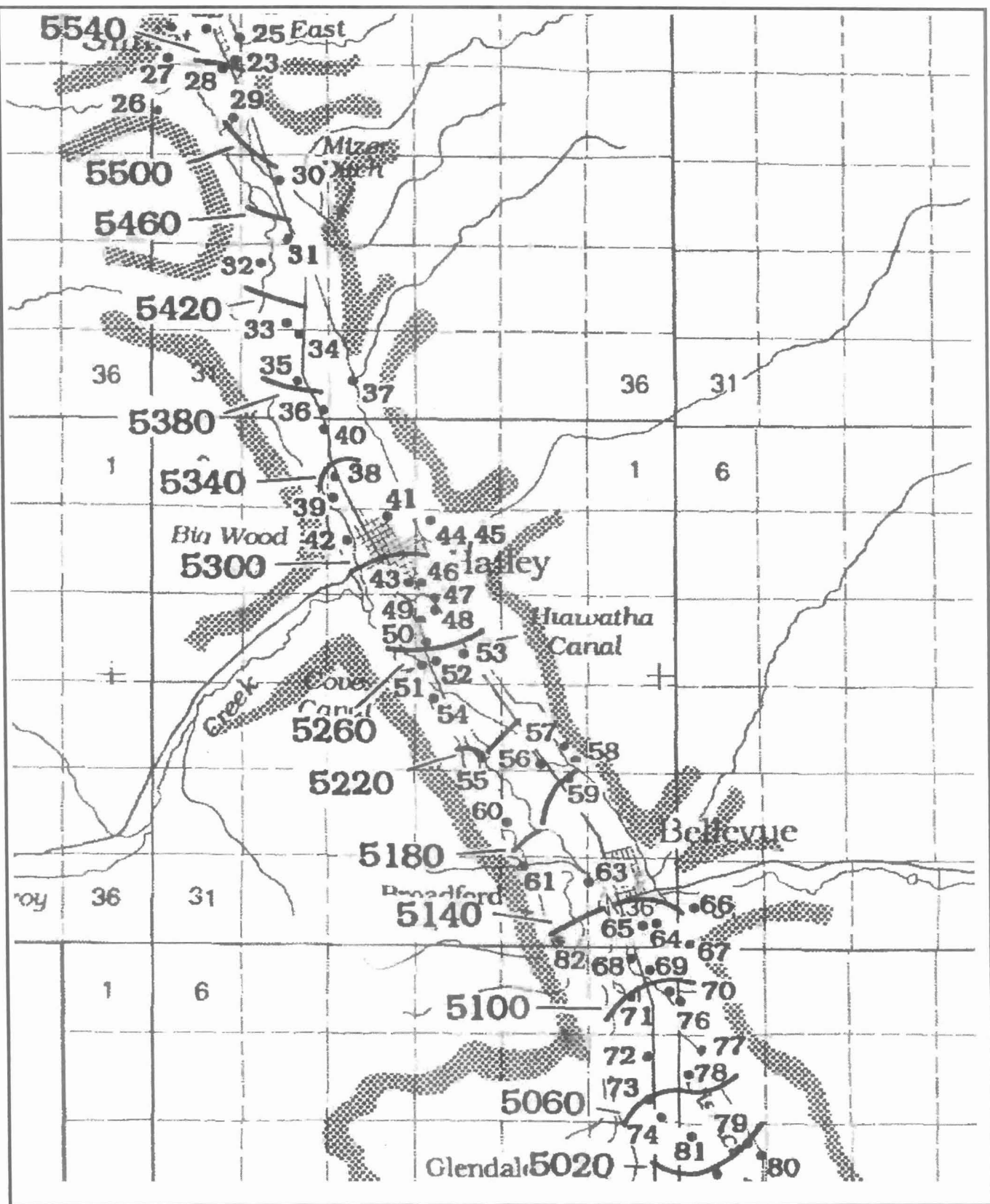


FIGURE 22: FRENZEL (1989) GROUNDWATER CONTOURS
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

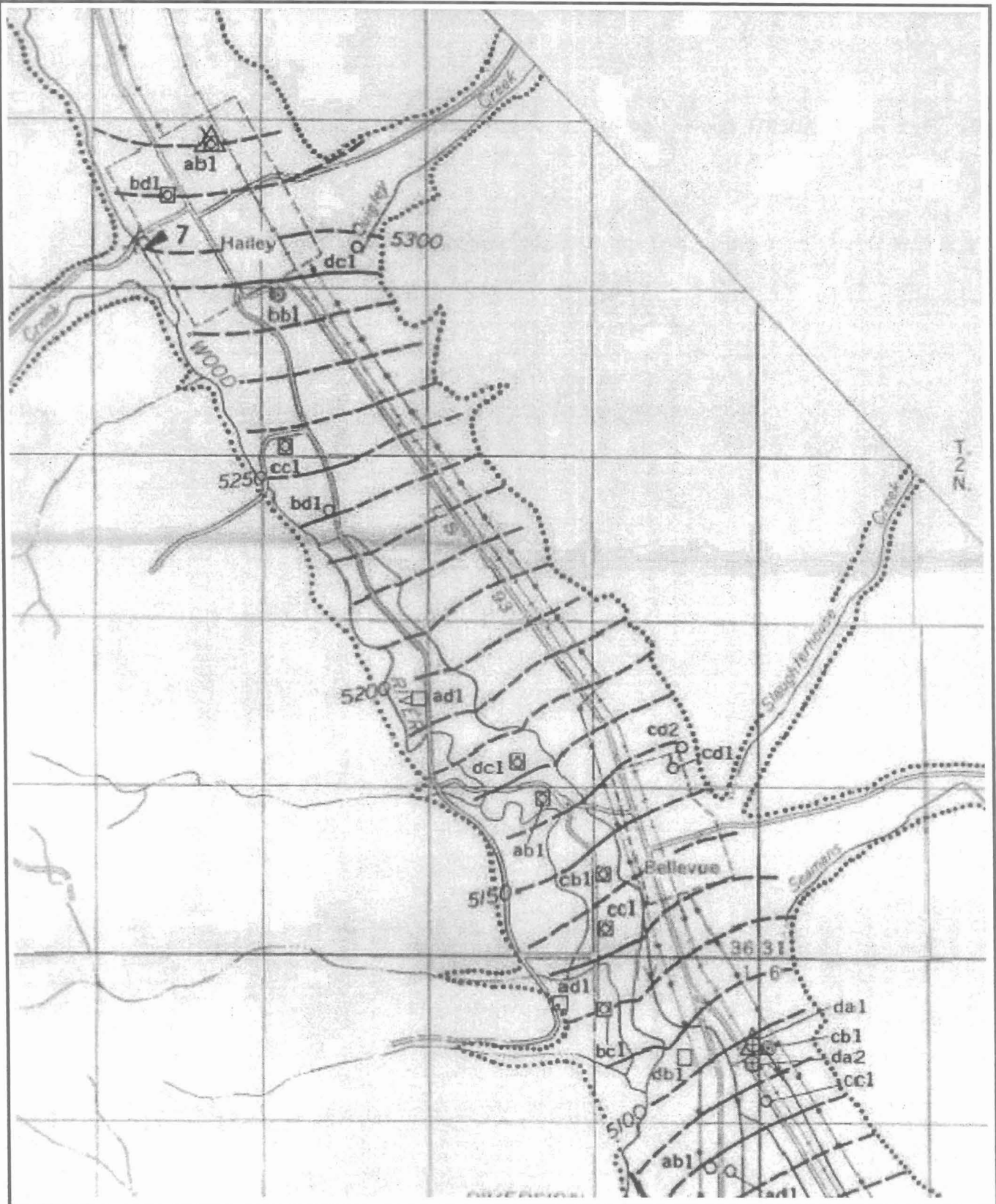


**FIGURE 23: SMITH (1956) GROUNDWATER CONTOURS
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER**



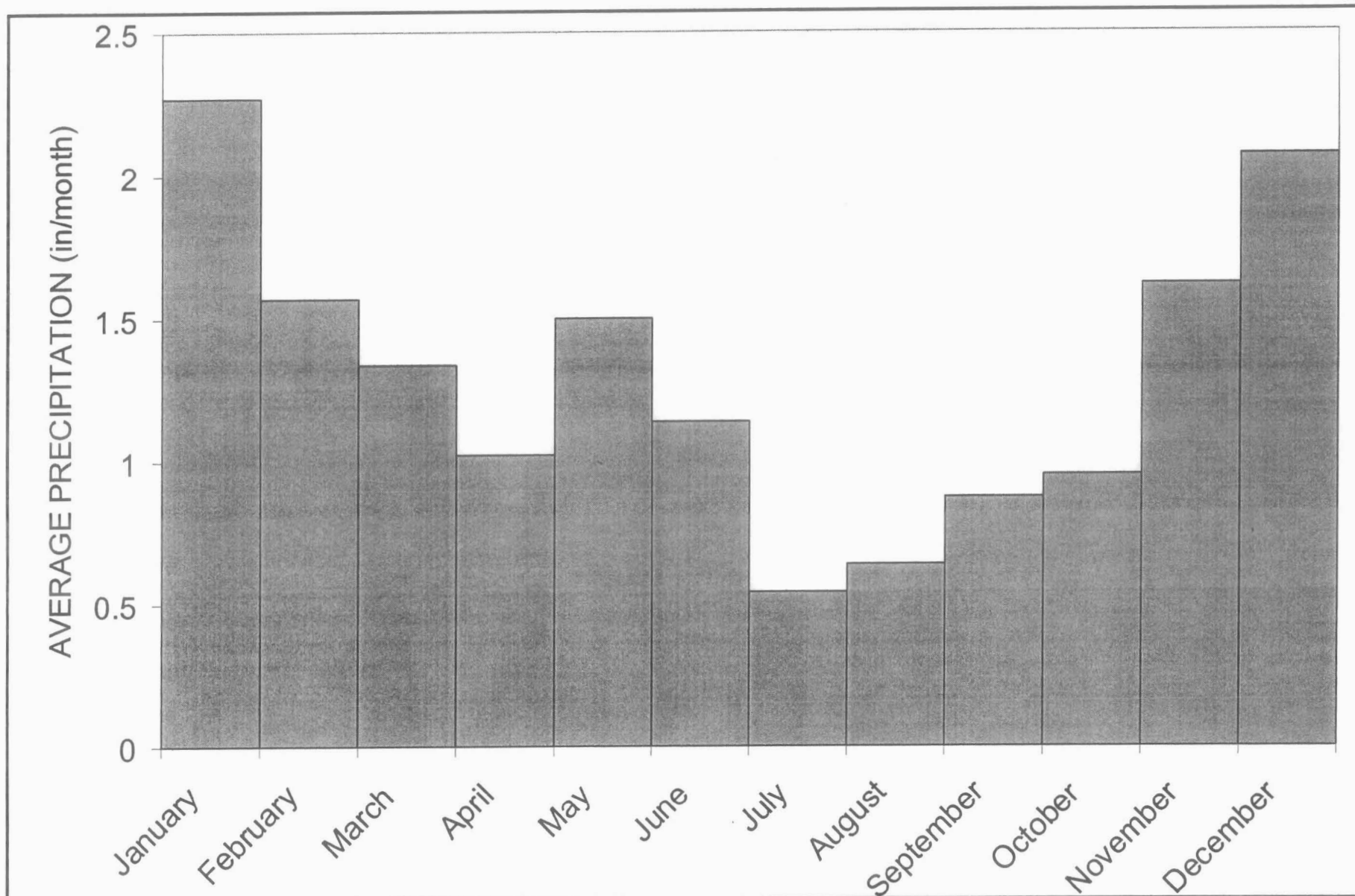


FIGURE 24: PRECIPITATION (IN/MONTH)
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

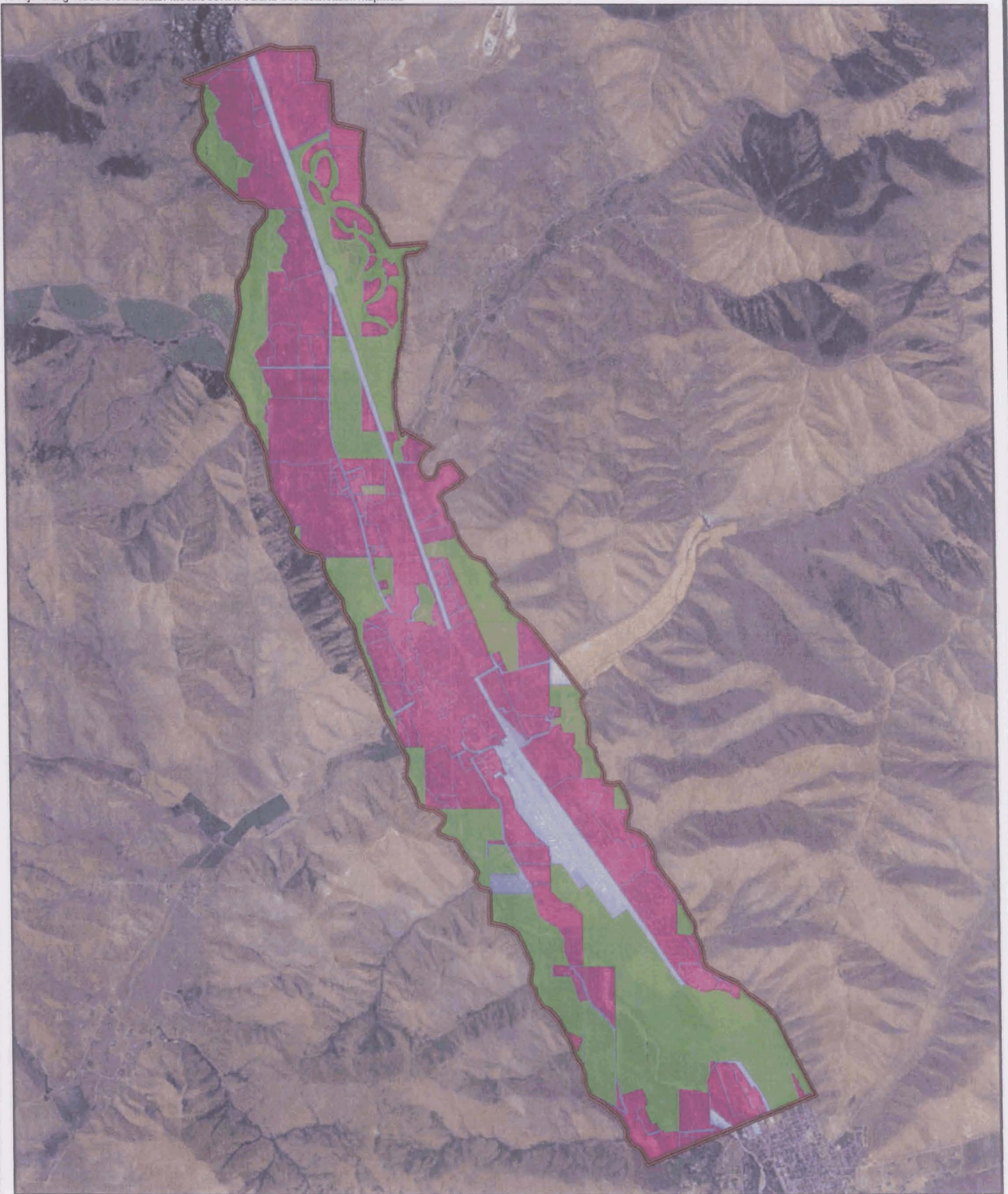


**FIGURE # 25 - Land Use Delineation
BIG WOOD GROUNDWATER MODEL
NAIP 2004 AERIAL**

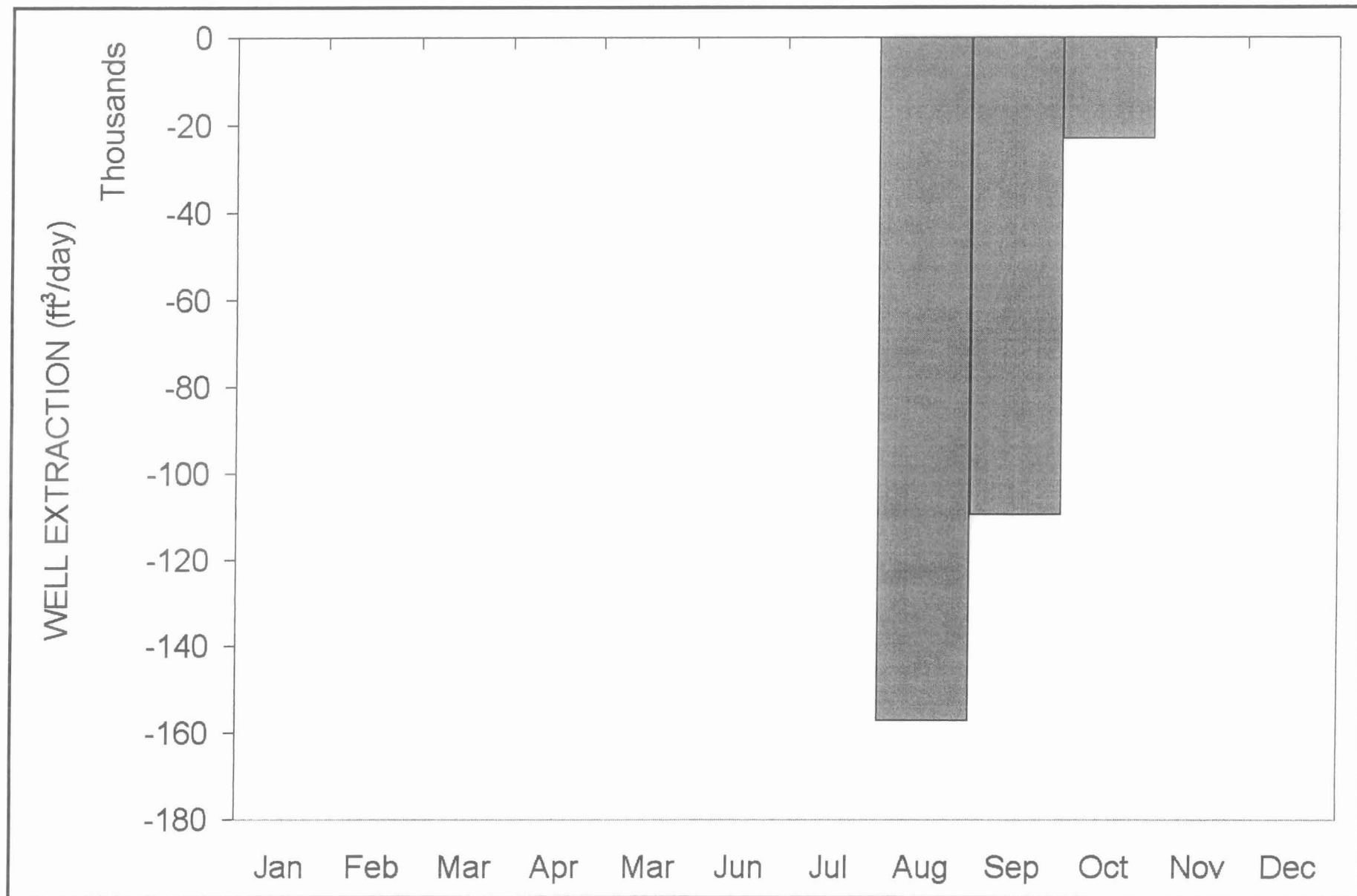


FIGURE 26: EXAMPLE OF SUPPLEMENTAL IRRIGATION WELL EXTRACTION
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

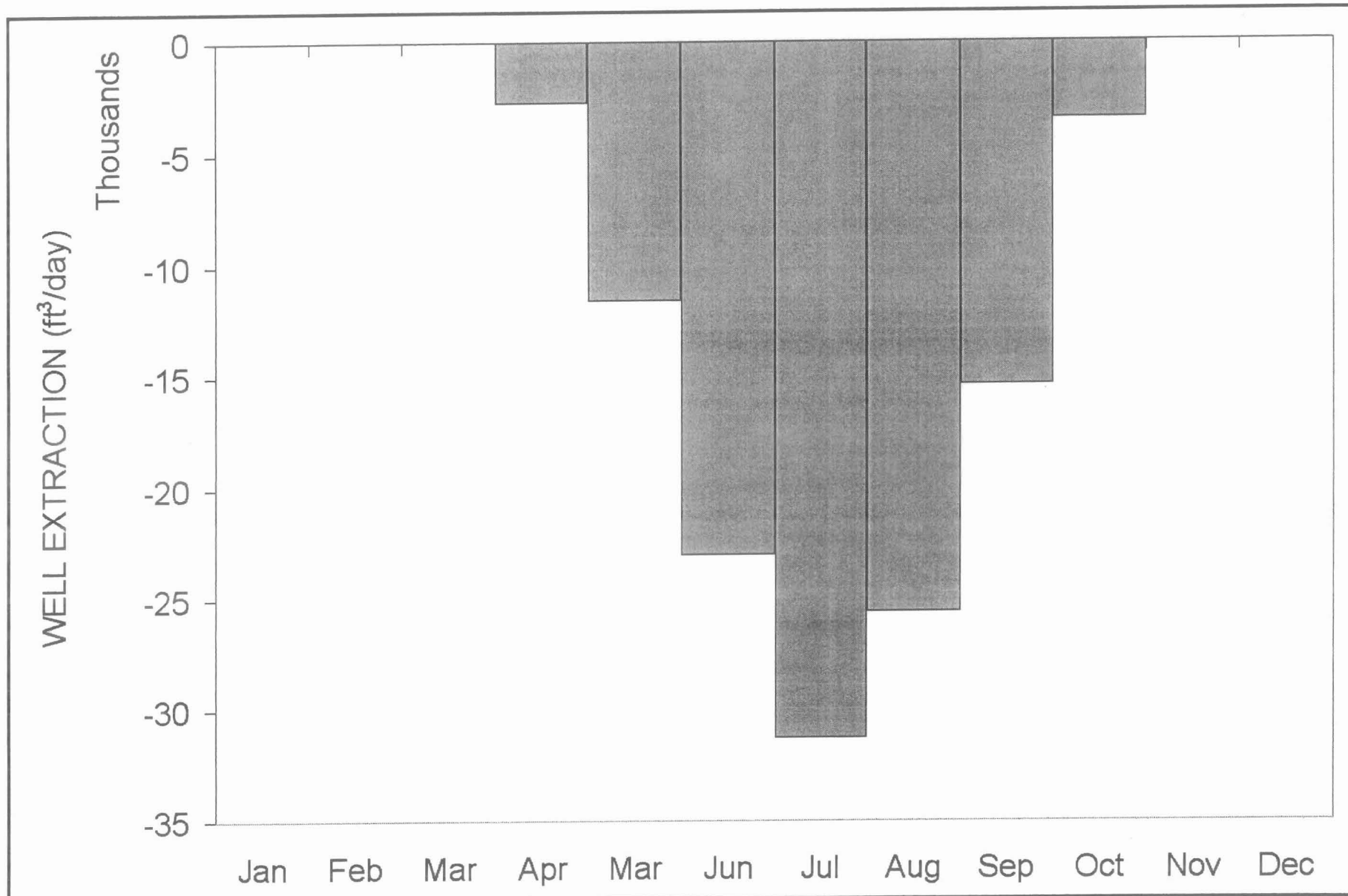


FIGURE 27: EXAMPLE OF PRIMARY IRRIGATION WELL EXTRACTION
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER



FIGURE 28: BIG WOOD RIVER FLOW MEASUREMENT SITES
MODFLOW GROUNDWATER MODEL

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BIG WOOD VALLEY AQUIFER





FIGURE 29: BIG WOOD RIVER SURVEY ELEVATION SITES
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

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**FIGURE 30: HYDRAULIC CONDUCTIVITY
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER**

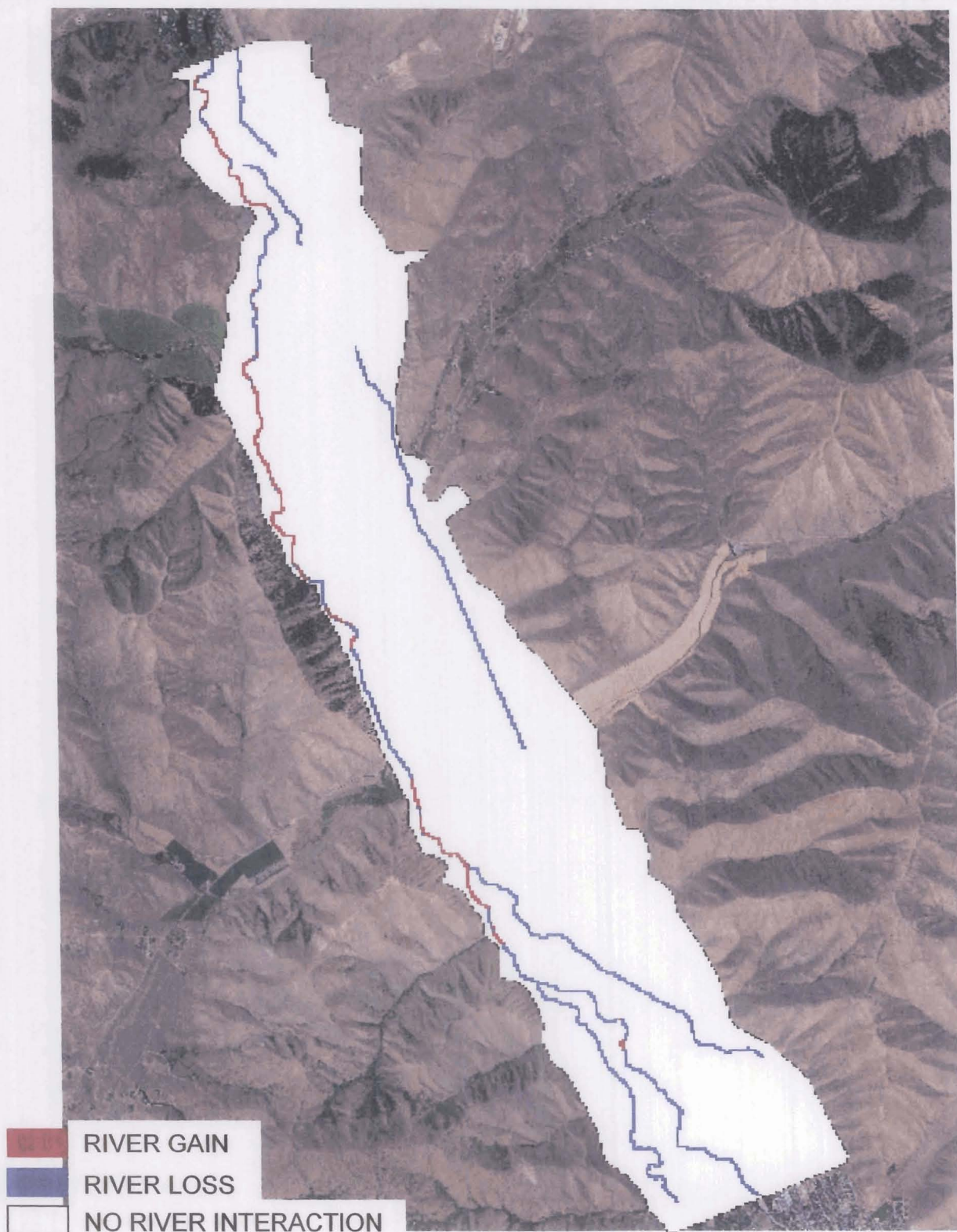


FIGURE 31: BIG WOOD RIVER AND CANAL LOSS/GAIN
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

Computed vs. Observed Values

Trans. Head

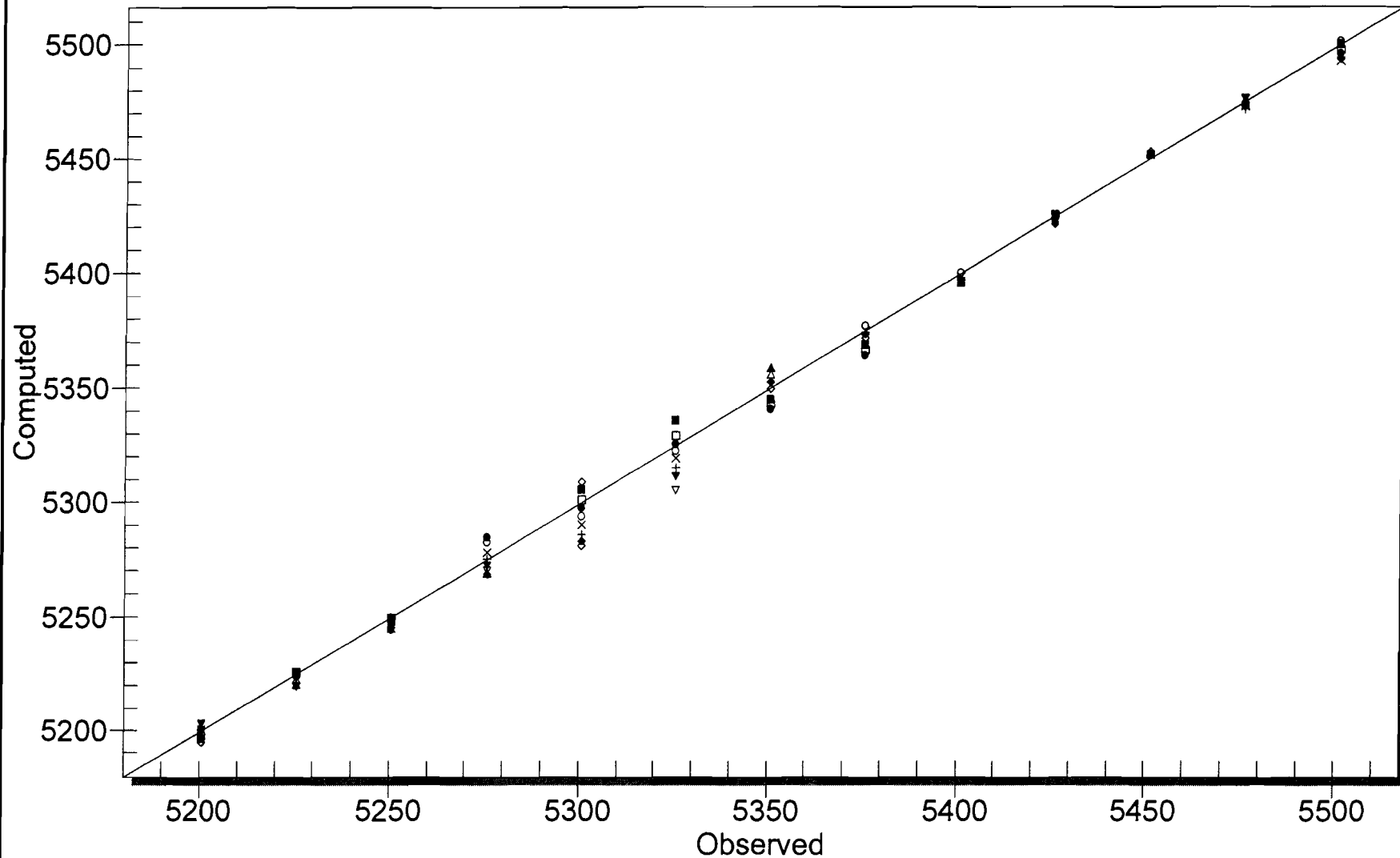


**FIGURE 32: TIMESTEP 16 COMPUTED VERSUS OBSERVED
KRIGING INTERPOLATION OF WATER LEVELS FROM WELL DRILLER REPORTS
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER**

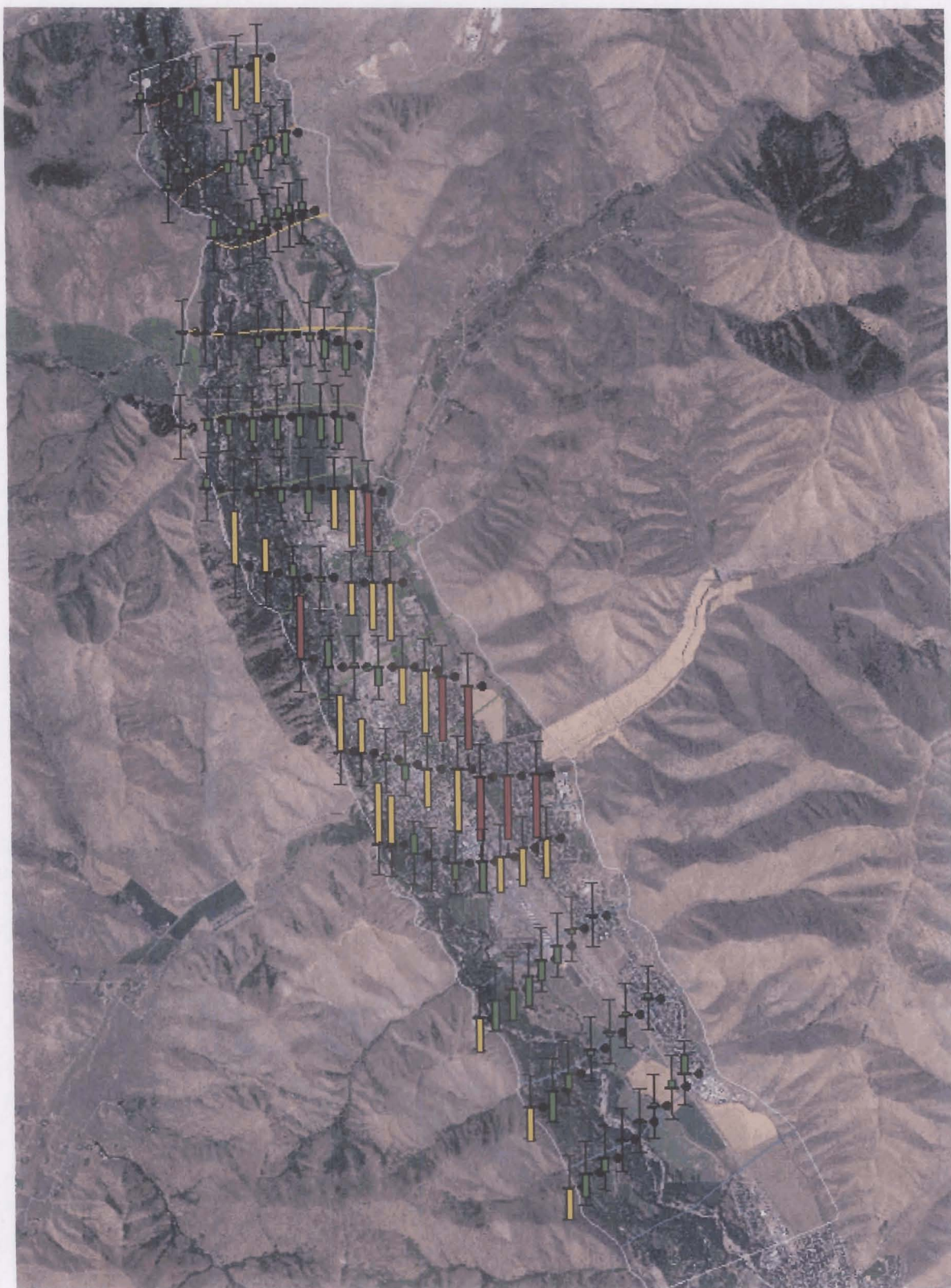


FIGURE 33: WISKER PLOT OF OBSERVED WATER LEVELS
KRIGING INTERPOLATION OF WATER LEVELS – WELL DRILLER REPORTS
MODFLOW GROUNDWATER MODEL
BIG WOOD VALLEY AQUIFER

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GEP – DEC. 5, 2008



Appendix A

Well Database

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICELEV	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
1	Ned Hamlin	3N	18E	18	NE	SE	Domestic	48	10	5511.3			5/30/1989	Walker Water Systems, Inc. Firm No. 15
2	Bill Hoffman c/o Tom Held	3N	18E	18	NE	NW	Domestic	125	70	5515.5	120		6/6/1989	Wood River Drilling and Pump Firm No. 265
3	Henry Whiting c/o McNamara Construction	3N	18E	18	SE	NW	Domestic	130	35	5535.3			5/31/1989	Walker Water Systems, Inc. Firm No. 15
4	Jim Bishop/Getchen Guard	3N	18E	18	SE	NE	Domestic	38	12	5531.2	35		9/24/1989	Wood River Drilling and Pump Firm No. 265
5	Bill Richardson	3N	18E	18	SE	SE	Domestic	51	8.667	5494.6			5/24/1990	Walker Water Systems, Inc. Firm No. 15
6	Ned Hamlin	3N	18E	18	NE	SE	Domestic	49	5.917	5516.1			6/20/1990	Walker Water Systems, Inc. Firm No. 15
7	Bob Hunsinger	3N	18E	18	NE	SE	Domestic	44	17	5497.0			9/14/1990	Walker Water Systems, Inc. Firm No. 15
8	Henry Whiting c/o McNamara Construction	3N	18E	18	SE	NW	Domestic	175	68.417	5501.4			10/11/1990	Walker Water Systems, Inc. Firm No. 15
9	Karsten A Fostvedt	3N	18E	18	NE	NW	Domestic	125	75	5498.2	120	0	5/31/1994	Scott Drilling & Pump Co. Firm No. 327
10	Chris Singleton	3N	18E	18	NE	NW	Domestic	140	65	5507.0	115	0	6/7/1994	Scott Drilling & Pump Co. Firm No. 327
11	Mike Nichols	3N	18E	18	SE	NE	Domestic	60	9	5535.7	50		5/23/1995	Wood River Drilling and Pump Firm No. 265
12	Pat Cunningham	3N	18E	18	NE	SE	Domestic	60	13	5504.5	50		5/23/1995	Wood River Drilling and Pump Firm No. 265
13	Rinker Company	3N	18E	18	SW	NE	Domestic	105	10	5553.7			6/2/1996	Eaton Drilling Firm No. 26
14	Rinker Company	3N	18E	18	NE	SE	Domestic	103	11	5505.5			6/10/1996	Eaton Drilling Firm No. 26
15	Kirk & Jan Mason	3N	18E	18	SE	NE	Domestic	46	12	5514.3			4/21/2001	Walker Water Systems, Inc. Firm No. 15
16	Kirkman Construction	3N	18E	18	SE	NE	Domestic	48	18	5521.3	28		5/8/1978	Ken Smith Well Drilling Firm No. 265
17	Lloyd Cox	3N	18E	18	SE	NE	Domestic	48	5	5521.1		8	6/4/1971	Roessler Well Drilling Firm No. 19
18	Les Outz Jr.	3N	18E	18	NE	SE	Domestic	38	5	5509.5		5	4/25/1971	Roessler Well Drilling Firm No. 19
19	Moulton & Rixon	3N	18E	18	SE	NE	Domestic	40	6	5527.2		12	5/12/1971	Roessler Well Drilling Firm No. 19
20	Lloyd Cox	3N	18E	18	SE	NE	Domestic	43	5	5519.1		10	6/9/1971	Roessler Well Drilling Firm No. 19
21	Sher Mar Modular Inc.	3N	18E	18	SE	NE	Domestic	46	3	5524.6		23	7/26/1971	Roessler Well Drilling Firm No. 19
22	Michael Randles	3N	18E	18	SE	NE	Domestic	36	7.5	5522.1		6	9/15/1970	Roessler Well Drilling Firm No. 19
23	Jay & Linda Cooper	3N	18E	18	SE	NE	Domestic	63	17	5507.2			7/9/2004	Wood River Drilling and Pump Firm No. 265
24	Smokey Mountain Associates	3N	18E	18	NE	NE	Subdivision	68	26	5529.9	58		12/29/1981	Walker Water Systems, Inc. Firm No. 15
25	Elmar Grabbher	3N	18E	18	SE	NE	Domestic	73	12	5523.6		0	8/7/1973	Harry Morre Well Drilling Firm No. 8
26	Thomas Mallane	3N	18E	18	SE	NE	Domestic	65	17.25	5510.8	25		11/12/1986	Ray Roessler Well Drilling Firm No. 262
27	Steve King	3N	18E	18	NE	SE	Domestic	34	8	5506.3	9		9/14/1982	Wood River Drilling and Pump Firm No. 265
28	John D. Bernhard	3N	18E	18	SE	NE	Irrigation	39	5	5532.1	21		7/19/1982	Ray Roessler Well Drilling Firm No. 262
29	Gordon Bob	3N	18E	18	NE	SE	Domestic	63	16	5502.2			9/5/2006	Wood River Drilling and Pump Firm No. 265
30	Smokey Mountain Associates Well # 2	3N	18E	18	NE	NE	Subdivision	113	21.583	5544.0	34.417		9/23/1982	Walker Water Systems, Inc. Firm No. 15
31	Smokey Mountain Associates Well # 1	3N	18E	18	NE	NE	Subdivision	86	20.708	5542.9	40.125		7/23/1982	Walker Water Systems, Inc. Firm No. 15
32	Cole Ericson	3N	18E	17	SW	SW	Domestic	64	31	5510.1	41		6/2/1979	Ken Smith Well Drilling Firm No. 265
33	Penny Sierra	3N	18E	17	SW	SW	Domestic	90	44	5487.7	64		6/16/1978	Ken Smith Well Drilling Firm No. 265
34	Bill Higdon	3N	18E	17	SW	SW	Domestic	67	31	5481.4	41		6/8/1979	Ken Smith Well Drilling Firm No. 265
35	George Kean	3N	18E	17	NW	SW	Domestic	35	8	5513.8	5		4/29/1979	Ken Smith Well Drilling Firm No. 265
36	Darrel Grey	3N	18E	17	SW	SW	Domestic	66	32	5497.9	54		4/28/1986	Wood River Drilling and Pump Firm No. 265
37	Lew Witcher	3N	18E	17	SW	SW	Domestic	57	40	5499.9	55		5/18/1987	Wood River Drilling and Pump Firm No. 265
38	Carla Lancaster	3N	18E	17	SW	SW	Domestic	92	30	5512.0	40		12/12/1980	Ken Smith Well Drilling Firm No. 265
39	Richmond Construction	3N	18E	17	SW	SW	Domestic	62	43	5469.0		0	11/14/1977	Ken Smith Well Drilling Firm No. 265
40	Don Harkins	3N	18E	17	SW	SW	Domestic	77	38	5479.3		0	5/13/1971	Harry Morre Well Drilling Firm No. 8
41	Gordon Paving Co.	3N	18E	17	SW	NW	Domestic	60	15	5535.9		20	12/31/1972	Roessler Well Drilling Firm No. 19
42	Don Harkins	3N	18E	17	SW	NW	Domestic	71	36	5485.5		0	6/27/1972	Roessler Well Drilling Firm No. 19
43	Consolidated Agency	3N	18E	17	NW	SW	Domestic	76		0		0	12/18/1978	Norm Ridinger Well Drilling Firm No. 283
44	Rex Garner	3N	18E	17	SW	SW	Domestic	38	12	5521.5	12		8/21/1981	Walker Water Systems, Inc. Firm No. 15
45	Bill Whitehead	3N	18E	17	SW	SW	Domestic	61	36	5472.0	46		10/15/1982	Ken Smith Well Drilling Firm No. 265
46	Ken Hawkins	3N	18E	17	SW	SW	Domestic	63	38	5503.7	35		12/1/1981	Ken Smith Well Drilling Firm No. 265
47	Sadie Hopkins	3N	18E	17	SW	SW	Domestic	63	40	5494.5			5/10/2006	Wood River Drilling and Pump Firm No. 265
48	Jim Luckman	3N	18E	17	NW	SW	Domestic	63	10	5515.7			5/15/2006	Wood River Drilling and Pump Firm No. 265

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICELEV	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
49	Brent Brinker	3N	18E	17	SW	SW	Domestic	61	37	5465.4	35		6/9/1982	Ken Smith Well Drilling Firm No. 265
50	Ann Williams	3N	18E	17	SW	SW	Domestic	64	37	5480.3	41		1/10/1982	Ken Smith Well Drilling Firm No. 265
51	Thomas Mallane	3N	18E	17	SW	SW	Domestic	60	33	5484.9	33		7/24/1978	Ken Smith Well Drilling Firm No. 265
52	Dave Rau	3N	18E	17	SW	SW	Domestic	80	50	5493.8			1/11/1995	Wood River Drilling and Pump Firm No. 265
53	Larry Tucker	3N	18E	17	SW	SW	Domestic	63	40	5478.3			4/19/1999	Wood River Drilling and Pump Firm No. 265
54	Richard Dewitt	3N	18E	17	SW	NW	Domestic	40	6	5517.6	16		7/6/1984	Wood River Drilling and Pump Firm No. 265
55	Stephen Phipps	3N	18E	17	SW	SW	Domestic	65	40.917	5497.0			9/29/1993	Walker Water Systems, Inc. Firm No. 15
56	Thomas Teitge	3N	18E	17	SW	SW	Domestic	77	45	5494.0			3/30/1994	Wood River Drilling and Pump Firm No. 265
57	David McCormike	3N	18E	17	SW	SW	Domestic	62	38	5503.0	47		8/12/1983	Ken Smith Well Drilling Firm No. 265
58	Ken Ward	3N	18E	17	SW	SW	Domestic	61	32	5513.0	38		4/25/1984	Ken Smith Well Drilling Firm No. 265
59	Jerry & Kathy Roth	3N	18E	17	SW	SW	Domestic	72	39	5504.7	39		7/16/1985	Ray Roessler Well Drilling Firm No. 262
60	Heatherlands Subdivision c/o Chuck Ketterm	3N	18E	17	SE	SW	Municipal	100	40	5509.8	50		8/12/1985	Walker Water Systems, Inc. Firm No. 15
61	Dana Moore	3N	18E	17	NW	SW	Domestic	80	60	5494.9	75		4/13/1989	Wood River Drilling and Pump Firm No. 265
62	D. W. Puliam	3N	18E	17	SW	SW	Domestic	64	40.75	5500.3			7/20/1989	Walker Water Systems, Inc. Firm No. 15
63	Paul & Fred Blechmann/Bob Glenn	3N	18E	17	NW	SE	Domestic	200	40	5557.1	100		4/20/1990	Wood River Drilling and Pump Firm No. 265
64	Doug Robens	3N	18E	17	SW	SW	Domestic	63	39.833	5495.5			6/14/1990	Walker Water Systems, Inc. Firm No. 15
65	Cal T. Wagstaff	3N	18E	17	SW	SW	Domestic	97	63	5473.6	90		11/3/1990	Wood River Drilling and Pump Firm No. 265
66	Mark Kralej	3N	18E	17	SW	SW	Domestic	64	40	5499.6			11/12/1990	Walker Water Systems, Inc. Firm No. 15
67	Geoff Parker	3N	18E	17	SW	SW	Domestic	67	35	5506.3	55		7/17/1991	Wood River Drilling and Pump Firm No. 265
68	Gary Hadden	3N	18E	17	NW	SW	Domestic	104	60	5489.6	100		10/1/1991	Wood River Drilling and Pump Firm No. 265
69	Anne M. Morgan	3N	18E	17	SW	SW	Domestic	80	43	5498.9	70		4/8/1992	Wood River Drilling and Pump Firm No. 265
70	Matt Jeffries	3N	18E	17	SW	NW	Domestic	80	21	5504.1	75		11/10/1992	Wood River Drilling and Pump Firm No. 265
71	Engelmann Design Lufkin	3N	18E	19	NE	NE	Domestic	220	7	5491.5	120		8/3/1989	Wood River Drilling and Pump Firm No. 265
72	Elise Lufkin Engelmann Design	3N	18E	19	NE	NE	Domestic	200	12	5487.0			8/23/1990	Wood River Drilling and Pump Firm No. 265
75	Seaboard Inc.	3N	18E	20	NE	NE	Monitor	120	55	5593.7			3/13/1994	Wood River Drilling and Pump Firm No. 265
76	Bob Brennan	3N	18E	20	SW	NW	Domestic	60	9	5495.0	55		5/14/1990	Wood River Drilling and Pump Firm No. 265
77	Mizer Brothers	3N	18E	20	SE	NW	Irrigation	180	41.5	5458.9			9/3/1959	Walker Water Systems, Inc. Firm No. 15
78	Albert M. Murphy	3N	18E	20	SW	NW	Domestic	60	37	5454.0			11/17/1965	Walker Water Systems, Inc. Firm No. 15
79	Seaboard Corporation	3N	18E	20	NE	NE	Monitor	148	74	5496.9			12/31/2003	Wood River Drilling and Pump Firm No. 265
80	Preston Ziegler	3N	18E	20	SE	SW	Domestic	63	8	5461.8			6/17/2004	Wood River Drilling and Pump Firm No. 265
81	Seaboard Properties Inc.	3N	18E	20	NE	NE	Municipal	120	59	5586.9			11/21/2005	Walker Water Systems, Inc. Firm No. 15
82	George Cook	3N	18E	20	SW	NW	Domestic	59	32.5	5463.7			6/15/1982	Walker Water Systems, Inc. Firm No. 15
83	Gann Investments Well #1	3N	18E	20	NW	NW	Domestic/Irrigation/Municipal	61	6	5499.6	20		10/5/1981	Ken Smith Well Drilling Firm No. 265
84	Gann Investments Well #2	3N	18E	20	NW	NW	Domestic/Irrigation/Municipal	61	6	5508.9	20		10/14/1981	Ken Smith Well Drilling Firm No. 265
85	Stephen D. Pruitt	3N	18E	20	SE	SW	Domestic	45		0			7/11/1983	Walker Water Systems, Inc. Firm No. 15
86	Valley Ranch Partners	3N	18E	20	SW	NE	Domestic	140	71	5439.6	84		7/8/1994	Walker Water Systems, Inc. Firm No. 15
87	Valley Ranch Partners	3N	18E	20	SE	NW	Domestic	140	64	5448.6	79		7/20/1994	Walker Water Systems, Inc. Firm No. 15
88	Roger Brown	3N	18E	20	SE	SW	Domestic	49	6	5461.1			5/22/2000	Walker Water Systems, Inc. Firm No. 15
89	Ed Lynt	3N	18E	20	SW	SE	Domestic	115	55	5425.4			5/7/2001	Walker Water Systems, Inc. Firm No. 15
90	James Moore	3N	18E	20	SE	SW	Domestic	61	9	5463.3			8/16/2001	Wood River Drilling and Pump Firm No. 265
91	John Campbell	3N	18E	20	SE	NW	Domestic	45	15	5501.0			11/13/2001	Walker Water Systems, Inc. Firm No. 15
92	Dr. Alban	3N	18E	20	SE	SW	Domestic	60	11	5461.5	31		1/6/1978	Ken Smith Well Drilling Firm No. 265
93	Frank Bramon	3N	18E	20	SE	SW	Domestic	40.5	9	5446.8	16		4/3/1981	Walker Water Systems, Inc. Firm No. 15
94	Ralph Thornton	3N	18E	20	SE	NW	Domestic	63	38	5478.3			4/30/1969	Claude Nicholson Well Drilling Firm No. 159
95	John Jonas	3N	18E	20	SE	SW	Domestic	63	10	5451.9		38	8/2/1977	Norm Ridinger Well Drilling Firm No. 283
96	Mike Susak	3N	18E	20	SW	NW	Domestic	63	10	5480.5		0	6/10/1976	Ken Smith Well Drilling Firm No. 265
97	Jessie Cox	3N	18E	30	NE	SE	Domestic	36	5	5443.2	20		3/30/1988	Wood River Drilling and Pump Firm No. 265
98	New Dear Creek Ranch, Inc.	3N	18E	30	SE	SE	Test	128	47.333	5396.6	52		1/27/1990	Walker Water Systems, Inc. Firm No. 15

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICELEV	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
99	New Dear Creek Ranch, Inc	3N	18E	30	SE	SW	Domestic	250	35	5457.4	120		5/5/1994	Wood River Drilling and Pump Firm No. 265
100	Wes Nash	3N	18E	30	SE	SE	Domestic	60	9	5425.4		45	6/27/1976	Ken Smith Well Drilling Firm No. 265
101	Bob Jonas	3N	18E	29	NW	NE	Domestic	42	5	5471.9		10	6/30/1973	Claude Nicholson Well Drilling Firm No. 159
102	Rusty Lyons	3N	18E	29	SW	SE	Domestic	69	8.25	5420.7		15	7/11/1976	Ray Roessler Well Drilling Firm No. 262
103	Maurice Pyne	3N	18E	29	SW	SE	Domestic	60	20	5405.2	40		9/10/1982	Ken Smith Well Drilling Firm No. 265
104	Rusty Lyons	3N	18E	29	SW	SE	Domestic	69	9	5417.2		15	8/3/1975	Ray Roessler Well Drilling Firm No. 262
105	John Sherer	3N	18E	29	SW	SE	Domestic	83	18	5419.0			6/15/2004	Wood River Drilling and Pump Firm No. 265
106	Prosperous Path LLC	3N	18E	29	SW	SE	Domestic	83	18	5415.7			6/17/2004	Wood River Drilling and Pump Firm No. 265
107	Dee Swartz	3N	18E	29	NE	SE	Domestic	138	45	5409.7	45		5/10/1986	Wood River Drilling and Pump Firm No. 265
108	Macintire Construction	3N	18E	29	NW	NE	Domestic/Irrigation	72	11	5456.0	30		5/23/1983	Ken Smith Well Drilling Firm No. 265
109	Gus Verg	3N	18E	29	NE	NW	Domestic	52	7	5460.8		27	8/15/1981	Ken Smith Well Drilling Firm No. 265
110	Chuck Grub	3N	18E	29	NW	NE	Domestic	71	10	5454.0		14	8/20/1981	Ken Smith Well Drilling Firm No. 265
111	Peter & Diane Cetera	3N	18E	29	SE	SW	Domestic	68		0			11/2/1982	Walker Water Systems, Inc. Firm No. 15
112	James H. Poppy	3N	18E	20	SE	SE	Domestic/Irrigation	157	20	5463.0			12/15/1982	Walker Water Systems, Inc. Firm No. 15
113	Bob Jonas	3N	18E	29	NW	NE	Domestic	58	11	5445.4	19		10/25/1978	Ken Smith Well Drilling Firm No. 265
114	Dick Fairfield	3N	18E	29	NE	NW	Domestic	60	10	5433.7	30		7/20/1986	Wood River Drilling and Pump Firm No. 265
115	Ike Thomas	3N	18E	29	NW	NE	Domestic	61	8	5450.8	23		6/13/1977	Ken Smith Well Drilling Firm No. 265
116	Joe Clement	3N	18E	29	NW	NE	Domestic	71	12	5439.3			4/17/1972	Smith Drilling & Pump Co., Inc. Firm No. 11
117	Lloyd Curtis	3N	18E	29	SW	NE	Domestic	58	6	5439.4		25	12/3/1971	Roessler Well Drilling Firm No. 19
118	Marion Balis	3N	18E	29	SW	SE	Domestic	67	12	5424.7		6	10/11/1971	Roessler Well Drilling Firm No. 19
119	Mid Valley Ventures LLC	3N	18E	29	SW	SE	Domestic	60	23	5402.8			4/16/2003	Wood River Drilling and Pump Firm No. 265
120	Leslie Tidwell	3N	18E	29	NE	SE	Domestic	120	50	5400.8			4/16/2003	Wood River Drilling and Pump Firm No. 265
121	Orville Jo Harris	3N	18E	29	SE	SW	Domestic	46	8	5413.2			5/23/1972	Claude Nicholson Well Drilling Firm No. 159
122	Charles Thomas	3N	18E	29	NE	NW	Domestic	72	12	5440.2		3	9/3/1973	Claude Nicholson Well Drilling Firm No. 159
123	Richard Castle	3N	18E	29	NE	SW	Domestic	64	9	5427.0			8/10/1972	Claude Nicholson Well Drilling Firm No. 159
124	Ray Kinkade	3N	18E	29	NE	SW	Domestic	62	10	5430.1			8/12/1972	Claude Nicholson Well Drilling Firm No. 159
125	Tom Richmond	3N	18E	29	NW	NE	Domestic	62	30	5427.7		0	6/22/1972	Roessler Well Drilling Firm No. 19
126	Anseon & Jean Beard	3N	18E	29	SE	NW	Domestic	67	9.083	5429.7			6/3/1992	Walker Water Systems, Inc. Firm No. 15
127	Bob Brennan	3N	18E	29	NW	SE	Domestic	75	18	5422.1	65		7/22/1992	Scott Drilling & Pump Co. Firm No. 327
128	Mike & Sandy Killion	3N	18E	29	NE	NW	Domestic	60	19	5431.3	48		4/29/1993	Wood River Drilling and Pump Firm No. 265
129	Tim Gardner	3N	18E	29	SW	SE	Domestic	60	10	5408.2	55		5/18/1993	Wood River Drilling and Pump Firm No. 265
130	Brian E. Elkirs	3N	18E	29	NW	NE	Domestic	100	10	5441.6	80		6/11/1993	Wood River Drilling and Pump Firm No. 265
131	J. Liesenfeld/C. Crain	3N	18E	29	SW	SE	Domestic	69.5	14.5	5408.6			4/25/1996	Walker Water Systems, Inc. Firm No. 15
132	John Whittier	3N	18E	29	SE	NW	Domestic	83	14	5428.4			9/28/1999	Wood River Drilling and Pump Firm No. 265
133	Kiki Tidwell	3N	18E	29	NW	SE	Domestic	160	45	5394.1	155		10/2/1999	Scott Drilling & Pump Co. Firm No. 327
134	Eddie Fields	3N	18E	29	NE	NW	Domestic	59	12	5435.0			5/11/2000	Wood River Drilling and Pump Firm No. 265
135	Paul Petit	3N	18E	29	NE	NW	Domestic	98	23	5421.8			10/12/2001	Wood River Drilling and Pump Firm No. 265
136	Thomas B. Campion	3N	18E	29	SE	SW	Domestic/Fire Protection	50	4.667	5414.0			5/31/1985	Walker Water Systems, Inc. Firm No. 15
137	Vance Hanawalt	3N	18E	29	SE	SE	Domestic	57	9	5428.4	30		9/23/1978	Ken Smith Well Drilling Firm No. 265
138	Scott Edwards	3N	18E	29	NW	NE	Domestic	59	12	5448.4	17		9/11/1978	Ken Smith Well Drilling Firm No. 265
139	Dr. Alban	3N	18E	29	NE	NW	Domestic	54	12	5433.2	22		9/5/1978	Ken Smith Well Drilling Firm No. 265
140	Harold Schmidt	3N	18E	29	SW	SW	Domestic	49	10.583	5394.3			3/14/1988	Walker Water Systems, Inc. Firm No. 15
141	Carol Shepard/Bob Allen Contracting	3N	18E	29	NW	NE	Domestic	60	14	5449.2	42		9/8/1989	Wood River Drilling and Pump Firm No. 265
142	Dr. Richard Fairfield	3N	18E	29	NE	NW	Domestic	92	15	5428.0	24		3/7/1990	Wood River Drilling and Pump Firm No. 265
143	Fred Lema	3N	18E	29	SE	SE	Domestic	38	20	5406.8	35		3/6/1990	Wood River Drilling and Pump Firm No. 265
144	David Rognlien	3N	18E	29	SW	NE	Domestic	67	14	5436.6	65		8/14/1990	Wood River Drilling and Pump Firm No. 265
145	Tim Cole	3N	18E	29	NE	SE	Domestic	106	42	5410.0	100		8/21/1990	Scott Drilling & Pump Co. Firm No. 327
146	Dr. & Mrs. W. E. Andrews	3N	18E	29	NW	NE	Domestic	44	12.167	5442.5			10/3/1990	Walker Water Systems, Inc. Firm No. 15

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICLEV	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
147	Dr. Donald M. Levin	3N	18E	29	SW	SW	Domestic	49	8.583	5395.1			11/9/1990	Walker Water Systems, Inc. Firm No. 15
148	Steve Greer	3N	18E	29	NW	NE	Domestic	45	9	5441.5	35		8/19/1991	Scott Drilling & Pump Co. Firm No. 327
149	Anson & Jean Beard	3N	18E	29	SE	NW	Domestic	67	11.917	5426.2			6/2/1992	Walker Water Systems, Inc. Firm No. 15
155	Rod Overfield	3N	18E	32	NW	SE	Subdivision	100	12	5381.0		7	9/14/1973	Walker Water Systems, Inc. Firm No. 15
156	Mrs. Dorothy Hollingsworth	3N	18E	32	SE	NE	Irrigation	201	7	5423.4			8/23/1955	Smith Drilling & Pump Co., Inc. Firm No. 11
157	Idaho Power Co.	3N	18E	32	SE	SE	Domestic/Irrigation/Fire Protection	141	17	5362.8		40	6/24/1975	Walker Water Systems, Inc. Firm No. 15
159	Pat Bauman	3N	18E	32	NW	NE	Domestic	63	11	5396.2			8/10/2006	Wood River Drilling and Pump Firm No. 265
160	Bob Decarufel	3N	18E	32	NW	NE	Domestic	63	11	5397.2			8/9/2006	Wood River Drilling and Pump Firm No. 265
161	Mike Smith	3N	18E	32	NW	NE	Domestic	63	11	5400.2			8/10/2006	Wood River Drilling and Pump Firm No. 265
162	Bruce Butler	3N	18E	32	NW	NE	Domestic	61	8	5397.3	23		8/10/1981	Ken Smith Well Drilling Firm No. 265
163	Dave Wendland	3N	18E	32	NW	NE	Domestic	41	7	5406.9	15		8/11/1981	Ken Smith Well Drilling Firm No. 265
164	Olympus Environmental, Inc.	3N	18E	32	SE	SE	Monitor	23	15.5	5362.9			2/25/1994	Hiddleston & Son, Inc. Firm No. 35
165	Ray Jefferson	3N	18E	32	SE	SE	Domestic	43	14	5370.6	35		8/28/1994	Scott Drilling & Pump Co. Firm No. 327
166	Tom Perakos c/o Kavanaugh Construction	3N	18E	32	SW	SE	Domestic	60	5	5364.9	45		10/30/1995	Wood River Drilling and Pump Firm No. 265
167	Tony Jefferson	3N	18E	32	SE	SE	Domestic	50	7	5371.8			7/2/1996	Walker Water Systems, Inc. Firm No. 15
168	Alan Walch	3N	18E	32	SW	SE	Domestic	43	6	5370.0	40		8/13/1998	Scott Drilling & Pump Co. Firm No. 327
169	Robert Monahan	3N	18E	32	NW	NE	Domestic	80	18	5404.8	70		12/4/1998	Wood River Drilling and Pump Firm No. 265
170	Bill Phillips	3N	18E	32	SW	SE	Domestic	63	4	5366.8			5/11/2000	Wood River Drilling and Pump Firm No. 265
171	Tom Perakos	3N	18E	32	SW	SE	Domestic	46	6	5364.7			7/12/2000	Walker Water Systems, Inc. Firm No. 15
172	Eric Remais	3N	18E	32	SE	NW	Domestic	81	11	5379.5			8/30/2000	Wood River Drilling and Pump Firm No. 265
173	Joyce Gordon & Eric Reamis	3N	18E	32	SE	NW	Domestic	61	7	5397.6			10/2/2001	Wood River Drilling and Pump Firm No. 265
174	Gary Hardman	3N	18E	32	NW	NE	Domestic	71	9.75	5397.9			6/4/1985	Walker Water Systems, Inc. Firm No. 15
175	Eric & Barbara Hall	3N	18E	32	NW	NE	Domestic	83	20	5397.5			5/3/2002	Wood River Drilling and Pump Firm No. 265
176	Bill Gerhke	3N	18E	32	NE	NW	Domestic	70	20	5384.4	30		11/28/1980	Ken Smith Well Drilling Firm No. 265
177	Flying Heart Ranch Owners Association	3N	18E	32	SW	SE	Fire Protection	120	6	5360.9			10/14/2002	Wood River Drilling and Pump Firm No. 265
178	Beck Construction	3N	18E	32	NE	NW	Domestic	130	11.583	5393.5		67	10/25/1977	Bob Roessler Drilling Firm No. 6
179	Jack Smith	3N	18E	32	NW	NE	Domestic	141	17	5395.8		94	10/25/1977	Bob Roessler Drilling Firm No. 6
180	Bill Gerkie	3N	18E	32	NE	NW	Municipal	100	10	5395.0		20	5/22/1977	Ken Smith Well Drilling Firm No. 265
181	Laton McCortney	3N	18E	32	NE	NW	Domestic	45	6	5403.7		2	10/5/1967	Roessler Well Drilling Firm No. 19
182	Bill S. Butler	3N	18E	32	NW	NE	Municipal	77	19	5387.3			4/7/1971	Roessler Well Drilling Firm No. 19
183	Robert S. Giddings	3N	18E	32	NW	NE	Domestic	45	7	5409.6		4	5/23/1970	Roessler Well Drilling Firm No. 19
184	Whitney Meyers	3N	18E	32	NW	NE	Domestic	40	8	5405.2			9/25/1968	Harry A. Moore Firm No. 8
185	Glen Withers	3N	18E	32	SE	SE	Domestic	42	6	5369.1		9	6/9/1972	Roessler Well Drilling Firm No. 19
186	Idaho Power Substation Hailey	3N	18E	32	SE	SE	Irrigation	101	2	5376.9		12	7/26/1972	Walker Water Systems, Inc. Firm No. 15
187	Don Martin	3N	18E	32	NW	NW	Domestic	63	16	5417.5		23	7/8/1972	Roessler Well Drilling Firm No. 19
188	Ken Grayson	3N	18E	32	SW	NE	Domestic	65	12.167	5392.0			9/11/1992	Walker Water Systems, Inc. Firm No. 15
189	Greg Jefferson	3N	18E	32	SE	SE	Domestic	45	8	5387.2	35		10/24/1992	Scott Drilling & Pump Co. Firm No. 327
190	Flying Heart Ranch Subdivision	3N	18E	32	SE	SE	Fire Protection	45	4	5364.4	35		9/22/1993	Scott Drilling & Pump Co. Firm No. 327
191	Pat Bauman	3N	18E	32	NW	NE	Domestic	55	15	5392.8	50		10/12/1993	Wood River Drilling and Pump Firm No. 265
192	Lynn Cunningham	3N	18E	32	NW	NE	Domestic	45	8	5403.2	35		8/6/1991	Scott Drilling & Pump Co. Firm No. 327
193	Virginia Hall	3N	18E	32	SE	SW	Domestic	45	8	5359.7	35		9/6/1991	Scott Drilling & Pump Co. Firm No. 327
194	Mark A. Daffe	3N	18E	32	NW	NE	Domestic	80	7	5407.0	60		5/18/1992	Wood River Drilling and Pump Firm No. 265
195	Harry Rinker	3N	18E	32	SE	SE	Domestic	45	8	5370.5	25		7/21/1992	Scott Drilling & Pump Co. Firm No. 327
196	William Nomis	3N	18E	32	NE	NW	Domestic/Irrigation	46	7	5404.1	30		4/28/1988	Wood River Drilling and Pump Firm No. 265
197	Calvary Church Comp.	3N	18E	32	SE	SE	Domestic	72	30	5348.7	65		4/2/1988	Wood River Drilling and Pump Firm No. 265
198	Roger Shelton	3N	18E	32	NW	NE	Domestic	35	6	5403.8	30		11/5/1988	Wood River Drilling and Pump Firm No. 265
199	Ray Jefferson	3N	18E	32	SW	SE	Domestic	56	15	5371.1	50		5/3/1988	Wood River Drilling and Pump Firm No. 265
200	Jim Sutton	3N	18E	32	SE	SW	Domestic	67	3	5367.8	15		6/27/1989	Wood River Drilling and Pump Firm No. 265

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICLEVEL	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
201	Ward W. Woods, Jr.	3N	18E	32	SW	NE	Domestic	51	7.667	5396.7			8/14/1990	Walker Water Systems, Inc. Firm No. 15
202	James Frehline	3N	18E	32	SW	SE	Domestic/Irrigation	72	8	5359.7	55		10/16/1990	Scott Drilling & Pump Co. Firm No. 327
203	Cloverly Farms John Chapman	3N	18E	32	SW	NE	Irrigation	100	12	5382.8	60		3/15/1991	Wood River Drilling and Pump Firm No. 265
204	Wood River Properties	3N	18E	32	SW	NE	Domestic	45	8	5388.2	35		8/7/1991	Scott Drilling & Pump Co. Firm No. 327
205	Richard Hesse	3N	18E	33	NE	SW	Domestic	260	104.417	5327.7			10/29/1986	Walker Water Systems, Inc. Firm No. 15
206	Dane Urbany	3N	18E	33	SW	SW	Domestic	123	27	5380.7			8/31/2004	Wood River Drilling and Pump Firm No. 265
207	Jean Pierre Chesnel	3N	18E	33	SE	SW	Domestic	128	60	5362.7			12/19/2004	Walker Water Systems, Inc. Firm No. 15
208	KSKI Radio	3N	18E	33	SW	SW	Domestic	37		0	2		8/19/1981	Walker Water Systems, Inc. Firm No. 15
209	Jim McClatchy	3N	18E	33	NW	NE	Domestic	231	115	5366.4	135		1/9/1982	Ray Roessler Well Drilling Firm No. 262
210	Blair & Gina Clark	3N	18E	33	SE	SW	Domestic	120	51	5363.1			8/30/2006	Walker Water Systems, Inc. Firm No. 15
211	Jim & Janet Freeman	3N	18E	33	NW	SW	Domestic	123	60	5351.6			10/1/2006	Wood River Drilling and Pump Firm No. 265
212	Bing Copland	3N	18E	33	NE	SW	Domestic/Industrial	127	70	5351.8	100		4/25/1987	Wood River Drilling and Pump Firm No. 265
213	Mark & Mary Ann Fisher	3N	18E	33	SW	SW	Domestic	180	44	5362.0			9/16/2002	Wood River Drilling and Pump Firm No. 265
214	Mr. Reeder	3N	18E	33	NE	SW	Domestic	113	82	5353.1			10/18/1978	Ken Smith Well Drilling Firm No. 265
215	State Department of Highways	3N	18E	33	SW	SW	Domestic	100	20	5364.7		12	4/17/1968	Harvey E. (Pete) Austin Firm No. 73
216	Rick Filkins	3N	18E	33	SW	SW	Domestic	120	48	5363.3			4/18/2003	Wood River Drilling and Pump Firm No. 265
217	Kris Webster	3N	18E	33	SW	SW	Domestic	120	40	5365.2			6/4/2003	Wood River Drilling and Pump Firm No. 265
218	Mike Chapman	3N	18E	33	SW	SW	Domestic	120	41	5367.9			6/30/2003	Wood River Drilling and Pump Firm No. 265
219	Cory Lyman	3N	18E	33	SW	SW	Domestic	120	41	5365.5			7/1/2003	Wood River Drilling and Pump Firm No. 265
220	Rob & Dina Beck	3N	18E	33	SW	SW	Domestic	128	37	5366.7			7/2/2003	Wood River Drilling and Pump Firm No. 265
221	Dwight Smith	3N	18E	33	NE	SW	Domestic	122	50	5389.4	97		9/26/1985	Wood River Drilling and Pump Firm No. 265
222	Jim Curran (Craig Johnston Construction)	3N	18E	33	NE	SW	Domestic	140	70	5355.7			5/18/1999	Wood River Drilling and Pump Firm No. 265
223	James A. Evans	3N	18E	33	SW	SW		135	40	5373.1	120		7/4/1999	Scott Drilling & Pump Co. Firm No. 327
224	John Galgano	3N	18E	33	NW	SW	Domestic	121	45	5359.0			5/9/2000	Wood River Drilling and Pump Firm No. 265
225	John Drake	3N	18E	33	SW	SW	Domestic	107	50	5352.3			7/17/2000	Walker Water Systems, Inc. Firm No. 15
226	Matthew Barrie	3N	18E	33	NE	SW	Domestic	160	74	5367.8			9/27/2000	Wood River Drilling and Pump Firm No. 265
227	Brian Rozyla	3N	18E	33	SE	SW	Domestic	130	40	5362.6			10/31/2000	Wood River Drilling and Pump Firm No. 265
228	Mike Goltandia	3N	18E	33	SE	SW	Domestic	123	42	5359.6			4/4/2001	Wood River Drilling and Pump Firm No. 265
229	Karin Martin	3N	18E	33	SE	SW	Domestic	101	48	5374.0			5/30/2001	Wood River Drilling and Pump Firm No. 265
230	Rob Rheinschild	3N	18E	33	SW	SW	Domestic	140	47	5361.7			8/15/2001	Wood River Drilling and Pump Firm No. 265
231	Rod Kegley	3N	18E	33	NW	SW	Domestic	123	47	5361.2			4/16/2002	Wood River Drilling and Pump Firm No. 265
232	Richard Vanderpool	3N	18E	33	SE	SW	Domestic	134	40	5361.5			7/16/2002	Wood River Drilling and Pump Firm No. 265
233	Chun Chinn	3N	18E	33	SW	SW	Domestic	123	44	5371.4			7/15/2002	Wood River Drilling and Pump Firm No. 265
234	Richard Hess	3N	18E	33	NW	SE	Domestic	200	120	5317.8			8/8/1979	Smith Drilling & Pump Co., Inc. Firm No. 11
235	Eva & James Hague	3N	18E	33	NW	SW	Domestic	123	48	5360.7			8/9/2002	Wood River Drilling and Pump Firm No. 265
236	Pete Miller	3N	18E	33	SE	SW	Domestic	80	47	5387.5	70		5/31/1990	Scott Drilling & Pump Co. Firm No. 327
238	Kristy Pigeon	3N	18E	33	SW	NW	Domestic	129	35	5395.2	110		4/24/1991	Wood River Drilling and Pump Firm No. 265
239	Kris Halle	3N	18E	33	NE	SW	Domestic	156	91	5353.8	120		6/12/1993	Wood River Drilling and Pump Firm No. 265
240	Art Theide	3N	18E	33	NW	SE	Domestic	220	68	5395.0	195		6/30/1993	Scott Drilling & Pump Co. Firm No. 327
241	Ron Camington	3N	18E	33	SW	NE	Domestic	160	75	5413.2	140		10/2/1993	Scott Drilling & Pump Co. Firm No. 327
242	Mike Pamiller	3N	18E	33	NW	SE	Domestic	112	75	5413.9	85		4/2/1994	Scott Drilling & Pump Co. Firm No. 327
243	Rob Reed	3N	18E	33	SW	SE	Domestic	260	130	5372.9			7/19/1995	Wood River Drilling and Pump Firm No. 265
244	Bill Fruhling	3N	18E	33	NW	NE	Domestic	311	100.333	5427.0			7/7/1997	Walker Water Systems, Inc. Firm No. 15
245	Michel Martel	3N	18E	33	SE	NW	Domestic	200	90	5383.5	180		7/14/1997	Wood River Drilling and Pump Firm No. 265
246	Jim Bishop	3N	18E	33	NE	SW	Domestic	151	76	5399.9	76		9/12/1983	Ray Roessler Well Drilling Firm No. 262
247	Rod Thomson	3N	18E	33	SE	SW	Domestic	140	30	5403.0	120		12/10/1987	Wood River Drilling and Pump Firm No. 265
248	Bruce Meallea	3N	18E	33	NE	SW	Domestic	140	70	5372.0	120		4/18/1989	Wood River Drilling and Pump Firm No. 265
249	John Chapman	3N	18E	32	SW	NE	Irrigation	126	60	5338.2	120		4/11/1989	Wood River Drilling and Pump Firm No. 265

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICLEV	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
250	Doug Robens	3N	18E	33	SE	SW	Domestic	88.5	50.75	5409.3			6/5/1989	Walker Water Systems, Inc. Firm No. 15
251	Kenneth Bulttram	3N	18E	33	SE	SW	Domestic/Irrigation	205	46	5372.0	60		8/22/1989	Wood River Drilling and Pump Firm No. 265
252	Jim & Barbara Hobbs	3N	18E	33	SE	SW	Domestic	103	39.833	5374.7			6/19/1990	Walker Water Systems, Inc. Firm No. 15
254	Robert Malberg	2N	18E	5	NE	NE	Domestic	50	18	5346.0		5	11/21/1965	Walker Water Systems, Inc. Firm No. 15
255	Fredd Haring	2N	18E	5	NE	SE	Domestic	82	10	5342.0	30		11/29/1985	Wood River Drilling and Pump Firm No. 265
256	Dene Oliver	2N	18E	5	SE	SE	Domestic	67	17	5327.7			12/1/2003	Walker Water Systems, Inc. Firm No. 15
257	Kim Seegmiller	2N	18E	5	NW	NE	Domestic	50	5	5359.9	7		11/4/1982	Ken Smith Well Drilling Firm No. 265
258	Perry Thomas	2N	18E	5	NE	SE	Domestic	102	15	5334.4	18		12/10/1981	Ken Smith Well Drilling Firm No. 265
259	Tom Swenson	2N	18E	5	SW	NE	Domestic	38	4	5352.9	30		6/22/1987	Wood River Drilling and Pump Firm No. 265
260	Flying Heart Ranch	2N	18E	5	SW	NW	Municipal	80	10	5355.0	15		9/5/1980	Ken Smith Well Drilling Firm No. 265
261	Dale Donnley	2N	18E	5	SE	SE	Domestic	50	7	5338.0	32		9/8/1980	Ken Smith Well Drilling Firm No. 265
262	Bud Teasley	2N	18E	5	SE	SE	Domestic	47	7.5	5336.7		20.5	8/25/1977	Bob Roessler Drilling Firm No. 6
263	Doug Walton	2N	18E	5	NE	SE	Domestic	53	9	5340.4		20	11/10/1977	Ken Smith Well Drilling Firm No. 265
264	Bob Reese	2N	18E	5	NE	SE	Domestic	53	6	5339.6		20	9/22/1977	Norm Ridinger Well Drilling Firm No. 283
265	Dale Donnley	2N	18E	5	NE	SE	Domestic	76	12	5332.2		0	3/28/1977	Ken Smith Well Drilling Firm No. 265
266	Van & Vicki Williams	2N	18E	5	NE	NE	Domestic	45	10	5359.0	43		8/30/1999	Scott Drilling & Pump Co. Firm No. 327
267	WGW LLC	2N	18E	5	NE	NE	Other	132	14.5	5360.0			6/15/2000	Walker Water Systems, Inc. Firm No. 15
268	WGW LLC	2N	18E	5	NE	NE	Other	132	14	5363.6			6/25/2000	Walker Water Systems, Inc. Firm No. 15
269	WGW LLC	2N	18E	5	NE	NE	Domestic	137	25	5350.6			8/23/2000	Walker Water Systems, Inc. Firm No. 15
270	Bruce Willis	2N	18E	5	NW	NE	Domestic	63	8	5357.6			8/12/2002	Wood River Drilling and Pump Firm No. 265
271	Peter Ahrene	2N	18E	5	NE	SE	Domestic	52	7	5336.8	9		6/21/1979	Ken Smith Well Drilling Firm No. 265
272	Bruce Willis	2N	18E	5	NW	NE	Domestic	62	5	5354.1	55		7/15/1991	Wood River Drilling and Pump Firm No. 265
273	Pat Hansing	2N	18E	5	SW	NE	Domestic	140	53	5299.2	135		7/27/1992	Wood River Drilling and Pump Firm No. 265
274	Walter King	2N	18E	5	SW	NE	Domestic	58	6	5351.7	45		8/6/1993	Wood River Drilling and Pump Firm No. 265
275	Flying Heart Ranch Subdivision	2N	18E	5	NE	NE	Fire Protection	45	4	5361.4	40		9/20/1993	Scott Drilling & Pump Co. Firm No. 327
276	Flying Heart Ranch Subdivision	2N	18E	5	NE	NE	Fire Protection	45	4	5361.9	35		9/21/1993	Scott Drilling & Pump Co. Firm No. 327
277	Harry Hagey	2N	18E	5	NW	NE	Domestic	60	8	5355.9			12/9/1993	Wood River Drilling and Pump Firm No. 265
278	Pete Sturtivant	2N	18E	5	NE	SE	Domestic	120	6	5339.6	100		8/2/1995	Wood River Drilling and Pump Firm No. 265
279	Edward & Vickie O'Gara	2N	18E	5	NW	NE	Domestic	80	6	5357.3	60		9/15/1995	Wood River Drilling and Pump Firm No. 265
280	John Goodmanson	2N	18E	5	SW	NE	Domestic	53	7	5349.4	12		8/20/1983	Ken Smith Well Drilling Firm No. 265
281	John Biggs	2N	18E	5	SW	NE	Domestic	50	5	5350.8	15		6/10/1984	Ken Smith Well Drilling Firm No. 265
282	Orlando Ferrante	2N	18E	5	SW	NE	Domestic	79	10	5345.2	10		5/27/1988	Wood River Drilling and Pump Firm No. 265
283	Don Brandenburg	2N	18E	5	NW	NE	Domestic	51	5.75	5357.5			8/1/1989	Walker Water Systems, Inc. Firm No. 15
284	Chris Palmer c/o Housel Construction	2N	18E	5	NW	NE	Domestic	60	9	5349.8	55		5/25/1990	Wood River Drilling and Pump Firm No. 265
285	Bruce Willis	2N	18E	5	SW	NE	Domestic/Irrigation	63	3	5351.0	60		7/20/1990	Wood River Drilling and Pump Firm No. 265
286	Peter Trust (Perry Thomas)	2N	18E	5	SE	NE	Domestic/Irrigation	85	7	5352.9	75		3/21/1991	Scott Drilling & Pump Co. Firm No. 327
287	Bruce Willis	2N	18E	5	NE	NE	Domestic	64	5	5359.3	55		6/10/1991	Wood River Drilling and Pump Firm No. 265
288	Wayne McKenzie	2N	18E	4	NW	SW	Domestic	49	7	5351.8		0	5/11/1972	Roessler Well Drilling Firm No. 19
289	Eari McCoy	2N	18E	4	NW	NW	Domestic	52	12	5372.8		0	6/4/1973	Claude Nicholson Well Drilling Firm No. 159
290	Melvin A. Drexler	2N	18E	4	SE	SW	Domestic	47	18	5323.9		2	6/9/1961	Billy G. Martin
291	E. Perry Thomas	2N	18E	4	NW	SW	Irrigation/Stock	91	5.542	5347.6			8/8/1986	Walker Water Systems, Inc. Firm No. 15
292	Peter Koss	2N	18E	4	SW	NE	Domestic	141	68	5330.8			8/26/2003	Wood River Drilling and Pump Firm No. 265
293	Kimberly Richmond	2N	18E	4	NW	NW	Domestic	103	16	5354.8			6/14/2004	Wood River Drilling and Pump Firm No. 265
294	Garth Callaghan Construction	2N	18E	4	NW	SE	Domestic	103	64	5316.9			11/11/2004	Wood River Drilling and Pump Firm No. 265
295	Douglas & Nancy Fenn	2N	18E	4	SW	SW	Domestic	63	12	5316.9			11/12/2004	Wood River Drilling and Pump Firm No. 265
296	Ralph P. Davidson	2N	18E	4	SE	SE	Domestic	52	5	5364.8	20		5/29/1980	Ray Roessler Well Drilling Firm No. 262
297	William Sullivan	2N	18E	4	NW	SE	Domestic	103	65	5318.2			7/18/2005	Wood River Drilling and Pump Firm No. 265
298	McStay Construction for Bob McDonald	2N	18E	4	NW	SW	Domestic	87	4.583	5350.3			7/6/1983	Walker Water Systems, Inc. Firm No. 15

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICLEVEL	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
299	Gary Marcroft	2N	18E	9	NW	NE	Domestic	143	60	5298.6			10/25/2007	Wood River Drilling and Pump Firm No. 265
300	Randall Acker	2N	18E	4	SW	SE	Domestic	121	52	5313.4			11/10/2000	Wood River Drilling and Pump Firm No. 265
301	Pat Savaria	2N	18E	4	NW	SE	Domestic	123	60	5313.3			5/17/2001	Wood River Drilling and Pump Firm No. 265
302	Jim & Shirley Savaria	2N	18E	4	SW	SE	Domestic	105	59	5314.9			11/8/2001	Walker Water Systems, Inc. Firm No. 15
303	Thad Farnham	2N	18E	4	SW	SE	Domestic	140	65	5311.6			11/12/2001	Wood River Drilling and Pump Firm No. 265
304	Norman H. Malone	2N	18E	4	SW	NE	Domestic	109	50.333	5344.5			5/28/1985	Walker Water Systems, Inc. Firm No. 15
305	Garth Callaghan	2N	18E	4	SW	SE	Domestic	101	67	5314.1			4/12/2002	Wood River Drilling and Pump Firm No. 265
306	Tom Richmond	2N	18E	4	NW	NW	Fire Protection	135	17	5365.2	90	73	9/21/2002	Couch Well Drilling, Inc. Firm No. 161
307	Ron Wilcox	2N	18E	4	SW	NE	Domestic	143	51	5342.1			7/11/2002	Wood River Drilling and Pump Firm No. 265
308	John Bogovskie	2N	18E	4	NE	NW	Domestic	110	30	5378.0	90		6/2/1987	Wood River Drilling and Pump Firm No. 265
309	Tom Richmond	2N	18E	4	NW	NW	Domestic	52	16	5367.2	26		11/29/1980	Ken Smith Well Drilling Firm No. 265
310	Art Boozer	2N	18E	4	SW	SE	Domestic	98	42	5320.5	49		6/17/1977	Ken Smith Well Drilling Firm No. 265
311	Owen Stepleton	2N	18E	4	SE	SW	Domestic	72.5	14	5328.9		10	6/20/1977	Roessler Well & Pump Service Firm No. 22
312	Rex Braithwaite	2N	18E	4	NW	SW	Domestic	36	14	5342.2		3	9/29/1966	Roessler Well Drilling Firm No. 19
313	Clyde Green	2N	18E	4	NW	SW	Domestic	37	13	5342.8		8	8/6/1966	Roessler Well Drilling Firm No. 19
314	W. R. Hafer	2N	18E	4	NW	SW	Domestic	35	14	5340.3		8	8/23/1966	Roessler Well Drilling Firm No. 19
315	Jim Savaria	2N	18E	4	SW	SE	Domestic	63	42	5333.3		0	5/13/1968	Roessler Well Drilling Firm No. 19
316	Hans Beekwilder	2N	18E	4	SW	NW	Domestic	80	20	5346.0			4/15/2003	Wood River Drilling and Pump Firm No. 265
317	Gene Healy	2N	18E	4	SW	SW	Domestic	46	15	5323.0		10	6/10/1977	Ken Smith Well Drilling Firm No. 265
318	David Quinney	2N	18E	4	SW	SW	Domestic	64	12	5326.5	60		8/10/1998	Wood River Drilling and Pump Firm No. 265
319	Steve Thompson	2N	18E	4	SW	SE	Domestic	88	48	5315.7			12/8/1998	Walker Water Systems, Inc. Firm No. 15
321	Jim Woodyard	2N	18E	4	NE	NW	Domestic	160	43	5368.4	155		8/7/1999	Scott Drilling & Pump Co. Firm No. 327
322	Jim Kukurin	2N	18E	4	NE	NW	Domestic	160	55	5340.2	155		9/8/1999	Scott Drilling & Pump Co. Firm No. 327
323	Thad Blanton	2N	18E	4	NW	SE	Domestic	130	57	5327.5			7/12/2000	Wood River Drilling and Pump Firm No. 265
324	Ada VanDoren	2N	18E	4	SW	SE	Domestic	89	5	5360.6			7/19/2000	Walker Water Systems, Inc. Firm No. 15
325	Jeff Rice	2N	18E	4	SW	SE	Domestic	89	55	5318.1			11/2/2000	Walker Water Systems, Inc. Firm No. 15
326	Brad Bjorsness/Carol Mor	2N	18E	4	SE	SE	Domestic	100	50	5320.7	90		9/27/1996	Wood River Drilling and Pump Firm No. 265
327	Leslie Conner	2N	18E	4	NW	NE	Domestic	160	60	5360.6	140		10/22/1996	Wood River Drilling and Pump Firm No. 265
328	Idaho Transportation Department	2N	18E	4	NW	NW	Domestic	128	48	5319.1	51	3	5/15/1997	Walker Water Systems, Inc. Firm No. 15
329	Ron & Lorraine Wilcox	2N	18E	4	SW	NE	Domestic	130	69	5323.4			1/20/1998	Wood River Drilling and Pump Firm No. 265
330	Ted Higginbotham	2N	18E	4	SW	SE	Domestic	82	46	5326.5			4/16/1998	Walker Water Systems, Inc. Firm No. 15
331	Jeff Rice	2N	18E	4	NE	NW	Domestic	150	45	5363.4	150		6/27/1998	Scott Drilling & Pump Co. Firm No. 327
332	EMB Hailey	2N	18E	4	NE	SW	Municipal	190	25	5330.2	133	108	10/19/1995	Walker Water Systems, Inc. Firm No. 15
333	E. Perry Thomas	2N	18E	4	NW	SW	Domestic	117	6	5340.6	110		7/25/1995	Wood River Drilling and Pump Firm No. 265
334	City of Hailey	2N	18E	4	SE	SW	Municipal/Exploratory	220	16	5328.6			5/30/1996	Wood River Drilling and Pump Firm No. 265
335	City of Hailey	2N	18E	4	SE	SW	Municipal	201	13.083	5335.0			4/25/1997	Vollmer Well Drilling Firm No. 383
336	City of Hailey	2N	18E	4	SE	SW	Municipal	205	13.25	5338.9			6/19/1997	Vollmer Well Drilling Firm No. 383
337	Ron & Lorraine Wilcox	2N	18E	4	SW	SE	Domestic	85	45	5349.0	75		9/13/1991	Scott Drilling & Pump Co. Firm No. 327
338	Stephen L. Dick	2N	18E	4	SW	SE	Domestic	108	40	5337.1			6/10/1991	Walker Water Systems, Inc. Firm No. 15
339	Ron & Lorraine Wilcox	2N	18E	4	SE	SE	Domestic	130	58	5333.4	100		5/5/1992	Scott Drilling & Pump Co. Firm No. 327
340	Randy Coriell	2N	18E	4	NW	NE	Domestic	110	47	5375.2	75		7/14/1992	Scott Drilling & Pump Co. Firm No. 327
341	Jim Savaria	2N	18E	4	SW	SE	Domestic	120	52	5317.6	100		11/3/1992	Wood River Drilling and Pump Firm No. 265
342	Thadd Blanton	2N	18E	4	NW	SE	Domestic	100	60	5324.6	90		5/27/1993	Wood River Drilling and Pump Firm No. 265
343	Morgan Thomas	2N	18E	4	NW	SE	Domestic	100	49	5330.3	95		5/19/1994	Wood River Drilling and Pump Firm No. 265
344	Guy Bonnier	2N	18E	4	NW	SW	Domestic	40	11	5344.2	14		8/29/1983	Ken Smith Well Drilling Firm No. 265
345	River Grove Farm/E. Perry Thomas	2N	18E	4	NW	SW	Propagation/Standby Fire F	89	9	5344.2			8/13/1985	Walker Water Systems, Inc. Firm No. 15
346	Cal Gas	2N	18E	4	SW	SW	Domestic	57	30	5313.5	50		8/5/1988	Wood River Drilling and Pump Firm No. 265
347	Jim W. Koonce	2N	18E	4	NE	NW	Domestic	120	59	5336.6			12/19/1989	Wood River Drilling and Pump Firm No. 265

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICELEV	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
348	Idaho Ranch Estates	2N	18E	3	SW	SW	Domestic/Stock/Commerc	156	50	5312.5	50		5/26/1989	Wood River Drilling and Pump Firm No. 265
349	Chevron, USA Inc.	2N	18E	9	NW	SE	Monitoring	38	22.6	5295.4			8/8/1988	Northern Engineering & Testing Firm No. 459
350	Chevron, USA Inc.	2N	18E	9	NW	SE	Monitoring	38	23.2	5292.9			8/9/1988	Northern Engineering & Testing Firm No. 459
351	Chevron, USA Inc.	2N	18E	9	NW	SE	Monitoring	38	22.2	5292.5			8/10/1988	Northern Engineering & Testing Firm No. 459
352	United Oil	2N	18E	9	NW	SE	Monitoring	38	24	5293.4			9/15/1993	Wood River Drilling and Pump Firm No. 265
353	KleinFelder, Inc. (Alan's Market)	2N	18E	9	NW	NW	Monitoring	25	15	5308.4			5/4/1998	Hiddleston & Son, Inc. Firm No. 35
354	KleinFelder, Inc. (Alan's Market)	2N	18E	9	NW	NW	Monitoring	25	15	5311.3			5/4/1998	Hiddleston & Son, Inc. Firm No. 35
355	KleinFelder, Inc. (Alan's Market)	2N	18E	9	NW	NW	Monitoring	25	15	5309.5			5/5/1998	Hiddleston & Son, Inc. Firm No. 35
356	Mitton Fife	2N	18E	9	NE	NW	Industrial	49	15	5320.3			7/29/1970	Walker Water Systems, Inc. Firm No. 15
357	Rene Bien	2N	18E	9	NW	SE	Monitoring	32	24	5294.2			1/14/2004	Haz-Tech Drilling, Inc. Firm No. 470
358	Rene Bien	2N	18E	9	NW	SE	Monitoring	34.5	26.5	5288.9			1/14/2004	Haz-Tech Drilling, Inc. Firm No. 470
359	Rene Bien	2N	18E	9	NW	SE	Monitoring	33	24.35	5292.4			1/15/2004	Haz-Tech Drilling, Inc. Firm No. 470
360	City of Hailey	2N	18E	9	NW	SE	Monitoring	35	23.5	5292.2			3/25/2004	Haz-Tech Drilling, Inc. Firm No. 470
361	Sutton and Sons GTO Dealership	2N	18E	9	NE	NW	Monitoring	25	19	5314.3			4/26/2004	Hiddleston & Son, Inc. Firm No. 35
362	Hailey Chevron	2N	18E	9	NW	SE	Monitoring	32	22	5300.0			7/21/2004	Haz-Tech Drilling, Inc. Firm No. 470
363	Hailey Chevron	2N	18E	9	NW	SE	Monitoring	32	23	5300.5			7/21/2004	Haz-Tech Drilling, Inc. Firm No. 470
364	Hailey Chevron	2N	18E	9	NW	SE	Monitoring	32	22.19	5301.3			7/21/2004	Haz-Tech Drilling, Inc. Firm No. 470
365	Daniel L. Parke (leased by Intermountain Ga:	2N	18E	9	NW	SE	Water Samples	25	20.5	5288.1			1/30/2006	Haz-Tech Drilling, Inc. Firm No. 470
366	Daniel L. Parke (leased by Intermountain Ga:	2N	18E	9	NW	SE	Water Samples	25	22	5286.9			1/31/2006	Haz-Tech Drilling, Inc. Firm No. 470
368	David & Debra Town	2N	18E	10	NE	NW	Domestic	76	60	5308.2	75		5/1/1989	Wood River Drilling and Pump Firm No. 265
369	Leslie Conner	2N	18E	10	NE	NW	Domestic/Irrigation	85	50	5313.4	76		5/29/1989	Wood River Drilling and Pump Firm No. 265
370	Charles M. Johnson	2N	18E	10	NE	NW	Irrigation	127	55	5319.7	85		7/27/1990	Wood River Drilling and Pump Firm No. 265
371	John & Alma Mills	2N	18E	10	SE	NW	Domestic	90	53	5301.0	75		4/11/1991	Scott Drilling & Pump Co. Firm No. 327
372	John Fox	2N	18E	10	NW	SE	Irrigation	153	55	5286.1			9/17/1966	Smith Drilling & Pump Co., Inc. Firm No. 11
373	Wesley Prouty	2N	18E	10	NE	SW	Domestic/Stock	106	59	5282.9		10	6/26/1973	Walker Water Systems, Inc. Firm No. 15
374	McCullach Properties, Inc.	2N	18E	10	SW	SE	Municipal	104	61	5262.7		0	12/4/1974	Roesler Well Drilling Firm No. 19
375	Howard Knight	2N	18E	10	SE	NW	Domestic	61	18	5343.3		6	5/30/1973	Claude Nicholson Well Drilling Firm No. 159
376	Blaine County School District # 61	2N	18E	10	NW	SE	Irrigation	174	65	5289.1			8/15/2003	Hiddleston & Son, Inc. Firm No. 35
377	Jim Phillips	2N	18E	10	SE	NW	Domestic	77	35	5347.6	45		6/18/1981	Ken Smith Well Drilling Firm No. 265
378	Howard Knight	2N	18E	10	NE	NW	Domestic	90	33	5329.7	37		3/28/1982	Ken Smith Well Drilling Firm No. 265
379	Don Justus	2N	18E	16	NE	NE	Irrigation	70	29	5274.6		5	5/11/1976	Ken Smith Well Drilling Firm No. 265
380	John Campagna	2N	18E	15	SW	SW	Domestic	41	7	5266.4	9		6/30/1983	Ken Smith Well Drilling Firm No. 265
381	Carl Prence	2N	18E	15	SW	NW	Domestic	53	30	5266.1	50		4/26/1988	Wood River Drilling and Pump Firm No. 265
382	North Star Funding	2N	18E	15	SW	NW	Domestic	60	18	5281.4	40		9/19/1988	Wood River Drilling and Pump Firm No. 265
383	Robin Tracy	2N	18E	15	SE	SW	Domestic	49	21.75	5249.3			10/24/1988	Walker Water Systems, Inc. Firm No. 15
384	Robin Tracy	2N	18E	15	SE	SW	Domestic	44	14.667	5257.3			9/27/1989	Walker Water Systems, Inc. Firm No. 15
385	Ole Skinner	2N	18E	15	SE	SW	Domestic	65	25	5246.8	50		10/15/1990	Scott Drilling & Pump Co. Firm No. 327
386	Robin Tracy	2N	18E	15	SE	SW	Domestic	45	22	5251.7	35		6/19/1991	Scott Drilling & Pump Co. Firm No. 327
387	Ed Lawson/John Gladdics	2N	18E	15	SW	SW	Domestic	50	8	5258.1	45		10/7/1991	Scott Drilling & Pump Co. Firm No. 327
388	Don Hanna	2N	18E	15	NW	SW	Domestic	60	25	5253.6	55		7/23/1992	Wood River Drilling and Pump Firm No. 265
389	Lazy 8 Hanger Association	2N	18E	15	NE	SW	Domestic	65	26	5270.5	45		11/24/1992	Wood River Drilling and Pump Firm No. 265
390	Jim Skeahan	2N	18E	15	NE	NW	Domestic	50	20	5249.1		0	11/8/1993	Scott Drilling & Pump Co. Firm No. 327
391	Blaine County School District # 61	2N	18E	15	NE	NE	Irrigation	159	57	5245.3	150		10/9/1995	Wood River Drilling and Pump Firm No. 265
392	Darin Barfuss	2N	18E	15	SW	NW	Domestic	60	10	5275.1	15		4/25/1996	Wood River Drilling and Pump Firm No. 265
393	Ed Lawson	2N	18E	15	SW	SW	Domestic	60	14	5253.1	50		9/22/1997	Wood River Drilling and Pump Firm No. 265
394	Flying Hat Ranch/Spencer F. Eccl	2N	18E	15	NW	NE	Irrigation	153	25	5246.1			8/15/2000	Hiddleston & Son, Inc. Firm No. 35
395	Oliver Dibble	2N	18E	15	SW	SW	Domestic	62	8	5265.4			9/25/2000	Wood River Drilling and Pump Firm No. 265
396	Flying Hat Ranch c/o Brockway Engineering	2N	18E	15	NW	SW	Test	167	27	5243.2	43	16	11/26/2001	Couch Well Drilling, Inc. Firm No. 161

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICELEV	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
397	Jill Bryson	2N	18E	15	NW	SW	Domestic	69	19	5257.4			10/1/2001	Wood River Drilling and Pump Firm No. 265
398	Mike Maid	2N	18E	15	SW	SW	Domestic	49	21	5244.5		0	7/5/1973	Roessler Well Drilling Firm No. 19
399	Ken Morey	2N	18E	15	NE	SW	Domestic	52	19	5267.5	31		7/6/1978	Ken Smith Well Drilling Firm No. 265
400	Mike Simpson	2N	18E	15	NE	SW	Domestic	50	20	5263.3	30		6/15/1979	Ken Smith Well Drilling Firm No. 265
401	Craig Stewart	2N	18E	15	NW	SW	Irrigation	76	16	5266.9			5/3/1978	Ken Smith Well Drilling Firm No. 265
402	John Hunter	2N	18E	15	SW	SW	Domestic	51	15	5252.0		0	11/11/1976	Ken Smith Well Drilling Firm No. 265
403	A. E. Gage	2N	18E	15	SE	SE	Irrigation	152	32	5245.4			9/22/1966	Roessler Well Drilling Firm No. 19
404	Quigley Land & Livestock/Don Orone	2N	18E	15	NE	NW	Irrigation	124	18	5294.4			8/30/1961	Roessler Well Drilling Firm No. 19
405	Fred Parker	2N	18E	15	NE	NW	Domestic	42	6	5305.7			4/24/1969	Harry A. Moore Firm No. 8
406	Idaho Department of Aeronautics	2N	18E	15	SE	NW	Domestic/Industrial	75	31	5272.8		8	6/4/1970	Roessler Well Drilling Firm No. 19
407	The Kirk Group	2N	18E	15	NE	SW	Irrigation	80	27	5260.6			5/19/2003	Wood River Drilling and Pump Firm No. 265
408	H. R. Jackson	2N	18E	15	SE	SW	Domestic	52	17	5252.1		2	9/11/1973	Claude Nicholson Well Drilling Firm No. 159
409	Key Air Lines	2N	18E	15	SW	NE	Commercial	64	41	5264.3		4	10/24/1973	Roessler Well Drilling Firm No. 19
410	Blaine County Highway District	2N	18E	15	NE	SW	Domestic	52	18	5267.8		12	10/1/1973	Roessler Well Drilling Firm No. 19
411	Kendall Kinghorn	2N	18E	15	SE	SW	Domestic	48	12	5262.7		10	9/18/1972	Claude Nicholson Well Drilling Firm No. 159
412	Friedman Memorial Airport	2N	18E	15	NW	NW	Domestic	87	25.5	5293.7			6/10/1950	Walker Water Systems, Inc. Firm No. 15
413	Les Lawson	2N	18E	15	SW	SW	Domestic	55	22	5244.7	37		3/25/1986	Wood River Drilling and Pump Firm No. 265
414	Arrington/Briggs	2N	18E	15	SE	SW	Domestic	63	27	5240.2			8/27/2004	Wood River Drilling and Pump Firm No. 265
415	Arrington/Briggs	2N	18E	15	SE	SW	Domestic	63	27	5239.9			8/27/2004	Wood River Drilling and Pump Firm No. 265
416	Jeffery King	2N	18E	15	SE	SW	Domestic	63	24	5241.9			8/11/2006	Wood River Drilling and Pump Firm No. 265
417	Russ L. Hort	2N	18E	15	SE	SW	Domestic/Irrigation	50	10	5261.6			5/29/1983	Ray Roessler Well Drilling Firm No. 262
418	Warren Tenney	2N	18E	22	SE	NW	Domestic	45	9	5259.5	13		7/18/1983	Ken Smith Well Drilling Firm No. 265
419	Roberta Kay	2N	18E	22	SW	SE	Irrigation	40	8	5221.4	38		5/5/1990	Wood River Drilling and Pump Firm No. 265
420	Chuck Gates	2N	18E	22	SE	SE	Irrigation	38	8	5222.9	36		5/5/1990	Wood River Drilling and Pump Firm No. 265
421	Richard B. Anderson	2N	18E	22	NE	NW	Domestic	65	19	5242.9	45		11/23/1992	Wood River Drilling and Pump Firm No. 265
422	Gary Able	2N	18E	22	SW	SE	Domestic	47	4	5231.5			10/23/1997	Walker Water Systems, Inc. Firm No. 15
423	Wayne Burke	2N	18E	22	NE	NW	Domestic	60	15	5253.2			9/22/1998	Wood River Drilling and Pump Firm No. 265
424	Frank & Shirley Moore	2N	18E	22	NE	NW	Domestic	55	15	5249.2			4/12/2001	Wood River Drilling and Pump Firm No. 265
425	Jim Gunville	2N	18E	22	SE	NW	Domestic	51	15	5253.0	17		10/31/1978	Ken Smith Well Drilling Firm No. 265
426	Robert Vernon	2N	18E	22	SW	SE	Domestic/Irrigation	29	6	5225.4			12/29/1966	Walker Water Systems, Inc. Firm No. 15
427	Robert Vernon	2N	18E	22	SW	SE	Domestic	35	9	5221.6		4	12/24/1966	Walker Water Systems, Inc. Firm No. 15
428	Tome Dare	2N	18E	22	NW	NE	Domestic	50	6	5258.4			5/21/1968	Harry A. Moore Firm No. 8
429	Frank Moore	2N	18E	22	NE	NW	Domestic	41	12	5251.0		4	7/11/1969	Roessler Well Drilling Firm No. 19
430	Warren S. Tenney	2N	18E	22	SE	NW	Domestic	45	10	5259.0		0	9/30/1974	Ray Roessler Well Drilling Firm No. 262
431	Nick Vanoff	2N	18E	22	NE	NW	Domestic	83	17	5247.1			9/10/2004	Wood River Drilling and Pump Firm No. 265
432	Steve Kearns	2N	18E	22	SE	SE	Domestic	80	17	5210.4			10/27/2005	Wood River Drilling and Pump Firm No. 265
433	Steve Kearns	2N	18E	22	SE	SE	Injection	43	17	5209.6			11/22/2005	Wood River Drilling and Pump Firm No. 265
434	Big Wood River LLC c/o First Western Devel	2N	18E	22	SE	SE	Domestic	83	13	5215.9			6/21/2006	Wood River Drilling and Pump Firm No. 265
435	Chris Shriner	2N	18E	22	NE	NW	Domestic	83	32	5230.5			9/1/2006	Wood River Drilling and Pump Firm No. 265
436	City of Hailey	2N	18E	23	SE	SE	Test/Monitoring	69	55	5198.0	64		10/2/1998	Wood River Drilling and Pump Firm No. 265
437	Intermountain Gas Company	2N	18E	23	SW	SE	Cathodic Protection	150	57	5186.1			9/23/1993	Walker Water Systems, Inc. Firm No. 15
438	Flying Hat Ranch LLC	2N	18E	23	NW	SW	Domestic	120	40	5217.7			11/17/2003	Wood River Drilling and Pump Firm No. 265
439	Trico Development Corporation	2N	18E	23	SW	SW	Monitoring	65	49	5178.9			9/20/1974	Walker Water Systems, Inc. Firm No. 15
440	S. A. Gage	2N	18E	23	SW	SE	Irrigation	148	35	5211.0			11/20/1964	Hiddleston & Son, Inc. Firm No. 35
441	Trico Development Corporation # 1	2N	18E	23	SW	SW	Monitoring	65	49	5183.1			9/20/1976	Walker Water Systems, Inc. Firm No. 15
442	Blaine County School District	2N	18E	23	SW	NE	Irrigation	155	34	5227.9			7/3/2005	Hiddleston & Son, Inc. Firm No. 35
443	Chuck Ferries	2N	18E	27	SW	NE	Domestic	260	20	5218.0			8/4/2006	Wood River Drilling and Pump Firm No. 265
444	George Loomis Jr.	2N	18E	26	SW	SW	Domestic	47	8	5184.5	20		5/26/1983	Ken Smith Well Drilling Firm No. 265

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICELEV	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
445	George Lommis	2N	18E	26	SW	SW	Domestic	47	12	5179.8	17		5/26/1983	Ken Smith Well Drilling Firm No. 265
446	Leroy Lewis/Broadford Rd.	2N	18E	26	SE	SW	Domestic	38	5	5179.2	35		4/29/1989	Wood River Drilling and Pump Firm No. 265
447	Harry Johnson	2N	18E	26	SW	SW	Domestic	65		0	60		10/22/1990	Wood River Drilling and Pump Firm No. 265
448	Frank Bramon	2N	18E	26	SE	SE	Domestic	82	24	5146.6	45		4/4/1992	Scott Drilling & Pump Co. Firm No. 327
449	Ed Mack	2N	18E	26	SW	SE	Domestic	80	22	5162.9		20	3/17/1994	Wood River Drilling and Pump Firm No. 265
450	W. C. Mirams	2N	18E	26	NW	SE	Irrigation	140	23	5173.1	120		5/19/1995	Wood River Drilling and Pump Firm No. 265
451	Jann Wenner	2N	18E	26	NW	SW	Domestic	60	4	5196.5			7/26/1996	Wood River Drilling and Pump Firm No. 265
452	Candida Forstmann	2N	18E	26	SW	SW	Domestic	48	6	5186.7			10/28/1997	Walker Water Systems, Inc. Firm No. 15
453	Candida Forstmann	2N	18E	26	SW	SW	Domestic	48.5	7	5186.3			10/24/1997	Walker Water Systems, Inc. Firm No. 15
454	Jann Wenner	2N	18E	26	NE	SW	Recreation	60	5	5195.3	40		11/11/1997	Wood River Drilling and Pump Firm No. 265
455	Mick Halverson	2N	18E	26	SW	SW	Domestic	60	8	5188.0	40		4/29/1998	Wood River Drilling and Pump Firm No. 265
456	Frank Braman	2N	18E	26	SE	SE	Irrigation	140	24	5148.1	120		8/4/1998	Wood River Drilling and Pump Firm No. 265
457	Jann Wenner	2N	18E	26	NW	SW	Irrigation	63	5	5195.9			9/23/1999	Wood River Drilling and Pump Firm No. 265
458	Barrie Family Partners/Christine	2N	18E	26	SW	SE	Irrigation	160	38	5140.2			5/21/2001	Wood River Drilling and Pump Firm No. 265
459	Assembly of God	2N	18E	26	SW	SE	Domestic	105	25	5153.5			9/25/1979	Harry King Drilling Co. Firm No. 88
460	Eccles Ranch	2N	18E	26	NE	SW	Stock	39	11	5184.4		0	11/12/1971	Smith Drilling & Pump Co., Inc. Firm No. 11
461	Candy Forstmann	2N	18E	26	SW	SW	Domestic	46	7	5187.3		8	10/16/1971	Roessler Well Drilling Firm No. 19
462	Trico Development Corporation	2N	18E	26	NW	NE	Monitoring	60	49	5168.6			10/6/1976	Walker Water Systems, Inc. Firm No. 15
463	William & Chris Pollock	2N	18E	26	SW	SW	Domestic	87	12	5180.6			12/12/2003	Wood River Drilling and Pump Firm No. 265
464	Pat Bahman/Harry Johnson	2N	18E	26	SW	SW	Domestic	70	8	5187.8	40		4/11/1986	Wood River Drilling and Pump Firm No. 265
465	City of Bellevue	2N	18E	25	SW	SW	Test	350	24	5171.6	220		11/16/1995	Andrew Well Drilling Services, Inc. Firm No. 5
466	City of Bellevue	2N	18E	25	SW	SW	Municipal	255	26	5175.0	142	116	12/1/1995	Andrew Well Drilling Services, Inc. Firm No. 5
467	Bob Jones	2N	18E	25	NW	SW	Domestic	67	43	5163.3			7/1/1978	Walker Water Systems, Inc. Firm No. 15
468	V. W. Munford	2N	18E	25	SW	SE	Domestic	65	32	5188.3			6/5/1969	Harry A. Moore Firm No. 8
469	Don Spencer	2N	18E	25	SW	SW	Domestic	65	35	5143.3		0	5/7/1967	Walker Water Systems, Inc. Firm No. 15
470	Vernon D. Hagen	2N	18E	25	SW	SW	Domestic	68	36	5141.5			6/3/1967	Walker Water Systems, Inc. Firm No. 15
471	Max Thompson/Dee Hadley	2N	18E	35	SE	NE	Domestic	32	4.583	5151.6			10/18/1988	Walker Water Systems, Inc. Firm No. 15
472	Ralph Gerton	2N	18E	35	NE	SE	Domestic	68	6	5143.4	20		8/7/1989	Wood River Drilling and Pump Firm No. 265
473	Harry Johnston	2N	18E	35	SE	NW	Domestic	50		0	45	0	5/30/1990	Wood River Drilling and Pump Firm No. 265
474	Rondell Hanson	2N	18E	35	SW	NE	Irrigation	48	10	5156.8	40		6/7/1990	Wood River Drilling and Pump Firm No. 265
475	Judy Harvey	2N	18E	35	NE	NE	Domestic	80	25	5139.2	60		4/17/1991	Wood River Drilling and Pump Firm No. 265
476	Del & Johnna Pletcher	2N	18E	35	SE	NE	Domestic	31	4.167	5159.5			3/17/1992	Walker Water Systems, Inc. Firm No. 15
477	Maurice & Leslie Homocker	2N	18E	35	SE	NE	Domestic	45	6	5150.5	40		5/29/1992	Scott Drilling & Pump Co. Firm No. 327
478	William D. Eittrheim	2N	18E	35	NW	NE	Domestic	40	6	5169.7	35		10/22/1993	Wood River Drilling and Pump Firm No. 265
479	Jim Latva	2N	18E	35	NE	NE	Domestic	60	24	5141.8	55		5/10/1994	Wood River Drilling and Pump Firm No. 265
480	Wayne Badavinis	2N	18E	35	NE	SE	Domestic	40	6	5152.8	25		7/20/1994	Scott Drilling & Pump Co. Firm No. 327
481	Timothy Floyd	2N	18E	35	SE	NE	Domestic	86	12	5143.8	60		11/10/1994	Wood River Drilling and Pump Firm No. 265
482	George Wise	2N	18E	35	NW	NE	Domestic	40	8	5169.4	20		9/22/1995	Wood River Drilling and Pump Firm No. 265
483	James Smith	2N	18E	35	SW	SE	Irrigation	80	11	5148.5			5/21/1996	Wood River Drilling and Pump Firm No. 265
484	Steve Dunninck	2N	18E	35	NE	SE	Irrigation	100	12	5137.2			10/4/1996	Wood River Drilling and Pump Firm No. 265
485	Arek & Shannon Pace	2N	18E	35	NE	NW	Domestic	60	5	5176.3	40		7/21/1997	Wood River Drilling and Pump Firm No. 265
486	Tim Floyd	2N	18E	35	SE	NE	Irrigation	100	17	5139.4	90		8/6/1997	Wood River Drilling and Pump Firm No. 265
487	Maurice Homocker	2N	18E	35	SE	NE	Municipal	50	4	5152.5			5/29/1998	Walker Water Systems, Inc. Firm No. 15
488	Linda Drake	2N	18E	35	SE	NE	Domestic	83	12	5146.5			6/30/2000	Wood River Drilling and Pump Firm No. 265
489	Linda Drake	2N	18E	35	SE	NE	Irrigation	123	16	5142.0			7/19/2000	Wood River Drilling and Pump Firm No. 265
490	Barbara Savage	2N	18E	35	NE	NE	Domestic	83	28	5138.5			5/21/2001	Wood River Drilling and Pump Firm No. 265
491	Bill McDonald	2N	18E	35	NE	NW	Domestic	40	5	5177.5	8		6/14/1984	Wood River Drilling and Pump Firm No. 265
492	Jack Parker	2N	18E	35	NE	NW	Domestic	42	5	5171.2	9		7/14/1984	Wood River Drilling and Pump Firm No. 265

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICELEV	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
493	John Barton	2N	18E	35	SW	SE	Domestic	46	8	5149.4	18		5/2/1980	Ken Smith Well Drilling Firm No. 265
494	Diane Huxford	2N	18E	35	SW	SE	Domestic	46	8	5160.1	9		5/19/1980	Ken Smith Well Drilling Firm No. 265
495	George Wise	2N	18E	35	NW	NE	Domestic	34	6	5170.8	10		6/5/1980	Ken Smith Well Drilling Firm No. 265
496	Ralph Gilton	2N	18E	35	NE	SE	Domestic	55	7	5142.2	7		9-31-80	Ken Smith Well Drilling Firm No. 265
497	Roger Williams	2N	18E	35	NW	SE	Domestic	42.5	8	5159.6	8		11/30/1977	Ken Smith Well Drilling Firm No. 265
498	Bob Beady	2N	18E	35	NW	SE	Domestic	38	12	5151.4		14	7/7/1975	Ken Smith Well Drilling Firm No. 265
499	John Peterson	2N	18E	35	NE	SE	Domestic	50	8	5148.1		5	2/26/1977	Ken Smith Well Drilling Firm No. 265
500	Jerry Brody	2N	18E	35	NE	NW	Domestic	33	10	5169.9		10	7/10/1975	Wood River Drilling and Pump Firm No. 265
501	Jim Gunville	2N	18E	35	NW	NE	Domestic	37	6	5163.1		0	4/18/1977	Ken Smith Well Drilling Firm No. 265
502	Bill Evans	2N	18E	35	SW	NE	Wind Mill	32	8	5156.3	18		10/25/1982	Ken Smith Well Drilling Firm No. 265
503	Bruce Norvell	2N	18E	35	NW	NW	Domestic	220	17	5180.2			4/8/2004	Ken Smith Well Drilling Firm No. 265
504	Carrie Shaw	2N	18E	35	SE	NE	Domestic	83	20	5134.3			5/10/2004	Wood River Drilling and Pump Firm No. 265
505	Frank & Carol Bashista	2N	18E	35	NE	NE	Domestic	87	21	5142.9			5/25/2004	Walker Water Systems, Inc. Firm No. 15
506	Federal Resources Corporation	2N	18E	35	NW	NW	Industrial	105	12.75	5186.2		4	11/21/1963	Smith Drilling & Pump Co., Inc. Firm No. 11
507	Bill Evans	2N	18E	35	SW	NE	Domestic/Irrigation	43	8	5155.8	12		10/18/1982	Ken Smith Well Drilling Firm No. 265
508	Larry Platts	2N	18E	35	SW	NE	Domestic	41	10	5155.9	13		6/23/1985	Wood River Drilling and Pump Firm No. 265
509	Edward & Elise Lobel	2N	18E	35	NW	NE	Domestic	63	6	5167.0			9/13/2004	Wood River Drilling and Pump Firm No. 265
510	Hans Buhler	2N	18E	36	SE	SE	Irrigation	131	76	5114.4			12/1/1978	Ray Roessler Well Drilling Firm No. 262
511	Darrell McKinsey	2N	18E	36	SW	SE	Domestic	70	37	5136.2	41		5/15/1984	Ken Smith Well Drilling Firm No. 265
512	Robert F. Bouttier	2N	18E	36	NW	SW	Irrigation	39	5.667	5141.9			6/1/1990	Walker Water Systems, Inc. Firm No. 15
513	William D. Martindale	2N	18E	36	NW	NW	Irrigation	42	12	5151.7	33		4/22/1990	Scott Drilling & Pump Co. Firm No. 327
514	Robin Tracy	2N	18E	36	SE	SE	Domestic	64	38.833	5157.5			6/13/1990	Walker Water Systems, Inc. Firm No. 15
515	Harry Washburn	2N	18E	36	SE	SE	Domestic	135	78	5115.1	100		9/25/1992	Scott Drilling & Pump Co. Firm No. 327
516	Frances Livingston & Sue Rother	2N	18E	36	NW	NW	Domestic	70	8	5159.1		0	10/26/1995	Scott Drilling & Pump Co. Firm No. 327
517	Domis Head	2N	18E	36	SE	NE	Irrigation	180	88	5136.2	140		11/13/1995	Wood River Drilling and Pump Firm No. 265
518	Brooke Bonner	2N	18E	36	NE	SE	Domestic	183	98	5102.2			10/2/1998	Walker Water Systems, Inc. Firm No. 15
519	Robert Bouttier	2N	18E	36	NW	SW	Irrigation	145	18.5	5129.4			5/3/2001	Wood River Drilling and Pump Firm No. 265
520	Ray Calhoun	2N	18E	36	NW	NW	Domestic	40	5	5161.3	30		5/1/1987	Wood River Drilling and Pump Firm No. 265
521	Randy Kolash	2N	18E	36	NW	NW	Domestic	37	5	5158.5	20		6/19/1987	Wood River Drilling and Pump Firm No. 265
522	Bellevue Cemetery	2N	18E	36	NE	SE	Irrigation	188.5	89	5120.1	92.333		1/6/1981	Walker Water Systems, Inc. Firm No. 15
523	Jerry Broadie	2N	18E	36	SE	SE	Domestic	132	10	5175.9		0	4/14/1977	Ken Smith Well Drilling Firm No. 265
524	Richard Brofy	2N	18E	36	SW	SE	Domestic	72	35	5133.8		8	6/10/1974	Ken Smith Well Drilling Firm No. 265
525	Mike Hill	2N	18E	36	SE	SE	Domestic	129	84	5102.1		10	6/5/1974	Ken Smith Well Drilling Firm No. 265
526	Tom Diggins	2N	18E	36	NE	SE	Domestic	110	70	5126.9		6	5/17/1973	Claude Nicholson Well Drilling Firm No. 159
527	Don Christiansen	2N	18E	36	SW	SE	Domestic	70	35	5133.8		3	6/13/1973	Claude Nicholson Well Drilling Firm No. 159
528	Robble Rikken	2N	18E	36	SE	SE	Domestic	112	65	5117.9		0	6/21/1973	Claude Nicholson Well Drilling Firm No. 159
529	Larry Plott	2N	18E	36	SW	NW	Irrigation	80	17	5140.5			6/2/2003	Wood River Drilling and Pump Firm No. 265
530	Ray Rogers	2N	18E	36	SE	SW	Domestic/Irrigation	69	39	5102.3			9/18/1960	Walker Water Systems, Inc. Firm No. 15
531	Tom & Florench Blanchard	2N	18E	36	SW	NW	Domestic	80	21	5132.5			8/28/2003	Wood River Drilling and Pump Firm No. 265
532	Robert Rikken	2N	18E	36	SE	SE	Domestic	143	73	5107.2			5/4/2006	Wood River Drilling and Pump Firm No. 265
533	Kevin & Polly Cronin	2N	18E	36	NW	NW	Domestic	83	14	5149.3			5/15/2006	Wood River Drilling and Pump Firm No. 265
534	Jerry W. Dauby	2N	19E	31	SW	SW	Domestic	122	86	5109.7			7/19/1988	Walker Water Systems, Inc. Firm No. 15
535	Fred E. Parker	2N	19E	31	NW	SW	Domestic	145	103.75	5131.4			10/26/1988	Walker Water Systems, Inc. Firm No. 15
536	Barbara Hooper	2N	19E	31	SW	NW	Domestic	250	124	5119.4			5/26/1989	Walker Water Systems, Inc. Firm No. 15
537	Joan Duggan	2N	19E	31	SE	NW	Irrigation	400	140	5110.3			10/9/1989	Wood River Drilling and Pump Firm No. 265
538	Larry Cederholm	2N	19E	31	SW	NW	Domestic	165	109	5124.9	155		5/2/1990	Wood River Drilling and Pump Firm No. 265
539	Ellen Scofield	2N	19E	31	SW	NW	Domestic	130	96.167	5140.0			4/9/1991	Walker Water Systems, Inc. Firm No. 15
540	T. W. McNeal	2N	19E	31	SW	NW	Domestic/Non-domestic	160	109	5124.4	130		11/18/1991	Wood River Drilling and Pump Firm No. 265

WELL	OWNER	TOWNSHIP	RANGE	SECTION	QQ	QQ	USE	DEPTH	STATICLEVEL	STATICELEV	PUMPINGLEVEL	DRAWDOWN	COMPLETED	DRILLER
541	Scott McIlhenny	2N	19E	31	NW	SW	Domestic/Irrigation	160	95	5122.1	150		9/14/1992	Wood River Drilling and Pump Firm No. 265
542	Carl Cook	2N	19E	31	NW	SW	Domestic	148	116	5108.5			7/21/1995	Walker Water Systems, Inc. Firm No. 15
543	Dean Beaudet	2N	19E	31	SW	NE	Domestic	160	80	5183.0	120		2/29/1996	Wood River Drilling and Pump Firm No. 265
544	Lyle Guffy	2N	19E	31	SW	SW	Domestic	140	91	5111.7		1	11/20/1996	Wood River Drilling and Pump Firm No. 265
545	George Fredlund	2N	19E	31	SE	NW	Domestic	163	110	5145.3			10/21/1999	Wood River Drilling and Pump Firm No. 265
546	Jerry Carden	2N	19E	31	SE	NW	Domestic	162	100	5159.5	104		6/27/1979	Ken Smith Well Drilling Firm No. 265
547	Tom Farr	2N	19E	31	SW	NE	Domestic	160	79	5204.0	79		10/7/1978	Ken Smith Well Drilling Firm No. 265
548	Gene Smith	2N	19E	31	SE	NW	Domestic	150	110	5132.9	110		5/23/1979	Ray Roessler Well Drilling Firm No. 262
549	Wade Povey	2N	19E	31	SW	NW	Irrigation	150	22	5278.4			5/23/1979	Paul Vollmer & Son Firm No. 67
550	Kent C. McBride	2N	19E	31	NE	NW	Domestic	170	112	5236.3			6/7/1979	Ray Roessler Well Drilling Firm No. 262
551	Bob Gage	2N	19E	31	SW	NW	Domestic	132	95	5136.9		0	1/29/1977	Ken Smith Well Drilling Firm No. 265
553	Sam Severe	2N	19E	31	SE	NW	Domestic	117.167	79	5161.4		5	5/25/1976	Ken Smith Well Drilling Firm No. 265
554	Jerry Dauby	2N	19E	31	SW	NW	Domestic	128	93	5197.6		0	5/8/1976	Ray Roessler Well Drilling Firm No. 262
555	Mr. McWillis	2N	19E	31	NW	SW	Domestic	120	65	5156.2		5	11/2/1974	Ken Smith Well Drilling Firm No. 265
556	Milton R. Walth	2N	19E	31	NW	SW	Domestic	130	90	5137.3		5	11/16/1974	Ken Smith Well Drilling Firm No. 265
557	Ziggle Katt	2N	19E	31	SE	NW	Domestic	152	85	5173.8		0	9/10/1974	Ken Smith Well Drilling Firm No. 265
558	Tony Smith	2N	19E	31	SE	NW	Domestic	128	74	5169.5		0	4/24/1974	Ray Roessler Well Drilling Firm No. 262
559	Lyle Guffy	2N	19E	31	SW	SW	Irrigation	123	50	5152.7	70		5/25/1986	Wood River Drilling and Pump Firm No. 265
560	Joe Castle	2N	19E	31	NW	NE	Domestic	168	89	5195.7			5/24/2006	Walker Water Systems, Inc. Firm No. 15
561	G M M K Group B	3N	18E	30	SE	SE		85	20	5502.9			7/2/1989	
562	Eric Remais	3N	18E	32	SE	NW	Domestic	38		5386.6			9/19/2000	
563	Jack Seeley	3N	18E	33	NE	NE		130		5710.9			10/11/2000	
564	E. Parry Thomas	2N	18E	5	SE	NE	Domestic	76	12	5339.9				
565	Burr Smith - Contrac. Lynn Watkins	2N	18E	9	SW	NW	Domestic	49	12	5310.1	16		9/29/1989	Wood River Drilling Firm No. 265
566	Patrick R. McMahon	2N	18E	9	SW	NW	Domestic	60	12	5304.8	32	20	11/13/1996	Wood River Drilling Firm No. 265
567	Vern Boyd	2N	18E	9	NE	SW	Domestic	33	5	5304.6		0	5/14/1971	Roessler Well Drilling Firm No. 19
568	Shari Michaud	2N	18E	9	SW	NW	Domestic	180	17	5305.1			7/7/2004	Wood River Drilling Firm No. 265
569	Tony Ehrenberg	2N	18E	10	SW	SW	Domestic	44	5.5	5317.9		0	7/1/1976	Roessler Well Drilling Firm No. 19
570	Tom Hamed	2N	18E	9	NW	SW	Domestic	33	15	5301.8			6/5/2006	Walker Water Systems Firm No. 15
571	Mike & Susie Lambert	2N	19E	31	NW	SW	Domestic	181	109	5117.4			11/10/2001	
572	Hailey Municipal Water Supply	2N	18E	9			Municipal	150	20	5308.5		60	3/20/1962	Roessler Well Drilling Firm No. 19
573	Floyd Dorius	2N	18E	4	NW	SW		114	14	5343.7		30	7/22/1966	Roessler Well Drilling Firm No. 19
574	FH - Ranch House	2N	18E	23	NE	SW				5252.8				
575	FH - Well #3	2N	18E	23	NW	SW				5251.3				
576	FH - Industrial Park	2N	18E	23	SW	SE				5243.5				
577	FH - "800 GPM"	2N	18E	15	SW	SE				5272.4				
578	City of Bellevue	2N	18E	36	NW	NW				5170.5				
579	City of Hailey	2N	18E	9	SE	SE	Municipal	198	23.5	5300.0			7/15/1965	Roessler Well Drilling Firm No. 19

WELL	CASINGDEPTH	PERFTOPA	PERFBTMA	PERFTOPB	PERFBTMB	PERFTOPC	PERFBTMC	OPENTOPA	OPENBTMA	OPENTOPB	OPENBTMB	OPENTOPC	OPENBTMC	OPENTOPD	OPENBTMD	BEDROCK	BEDROCKELEV
1	47							47	48							>48	9999
2	125							125	125							>125	9999
3	130	30	70	120	130			30	70	120	130					86	5484.262547
4	38							38	38							>38	9999
5	51	49	51					49	51							>51	9999
6	49	30	46					30	46	49	49					>49	9999
7	44							44	44							>44	9999
8	153							153	175							86	5483.828017
9	125							125	125							>125	9999
10	120							120	140							120	5451.960617
11	60							60	60							>60	9999
12	60							60	60							>60	9999
13	102	60	90					60	90	102	105					>105	9999
14	101	65	95					65	95	101	103					>103	9999
15	46							46	46							>46	9999
16	48							48	48							>48	9999
17	41	24	30					24	30	41	48					48	5478.12193
18	38	25	30					25	30	38	38					>38	9999
19	38	25	30					25	30	38	40					36	5497.240208
20	43	25	30					25	30	43	43					40	5484.06382
21	46							46	46							>46	9999
22	36							36	36							>36	9999
23								0	63							>63	9999
24	68	35	63					35	63	68	68					>68	9999
25	73							73	73							>73	9999
26	65	30	40	57	61			30	40	57	65					>65	9999
27	34							34	34							>34	9999
28	39							39	39							>39	9999
29	63							63	63							>63	9999
30	107	102	107					44	55	102	113					105	5460.618485
31	68							68	86							78	5485.628058
32	64							64	64							>64	9999
33	90							90	90							>90	9999
34	67							67	67							>67	9999
35	35							35	35							>35	9999
36	66							66	66							>66	9999
37	57							57	57							>57	9999
38	92							92	92							>92	9999
39	62							62	62							>62	9999
40	77							77	77							>77	9999
41	60							60	60							>60	9999
42	71							71	71							>71	9999
43	76							76	76							>76	9999
44	38							38	38							>38	9999
45	61							61	61							>61	9999
46	63							63	63							>63	9999
47	63							63	63							>63	9999
48	63							63	63							>63	9999

[illegible]

[illegible]

WELL	CASINGDEPTH	PERFTOPA	PERFBTMA	PERFTOPB	PERFBTMB	PERFTOPC	PERFBTMC	OPENTOPA	OPENBTMA	OPENTOPB	OPENBTMB	OPENTOPC	OPENBTMC	OPENTOPD	OPENBTMD	BEDROCK	BEDROCKELEV
147	49							49	49							>49	9999
148	40							40	45							>45	9999
149	67	58	63					58	63	67	67					>67	9999
155	100	78	84					78	84	100	100					>100	9999
156	196.167	25	83	98	103			25	83	98	103	196.167	201			>201	9999
157	141	47	52	84	112	134	138	47	52	84	112	134	138	141	141	>141	9999
159	63							63	63							>63	9999
160	63							63	63							>63	9999
161	63							63	63							>63	9999
162	61	38	48					38	48	61	61					>61	9999
163	41							41	41							>41	9999
164	23	8	23					8	23							>23	9999
165	43							43	43							>43	9999
166	60							60	60							>60	9999
167	49	44	48					44	50							>50	9999
168	43							43	43							>43	9999
169	80							80	80							>80	9999
170	63							63	63							>63	9999
171	17							17	46							>46	9999
172	81							81	81							>81	9999
173	61							61	61							>61	9999
174	71	66	70					66	71							>71	9999
175	83							83	83							>83	9999
176	70							70	70							>70	9999
177	120	40	120					40	120							>120	9999
178	34							34	130							33	5372.110391
179	48							48	141							45	5367.829402
180	100	85	95					85	95	100	100					>100	9999
181	45							45	45							>45	9999
182	77	48	72					48	72	77	77					>77	9999
183	45							45	45							>45	9999
184	40							40	40							>40	9999
185	42							42	42							>42	9999
186	101							101	101							>101	9999
187	63							63	63							>63	9999
188	65	58	63					58	63	65	65					>65	9999
189	45							45	45							>45	9999
190	40							40	45							>45	9999
191	55							55	55							>55	9999
192	43							43	45							>45	9999
193	40							40	45							>45	9999
194	78							78	80							>80	9999
195	45							45	45							>45	9999
196	46							46	46							>46	9999
197	72							72	72							>72	9999
198	35							35	35							>35	9999
199	56							56	56							>56	9999
200	67	58	65					58	65	67	67					>67	9999

[illegible]

WELL	CASINGDEPTH	PERFTOPA	PERFBTMA	PERFTOPB	PERFBTMB	PERFTOPC	PERFBTMC	OPENTOPA	OPENBTMA	OPENTOPB	OPENBTMB	OPENTOPC	OPENBTMC	OPENTOPD	OPENBTMD	BEDROCK	BEDROCKELEV
250	88.5							88.5	88.5							>88.5	9999
251	130							130	205							130	5287.956052
252	102	50	92					50	92	102	103					102	5312.57473
254	50							50	50							>50	9999
255	81	65	80					65	82							>82	9999
256	67	30	50					30	50	67	67					>67	9999
257	50	30	45					30	45	50	50					>50	9999
258	102	80	100					80	100	102	102					>102	9999
259	38							38	38							>38	9999
260	80	37	57					37	57	80	80					>80	9999
261	50							50	50							>50	9999
262	47	40	44					40	44	47	47					30	5314.244582
263	53							53	53							>53	9999
264	52							52	53							>53	9999
265	76	30	45					30	45	76	76					>76	9999
266	44							44	45							>45	9999
267	132	100	120					100	120	132	132					127	5247.520695
268	132	100	130					100	130	132	132					130	5247.56721
269	137	100	135					100	135	137	137					137	5238.56637
270	63							63	63							>63	9999
271	52	35	47					35	47	52	52					>52	9999
272	61							61	62							>62	9999
273	140							140	140							>140	9999
274	58							58	58							>58	9999
275	45							45	45							>45	9999
276	40							40	45							>45	9999
277	60							60	60							>60	9999
278	120							120	120							>120	9999
279	80							80	80							>80	9999
280	53							53	53							>53	9999
281	50							50	50							>50	9999
282	79							79	79							>79	9999
283	51							51	51							>51	9999
284	58.5							58.5	60							>60	9999
285	61.5							61.5	63							>63	9999
286	83							83	85							>85	9999
287	63							63	64							>64	9999
288	49							49	49							>49	9999
289	52	32	50					32	50	52	52					>52	9999
290	48							48	48							>48	9999
291	91	28	40	56	85			28	40	56	85	91	91			>91	9999
292	141	120	140					120	141							140	5258.789484
293								0	103							>103	9999
294	103							103	103							>103	9999
295	63							63	63							>63	9999
296	52							52	52							>52	9999
297	103							103	103							>103	9999
298	86	30	83					30	83	86	87					>87	9999

WELL	CASINGDEPTH	PERFTOPA	PERFBTMA	PERFTOPB	PERFBTMB	PERFTOPC	PERFBTMC	OPENTOPA	OPENBTMA	OPENTOPB	OPENBTMB	OPENTOPC	OPENBTMC	OPENTOPD	OPENBTMD	BEDROCK	BEDROCKELEV
299	143							143	143							>143	9999
300	121							121	121							>121	9999
301	123							123	123							>123	9999
302	105							105	105							>105	9999
303	140	90	110					90	110	140	140					>140	9999
304	109	65	93					65	93	109	109					>109	9999
305	101							101	101							>101	9999
306	135	30	130					30	130	135	135					>135	9999
307	143							143	143							>143	9999
308	110	55	75					55	75	110	110					>110	9999
309	52							52	52							>52	9999
310	98	64	96					64	96	98	98					>98	9999
311	72.5							72.5	72.5							>72.5	9999
312	36							36	36							>36	9999
313	37							37	37							>37	9999
314	35							35	35							>35	9999
315	63							63	63							>63	9999
316	80	30	60					30	60	80	80					>80	9999
317	46							46	46							>46	9999
318	64							64	64							>64	9999
319	88							88	88							>88	9999
321	140							140	160							138	5273.361212
322	160							160	160							140	5255.179082
323	100							100	130							>130	9999
324	8							8	89							>89	9999
325	89	84	89					84	89							>89	9999
326	100							100	100							>100	9999
327	160	120	160					120	160							136	5284.634918
328	128	118	128					118	128							>128	9999
329	130	70	130					70	130							>130	9999
330	81	78	81					78	82							>82	9999
331	135							135	150							135	5273.421628
332	190	40	110					40	110	190	190					160	5195.222367
333	117							117	117							>117	9999
334	186	93	183					93	183	186	220					184	5160.572182
335	175.5	100	172					100	172	175.5	201					175	5173.108093
336	161	100	160					100	205							161	5191.101762
337	80							80	85							>85	9999
338	108							108	108							>108	9999
339	130	90	130					90	130							100	5291.424104
340	110							110	110							>110	9999
341	120							120	120							>120	9999
342	100							100	100							>100	9999
343	100							100	100							>100	9999
344	40							40	40							>40	9999
345	89	32	86					32	86	89	89					>89	9999
346	57							57	57							>57	9999
347	120							120	120							>120	9999

WELL	348	141	65	88	65	88	PERFTBMA	PERFTOPB	PERFTBMB	PERFTOPC	PERFTBMC	OPENTOPA	OPENTBMA	OPENTOPB	OPENTBMB	OPENTOPC	OPENTBMC	OPENTOPD	OPENTBMD	BEDROCK	BEDROCKLEV
	349	38	18	28	18	28						18	28	18	28	38	38	38	38	38	38
	350	38	18	28	18	28						18	28	18	28	38	38	38	38	38	38
	351	38	18	28	18	28						18	28	18	28	38	38	38	38	38	38
	352	38	21	36	21	36						21	36	21	36	38	38	38	38	38	38
	353	24	10	24	10	24						10	24	10	24	25	25	25	25	25	25
	354	25	10	25	10	25						10	25	10	25	25	25	25	25	25	25
	355	25	10	25	10	25						10	25	10	25	25	25	25	25	25	25
	356	49	17	32	17	32						17	32	17	32	49	49	49	49	49	49
	357	32	34.5	34.5	32	34.5						32	34.5	32	34.5	34.5	34.5	34.5	34.5	34.5	34.5
	358	33	18	33	18	33						18	33	18	33	33	33	33	33	33	33
	359	35	15	35	15	35						15	35	15	35	35	35	35	35	35	35
	360	25	10	25	10	25						10	25	10	25	25	25	25	25	25	25
	361	32	29.5	32	29.5	32						32	29.5	32	29.5	32	32	32	32	32	32
	362	32	29.5	32	29.5	32						32	29.5	32	29.5	32	32	32	32	32	32
	363	32	29.5	32	29.5	32						32	29.5	32	29.5	32	32	32	32	32	32
	364	32				0						0	25	0	25	25	25	25	25	25	25
	365					0						0	25	0	25	25	25	25	25	25	25
	366					0						0	25	0	25	25	25	25	25	25	25
	368	76				76						76	85	76	85	85	85	85	85	85	85
	369	85				85						85	80	85	80	80	80	80	80	80	80
	370	125.5	50	80	50	80						50	80	50	80	125.5	125.5	127	79	5295.654458	5295.654458
	371	80				80						80	69	80	69	153	153	90	90	9999	9999
	372	149	69	94	149	98						149	94	98	94	106	105	106	104	9999	9999
	373	105	94	65	90	98						90	65	98	90	93	105	104	104	9999	9999
	374	93				90						90	61	61	61	90	90	90	90	9999	9999
	375	61				61						150	170	150	174	174	170	170	170	5184.070562	5184.070562
	376	174	150			170						150	170	150	174	174	170	170	170	9999	9999
	377	77				77						77	90	77	90	70	70	77	77	9999	9999
	378	90				90						90	45	90	45	70	70	90	90	9999	9999
	379	70	45			45						45	65	45	65	70	70	90	90	9999	9999
	380	41				41						41	53	41	53	70	70	90	90	9999	9999
	381	53				53						53	60	53	60	70	70	90	90	9999	9999
	382	60				60						60	49	60	49	70	70	90	90	9999	9999
	383	49				49						49	44	49	44	70	70	90	90	9999	9999
	384	44				44						44	60	44	60	70	70	90	90	9999	9999
	385	60				60						60	40	60	40	70	70	90	90	9999	9999
	386	40				40						40	50	40	50	70	70	90	90	9999	9999
	387	50				50						50	60	50	60	70	70	90	90	9999	9999
	388	60				60						60	65	60	65	70	70	90	90	9999	9999
	389	65				65						65	50	65	50	70	70	90	90	9999	9999
	390	50				50						50	110	50	110	159	155	159	155	9999	9999
	391	159	110			110						110	155	110	155	159	155	159	155	9999	9999
	392	60				60						60	60	60	60	159	155	159	155	9999	9999
	393	60				60						60	60	60	60	159	155	159	155	9999	9999
	394	153				153						153	73	153	73	159	155	159	155	9999	9999
	395	62				62						62	37	62	37	159	155	159	155	9999	9999
	396	167				167						167	37	167	37	159	155	159	155	9999	9999

WELL	CASINGDEPTH	PERFTOPA	PERFBTMA	PERFTOPB	PERFBTMB	PERFTOPC	PERFBTMC	OPENTOPA	OPENBTMA	OPENTOPB	OPENBTMB	OPENTOPC	OPENBTMC	OPENTOPD	OPENBTMD	BEDROCK	BEDROCKELEV
397	69							69	69							>69	9999
398	49							49	49							>49	9999
399	52							52	52							>52	9999
400	50							50	50							>50	9999
401	76	40	75					40	75	76	76					>76	9999
402	51							51	51							>51	9999
403	151	40	147					40	147	151	152					>152	9999
404	124	30	124					30	124							>124	9999
405	42							42	42							>42	9999
406	75							75	75							>75	9999
407	80	30	80					30	80							>80	9999
408	52							52	52							>52	9999
409	64							64	64							>64	9999
410	52							52	52							>52	9999
411	48							48	48							>48	9999
412	87	70	78					70	78	87	87					>87	9999
413	55							55	55							>55	9999
414	63							63	63							>63	9999
415	63							63	63							>63	9999
416	63							63	63							>63	9999
417	50	35	47					35	47	50	50					>50	9999
418	45							45	45							>45	9999
419	38.5							38.5	40							>40	9999
420	36.5							36.5	38							>38	9999
421	65							65	65							>65	9999
422	47	42	45					42	45	47	47					>47	9999
423	20							20	60							>60	9999
424	55							55	55							>55	9999
425	51	34	47					34	47	51	51					>51	9999
426	29	20	26					20	26	29	29					>29	9999
427	35							35	35							>35	9999
428	50							50	50							>50	9999
429	41							41	41							>41	9999
430	45							45	45							>45	9999
431	83							83	83							>83	9999
432	80							80	80							>80	9999
433	43							43	43							>43	9999
434	83							83	83							>83	9999
435	83							83	83							>83	9999
436	69	55	65					55	65	69	69					>69	9999
437	150							150	150							>150	9999
438	120							120	120							>120	9999
439	65							65	65							>65	9999
440	148							148	148							>148	9999
441	65							65	65							>65	9999
442	155	135	155					135	155							>155	9999
443	260	20	260					20	260								5202.031486
444	47							47	47							>47	9999

WELL	CASINGDEPTH	PERFTOPA	PERFBTMA	PERFTOPB	PERFBTMB	PERFTOPC	PERFBTMC	OPENTOPA	OPENBTMA	OPENTOPB	OPENBTMB	OPENTOPC	OPENBTMC	OPENTOPD	OPENBTMD	BEDROCK	BEDROCKELEV
445	47							47	47							>47	9999
446	38							38	38							>38	9999
447	62							62	65							>65	9999
448	60							60	82							>82	9999
449	78							78	80							>80	9999
450	140	90	100					90	100	140	140					>140	9999
451	60							60	60							>60	9999
452	48	43	46					43	46	48	48					>48	9999
453	48.5	42	46					42	46	48.5	48.5					>48.5	9999
454	60							60	60							>60	9999
455	60							60	60							>60	9999
456	140							140	140							>140	9999
457	63							63	63							>63	9999
458	160							160	160							>160	9999
459	105	102	105					102	105							>105	9999
460	39							39	39							>39	9999
461	46							46	46							>46	9999
462	60							60	60							>60	9999
463	87	40	50					40	50	87	87					60	5132.551636
464	70	35	40					35	40	70	70					>70	9999
465	221							221	350							221	4974.616172
466	216.5	160	213					160	213	216.5	255					215	4986.047995
467	67							67	67							>67	9999
468	65							65	65							>65	9999
469	65							65	65							>65	9999
470	68							68	68							>68	9999
471	32							32	32							>32	9999
472	68							68	68							>68	9999
473	48	38	48					38	50							>50	9999
474	46.5							46.5	48							>48	9999
475	80							80	80							>80	9999
476	31	27	30					27	30	31	31					>31	9999
477	42							42	45							>45	9999
478	40							40	40							>40	9999
479	60							60	60							>60	9999
480	40							40	40							>40	9999
481	86	60	80					60	80	86	86					>86	9999
482	40							40	40							>40	9999
483	80	55	80					55	80							>80	9999
484	100	28	40	65	100			28	40	65	100					>100	9999
485	60							60	60							>60	9999
486	100							100	100							>100	9999
487	49	22	45					22	45	49	50					>50	9999
488	83							83	83							>83	9999
489	123	100	120					100	120	123	123					>123	9999
490	83							83	83							>83	9999
491	40							40	40							>40	9999
492	42							42	42							>42	9999

WELL	CASINGDEPTH	PERFTOPA	PERFBTMA	PERFTOPB	PERFBTMB	PERFTOPC	PERFBTMC	OPENTOPA	OPENBTMA	OPENTOPB	OPENBTMB	OPENTOPC	OPENBTMC	OPENTOPD	OPENBTMD	BEDROCK	BEDROCKELEV
493	46							46	46							>46	9999
494	46	21	35					21	35	46	46					35	5133.14548
495	34							34	34							>34	9999
496	55	30	55					30	55							>55	9999
497	42.5							42.5	42.5							>42.5	9999
498	38							38	38							>38	9999
499	50							50	50							>50	9999
500	33							33	33							>33	9999
501	37	25	35					25	35	37	37					>37	9999
502	32							32	32							>32	9999
503	220	30	220					30	220							35	5162.178878
504	83							83	83							>83	9999
505	87	70	85					70	85	87	87					75	5088.861456
506	60	25	47					25	47	60	105					99.5	5099.433016
507	39	27	37					27	37	39	43					39	5124.801784
508	41							41	41							>41	9999
509	63							63	63							>63	9999
510	131	95	125					95	125	131	131					>131	9999
511	70							70	70							>70	9999
512	39	10	35					10	35	39	39					>39	9999
513	40							40	42							>42	9999
514	64	60	63					60	63	64	64					>64	9999
515	115							115	135							120	5073.085086
516	50							50	70							>70	9999
517	180	150	180					150	180							>180	9999
518	183	140	150					140	150	183	183					>183	9999
519	145	25	35	65	140			25	35	65	140	145	145			>145	9999
520	40							40	40							>40	9999
521	37							37	37							>37	9999
522	188.5	92	95	104	148	169	186	92	95	104	148	169	186	188.5	188.5	>188.5	9999
523	131	90	107					90	107	131	132					>132	9999
524	72	50	70					50	70	72	72					>72	9999
525	129	100	128					100	128	129	129					>129	9999
526	110	75	95	102	108			75	95	102	108	110	110			>110	9999
527	70							70	70							>70	9999
528	112	65	94	100	110			65	94	100	110	112	112			>112	9999
529	80							80	80							>80	9999
530	69	59	65					59	65	69	69					>69	9999
531	80							80	80							>80	9999
532	143							143	143							>143	9999
533								0	83							>83	9999
534	122							122	122							>122	9999
535	145							145	145							>145	9999
536	140	130	139					130	139	140	250					140	5103.414048
537	165	120	150					120	150	165	400					140	5110.287629
538	163.5	120	140					120	140	163.5	165					>165	9999
539	130							130	130							>130	9999
540	160	140	155					140	155	160	160					>160	9999

WELL	CASINGDEPTH	PERFTOPA	PERFBTMA	PERFTOPB	PERFBTMB	PERFTOPC	PERFBTMC	OPENTOPA	OPENBTMA	OPENTOPB	OPENBTMB	OPENTOPC	OPENBTMC	OPENTOPD	OPENBTMD	BEDROCK	BEDROCKELEV
541	158							158	160							>160	9999
542	148	140	148					140	148							>148	9999
543	160							160	160							>160	9999
544	128	90	128					90	140							128	5074.737655
545	163							163	163							>163	9999
546	162	110	145					110	145	162	162					>162	9999
547	160	85	100	110	150			85	100	110	150	160	160			>160	9999
548	150							150	150							>150	9999
549	150							150	150							60	5240.355472
550	170	145	165					145	165	170	170					>170	9999
551	132							132	132							>132	9999
553	117.167	95	115					95	115	117.167	117.167					>117.167	9999
554	128							128	128							>128	9999
555	120	90	120					90	120							>120	9999
556	130	100	130					100	130							>130	9999
557	152							152	152							>152	9999
558	128	104	124					104	124	128	128					>128	9999
559	123	105	120					105	120	123	123					>123	9999
560	168							168	168							156	5128.717606
561	85							85	85							>85	9999
562																	5386.645474
563																	5710.935014
564																	5351.865552
565	41							41	49							41	5281.090978
566	36	30	36					30	60							36	5280.801681
567	33	24	30					24	30	33	33					33	5276.561187
568	180	40	180					40	180							36	5286.090978
569	44	30	41					30	41	44	44					38	5285.363341
570	33	24	30					24	30	33	33					30	5286.801681
571	181							181	181							>181	9999
572	150	50	147					50	147	150	150					>150	9999
573	114	20	112					20	112	114	114					>114	9999
574																	5252.835508
575																	5251.285605
576																	5243.469203
577																	5272.429977
578																	5170.473539
579	160	65	80	90	149			65	80	90	149	198	198			>149	9999

Appendix B
Precipitation Data

Monthly Total Precipitation (inches)
Hailey 3NNW (103942)

YEAR(S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1970	4.88	0.34	1.54	1.08	1.35	2.93	1.51	0.43	0.77	1.62	3.32	5.14	24.91
1971	3.49	1.38	2.25	0.47	1.36	2.01	0.65	0.19	0.86	0.74	1.12	3.65	18.17
1972	2.01	0.5	0.38	0.69	1.35	1.15	0.22	0.94	0.9	z	z	1.63	
1973	2.95	1.46	0.8	0.63	0.17	0.83	z	z	z	z	4.33	2.4	
1974	2.8	0.79	2.84	0.25	0.07	0	0.34	0.26	0	1.46	0.17	b	10.96
1975	1.15	4.36	2.71	1.12	0.89	1.26	0.31	0.45	0.03	1.84	1.45	0.94	16.51
1976	0.96	2.74	0.43	0.63	0.44	0.64	0.28	2.06	2.44	z	z	3.75	
1977	0.28	0.6	0.2	d	0	3.7	0.91	1.2	0.77	0.12	z	b	12.52
1978	3.75	3.37	a	1.08	3.62	c	1.24	0.59	2.68	0	0.31	0.67	17.83
1979	1.34	2.9	1.56	1.01	1.13	0.04	0.39	1.29	0.19	1.88	0.69	1.84	14.26
1980	3.82	2.03	0.79	0.88	z	z	z	0.76	1.69	0.37	1.08	0.17	
1981	z	0.1	1.04	2.08	0.95	0.61	0.18	0.32	0.24	1.48	3.88	3	13.88
1982	1.5	z	z	z	z	z	z	z	z	z	z	z	1.5
1983	z	z	z	z	z	z	z	z	z	z	z	z	
1984	z	z	z	z	z	z	z	z	0.4	0.43	z	z	0.83
1985	z	z	z	z	z	z	z	z	z	z	z	z	
1986	z	z	z	z	z	z	z	z	1.87	0.04	0.26	0.07	2.24
1987	1.46	a	1.35	1.57	5.29	2.22	1.44	z	z	z	2	1.26	16.59
1988	1.42	0.29	z	1.24	a	1.2	z	q	0.2	z	z	z	4.35
1989	z	z	z	z	z	z	z	z	z	z	z	z	
1990	z	z	z	z	z	z	z	z	z	z	z	z	
1991	z	z	z	z	z	z	z	z	z	z	z	z	
1992	z	z	z	z	z	z	z	z	z	z	z	z	
1993	z	z	z	z	z	z	z	z	z	z	z	z	
1994	z	z	z	z	z	z	z	z	z	z	z	z	
1995	z	z	z	z	z	z	z	z	z	z	z	z	
1996	z	z	z	z	z	z	z	z	z	z	z	z	
1997	z	z	z	z	z	z	z	z	z	z	z	z	
1998	z	z	z	z	z	z	z	z	z	z	z	z	
1999	z	z	z	z	z	z	z	z	z	z	z	z	
2000	z	z	z	z	z	z	z	z	z	z	z	z	
2001	z	z	z	z	z	z	z	z	z	z	z	z	
2002	z	z	z	z	z	z	z	z	z	z	z	z	
2003	z	z	z	z	z	z	z	z	z	z	z	z	
2004	z	z	z	z	z	z	z	z	z	z	z	z	
2005	z	z	z	z	z	z	z	z	z	z	z	z	
2006	z	z	z	z	z	z	z	z	z	z	z	z	
2007	z	z	z	z	z	z	z	z	z	z	z	z	
2008	z	z	0.75	a	0.17	c	1.49	a	0.07	i	z	z	

Period of Record Statistics 1970-1981

MEAN	2.27	1.59	1.32	1.05	1.47	1.10	0.62	0.72	0.93	0.91	1.69	2.04	11.89
S.D.	1.34	1.31	0.86	0.93	1.45	0.88	0.48	0.60	0.89	0.75	1.50	1.51	7.52
SKEW	0.48	0.82	0.57	1.97	1.95	0.85	1.18	1.12	0.91	0.08	0.82	0.61	-0.21
MAX	4.88	4.36	2.84	3.62	5.29	2.93	1.51	2.06	2.68	1.88	4.33	5.14	24.91
MIN	0.28	0.1	0.2	0	0.07	0	0.18	0.05	0	0	0.17	0.07	0.83
NO YRS	35	34	35	36	33	32	32	35	36	34	33	35	22

Monthly Total Precipitation (inches)
Ketchum Ranger Station (104845)

YEAR(S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN							
1973		z	z	z	z	0.42	0.93	1.7	0.01	0.96	0.38	6.07	3.33	13.8						
1974	3.71	0.97	3.54	0.9	0	0	0.37	0.23	0.06	1.32	0.99	1.96	b	14.05						
1975	1.4	4.28	3.22	1.72	0.91	1.11	1.88	0.72	0.29	2.56	1.57	1.21		20.87						
1976	1.24	1.91	1.18	1.66	2.41	0.63	1.62	3.16	2.76	0.21	0	0.22		17						
1977	0.83	0.7	0.97	0.01	4.06	2.03	2.55	0.77	1.55	0.1	a	1.44	3.83	18.84						
1978	3.24	3.21	0.57	3.27	0.69	0.52	1.24	0.32	3.51	0	0.33	1.41		18.31						
1979	1.3	2.43	1.41	0.64	0.76	1.07	0.65	1.65	0.21	1.73	0.9	2.18		14.93						
1980	4.5	2.02	1.29	1.18	3.87	1.6	1.39	0.8	2.35	0.1	1.05	4.06		24.21						
1981	1.49	1.3	1.15	1.88	1.51	1.51	0	1.08	0.72	1.23	3.89	3.07		18.83						
1982	2.28	1.85	3.1	3.22	1.05	1.47	1.23	0.19	0.76	1.81	3.14	5.29		25.39						
1983	1.43	3.62	5.39	0.74	1.2	2.38	1.21	1.12	1.16	1.57	4.14	3.99		27.95						
1984	0.05	a	1.91	1.91	1.09	1.53	3.67	2.28	1.33	z	0.56	2.37	2	18.7						
1985	0.19	2.69	1.52	0.5	1.91	0.33	0.85	0.14	4.67	0.9	a	1.46	1.34	16.5						
1986	2.41	5.07	1.92	0.78	1.11	0.83	0.95	1.08	1.91	0.32	0.39	e	0.12	16.89						
1987	1.85	1.11	2.15	0.04	3.89	1.97	2.04	a	0.89	0	0.22	0.93	2.48	a	17.57					
1988	1.5	0.48	0.42	2.49	b	2.04	a	0.5	a	0.1	0.11	0.41	0.37		15.06					
1989	1.76	1.16	3.11	0.58	1.62	0.27	0.16	1.34	1.56	2.69	0.73	0.02	a	15						
1990	2.64	1.41	0.95	2.66	2.12	1.66	0.42	b	1.77	a	0.59	0.46	d		17.02					
1991	0.19	0.06	4.47	0.65	d	3.32	2.22	0.73	1.08	2.52	2.31	1.75	a	0.92	20.22					
1992	0.43	1.76	0.3	0.55	0.13	2.05	0.12	0.07	0.11	1.87	0.86	a	2.69		10.94					
1993	4.64	a	2.4	2.22	1.83	1	4.1	0.47	2	0.16	0.52	0.58	1.56		21.48					
1994	0.68	2.02	0.05	1.06	2.26	0.76	0.3	0.55	0.38	1.49	2.46	a	2.14		14.15					
1995	5.08	1.39	6.95	b	1.26	2.79	2.42	0.78	a	0.16	0.01	0.2	1.85	e	27.49					
1996	2.76	2.02	1.57	1.54	2.94	0.18	0.32	0.09	0.58	0.71	2.51	6.99		22.21						
1997	4.96	0.46	0.75	0.98	0.7	1.64	0.8	0.65	0.75	2.76	1.1	0.47	a	16.02						
1998	3.17	c	3.19	1.4	a	1.07	5.46	2.63	0.54	0.1	1.14	0.59	a	2.81	2.21	d	24.31			
1999	2.74	a	4.72	b	0.69	a	0.82	1.25	b	1.56	a	0.13	0.49	0	0.83	0.53	a	1.28	a	15.04
2000	3.04	a	3.13	1.46	0.81	b	1.77	0.01	0.25	0.67	3.01	2.9	b	0.6	b	1.05		18.7		
2001	1.48	0.41	0.58	1.09	0.3	0.13	0.89	0.09	0.46	0.79	1.52	a	3.67	c		11.41				
2002	1.71	a	0.81	0.91	1.11	0.58	0.04	0.1	0.29	0.35	0.44	b	1.14	b	4.18	a	11.66			
2003	1.22	1.15	1.44	2.04	a	1.67	0.06	0.13	1.06	0.35	0.15	0.25	c	4.39		13.91				
2004	2.26	3.12	0.42	0.97	1.69	1.01	1.45	0.51	1.24	2.44	0.27	2.91		18.29						
2005	2.47		z	1.85	0.53	a	5.7	2.19	0.44	0.25	0.63	0.69	2.3	5.06		22.11				
2006	4.67	a	0.46	a	2.61	5.61	0.8	1.43	0.33	a	0.18	0.89	1.46	1.79	2.13	22.36				
2007	0.38	1.44	0.4	0.72	0.19	0.48	0.74	0.26	0.88	2.3	0.71	2.56		11.06						
Period of Record Statistics 1973-2007																				
MEAN	2.17	1.96	1.82	1.35	1.82	1.30	0.83	0.72	1.09	1.11	1.67	2.52		18.07						
S.D.	1.44	1.28	1.52	1.09	1.43	1.02	0.68	0.68	1.12	0.90	1.38	1.63		4.52						
SKEW	0.55	0.77	1.69	2.14	1.17	0.81	0.89	1.62	1.55	0.62	1.47	0.64		0.44						
MAX	5.08	5.07	6.95	5.61	5.7	4.1	2.55	3.16	4.67	2.9	6.07	6.99		27.95						
MIN	0.05	0.06	0.05	0.01	0	0	0	0.01	0	0	0	0.02		10.94						

Monthly Total Precipitation (inches)
Picabo (107040)

YEAR(S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1970	3.32	0.55	1.46	0.86	0.89	2.35	0.26	0.3	1.24	1.1	3.26	4.03	19.62
1971	3.31	0.57	1.75	1.05	0.62	1.52	0.21	0.31	0.56	0.9	1.68	2.62	15.1
1972	2.35	0.75	0.93	0.8	0.84	0.9	0	0.38	1.53	1.11	1.53	1.46	12.58
1973	1.57	1.01	1.03	0.49	0.46	0.28		z 0.51	0.34	0.43	3.78	2	11.9
1974	2.14	0.58	2.32	0.31	0.11	0	0.21	0.08	0	1.31	0.41	1.28	8.75
1975	1.34	3.17	2.87	1.69	1.07	0.67	0.25	0.41	0.03	1.73	0.95	0.98	15.16
1976	1.69	2.06	1.13	1.77	0.62	0.48	0.05	1.19	1.21	0.55	0	0.1	10.85
1977	1.1	0.52	0.48	0.1	2.09	0.64	0.8	0.14	0.57	0.35	1.33	3.11	11.23
1978	2.1	1.86	0.88	2.15	0.65	0.55	0.35	0.3	1.82	0.01	0.72	0.6	11.99
1979	1.32	1.38	1.05	0.5	1.15	0.59	0.35	1.03	0.14	1.51	0.65	a 0.73	10.4
1980	3.57	1.55	0.45	0.72	3.15	0.76		z 0.65	1.62	0.35	0.83	2.01	15.66
1981	0.85	0.88	1.08	1.76	0.83	0.59	0.06	0.05	0	1.52	2.55	2.6	12.77
1982	1.72	1.54	1.99	1.29	1.18	0.85	1.38	0.1	1.7	1.17	1.95	3.5	18.37
1983	0.41	2.62	2.79	0.75	0.89	1.78	0.65	1.44	0.83	0.77	3.98	3.15	20.06
1984	0	a 1.73	1	0.74	0.48	1.78	0.96	0.78	0.22	0.83	2.86	0.98	a 12.36
1985	0.6	2.38	a 0.92	0.1	0.96	0.1	2.32	0	1.8	0.75	0.93	1.97	12.83
1986	1.62	4.55	1.36	0.67	1.75	0.75	0.25	0.33	1.42	0.44	0.15	0.22	13.51
1987	1.08	0.5	1.12	0	2.69	0.71	1.42	0.15	0	0.2	1.32	1.02	10.21
1988	0.91	0.25	0.5	1.11	1.65	0.05	0	0	0.3	0	5.61	1.8	12.18
1989	1.4	0.5	1.56	0.21	1.22	0.15	0.15	0.53	0.8	2.09	0.58	a 0	9.19
1990	1.85	1.4	0.56	1.62	1.62	1.25	0.05	0.53	0.15	0.3	0.8	0.75	10.88
1991	0	0.09	2.63	a 1.25	2.57	0.7	0.33	0.22	1.41	1.8	1.28	0.12	12.4
1992	0.2	1.14	0.17	0.52	0	1.12	0	0.05	0.73	1.2	0.6	b 1.67	7.4
1993	2.11	a 1.58	2	1.1	0.95	2.7	0.65	0.42	0.65	1.75	0.05	0.4	14.36
1994	0.65	0.8	0	1.27	b 1.1	0.45	0.15	0.5	0.25	1.45	1.95	1.55	10.12
1995	3.2	0.68	3.3	1.13	3.8	3.45	1.39	0	0.27	0	1.2	2.73	21.15
1996	1.9	a 0.9	1.5	0.67	1.75	0	0.05	0	0.1	0.65	2.25	4.91	b 14.68
1997	3.19	0.25	0.74	1.16	0	2.12	0.07	0.2	0.55	0.91	0.91	a 0.75	10.85
1998	1.81	1.83	c 1.95	1.03		z 1.97	0.4	0.42	1.16	0	2.4	1.5	14.47
1999	2.4	3.37	0.25	0.9	1.55	0.65	0	0.35	0	0.5	0.16	0.06	10.19
2000	2.09	2.59	1.3	0.7	0.55	0.05	0	0.62	0.7	2.05	0.25	0.82	11.72
2001	1.05	0.7	a 0.56	1.34	0.1	0.1	0.65	0	0.2	0.5	1.26	a 2.5	8.96
2002	0.9	0.15	a 1	1.07	0.8	0.15	0.03	0	0.2	0.2	0.65	a 1.68	b 6.83
2003	0.99	c 0.72	1.04	2.18	0.85	0.2	0	0.52	0.45	0.35	0.68	3.48	11.46
2004	1.75	1.15	0.15	0.62	1.49	0.44	1.05	0.7	0.63	2.55	0.3	2.18	13.01
2005	1.17	a 0.45	2.02	1.7	3.34	1.08	0	0.1	0	0.56	1.97	4.13	16.52
2006	3.75	0.55	1.87	a 3.75	0.84	0.4	0.02		u 0.27	0.79	1.9	1.8	15.94
2007	0.15	1.3	0.4	0.5	0.3	0.37	0	0.1	0.48	2.7	0.45	2.07	8.82
Period of Record Statistics 1970-2007													
MEAN	1.62	1.28	1.27	1.04	1.21	0.86	0.40	0.36	0.64	0.93	1.42	1.77	12.75
S.D.	1.01	0.99	0.82	0.71	0.92	0.82	0.54	0.34	0.58	0.72	1.23	1.24	3.38
SKEW	0.44	1.41	0.67	1.57	1.18	1.43	1.86	1.31	0.76	0.76	1.49	0.60	0.71
MAX	3.75	4.55	3.3	3.75	3.8	3.45	2.32	1.44	1.82	2.7	5.61	4.91	21.15
MIN	0	0.09	0	0	0	0	0	0	0	0	0	0	6.83
NO YRS	49	48	50	48	48	49	47	49	49	48	49	49	39

Appendix C

Large Parcel and Subdivision Irrigation Rates

	Valley Clu	Silver Bel	Vanoff - (	Old Cutter	Lufkin - (	Brennan -	Indian Cre	Cropper -	Wilcox - (	Johnson -	Marathon P
Alfalfa	0	0	0	0.7	0	0	0.42	0.98	0	0	0.9
Bare	0.3	0	0.15	0.25	0	0.25	0.58	0	0	0	0.1
Grain	0	0	0	0	0	0	0	0	0	0	0
Pasture	0	0.49	0.28	0	0.16	0.07	0	0	0	0	0
River	0	0.26	0.57	0	0.84	0.68	0	0	0	1	0
Turf	0.7	0	0	0	0	0	0	0	0.41	0	0
Urban	0	0.25	0	0.05	0	0	0	0.02	0.59	0	0
	1	1	1	1	1	1	1	1	1	1	1
Area	86.8	29.7	305.3	91.4	75.8	114.2	17.3	21.4	19.5	9.4	0.5
Days	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0
91	0.00166	0.00134	0.00076	0.00194	0.00044	0.00019	0.00117	0.00272	0.00097	0	0.00250
120	0.00166	0.00134	0.00076	0.00194	0.00044	0.00019	0.00117	0.00272	0.00097	0	0.00250
121	0.00714	0.00628	0.00359	0.00837	0.00205	0.00090	0.00502	0.01172	0.00418	0	0.01077
151	0.00714	0.00628	0.00359	0.00837	0.00205	0.00090	0.00502	0.01172	0.00418	0	0.01077
152	0.01427	0.01098	0.00627	0.01756	0.00359	0.00157	0.01054	0.02458	0.00836	0	0.02258
181	0.01427	0.01098	0.00627	0.01756	0.00359	0.00157	0.01054	0.02458	0.00836	0	0.02258
182	0.01936	0.01412	0.00807	0.01950	0.00461	0.00202	0.01170	0.02730	0.01134	0	0.02508
212	0.01936	0.01412	0.00807	0.01950	0.00461	0.00202	0.01170	0.02730	0.01134	0	0.02508
213	0.01586	0.01170	0.00668	0.01601	0.00382	0.00167	0.00960	0.02241	0.00929	0	0.02058
243	0.01586	0.01170	0.00668	0.01601	0.00382	0.00167	0.00960	0.02241	0.00929	0	0.02058
244	0.00950	0.00668	0.00382	0.01116	0.00218	0.00095	0.00670	0.01563	0.00557	0	0.01435
273	0.00950	0.00668	0.00382	0.01116	0.00218	0.00095	0.00670	0.01563	0.00557	0	0.01435
274	0.00212	0.00116	0.00066	0.00233	0.00038	0.00017	0.00140	0.00326	0.00124	0	0.00300
304	0.00212	0.00116	0.00066	0.00233	0.00038	0.00017	0.00140	0.00326	0.00124	0	0.00300
305	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0

	Croy Canyo	Dilley - (	Quigley Gr	Wood River	BLM - (Bar	BLM - (Bar	BLM - (Bar	BLM - (Bar	BLM - (Bar	BLM - (Bar	BLM - (Bar	BLM - (Riv
Alfalfa	0	0	0	0	0	0	0	0	0	0	0	0
Bare	0	1	0.55	0.3	0.5	1	1	1	1	1	1	0.2
Grain	0	0	0	0	0	0	0	0	0	0	0	0
Pasture	0	0	0	0	0	0	0	0	0	0	0	0
River	1	0	0	0.7	0.5	0	0	0	0	0	0	0.8
Turf	0	0	0	0	0	0	0	0	0	0	0	0
Urban	0	0	0.45	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1	1	1
Days	4.0	5.1	7.9	37.3	8.3	10.1	5.5	12.7	1.3	7.3	7.5	9.3
0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0
121	0	0	0	0	0	0	0	0	0	0	0	0
151	0	0	0	0	0	0	0	0	0	0	0	0
152	0	0	0	0	0	0	0	0	0	0	0	0
181	0	0	0	0	0	0	0	0	0	0	0	0
182	0	0	0	0	0	0	0	0	0	0	0	0
212	0	0	0	0	0	0	0	0	0	0	0	0
213	0	0	0	0	0	0	0	0	0	0	0	0
243	0	0	0	0	0	0	0	0	0	0	0	0
244	0	0	0	0	0	0	0	0	0	0	0	0
273	0	0	0	0	0	0	0	0	0	0	0	0
274	0	0	0	0	0	0	0	0	0	0	0	0
304	0	0	0	0	0	0	0	0	0	0	0	0
305	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0

	BLM - (Bar	BLM - (Riv	BLM - (Bar	BLM - (Riv	Wood River	Wood River	Valley Clu	Valley Clu	Valley Clu	Valley Clu	New Deer C	New Deer C	New Deer C
	0	0	0	0	0	0	0	0	0	0	0	0	0
Alfalfa	1	0	1	0	1	1	0	0.09	0.09	0	1	0.5	0.5
Bare	0	0	0	0	0	0	0	0	0	0	0	0	0
Grain	0	0	0	0	0	0	0	0	0	0	0	0	0
Pasture	0	0	0	0	0	0	0	0	0	0	0	0.5	0.5
River	0	1	0	1	0	0	1	0.91	0.91	0	0	0	0
Turf	0	0	0	0	0	0	0	0	0	0	0	0	0
Urban	0	0	0	0	0	0	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	1	1	1	1
Days	8.1	7.2	10.2	33.3	3.7	230.0	20.7	10.8	11.2				
0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0
121	0	0	0	0	0	0	0	0	0	0	0	0	0
151	0	0	0	0	0	0	0	0	0	0	0	0	0
152	0	0	0	0	0	0	0	0	0	0	0	0	0
181	0	0	0	0	0	0	0	0	0	0	0	0	0
182	0	0	0	0	0	0	0	0	0	0	0	0	0
212	0	0	0	0	0	0	0	0	0	0	0	0	0
213	0	0	0	0	0	0	0	0	0	0	0	0	0
243	0	0	0	0	0	0	0	0	0	0	0	0	0
244	0	0	0	0	0	0	0	0	0	0	0	0	0
273	0	0	0	0	0	0	0	0	0	0	0	0	0
274	0	0	0	0	0	0	0	0	0	0	0	0	0
304	0	0	0	0	0	0	0	0	0	0	0	0	0
305	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0

	New Deer C	New Deer C	New Deer C	Idaho Dept	Idaho Depa	Rinker - (	River Grov	Blaine Cou	Blaine Cou	Blaine Cou	Stevens -	Big Wood R	Eccles Fly
Alfalfa	0.35	0	0	1	0	1	0	0	0	0	0	0	0.8
Bare	0.1	0.5	0	0	0	0	0	0	0	0.23	0.06	0	0
Grain	0	0	0	0	0	0	0	0	0	0	0	0	0.09
Pasture	0	0	0	0	0	0	0.75	0	0	0	0.49	0.35	0
River	0.55	0.5	1	0	0	0	0.25	0	0	0	0.45	0.65	0.11
Turf	0	0	0	0	0	0	0	0.52	0.35	0.29	0	0	0
Urban	0	0	0	0	1	0	0	0.48	0.65	0.48	0	0	0
	1	1	1	1	1	1	1	1	1	1	1	1	1
Days	145.9	4.6		93.4	8.2	157.6	98.7	23.1	74.1	15.8	114.9	161.2	761.8
0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0.00097	0	0	0.00278	0	0.00278	0.00204	0.00123	0.00083	0.00069	0.00134	0.00095	0.00244
120	0.00097	0	0	0.00278	0	0.00278	0.00204	0.00123	0.00083	0.00069	0.00134	0.00095	0.00244
121	0.00419	0	0	0.01196	0	0.01196	0.00962	0.00530	0.00357	0.00296	0.00628	0.00449	0.01039
151	0.00419	0	0	0.01196	0	0.01196	0.00962	0.00530	0.00357	0.00296	0.00628	0.00449	0.01039
152	0.00878	0	0	0.02509	0	0.02509	0.01681	0.01060	0.00714	0.00591	0.01098	0.00784	0.02223
181	0.00878	0	0	0.02509	0	0.02509	0.01681	0.01060	0.00714	0.00591	0.01098	0.00784	0.02223
182	0.00975	0	0	0.02786	0	0.02786	0.02162	0.01438	0.00968	0.00802	0.01412	0.01009	0.02548
212	0.00975	0	0	0.02786	0	0.02786	0.02162	0.01438	0.00968	0.00802	0.01412	0.01009	0.02548
213	0.00800	0	0	0.02286	0	0.02286	0.01791	0.01178	0.00793	0.00657	0.01170	0.00836	0.01997
243	0.00800	0	0	0.02286	0	0.02286	0.01791	0.01178	0.00793	0.00657	0.01170	0.00836	0.01997
244	0.00558	0	0	0.01595	0	0.01595	0.01022	0.00706	0.00475	0.00394	0.00668	0.00477	0.01291
273	0.00558	0	0	0.01595	0	0.01595	0.01022	0.00706	0.00475	0.00394	0.00668	0.00477	0.01291
274	0.00117	0	0	0.00333	0	0.00333	0.00178	0.00157	0.00106	0.00088	0.00116	0.00083	0.00268
304	0.00117	0	0	0.00333	0	0.00333	0.00178	0.00157	0.00106	0.00088	0.00116	0.00083	0.00268
305	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0

	CITY OF H	CITY OF H	Halley Me	Bend of R	CHANTRE	CHANTRE	WOODSID	WOODSID	WOODSID	WOODSID	sEC4 OFF	Riverview	MIZER	GORDON	YORK
Turf	0.25	0	0.35	0.72	0.47	0.36	0.36	0.02	0.22	0.33	0.46	0.75	0.51	0	0.8
Area	339.4	75.4	31.6	84.2	38.0	44.9	135.6	31.2	145.7	152.8	1.4	164.7	7.9	2.2	5.8
Irr Area	84.9	0.0	11.1	60.7	17.9	16.2	48.8	0.6	32.0	50.4	0.6	123.5	4.0	0.0	4.7
Days															
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0.00059	0	0.00083	0.00171	0.00111	0.00085	0.00085	0.00005	0.00052	0.00078	0.00109	0.00178	0.00121	0	0.00190
120	0.00059	0	0.00083	0.00171	0.00111	0.00085	0.00085	0.00005	0.00052	0.00078	0.00109	0.00178	0.00121	0	0.00190
121	0.00255	0	0.00357	0.00734	0.00479	0.00367	0.00367	0.00020	0.00224	0.00336	0.00469	0.00765	0.00520	0	0.00816
151	0.00255	0	0.00357	0.00734	0.00479	0.00367	0.00367	0.00020	0.00224	0.00336	0.00469	0.00765	0.00520	0	0.00816
152	0.00510	0	0.00714	0.01468	0.00958	0.00734	0.00734	0.00041	0.00449	0.00673	0.00938	0.01529	0.01040	0	0.01631
181	0.00510	0	0.00714	0.01468	0.00958	0.00734	0.00734	0.00041	0.00449	0.00673	0.00938	0.01529	0.01040	0	0.01631
182	0.00692	0	0.00968	0.01992	0.01300	0.00996	0.00996	0.00055	0.00609	0.00913	0.01272	0.02075	0.01411	0	0.02213
212	0.00692	0	0.00968	0.01992	0.01300	0.00996	0.00996	0.00055	0.00609	0.00913	0.01272	0.02075	0.01411	0	0.02213
213	0.00567	0	0.00793	0.01632	0.01065	0.00816	0.00816	0.00045	0.00499	0.00748	0.01042	0.01700	0.01156	0	0.01813
243	0.00567	0	0.00793	0.01632	0.01065	0.00816	0.00816	0.00045	0.00499	0.00748	0.01042	0.01700	0.01156	0	0.01813
244	0.00339	0	0.00475	0.00978	0.00638	0.00489	0.00489	0.00027	0.00299	0.00448	0.00625	0.01018	0.00692	0	0.01086
273	0.00339	0	0.00475	0.00978	0.00638	0.00489	0.00489	0.00027	0.00299	0.00448	0.00625	0.01018	0.00692	0	0.01086
274	0.00076	0	0.00106	0.00218	0.00142	0.00109	0.00109	0.00006	0.00067	0.00100	0.00139	0.00227	0.00154	0	0.00242
304	0.00076	0	0.00106	0.00218	0.00142	0.00109	0.00109	0.00006	0.00067	0.00100	0.00139	0.00227	0.00154	0	0.00242
305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	REIS	THRESHE	CALVARY	IDAHO PQ	WGW INV	ID TRANS	RICHMON	NELSON	BEEKWIL	BONNIVE	BREAZEA	IX-NAY IN	BERNHAG	CONRAD	CITY OF H
Turf	0	0.72	0	0.23	0.21	0	0.33	0.74	0	0.68	0.53	0.35	0.76	0.16	0
Area	1.4	0.9	5.0	10.3	2.3	5.3	6.0	1.5	12.9	1.0	0.6	4.8	3.3	1.0	2.0
Irr Area	0.0	0.7	0.0	2.4	0.5	0.0	2.0	1.1	0.0	0.7	0.3	1.7	2.5	0.2	0.0
Days															
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0.00171	0	0.00055	0.00050	0	0.00078	0.00176	0	0.00161	0.00126	0.00083	0.00180	0.00038	0
120	0	0.00171	0	0.00055	0.00050	0	0.00078	0.00176	0	0.00161	0.00126	0.00083	0.00180	0.00038	0
121	0	0.00734	0	0.00235	0.00214	0	0.00336	0.00754	0	0.00693	0.00540	0.00357	0.00775	0.00163	0
151	0	0.00734	0	0.00235	0.00214	0	0.00336	0.00754	0	0.00693	0.00540	0.00357	0.00775	0.00163	0
152	0	0.01468	0	0.00469	0.00428	0	0.00673	0.01509	0	0.01387	0.01081	0.00714	0.01550	0.00326	0
181	0	0.01468	0	0.00469	0.00428	0	0.00673	0.01509	0	0.01387	0.01081	0.00714	0.01550	0.00326	0
182	0	0.01992	0	0.00636	0.00581	0	0.00913	0.02047	0	0.01881	0.01466	0.00968	0.02102	0.00443	0
212	0	0.01992	0	0.00636	0.00581	0	0.00913	0.02047	0	0.01881	0.01466	0.00968	0.02102	0.00443	0
213	0	0.01632	0	0.00521	0.00476	0	0.00748	0.01677	0	0.01541	0.01201	0.00793	0.01722	0.00363	0
243	0	0.01632	0	0.00521	0.00476	0	0.00748	0.01677	0	0.01541	0.01201	0.00793	0.01722	0.00363	0
244	0	0.00978	0	0.00312	0.00285	0	0.00448	0.01005	0	0.00923	0.00720	0.00475	0.01032	0.00217	0
273	0	0.00978	0	0.00312	0.00285	0	0.00448	0.01005	0	0.00923	0.00720	0.00475	0.01032	0.00217	0
274	0	0.00218	0	0.00070	0.00064	0	0.00100	0.00224	0	0.00206	0.00161	0.00106	0.00230	0.00048	0
304	0	0.00218	0	0.00070	0.00064	0	0.00100	0.00224	0	0.00206	0.00161	0.00106	0.00230	0.00048	0
305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	LIFE CHU	WEEKS	RATKE	YOUNG	old power	CITY OF H	BULLION	TINGEY	PEUSA	FOX	FOX	CITY OF H	HAILEY C	FOXMOO	CITY OF H
Turf	0	0	0.81	0.42	0.56	0.26	0	0.26	0.52	0.44	0.44	0.6	1	0.33	0.1
Area	10.9	2.9	1.9	3.4	6.4	10.0	17.1	1.4	0.3	3.0	0.6	3.0	17.4	21.2	7.5
Irr Area	0.0	0.0	1.6	1.4	3.6	2.6	0.0	0.4	0.1	1.3	0.3	1.8	17.4	7.0	0.8
Days															
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0.00192	0.00100	0.00133	0.00062	0	0.00062	0.00123	0.00104	0.00104	0.00142	0.00237	0.00078	0.00024
120	0	0	0.00192	0.00100	0.00133	0.00062	0	0.00062	0.00123	0.00104	0.00104	0.00142	0.00237	0.00078	0.00024
121	0	0	0.00826	0.00428	0.00571	0.00265	0	0.00265	0.00530	0.00449	0.00449	0.00612	0.01020	0.00336	0.00102
151	0	0	0.00826	0.00428	0.00571	0.00265	0	0.00265	0.00530	0.00449	0.00449	0.00612	0.01020	0.00336	0.00102
152	0	0	0.01652	0.00856	0.01142	0.00530	0	0.00530	0.01060	0.00897	0.00897	0.01224	0.02039	0.00673	0.00204
181	0	0	0.01652	0.00856	0.01142	0.00530	0	0.00530	0.01060	0.00897	0.00897	0.01224	0.02039	0.00673	0.00204
182	0	0	0.02240	0.01162	0.01549	0.00719	0	0.00719	0.01438	0.01217	0.01217	0.01660	0.02766	0.00913	0.00277
212	0	0	0.02240	0.01162	0.01549	0.00719	0	0.00719	0.01438	0.01217	0.01217	0.01660	0.02766	0.00913	0.00277
213	0	0	0.01836	0.00952	0.01269	0.00589	0	0.00589	0.01178	0.00997	0.00997	0.01360	0.02266	0.00748	0.00227
243	0	0	0.01836	0.00952	0.01269	0.00589	0	0.00589	0.01178	0.00997	0.00997	0.01360	0.02266	0.00748	0.00227
244	0	0	0.01100	0.00570	0.00760	0.00353	0	0.00353	0.00706	0.00597	0.00597	0.00815	0.01358	0.00448	0.00136
273	0	0	0.01100	0.00570	0.00760	0.00353	0	0.00353	0.00706	0.00597	0.00597	0.00815	0.01358	0.00448	0.00136
274	0	0	0.00245	0.00127	0.00170	0.00079	0	0.00079	0.00157	0.00133	0.00133	0.00182	0.00303	0.00100	0.00030
304	0	0	0.00245	0.00127	0.00170	0.00079	0	0.00079	0.00157	0.00133	0.00133	0.00182	0.00303	0.00100	0.00030
305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	LDS CHUR	LDS CHUR	Hailey City	AIRPORT	HAILEY S	BRYSON	CITY OF H	CITY OF H	HUBSMITH	CITY OF H	DREYER	SOUTH W	CITY OF H	Broadford	FERRIES
Turf	0.63	0.63	0.35	0	0	0.52	0	0	0	0	0	0	0	0.53	0.06
Area	9.5	9.8	9.4	1.0	1.0	2.5	3.7	12.9	11.3	6.7	1.1	19.6	6.0	19.2	7.8
Irr Area	6.0	6.2	3.3	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.5
Days															
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0.00149	0.00149	0.00083	0	0	0.00123	0	0	0	0	0	0	0	0.00126	0.00014
120	0.00149	0.00149	0.00083	0	0	0.00123	0	0	0	0	0	0	0	0.00126	0.00014
121	0.00642	0.00642	0.00357	0	0	0.00530	0	0	0	0	0	0	0	0.00540	0.00061
151	0.00642	0.00642	0.00357	0	0	0.00530	0	0	0	0	0	0	0	0.00540	0.00061
152	0.01285	0.01285	0.00714	0	0	0.01060	0	0	0	0	0	0	0	0.01081	0.00122
181	0.01285	0.01285	0.00714	0	0	0.01060	0	0	0	0	0	0	0	0.01081	0.00122
182	0.01743	0.01743	0.00968	0	0	0.01438	0	0	0	0	0	0	0	0.01466	0.00166
212	0.01743	0.01743	0.00968	0	0	0.01438	0	0	0	0	0	0	0	0.01466	0.00166
213	0.01428	0.01428	0.00793	0	0	0.01178	0	0	0	0	0	0	0	0.01201	0.00136
243	0.01428	0.01428	0.00793	0	0	0.01178	0	0	0	0	0	0	0	0.01201	0.00136
244	0.00855	0.00855	0.00475	0	0	0.00706	0	0	0	0	0	0	0	0.00720	0.00081
273	0.00855	0.00855	0.00475	0	0	0.00706	0	0	0	0	0	0	0	0.00720	0.00081
274	0.00191	0.00191	0.00106	0	0	0.00157	0	0	0	0	0	0	0	0.00161	0.00018
304	0.00191	0.00191	0.00106	0	0	0.00157	0	0	0	0	0	0	0	0.00161	0.00018
305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	POLLOCK	RUMPELT	ROMAN C	WOODS	TIDWELL	KAMMER	IDAHO RA	CITY OF E	BROADFC	NATOOTS	VACATED	OWL CRE	YOUNG	STONECQ	BROADFC
Turf	0	0	0.88	0.36	0.68	0.61	0.8	0.1	0.35	0.21	0.34	0.36	0.42	0.45	0.4
Area	5.1	6.4	6.8	1.5	1.1	9.1	6.3	21.1	3.6	51.9	77.6	11.7	57.2	22.7	27.7
Irr Area	0.0	0.0	6.0	0.5	0.7	5.5	5.0	2.1	1.3	10.9	26.4	4.2	24.0	10.2	11.1
Days															
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0.00209	0.00085	0.00161	0.00145	0.00190	0.00024	0.00083	0.00050	0.00081	0.00085	0.00100	0.00107	0.00095
120	0	0	0.00209	0.00085	0.00161	0.00145	0.00190	0.00024	0.00083	0.00050	0.00081	0.00085	0.00100	0.00107	0.00095
121	0	0	0.00897	0.00367	0.00693	0.00622	0.00816	0.00102	0.00357	0.00214	0.00347	0.00367	0.00428	0.00459	0.00408
151	0	0	0.00897	0.00367	0.00693	0.00622	0.00816	0.00102	0.00357	0.00214	0.00347	0.00367	0.00428	0.00459	0.00408
152	0	0	0.01794	0.00734	0.01387	0.01244	0.01631	0.00204	0.00714	0.00428	0.00693	0.00734	0.00856	0.00918	0.00816
181	0	0	0.01794	0.00734	0.01387	0.01244	0.01631	0.00204	0.00714	0.00428	0.00693	0.00734	0.00856	0.00918	0.00816
182	0	0	0.02434	0.00996	0.01881	0.01687	0.02213	0.00277	0.00968	0.00581	0.00940	0.00996	0.01162	0.01245	0.01106
212	0	0	0.02434	0.00996	0.01881	0.01687	0.02213	0.00277	0.00968	0.00581	0.00940	0.00996	0.01162	0.01245	0.01106
213	0	0	0.01994	0.00816	0.01541	0.01382	0.01813	0.00227	0.00793	0.00476	0.00771	0.00816	0.00952	0.01020	0.00907
243	0	0	0.01994	0.00816	0.01541	0.01382	0.01813	0.00227	0.00793	0.00476	0.00771	0.00816	0.00952	0.01020	0.00907
244	0	0	0.01195	0.00489	0.00923	0.00828	0.01086	0.00136	0.00475	0.00285	0.00462	0.00489	0.00570	0.00611	0.00543
273	0	0	0.01195	0.00489	0.00923	0.00828	0.01086	0.00136	0.00475	0.00285	0.00462	0.00489	0.00570	0.00611	0.00543
274	0	0	0.00267	0.00109	0.00206	0.00185	0.00242	0.00030	0.00106	0.00064	0.00103	0.00109	0.00127	0.00136	0.00121
304	0	0	0.00267	0.00109	0.00206	0.00185	0.00242	0.00030	0.00106	0.00064	0.00103	0.00109	0.00127	0.00136	0.00121
305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	AIRPORT	FRIEDMAN	LLAMA RA	COOK	MARVIN G	DOVE ME	DEERFIELD	HIAWATH	DELLA VII	LITTLE IN	MOUNTAIN	NORTH ST	ORIENTES	HAPPY AC	MCGRAW
Turf	0.1	0	0.71	0.66	0.34	0.58	0.48	0.53	0.51	0.28	0.55	0.39	0.68	0.51	0.36
Area	60.6	16.7	13.2	11.4	40.7	13.8	84.7	27.7	111.2	17.6	12.0	47.3	15.4	10.0	5.0
Irr Area	6.1	0.0	9.4	7.6	13.8	8.0	40.6	14.7	56.7	4.9	6.6	18.5	10.5	5.1	1.8
Days															
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0.00024	0	0.00168	0.00157	0.00081	0.00138	0.00114	0.00126	0.00121	0.00066	0.00130	0.00093	0.00161	0.00121	0.00085
120	0.00024	0	0.00168	0.00157	0.00081	0.00138	0.00114	0.00126	0.00121	0.00066	0.00130	0.00093	0.00161	0.00121	0.00085
121	0.00102	0	0.00724	0.00673	0.00347	0.00591	0.00489	0.00540	0.00520	0.00285	0.00561	0.00398	0.00693	0.00520	0.00367
151	0.00102	0	0.00724	0.00673	0.00347	0.00591	0.00489	0.00540	0.00520	0.00285	0.00561	0.00398	0.00693	0.00520	0.00367
152	0.00204	0	0.01448	0.01346	0.00693	0.01183	0.00979	0.01081	0.01040	0.00571	0.01122	0.00795	0.01387	0.01040	0.00734
181	0.00204	0	0.01448	0.01346	0.00693	0.01183	0.00979	0.01081	0.01040	0.00571	0.01122	0.00795	0.01387	0.01040	0.00734
182	0.00277	0	0.01964	0.01826	0.00940	0.01604	0.01328	0.01466	0.01411	0.00774	0.01521	0.01079	0.01881	0.01411	0.00996
212	0.00277	0	0.01964	0.01826	0.00940	0.01604	0.01328	0.01466	0.01411	0.00774	0.01521	0.01079	0.01881	0.01411	0.00996
213	0.00227	0	0.01609	0.01496	0.00771	0.01314	0.01088	0.01201	0.01156	0.00635	0.01246	0.00884	0.01541	0.01156	0.00816
243	0.00227	0	0.01609	0.01496	0.00771	0.01314	0.01088	0.01201	0.01156	0.00635	0.01246	0.00884	0.01541	0.01156	0.00816
244	0.00136	0	0.00964	0.00896	0.00462	0.00788	0.00652	0.00720	0.00692	0.00380	0.00747	0.00530	0.00923	0.00692	0.00489
273	0.00136	0	0.00964	0.00896	0.00462	0.00788	0.00652	0.00720	0.00692	0.00380	0.00747	0.00530	0.00923	0.00692	0.00489
274	0.00030	0	0.00215	0.00200	0.00103	0.00176	0.00145	0.00161	0.00154	0.00085	0.00167	0.00118	0.00206	0.00154	0.00109
304	0.00030	0	0.00215	0.00200	0.00103	0.00176	0.00145	0.00161	0.00154	0.00085	0.00167	0.00118	0.00206	0.00154	0.00109
305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	BUTTERC	NORTHRI	JEFFERS	FLYING H	HOLIDAY	COYOTE	SILVER S	BUTTERC	RED DEV	BUCKHOR	INDIAN CR	FAWN CR	DEER CR	WOODLA	SAGEBR
Turf	0.5	0.53	0.34	0.3	0.45	0.66	0.69	0.75	0.49	0.59	0.85	0.7	0.53	0.89	0.21
Area	20.6	158.6	4.3	244.5	7.9	32.1	15.9	19.8	17.7	90.9	21.4	39.9	17.4	18.2	18.2
Irr Area	10.3	84.1	1.5	73.3	3.6	21.2	11.0	14.8	8.7	53.6	18.2	28.0	9.2	16.2	3.8
Days															
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0.00119	0.00126	0.00081	0.00071	0.00107	0.00157	0.00164	0.00178	0.00116	0.00140	0.00202	0.00166	0.00126	0.00211	0.00050
120	0.00119	0.00126	0.00081	0.00071	0.00107	0.00157	0.00164	0.00178	0.00116	0.00140	0.00202	0.00166	0.00126	0.00211	0.00050
121	0.00510	0.00540	0.00347	0.00306	0.00459	0.00673	0.00704	0.00765	0.00500	0.00602	0.00867	0.00714	0.00540	0.00907	0.00214
151	0.00510	0.00540	0.00347	0.00306	0.00459	0.00673	0.00704	0.00765	0.00500	0.00602	0.00867	0.00714	0.00540	0.00907	0.00214
152	0.01020	0.01081	0.00693	0.00612	0.00918	0.01346	0.01407	0.01529	0.00999	0.01203	0.01733	0.01427	0.01081	0.01815	0.00428
181	0.01020	0.01081	0.00693	0.00612	0.00918	0.01346	0.01407	0.01529	0.00999	0.01203	0.01733	0.01427	0.01081	0.01815	0.00428
182	0.01383	0.01466	0.00940	0.00830	0.01245	0.01826	0.01909	0.02075	0.01355	0.01632	0.02351	0.01936	0.01466	0.02462	0.00581
212	0.01383	0.01466	0.00940	0.00830	0.01245	0.01826	0.01909	0.02075	0.01355	0.01632	0.02351	0.01936	0.01466	0.02462	0.00581
213	0.01133	0.01201	0.00771	0.00680	0.01020	0.01496	0.01564	0.01700	0.01110	0.01337	0.01926	0.01586	0.01201	0.02017	0.00476
243	0.01133	0.01201	0.00771	0.00680	0.01020	0.01496	0.01564	0.01700	0.01110	0.01337	0.01926	0.01586	0.01201	0.02017	0.00476
244	0.00679	0.00720	0.00462	0.00407	0.00611	0.00896	0.00937	0.01018	0.00665	0.00801	0.01154	0.00950	0.00720	0.01208	0.00285
273	0.00679	0.00720	0.00462	0.00407	0.00611	0.00896	0.00937	0.01018	0.00665	0.00801	0.01154	0.00950	0.00720	0.01208	0.00285
274	0.00151	0.00161	0.00103	0.00091	0.00136	0.00200	0.00209	0.00227	0.00148	0.00179	0.00257	0.00212	0.00161	0.00270	0.00064
304	0.00151	0.00161	0.00103	0.00091	0.00136	0.00200	0.00209	0.00227	0.00148	0.00179	0.00257	0.00212	0.00161	0.00270	0.00064
305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	SHADEY N	LITTLE AC	DEER VAL	ZINC SP	COTTONM	VALLEY C	VALLEY C	VALLEY C	VALLEY C	VALLEY C	VALLEY C	VALLEY C	VALLEY C	VALLEY C	VALLEY C	VALLEY C
Turf	0.33	0.61	0.68	0.52	0.18	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Area	14.5	16.1	21.1	47.6	133.0	207.2										
Irr Area	4.8	9.8	14.4	24.7	23.9	84.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Days																
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0.00078	0.00145	0.00161	0.00123	0.00043	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097
120	0.00078	0.00145	0.00161	0.00123	0.00043	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097	0.00097
121	0.00336	0.00622	0.00693	0.00530	0.00184	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418
151	0.00336	0.00622	0.00693	0.00530	0.00184	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418	0.00418
152	0.00673	0.01244	0.01387	0.01060	0.00367	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836
181	0.00673	0.01244	0.01387	0.01060	0.00367	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836	0.00836
182	0.00913	0.01687	0.01881	0.01438	0.00498	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134
212	0.00913	0.01687	0.01881	0.01438	0.00498	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134	0.01134
213	0.00748	0.01382	0.01541	0.01178	0.00408	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929
243	0.00748	0.01382	0.01541	0.01178	0.00408	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929	0.00929
244	0.00448	0.00828	0.00923	0.00706	0.00244	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557
273	0.00448	0.00828	0.00923	0.00706	0.00244	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557	0.00557
274	0.00100	0.00185	0.00206	0.00157	0.00055	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124
304	0.00100	0.00185	0.00206	0.00157	0.00055	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124	0.00124
305	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	VILLAGE	BLUEGRASS	ZINC	SPI	STARWEA	GOLDEN	HIDDEN	HALTURAS	SUNDANCE	Heatherl
Turf	0.5	0.5	0.11	0.48	0.31	0.71	0.7	0.57	0.38	0.5
Area	26.7		30.0	80.9	251.4	13.6	9.9	14.6	24.1	180.6
Irr Area	13.4	0.0	3.3	38.8	77.9	9.6	6.9	8.3	9.2	90.3
Days										
0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
91	0.00119	0.00119	0.00026	0.00114	0.00074	0.00168	0.00166	0.00135	0.00090	0.00119
120	0.00119	0.00119	0.00026	0.00114	0.00074	0.00168	0.00166	0.00135	0.00090	0.00119
121	0.00510	0.00510	0.00112	0.00489	0.00316	0.00724	0.00714	0.00581	0.00387	0.00510
151	0.00510	0.00510	0.00112	0.00489	0.00316	0.00724	0.00714	0.00581	0.00387	0.00510
152	0.01020	0.01020	0.00224	0.00979	0.00632	0.01448	0.01427	0.01162	0.00775	0.01020
181	0.01020	0.01020	0.00224	0.00979	0.00632	0.01448	0.01427	0.01162	0.00775	0.01020
182	0.01383	0.01383	0.00304	0.01328	0.00857	0.01964	0.01936	0.01577	0.01051	0.01383
212	0.01383	0.01383	0.00304	0.01328	0.00857	0.01964	0.01936	0.01577	0.01051	0.01383
213	0.01133	0.01133	0.00249	0.01088	0.00703	0.01609	0.01586	0.01292	0.00861	0.01133
243	0.01133	0.01133	0.00249	0.01088	0.00703	0.01609	0.01586	0.01292	0.00861	0.01133
244	0.00679	0.00679	0.00149	0.00652	0.00421	0.00964	0.00950	0.00774	0.00516	0.00679
273	0.00679	0.00679	0.00149	0.00652	0.00421	0.00964	0.00950	0.00774	0.00516	0.00679
274	0.00151	0.00151	0.00033	0.00145	0.00094	0.00215	0.00212	0.00173	0.00115	0.00151
304	0.00151	0.00151	0.00033	0.00145	0.00094	0.00215	0.00212	0.00173	0.00115	0.00151
305	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0
365	0	0	0	0	0	0	0	0	0	0

Appendix D
Weighted ET Values

	Valley Clu	Silver Bel	Vanoff - (	Old Cutter	Lufkin - (	Brennan -	Indian Cre	Cropper -	Wilcox - (	Johnson -	Marathon	Croy Cany	Dilley - (
Alfalfa	0	0	0	0.7	0	0	0.42	0.98	0	0	0.9	0	0
Bare	0.3	0	0.15	0.25	0	0.25	0.58	0	0	0	0.1	0	1
Grain	0	0	0	0	0	0	0	0	0	0	0	0	0
Pasture	0	0.49	0.28	0	0.16	0.07	0	0	0	0	0	0	0
River	0	0.26	0.57	0	0.84	0.68	0	0	0	1	0	1	0
Turf	0.7	0	0	0	0	0	0	0	0.41	0	0	0	0
Urban	0	0.25	0	0.05	0	0	0	0.02	0.59	0	0	0	0
Area	86.8	29.7	305.3	91.4	75.8	114.2	17.3	21.4	19.5	9.4	0.5	54.0	4.0
Days	1	1	1	1	1	1	1	1	1	1	1	1	1
0	0.00115	0.00118	0.00117	0.00127	0.00112	0.00128	0.00145	0.00110	0.00139	0.00116	0.00115	0.00116	0.00172
30	0.00115	0.00118	0.00117	0.00127	0.00112	0.00128	0.00145	0.00110	0.00139	0.00116	0.00115	0.00116	0.00172
31	0.00183	0.00185	0.00182	0.00197	0.00172	0.00197	0.00225	0.00169	0.00218	0.00177	0.00177	0.00177	0.00268
58	0.00183	0.00185	0.00182	0.00197	0.00172	0.00197	0.00225	0.00169	0.00218	0.00177	0.00177	0.00177	0.00268
60	0.00260	0.00263	0.00261	0.00265	0.00252	0.00278	0.00298	0.00232	0.00297	0.00257	0.00242	0.00257	0.00348
90	0.00260	0.00263	0.00261	0.00265	0.00252	0.00278	0.00298	0.00232	0.00297	0.00257	0.00242	0.00257	0.00348
91	0.00392	0.00417	0.00420	0.00337	0.00421	0.00425	0.00376	0.00298	0.00409	0.00424	0.00309	0.00424	0.00434
120	0.00392	0.00417	0.00420	0.00337	0.00421	0.00425	0.00376	0.00298	0.00409	0.00424	0.00309	0.00424	0.00434
121	0.01197	0.01144	0.00910	0.00920	0.00788	0.00652	0.00744	0.01096	0.00900	0.00601	0.01046	0.00601	0.00480
151	0.01197	0.01144	0.00910	0.00920	0.00788	0.00652	0.00744	0.01096	0.00900	0.00601	0.01046	0.00601	0.00480
152	0.01955	0.01819	0.01587	0.01532	0.01529	0.01198	0.01119	0.01946	0.01352	0.01292	0.01828	0.01292	0.00500
181	0.01955	0.01819	0.01587	0.01532	0.01529	0.01198	0.01119	0.01946	0.01352	0.01292	0.01828	0.01292	0.00500
182	0.02077	0.02320	0.02605	0.01389	0.03036	0.02314	0.00894	0.01884	0.01279	0.03034	0.01743	0.03034	0.00151
212	0.02077	0.02320	0.02605	0.01389	0.03036	0.02314	0.00894	0.01884	0.01279	0.03034	0.01743	0.03034	0.00151
213	0.01802	0.02099	0.02462	0.01207	0.02932	0.02260	0.00791	0.01624	0.01125	0.02993	0.01505	0.02993	0.00167
243	0.01802	0.02099	0.02462	0.01207	0.02932	0.02260	0.00791	0.01624	0.01125	0.02993	0.01505	0.02993	0.00167
244	0.01176	0.01145	0.01156	0.00923	0.01252	0.00974	0.00643	0.01204	0.00781	0.01186	0.01124	0.01186	0.00222
273	0.01176	0.01145	0.01156	0.00923	0.01252	0.00974	0.00643	0.01204	0.00781	0.01186	0.01124	0.01186	0.00222
274	0.00387	0.00369	0.00372	0.00348	0.00387	0.00348	0.00306	0.00391	0.00327	0.00379	0.00379	0.00379	0.00242
304	0.00387	0.00369	0.00372	0.00348	0.00387	0.00348	0.00306	0.00391	0.00327	0.00379	0.00379	0.00379	0.00242
305	0.00152	0.00157	0.00159	0.00172	0.00156	0.00172	0.00188	0.00155	0.00177	0.00162	0.00160	0.00162	0.00212
334	0.00152	0.00157	0.00159	0.00172	0.00156	0.00172	0.00188	0.00155	0.00177	0.00162	0.00160	0.00162	0.00212
335	0.00099	0.00102	0.00104	0.00111	0.00102	0.00113	0.00123	0.00099	0.00116	0.00106	0.00103	0.00106	0.00141
365	0.00099	0.00102	0.00104	0.00111	0.00102	0.00113	0.00123	0.00099	0.00116	0.00106	0.00103	0.00106	0.00141

	BLM - (Riv	Wood Riv	Wood Riv	Valley Clu	Valley Clu	Valley Clu	Valley Clu	New Deer	New Deer	New Deer	New Deer	New Deer	New Deer
	0	0	0	0	0	0	0	0	0	0	0	0	0
Alfalfa	0	0	0	0	0	0	0	0	0	0	0	0	0
Bare	0	1	1	0	0	0	0.09	1	0.5	0.5	0.1	0.5	0
Grain	0	0	0	0	0	0	0	0	0	0	0	0	0
Pasture	0	0	0	0	0	0	0	0	0	0	0	0	0
River	1	0	0	0	0	0	0	0	0.5	0.5	0.55	0.5	1
Turf	0	0	0	1	1	0.91	0.91	0	0	0	0	0	0
Urban	0	0	0	0	0	0	0	0	0	0	0	0	0
Area	33.3	3.7	3.7	1	1	1	1	1	1	1	1	1	1
Days	1	1	1	1	1	1	1	1	1	1	1	1	1
0	0.00116	0.00172	0.00172	0.00091	0.00091	0.00098	0.00098	0.00172	0.00144	0.00144	0.00119	0.00144	0.00116
30	0.00116	0.00172	0.00172	0.00091	0.00091	0.00098	0.00098	0.00172	0.00144	0.00144	0.00119	0.00144	0.00116
31	0.00177	0.00268	0.00268	0.00146	0.00146	0.00157	0.00157	0.00268	0.00222	0.00222	0.00182	0.00222	0.00177
58	0.00177	0.00268	0.00268	0.00146	0.00146	0.00157	0.00157	0.00268	0.00222	0.00222	0.00182	0.00222	0.00177
60	0.00257	0.00348	0.00348	0.00222	0.00222	0.00233	0.00233	0.00348	0.00303	0.00303	0.00257	0.00303	0.00257
90	0.00257	0.00348	0.00348	0.00222	0.00222	0.00233	0.00233	0.00348	0.00303	0.00303	0.00257	0.00303	0.00257
91	0.00424	0.00434	0.00434	0.00374	0.00374	0.00379	0.00379	0.00434	0.00429	0.00429	0.00380	0.00429	0.00424
120	0.00424	0.00434	0.00434	0.00374	0.00374	0.00379	0.00379	0.00434	0.00429	0.00429	0.00380	0.00429	0.00424
121	0.00601	0.00480	0.00480	0.01504	0.01504	0.01412	0.01412	0.00480	0.00540	0.00540	0.00766	0.00540	0.00601
151	0.00601	0.00480	0.00480	0.01504	0.01504	0.01412	0.01412	0.00480	0.00540	0.00540	0.00766	0.00540	0.00601
152	0.01292	0.00500	0.00500	0.02579	0.02579	0.02392	0.02392	0.00500	0.00896	0.00896	0.01452	0.00896	0.01292
181	0.01292	0.00500	0.00500	0.02579	0.02579	0.02392	0.02392	0.00500	0.00896	0.00896	0.01452	0.00896	0.01292
182	0.03034	0.00151	0.00151	0.02902	0.02902	0.02655	0.02655	0.00151	0.01592	0.01592	0.02355	0.01592	0.03034
212	0.03034	0.00151	0.00151	0.02902	0.02902	0.02655	0.02655	0.00151	0.01592	0.01592	0.02355	0.01592	0.03034
213	0.02993	0.00167	0.00167	0.02504	0.02504	0.02293	0.02293	0.00167	0.01580	0.01580	0.02242	0.01580	0.02993
243	0.02993	0.00167	0.00167	0.02504	0.02504	0.02293	0.02293	0.00167	0.01580	0.01580	0.02242	0.01580	0.02993
244	0.01186	0.00222	0.00222	0.01585	0.01585	0.01462	0.01462	0.00222	0.00704	0.00704	0.01103	0.00704	0.01186
273	0.01186	0.00222	0.00222	0.01585	0.01585	0.01462	0.01462	0.00222	0.00704	0.00704	0.01103	0.00704	0.01186
274	0.00379	0.00242	0.00242	0.00449	0.00449	0.00431	0.00431	0.00242	0.00310	0.00310	0.00370	0.00310	0.00379
304	0.00379	0.00242	0.00242	0.00449	0.00449	0.00431	0.00431	0.00242	0.00310	0.00310	0.00370	0.00310	0.00379
305	0.00162	0.00212	0.00212	0.00126	0.00126	0.00134	0.00134	0.00212	0.00187	0.00187	0.00164	0.00187	0.00162
334	0.00162	0.00212	0.00212	0.00126	0.00126	0.00134	0.00134	0.00212	0.00187	0.00187	0.00164	0.00187	0.00162
335	0.00106	0.00141	0.00141	0.00081	0.00081	0.00086	0.00086	0.00141	0.00124	0.00124	0.00107	0.00124	0.00106
365	0.00106	0.00141	0.00141	0.00081	0.00081	0.00086	0.00086	0.00141	0.00124	0.00124	0.00107	0.00124	0.00106

	Idaho Dep	Idaho Dep	Rinker - (	River Grov	Blaine Co	Blaine Co	Blaine Co	Stevens -	Big Wood	Eccles Fly
Alfalfa	1	0	1	0	0	0	0	0	0	0.7
Bare	0	0	0	0	0	0	0.23	0.06	0	0
Grain	0	0	0	0	0	0	0	0	0	0.085
Pasture	0	0	0	0.75	0	0	0	0.49	0.35	0
River	0	0	0	0.25	0	0	0	0.45	0.65	0.215
Turf	0	0	0	0	0.52	0.35	0.29	0	0	0
Urban	0	1	0	0	0.48	0.65	0.48	0	0	0
Area	93.4	8.2	157.6	98.7	23.1	74.1	15.8	114.9	161.2	761.8
Days	1	1	1	1	1	1	1	1	1	1
0	0.00108	0.00172	0.00108	0.00097	0.00130	0.00143	0.00148	0.00107	0.00107	0.00115
30	0.00108	0.00172	0.00108	0.00097	0.00130	0.00143	0.00148	0.00107	0.00107	0.00115
31	0.00167	0.00268	0.00167	0.00154	0.00205	0.00225	0.00232	0.00167	0.00166	0.00177
58	0.00167	0.00268	0.00167	0.00154	0.00205	0.00225	0.00232	0.00167	0.00166	0.00177
60	0.00230	0.00348	0.00230	0.00231	0.00283	0.00304	0.00312	0.00246	0.00245	0.00249
90	0.00230	0.00348	0.00230	0.00231	0.00283	0.00304	0.00312	0.00246	0.00245	0.00249
91	0.00295	0.00434	0.00295	0.00409	0.00403	0.00413	0.00417	0.00415	0.00417	0.00359
120	0.00295	0.00434	0.00295	0.00409	0.00403	0.00413	0.00417	0.00415	0.00417	0.00359
121	0.01109	0.00480	0.01109	0.01479	0.01012	0.00838	0.00777	0.01167	0.01010	0.01028
151	0.01109	0.00480	0.01109	0.01479	0.01012	0.00838	0.00777	0.01167	0.01010	0.01028
152	0.01975	0.00500	0.01975	0.02401	0.01581	0.01228	0.01103	0.01969	0.01810	0.01913
181	0.01975	0.00500	0.01975	0.02401	0.01581	0.01228	0.01103	0.01969	0.01810	0.01913
182	0.01919	0.00151	0.01919	0.03045	0.01582	0.01114	0.00949	0.02868	0.03039	0.02310
212	0.01919	0.00151	0.01919	0.03045	0.01582	0.01114	0.00949	0.02868	0.03039	0.02310
213	0.01654	0.00167	0.01654	0.02705	0.01382	0.00985	0.00844	0.02636	0.02859	0.01976
243	0.01654	0.00167	0.01654	0.02705	0.01382	0.00985	0.00844	0.02636	0.02859	0.01976
244	0.01224	0.00222	0.01224	0.01493	0.00931	0.00699	0.00617	0.01329	0.01329	0.01150
273	0.01224	0.00222	0.01224	0.01493	0.00931	0.00699	0.00617	0.01329	0.01329	0.01150
274	0.00394	0.00242	0.00394	0.00416	0.00350	0.00315	0.00302	0.00395	0.00396	0.00383
304	0.00394	0.00242	0.00394	0.00416	0.00350	0.00315	0.00302	0.00395	0.00396	0.00383
305	0.00154	0.00212	0.00154	0.00135	0.00167	0.00182	0.00187	0.00147	0.00149	0.00162
334	0.00154	0.00212	0.00154	0.00135	0.00167	0.00182	0.00187	0.00147	0.00149	0.00162
335	0.00098	0.00141	0.00098	0.00087	0.00110	0.00120	0.00124	0.00096	0.00097	0.00104
365	0.00098	0.00141	0.00098	0.00087	0.00110	0.00120	0.00124	0.00096	0.00097	0.00104

	CITY OF H	CITY OF H	Hailey Me	Bend of R	CHANTRE	CHANTRE	WOODSID	WOODSID	WOODSID	WOODSID	SEC4 OFF	Riverview	MIZER	GORDON	YORK
Bare	0.75	1	0.65	0.28	0.53	0.64	0.64	0.98	0.78	0.67	0.54	0.25	0.49	1	0.2
Turf	0.25	0.00	0.35	0.72	0.47	0.36	0.36	0.02	0.22	0.33	0.46	0.75	0.51	0.00	0.80
Area	339.4	75.4	31.6	84.2	38.0	44.9	135.6	31.2	145.7	152.8	1.4	164.7	7.9	2.2	5.8
Days															
0	0.00098	0.00112	0.00093	0.00074	0.00087	0.00093	0.00093	0.00110	0.00100	0.00094	0.00087	0.00072	0.00085	0.00112	0.00070
30	0.00098	0.00112	0.00093	0.00074	0.00087	0.00093	0.00093	0.00110	0.00100	0.00094	0.00087	0.00072	0.00085	0.00112	0.00070
31	0.00154	0.00174	0.00146	0.00117	0.00137	0.00146	0.00146	0.00172	0.00157	0.00148	0.00138	0.00115	0.00134	0.00174	0.00111
58	0.00154	0.00174	0.00146	0.00117	0.00137	0.00146	0.00146	0.00172	0.00157	0.00148	0.00138	0.00115	0.00134	0.00174	0.00111
60	0.00206	0.00226	0.00198	0.00167	0.00188	0.00197	0.00197	0.00225	0.00208	0.00199	0.00189	0.00165	0.00185	0.00226	0.00161
90	0.00206	0.00226	0.00198	0.00167	0.00188	0.00197	0.00197	0.00225	0.00208	0.00199	0.00189	0.00165	0.00185	0.00226	0.00161
91	0.00272	0.00282	0.00268	0.00254	0.00264	0.00268	0.00268	0.00281	0.00273	0.00269	0.00264	0.00253	0.00262	0.00282	0.00251
120	0.00272	0.00282	0.00268	0.00254	0.00264	0.00268	0.00268	0.00281	0.00273	0.00269	0.00264	0.00253	0.00262	0.00282	0.00251
121	0.00478	0.00312	0.00545	0.00791	0.00625	0.00551	0.00551	0.00325	0.00458	0.00531	0.00618	0.00811	0.00651	0.00312	0.00844
151	0.00478	0.00312	0.00545	0.00791	0.00625	0.00551	0.00551	0.00325	0.00458	0.00531	0.00618	0.00811	0.00651	0.00312	0.00844
152	0.00663	0.00325	0.00798	0.01298	0.00960	0.00811	0.00811	0.00352	0.00622	0.00771	0.00947	0.01339	0.01014	0.00325	0.01406
181	0.00663	0.00325	0.00798	0.01298	0.00960	0.00811	0.00811	0.00352	0.00622	0.00771	0.00947	0.01339	0.01014	0.00325	0.01406
182	0.00545	0.00098	0.00724	0.01386	0.00939	0.00742	0.00742	0.00134	0.00492	0.00688	0.00921	0.01439	0.01010	0.00098	0.01529
212	0.00545	0.00098	0.00724	0.01386	0.00939	0.00742	0.00742	0.00134	0.00492	0.00688	0.00921	0.01439	0.01010	0.00098	0.01529
213	0.00488	0.00108	0.00640	0.01202	0.00822	0.00655	0.00655	0.00139	0.00442	0.00610	0.00807	0.01248	0.00883	0.00108	0.01323
243	0.00488	0.00108	0.00640	0.01202	0.00822	0.00655	0.00655	0.00139	0.00442	0.00610	0.00807	0.01248	0.00883	0.00108	0.01323
244	0.00366	0.00144	0.00454	0.00782	0.00561	0.00463	0.00463	0.00162	0.00339	0.00437	0.00552	0.00809	0.00596	0.00144	0.00853
273	0.00366	0.00144	0.00454	0.00782	0.00561	0.00463	0.00463	0.00162	0.00339	0.00437	0.00552	0.00809	0.00596	0.00144	0.00853
274	0.00191	0.00157	0.00205	0.00254	0.00221	0.00206	0.00206	0.00160	0.00187	0.00202	0.00219	0.00258	0.00226	0.00157	0.00265
304	0.00191	0.00157	0.00205	0.00254	0.00221	0.00206	0.00206	0.00160	0.00187	0.00202	0.00219	0.00258	0.00226	0.00157	0.00265
305	0.00124	0.00138	0.00118	0.00098	0.00112	0.00118	0.00118	0.00137	0.00126	0.00119	0.00112	0.00096	0.00109	0.00138	0.00093
334	0.00124	0.00138	0.00118	0.00098	0.00112	0.00118	0.00118	0.00137	0.00126	0.00119	0.00112	0.00096	0.00109	0.00138	0.00093
335	0.00082	0.00092	0.00078	0.00064	0.00073	0.00078	0.00078	0.00091	0.00083	0.00079	0.00074	0.00062	0.00072	0.00092	0.00060
365	0.00082	0.00092	0.00078	0.00064	0.00073	0.00078	0.00078	0.00091	0.00083	0.00079	0.00074	0.00062	0.00072	0.00092	0.00060

	REIS	THRESHE	CALVARY	IDAHO PD	WGW INV	ID TRANS	RICHMON	NELSON	BEEKWIL	BONNIVEI	BREAZEA	IX-NAY IN	BERNHAG	CONRAD	CITY OF H
Bare	1	0.28	1	0.77	0.79	1	0.67	0.26	1	0.32	0.47	0.65	0.24	0.84	1
Turf	0.00	0.72	0.00	0.23	0.21	0.00	0.33	0.74	0.00	0.68	0.53	0.35	0.76	0.16	0.00
Area	1.4	0.9	5.0	10.3	2.3	5.3	6.0	1.5	12.9	1.0	0.6	4.8	3.3	1.0	2.0
Days															
0	0.00112	0.00074	0.00112	0.00099	0.00101	0.00112	0.00094	0.00073	0.00112	0.00076	0.00084	0.00093	0.00072	0.00103	0.00112
30	0.00112	0.00074	0.00112	0.00099	0.00101	0.00112	0.00094	0.00073	0.00112	0.00076	0.00084	0.00093	0.00072	0.00103	0.00112
31	0.00174	0.00117	0.00174	0.00156	0.00157	0.00174	0.00148	0.00116	0.00174	0.00120	0.00132	0.00146	0.00114	0.00161	0.00174
58	0.00174	0.00117	0.00174	0.00156	0.00157	0.00174	0.00148	0.00116	0.00174	0.00120	0.00132	0.00146	0.00114	0.00161	0.00174
60	0.00226	0.00167	0.00226	0.00208	0.00209	0.00226	0.00199	0.00166	0.00226	0.00171	0.00183	0.00198	0.00164	0.00213	0.00226
90	0.00226	0.00167	0.00226	0.00208	0.00209	0.00226	0.00199	0.00166	0.00226	0.00171	0.00183	0.00198	0.00164	0.00213	0.00226
91	0.00282	0.00254	0.00282	0.00273	0.00274	0.00282	0.00269	0.00253	0.00282	0.00255	0.00261	0.00268	0.00252	0.00276	0.00282
120	0.00282	0.00254	0.00282	0.00273	0.00274	0.00282	0.00269	0.00253	0.00282	0.00255	0.00261	0.00268	0.00252	0.00276	0.00282
121	0.00312	0.00791	0.00312	0.00465	0.00452	0.00312	0.00531	0.00805	0.00312	0.00765	0.00665	0.00545	0.00818	0.00418	0.00312
151	0.00312	0.00791	0.00312	0.00465	0.00452	0.00312	0.00531	0.00805	0.00312	0.00765	0.00665	0.00545	0.00818	0.00418	0.00312
152	0.00325	0.01298	0.00325	0.00636	0.00609	0.00325	0.00771	0.01325	0.00325	0.01244	0.01041	0.00798	0.01352	0.00541	0.00325
181	0.00325	0.01298	0.00325	0.00636	0.00609	0.00325	0.00771	0.01325	0.00325	0.01244	0.01041	0.00798	0.01352	0.00541	0.00325
182	0.00098	0.01386	0.00098	0.00510	0.00474	0.00098	0.00688	0.01422	0.00098	0.01314	0.01046	0.00724	0.01457	0.00385	0.00098
212	0.00098	0.01386	0.00098	0.00510	0.00474	0.00098	0.00688	0.01422	0.00098	0.01314	0.01046	0.00724	0.01457	0.00385	0.00098
213	0.00108	0.01202	0.00108	0.00458	0.00427	0.00108	0.00610	0.01232	0.00108	0.01141	0.00913	0.00640	0.01263	0.00351	0.00108
243	0.00108	0.01202	0.00108	0.00458	0.00427	0.00108	0.00610	0.01232	0.00108	0.01141	0.00913	0.00640	0.01263	0.00351	0.00108
244	0.00144	0.00782	0.00144	0.00348	0.00330	0.00144	0.00437	0.00800	0.00144	0.00747	0.00614	0.00454	0.00818	0.00286	0.00144
273	0.00144	0.00782	0.00144	0.00348	0.00330	0.00144	0.00437	0.00800	0.00144	0.00747	0.00614	0.00454	0.00818	0.00286	0.00144
274	0.00157	0.00254	0.00157	0.00188	0.00186	0.00157	0.00202	0.00257	0.00157	0.00249	0.00229	0.00205	0.00260	0.00179	0.00157
304	0.00157	0.00254	0.00157	0.00188	0.00186	0.00157	0.00202	0.00257	0.00157	0.00249	0.00229	0.00205	0.00260	0.00179	0.00157
305	0.00138	0.00098	0.00138	0.00125	0.00126	0.00138	0.00119	0.00097	0.00138	0.00100	0.00108	0.00118	0.00095	0.00129	0.00138
334	0.00138	0.00098	0.00138	0.00125	0.00126	0.00138	0.00119	0.00097	0.00138	0.00100	0.00108	0.00118	0.00095	0.00129	0.00138
335	0.00092	0.00064	0.00092	0.00083	0.00084	0.00092	0.00079	0.00063	0.00092	0.00065	0.00071	0.00078	0.00062	0.00086	0.00092
365	0.00092	0.00064	0.00092	0.00083	0.00084	0.00092	0.00079	0.00063	0.00092	0.00065	0.00071	0.00078	0.00062	0.00086	0.00092

	LIFE CHUI	WEEKS	RATKHE	YOUNG	old power	CITY OF H	BULLION	TINGEY	PEJSA	FOX	FOX	CITY OF H	HAILEY C	FOXMOOF	CITY OF H	
Bare	1	0.00	1	0.19	0.58	0.44	0.74	1	0.74	0.48	0.56	0.56	0.4	0	0.67	0.9
Turf	0.00	0.00	0.81	0.42	0.56	0.56	0.26	0.00	0.26	0.52	0.44	0.44	0.60	1.00	0.33	0.10
Area	10.9	2.9	1.9	3.4	6.4	10.0	17.1	1.4	1.4	0.3	3.0	0.6	3.0	17.4	21.2	7.5
Days																
0	0.00112	0.00112	0.00069	0.00090	0.00082	0.00098	0.00112	0.00098	0.00084	0.00088	0.00088	0.00088	0.00080	0.00059	0.00094	0.00106
30	0.00112	0.00112	0.00069	0.00090	0.00082	0.00098	0.00112	0.00098	0.00084	0.00088	0.00088	0.00088	0.00080	0.00059	0.00094	0.00106
31	0.00174	0.00174	0.00110	0.00141	0.00130	0.00153	0.00174	0.00153	0.00133	0.00139	0.00139	0.00139	0.00127	0.00095	0.00148	0.00166
58	0.00174	0.00174	0.00110	0.00141	0.00130	0.00153	0.00174	0.00153	0.00133	0.00139	0.00139	0.00139	0.00127	0.00095	0.00148	0.00166
60	0.00226	0.00226	0.00160	0.00192	0.00180	0.00205	0.00226	0.00205	0.00184	0.00190	0.00190	0.00190	0.00177	0.00144	0.00199	0.00218
90	0.00226	0.00226	0.00160	0.00192	0.00180	0.00205	0.00226	0.00205	0.00184	0.00190	0.00190	0.00190	0.00177	0.00144	0.00199	0.00218
91	0.00282	0.00282	0.00250	0.00266	0.00260	0.00272	0.00282	0.00272	0.00262	0.00265	0.00265	0.00265	0.00259	0.00243	0.00269	0.00278
120	0.00282	0.00282	0.00250	0.00266	0.00260	0.00272	0.00282	0.00272	0.00262	0.00265	0.00265	0.00265	0.00259	0.00243	0.00269	0.00278
121	0.00312	0.00312	0.00851	0.00591	0.00685	0.00485	0.00312	0.00485	0.00658	0.00605	0.00605	0.00605	0.00711	0.00978	0.00531	0.00378
151	0.00312	0.00312	0.00851	0.00591	0.00685	0.00485	0.00312	0.00485	0.00658	0.00605	0.00605	0.00605	0.00711	0.00978	0.00531	0.00378
152	0.00325	0.00325	0.01420	0.00893	0.01082	0.00676	0.00325	0.00676	0.01028	0.00920	0.00920	0.00920	0.01136	0.01677	0.00771	0.00460
181	0.00325	0.00325	0.01420	0.00893	0.01082	0.00676	0.00325	0.00676	0.01028	0.00920	0.00920	0.00920	0.01136	0.01677	0.00771	0.00460
182	0.00098	0.00098	0.01547	0.00849	0.01100	0.00563	0.00098	0.00563	0.01028	0.00885	0.00885	0.00885	0.01171	0.01886	0.00688	0.00277
212	0.00098	0.00098	0.01547	0.00849	0.01100	0.00563	0.00098	0.00563	0.01028	0.00885	0.00885	0.00885	0.01171	0.01886	0.00688	0.00277
213	0.00108	0.00108	0.01339	0.00746	0.00959	0.00503	0.00108	0.00503	0.00898	0.00777	0.00777	0.00777	0.01020	0.01627	0.00610	0.00260
243	0.00108	0.00108	0.01339	0.00746	0.00959	0.00503	0.00108	0.00503	0.00898	0.00777	0.00777	0.00777	0.01020	0.01627	0.00610	0.00260
244	0.00144	0.00144	0.00862	0.00516	0.00640	0.00375	0.00144	0.00375	0.00605	0.00534	0.00534	0.00534	0.00676	0.01030	0.00437	0.00233
273	0.00144	0.00144	0.00862	0.00516	0.00640	0.00375	0.00144	0.00375	0.00605	0.00534	0.00534	0.00534	0.00676	0.01030	0.00437	0.00233
274	0.00157	0.00157	0.00266	0.00214	0.00233	0.00192	0.00157	0.00192	0.00227	0.00217	0.00217	0.00217	0.00238	0.00292	0.00202	0.00171
304	0.00157	0.00157	0.00266	0.00214	0.00233	0.00192	0.00157	0.00192	0.00227	0.00217	0.00217	0.00217	0.00238	0.00292	0.00202	0.00171
305	0.00138	0.00138	0.00093	0.00114	0.00107	0.00123	0.00138	0.00123	0.00109	0.00113	0.00113	0.00113	0.00104	0.00082	0.00119	0.00132
334	0.00138	0.00138	0.00093	0.00114	0.00107	0.00123	0.00138	0.00123	0.00109	0.00113	0.00113	0.00113	0.00104	0.00082	0.00119	0.00132
335	0.00092	0.00092	0.00060	0.00075	0.00070	0.00082	0.00092	0.00082	0.00071	0.00075	0.00075	0.00075	0.00068	0.00052	0.00079	0.00088
365	0.00092	0.00092	0.00060	0.00075	0.00070	0.00082	0.00092	0.00082	0.00071	0.00075	0.00075	0.00075	0.00068	0.00052	0.00079	0.00088

	LDS CHUR	LDS CHUR	Hailey City	AIRPORT	HAILEY S	BRYSON	CITY OF H	CITY OF H	HUBS MIT	CITY OF H	DREYER	SOUTH W	CITY OF H	Broadford	FERRIES
Bare	0.37	0.37	0.65	1	1	0.48	1	1	1	1	1	1	1	0.47	0.94
Turf	0.63	0.63	0.35	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.06
Area	9.5	9.8	9.4	1.0	1.0	2.5	3.7	12.9	11.3	6.7	1.1	19.6	6.0	19.2	7.8
Days															
0	0.00078	0.00078	0.00093	0.00112	0.00112	0.00084	0.00112	0.00112	0.00112	0.00112	0.00112	0.00112	0.00112	0.00084	0.00108
30	0.00078	0.00078	0.00093	0.00112	0.00112	0.00084	0.00112	0.00112	0.00112	0.00112	0.00112	0.00112	0.00112	0.00084	0.00108
31	0.00124	0.00124	0.00146	0.00174	0.00174	0.00133	0.00174	0.00174	0.00174	0.00174	0.00174	0.00174	0.00174	0.00132	0.00169
58	0.00124	0.00124	0.00146	0.00174	0.00174	0.00133	0.00174	0.00174	0.00174	0.00174	0.00174	0.00174	0.00174	0.00132	0.00169
60	0.00175	0.00175	0.00198	0.00226	0.00226	0.00184	0.00226	0.00226	0.00226	0.00226	0.00226	0.00226	0.00226	0.00183	0.00221
90	0.00175	0.00175	0.00198	0.00226	0.00226	0.00184	0.00226	0.00226	0.00226	0.00226	0.00226	0.00226	0.00226	0.00183	0.00221
91	0.00257	0.00257	0.00268	0.00282	0.00282	0.00262	0.00282	0.00282	0.00282	0.00282	0.00282	0.00282	0.00282	0.00261	0.00280
120	0.00257	0.00257	0.00268	0.00282	0.00282	0.00262	0.00282	0.00282	0.00282	0.00282	0.00282	0.00282	0.00282	0.00261	0.00280
121	0.00731	0.00731	0.00545	0.00312	0.00312	0.00658	0.00312	0.00312	0.00312	0.00312	0.00312	0.00312	0.00312	0.00665	0.00352
151	0.00731	0.00731	0.00545	0.00312	0.00312	0.00658	0.00312	0.00312	0.00312	0.00312	0.00312	0.00312	0.00312	0.00665	0.00352
152	0.01176	0.01176	0.00798	0.00325	0.00325	0.01028	0.00325	0.00325	0.00325	0.00325	0.00325	0.00325	0.00325	0.01041	0.00406
181	0.01176	0.01176	0.00798	0.00325	0.00325	0.01028	0.00325	0.00325	0.00325	0.00325	0.00325	0.00325	0.00325	0.01041	0.00406
182	0.01225	0.01225	0.00724	0.00098	0.00098	0.01028	0.00098	0.00098	0.00098	0.00098	0.00098	0.00098	0.00098	0.01046	0.00206
212	0.01225	0.01225	0.00724	0.00098	0.00098	0.01028	0.00098	0.00098	0.00098	0.00098	0.00098	0.00098	0.00098	0.01046	0.00206
213	0.01065	0.01065	0.00640	0.00108	0.00108	0.00898	0.00108	0.00108	0.00108	0.00108	0.00108	0.00108	0.00108	0.00913	0.00199
243	0.01065	0.01065	0.00640	0.00108	0.00108	0.00898	0.00108	0.00108	0.00108	0.00108	0.00108	0.00108	0.00108	0.00913	0.00199
244	0.00702	0.00702	0.00454	0.00144	0.00144	0.00605	0.00144	0.00144	0.00144	0.00144	0.00144	0.00144	0.00144	0.00614	0.00198
273	0.00702	0.00702	0.00454	0.00144	0.00144	0.00605	0.00144	0.00144	0.00144	0.00144	0.00144	0.00144	0.00144	0.00614	0.00198
274	0.00242	0.00242	0.00205	0.00157	0.00157	0.00227	0.00157	0.00157	0.00157	0.00157	0.00157	0.00157	0.00157	0.00229	0.00166
304	0.00242	0.00242	0.00205	0.00157	0.00157	0.00227	0.00157	0.00157	0.00157	0.00157	0.00157	0.00157	0.00157	0.00229	0.00166
305	0.00103	0.00103	0.00118	0.00138	0.00138	0.00109	0.00138	0.00138	0.00138	0.00138	0.00138	0.00138	0.00138	0.00108	0.00134
334	0.00103	0.00103	0.00118	0.00138	0.00138	0.00109	0.00138	0.00138	0.00138	0.00138	0.00138	0.00138	0.00138	0.00108	0.00134
335	0.00067	0.00067	0.00078	0.00092	0.00092	0.00071	0.00092	0.00092	0.00092	0.00092	0.00092	0.00092	0.00092	0.00071	0.00090
365	0.00067	0.00067	0.00078	0.00092	0.00092	0.00071	0.00092	0.00092	0.00092	0.00092	0.00092	0.00092	0.00092	0.00071	0.00090

	POLLOCK	RUMPELT	ROMAN C	WOODS	TIDWELL	KAMMER	IDAHO RA	CITY OF B	BROADFC	NATOOTS	VACATED	OWL CRE	YOUNG	STONECC	BROADFC
Bare	1	1	0.12	0.64	0.32	0.39	0.2	0.9	0.65	0.79	0.66	0.64	0.58	0.55	0.6
Turf	0.00	0.00	0.88	0.36	0.68	0.61	0.80	0.10	0.35	0.21	0.34	0.36	0.42	0.45	0.40
Area	5.1	6.4	6.8	1.5	1.1	9.1	6.3	21.1	3.6	51.9	77.6	11.7	57.2	22.7	27.7
Days															
0	0.00112	0.00112	0.00065	0.00093	0.00076	0.00080	0.00070	0.00106	0.00093	0.00101	0.00094	0.00093	0.00090	0.00088	0.00091
30	0.00112	0.00112	0.00065	0.00093	0.00076	0.00080	0.00070	0.00106	0.00093	0.00101	0.00094	0.00093	0.00090	0.00088	0.00091
31	0.00174	0.00174	0.00105	0.00146	0.00120	0.00126	0.00111	0.00166	0.00146	0.00157	0.00147	0.00146	0.00141	0.00138	0.00142
58	0.00174	0.00174	0.00105	0.00146	0.00120	0.00126	0.00111	0.00166	0.00146	0.00157	0.00147	0.00146	0.00141	0.00138	0.00142
60	0.00226	0.00226	0.00154	0.00197	0.00171	0.00176	0.00161	0.00218	0.00198	0.00209	0.00198	0.00197	0.00192	0.00189	0.00194
90	0.00226	0.00226	0.00154	0.00197	0.00171	0.00176	0.00161	0.00218	0.00198	0.00209	0.00198	0.00197	0.00192	0.00189	0.00194
91	0.00282	0.00282	0.00248	0.00268	0.00255	0.00258	0.00251	0.00278	0.00268	0.00274	0.00269	0.00268	0.00266	0.00264	0.00266
120	0.00282	0.00282	0.00248	0.00268	0.00255	0.00258	0.00251	0.00278	0.00268	0.00274	0.00269	0.00268	0.00266	0.00264	0.00266
121	0.00312	0.00312	0.00898	0.00551	0.00765	0.00718	0.00844	0.00378	0.00545	0.00452	0.00538	0.00551	0.00591	0.00611	0.00578
151	0.00312	0.00312	0.00898	0.00551	0.00765	0.00718	0.00844	0.00378	0.00545	0.00452	0.00538	0.00551	0.00591	0.00611	0.00578
152	0.00325	0.00325	0.01514	0.00811	0.01244	0.01149	0.01406	0.00460	0.00798	0.00609	0.00784	0.00811	0.00893	0.00933	0.00865
181	0.00325	0.00325	0.01514	0.00811	0.01244	0.01149	0.01406	0.00460	0.00798	0.00609	0.00784	0.00811	0.00893	0.00933	0.00865
182	0.00098	0.00098	0.01672	0.00742	0.01314	0.01189	0.01529	0.00277	0.00724	0.00474	0.00706	0.00742	0.00849	0.00903	0.00814
212	0.00098	0.00098	0.01672	0.00742	0.01314	0.01189	0.01529	0.00277	0.00724	0.00474	0.00706	0.00742	0.00849	0.00903	0.00814
213	0.00108	0.00108	0.01445	0.00655	0.01141	0.01035	0.01323	0.00260	0.00640	0.00427	0.00625	0.00655	0.00746	0.00792	0.00716
243	0.00108	0.00108	0.01445	0.00655	0.01141	0.01035	0.01323	0.00260	0.00640	0.00427	0.00625	0.00655	0.00746	0.00792	0.00716
244	0.00144	0.00144	0.00924	0.00463	0.00747	0.00685	0.00853	0.00233	0.00454	0.00330	0.00446	0.00463	0.00516	0.00543	0.00499
273	0.00144	0.00144	0.00924	0.00463	0.00747	0.00685	0.00853	0.00233	0.00454	0.00330	0.00446	0.00463	0.00516	0.00543	0.00499
274	0.00157	0.00157	0.00276	0.00206	0.00249	0.00240	0.00265	0.00171	0.00205	0.00186	0.00203	0.00206	0.00214	0.00218	0.00211
304	0.00157	0.00157	0.00276	0.00206	0.00249	0.00240	0.00265	0.00171	0.00205	0.00186	0.00203	0.00206	0.00214	0.00218	0.00211
305	0.00138	0.00138	0.00089	0.00118	0.00100	0.00104	0.00093	0.00132	0.00118	0.00126	0.00119	0.00118	0.00114	0.00113	0.00115
334	0.00138	0.00138	0.00089	0.00118	0.00100	0.00104	0.00093	0.00132	0.00118	0.00126	0.00119	0.00118	0.00114	0.00113	0.00115
335	0.00092	0.00092	0.00057	0.00078	0.00065	0.00068	0.00060	0.00088	0.00078	0.00084	0.00078	0.00078	0.00075	0.00074	0.00076
365	0.00092	0.00092	0.00057	0.00078	0.00065	0.00068	0.00060	0.00088	0.00078	0.00084	0.00078	0.00078	0.00075	0.00074	0.00076

	AIRPORT	FRIEDMAN	LLAMA ROAD	COOK	MARVIN GARDEN	DOVE MEADOW	DEERFIELD	HIAWATHA	DELLA VILLAGE	LITTLE INDIAN	MOUNTAIN	NORTH STREET	ORIENTAL	HAPPY ACRES	MCGRAW
Bare	0.9	1	0.29	0.34	0.66	0.42	0.52	0.47	0.49	0.72	0.45	0.61	0.32	0.49	0.64
Turf	0.10	0.00	0.71	0.66	0.34	0.58	0.48	0.53	0.51	0.28	0.55	0.39	0.68	0.51	0.36
Area	60.6	16.7	13.2	11.4	40.7	13.8	84.7	27.7	111.2	17.6	12.0	47.3	15.4	10.0	5.0
Days															
0	0.00106	0.00112	0.00074	0.00077	0.00094	0.00081	0.00086	0.00084	0.00085	0.00097	0.00083	0.00091	0.00076	0.00085	0.00093
30	0.00106	0.00112	0.00074	0.00077	0.00094	0.00081	0.00086	0.00084	0.00085	0.00097	0.00083	0.00091	0.00076	0.00085	0.00093
31	0.00166	0.00174	0.00118	0.00122	0.00147	0.00128	0.00136	0.00132	0.00134	0.00152	0.00131	0.00143	0.00120	0.00134	0.00146
58	0.00166	0.00174	0.00118	0.00122	0.00147	0.00128	0.00136	0.00132	0.00134	0.00152	0.00131	0.00143	0.00120	0.00134	0.00146
60	0.00218	0.00226	0.00168	0.00172	0.00198	0.00179	0.00187	0.00183	0.00185	0.00203	0.00181	0.00194	0.00171	0.00185	0.00197
90	0.00218	0.00226	0.00168	0.00172	0.00198	0.00179	0.00187	0.00183	0.00185	0.00203	0.00181	0.00194	0.00171	0.00185	0.00197
91	0.00278	0.00282	0.00254	0.00256	0.00269	0.00259	0.00263	0.00261	0.00262	0.00271	0.00260	0.00267	0.00255	0.00262	0.00268
120	0.00278	0.00282	0.00254	0.00256	0.00269	0.00259	0.00263	0.00261	0.00262	0.00271	0.00260	0.00267	0.00255	0.00262	0.00268
121	0.00378	0.00312	0.00785	0.00751	0.00538	0.00698	0.00631	0.00665	0.00651	0.00498	0.00678	0.00571	0.00765	0.00651	0.00551
151	0.00378	0.00312	0.00785	0.00751	0.00538	0.00698	0.00631	0.00665	0.00651	0.00498	0.00678	0.00571	0.00765	0.00651	0.00551
152	0.00460	0.00325	0.01285	0.01217	0.00784	0.01109	0.00974	0.01041	0.01014	0.00703	0.01068	0.00852	0.01244	0.01014	0.00811
181	0.00460	0.00325	0.01285	0.01217	0.00784	0.01109	0.00974	0.01041	0.01014	0.00703	0.01068	0.00852	0.01244	0.01014	0.00811
182	0.00277	0.00098	0.01368	0.01279	0.00706	0.01135	0.00957	0.01046	0.01010	0.00599	0.01082	0.00796	0.01314	0.01010	0.00742
212	0.00277	0.00098	0.01368	0.01279	0.00706	0.01135	0.00957	0.01046	0.01010	0.00599	0.01082	0.00796	0.01314	0.01010	0.00742
213	0.00260	0.00108	0.01187	0.01111	0.00625	0.00989	0.00837	0.00913	0.00883	0.00534	0.00944	0.00701	0.01141	0.00883	0.00655
243	0.00260	0.00108	0.01187	0.01111	0.00625	0.00989	0.00837	0.00913	0.00883	0.00534	0.00944	0.00701	0.01141	0.00883	0.00655
244	0.00233	0.00144	0.00773	0.00729	0.00446	0.00658	0.00570	0.00614	0.00596	0.00392	0.00632	0.00490	0.00747	0.00596	0.00463
273	0.00233	0.00144	0.00773	0.00729	0.00446	0.00658	0.00570	0.00614	0.00596	0.00392	0.00632	0.00490	0.00747	0.00596	0.00463
274	0.00171	0.00157	0.00253	0.00246	0.00203	0.00235	0.00222	0.00229	0.00226	0.00195	0.00231	0.00210	0.00249	0.00226	0.00206
304	0.00171	0.00157	0.00253	0.00246	0.00203	0.00235	0.00222	0.00229	0.00226	0.00195	0.00231	0.00210	0.00249	0.00226	0.00206
305	0.00132	0.00138	0.00098	0.00101	0.00119	0.00105	0.00111	0.00108	0.00109	0.00122	0.00107	0.00116	0.00100	0.00109	0.00118
334	0.00132	0.00138	0.00098	0.00101	0.00119	0.00105	0.00111	0.00108	0.00109	0.00122	0.00107	0.00116	0.00100	0.00109	0.00118
335	0.00088	0.00092	0.00064	0.00066	0.00078	0.00069	0.00073	0.00071	0.00072	0.00081	0.00070	0.00077	0.00065	0.00072	0.00078
355	0.00088	0.00092	0.00064	0.00066	0.00078	0.00069	0.00073	0.00071	0.00072	0.00081	0.00070	0.00077	0.00065	0.00072	0.00078

	BUTTERC	NORTHR	JEFFERS	FLYING H	HOLIDAY	COYOTE	SILVER S	BUTTERC	RED DEVI	BUCKHOR	INDIAN CR	FAWN CR	DEER CR	WOODLA	SAGEBRU
Bare	0.5	0.47	0.66	0.7	0.55	0.34	0.31	0.25	0.51	0.41	0.15	0.3	0.47	0.11	0.79
Turf	0.50	0.53	0.34	0.30	0.45	0.66	0.69	0.75	0.49	0.59	0.85	0.70	0.53	0.89	0.21
Area	20.6	158.6	4.3	244.5	7.9	32.1	15.9	19.8	17.7	90.9	21.4	39.9	17.4	18.2	18.2
Days															
0	0.00085	0.00084	0.00094	0.00096	0.00088	0.00077	0.00075	0.00072	0.00086	0.00081	0.00067	0.00075	0.00084	0.00065	0.00101
30	0.00085	0.00084	0.00094	0.00096	0.00088	0.00077	0.00075	0.00072	0.00086	0.00081	0.00067	0.00075	0.00084	0.00065	0.00101
31	0.00135	0.00132	0.00147	0.00150	0.00138	0.00122	0.00120	0.00115	0.00135	0.00127	0.00107	0.00119	0.00132	0.00104	0.00157
58	0.00135	0.00132	0.00147	0.00150	0.00138	0.00122	0.00120	0.00115	0.00135	0.00127	0.00107	0.00119	0.00132	0.00104	0.00157
60	0.00185	0.00183	0.00198	0.00202	0.00189	0.00172	0.00170	0.00165	0.00186	0.00178	0.00157	0.00169	0.00183	0.00153	0.00209
90	0.00185	0.00183	0.00198	0.00202	0.00189	0.00172	0.00170	0.00165	0.00186	0.00178	0.00157	0.00169	0.00183	0.00153	0.00209
91	0.00262	0.00261	0.00269	0.00270	0.00264	0.00256	0.00255	0.00253	0.00263	0.00259	0.00249	0.00255	0.00261	0.00247	0.00274
120	0.00262	0.00261	0.00269	0.00270	0.00264	0.00256	0.00255	0.00253	0.00263	0.00259	0.00249	0.00255	0.00261	0.00247	0.00274
121	0.00645	0.00665	0.00538	0.00511	0.00611	0.00751	0.00771	0.00811	0.00638	0.00705	0.00878	0.00778	0.00665	0.00904	0.00452
151	0.00645	0.00665	0.00538	0.00511	0.00611	0.00751	0.00771	0.00811	0.00638	0.00705	0.00878	0.00778	0.00665	0.00904	0.00452
152	0.01001	0.01041	0.00784	0.00730	0.00933	0.01217	0.01257	0.01339	0.00987	0.01122	0.01474	0.01271	0.01041	0.01528	0.00609
181	0.01001	0.01041	0.00784	0.00730	0.00933	0.01217	0.01257	0.01339	0.00987	0.01122	0.01474	0.01271	0.01041	0.01528	0.00609
182	0.00992	0.01046	0.00706	0.00635	0.00903	0.01279	0.01332	0.01439	0.00975	0.01153	0.01618	0.01350	0.01046	0.01690	0.00474
212	0.00992	0.01046	0.00706	0.00635	0.00903	0.01279	0.01332	0.01439	0.00975	0.01153	0.01618	0.01350	0.01046	0.01690	0.00474
213	0.00868	0.00913	0.00625	0.00564	0.00792	0.01111	0.01156	0.01248	0.00853	0.01004	0.01399	0.01172	0.00913	0.01460	0.00427
243	0.00868	0.00913	0.00625	0.00564	0.00792	0.01111	0.01156	0.01248	0.00853	0.01004	0.01399	0.01172	0.00913	0.01460	0.00427
244	0.00587	0.00614	0.00446	0.00410	0.00543	0.00729	0.00756	0.00809	0.00578	0.00667	0.00897	0.00764	0.00614	0.00933	0.00330
273	0.00587	0.00614	0.00446	0.00410	0.00543	0.00729	0.00756	0.00809	0.00578	0.00667	0.00897	0.00764	0.00614	0.00933	0.00330
274	0.00225	0.00229	0.00203	0.00198	0.00218	0.00246	0.00250	0.00258	0.00223	0.00237	0.00272	0.00252	0.00229	0.00277	0.00186
304	0.00225	0.00229	0.00203	0.00198	0.00218	0.00246	0.00250	0.00258	0.00223	0.00237	0.00272	0.00252	0.00229	0.00277	0.00186
305	0.00110	0.00108	0.00119	0.00121	0.00113	0.00101	0.00099	0.00096	0.00110	0.00105	0.00090	0.00099	0.00108	0.00088	0.00126
334	0.00110	0.00108	0.00119	0.00121	0.00113	0.00101	0.00099	0.00096	0.00110	0.00105	0.00090	0.00099	0.00108	0.00088	0.00126
335	0.00072	0.00071	0.00078	0.00080	0.00074	0.00066	0.00065	0.00062	0.00073	0.00069	0.00058	0.00064	0.00071	0.00057	0.00084
365	0.00072	0.00071	0.00078	0.00080	0.00074	0.00066	0.00065	0.00062	0.00073	0.00069	0.00058	0.00064	0.00071	0.00057	0.00084

	SHADEY N	LITTLE A	DEER VAL	ZINC SPUI	COTTONW	VALLEY Q	VALLEY Q	VALLEY Q	VALLEY Q	VALLEY Q	VALLEY Q	VALLEY Q	VALLEY Q	VALLEY Q
Bare	0.67	0.39	0.32	0.48	0.82	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Turf	0.33	0.61	0.68	0.52	0.18	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Area	14.5	16.1	21.1	47.6	133.0	207.2								
Days														
0	0.00094	0.00080	0.00076	0.00084	0.00102	0.00090	0.00090	0.00090	0.00090	0.00090	0.00090	0.00090	0.00090	0.00090
30	0.00094	0.00080	0.00076	0.00084	0.00102	0.00090	0.00090	0.00090	0.00090	0.00090	0.00090	0.00090	0.00090	0.00090
31	0.00148	0.00126	0.00120	0.00133	0.00160	0.00142	0.00142	0.00142	0.00142	0.00142	0.00142	0.00142	0.00142	0.00142
58	0.00148	0.00126	0.00120	0.00133	0.00160	0.00142	0.00142	0.00142	0.00142	0.00142	0.00142	0.00142	0.00142	0.00142
60	0.00199	0.00176	0.00171	0.00184	0.00212	0.00193	0.00193	0.00193	0.00193	0.00193	0.00193	0.00193	0.00193	0.00193
90	0.00199	0.00176	0.00171	0.00184	0.00212	0.00193	0.00193	0.00193	0.00193	0.00193	0.00193	0.00193	0.00193	0.00193
91	0.00269	0.00258	0.00255	0.00262	0.00275	0.00266	0.00266	0.00266	0.00266	0.00266	0.00266	0.00266	0.00266	0.00266
120	0.00269	0.00258	0.00255	0.00262	0.00275	0.00266	0.00266	0.00266	0.00266	0.00266	0.00266	0.00266	0.00266	0.00266
121	0.00531	0.00718	0.00765	0.00658	0.00432	0.00585	0.00585	0.00585	0.00585	0.00585	0.00585	0.00585	0.00585	0.00585
151	0.00531	0.00718	0.00765	0.00658	0.00432	0.00585	0.00585	0.00585	0.00585	0.00585	0.00585	0.00585	0.00585	0.00585
152	0.00771	0.01149	0.01244	0.01028	0.00568	0.00879	0.00879	0.00879	0.00879	0.00879	0.00879	0.00879	0.00879	0.00879
181	0.00771	0.01149	0.01244	0.01028	0.00568	0.00879	0.00879	0.00879	0.00879	0.00879	0.00879	0.00879	0.00879	0.00879
182	0.00688	0.01189	0.01314	0.01028	0.00420	0.00832	0.00832	0.00832	0.00832	0.00832	0.00832	0.00832	0.00832	0.00832
212	0.00688	0.01189	0.01314	0.01028	0.00420	0.00832	0.00832	0.00832	0.00832	0.00832	0.00832	0.00832	0.00832	0.00832
213	0.00610	0.01035	0.01141	0.00898	0.00382	0.00731	0.00731	0.00731	0.00731	0.00731	0.00731	0.00731	0.00731	0.00731
243	0.00610	0.01035	0.01141	0.00898	0.00382	0.00731	0.00731	0.00731	0.00731	0.00731	0.00731	0.00731	0.00731	0.00731
244	0.00437	0.00685	0.00747	0.00605	0.00304	0.00508	0.00508	0.00508	0.00508	0.00508	0.00508	0.00508	0.00508	0.00508
273	0.00437	0.00685	0.00747	0.00605	0.00304	0.00508	0.00508	0.00508	0.00508	0.00508	0.00508	0.00508	0.00508	0.00508
274	0.00202	0.00240	0.00249	0.00227	0.00182	0.00213	0.00213	0.00213	0.00213	0.00213	0.00213	0.00213	0.00213	0.00213
304	0.00202	0.00240	0.00249	0.00227	0.00182	0.00213	0.00213	0.00213	0.00213	0.00213	0.00213	0.00213	0.00213	0.00213
305	0.00119	0.00104	0.00100	0.00109	0.00128	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115
334	0.00119	0.00104	0.00100	0.00109	0.00128	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115
335	0.00079	0.00068	0.00065	0.00071	0.00085	0.00076	0.00076	0.00076	0.00076	0.00076	0.00076	0.00076	0.00076	0.00076
365	0.00079	0.00068	0.00065	0.00071	0.00085	0.00076	0.00076	0.00076	0.00076	0.00076	0.00076	0.00076	0.00076	0.00076

	VILLAGE	VILLAGE	BLUEGRASS	ZINC	SPUR	STARWEED	GOLDEN	HIDDEN	HALTURAS	SUNDANCE	Heatherland
Bare	0	0.5	0.89	0.52	0.69	0.29	0.3	0.43	0.62	0.5	
Turf	1	0.5	0.11	0.48	0.31	0.71	0.7	0.57	0.38	0.5	
Area	26.7		30.0	80.9	251.4	13.6	9.9	14.6	24.1	180.6	
Days											
0	0.00059	0.00085	0.00106	0.00086	0.00095	0.00074	0.00075	0.00082	0.00092	0.00085	
30	0.00059	0.00085	0.00106	0.00086	0.00095	0.00074	0.00075	0.00082	0.00092	0.00085	
31	0.00095	0.00135	0.00165	0.00136	0.00149	0.00118	0.00119	0.00129	0.00144	0.00135	
58	0.00095	0.00135	0.00165	0.00136	0.00149	0.00118	0.00119	0.00129	0.00144	0.00135	
60	0.00144	0.00185	0.00217	0.00187	0.00201	0.00168	0.00169	0.00180	0.00195	0.00185	
90	0.00144	0.00185	0.00217	0.00187	0.00201	0.00168	0.00169	0.00180	0.00195	0.00185	
91	0.00243	0.00262	0.00278	0.00263	0.00270	0.00254	0.00255	0.00260	0.00267	0.00262	
120	0.00243	0.00262	0.00278	0.00263	0.00270	0.00254	0.00255	0.00260	0.00267	0.00262	
121	0.00978	0.00645	0.00385	0.00631	0.00518	0.00785	0.00778	0.00691	0.00565	0.00645	
151	0.00978	0.00645	0.00385	0.00631	0.00518	0.00785	0.00778	0.00691	0.00565	0.00645	
152	0.01677	0.01001	0.00473	0.00974	0.00744	0.01285	0.01271	0.01095	0.00838	0.01001	
181	0.01677	0.01001	0.00473	0.00974	0.00744	0.01285	0.01271	0.01095	0.00838	0.01001	
182	0.01886	0.00992	0.00295	0.00957	0.00653	0.01368	0.01350	0.01118	0.00778	0.00992	
212	0.01886	0.00992	0.00295	0.00957	0.00653	0.01368	0.01350	0.01118	0.00778	0.00992	
213	0.01627	0.00868	0.00275	0.00837	0.00579	0.01187	0.01172	0.00974	0.00685	0.00868	
243	0.01627	0.00868	0.00275	0.00837	0.00579	0.01187	0.01172	0.00974	0.00685	0.00868	
244	0.01030	0.00587	0.00242	0.00570	0.00419	0.00773	0.00764	0.00649	0.00481	0.00587	
273	0.01030	0.00587	0.00242	0.00570	0.00419	0.00773	0.00764	0.00649	0.00481	0.00587	
274	0.00292	0.00225	0.00172	0.00222	0.00199	0.00253	0.00252	0.00234	0.00209	0.00225	
304	0.00292	0.00225	0.00172	0.00222	0.00199	0.00253	0.00252	0.00234	0.00209	0.00225	
305	0.00082	0.00110	0.00132	0.00111	0.00121	0.00098	0.00099	0.00106	0.00117	0.00110	
334	0.00082	0.00110	0.00132	0.00111	0.00121	0.00098	0.00099	0.00106	0.00117	0.00110	
335	0.00052	0.00072	0.00088	0.00073	0.00080	0.00064	0.00064	0.00069	0.00077	0.00072	
365	0.00052	0.00072	0.00088	0.00073	0.00080	0.00064	0.00064	0.00069	0.00077	0.00072	

Appendix E

Well Extraction for Large Agricultural Parcels

	Valley Clu	Silver Bel	Vanoff - (	Old Cutter	Lufkin - (	Brennan -	Indian Cre	Cropper -	Wilcox - (	Johnson -	Marathon	Croy Cany	Dilley - (	Quigley G	Wood Riv
Alfalfa	0	0	0	0.7	0	0	0.42	0.98	0	0	0.9	0	0	0	0
Bare	0.3	0	0.15	0.25	0	0.25	0.58	0	0	0	0.1	0	1	0.55	0.3
Grain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pasture	0	0.49	0.28	0	0.16	0.07	0	0	0	0	0	0	0	0	0
River	0	0.26	0.57	0	0.84	0.68	0	0	0	1	0	1	0	0	0.7
Turf	0.7	0	0	0	0	0	0	0	0.41	0	0	0	0	0	0
Urban	0	0.25	0	0.05	0	0	0	0.02	0.59	0	0	0	0	0.45	0
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Date of Surface Water Cutoff	12-Aug	6-Sep	5-Oct	31-Oct	5-Oct	5-Oct	5-Oct	5-Oct	5-Oct	5-Oct	5-Oct	5-Oct	5-Oct	5-Oct	5-Oct
January	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
August	0	6.611	0	0	0	0	0	0	0	0	0	0	0	0	0
September	0	5.959	29.121	0	0	0	0	0	0	0	0	0	0	0	0
October	0	1.072	6.286	5.542	0	0.019	0	1.814	0.628	0	4.209	0	0	0	0
November	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

BLM - (Ba	BLM - (Ba	BLM - (Ba	BLM - (Ba	BLM - (Ba	BLM - (Ba	BLM - (Ba	BLM - (Riv	BLM - (Ba	BLM - (Riv	BLM - (Ba	BLM - (Riv	Wood Riv	Wood Riv	Valley Clu	Valley Clu
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.5	0.5	1	1	1	1	1	0.2	1	0	1	0	1	1	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.5	0.5	0	0	0	0	0	0.8	0	1	0	1	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Valley Clu	Valley Clu	New Deer	New Deer	New Deer	New Deer	New Deer	New Deer	Idaho Dep	Idaho Dep	Rinker - (	River Gro	Blaine Co	Blaine Co	Blaine Co	Stevens -
0	0	0	0	0	0.35	0	0	1	0	1	0	0	0	0	0
0.09	0.09	1	0.5	0.5	0.1	0.5	0	0	0	0	0	0	0	0.23	0.06
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0.75	0	0	0	0.49
0	0	0	0.5	0.5	0.55	0.5	1	0	0	0	0.25	0	0	0	0.45
0.91	0.91	0	0	0	0	0	0	0	0	0	0	0.52	0.35	0.29	0
0	0	0	0	0	0	0	0	0	1	0	0	0.48	0.65	0.48	0
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

5-Oct	22-Oct	14-Aug	21-Aug	30-Sep	27-Aug	1-Apr	1-Apr	4-Oct
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	1.846	0.327	0
0	0	0	0	0	0	8.199	1.451	0
0	0	0	0	0	0	15.870	2.808	0
0	0	0	0	0	0	22.244	3.936	0
0	0	0	0	0	0	18.225	3.225	0
0	0	0	0	0	0	10.567	1.870	0
0	16.480	0	0	1.531	0	2.435	0.431	3.605
0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0

Big Wood	Eccles Fly
0	0.8
0	0
0	0.09
0.35	0
0.65	0.11
0	0
0	0
1	1

29-Oct	5-Oct
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0.402	53.146
0	0
0	0

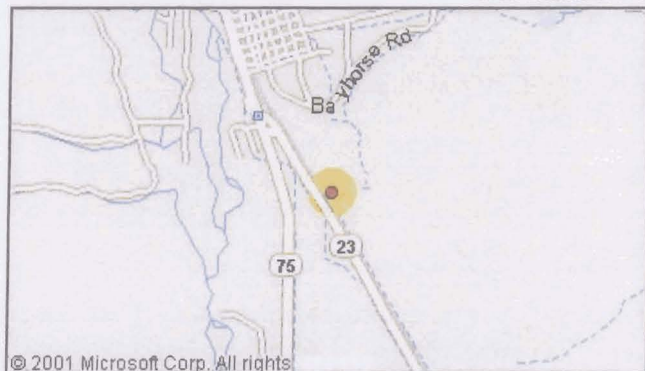
Appendix F

USGS Observation Well Data



Ground-Water Watch

Site Number: 432657114144801 - 01N 18E 01DAA1



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Ground-Water
Watch Help Page

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DESCRIPTION:

Latitude 43°26'51.84", Longitude 114°14'49.19" NAD83
Blaine County, Idaho, Hydrologic Unit 17040219
Land surface altitude: 5,140.53 feet above sea level
NAVD88.
Well completed in "OUTWASH" (112OTSH) local aquifer

AVAILABLE DATA FROM NWISWeb:

[Field ground-water-level measurements](#)
[Field/Lab water-quality samples](#)

OPERATION:

Record for this site is maintained by the USGS Idaho
Water Science Center
Email questions about this site to [Idaho Water-Data
Inquiries](#)

Site Statistics

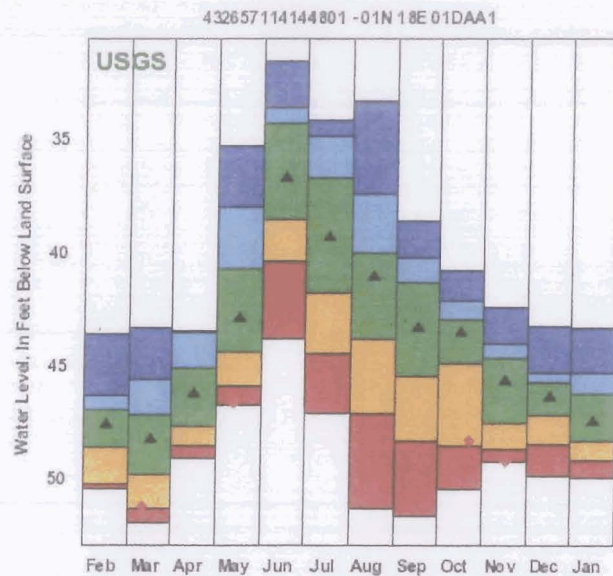
Most recent data value: **49.16** on 11/14/2008

Period of Record Monthly Statistics for 432657114144801

Depth to water level, feet below land surface

All **Approved** Continuous & Periodic Data Used In Analysis

Note: **Bold** values in the table indicate closest statistic to the most recent data value.



Plot created 01/25/09 11:58

Explanation - Percentile Classes

Data Point 10 25 50 75 90 Monthly Median

Month	Lowest Level	10th %ile	25th %ile	50th %ile	75th %ile	90th %ile	Highest Level	Number of Years
Jan	49.93	49.10	48.30	47.41	46.24	45.33	43.34	27
Feb	50.42	50.15	48.52	47.54	46.93	46.32	43.62	18
Mar	51.87	51.24	49.74	48.23	47.16	45.56	43.35	44
Apr	49.08	48.51	47.63	46.22	45.12	43.51	43.43	27
May	46.74	45.90	44.41	42.89	40.71	37.96	35.23	44
Jun	43.80	40.35	38.50	36.69	34.29	33.58	31.51	22
Jul	47.08	44.42	41.74	39.28	36.65	34.80	34.12	33
Aug	51.23	47.05	43.83	41.08	39.97	37.39	33.30	23
Sep	51.62	48.28	45.44	43.34	41.31	40.20	38.60	49
Oct	50.42	48.48	44.84	43.51	42.95	42.14	40.75	27
Nov	49.16	48.61	47.51	45.65	44.68	44.03	42.42	42
Dec	49.80	48.39	47.11	46.37	45.72	45.32	43.28	26



Statistics Options



View month/year statistics

Periodic Ground-Water Data

Summary Statistics for Period of Record Periodic Water Levels

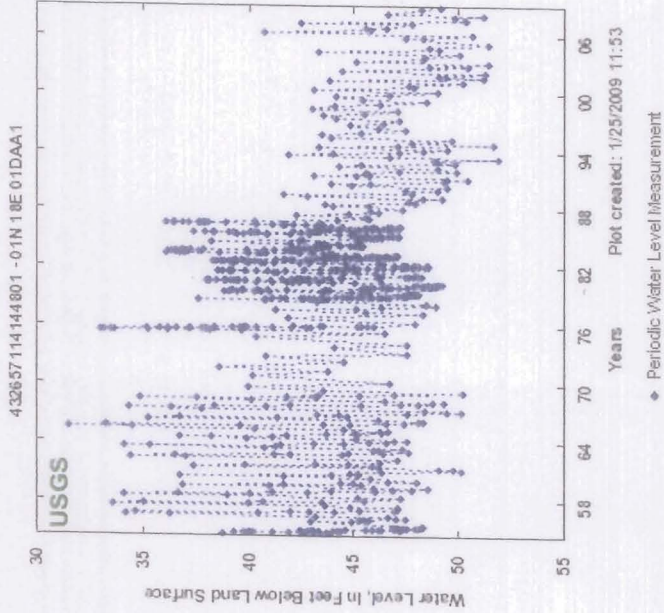
Depth to water level, feet below land surface				
Approved Periodic Water Level Values				
Begin Date	End Date	Number of Values		
07/22/54	11/14/08	871		
Highest WL	Date of Highest WL	Lowest WL	Date of Lowest WL	
31.51	06/19/65	51.87	03/23/93	

 [View NWISWeb ground-water levels page](#)

 [View annual monthly statistics for all data types](#)

 [Download ground-water levels in text format](#)

Ground-Water Levels Options



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 Last update: Tuesday, August 12, 2008 at 08:42



Appendix G

Locations and Elevations of Bedrock Points

Locations of bedrock points used to create the bedrock bathymetry. Highlighted values are linear interpolated 'intermediate elevation points'.

Northing	Easting	Elevation
1361875	2479847	5073.085
1361875	2479847	5073.085
1361877	2480045	5074.738
1361877	2480045	5074.738
1361884	2477740	5133.146
1361884	2477740	5133.146
1362480	2480745	5110.288
1362480	2480745	5110.288
1362704	2477794	5124.802
1362730	2480351	5103.414
1362730	2480351	5103.414
1362767	2477173	5090.812
1362776	2480092	5240.355
1362776	2480092	5240.355
1362845	2478180	5088.861
1362849	2481126	5128.718
1362849	2481126	5128.718
1363041	2477056	5099.433
1363182	2477032	5162.179
1363289	2478847	4995.37
1363420	2478741	4974.616
1363458	2478727	4986.048
1363515	2476852	5132.552
1363645	2476436	5534.882
1363665	2479324	5054.355
1364218	2476344	5202.031
1364786	2478683	5425.47
1365031	2477593	5029.909
1365579	2475597	5391.759
1365641	2477153	5046.924
1366273	2476696	5064.58
1366895	2476248	5081.916
1366902	2475363	5103.195
1367528	2475791	5099.575
1368531	2475068	5127.551
1368662	2476168	5184.071

Northing	Easting	Elevation
1369357	2474472	5160.592
1369437	2473516	5295.896
1369567	2475635	5295.654
1369664	2475706	5507.214
1369715	2474214	5160.572
1369801	2473366	5294.944
1369903	2474134	5171.207
1369978	2474310	5173.108
1370044	2474283	5191.102
1370060	2473521	5314.245
1370117	2474070	5195.222
1370329	2473112	5283.617
1370556	2474583	5291.424
1370731	2472754	5474.69
1370806	2473747	5222.197
1370866	2474613	5258.79
1371178	2474038	5255.179
1371207	2474357	5273.361
1371215	2473589	5238.566
1371238	2474445	5284.635
1371247	2474247	5273.421
1371248	2473589	5247.567
1371254	2473556	5247.521
1371335	2474322	5334.122
1371402	2473508	5259.434
1371413	2473967	5260.038
1371415	2474189	5312.575
1371473	2473724	5288.497
1371516	2474169	5287.956
1371528	2474687	5367.866
1371611	2473824	5293.106
1371635	2473691	5316.925
1371664	2474109	5307.723
1371670	2474821	5616.74
1371737	2474278	5289.759
1371737	2474248	5302.139

Northing	Easting	Elevation
1371858	2474192	5347.71
1371908	2474200	5323.77
1372006	2474239	5350.828
1372041	2474280	5321.978
1372051	2474447	5383.022
1372442	2474357	5393.524
1372463	2474495	5388.232
1372557	2474475	5301.369
1372743	2472723	5372.11
1372750	2473070	5367.83
1372810	2471896	5517.484
1372871	2474806	5411.296
1372973	2471170	5352.45
1373039	2474093	5489.62
1373189	2471977	5328.898
1373310	2472985	5376.5
1373329	2473110	5299.127
1373988	2472058	5521.815
1374080	2472869	5388.426
1374488	2474270	5590.294
1374569	2473539	5333.026
1375558	2472842	5393.848
1375699	2471517	5767.883
1375745	2471693	5430.53
1375851	2473618	5536.667
1375900	2473703	5705.628
1376118	2472448	5428.278
1376589	2472116	5457.24
1376610	2471514	5790.875
1376683	2472922	5507.079
1376994	2473030	5545.468
1377010	2472533	5591.007
1377024	2471773	5478.122
1377025	2471809	5484.064
1377196	2471931	5497.24
1377296	2471198	5483.828

Northing	Easting	Elevation
1377296	2471168	5484.263
1377363	2471172	5451.96
1377649	2471799	5485.628
1377677	2471810	5460.619

Appendix H

Elevations of River Cells

Big Wood River Elevations

Reach 1

Node	Surveyed Elevation	DEM Elevation	River Bed Elevation	
1	5512.8862	5516.646	5512.886	Northern Boundary
2		5515.854	5511.893	
3		5515.211	5510.844	
4		5514.125	5510.017	
5		5514.077	5509.096	
6		5513.165	5508.291	
7		5511.501	5507.17	
8		5511.027	5506.508	
9		5510.555	5505.816	
10		5509.661	5505.089	
11		5513.118	5504.154	
12		5513.156	5503.161	
13		5511.592	5502.368	
14		5506.694	5501.845	
15		5503.8	5501.116	
16		5501.346	5500.335	
17		5501.421	5499.69	
18		5500.313	5499.051	
19		5499.099	5498.129	
20		5497.597	5497.165	
21		5497.075	5495.649	
22		5512.714	5494.749	
23		5511.175	5494.064	
24		5509.334	5493.516	
25		5509.148	5492.89	
26		5498.042	5491.939	
27	5490.977	5491.863	5490.977	Starweather Bridge

Reach 2

Node	Surveyed Elevation	DEM Elevation	River Bed Elevation	
1	5490.977	5491.863	5490.977	Starweather Bridge
2		5487.478	5487.283	
3		5486.146	5484.699	
4		5484.986	5483.567	
5		5484.211	5482.298	
6		5482.598	5481.494	
7		5481.927	5480.468	
8		5481.028	5479.06	
9		5480.888	5478.437	
10		5480.594	5477.688	
11		5480.835	5477.219	
12		5479.391	5476.565	
13		5478.69	5475.812	
14		5477.929	5475.071	
15		5476.189	5474.57	
16		5476.189	5474.212	
17		5474.463	5473.516	
18		5475.337	5472.633	
19		5475.37	5471.813	
20		5472.418	5470.553	
21		5470.534	5468.9	
22		5470.348	5467.963	
23		5478.792	5466.696	
24		5486.07	5465.621	
25		5490.922	5464.676	
26		5479.578	5463.719	
27		5480.675	5462.486	
28		5469.582	5461.578	
29		5467.628	5460.969	
30		5467.622	5460.298	
31		5466.287	5459.293	
32		5464.375	5457.544	
33		5462.526	5456.085	
34		5461.819	5455.248	
35		5461.084	5453.847	
36		5461.968	5453.392	
37		5461.968	5452.792	
38		5458.684	5451.483	
39		5458.691	5450.222	
40		5457.068	5449.259	
41		5458.667	5448.289	
42		5455.1	5446.953	
43		5453.869	5445.407	
44		5452.191	5444.47	
45		5451	5443.726	
46		5450.484	5442.511	
47		5450.034	5441.517	
48		5448.34	5440.076	
49		5445.918	5438.758	
50		5444.118	5437.393	
51		5443.617	5436.41	
52		5442.337	5435.346	
53		5441.792	5434.633	
54		5441.008	5433.83	
55		5440.479	5433.02	
56		5439.764	5432.157	
57		5439.15	5431.382	
58		5437.954	5430.722	
59		5435.403	5429.514	
60		5433.241	5428.287	
61		5432.438	5427.431	
62		5430.772	5426.681	
63		5429.573	5425.702	
64		5428.501	5425.095	
65		5427.664	5424.238	
66		5428.385	5423.463	
67		5428.385	5422.861	
68		5428.045	5422.125	
69		5425.223	5421.534	
70		5424.898	5420.685	
71		5423.672	5419.631	
72		5423.402	5418.781	
73		5422.642	5418.015	
74		5421.909	5417.415	
75		5421.21	5416.366	
76		5418.785	5415.139	
77		5415.417	5413.967	
78		5415.19	5412.742	
79		5412.85	5412.352	
80		5415.718	5411.701	
81		5423.298	5410.82	
82		5426.328	5409.953	
83		5423.787	5409.451	
84		5421.903	5408.795	
85		5412.801	5407.951	
86		5408.802	5407.08	
87		5408.964	5406.603	
88	5406.015	5406.149	5406.015	Deer Creek Bridge

Reach 3				Reach 4			
Node	Surveyed Elevation	DEM Elevation	River Bed Elevation	Node	Surveyed Elevation	DEM Elevation	River Bed Elevation
1	5406.015	5406.149	5406.015	1	5349.397	5347.959	5349.397
2		5403.531	5401.829	2		5349.113	5348.56
3		5401.292	5398.781	3		5352.805	5347.631
4		5398.686	5395.86	4		5360.884	5346.218
5		5394.504	5392.684	5		5365.498	5345.403
6		5393.401	5391.233	6		5375.694	5344.145
7		5390.688	5390.135	7		5370.037	5342.724
8		5389.782	5388.766	8		5372.029	5341.124
9		5388.764	5387.735	9		5387.582	5339.809
10		5387.847	5386.797	10		5355.521	5337.655
11		5386.421	5385.289	11		5346.497	5336.16
12		5385.479	5384.356	12		5339.933	5335.024
13		5386.153	5383.562	13		5337.829	5333.715
14		5387.487	5382.413	14		5337.601	5332.797
15		5387.261	5381.149	15		5336.217	5332.08
16		5383.858	5380.013	16		5333.216	5330.781
17		5384.62	5378.888	17		5348.143	5329.722
18		5383.406	5377.426	18		5354.236	5328.697
19		5382.283	5376.312	19		5354.236	5328.031
20		5380.757	5374.521	20		5343.284	5327.012
21		5382.62	5373.103	21		5329.629	5325.679
22		5380.135	5372.022	22		5329.629	5324.05
23		5377.754	5370.521	23		5330.15	5322.893
24		5377.262	5369.64	24		5331.667	5321.271
25		5372.575	5367.961	25		5336.399	5320.039
26		5371.071	5366.954	26		5345.565	5318.146
27		5369.703	5366.119	27		5339.497	5317.768
28		5367.028	5364.491	28		5349.071	5316.924
29		5364.963	5363.484	29		5337.192	5315.014
30		5363.972	5362.969	30		5329.851	5313.342
31		5364.337	5362.399	31		5331.544	5311.505
32		5363.093	5361.903	32		5348.977	5310.123
33		5362.426	5361.225	33		5333.493	5307.705
34		5363.585	5361.082	34		5335.567	5305.938
35		5363.585	5360.935	35		5340.526	5304.101
36		5363.585	5360.843	36		5326.254	5302.869
37		5366.268	5360.621	37		5344.633	5301.999
38		5372.084	5360.314	38		5351.862	5300.892
39		5373.548	5360.041	39	5298.686	5313.964	5298.686
40		5408.941	5359.584				Croy Creek Bridge
41		5398.546	5359.288				
42		5388.389	5358.911				
43		5381.525	5358.404				
44		5376.955	5358.035				
45		5367.3	5357.729				
46		5370.671	5357.468				
47		5359.879	5357.119				
48		5358.996	5356.774				
49		5359.47	5356.511				
50		5358.908	5356.295				
51		5358.002	5355.918				
52		5358.108	5355.453				
53		5359.449	5355.027				
54		5361.44	5354.613				
55		5362.799	5354.367				
56		5379.46	5353.879				
57		5387.706	5353.616				
58		5378.713	5353.218				
59		5372.128	5352.768				
60		5361.591	5352.291				
61		5372.348	5351.669				
62		5384.122	5351.189				
63		5377.552	5350.638				
64		5355.497	5349.897				
65	5349.397	5347.959	5349.397				Aspen Lake

Reach 5					Reach 6				
Node	Surveyed Elevation	DEM Elevation	River Bed Elevation		Node	Surveyed Elevation	DEM Elevation	River Bed Elevation	
1	5298.686	5313.964	5298.686	Croy Creek Bridge	1	5232.274	5242.167	5232.274	Star Bridge
2		5309.348	5296.917		2		5242.515	5231.296	
3		5304.354	5295.015		3		5242.827	5230.527	
4		5303.101	5293.658		4		5243.357	5229.964	
5		5301.043	5291.996		5		5242.834	5229.492	
6		5299.524	5290.41		6		5242.213	5228.711	
7		5297.445	5288.371		7		5241.755	5227.87	
8		5296.279	5285.932		8		5241.396	5227.077	
9		5297.725	5284.776		9		5240.529	5226.196	
10		5293.345	5282.396		10		5239.801	5225.314	
11		5285.726	5280.599		11		5238.188	5224.539	
12		5287.372	5279.892		12		5237.597	5223.735	
13		5289.419	5278.868		13		5236.898	5222.79	
14		5301.338	5277.57		14		5236.089	5222.057	
15		5310.456	5276.78		15		5236.072	5221.1	
16		5307.075	5275.642		16		5237.02	5220.257	
17		5294.676	5273.569		17		5237.074	5219.625	
18		5274.38	5272.077		18		5237.116	5219.165	
19		5273.056	5271.229		19		5236.11	5218.257	
20		5271.222	5270.35		20		5235.077	5217.389	
21		5275	5269.646		21		5233.043	5216.366	
22		5294.119	5268.999		22		5232.044	5215.675	
23		5313.952	5268.525		23		5229.902	5214.5	
24		5312.402	5268.03		24		5228.747	5213.567	
25		5295.077	5267.298		25		5226.34	5212.74	
26		5280.268	5266.699		26		5225.412	5212.06	
27		5273.993	5266.157		27		5224.698	5211.302	
28		5274.308	5265.92		28		5223.014	5210.324	
29		5274.27	5265.356		29		5222.443	5209.393	
30		5272.583	5264.564		30		5222.164	5208.822	
31		5272.188	5263.934		31		5222.01	5208.308	
32		5271.534	5263.381		32		5221.93	5207.444	
33		5272.282	5262.97		33		5221.843	5206.323	
34		5273.321	5262.329		34		5221.703	5205.231	
35		5285.933	5261.235		35		5221.197	5204.22	
36		5298.761	5260.401		36		5220.944	5203.245	
37		5294.867	5259.623		37		5219.907	5202.68	
38		5280.588	5258.843		38		5218.671	5202.163	
39		5291.239	5257.976		39		5217.097	5200.882	
40		5303.582	5257.495		40		5215.262	5200.387	
41		5304.154	5256.914		41		5215.262	5200.121	
42		5284.825	5255.888		42		5212.237	5199.437	
43		5268.291	5255.199		43		5211.719	5198.973	
44		5266.363	5254.668		44		5209.703	5198.095	
45		5264.771	5254.396		45		5207.812	5197.496	
46		5268.884	5253.851		46		5207.476	5196.945	
47		5273.773	5253.632		47		5204.778	5196.019	
48		5277.186	5252.984		48		5202.929	5194.709	
49		5274.333	5252.205		49		5203.206	5193.564	
50		5280.804	5251.359		50		5202.698	5192.791	
51		5288.193	5250.797		51		5201.849	5192.152	
52		5310.396	5249.569		52		5201.201	5191.642	
53		5308.065	5248.257		53		5200.095	5190.861	
54		5312.681	5247.285		54		5198.857	5190.085	
55		5285.732	5246.402		55		5197.455	5188.809	
56		5280.559	5245.876		56		5196.322	5187.513	
57		5283.131	5245.503		57		5195.173	5186.535	
58		5291.685	5245.038		58		5194.474	5185.783	
59		5302.81	5244.51		59		5193.086	5184.842	
60		5329.896	5243.919		60		5191.98	5184.155	
61		5309.385	5242.689		61		5191.486	5183.069	
62		5302.371	5241.94		62		5189.473	5181.507	
63		5301.234	5241.692		63		5188.52	5180.375	
64		5301.234	5241.433		64		5188.445	5178.839	
65		5289.551	5240.923		65		5185.385	5178.122	
66		5277.055	5240.278		66		5184.557	5177.396	
67		5277.771	5239.954		67		5183.434	5176.462	
68		5277.771	5239.7		68		5183.434	5175.901	
69		5275.935	5239.032		69		5182.849	5175.128	
70		5268.627	5238.349		70		5182.626	5174.178	
71		5265.607	5237.715		71		5182.477	5173.587	
72		5261.225	5237.292		72		5182.448	5172.786	
73		5258.665	5236.85		73		5182.521	5172.412	
74		5256.185	5236.324		74		5182.322	5171.826	
75		5250.201	5235.737		75		5181.846	5170.749	
76		5247.049	5234.919		76		5180.653	5169.472	
77		5245.765	5234.287		77		5180.226	5168.928	
78		5243.298	5233.529		78		5179.814	5168.421	
79		5242.336	5232.94		79		5178.096	5167.557	
80	5232.274	5242.167	5232.274	Star Bridge	80		5176.532	5166.411	
					81		5173.983	5165.427	
					82		5172.211	5164.549	
					83		5170.538	5163.587	
					84		5169.75	5162.854	
					85		5168.583	5162.347	
					86	5161.576	5167.625	5161.576	Southern Boundary

Appendix I

Technical Committee Comments to Draft Report

Comments from Dr. Chuck Brendecke
Email received on Jan. 26, 2009
Brockway Engineering response italicized

Just a few comments on the ground water model report, all in the documentation.

It appears that all precipitation is assumed to support ET or to recharge the aquifer system, with no runoff. If this is the case, I believe the documentation should say so clearly.

*In Section H. Water Balance, the following paragraph was added:
Inputs to the water balance include underflow, precipitation, irrigation, river seepage, and canal seepage. It was assumed that the precipitation inputs to the model assist in satisfying the ET requirements or are recharged to the aquifer. No precipitation runoff is included in this model evaluation.*

The extinction depth assumptions for ET should be documented. Also, the riparian ET rate seems low given the large number of cottonwoods in the valley along the river. Granted that we are in somewhat warmer area down here, it is not unusual for us to use ET rates for cottonwood bosque of 3-5 ft and rooting depths of 15-20 ft.

*The ET extinction depth was documented in Section G.2.1:
The extinction depth for the ET extraction was modeled with a depth of 150 feet considering that the model was constructed using a single model layer and the inputs, including precipitation and irrigation water, were included to satisfy the ET requirements.*

Northern and southern boundary conditions must be viewed as placeholders until the model is extended. My intuition is that northern and tributary fluxes are too low generally. The complete data set for the USGS observation well should be an appendix.

For the purposes of the 2009 model and this report, the boundary conditions were located due to the reasons discussed in the report. However, IDWR may want to extend the model domain to include additional areas. Dr. Brendecke's intuition, may be correct, but from the data available and published reports, we determined that these estimates were the best available. We have added the USGS observation well in Appendix F.

Given that reach gains and losses are such large components of the water budget, I agree on the need for a systematic measurement program. One set of observations in September is not likely to be capturing this and can tell us nothing about seasonal variation.

We agree with this statement, however given the time, economic, and data limitations, the model utilizes the best information available. We recommend that IDWR, the water district, or other entities collect sufficient data to address seasonal variations and river flow in the Big Wood River and canals.

Overall I think you all did a good job using the information that is out there.

We appreciate Dr. Brendecke's review of the Big Wood River Aquifer Flow Model draft report.

Comments from Allan Wylie
Email received on Dec. 19, 2008
Brockway Engineering response italicized

The following are my comments regarding your Draft Report.

Consider labeling creeks, rivers, and other geographic features mentioned in the text on either Figure 1, 2, or 4.

We have added tributary labels on Figure 4 for clarification

Figure 7: The 'Outflow' label on left side of figure should be 'Inflow'

We have changed the label to read 'Inflow'

Pg 15. It seems to me that the first sentence of section D.7.1 could be eliminated. Perhaps its just me, but it seems to contradict the 3rd sentence in this section.

We clarified the first sentence to read: Annual underflow estimates for each tributary and boundary were calculated and compared to published data, if available.

Pg 18-19 Section E.2. I would like to see the locations of the 'bedrock points' and 'intermediate elevation points' and have a table of each with easting, northing, and elevation.

We added an Appendix G. listing the northing, easting, and elevations of bedrock points, with the 'intermediate elevations' highlighted.

Figure 12. The legend should indicate the units attached to the wells, the wells should also be identified by map number. Consider using well color to indicate K value and attaching map number to the well.

A legend was revised to include the units for hydraulic conductivity. A color ramp was included also on each well location and the well number was added.

Figure 13 needs a legend so we know what the various lines represent.

A legend was added to Figures 13-19 to show what the various lines represent.

Section E.5. paragraph 2. Need some basis for why the Frenzel estimate is more plausible. Instead you could just state that the Frenzel estimate is more widely used.

We added the following language to Section E.5: It was determined that the Frenzel estimate was the most plausible because more recent data and more data were used to generate aquifer characteristics. In addition, the Frenzel study is more widely used.

Section F.2. I suggest adding a sentence to the effect that the K values in Table 7 were determined in Section E.3.

We added the following sentence: The hydraulic conductivity values in Table 7 were discussed and determined in Section E.3.

Appendix F. I recommend labeling columns and rows on each page, like you did for Appendix D.

The draft report did not have Appendix F. We concluded that Allan meant Appendix E, which was revised so the labeling was similar to Appendix D.

Comments from Allan Wylie Continued

Section G.3.3. Although this section is quite believable, I would like to see some evidence that the spring source generally meets the in-house and commercial demand. A table with average spring flow and average winter municipal use would suffice.

Another phone call was made to Tom Hellen, City of Hailey Engineer, regarding this statement. Mr. Hellen was included as a source for that statement.

Section G.4.1 This section mentions a gauge nr Hailey at the Bullion St Bridge and a gauge at Stanton Crossing. Please clarify whether or not these are the same gauge. In the last paragraph in this section you mention that the results of the seepage run are consistent with pervious studies, please provide a comparison with these studies.

We clarified the gage stations, by identifying that the Stanton Crossing gage is located downstream of the model domain: No other active gauging stations are present in the Big Wood River above the Stanton Crossing gage. The Stanton Crossing Gage is located approximately 20 river miles downstream of the Hailey gage, outside of the model domain.

Table 15. I need a key to the notations in the Method column. I believe 'C' = current meter; 'V'= visual estimate; but I can't guess the others.

We added clarifications to the method indicated in the table heading.

Section G.4.2. I would like to see a table of river cells containing stage, conductance, and river bottom in down stream order. You could add this to the Appendix. Please highlight the cells where elevations were adjusted. It can be difficult to adjust the elevation and not have the river flow uphill.

Appendix H was added with river cells and the river cells that were changed are highlighted. A plot of the river profile was also included to show that the river slopes downhill through the entire course of the model.

Section G.5. I suggest providing a table listing the 4 canals along with the monthly seepage from each.

We added Table 18 with canal conductance values for each canal section.

Section K.1.4. If you take out 138.1 acft/y, put in 138.3 acft/y, and have a 4 acft/y loss in reach 1, a 20 acft/y gain in reach 2 and nothing in the other reaches, someone must be taking a 15.8 acft/y ground water hit. Is it in underflow?

If we view the proposed Valley Club OA transfer as a black box, then the aquifer has more water down gradient of the proposed project than it did previously, evidenced by the increased river gain downstream of the project. The source of the additional water is from the Big Wood River upstream of the project and the underflow up-gradient of the project, as evidenced by the decrease in groundwater elevations north of the Valley Club. We included an alternative recharge location for the proposed project.

We appreciate Mr. Wylie's review of the Big Wood River Aquifer Flow Model Draft Report.

Comments from Dr. Gary Johnson
Written Comments dated Jan. 22, 2009
Brockway Engineering response italicized

I have completed a review of the draft report: Big Wood River Aquifer Flow Model.

I have made numerous minor comments in the text related to wording I believe would help clarify the documentation. I found no deficiencies apparent in the approaches that were used and believe the model developed by Brockway Engineering should be appropriate for evaluation of impacts associated with alterations in ground water pumping. You may find that future work along these lines will be more efficient and equally accurate if you develop a 'superposition version' of the model where it is not necessary to difference results of a base situation in order to evaluate impacts. If you are interested in pursuing this and need guidance, please let me know. I have been through this with several other models.

Please let me know if you have any questions.

Page 2, Section A.2. Change was to were
Wording was changed

Page 4, Table 2. Unit error on area
Unit was changed

Page 16, Section D.7.4. Can maybe make this more clear?
Wording was revised as follows: Following model calibration runs, the initial conditions elevations were slightly revised to be the ending groundwater elevations of the transient model. Subsequent model runs used the final calibrated groundwater elevations as the initial conditions for model evaluations.

Page 18, Section E.2. Change 'model results' to 'present efforts'
Wording was changed

Page 19, Section E.2. Add the word 'using'.
Wording added

Page 20, Section E.3. Misspelled 'Because'
Spelling corrected

Page 24, Section E.3.1. Should you be using a geometric mean?
The statistical approach used could have included the geometric mean, however, we choose to use the arithmetic mean because it is more widely understood.

Page 26, Section E.6. Is this saying calibration was to interpolated contours?
Yes, and the wording has been revised.

Comments from Dr. Gary Johnson Continued

Page 33, Section G.1.2. You must have either gross area or actual irrigation area in this calc. Why calc a percentage, why not just use actual irrigation area?

We included a discussion on why the percentage is used. We decided to use percentage to allow for changes of land use, irrigation practices, crop rotations, etc. that may happen in the future and rather than redefine each shapefile, a general rate was determined for the whole defined area. Dr. Johnson's question is a good one, and the model could have been structured in a different way.

Page 34, Section G.1.3. Add the word 'area'
'Area' was added to clarify statement.

Page 35, Section G.1.3. Again there has to be area in this calc.
The area is defined by the shapefile within the model, and is included.

Page 35, Section G.2.2. Sketch of ET based on elevation – Is this not the relationship used? Not sure I understand how you did this?
ET section was reviewed and revised to hopefully provide additional clarification and resolve any confusion.

Page 37, Section G.3.1 How were the extraction rates determined? Was it the irrigation demand divided by the irrigation efficiency?
Yes, that is how the extraction rates were determined. Additional language was added to this section for clarification.

Page 40, Table 15. Identify the method codes.
The method codes were identified in the Table caption.

Page 41, Section G.4.1. Add 'in September 2008' to the last sentence.
Date clarification was added.

Page 42, Section G.4.3. How was the river bed thickness determined?
Language was added on how the river bed thickness was calculated, and also that the thickness was calibrated to the measured flow gain/loss discussed in Section G.4.1.

Page 43, Section G.5.1. River conductance values were calibrated to what?
Wording was added to provide clarification to this statement. River conductance values were calibrated to the river flow measurements collected in September 2008.

Page 48, Section I.1.3. Single observed groundwater contour map – was that over the average year?
Yes, the observation points are the sum of the static water levels collected throughout the model and interpolated to the model. The observation points do not change by time step, insufficient data is available.

Page 49, Figure 32. I don't understand this plot – what do the symbols represent?
The symbols represent individual observation points. Additional wording was added to clarify the symbols.

Comments from Dr. Gary Johnson Continued

Page 49, Section I.1.3. I think the language is confusing me. Are 'observed' actually interpolated values and 'calculated' are simulated?

Yes, that is exactly what it means. Additional wording was added on this issue for clarification.

Page 49, Section J. Replace was with were.

'Was' was replaced with 'were'

Page 52, Section K.1.3. You could build a superposition model to avoid differencing in future uses.

This is a great suggestion. Depending on the future applications of this model, we may request additional guidance by Dr. Johnson.

We appreciate the review of the draft report of Big Wood River Aquifer Flow model by Dr. Johnson.