

Appendix G

Technical Memo 7

Water Rights

TECHNICAL MEMORANDUM – WATER RIGHTS

September, 2008

TECHNICAL MEMORANDUM NO. 7

THE STUDY AREA

This technical memorandum presents an overview of existing Alpine Decree water rights in Alpine County and covers a somewhat different area than the Facilities Master Plan itself. The Study Area for the purposes of this technical memorandum, consists of Carson Valley along the West Fork of the Carson River, Wade and Dutch Valleys, South of the Nevada state line and Diamond Valley. It includes lands irrigated from the West Fork of the Carson River, Indian Creek and Scott Creek and generally conforms to the lower portion of Segment 3 and all of Segment 4 of the Alpine or Carson River Decree (*United States of America v. Alpine Land & Reservoir Company, et al*).

In order to gain an understanding of the water rights issues within the Study Area and how the rights are administered, this technical memorandum first gives an overview of the Carson River Basin and its recent history, then the Alpine Decree and its administration, followed by a discussion of other decrees and findings affecting the Study Area. The last sections discuss irrigated acres, duties and diversion rates within the Study Area, transfers of water rights and the use of reclaimed water.

THE CARSON RIVER BASIN

The Carson River begins in the high Sierra area of Alpine County, California. The upper reach is separated into two parts—the East Fork and the West Fork. Both forks have common high alpine characteristics with mountainous terrain, steep slopes, a snow pack that produces a heavy spring runoff with ensuing low stream flows in the summer and fall months and a slight increase in river flow during the late fall to winter months. There are several small lakes that have been converted to small reservoirs in the higher elevations that generally do not contribute to the stream flow until mid to late summer due to late thawing of the snow pack. The stored water is then used to irrigate lands within California and Nevada during the low flow months. There are no large reservoirs in the upper watershed.

The East and West Forks leave the mountainous terrain of the Sierras, entering the South end of the Carson Valley, and join into one river about midway through the Carson Valley below Genoa, Nevada. The river then leaves the North end of Carson Valley, skirting Eagle Valley (Carson City) through a narrow canyon between the Virginia Range to the North and the Pine Nut Range to the South before turning eastward. The river leaves this canyon and enters the west side of the Dayton Valley and flows generally eastward until it enters the Lahontan Reservoir, which is the beginning of the Newlands Project (defined below). The river then enters the irrigated lands of the Truckee-Carson Irrigation District and finally terminates at the Stillwater National Wildlife Refuge and the Carson Sink.

THE RECENT HISTORY OF THE CARSON RIVER

Conflicts over the waters of the Carson River began in the late 1850's and early 1860's. These conflicts precipitated from the competing uses for the waters of the Carson River between the farmers and ranchers in Carson Valley and the Comstock ore processing and milling interests along the river's reach from the eastern edge of Eagle Valley through the Dayton Valley.

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These water conflicts resulted in several legal disputes over the use of the Carson River water including one involving the Union Mill and Mining Company versus ranchers in the Carson Valley. This was followed in 1905 by formation of the **Anderson-Bassman Decree** and in 1921 by the **Price Decree** which are incorporated into the Alpine Decree as part of the historical practice.

In the early 1900's the mining boom of the Comstock Lode was coming to an end and the need for water for the mills was greatly reduced. It was during this period that Francis G. Newlands, an advocate for developing irrigation projects in the West and a Nevada Senator, proposed and secured federal funding for the Newlands Project. This project included Lahontan Reservoir and the development of a large amount of acreage below Lahontan Reservoir which was initially envisioned to be supplied from water stored in Lake Tahoe and flows from the Carson River.

Similar to the Comstock mill operators, the Federal Government soon learned that the erratic and highly seasonal flows of the Carson River would not sustain the irrigation project without additional water from the Truckee River. In 1925 the Federal Government filed for the right to divert water from the Truckee and Carson Rivers, resulting in the 1944 Orr Ditch Decree for the Truckee River and the 1980 **Alpine Decree** for the Carson River.

The Federal Government's Washoe Project, initiated in 1954, would consist of several upstream storage reservoirs on the Truckee River and a major reservoir on the East Fork of the Carson River in order to provide a much needed supply to the Newlands Project and supply additional acres of agricultural lands alongside the Truckee and Carson Rivers. The East Fork Reservoir, named Watasheamu Reservoir, was envisioned to be the first dam constructed in the Washoe Project but, after years of study, design and negotiations, this proposed dam project was de-authorized in 1990 through Public law 101-618, The Truckee-Carson-Pyramid Lake Water Rights Settlement Act.

THE ALPINE DECREE

In 1925, the Federal government, realizing that the waters of the Carson River would not fulfill the expectations of the Newlands Project, filed a lawsuit against the water users of the Carson River to establish the Newlands Project's water rights (*U.S. v. Alpine Land and Reservoir Company, et. al.*).

The Alpine case was characterized, to a large extent, as a conflict between the water users in the upper Carson River Basin and the proponents of the Newlands Project on the lower river. The federal government's main objective was to secure the use and delivery of water rights for the Newlands project. Discussions included additional storage on the upper Carson River, including dam sites in Hope Valley and on Indian Creek. Negotiations with the Carson Valley farmers were unsuccessful, and the pace of the Alpine litigation slowed until the 1950's when the Bureau of Reclamation commenced additional studies for reservoirs on the Carson and Truckee River systems. These new Carson River Reservoir studies centered on the Watasheamu Reservoir, but issues covering the allocation of storage and how the corresponding water rights would be obtained could not be resolved. The introduction of legislation proposing to divide the rivers through an inter-state agreement served to further dilute the availability of water resources available to resolve the Alpine Decree litigation.

The Alpine Decree, finally entered into on 28 October 1980, established the Carson River surface water rights of the parties to the lawsuit in both California and Nevada. The decree establishes the principal regulatory criteria under which water rights are administered within the Carson River Basin. It is the federal court ruling of the water rights on (and sets the operating criteria for using) waters of the Carson River. The Decree is administered by a Federal Water Master appointed by the U.S. District Court.

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The Alpine Decree established rights to reservoir storage in the high alpine reservoirs and confirmed the historic practice of operating the river on a principle of rotating water use between water users. It is this rotation of use that enables junior water priorities to be served as long as possible. The Decree recognizes riparian and appropriative rights in California and appropriative rights in Nevada. For purposes of administration of the use of water, the Carson River is divided into eight (8) segments which are further described below.

When the Water Master determines that the most junior priority water right cannot be served, the river is declared to be on “regulation,” which results in each segment of the river being administered separately from the others.

The Court found that the presence of certain physical characteristics of the Carson River prevents traditional enforcement of water rights: junior priority water rights may be fulfilled over senior priority water rights simply due to the geographical location of the appropriator.

The Court Opinion states:

“First, the upper reaches of the river are separated into two forks: the East Fork and the West Fork. These different branches of the river are, until close to their confluence, separated by a considerable distance and varied topography, including steep foothills. An example, then, of the difficulties presented is a situation where there is a senior appropriator on the West Fork and a junior appropriator on the East Fork and the senior user is low on water yet the junior user has a full supply. There is no physical way to deprive the junior user to satisfy the senior user.

A second example of the peculiarities of the river system is the late season appearance and disappearance of water from the riverbed. The testimony indicated that in late summer when the river is quite low, the riverbed will be entirely dry for some stretches but that water reappears further downstream. The reappearance of water is the result of underground drainage from upstream irrigation or surface return flows from irrigation. This state of affairs makes it virtually impossible to “bring” water from an upstream junior appropriator down to a senior appropriator.

This Court is presented with a conflict between the pure theory of priority rights and the practical realities of the river system. In effect, this conflict is between the priority concept and the well-established principle of western water law that water must be economically, practically and beneficially used, so far as is possible. In this Court’s view, the waste of water must be avoided, for wasted water benefits no one. Thus the pure priority concept, which would waste large amounts of water and other resources were it to be strictly applied, must be modified. For these reasons, the Court finds that the river must be divided into 8 segments.

Each of these 8 segments shall be treated autonomously once the river is on regulation. For example, the Water Master shall distribute water in Segment 3 in accordance with the priorities in Segment 3. The Water Master shall not enforce a senior priority in one segment of the river against a junior priority in another segment of the river. The Court finds that this arrangement provides by far the most practical rule for administration by the Federal Water Master.”

The segments of the Carson River are as follows:

Segment 1 The East Fork of the Carson River from the California /Nevada state line up to the headwaters of the East Fork in the mountains;

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- Segment 2** The East Fork of the Carson River from the California/Nevada state line to the confluence of the East and West Forks of the Carson River;
- Segment 3** The West Fork of the Carson River from the gauge at Woodfords, California upstream to the headwaters in the mountains;
- Segment 4** The West Fork of the Carson River from the gauge at Woodfords, California downstream to the California /Nevada state line;
- Segment 5** The West Fork of the Carson River (and Brockliss Slough) between the California/Nevada state line and the confluence of the East and West Forks of the Carson River;
- Segment 6** The main stem of the Carson River from the confluence of the East Fork, West Fork and Brockliss Slough to the gauge at Carson City;
- Segment 7** The main stem of the Carson River from the Carson City gauge to Lahontan Reservoir. This segment is further subdivided for administration into autonomous subsegments:
- (a) Mexican Ditch, Dayton Town Ditch and the reach between Rose Ditch and Cardelli Ditch, inclusive:
 - (b) Gee Ditch;
 - (c) Koch Ditch
 - (d) Houghman and Howard Ditches;
 - (e) Buckland Ditch
- Segment 8** The area below the Lahontan Dam.

Lahontan Reservoir does not constitute a “Segment” of the Carson River and the Court opinion specifically states the division between the upper basin and the lower basin as..... “One region slowly shades into the other in the area between the reservoir and Carson City but for practical reasons the decree treats Lahontan as the dividing line.”

The Alpine Decree sets three classifications of irrigated lands in the upper basin, Benchland, Alluvial Fan and Bottomland. The District Court found that:

“.....The evidence showed that, as in the lower river area, the water duties must be varied to take into account soil character and slope. However, even where a relatively high water duty is assigned, other water users are not injured because the water not consumed all flows back into the river or onto the water righted lands of another appropriator. In other words, some lands need large amounts of water just to achieve adequate irrigation coverage but the extra water is not wasted. Water duties not accounting for these variable factors would force the abandonment of many presently productive acres, especially in the Alpine County and Southern Carson Valley areas.”

Above Lahontan Reservoir, the Court set duties, stated in terms of canal diversion, of 4.5 acre feet per acre for the bottomland, 6.0 acre feet per acre for alluvial fan land, and 9.0 acre feet per acre for the benchlands.

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Although the Court set certain amounts of the three different types of land in each segment of the Carson River, the Court specifically deleted any identification of acreage falling within each of the three land types and the assignment of an acre foot per acre duty to each claim from the Decree. The Court directs the Water Master to "...exercise discretion in distributing the water to meet the demands of the various land types hereinabove noted, insofar as it is practical to do so." Note that in discussing the number of acres by different types of a land, the Court combined Segment 5 with that portion of Segment 4 below the Fredericksburg ditch, stating that data was not available above the Fredericksburg ditch and ignored Segment 3 because it is almost entirely riparian.

The Decree sets the consumptive use of surface water in the upper basin at 2.5 acre-feet per acre: this is the maximum that can be transferred if the use of water is changed from agricultural use to any other use. The Court found that the continuation of the historic practices would not increase net depletion and the Court approved and adopted the customs, practices, agreements and decrees set forth in the Decree and directed the Water Master to include these practices in his administration of the river.

The Court recognized that large portions of the upper basin are irrigated by "return flows". This is the practice of diverting water into large canals or ditches from which water is diverted onto an appropriators lands and the water running off the bottom of that particular parcel of land either through surface or ground water paths is then applied to a second appropriator's lands, and so on, until eventually the water returns to the river or to another diversion canal or ditch. Although evidence during the litigation showed that all appropriators could irrigate their lands by direct diversion, it was much more efficient to use a large canal and the return flow method. The District Court Opinion states:

"This Decree therefore does not differentiate between water right land irrigated by direct diversions and water right land irrigated by return flows. The return flow method should be encouraged as it appears to be a more economical, practical method of water distribution than hundreds of small direct diversion ditches."

THE ADMINISTRATION OF THE ALPINE DECREE

The Alpine Decree is administered through a Federal Water Master who is appointed by the Federal District Court. The same Water Master has traditionally served the Court for both the Truckee and Carson River systems although it is not a requirement of the Alpine or Orr Ditch Decrees to have the same Water Master for both systems.

The Federal Water Master employs a staff that maintains the records of each claim contained in the Alpine Decree. In addition, the Water Master has several ditch riders that monitor and administer the diversion of water from the Carson River. In the upper Carson River above Lahontan Reservoir the water distribution is described as diversions into the canal for the priorities, classification of land, and the historical practice of rotating water between users as set forth in the Decree. The lands below Lahontan Reservoir have specific duties described as water delivered to the land.

In the upper Carson River, the quantities of water diverted from a particular ditch by the owners on account of the priorities contained within the decree for a particular ditch are subject to the obligations of the owners to divert and use the water only at such times as needed and only in the amounts required for actual, reasonably economical beneficial use. Rotation, or the combining and exchanging of the use of water between ditches and among users is permitted at all times to obtain reasonable economy in the use of the water and to give each ditch or user the necessary water for irrigation. This rotation and use of water is allowed as long as it does not cause injury to any of the rights in the Alpine Decree.

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The Water Master will begin to enforce the priorities and distribution of water into ditches when it is determined that there is not enough water in the upper Carson Basin to serve the most junior priority. At this time, the water users are notified that the upper Carson River is on regulation and diversions to the ditches and canals will be monitored. Generally the upper Carson River goes on regulation in mid June to the first part of July. On all segments of the river, rotation is practiced so as to serve the most junior priorities as long as possible. Throughout the system, any user, regardless of priority, does not receive water unless water is needed. Any water not used remains in the system to satisfy the next senior priority user.

The high alpine reservoirs on both forks of the river are filled out of the priority order. This is due to the snow not melting sufficiently at those high elevations to fill the reservoirs until the summer when the river flow has already begun to diminish through the valleys.

There are certain administrative provisions that are applicable to each particular segment of the upper Carson River system.

SEGMENT 1. “The Water Master exercises little supervision except for the release of water from the Alpine Land and Reservoir reservoirs. The water in these reservoirs is represented by corporate stock and is rented, traded and sold to any landowner.”

SEGMENT 2. “This segment has several unique and distinct administrative characteristics. Water users on the major canals hire a ditch rider to assist in the distribution of the water. This ditch rider is under the direction of the Water Master. Whenever the flow in the river at the East Fork gauge above Gardnerville is 200 cfs or less, 1/3 of the river flow is directed into the Allerman Canal and 2/3 of the flow stays in the river. This commonly referred to as the 1/3-2/3 split of the river.

The Dangberg Reservoirs 1, 2 and 4 are filled once in February and March pursuant to their storage rights and twice later in the year as a means of regulating water flow in the Virginia and Allerman ditches and ensuring sufficient irrigation head during the periods of peak irrigation demand.

Most diversions in this segment, and the other segments, are based on a two week irrigation interval. The smaller canals such as the Heitman, Berning, Christensen-Hussman, Madison, and Topping divert for several days on a two week interval. The larger canals and sloughs divert on a continuous basis with individual ditches and laterals that come off of the larger canals diverting on the two week rotation.

The continuous diversion of the St. Louis Straight and island portion of the Homestream are stopped and transferred to the Allerman Canal when the 1/3-2/3 split takes place.

When the East Fork goes on regulation, the Cottonwood Slough is used to convey water downstream to the Williams Slough rather than using the main channel of the East Fork.”

SEGMENT 3. “ This segment is largely riparian lands and the Water Master exercises little supervision except to regulate the release of water from the high mountain reservoirs. Traditionally, the water stored in the mountain reservoirs has not been considered appurtenant to any particular place of use.”

SEGMENTS 4 AND 5. “The Alpine Decree incorporates the Anderson-Bassman Decree and the Price Decree which set forth certain administrative provisions for Segment 4 in California and Segment

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5 in Nevada. Beginning on the first Monday in June or at such time that there is inadequate water to serve priorities in Segment 5 in Nevada, and, continuing through out the remaining irrigation season, the available water in the West Fork is rotated on a weekly basis between Segment 4 and Segment 5. In addition, the Price Decree controls the rotation of water among the Segment 4 users during the week that Segment 4 has water under the Anderson-Bassman Decree.

During the non-irrigation season, diversions are made to store water in the Mud Lake Reservoir.

During Segment 5 week, water is distributed according to priorities. During Segment 4 week, any Segment 5 junior appropriators who did not get water during Segment 5 week are allowed to use the return flows from Segment 4.

Mud Lake Reservoir water may be released to downstream users in exchange for direct diversions that would normally go to downstream users.

During periods of low supply, the water in the Brockliss Slough, between Dressler Lane and the confluence of the East Fork and the West Fork, is first rotated between the three oldest priorities and then a second rotation is observed among the other priorities. Drainage water from the West Fork can be diverted to the Brockliss Slough and then to lands west of the Brockliss Slough.

Lands that were irrigated from the Jones West ditch are served by return flows from the Bull Slough. The Bull Slough also receives water from return flows from mountain creeks not considered tributaries to the Carson River.

In many areas, some lands that appear to be served with West Fork water are actually served by East Fork return flows. An example of this is the water taken out of the East Fork through the Rocky Slough and Edna Ditch are used to irrigate lands between the East Fork and the West Fork.”

SEGMENT 6. “This segment is known as the ‘pump segment’. When the flows in the river are low or the system is on regulation, it is necessary to pump water in order to satisfy the priorities in this segment. Due to the high cost of regulation compared to the benefits, the Water Master is directed to make no attempt to regulate this segment unless a controversy arises.”

SEGMENT 7. “Due to the intermittent nature of the river’s surface flow this segment is regulated in autonomous sub-segments.”

LAHONTAN RESERVOIR. “Lahontan Reservoir is considered a dividing line between the upper basin and the lower basin and is not a part of any segment of the river.”

SEGMENT 8. “This segment includes all of the remaining river area below Lahontan Reservoir. Since there are no relevant historic practices or customs in this segment, the Water Master only regulates when a controversy arises. This area is served by the waters controlled and operated by the Truckee-Carson Irrigation District through a contract with the United States. The controlling policy is the Operating Criteria and Procedures adopted by the United States and administered through the Bureau of Reclamation.”

OTHER DECREES AND PRACTICES AFFECTING THE STUDY AREA

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The Findings of Fact, the General Provisions and the Opinion that are part of the Final Alpine Decree state a number of times that historical practices govern how the Decree itself will be administered. This is especially true within Segments 3 and 4. These historical practices are documented in a number of documents, which provide assistance in the administration of rights within the Study Area. The Documents that are specific to the Study Area include:

1. The **Anderson - Bassman Decree** is the 1905 decision in the 1899 suit of Anderson, et al v. Bassman, et al. The plaintiffs were Carson Valley West Fork irrigators and the defendants were primarily West Fork users in Diamond and the upper West Fork Valleys in Alpine County. One of the plaintiffs' major issues was that the upstream non-riparian users were not returning water to the river and thus depriving the downstream users of waters that were historically theirs to utilize. The case was heard in the Ninth Circuit Court, Northern California District, and the judge ruled in favor of the plaintiffs, granting them the right to utilize the water they had put to use in the past. The court also granted the defendants the same right, but ordered them to make every effort to return recycled water to the river. The Court resolved the conflict this decision would bring about by limiting the use of water by each party to alternating weeks from the first Monday in June to November 1, thus setting the rotation that is now known as "Nevada Week" and "California Week." Nevada irrigators get the first week and California irrigators, the second. Between November 1 and the first Monday in June, both parties have the right to all the water they can use economically and beneficially. *The Decree did not address Indian Creek or other tributaries to the West Fork.*
2. The **Price Decree** was entered in 1921 in the Superior Court of California based on the 1905 Anderson – Bassman Decree. It established a detailed determination of the rights of California water users on the West Fork utilizing a 1920 plane table survey of the irrigated areas, performed by the California State Water Commission. It also established diversion rates and priority dates for each claim. It however did not address the duty of water for each claim in total acre feet or in acre feet per acre.
3. The **1941 Agreement** is the document which today is utilized by the Federal Water Master to allocate waters to the various users on the West Fork and is based on the Price Decree. The agreement was between the West Carson Water Master District and the California Division of Water Resources authorizing the Division to appoint a Water Master for the 1942 irrigation season. Water Masters had previously served the District under similar agreements in 1922, 1923, 1927, 1928, 1929, 1930 and 1932. Attached as an appendix to the Water Master's report for the 1941 and 1942 seasons is a "Schedule of Allotments and Priorities of Water Rights on the West Fork, Carson River, Alpine County, California, (during each 'California Week')". This schedule of allotments and priorities closely follows the maximum allocations provided for in the Price Decree between the first Monday in June and November 1.

Other documents which are not specific to the Study Area, but which deal with the operation of the entire River System are the 1949 "Temporary Restraining Order", the 1951 Special Master's Report and, of course, the Alpine Decree itself, which has been discussed in detail above. The Temporary Restraining Order came out of the case U.S. v. Alpine Land and Reservoir Company, et al and restrained the water users above Lahonton Reservoir from using water in excess of the amounts listed in the Order. It included all rights on the Carson River, including those rights listed in the Price Decree, those riparian rights for the irrigation of mountain pastures from the River and tributary streams, as well as the various

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reservoir rights. It differs from the Price Decree in that it lists specific duties in acre feet per acre and total acre feet in addition to a diversion rate for each claimant. The Order limits the rights to water to those which are reasonably necessary for economical and beneficial use, limits the aggregate amount of rights from combined sources to the amount listed and appoints a Water Master to carry out and enforce the provisions of the Order. The Special Master's report was prepared in 1951 by John Mueller and is sometimes referred to as the Mueller Decree. In this report Mueller presents Proposed Finding of Fact, Conclusions of Law and a "Decree". This "Decree" is the basis of what was to become the Final Alpine Decree and closely follows the Price Decree and Temporary Restraining Order in regards to Segments 3 and 4. Muller's tabulation of water rights, however, lists the total acre feet for each claim, based on 5 acre feet per acre. As discussed above, this acre foot duty was specifically left out of the Final Alpine Decree.

IRRIGATED ACRES, DUTIES AND DIVERSION RATES

Utilizing the Alpine Decree, Stantec Consulting tabulated the water rights within the study area and prepared maps showing water righted acres. Technical Memorandum No. 8 - Mapping and GIS (page 1 and 2) gives an explanation on how the mapping was developed. The Alpine Decree lists each claimant and the number of acres by quarter/quarter section for that claimant. If there is more than one priority involved for that claimant, it then lists the number of acres in each priority, giving each priority a claim number. However, there is no correlation back to the number of acres by quarter/quarter section for the individual claims. So unless a claimant had only one priority, there is no way to tabulate or plot on a map the individual claims, only groups of claims by original claimant. The tabulation is shown in Tables 1 and 2. Table 1 shows that there were, at the time the decree was finalized, approximately 1,069 water righted acres within the Study Area with rights from Millberry, Scott and Indian Creeks, which are the tributary creeks that are part of the Decree. Most of the water from these creeks is riparian and the majority is also considered to be supplemental to West Fork rights. That is, the same acreage is irrigated from two sources and therefore not additive, but limited to the amount that can be used beneficially. Table 2 shows that there were approximately 3,853 water righted acres within the Study Area irrigated from the West Fork of the Carson River. Exhibit 1 (following this sheet) shows the location of the tabulated rights on the USGS quadrangle base map.

The failure of the Alpine Decree to list the duty in acre feet for each claim would seem to make accounting for water rights a difficult task, especially if one is used to dealing with the Orr Ditch Decree or with water rights in Nevada. But in reality, the River itself, because of the lack of large upstream storage reservoirs, controls the duties within the Study Area. Prior to the first week in June of all but the most dry years, water users have all the water that they can use beneficially. Then depending on how the winter snow pack compares to normal, the river goes on regulation because there is not enough water in the river within the Study Area to satisfy the lowest priorities. The Federal Water Master's staff utilizes the 1941 Agreement to distribute the remaining waters by priority. A copy of this agreement has been reproduced as Table 3. Note that Stantec has added the last column to the Table in an attempt to relate priorities to the Alpine Decree Claim Numbers. This was done by comparing the name of the landowner and the ditch to the Price Decree and determining which paragraph in the Price Decree became which Claim in the Final Decree. Due to a certain amount of guess work involved in the comparison, this column may not be totally correct, but it does show the proper Alpine Claim number on the major claims. Note also that the math does not work in the cumulative column between the 3rd and 4th priorities because these claims receive 3.5 times their diversion rate for two days per week during the California week. In order to serve all of the rights listed on the Table, the available flow in the river must be 110.02 cfs for

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five days of the week and 113.17 cfs during the remaining two days. The available water supply is estimated by the Water Master's staff at the beginning of each California week, utilizing the USGS gaging station at Woodfords, and compared to the cumulative column shown in Table 1. Rights that fall below where the river flow matches the cumulative column do not receive water. Most of the ditches are rotated at full flow for one user at a time during California week. The Water Master's staff provides the water at the ditch turnout, then the users perform the rotation among themselves.

In addition to the rights discussed above, there are four lakes above the Study Area which have combined storage rights totaling approximately 2,000 acre feet (Claims 809 – 813). The "reservoirs" are filled out of priority when the snow melts. While the rights to the water stored are owned by individual farmer/ranchers, the water is not considered appurtenant to any particular acreage. Stored water is released by the owners of the storage rights and, once in the River, is administered by the Water Master's staff.

TRANSFERS OF WATER RIGHTS

The Alpine Decree allows for the change of point of diversion, place of use and manner of use of the decreed water rights. In Nevada, all change applications are processed through the Nevada State Engineer. Change applications in California and change applications from one state to another must be made directly to the Court. When manner of use is changed, only the consumptive use portion of the right is allowed to be changed. Within the Study area, the major transfers of water are:

1. In 1990 South Tahoe Public Utility District through two separate petitions received approval (1990) from the District Court to change Claims 45, 46, 457 – 458 and Claims 47, 48, 453 – 455 from irrigation use to recreational use in Indian Creek Reservoir. The total amount transferred less supplemental rights is approximately 555 acre feet.
2. Applications to change in the points of diversion, place and manner of use of Claims 520 - 522, 528, 529 - 531, 532 – 533 and a portion of Claims 523 – 527 by Aqueduct I were approved in 1995 by the Nevada State Engineer, under permission from the Court. Applications 54729 through 54734 changed the manner of use from irrigation in California to storage in Nevada in Mud Lake Reservoir. The transfer involved 547.4 acres at 2.5 acre feet per acre or 1368.5 acre feet. (Note that other similar applications have been approved transferring rights from outside of this Study Area to Mud Lake.)

Exhibit 2 (after this sheet) shows the location of water righted lands within the Study Area after the transfers to Mud Lake and Indian Creek Reservoir.

The original draft of this technical memorandum was prepared by Kennedy/Jenks Consultants in 2003 and updated by Stantec in 2008.

ALPINE DECREE

TABLE 1				
CREEK RIGHTS				
CLAIM	DITCH	DECREE OWNER	RIPARIAN or PRIORITY	AC
41	MILLBERRY CREEK	GANSBERG, FRED, CHRIS, ELLEN H., FRED H.	Riparian	60.0
42	INDIAN CREEK	GANSBERG, CHRIS JR	Riparian	178.8
43	MILLBERRY CREEK	GANSBERG, CHRIS H., ELLEN H., FRED H., CHRIS JR.	Riparian	114.2
44	SCOTT CREEK	HAWKINS, HARRY W. HEIRS	Riparian	67.6
45	SCOTT CREEK	SCHWAKE, H. R. (CLOGSTON RANCH)	Riparian	20.0
46	INDIAN CREEK	SCHWAKE, H. R. (CLOGSTON RANCH)	Riparian	17.0
46	INDIAN CREEK	SCHWAKE, H. R. (CLOGSTON RANCH)	Riparian	85.0
47	INDIAN CREEK (Snowshoe Thompson No. 1)	F. HEISE LAND & LIVESTOCK	Riparian	7.0
48	INDIAN CREEK (Snowshoe Thompson No. 1)	F. HEISE LAND & LIVESTOCK	1864	72.7
49	INDIAN CREEK (Snowshoe Thompson No. 1)	F. HEISE LAND & LIVESTOCK	Riparian	25.0
50	INDIAN CREEK (Snowshoe Thompson No. 1)	F. HEISE LAND & LIVESTOCK	1881	57.8
51	INDIAN CREEK (Snowshoe Thompson No. 2)	F. HEISE LAND & LIVESTOCK	Riparian	*
52	INDIAN CREEK (Snowshoe Thompson No. 2)	F. HEISE LAND & LIVESTOCK	1881	84.0
53	INDIAN CREEK (Snowshoe Thompson No. 2)	SMITH, VERNITA AKA MRS. TED SMITH	Riparian	171.6
54	INDIAN CREEK (Walsh/Gallihar)	G. & S.R. SPRINGMEYER COMPANY (UHALDE RANCH)	Riparian	95.2
54	INDIAN CREEK (Walsh/Gallihar)	G. & S.R. SPRINGMEYER COMPANY (UHALDE RANCH)	Riparian	13.0
TOTAL				1068.9

ALPINE DECREE

TABLE 2				
WEST FORK RIGHTS				
CLAIM	DITCH	DECREE OWNER	RIPARIAN or PRIORITY	AC
449	Merk	SPPCO	5/10/1869	10.0
450	Mortinson	SPPCO	5/1/1870	10.7
451	Snowshoe Thomson No. 1	F. HEISE LAND & LIVESTOCK	4/1/1869	359.9
452	Snowshoe Thomson No. 1	F. HEISE LAND & LIVESTOCK	4/1/1891	11.5
453	Snowshoe Thomson No. 1	F. HEISE LAND & LIVESTOCK	4/1/1860	68.0
454	Snowshoe Thomson No. 1	F. HEISE LAND & LIVESTOCK	4/1/1908	11.2
455	Snowshoe Thomson No. 1	F. HEISE LAND & LIVESTOCK	4/1/1914	2.4
456	Snowshoe Thomson No. 1	SCHWAKE, WILLIAM F., JANET (CLOGSTON RANCH)	4/4/1860	77.8
457	Snowshoe Thomson No. 1	SCHWAKE, WILLIAM F., JANET (CLOGSTON RANCH)	4/1/1870	22.6
458	Snowshoe Thomson No. 1	SCHWAKE, WILLIAM F., JANET (CLOGSTON RANCH)	4/1/1911	3.0
459	Woodford's	DANGBERG, GEORGE F.	5/1/1861	8.1
460	Millich (Walsh & Gallanar)	G. & S.R. SPRINGMEYER COMPANY, UHALDE RANCH)	9/30/1879	11.2
461	Millich (Walsh & Gallanar)	G. & S.R. SPRINGMEYER COMPANY, UHALDE RANCH)	4/1/1900	84.0
462	Millich (Walsh & Gallanar)	G. & S.R. SPRINGMEYER COMPANY, UHALDE RANCH)	9/30/1879	Nevada
463	Millich (to Indian Creek)	FRED H. DRESSLER	9/30/1879	Storage
464	Millich (to Indian Creek)	G. & S.R. SPRINGMEYER COMPANY, UHALDE RANCH)	9/30/1879	228.0
465	Millich (to Indian Creek)	SPRINGMEYER, STANLEY (NOW SNOWSHOE THOMPSON NO. 2 DITCH (SCC)	11/6/1876	12.0
466	Ellis (Ellis-Dudley)	F. HEISE LAND AND LIVESTOCK COMPANY	11/1/1876	309.5
467	Wade	DANGBERG, GEORGE F., A	4/1/1856	36.1
468	Wade	DANGBERG, GEORGE F., A	4/1/1904	4.7
469	Mayo	BOTHWELL, JEANETTE AND GORDON R.	3/16/1905	4.4
470	Snowshoe Thompson No. 2	F. HEISE LAND & LIVESTOCK	8/15/1864	161.6
471	Snowshoe Thompson No. 2	F. HEISE LAND & LIVESTOCK	4/1/1878	20.2
472	Snowshoe Thompson No. 2	F. HEISE LAND & LIVESTOCK	4/1/1881	32.8
473	Snowshoe Thompson No. 2	F. HEISE LAND & LIVESTOCK	4/1/1885	10.1
474	Snowshoe Thompson No. 2	SMITH, VERNITA (BARBER RANCH)	4/1/1860	13.7
475	Snowshoe Thompson No. 2	SMITH, VERNITA (BARBER RANCH)	8/16/1854	140.0
476	Snowshoe Thompson No. 2	SMITH, VERNITA (BARBER RANCH)	4/1/1880	3.6
477	Snowshoe Thompson No. 2	SMITH, VERNITA (BARBER RANCH)	4/1/1913	5.4
478	Snowshoe Thompson No. 2	COLLARD, GEORGE L.	4/1/1860	17.0

ALPINE DECREE

CLAIM	DITCH	DECREE OWNER	RIPARIAN or PRIORITY	AC
479	Snowshoe Thompson No. 2	COLLARD, GEORGE L.	8/15/1864	174.2
480	Snowshoe Thompson No. 2	COLLARD, GEORGE L.	4/1/1880	4.4
481	Snowshoe Thompson No. 2	COLLARD, GEORGE L.	4/1/1913	6.7
482	Indian Simpson	HUNTER, CONNIE ET AL	3/7/1905	1.4
483	Indian Simpson	KIZER, MARIE SIMPSON ET AL	3/7/1905	16.1
484	Henningsen West	HUNTER, CONNIE ET AL	4/4/1905	3.7
485	Henningsen West	WENNHOLD, HARRY AND RICHARD H. W. HEIRS	2/4/1905	31.7
486	Henningsen East	WENNHOLD, HARRY AND RICHARD H. W. HEIRS	2/9/1905	91.4
487	Heimsoth	WADE, ET AL	3/5/1905	6.7
488	Heimsoth	COLLARD, GEORGE L.	4/1/1891	8.8
489	Heimsoth	COLLARD, GEORGE L.	4/1/1896	7.1
490	Heimsoth	COLLARD, GEORGE L.	4/1/1898	7.1
491	Molly Pete's Spring	WADE, ET AL	3/7/1905	9.7
492	Heimsoth	COLLARD, GEORGE L.	4/1/1865	8.0
493	Heimsoth	COLLARD, GEORGE L.	4/1/1866	13.7
494	Heimsoth	COLLARD, GEORGE L.	4/1/1868	5.6
495	Heimsoth	COLLARD, GEORGE L.	4/1/1870	13.7
496	Heimsoth	COLLARD, GEORGE L.	4/1/1881	9.6
497	Heimsoth	COLLARD, GEORGE L.	4/1/1882	4.8
498	Heimsoth	COLLARD, GEORGE L.	4/1/1885	1.6
499	Heimsoth	COLLARD, GEORGE L.	4/1/1886	4.8
500	Heimsoth	COLLARD, GEORGE L.	4/1/1888	5.6
501	Heimsoth	COLLARD, GEORGE L.	4/1/1890	13.7
502	Heimsoth	COLLARD, GEORGE L.	4/1/1871	20.0
503	Heimsoth	COLLARD, GEORGE L.	4/1/1874	10.4
504	Heimsoth	COLLARD, GEORGE L.	4/1/1890	10.4
505	Heimsoth	COLLARD, GEORGE L.	4/1/1896	6.4
506	Heimsoth	COLLARD, GEORGE L.	5/1/1900	4.8
507	Heimsoth	COLLARD, GEORGE L.	4/1/1908	2.4
508	McCillum	COLLARD, GEORGE L. (STUARD RANCH)	4/1/1890	6.3
509	Scossa	BRUNS, HUBERT B.	4/1/1884	74.4
510	Scossa	BRUNS, HUBERT B.	4/1/1892	31.9
511	McCillum	COLLARD, GEORGE L. (STUARD RANCH)	4/1/1893	11.6
512	McCillum	COLLARD, GEORGE L. (STUARD RANCH)	4/1/1894	20.6
513	Fredericksburg	W.F. NEDDENRIEP, W. F., LENA , WILTON N.	4/1/1864	317.1
514	Fredericksburg	W.F. NEDDENRIEP, W. F., LENA , WILTON N.	4/1/1890	88.1
515	Fredericksburg	BRUNS, HUBERT B.	4/1/1864	74.0
516	Fredericksburg	GANSBERG, CHRIS H., ELLEN H., FRED H., CHRIS H., JR.	4/1/1864	138.4
517	Fredericksburg	GANSBERG, CHRIS H., ELLEN H., FRED H., CHRIS H., JR.	4/1/1871	39.3
517a	Fredericksburg	LOGANDALE, GLADYS	4/1/1864	3.1

ALPINE DECREE

CLAIM	DITCH	DECREE OWNER	RIPARIAN or PRIORITY	AC
518	Fredericksburg	GANSBERG, CHRIS H., ELLEN H., FRED H., CHRIS H., JR.	4/1/1864	270.1
519	Fredericksburg	GANSBERG, CHRIS H., ELLEN H., FRED H., CHRIS H., JR.	4/1/1890	20.0
520	Chambers	DRESSLER, FRED H., ANNA E.	4/1/1889	20.0
521	Chambers	DRESSLER, FRED H., ANNA E.	4/1/1892	35.2
522	Chambers	DRESSLER, FRED H., ANNA E.	4/1/1906	36.3
523	Jarvis No. 1	WENNHOLD RICHARD H. W. HEIRS, IDA WENNHOLD, HARRY F. WENNHOLD, ANNE WENNHOLD	3/1/1863	12.7
524	Jarvis No. 1	WENNHOLD RICHARD H. W. HEIRS, IDA WENNHOLD, HARRY F. WENNHOLD, ANNE WENNHOLD	3/1/1885	24.1
525	Jarvis No. 1	WENNHOLD RICHARD H. W. HEIRS, IDA WENNHOLD, HARRY F. WENNHOLD, ANNE WENNHOLD	3/1/1909	1.3
526	Jarvis No. 1	WENNHOLD RICHARD H. W. HEIRS, IDA WENNHOLD, HARRY F. WENNHOLD, ANNE WENNHOLD	3/1/1910	9.4
527	Jarvis No. 1	WENNHOLD RICHARD H. W. HEIRS, IDA WENNHOLD, HARRY F. WENNHOLD, ANNE WENNHOLD	3/1/1913	2.7
528	Panning-Jarvis or Jarvis No. 2	WENNHOLD RICHARD H. W. HEIRS, IDA WENNHOLD, HARRY F. WENNHOLD, ANNE WENNHOLD	3/1/1894	36.1
529	Panning-Jarvis or Jarvis No. 2	DRESSLER, FRED H., ANNA E.	3/1/1865	10.4
530	Panning-Jarvis or Jarvis No. 2	DRESSLER, FRED H., ANNA E.	3/1/1866	99.1
531	Panning-Jarvis or Jarvis No. 2	DRESSLER, FRED H., ANNA E.	3/1/1892	23.7
532	Panning	DRESSLER, FRED H., ANNA E.	3/1/1865	40.1
533	Panning	DRESSLER, FRED H., ANNA E.	3/1/1870	32.1
534	Jarvis No. 3	WENNHOLD RICHARD H. W. HEIRS, IDA WENNHOLD, HARRY F. WENNHOLD, ANNE WENNHOLD	3/1/1885	19.7
535	Deluchi or Hellwinkel East No. 1	DRESSLER, FRED H., ANNA E.	3/1/1859	99.8
536	Deluchi or Hellwinkel East No. 1	DRESSLER, FRED H., ANNA E.	3/1/1865	71.8
TOTAL				3853.2

**TABLE 3
1941 AGREEMENT**

**SCHEDULE OF ALLOTMENTS AND PRIORITIES OF WATER RIGHTS ON WEST FORK CARSON RIVER, ALPINE COUNTY, CALIFORNIA
(During Each California Week)**

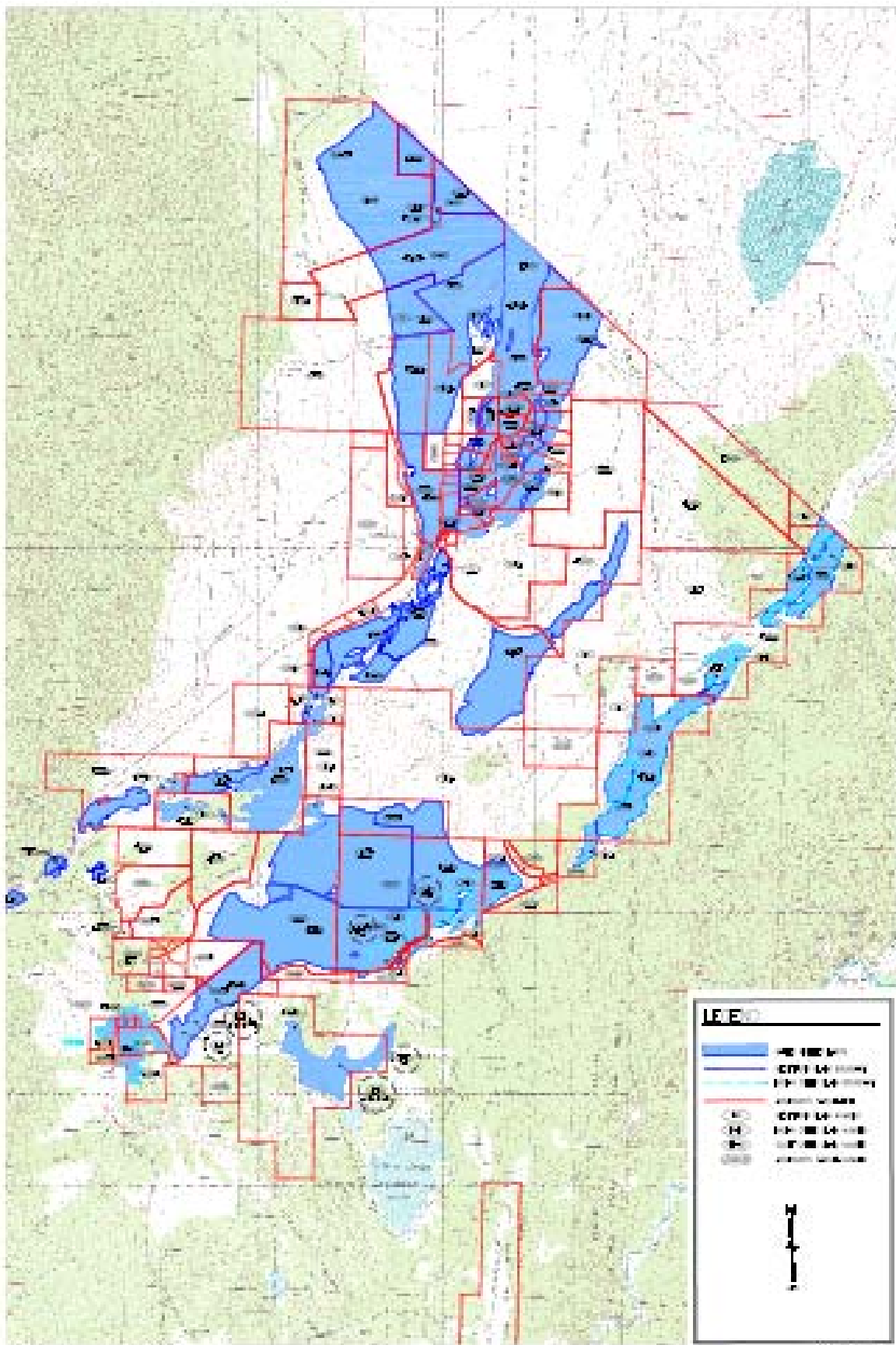
Name of Water User	Name of Ditch	Quantity cfs	Order of Priority	Cumulative Allotments cfs	(This Column added by Stantec) Alpine Claim
Grant P. Merrill & Bernice Dangberg	Wade	1.33	1	1.33	467
W. F. Dressler	Delucci or Falch & Tillman	2.5	2	3.83	535
F. Heise Land & Livestock Company	Snowshoe Thompson No. 1	6.74	3	10.57	451,453,456
F. Heise Land & Livestock Company	Snowshoe Thompson No. 1	2.89	3	13.46	451,453,456
Lloyd Springmeyer and William Hellwinkel	Snowshoe Thompson No. 2	0.69	3	16.74	474,478
Grant P. Merrill & Bernice Dangberg	Woodfords	0.9	4	17.64	459
Wennhold Bros.	Henningsen West	0.8	5	18.44	485
Wennhold Bros.	Jarvis No. 1	0.38	6	18.82	523
R. W. Bassman (1/2) and Earnhart Bassman (1/2)	Fredericksburg	6.76	7	25.58	518
Hubert Bruns	Fredericksburg	1.86	7	27.44	515
Fred Gansberg	Fredericksburg	3.46	7	30.9	516
William F. Neddenriep	Fredericksburg	7.92	7	38.82	513
F. Heise Land & Livestock Company	Snowshoe Thompson No. 2	4.9	7	43.72	470
Lloyd Springmeyer and William Hellwinkel	Snowshoe Thompson No. 2	6.88	7	50.6	465,475,479
Henry Tietge	Heimsoeth East, Upper West or Lower West	1.02	7	51.62	492,493,494,495
Wennhold Bros.	Henningsen East	1	7	52.62	486
Sierra Pacific Power Company	Merk or Martinson	0.25	7	52.87	449,450
Maggie James	Mayo	0.25	7	53.12	469
Hettie Miller	Simpson	0.25	7	53.37	482,483
Mollies Pete	Heimsoeth Upper West Side	0.3	7	53.67	487
Theodore Elges	McCollum West, Upper East or Lower East	0.25	7	53.92	511,512 ?
Fred Bruns	Scossa	0.25	7	54.17	508
Margaret Chambers	Chambers	0.25	7	54.42	520,521,522
W. F. Dressler	Delucci or Falch & Tillman	1.8	8	56.22	536
W. F. Dressler	Panning-Jarvis	0.26	8	56.48	529
W. F. Dressler	Panning	1.75 *	8	58.23	532
W. F. Dressler	Panning-Jarvis	2.48	9	60.71	530
Wennhold Bros.	Henningsen East	1.28	10	61.99	486

Name of Water User	Name of Ditch	Quantity cfs	Order of Priority	Cumulative Allotments cfs	(This Column added by Stantec) Alpine Claim
Sierra Pacific Power Company	Merk	0.45	11	62.44	449,450
W. F. Dressler	Panning	1.4 *	12	63.84	533
Melvin Schwake	Snowshoe Thompson No. 1	0.76	12	64.6	457
Sierra Pacific Power Company	Martinson	0.5	12	65.1	449,450
Fred Gansberg	Fredericksburg	0.98	13	66.08	517
Henry Tietge	Heimsoth East	0.5	13	66.58	502
Henry Tietge	Heimsoth East	0.26	14	66.84	503
F. Heise Land & Livestock Company	Ellis-Dudley	7.74	15	74.58	466
F. Heise Land & Livestock Company	Snowshoe Thompson No. 2	0.6	16	75.18	471
John Uhalde	Millich	0.28	17	75.46	460
Sallie R. Springmeyer	Millich	5.98	17	81.44	Nevada
Lloyd Springmeyer and William Hellwinkel	Snowshoe Thompson No. 2	0.18	18	81.62	476,480
F. Heise Land & Livestock Company	Snowshoe Thompson No. 2	1	19	82.62	472
Henry Tietge	Heimsoth Lower West	0.24	19	82.86	496
Henry Tietge	Heimsoth Lower West	0.12	20	82.98	497
Fred Bruns	Scossa	1.61	21	84.59	509
Wennhold Bros.	Jarvis No. 1	0.72	22	85.31	524
Wennhold Bros.	Jarvis No. 3	0.6	22	85.91	534
Henry Tietge	Heimsoth Lower West	0.04	22	85.95	498
F. Heise Land & Livestock Company	Snowshoe Thompson No. 2	0.3	22	86.25	473
Henry Tietge	Heimsoth Lower West	0.26	23	86.51	499,500
Margaret Chambers	Chambers	0.75	24	87.26	520
R. W. Bassman (1/2) and Earnhart Bassman	Fredericksburg	0.5	25	87.76	519
Henry Tietge	Heimsoth East	0.26	25	88.02	504
Henry Tietge	Heimsoth Lower West	0.34	25	88.36	501
William F. Neddenriep	Fredericksburg	2.2	25	90.56	514
Theodore Elges	McCollum West	0.25	25	90.81	unknown
F. Heise Land & Livestock Company	Snowshoe Thompson No. 1	0.22	26	91.03	452
Henry Tietge	Heimsoth Upper West	0.22	26	91.25	488
W. F. Dressler	Panning-Jarvis	0.6	27	91.85	531
Fred Bruns	Scossa	0.8	27	92.65	510
Margaret Chambers	Chambers	1.76	27	94.41	521
Henry Tietge	Heimsoth Upper West	0.5	28	94.91	power
Theodore Elges	McCollum Upper East	0.5	28	95.41	511

Name of Water User	Name of Ditch	Quantity cfs	Order of Priority	Cumulative Allotments cfs	(This Column added by Stantec) Alpine Claim
Wennhold Bros.	Panning-Jarvis	1.08	29	96.49	528
Theodore Elges	McCollum Lower East	0.78	29	97.27	512
Henry Tietge	Heimsoth East	0.16	30	97.43	505
Henry Tietge	Heimsoth Upper West	0.18	30	97.61	489
Hattie Miller	Simpson	0.25	30	97.86	482,483
Henry Tietge	Heimsoth Upper West	0.18	31	98.04	490
Barne Company	Millich	2.1	32	100.14	461
Henry Tietge	Heimsoth East	0.12	32	100.26	506
Maggie James	Mayo	0.25	33	100.51	469
Grant P. Merril & Bernice Dangberg	Wade	0.17	34	100.68	468
Margaret Chambers	Chambers	1.82	35	102.5	522
Henry Tietge	Heimsoth East	0.06	36	102.56	507
F. Heise Land & Livestock Company	Snowhoe Thompson No. 1	0.48	36	103.04	454
Wennhold Bros.	Jarvis No. 1	0.32	37	103.36	525,526
Melvin Schwake	Snowshoe Thompson No. 1	0.1	38	103.46	458
Wennhold Bros.	Jarvis No. 1	0.08	39	103.54	527
Lloyd Springmeyer and William Hellwinkel	Snowshoe Thompson No. 2	0.27	39	103.81	477,481
F. Heise Land & Livestock Company	Snowshoe Thompson No. 1	0.1	40	103.91	455
Hubert Bruns	Heimsoth Upper West	1.26 **	41	105.17	
Lloyd Springmeyer and William Hellwinkel	Snowshoe Thompson No. 2	8 **	42	113.17	

* Allotment during 2 days of each and every week, only.

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Map prepared by [unreadable]

1/1/2010

1/1/2010



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Snake River Basin
Water Rights
Map
Legend
Scale
North Arrow

