

WATER MARKETS
IN
CALIFORNIA, ARIZONA & COLORADO

**A SUMMARY GUIDE BASED ON
EDITED EXTRACTS**

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C O N T E N T S

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EXECUTIVE SUMMARY

1. This report reviews water transfers in California, Arizona and Colorado. Water transfers may be defined as the voluntary permanent or temporary change in the existing purpose and/or place of use of water under an established legal right or entitlement.
2. Legal entitlements include appropriative surface water rights¹ or shares in such rights, a contract right, riparian right or groundwater right.
3. The key findings of the report are:

California

- 3.1 In California there are almost no transfers of actual water rights or contract rights. The transfers which do occur are normally short term transfers for one year or less with the rights to the water remaining with the transferor.
- 3.2 The Central Valley Project (CVP) and State Water Project (SWP) are major water resource developments comprising reservoirs, canals and pipelines. These developments enable water to be physically transferred throughout much of the State and provide an infra-structure which facilitates the transfer of water between different users.
- 3.3 The Bureau of Reclamation holds the water rights to the CVP and holds contracts for the sale and use of water with a number of contractors who in turn supply sub-contractors and individuals. Contractors have established an on-going system of water transfers, with 100-200 transfers being agreed each year. However the Bureau requires that contractors do not make a profit on the transfers and limit charges to cost-recovery.
- 3.4 CVP transfers are generally for irrigation requirements with transactions ranging in size from a few acre-feet² to over 100,000 acre-feet. Typical prices in a drought year are in the order of \$150 per acre-foot.

¹ See Appendix 1

² 1 Acre-foot = 1.2 MI

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- 3.5 The California Department of Water Resources holds the water rights to the SWP and hold contracts with 30 contractors who supply water to sub-contractors and individuals. Only two transfers of water have been agreed between state contractors, however many routine transfers are made within the area supplied by particular contractors, primarily for the benefit of agricultural users.
- 3.6 Apart from the transfers made between contractors or sub-contractors of the CVP or SWP, there is a low level of transfer activity involving the State Water Resources Control Board which administers the water rights process. Approximately two/three transfers are made each year on average for specific short term purposes including irrigation and contingency supplies during the 1987 - 1989 drought.
- 3.7 The exemption of temporary transfers from the environmental review requirements of the California Environmental Quality Act enables the Board to expedite its review of drought related transfers.
- 3.8 The recent Central Valley Improvement Act 1992 is an important piece of legislation which aims to encourage the transfer of CVP water by individual recipients to agencies other than existing CVP contractors. The Act is seen as a means of meeting increasing urban demands by reducing the supplies for irrigation. Concern exists over the social and local economic implications of land fallowing or land retirement from agricultural use. Local opposition has so far resisted any transfers being made under this Act.
- 3.9 The State Drought Water Bank was introduced during the 1987 - 1992 drought and resulted in transfers of supplies between users who could temporarily reduce their usage to areas with water shortages. Typical prices paid for water bank supplies was around \$150 per acre-foot.

Arizona

- 3.10 Arizona has relatively little surface water transfer activity subject to state review, with only 30 'sever and transfer'³ transactions being made in the period 1975 - 1984 to permanently change the place or purpose of use.
- 3.11 The State has been heavily dependent on groundwater which was not regulated until 1980. A complex system of regulation is now in place for four Active Management Areas (AMAs). Groundwater abstraction outside of AMAs is essentially unregulated.

³ See Page 9, Section 3.2

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- 3.12 Between 1980 and 1990 there have been 50 conversions to authorise a change in use of groundwater rights from agricultural to non-agricultural purposes. However these rights remain attached to the land.
- 3.13 In addition 15 transfers of groundwater rights have been made for non-agricultural purposes which are not attached to land. Typical prices for these rights are \$1000 - \$2000 per acre-foot.
- 3.14 The main area of transfer activity occurs outside of the state review process. A major example is the transfer of surface water from irrigation to non-irrigation uses within the rapidly urbanising area of the federally funded Salt River Project. The prohibition of transferring SRP water outside of the Project's boundary is seen as a limitation on even more extensive transfers of water. In addition, cities and developers have purchased large tracts of rural land ('water farms') to secure rights to pump groundwater from underlying aquifers. A typical water farm has a price of around \$15M and can supply 15,000 acre-feet per year.
- 3.15 A further form of transfer which is outside of state control concerns the shift in use of water from one purpose to another. As long as the use stays within the land no permission is required from the State. As a result land is moving out of irrigation into various forms of urban use and the associated water moves from agricultural use to public water supply.

Colorado

- 3.16 Colorado water rights are administered by a system of water courts. The law is favourable towards transfers, but the process is highly legalistic and complex.
- 3.17 Colorado has the highest level of transfers of water rights of all three States at around 100 applications each year.
- 3.18 Around 67% of applications for transfer involve a shift in use from agriculture to non-agriculture purposes.
- 3.19 The quantities of water involved in each transfer is typically quite small with 50% of transfers being for less than 750 acre-feet per year.
- 3.20 Typical prices for water rights are \$20 per acre-foot for agriculture to agriculture transfers rising to £2000 - \$3000 per acre-foot for senior rights for full transfer of consumptive use.
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4. Conclusions.

4.1 The following conclusions may be made from this brief review of water transfers in three Western States:

- i) The stimulus for transfers is the rapidly increasing population in the States with a corresponding need to shift water from agricultural uses to public water supply.
- ii) The law in each State has developed primarily to protect water rights and not primarily to facilitate trading. Some recent legislative steps have been taken to actively encourage transfers eg, Central Valley Improvement Act 1992.
- iii) Transfers are an integral part of the strategies to meet future demands.
- iv) The role of government is not to prohibit transfers or to make the reallocation decision, but to set the terms and conditions under which transfers may occur.
- v) The infra-structure of the CVP, SWP and SRP projects have been essential components of the transfer process. These developments enable users to physically transfer water following a transfer of their supply allocations.
- vi) Most transfers in California and Arizona are outside of the state review process.
- vii) Water banks can be a useful tool to reallocate resources on a temporary basis during droughts. The role of the State is to act as a broker between agencies requiring additional supplies and those with a surplus or alternative means of supply. The water bank is therefore an effective means of making use of surplus supplies on a 'water leasing' basis during periods of drought.
- viii) Agencies needing additional supplies during droughts have to pay for rights from other abstractors instead of applying for 'Drought Orders'.
- ix) All States have powers to revoke licences or permits for non-use. These powers are however rarely used and almost never used if the revocation is opposed.

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- x) All States are aware of the potential social issues of retiring land from agriculture to meet increasing urban demands.
 - xi) It seems that a significant proportion of transfers result from the large number of relatively small water supply agencies needing to transfer supplies to meet increasing demand. It is possible that in future there will be a smaller number of large agencies with a corresponding access to increased water rights.

WATER MARKETS IN
CALIFORNIA, ARIZONA & COLORADO
A SUMMARY GUIDE BASED ON EDITED EXTRACTS

1. INTRODUCTION

- 1.1 This report is an introduction to water transfers in California, Arizona and Colorado. The report is based on edited extracts from various reports which are cited in the list of references and on personal communication with representatives of various government agencies. Further information can be obtained from these references which also give details in other Western States.
- 1.2 Water transfers may be defined as the voluntary permanent or temporary change in the existing purpose and/or place of use of water under an established legal right or entitlement. The principles of water law in the study States is given in Appendix 1.
- 1.3 Legal entitlements encompass appropriative water rights or shares in such rights, a contract right, riparian right, or a groundwater right. The change in place or purpose of use may be short term or long term. The change may occur informally or it may be subject to some kind of governmental review, but it is not mandated by government action.
- 1.4 Where information is available, the report describes the level and type of transfer activity within each State, the financial arrangements, typical costs involved and the administrative process needed to make the transfer.
- 1.5 Reference is also made in the report to the importance of water transfers to water resources strategies in the Western States including the use of water banks during periods of drought. Supplementary information is given where it is thought to be of general interest.
- 1.6 Key population statistics which show the significant increase in population for each of the States are shown in Appendix 2.

2. WATER TRANSFERS IN CALIFORNIA

2.1 With only minor exceptions, all of the transfers of water that have occurred within the last decade have involved two types of water rights:

- (i) appropriative rights to surface water established by permit or licence issued by the State Water Resources Control Board, and
- (ii) contract rights to supplies developed by the United States Bureau of Reclamation, the California Department of Water Resources, (DWR) or a local water agency.

There were however no transfers of actual water rights in California during the 1980s. Each of the transfers which were made was simply a transfer of water; the water right or contract right remained with the transferor throughout the term of the transfer agreement.

Transfers Subject to the Jurisdiction of the State Water Resources Control Board

2.2 The Board has jurisdiction over all transfers of water that involve a change in the point of diversion, place of use, or purpose of use set out in the appropriator's permit or licence. An example permit is shown in Appendix 2. Between 1981 and 1989, the Board received twenty-four petitions to transfer water. All but one of these applications were for short term transfers of water.

2.3 The Board approved nineteen of the petitions and denied two; two petitions were withdrawn. The long term transfer petition is still under consideration by the Board.

The transfers authorised by the Board were of the following types:

Municipal & Industrial (M&I) to M & I	6
Surplus Supply to Irrigation	5
Consumptive to Environmental	3
Surplus Supply to M & I	2
Hydroelectric to M & I	1
Irrigation to Hydroelectric	1
Recreation to Irrigation	1

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- 2.4 Although there was a large range in the quantity of water transferred (from 18 acre-feet to 125,000 acre-feet)⁴, virtually all of the approved transfers were limited to a few months. For the most part, the transfers approved by the Board were for specific and very short term purposes such as augmenting supply during one irrigation season, maintaining instream flows during times of low natural flow, and providing contingency supplies during the 1987-1989 drought. It is noted that all of the largest authorised transfers ie; those exceeding 5,000 acre-feet - were for emergency drought supply, or for environmental protection.
- 2.5 It is also interesting to note that over half of the nineteen transfers approved by the Board involved the same transferor; the Yuba County Water Agency (YCWA). In the period 1981 - 1989, YCWA entered into contracts to sell 561,516 acre-feet of water. Indeed, during the 1987-1989 drought, the Agency was the principle source of temporary supply for water agencies in the Bay Area, which either experienced actual shortfalls in their regular sources of supply or anticipated shortages if the drought had continued into 1990. YCWA became the largest transferor of water during the 1980s because the capacity of its storage facilities on the Yuba River, New Bullards Bar Reservoir substantially exceeded the demands for water within the Agency's service area.
- 2.6 The transfers approved by the Board during the 1980s demonstrated that California's water transfer legislation works well in time of drought when it is necessary to reallocate water on a short term basis to ensure that no region or the state suffers inordinate hardship. The categorical exemption of Temporary Changes from the environmental review requirements of the California Environmental Quality Act enables the Board to expedite its review of drought-related transfer petitions.

Transfers Within the Central Valley Project System

- 2.7 In contrast to the small number of transfers approved by the State Water Resources Control Board, recipients of water supplied by the Central Valley Project (CVP)⁵ engaged in over 1,200 transfers during the period 1981 - 1988. In this period CVP contractors transferred over 3 million acre-feet. These transactions ranged in size from a few acre-feet to over 100,000 acre-feet. The primary purpose of the transfers was to accommodate fluctuations in water needs during the year due to changes in cropping patterns and weather.

⁴ Acre-foot = 1.2 MI

⁵ CVP = Central Valley Project - California's federally owned and operated water project, consisting of 20 dams and reservoirs and 500 miles of canals which deliver 8 million acre-feet of water each year, primarily to Central Valley Farmers.

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- 2.8 The most common method of reallocating CVP water was by *ad hoc* agreement between individual contractors. In addition, two associations of CVP contractors formed water pools, which provide a more regular and formal means of transferring water among contractors along the Sacramento River and the adjacent Tehama-Colusa Canal. As with the transfers subject to the jurisdiction of the State Water Resources Control Board, none of the transfers of federal project water involved a transfer of a water right or a contract right. Rather, all of the transfers within the CVP system were of water only and lasted for no more than a few months.
- 2.9 The transfers between CVP contractors are routine and occur on an informal basis. Because they do not require a change in the Bureau of Reclamation's water rights permits for the CVP, the transfers are neither not subject to the Board's jurisdiction nor reported to the Board. Although the parties submit their transfer proposals to the Bureau and request its approval, the Bureau generally does not evaluate the proposals. Rather the Bureau routinely approves *ad hoc* transfers between its contractors as a means of reallocating CVP water to remedy short term disparities between supply and demand.
- 2.10 Bureau policy is that a transferor may not make a profit on the transfer of water; however, it may charge a reasonable service fee to recoup all costs associated with the transaction. The service fee is negotiated by the parties and is not subject to close scrutiny by the Bureau.

Transfers Within the State Water Project System

- 2.11 Unlike users within the CVP system, the contractors of the State Water Project⁶ have not established an on-going system of water marketing. Apart from the exchange agreements involving the Coachella Valley Water District, the Desert Water Agency, and the Metropolitan Water District, there were no transfers of SWP water between state contractors.

⁶ SWP - State Water Project - California's state-owned and operated water project consisting of 22 dams and reservoirs which delivers water 600 miles from the Sacramento valley to Los Angeles.

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- 2.12 Two SWP contractors have however filed an Environmental Impact Report on a proposed transfer of project water. The Castaic Lake Water Agency has purchased 8,500 acres of land within the Devil's Den Water District, which is located within Kings and Kern Counties. Castaic proposes to retire this land and transfer the conserved water through the California Aqueduct to its service area. Devil's Den has a contract entitlement to 12,700 acre-feet per year of SWP water. The parties do not expect to begin the transfer until 1997. In addition, the Kern County Water Agency recently transferred 50,000 acre-feet to the Westlands Water District, a CVP contractor, in exchange for future deliveries of CVP water from Westlands' federal entitlement. This was the first transfer of SWP water to a non-state contractor.
- 2.13 Within the thirty state contracting agencies there are few examples of formal or informal water transfer arrangements. Two contractors in the southern portion of the San Joaquin Valley - the Kern County Water Agency and the Kings County Water Agency - have long standing water marketing programmes for their member agencies. It appears that these transfers have been exclusively between agricultural users or from municipal and industrial entitlement to agricultural users. These two agencies were the only state contractors that reported water transfers among their sub-contractors.

Water Transfer Criteria

- 2.14 Water transfers and marketing are integral components of California's water policy and strategy. With appropriate safeguards against adverse environmental and third party effects, water transfers are an important tool for solving some of California's supply and allocation problems. There are generally fewer environmental impacts associated with transfers than with the construction of conventional projects, and although often difficult to implement, transfers can be carried out more quickly and usually at less cost than the construction of additional facilities. The criteria for transferring water have been set out by the State Governor as follows:

Water Transfer Criteria

In his water policy statement of April 6, 1992, the Governor stated that the following five criteria must be met in developing a fair and effective water transfer policy.

- Water transfers must be voluntary, and they must result in transfers that are real, not paper water. Above all, water rights of sellers must not be impaired.
- Water transfers must not harm fish and wildlife resources or their habitats.
- There needs to be assurances that transfers will not cause overdraft or degradation of ground water basins.
- Entities receiving transferred water should be required to show that they are making efficient use of existing water supplies, including carrying out urban Best Management Practices or agricultural Efficient Water Management Practices.
- Water districts and agencies that hold water rights or contracts to transferred water should have a strong role in deciding how transfers are carried out. Impacts on the fiscal integrity of the districts and on the economies of small agricultural communities must be considered.

Water Transfer Costs

- 2.15 Water transfer costs include more than the amount that prospective sellers would be willing to accept for their water. Other associated costs can be a substantial or even the major part of the cost of a water transfer. Mitigation for adverse third-party economic impacts in the area of origin may require payments to local agencies; as a consequence, freeing up water for transfer has at least two cost components.
- 2.16 Purchase prices can be set by a drought water bank-type operation or directly negotiated between prospective buyers and sellers. Negotiated prices will fall between the cost to the sellers of foregoing the use of that water and the willingness of the buyers to pay.

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- 2.17 The cost to the sellers is affected by the magnitude of the transfer. If available, initial quantities probably involve in-lieu groundwater pumping or releases of uncommitted stored water. These sources are likely to be least costly to the sellers in terms of pumping energy or foregone income. Further increments of water likely will involve crop fallowing or switching to lower-water using crops. These actions result in substantial income losses to sellers and, as a consequence, are likely to require higher water prices to make them palatable.
- 2.18 Higher prices are more likely in a spot market than under a long-term agreement. Spot markets favour the seller; there is little doubt about the buyer's immediate need for the water. Buyers have a certain advantage under long-term agreements. Under long-term agreements the seller is trying to reduce or eliminate the uncertainty of income from water sales and the buyer is not necessarily facing an immediate crisis, but is planning to augment supply reliability. Prices paid by the buyers of transferred water reflect the cost of conveyance, which depends upon the facilities used.
- 2.19 The conveyance losses reduce the water delivered compared to the amount purchases. Alternatively, these losses may be thought of as increasing the unit cost of the remaining water to the buyer, that is, as water surcharges. If the transferred water has to be moved across the Delta under controlled flow conditions, a portion of the water must be dedicated to Delta outflow as a means of meeting Delta salinity standards. This is an example of a conveyance loss. Other conveyance losses include evaporation from reservoirs and canals as well as canal seepage.
- 2.20 Water surcharges for environmental mitigation needs, such as increasing stream flows for anadromous fish spawning, can also be a requirements for permitting transfers.
- 2.21 Short-term emergencies generally are characterised by the prospect of large economic losses from unmet demands and the high cost or limited nature of the options to meet those demands or to mitigate the losses. Under these conditions even a relatively small quantity of transferred water can eliminate the most serious impacts of shortage. The willingness of buyers to pay is correspondingly high.
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State Drought Water Bank

- 2.22 As a result of conditions in California during the 1987 - 1992 drought, transfers of water between suppliers or users who could temporarily reduce their usage to areas with water shortages have become more prevalent. Some of these transfers have been within the context of a State Drought Water Bank first created by Governor Wilson in 1991 and administered by DWR. The water bank was designed to move water from areas of greatest availability to areas of greatest need. There were three sources of water for the 1991 State Drought Water Bank: temporary surplus in reservoirs, surface supplies freed up by the use of groundwater, and surface supplies freed up by fallowing agricultural lands. The 1992 State Drought Water Bank did not purchase surface supplies freed up fallowing of agricultural lands. Transfers of water outside the State-sponsored Water Bank have also become more prevalent, and many of these transfers involve DWR because they require conveyance of the transferred water through SWP facilities.

Price for Water

- 2.23 The price paid for water depends on a number of factors as explained in Sections 2.15 - 2.21. The Department of Water Resources (DWR) has however indicated that it purchased water for the State Water Bank for around \$75 - 125 per acre-foot and sold it for \$150 per acre-foot. The difference in purchase and sale price is due to less water being sold than bought, with the difference being allocated to the environment.
- 2.18 Further figures mentioned by DWR include around \$50 per acre-foot for stored supplies not otherwise required by the permit holder for reservoir water. Generally, it seems that water could command a price of around \$25 per acre-foot in a fairly dry year and up to \$150 per acre-foot in a drought.

3. WATER TRANSFERS IN ARIZONA

Surface Water Transfers

- 3.1 Surface water in Arizona belongs to the public and is subject to private appropriation. Current surface water law was enacted in 1962. Under Arizona's prior appropriation system, a permanent water right is granted to those who first appropriate surface waters. A surface water right is established and maintained by the diversion and application of water to a specific beneficial use. If appropriated surface water goes unused for five consecutive years the right may be forfeited and become available to new appropriators.
- 3.2 In Arizona, as in most Western states, the point of diversion of a water right may be changed provided the source of water does not change and other users' rights are not adversely affected. Surface water rights may be transferred to a new place of use only with state approval. Prior to approval, an application for severance and transfer is made, followed by a hearing at which any interested person may contest the application.
- 3.3 Transfers of water rights within water service organisations such as irrigation districts, agricultural improvement districts or water users associations, are permitted only with the prior written consent of the organisation. In the case of a transfer involving irrigation water from a watershed or drainage area which supplies water to lands within a water service organisation, the transfer must be consented to by each organisation within the drainage basin. Such consent can be arbitrarily withheld, and the state is prohibited from even accepting an application for severance and transfer of a water right unless the consent of downstream water service organisations is first obtained. In addition, Arizona has no provision for authorising temporary transfers of water.
- 3.4 Changes in type of use also require state approval if water is moved from the land. Although the statutes are silent regarding criteria for deciding on applications for change of use, the case law clearly establishes that a lawful change of use may not have any adverse effect on other vested water rights.
- 3.5 Between 1975 and 1984, 30 sever and transfer requests involving a change in the place of use were filed. Most of these applications involved changes of use within the agricultural sector.

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- 3.6 Further reasons for the lack of traditional water transfers applications include the prohibition against transferring water outside the boundaries of the Salt River Project (SRP), the state's largest water provider. In addition, the more densely populated basin and range provinces of central and southern Arizona are characterised by extensive groundwater aquifers. The absence of legal recognition of the hydrologic connection between surface and groundwater and the ability to overdraft these immense, high-quality aquifers postponed the need to reallocate the state's limited renewable supplies.

Other Transfer Types

- 3.7 The small number of sever and transfer applications is seriously misleading as to the amount of water that is being shifted from one use to another in Arizona, particularly over the last decade. Only those surface appropriative water rights that are being severed from the original place of use undergo state review. As long as the use stays with the land, no permission or notification is required. As land uses in irrigation districts and water user associations change, so too do the water uses. The best example of this is the SRP, a rapidly urbanising area in the Phoenix metropolitan area. As SRP land moves out of irrigation agriculture into various urban uses, the associated water rights revert back to the same parcels but in the form of domestic water delivered to the municipal providers. In 1950, less than 14 percent of the Project's 240,000 acres were urbanised. By 1980, 57 percent was urbanised and by 1900 nearly 75 percent of the land and 60 percent of the water were devoted to urban uses.
- 3.8 In addition, changes in Arizona's groundwater code made in 1980 triggered a new type of water transfer activity. Water farming, or the acquisition of large tracts of remote rural land solely for access to groundwater, has resulted in the change in control of vast amounts of water and land.

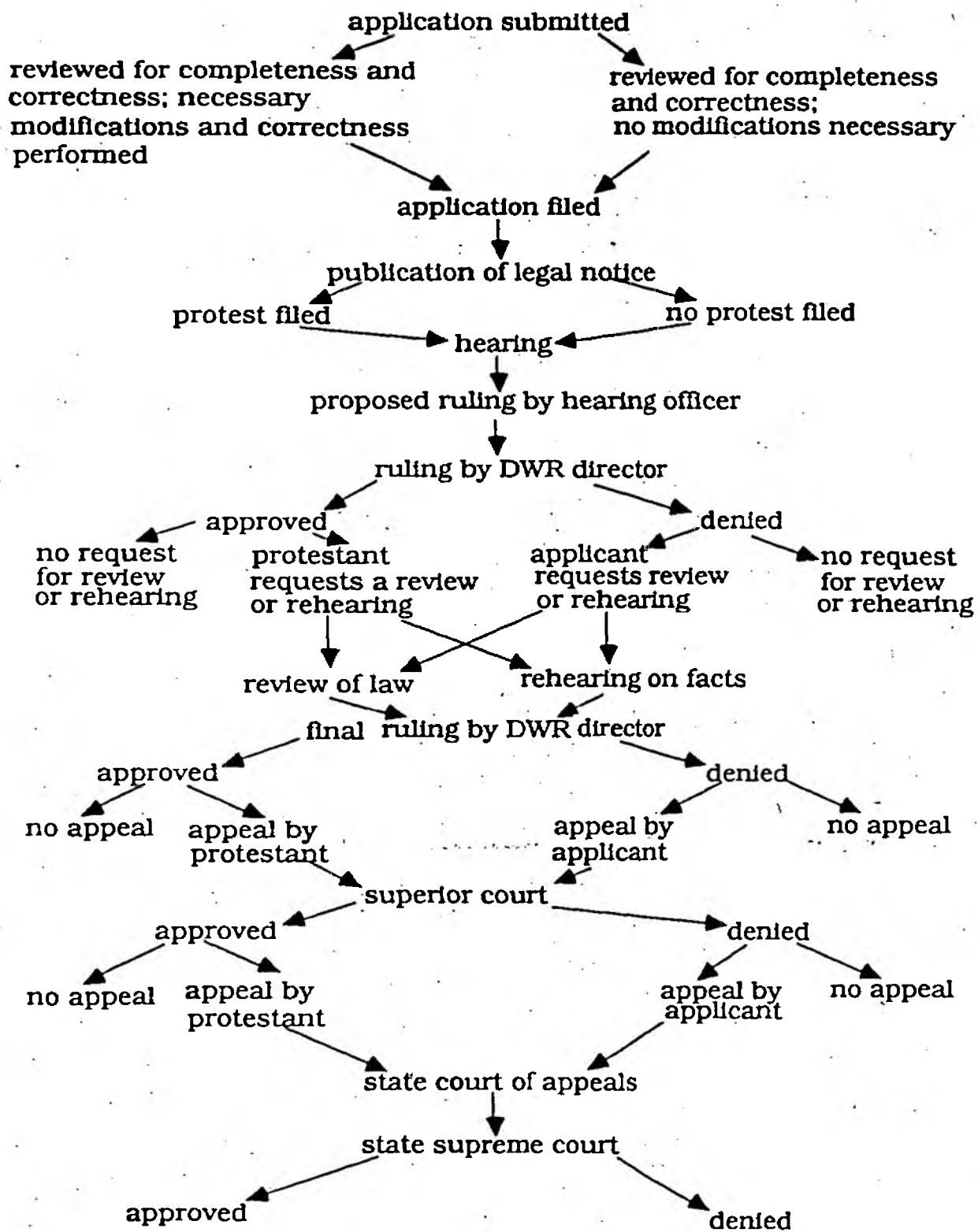
Groundwater Transfers

- 3.9 Much of the water supply in Arizona is groundwater. Prior to 1980, groundwater pumping in Arizona was essentially unregulated. Transfers of pumped groundwater were governed by court-made rules which gave injunctive relief to neighbouring pumpers who could prove they were harmed. Subsequent decisions allowed purchasers of irrigated agricultural land to retire the land and transfer the historic consumptive use.

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- 3.10 In 1980, the Arizona Legislature enacted a groundwater code that replaced the patchwork of common law and legal decisions that regulated groundwater use. Passage of the 1980 Groundwater Management Act (GWMA) was motivated by the need for Arizona to deal with some serious long standing water resource problems. Several parts of the state, including the two major urban areas, were experiencing long term groundwater level declines. More immediate motivation came in the forms of a threatened cut-off of federal funding of the Central Arizona Project (CAP) and the out-of-state perceptions of Arizona as a state running out of water eventually would dry up sources of investment capital.
- 3.11 The Groundwater Code established four Active Management Areas (AMAs) in the state, focusing water management efforts in those areas with severe overdraft conditions. The goal of the management efforts in the Phoenix, Prescott and Tucson AMAs is to achieve safe yield, defined as a balance between average demand for groundwater and the average rate of replenishment. The goal in the Pinal AMA is to preserve the agricultural economy for as long as possible while reserving some groundwater supplies for non-irrigation uses.
- 3.12 A landowner within an AMA is not automatically granted the right to withdraw groundwater. In most instances, groundwater users within AMAs must have one of the following rights or permits to withdraw groundwater: grandfathered rights, withdrawal permits or service area rights. The transferability of groundwater within an AMA depends on the type of right to which the groundwater is associated.
- 3.13 There are three types of grandfathered rights. Irrigation grandfathered rights (IGFR) are quantified based on historic patterns of use and may not be sold apart from the associated land; in other words, the right is appurtenant to the land. The groundwater withdrawn under this right may be used only to irrigate the land to which the right pertains. In order to apply an irrigation grandfathered right to a non-irrigated use it first must be converted to a Type 1 right.
- 3.14 Type 1 non-irrigation grandfathered rights allow the owner of the land which was retired from agriculture in anticipation of a non-irrigation purpose to retain entitlement to use water. With few exceptions, the irrigated land being retired must be located outside the service area of a city, town or private water company. The quantity of groundwater that can be pumped annually pursuant to a Type 1 right is fixed at the time of conversion from an irrigation grandfathered right and is equal to the lesser of estimated historic consumptive use or three acre-feet per acre.
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- 3.15 Type 2 non-irrigation grandfathered rights are based on historical pumping of groundwater for uses other than crop irrigation such as for livestock, golf course, or industrial purposes. Unlike an irrigation or Type 1 right, a Type 2 right is not appurtenant to any land and may be sold or leased for some non-irrigation purpose within the same AMA. Typical prices for Type 2 rights are \$1000 - 2000 per acre-foot.
- 3.16 Service area rights permit cities, towns, private water companies and irrigation districts to withdraw groundwater to serve their customers. Service area rights are transferable when, for example, a city purchases a private water company and pumps pursuant to the former water company's service area right.
- 3.17 There are no quantified groundwater rights outside of an AMA. Instead, a landowner simply has the right to pump water underlying the land. The groundwater must be withdrawn for "reasonable and beneficial" use - a fairly loose standard - but aside from this standard there are no limitations on the amount withdrawn or on the place of use. Transportation of this water outside the area of origin may require payment of damages to other groundwater users in the areas.
- 3.18 A schematic showing the Sever and Transfer Process for surface water is shown in Figure 1.
- 3.19 Market transfers of groundwater rights within AMAs have increased over the past few years. The primary market activity involves:
- (i) sales and leases of Type 2 rights, and
 - (ii) purchases of irrigated farmland within an AMA with the intent of retiring the farmland and converting the appurtenant IGFRs to Type 1 rights for non-irrigation use, and
 - (iii) purchases of desert land outside of an AMA.
- 3.20 In Arizona, the sever and transfer procedure was used 30 times between 1975 and 1984 to permanently change the place and/or purpose of use of a surface water right, with changes in place of use being the norm. In addition, since 1980 there have been 50 conversions of Irrigation Grandfathered groundwater rights to Type 1 Non-irrigation Grandfathered rights. These transfers involve a change in use from agricultural to non-agricultural purposes. However, the right remains appurtenant to the land and in fact, most of these converted rights are not being exercised. In addition, 15 transfers of non-appurtenant Type 2 rights, all involving changes in the purpose of use within the non-agricultural sector, have occurred.
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**Figure 1 Arizona Sever and Transfer Process
for Surface Water**



Water Farms

- 3.21 There are around 20 actual and pending water farm transactions. The transactions, while few in number, typically involve considerable amounts of land, water and money. If the quantity of water secured or being negotiated were all used for Municipal and Industrial uses at the rate of 140 gallons per person per day (the per capita consumption rate target set by the Department of Water Resources), then enough water for 3.2 million persons is being marketed in Arizona. Current state population is 3.7 million.
- 3.22 A typical water farm has a price of \$15 million and can supply 15,000 acre-feet per year, based on a 100 year pumping regime for groundwater. Approximately 75 percent of the water acquired is groundwater. Water farms by water source break down roughly as $\frac{1}{2}$ groundwater only, $\frac{1}{4}$ surface water only and $\frac{1}{4}$ mixed. In most cases, methods and costs of physically transporting the water and treating it remain to be worked out.
- 3.23 The source of water does not seem to affect price. The median price paid for water farms with groundwater only is \$988/per acre-feet; those with surface water sold for a median price of \$859. Instead, individual features of water farms seem to be setting the price. Transportability of the water, usually measured in terms of access to the Central Arizona Project Canal, is particularly important. Also important are water quality and the value of the land acquired for other purposes.

4. TRANSFERS OF WATER USE IN COLORADO

4.1 Colorado water policy traditionally has emphasised flexibility in the use of the State's water resources. It promotes this objective in several ways:

- (i) Colorado law regards water rights as vested property rights which may be transferred and conveyed in the same manner as other property rights.
- (ii) The law limits the basis for legal review of water rights transfers.
- (iii) The law treats water resources as largely interchangeable and promotes their maximum utilisation.

Correspondingly, there is a high level of transfer of water rights within the State.

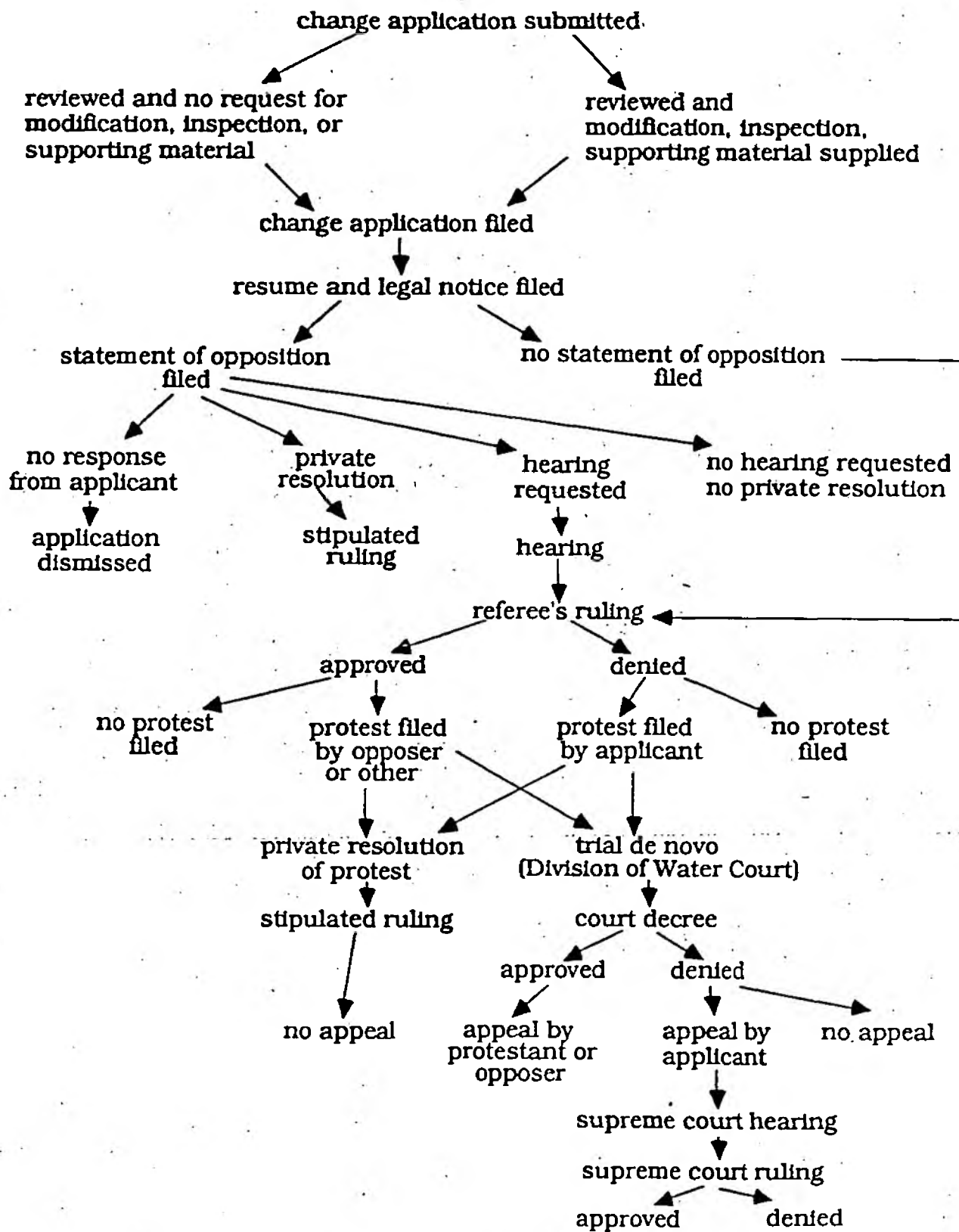
4.2 The Colorado system is administered by a system of water courts and is highly legalistic and complex, the review process is adversarily orientated, slower than in either of the other states, and more costly to go through. The process for changing Colorado water rights is shown in Figure 2.

Water Transfer Law

4.3 Water rights in Colorado are of two basic types; those based on the appropriation of water and those based on land ownership. Simple changes in ownership of water rights may occur without restriction. Transfers involving changes in other attributes of a water right such as the purpose or place of use, however, are subject to legal review.

4.4 Appropriative water rights, may be changed with respect to the point of diversion, the type, place, or time of use, or between direct flow and storage rights. The water court must approve a change request if the applicant demonstrates that there will be no injury to other water rights or if terms and conditions can be imposed that will eliminate injury. Water rights may be voluntarily exchanged in Colorado. Involuntary exchanges also may be effected through the provision of substituted supplies. Imported water and non-tributary groundwater are common sources of water for this kind of involuntary exchange. Out-of-priority development of tributary groundwater is permitted under a plan for augmentation so long as depletions of the stream are fully replaced. Commonly, consumptive uses under existing rights are retired to offset the depletions from the new use.

Figure 2 Colorado Change of Water Right Process



Water Transfer Activity

- 4.5 Changes in water rights involving a change in the purpose or place of use of water are common in Colorado. An examination of water rights applications filed between 1975 and 1984 indicated that 858 involved a change of water use. As of July 1988, 689 of these applications had been approved, 84 had been withdrawn or dismissed, 74 were still pending and 11 had been denied.
- 4.6 About 67 percent of the applications filed during this period involved a proposed shift in use of water from agricultural to non-agricultural purposes. About ten percent of the proposed new uses were within the agricultural sector. About half of the approved changes involved plans for augmentation. Statements of opposition were made in about 60 percent of all change of use cases filed between 1975 and 1984.
- 4.7 The quantities of water involved in the approved transfers typically were quite small. For changes involving direct flow rights, 50 percent of the cases involved 750 acre-feet per annum or less. For changes involving storage rights, 50 percent were for ten acre-feet per annum or less.
- 4.8 The average time for a decision in these cases was about 21 months. On average, applications were approved in about 19½ months. The few denials averaged 27 months. There is a very strong correlation between length of time to decision and whether a statement of opposition was filed.
- 4.9 Historically, most changes in the use of water have occurred through urban encroachment into previously agricultural areas and there has been little change in the general location of use. It is usual to advertise the sale of water rights in newspapers as Water Rights Tabulation.
- 4.10 All water rights in Colorado are 'tabulated' every four years by the division engineers. The tabulations are lists of water rights which take water from the same source and may affect each other, according to their priority and the decreed amount of their water right. In addition, every ten years the division engineers are charged with preparing an abandonment list showing all absolute rights determined to have been abandoned in whole or in part. By statute there is a rebuttable presumption of abandonment if water rights have not been used for ten or more years. An example tabulation is shown in Appendix 5.

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- 4.11 Typical prices for water are \$20 per acre-foot for agriculture to agriculture transfers rising to \$2 - 3000 per acre-foot for senior rights for full transfer of consumptive use. Water brokers may be involved in the process and are generally consulting engineers, attorneys or real estate agents for whom water broking is a part of their overall business.

5. CONCLUSIONS

5.1 The following conclusions may be made from this brief review of water transfers in three Western States:

- i) The stimulus for transfers is the rapidly increasing population in the States with a corresponding need to shift water from agricultural uses to public water supply.
- ii) The law in each State has developed primarily to protect water rights and not primarily to facilitate trading. Some recent legislative steps have been taken to actively encourage transfers eg, Central Valley Improvement Act 1992.
- iii) Transfers are an integral part of the strategies to meet future demands.
- iv) The role of government is not to prohibit transfers or to make the reallocation decision, but to set the terms and conditions under which transfers may occur.
- v) The infra-structure of the CVP, SWP and SRP projects have been essential components of the transfer process. These developments enable users to physically transfer water following a transfer of their supply allocations.
- vi) Most transfers in California and Arizona are outside of the state review process.
- vii) Water banks can be a useful tool to reallocate resources on a temporary basis during droughts. The role of the State is to act as a broker between agencies requiring additional supplies and those with a surplus or alternative means of supply. The water bank is therefore an effective means of making use of surplus supplies on a 'water leasing' basis during periods of drought.
- viii) Agencies needing additional supplies during droughts have to pay for rights from other abstractors instead of applying for 'Drought Orders'.
- ix) All States have powers to revoke licences or permits for non-use. These powers are however rarely used and almost never used if the revocation is opposed.
- x) All States are aware of the potential social issues of retiring land from agriculture to meet increasing urban demands.

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- xi) It seems that a significant proportion of transfers result from the large number of relatively small water supply agencies needing to transfer supplies to meet increasing demand. It is possible that in future there will be a smaller number of large agencies with a corresponding access to increased water rights.

REFERENCES

1. Colby, B, McGinnis, M, Rait, K, Wahl, R (1989) Transferring Water Rights in the Western States - A Comparison of Policies and Procedures (Department of Agricultural Economics, University of Arizona).
2. MacDonnell, L, J, (1990) The Water Transfer Process as a Management Option for Meeting Changing Water Demands (US Geological Survey).
3. Johnson, N, K (1992) Western State Water Right Permitting Procedures (Western States Water Council).
4. Department of Water Resources - State of California (1994) California Water Plan Update (Department of Water Resources - State of California).

APPENDIX 1

PRINCIPLES OF WATER LAW

ARIZONA

Under Arizona law, water is administered pursuant to a bifurcated system with a Surface Water Code distinct from the Groundwater Code. Both codes are found in Title 45 of the Arizona Revised Statutes, and both codes are administered by the Department of Water Resources (DWR).

The Arizona Surface Water Code, A.R.S. §§ 45-151 et seq., is based on the doctrine of prior appropriation. A person who desires to appropriate surface water must file an application with DWR describing the source of the water to be appropriated, the location of the proposed diversion, if any, the proposed place of use of the water, the proposed beneficial use, the proposed quantity and periods of use, and any other information required by DWR. After the application and appropriate filing fee is submitted to DWR, the application is reviewed for correctness and completeness. If the application is determined to be incomplete or incorrect, it is returned to the applicant for additional information. The applicant does not lose the priority date of the application, which is the date of the original filing, if the application is corrected and completed within sixty days.

After a finding of completeness and correctness, DWR provides a public notice and protest period. Generally, a protest must allege that the proposed appropriation will impair a prior vested right, will be contrary to the public interest, or will pose a threat to public safety. If the application is protested, DWR may hold a public hearing on the application. After the protest period and the hearing, if one is held, DWR may either grant or reject the application. The permit will be granted if it does not conflict with vested rights, is not a menace to public safety, or is not against the interests and welfare of the public.

When the applicant pays a permitting fee, DWR issues the permit which generally allows the permittee five years to construct the works necessary to put the water to beneficial use. When the water right has been perfected, the permittee may obtain a Certificate of Water Right.

Because surface water rights are appurtenant to the land, they may not be transferred at will. The owner of the right must apply to DWR to sever and transfer the use of the water right to a new location. If the appropriated water was for domestic, municipal or irrigation use, the right holder must also seek approval from DWR before changing the use of the water. In addition, the owner or holder of a surface water right, permit or application must notify DWR of any assignment of that right, permit or application.

The owner of a water right may voluntarily abandon the right, or the right may be found to have been forfeited if no use was made of it for a period of five consecutive years. Water that was used pursuant to an abandoned or forfeited right reverts to the public and becomes available for new appropriation.

General stream adjudications are conducted by the state court system with DWR serving as technical advisor to the court. There are currently two adjudications pending in Arizona -- the Gila River and Little Colorado River adjudications -- that will quantify and prioritize surface water rights within watersheds that comprise approximately two-thirds of the state.

The Groundwater Code, A.R.S. §§ 45-401 et seq., heavily regulates certain areas with significant groundwater overdrafts which are called active management areas (AMAs.) Outside of the four designated AMAs, groundwater may usually be withdrawn and used for reasonable and beneficial use. No use permit is required. A person who plans to drill a new well, however, must file a notice of intent to drill with DWR before beginning to drill.

Within the AMAs, which include the areas surrounding Phoenix, Tucson, Casa Grande and Prescott, a person may not withdraw groundwater without having a permit or a right to do so. Groundwater withdrawal permits which allow for new uses of water within the AMAs are limited to dewatering, mineral extraction and metallurgical processing, general industrial use, poor quality, temporary, drainage, hydrologic testing and replenishment district permits. The Groundwater Code delineates specific criteria for each type of withdrawal permit which must be met before the permit may be issued.

A prospective applicant for a groundwater withdrawal permit must file an application and filing fee with DWR. Once the application is determined to be complete and correct, DWR publishes notice of the application. The application may be protested, but the grounds are limited to why the application does not meet the specific criteria for issuance of the permit. If appropriate, DWR may hold a public hearing on whether the permit should be granted.

An issued permit authorizes groundwater withdrawals by the applicant for a specific amount of water, withdrawn in a specific location, and used for a specific purpose. The permit is also of limited duration, but the applicant may apply to renew the permit.

In addition to groundwater withdrawal permits, the Groundwater Code recognizes three other types of withdrawal "rights" within AMAs. First, grandfathered groundwater rights are based on historic use of groundwater during the five year history preceding the designation of the AMA. Most grandfathered rights are appurtenant to the land, but some are not appurtenant and may be purchased or leased from the rightholder. Second, the Groundwater Code grants service area withdrawal rights to municipal water providers, private water companies, and irrigation districts, enabling these entities to provide service to their customers. Finally, small domestic wells are exempt from the regulation of the Groundwater Code, enabling their owners to withdraw groundwater for non-irrigation purposes.

The above-described permits and programs are administered by:

Arizona Department of Water Resources
15 South 15th Avenue
Phoenix, AZ 85007
(602) 542-1581

CALIFORNIA

California's system of water rights is often referred to as a "dual system" because there are two doctrinal bases of rights to the use of surface waters: riparian water rights and appropriative water rights. In reality, a number of other doctrinal bases support rights to water use, including use of groundwater. Thus, a more accurate descriptive term for California's system of water rights is a "plural system." The State Water Resources Control Board (State Water Board) has jurisdiction to issue permits and licenses for appropriation from surface and underground streams. Use of percolating groundwater, riparian use of surface waters, and appropriative use of surface waters initiated prior to December 19, 1914 are subject to the jurisdiction of the California courts. In 1928, the California Constitution was amended to require reasonable diversion and use in the exercise of all water rights, whatever the legal basis. The State Water Board and the courts have concurrent jurisdiction to apply and enforce this requirement. Thus, the prevention of waste and unreasonable use is an important element of California water law.

GROUNDWATER RIGHTS: Case law and the California Water Code recognize three legal classifications of groundwater: subterranean streams, underflow of surface streams, and percolating groundwater. Subterranean streams and underflow are subject to the laws of surface waters and a permit from the State Water Board is required to appropriate them. Percolating groundwater may be used in two manners: (a) overlying land owners use it on an equal and correlative basis; and (b) surplus groundwater may be appropriated for use on nonoverlying lands if such use will not result in an overdraft condition. Groundwater appropriation is subordinate to the correlative rights of overlying users. A permit is not required to use percolating groundwater.

RIPARIAN RIGHTS: Riparian rights are usually incidents of ownership of land bordering a stream, lake or pond. As a class, these rights are senior to most appropriative rights. Riparian owners may use natural flows directly for beneficial purposes on riparian land without applying for a permit. Some of the attributes of a riparian right are: (a) riparian rights are of equal priority; (b) unless adjudicated, the right is not quantified - it extends to the amount of water which can be reasonably and beneficially used on the riparian parcel; (c) riparian rights are correlative - during times of water shortage, the riparian proprietors share the shortage; (d) water may be used only upon that portion of the riparian parcel which is within the watershed of the source stream; (e) the right does not extend to seasonal storage of water; (f) the right is part and parcel of riparian land and generally cannot be transferred for use on other lands; (g) the right remains with the land when riparian lands are sold; (h) when riparian lands are subdivided, parcels which are severed from the adjacent water source lose their riparian rights, unless the rights are reserved; and (i) the right is not lost by nonuse of water.

APPROPRIATIVE RIGHTS: Prior to 1872, appropriative water rights could be acquired by simply diverting and beneficially using water. The priority of the right related to the date of the first substantial act leading toward putting the water to beneficial use, provided the appropriation was completed with reasonable diligence. In 1872, the Legislature established an alternative procedure for perfecting an appropriation of water. Provisions were enacted for initiating an appropriative right by posting a notice of appropriation at the proposed point of diversion and recording a copy of the notice with the respective County Recorder. Both procedures remained in effect until December 19, 1914. Since then, appropriative rights have been initiated exclusively by application to the State Water Board pursuant to the Water Code. Once acquired, an appropriative right can be maintained only by continuous beneficial use of water. Regardless of the amount originally claimed, the amount which can be rightfully claimed under an appropriative right initiated prior to December 19, 1914 has, in general, become fixed by actual beneficial use as to both amount and season of diversion. Both the "pre-1914" and modern (post-1914) appropriative rights may be lost through five or more continuous years of non-use, or through abandonment.

Any person or agency intending to appropriate water must file an application for a water right permit, or in the case of small domestic use, must file a registration with the State Water Board. Once the application or registration has been accepted, a priority is established in relation to other appropriators (i.e., first in time, first in right). For a small domestic registration, the State Water Board will provide a certificate of registration which establishes general conditions under which the diversion may be made.

In the case of an application for a water right permit, public notice of the application is given to interested parties. If protests are filed against the proposed project and cannot be resolved, either a field investigation is conducted (for minor applications requesting less than 3 cubic feet per second or 200 acre-feet per annum) or a State Water Board hearing is conducted (for major applications). The proposed project is also reviewed to determine any potential impacts on the environment. If the State Water Board determines that unappropriated water is available and that the use of water is in the public interest, a permit is issued. Decisions and orders of the State Water Board on applications may be reviewed by the Superior Court.

The permit authorizes diversion and use of water and imposes terms and conditions. After the project has been constructed and full beneficial use has occurred, the project is inspected to determine whether all permit conditions have been met. If this is the case, a license is issued. The license is the final confirmation of an appropriative right and remains in effect as long as license conditions are met and beneficial water use continues.

PUBLIC TRUST: The doctrine of public trust holds that certain resources are the property of all and that the State has a duty to exercise continued supervision over the trust for the benefit of the people. This means that the State continues to supervise water use both prior to and after issuance of permits and licenses to ensure an adequate level of protection for public trust resources, including fish, wildlife and recreation in or on the water. The State Water Board and the courts have concurrent jurisdiction to apply and enforce public trust requirements.

CHANGES AND TRANSFERS: Holders of appropriative rights may change the point of diversion, place of use, or purpose of use, so long as others are not injured by the change. Several procedures also exist to transfer rights, both temporarily and permanently. Short-term and long-term transfers may be approved, after public notice, where the change would not result in substantial injury to any legal user of water and would not unreasonably affect fish, wildlife, or other instream beneficial uses. Any water right determined under a court decree issued after January 1, 1981 pursuant to a statutory adjudication (see below) is transferrable upon approval of the court.

ADJUDICATION: When a water right-related suit is filed with the court, the court may refer the case to the State Water Board for investigation and report, as referee. All surface and groundwater rights may be included under this procedure. In addition to the court reference procedure, the Water Code provides for the initiation of proceedings for the determination of all rights (statutory adjudication) to the waters of any stream, lake, or other body of water except percolating groundwater. A petition signed by one or more claimants of a right to the use of water from the source involved can be filed with the State Water Board to initiate the statutory procedure. The State Water Board must find that the public interest and necessity require that the adjudication proceed. If the adjudication proceeds, it culminates in a decree which integrates all rights, regardless of their basis in legal doctrine, in terms of priority.

If a determination is undertaken under either the court reference or statutory adjudication procedure, the State Water Board investigates the stream system and water rights involved. After due notice to all parties, the State Water Board prepares a detailed report of findings which makes recommendations as to the quantity, season, priority, etc., of all uses of water. The findings are submitted to the court. The court hears any disagreements with the findings and enters a decree establishing the various rights involved. A watermaster may be appointed by the court to oversee the diversion and use of water.

The state agency responsible is:

State Water Resources Control Board
The Paul R. Bonderson Building
901 P Street
Sacramento, CA 95814
(916) 657-1359

Mailing Address:
Division of Water Rights
P. O. Box 2000
Sacramento, CA 95812-2000

COLORADO

Colorado water law is based upon the prior appropriation doctrine. The law is set forth in the State Constitution, §§ 5 and 6 of Article XVI and §§ 37-80 through 92 of the Colorado Revised Statutes. Numerous court decisions further define Colorado Water Law. The seven District water courts adjudicate water rights within the state, while the State Engineer administers and distributes the waters. The State Engineer also issues and denies permits to construct wells, however those permits confer no right to ground water. The State Engineer has very broad discretionary powers to carry out these duties.

Water rights are currently established through a water court system. To obtain a water right in Colorado, either surface or ground water, an applicant must file an application with one of the seven water courts in the state that are geographically located within major river basins. The application is filed in the division in which the diversion is located. Each water court has an appointed water judge and water referee who hear all water-related matters within their respective division. The water right application describes the type of water right being sought.

After the application is filed with the court, the application, or a summary, is published in what is known as "the resume." The resume contains all applications filed with the court in the particular division for each month. Publication in the resume is considered proper notice to all vested water owners that a water right is being applied for and that it may affect other water rights. After the resume is published, any person, including the State Engineer, has until the end of the month following the month in which publication takes place to oppose an application listed therein. A statement of opposition may be filed with the water court outlining the reasons why an application should not be granted, or why it should only be granted upon certain conditions.

Before a ruling is entered regarding an application, the water referee becomes fully advised of the subject matter and validity of the application and statements of opposition. The referee consults with the appropriate division engineer and, within thirty days, the engineer files a written report summarizing the consultation. This report is sent to the applicant, who is then required to mail copies of the recommendation to all parties in the case. If such application is rereferred by the referee to the water judge prior to a consultation, the division engineer files a written recommendation to the water judge within thirty days of the rereferral. The same mailing/notice procedures as outlined above would then apply.

The referee's ruling may approve or disapprove an application in whole or in part, even if no statements of opposition have been filed. A protest to the referee's ruling can be filed with the court outlining reasons why a party disagrees with a ruling entered by the referee. Should a protest be timely filed, the matter is then rereferred to the water judge for a hearing. Protests must be filed with the court no later than the twentieth day following the mailing of the referee's ruling by the water court clerk. If no protest is filed, the referee's ruling then is signed by the judge and entered as a decree of the court.

Applications can also be referred to the water judge for hearing, which effectively eliminates the need for a ruling by the referee. This often occurs when an applicant or opposer feels that the referee will issue an unfavorable ruling or the referee simply decides that the judge should hear the matter. When this occurs a trial is set and the case proceeds to final disposition before the water judge, who either grants or denies the water right based upon statutory and case law criteria.

Appropriations of water are made when an individual physically takes the water from a stream and transports it to another locale for beneficial use. The first person to appropriate water and apply it to beneficial use has the first right to use that water within a particular stream system. The senior, or first, appropriation must then be satisfied before any junior rights are fulfilled. Only by diversion and beneficial use can a priority of right be acquired, and in the absence of such, only the first appropriator for a beneficial purpose has a prior right to such diversion.

A priority date is established by the time (date) the water was first put to a beneficial use. However, in order to encourage adjudication of water rights, the postponement doctrine was established. Under the

postponement doctrine the date of appropriation controls the relative priority among water right applications filed in the same year. A right filed in any year is junior to all rights filed in the previous year.

Beneficial use is statutorily defined in C.R.S. § 37-92-103(4) (1990). It is described as "...the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made...." The uses are not specifically described therein. However, it does include the impoundment of water for recreational purposes including fishery and wildlife. Minimum stream flow purposes are also considered to be beneficial as obtained by the Colorado Water Conservation Board.

Water rights in the state (both surface and ground water) can either be absolute or conditional. An absolute right is water that has been diverted and put to a beneficial use. A conditional right is a means of obtaining a right that will be developed in the future while maintaining its priority until the project is complete. Upon diligent completion of the project, the owner of a conditional right can go to court and make a filing for an absolute water right, obtaining the appropriation date for which the conditional right was awarded by "relation back." To maintain a conditional water right, the owner must file, during the same month every six years, an application for a finding of reasonable diligence in the Water Court of the Division in which the water right exists, proving that he or she has been diligently pursuing completion of the project necessary to apply the water to a beneficial use. Should a person fail to show diligence, the right may be deemed abandoned. Water rights can also be abandoned by non-use for a period of ten years or more, coupled with a finding of intent to abandon.

Decreed water rights in the state are considered real property rights and can be bought, sold and leased to other entities by deed conveyance. Location and type of use can also be changed through the water courts. To change a water right, the applicant must provide evidence that the change will not injure the vested water rights of others, and subsequent terms and conditions may be imposed before allowing such a change.

Tributary ground water is any underground water that is hydraulically connected to a stream system that influences its rate and/or direction of flow. See C.R.S. § 37-92-103(11) (1990). Permits for such diversions are issued under C.R.S. § 37-90-137(2) (1990) by the State Engineer and any structures that divert ground water must have a permit. Any new ground water diversions tributary to an over-appropriated stream system require a court approved plan for augmentation to off-set out-of-priority depletions. See Bohn v. Kuiper, 195 Colo. 17, 575 P.2d 402 (1978). While the State Engineer issues permits for construction of wells and subsequent diversion of ground water, a ground water right can only be obtained through formal application to a water court. The water court cannot grant a ground water right until the State Engineer has issued a well permit or denied the application for the well permit.

Administration of both surface and ground water for the State of Colorado is the responsibility of the State Engineer who, with the assistance of the seven division engineers, administers and distributes the state's waters, and promulgates rules and regulations to assist in such administration. The collection and study of data on water supplies (both surface and ground water), the compliance with compact commitments and administration between states, and the enforcement of laws imposed by statute and the courts are also the State Engineer's responsibility. The officials mentioned above are required to assure that the waters of the state are available for the use and benefit of the people of the state to further growth, enjoyment, prosperity and welfare. To carry out their statutory duties, enforcement powers have been instituted to assist in the control of the waters of the state. These authorities are found in C.R.S. §§ 37-81-102, 37-92-502, 37-92-503, and 37-92-504(1990).

There are no state agencies responsible for issuing water rights. However, to obtain further information contact:

Division of Water Resources
1313 Sherman St., Rm. 818
Denver, CO 80203
(303) 866-3581

APPENDIX 2

POPULATION STATISTICS

POPULATION STATISTICS
(IN THOUSANDS)

STATE	1970	1980	1988 (Est.)	% Change (80 -88)
California	19971	23668	28314	19.6
Arizona	1775	2718	3489	28.4
Colorado	2210	2890	3301	14.2

APPENDIX 3

**CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
WATER PERMIT**

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

PERMIT FOR DIVERSION AND USE OF WATER

PERMIT 20784

Application 29977 of G. Scott Fahey

2418 Pleasanton Avenue, Boise, ID 83702

Filed on July 12, 1991, has been approved by the State Water Resources Control Board
SUBJECT TO PRIOR RIGHTS and to the limitations and conditions of this permit.

Permittee is hereby authorized to divert and use water as follows:

1. Source:

Tributary to:

1) Unnamed Spring (AKA Cottonwood Spring)

Cottonwood Creek thence

Clavey River thence

Tuolumne River

2) Deadwood Spring

Unnamed Stream thence

Basin Creek thence

North Fork Tuolumne River thence

Tuolumne River

2. Location of point of diversion:	40-acre subdivision of public land survey or projection thereof	Section	Township	Range	Base and Meridian
1) North 5 feet and West 5 feet from SE corner of Section 16	SE $\frac{1}{4}$ of SE $\frac{1}{4}$	16	2N	17E	MD
2) North 1,390 feet and West 2,190 feet from SE corner of Section 16	NW $\frac{1}{4}$ of SE $\frac{1}{4}$	16	2N	17E	MD

County of Tuolumne

3. Purpose of use:	4. Place of use:	Section	Township	Range	Base and Meridian	Acres
Industrial	Bottled water plant(s) off premises					

5. The water appropriated shall be limited to the quantity which can be beneficially used and shall not exceed 0.062 cubic foot per second to be diverted from January 1 to December 31 of each year as follows: 0.031 cubic foot per second from Cottonwood Spring and 0.031 cubic foot per second from Deadwood Spring. The maximum amount diverted under this permit shall not exceed 44.82 acre-feet per year. (0000005)
6. The amount authorized for appropriation may be reduced in the license if investigation warrants. (0000006)
7. Construction work shall begin within two years of the date of this permit and shall thereafter be prosecuted with reasonable diligence, and if not so commenced and prosecuted, this permit may be revoked. (0000007)
8. Construction work shall be completed by December 31, 1998. (0000008)
9. Complete application of the water to the authorized use shall be made by December 31, 1999. (0000009)
10. Progress reports shall be submitted promptly by permittee when requested by the State Water Resources Control Board until a license is issued. (0000010)
11. Permittee shall allow representatives of the State Water Resources Control Board and other parties, as may be authorized from time to time by said Board, reasonable access to project works to determine compliance with the terms of this permit. (0000011)

12. Pursuant to California Water Code Sections 100 and 275, and the common law public trust doctrine, all rights and privileges under this permit and under any license issued pursuant thereto, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Resources Control Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use or unreasonable method of diversion of said water.

The continuing authority of the Board may be exercised by imposing specific requirements over and above those contained in this permit with a view to eliminating waste of water and to meeting the reasonable water requirements of permittee without unreasonable draft on the source. Permittee may be required to implement a water conservation plan, features of which may include but not necessarily be limited to: (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this permit and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the Board also may be exercised by imposing further limitations on the diversion and use of water by the permittee in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution Article X, Section 2; is consistent with the public interest and is necessary to preserve or restore the uses protected by the public trust. (0000012)

13. The quantity of water diverted under this permit and under any license issued pursuant thereto is subject to modification by the State Water Resources Control Board if, after notice to the permittee and an opportunity for hearing, the Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the Board finds that (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges. (0000013)

14. This permit shall not be construed as conferring upon permittee right of access to the point of diversion. (0000022)

15. The equivalent of the authorized continuous flow allowance for any 30-day period may be diverted in a shorter time, provided there is no interference with other rights and instream beneficial uses, and provided further that all terms and conditions protecting instream beneficial uses are observed. (0000027)

16. In accordance with Section 1601, 1603, and/or Section 6100 of the Fish and Game Code, no work shall be started on the diversion works and no water shall be diverted under this permit until permittee has entered into a stream or lake alteration agreement with the California Department of Fish and Game and/or the Department has determined that measures to protect fishlife have been incorporated into the plans for construction of such diversion works. Construction, operation, and maintenance costs of any required facility are the responsibility of the permittee. (0000063)

17. This permit is subject to prior rights. Permittee is put on notice that, during some years, water will not be available for diversion during portions or all of the season authorized herein. The annual variations in demands and hydrologic conditions in the San Joaquin River Basin are such that, in any year of water scarcity, the season of diversion authorized herein may be reduced or completely eliminated on order of this Board made after notice to interested parties and opportunity for hearing. (0000090)

18. Prior to diverting water under this permit, permittee shall notify the State Water Resources Control Board of the name(s) and location(s) of the company(s) that will be bottling the diverted water. (0280999)

19. Diversion of water under this permit during the period from June 16 through October 31 of each year is subject to maintenance of the Water Exchange Agreement executed on December 12, 1992 between the permittee and the Modesto and Turlock Irrigation Districts. Pursuant to the Agreement, permittee shall provide replacement water to New Don Pedro Reservoir for all water diverted under this permit during the period from June 16 to October 31 of each year. The source, amount and location at New Don Pedro Reservoir of replacement water discharged to the reservoir shall be reported to the State Water Resources Control Board with the annual Progress Report by Permittee. (0250300)

20. Permittee shall comply with the following provisions which are derived from the City and County of San Francisco (San Francisco) letter dated December 19, 1994 filed with the State Water Resources Control Board:

- 1) Permittee shall not interfere with San Francisco's obligations to the Modesto and Turlock Irrigation Districts (Districts) pursuant to the Raker Act and/or any implementing Agreement between the Districts and San Francisco. (000T001)
- 2) Permittee shall provide replacement water to New Don Pedro Reservoir for water diverted under this permit which is adverse to the prior rights of San Francisco and the Districts. A determination of whether permittee's diversion has potentially or actually reduced the water supplies of San Francisco and the Districts will be made annually by the latter parties in accordance with water accounting procedures being used by said parties.

Permittee shall provide replacement water within one year of the annual notification by San Francisco or the Districts of potential or actual water supply reduction caused by permittee's diversions. Permittee shall provide replacement water in a manner that will offset the separate reductions in water supplies of San Francisco and the Districts. Replacement water may be provided in advance and credited to future replacement water requirements. Permittee shall not be obligated to provide replacement water for diversions that occur

during periods when the Districts' and San Francisco's reservoirs are spilling or are being operated in anticipation of spill except that all water diverted during the period June 16 through October 31 shall be replaced pursuant to the Water Exchange Agreement executed on December 12, 1992 between permittee and the Districts. Permittee's obligations to provide replacement water under this agreement shall take into consideration permittee's obligations to provide replacement water under the Water Exchange Agreement. The source, amount and location at New Don Pedro Reservoir of replacement water discharged to the reservoir shall be reported to the State Water Resources Control Board with the annual Progress Report by Permittee.

(0250700)

(0280700)

- 3) Permittee shall not provide replacement water, under this letter agreement or permittee's aforementioned Water Exchange Agreement, from a source that is hydraulically connected to surface water tributary to the Tuolumne River. If permittee replaces water diverted pursuant to this permit with groundwater which it extracts, permittee shall demonstrate that any extracted groundwater which replaces diverted surface water is water which would not otherwise reach New Don Pedro Reservoir (NDP). Permittee shall demonstrate that there is hydraulic separation between the groundwater extracted and groundwater flow from the east into NDP; or, alternatively, permittee shall demonstrate that aquifer characteristics are such that subsurface flow to NDP is not substantial and that any extraction of groundwater by permittee would have essentially no impact on groundwater recharge via subsurface inflow from the east to NDP.

(0280800)

This permit is issued and permittee takes it subject to the following provisions of the Water Code:

Section 1390. A permit shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code), but no longer.

Section 1391. Every permit shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriator of water to whom a permit is issued takes it subject to the conditions therein expressed.

Section 1392. Every permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

Dated: MARCH 23 1995

STATE WATER RESOURCES CONTROL BOARD

Roger Shuman
for Chief, Division of Water Rights

APPENDIX 4

WATER RIGHTS ADVERTISEMENT

Houses & Condos 5150

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1 1/2 BA, oak floors, 2
att., gar., \$159,500
Realty: 938-8338
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RUN 2 BR'S 2 Lucky
available, 945 sq.ft., 2
baths, both on second
eat chapel \$137,900 &
XO: Tom Fowler,
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EAST. Nicest 1 BR,
like courtyard, top floor
one common wall, ex-
cond. 878 sq.ft. \$58,
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9332, FOWLER BH&G

R CONSTRUCTION!!
wood Park's Beautiful
active 3 BR townhomes
Full unfin. bsmt, vault-
ings, att. 2-car garage.
filled open floor plans
400 sq.ft. Gas frpl, win-
ets, & more! Only 15
ices in this communi-
ty! Reserve your new
one today!

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POWDERHORN
bright 2-Bedroom,
th. Extra storage lot.
105,000. (112873)
in Weeks, 443-3377
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Needs, We Will
Make It Happen!
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pl, apple, carport, hot-
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le-sac, att garage, exc
Only \$104,900. Gary
mpson 442-3458 or
LE, RE/MAX Con-
a 499-8880 (112044)

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2-3BR, 2 BA, 1175sf,
garage & great patio
urry, won't last! Dav-
tein & Co., 440-6484

VEE MEADOWS
ry: multi-level custom
ne. Great views & loc
1 suites, vaulted cell-
inglight, frpl, deck,
79,500. 112895, Dick
Broker: 449-0880

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Bath 1300sf con-
frpl, W/D hk-up,
deck. \$97.3k new
being installed
31. Dick Mueser,
r. 449-8880

LOCATION for out-

Townhouses & Condos 5150

NEW ON MARKET!!
Gorgeous 3BR/3.5 bath in
Gunbarrel. Bright & open
w/over 2100 sq.ft. Shows
beautifully—hardwood floors,
new carpet in lower level, vlt
bellings, skylight frpl, private
patio, carport. \$157,500.
JENNIFER RANEY
Premiere Property Brokers
449-7720

MAJESTIC FLATIRONS
Fill the windows of this beau-
tiful split level 2 BR condo.
Skylight, extra storage, dra-
matic vaulted ceilings, Assoc
pool, spa & exercise room.
Carport. Special financing
available. **JUST REDUCED**
\$154,900! Tom Fowler's Ofc
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VIEWS! This 2 BR, 1 bath
has beautiful vistas of the mae-
stic Flatirons. Pool, spa and
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449-0332 FOWLER BH&G

MIRACLE ON 34TH ST.
Sunny, huge master 2 BR,
gar, W/D, amazing storage,
yard, quiet neighborhood at
34th & Irs. Exo condition.
\$92,500. Susan, 426-7693.

WEST PEARL CONDO
\$204K newly remodeled, 3
decks, 2 BR, 1 BA, 2 Ms, frpl
great residence/rental. Cur-
rent rent \$1500/mo. BY OWN-
ER. No brokers. Finance avail
thru mortgage co @ 3% down
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CENTRALLY LOCATED
Condo 1BR, 1BA, frpl, patio,
prking, new carpet, great loc
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BEAR CREEK TOWNHOMB
3 BR, 2 BA, 3 levels. Spac,
light, bright & contemp. Cust-
om tile work thru-out. Exo.
Devil's Thumb S. Bldr. loca.
All appli, frpl, gar, gorgeous
kit. These units are rarely
available! \$184,900. Boulder
Properties. Date 530-2067.

JUST LISTED! 2-BR condo
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views of mtns from liv rm &
deck. Near busline & shops.
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494-7700 Prudential R.E.

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ker, Nancy, 444-5067.

NR DOWNTOWN BOULDER
Nice top floor, updated 1 BR,
700 sqft condo w/ deck, frpl,
all appli, and cverd parking.
\$85,000 #113207
Call Mike Sager, Moore &
Co. 441-2443 443-6416

LOCATION for out-

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GOOSE HOLLOW ESTATES
2.5 to 3.5 acre lots (7), \$65,
000 ea. Utilities, paved road
(in progress), great views!
By owner. 2 mi W of
Berthoud. 970-532-2198,
please leave a message.

SEDONA HILLS 35 acre
home: sites w/unspoiled
beauty. Underground utils,
paved roads, protective
covenants. Just minutes
from Longmont or Boulder.
Eaton & Co., (303) 667-8200

GREAT ERIE LOC: Snow cap
views! \$28,500. 838-3222
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Views! Lots for sale. Out-
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Morningside Estates in the
country. 1/2 mile. West of
I-25 on Weld City Rd. 18.
\$44-48K. All utils in, black-
top streets, protective cove-
nants, no horses. Your
builder or ours. Call Leroy
481-5153, RE/MAX Northwest.

★5Lots-N. Bldr★
Approved 5 lot subdivision
on private St., w/Juniper
Ave., access, ready to
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ST. ANTON, 2.5 acres mtn
land. 20 mins to Bldr. Solar
south facing; views, pri-
vate, easy access; utilities,
borders nat'l forest, \$50K
Boulder Properties. 530-2067

2 ACS @ ONLY \$45,900
Unobstructed mtn views!
City water. Perfect site!
1.38 ACS @ HORSE PROP.
Adjacent to conservation
land. Mtn views. Near Bldr.
Call JOE MARNICH now!
RE/MAX Advantage
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2.2 to 4.01 acre lots for sale
starting at \$169,500. Build to
suit. Triple V Enterprises.
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to the property. 1/2, and al-
most 2 acres. Call 823-9439

SEVERAL GRT MTN LOTS.
\$16K-\$40,000. 1-3 acs.
RE/MAX MTN 447-8423

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w/trees in Erie. \$39,500.
Scott Lang, Lang Realty &
Investments, 628-3222.

OUTRAGEOUS VIEW LOTS
In Pine Brook Hills. Several
ridge lots to choose from
w/water taps paid & ready to
build. Jim Bodin 447-2000,
Coldwell Banker Van
Scheack & Co.

★ BUILDERS ★
Ground Floor Opportunity for

Water Rights 5510

AVAIL 2/3 SHARE
Anderson Ditch
839-0776

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FOR RENT

Apts. furnished 6250

HAKUNA MATATA

It means no worries! Short Term
Housing. Largest selection in
Boulder from \$1300/mo.

**Call Cassie at
Housing Helpers
499-4499**

LUXURY 1 BR CONDO
Clean, indoor pool, cable,
phone & more. Flex. lease.
\$950/month. Available
6/15. Call Payton 447-1502
POINT WEST PROP. INC.

★ ★ ★ ★ ★

SUMMER RENTALS

EFFICIENCIES \$400
623 19th St. 2 bedrooms
2 BEDROOMS \$400
955 17th St. \$695
705 Marine St. \$695

HOUSE
2315 Walnut \$1200
w/ hot tub & Washer/Dryer

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APARTMENTS
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TEMP HOUSING
While you look, 442-0522

30 DAY LEASE AVAIL
CORPORATE SUITES
from \$1000 to a luxuri-
ous \$1300 with a pvt
pkng. Comfortable fur-
nished to meet all of
your needs, brot on-site
mgmt. Call 442-0522

Apts. Unfurnished 6280

BIG! BRIGHT! QUIET!
Renovated 1 & 2 BR
townhouse-style 2-4 unit
Decks, yard. No smok. no
pets. 1111 30th. 541-8694



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FOR SUMMER**

- New models to view
- Convenient South Boulder setting
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- Bus line to CU/downtown
- Close to schools, shopping & post office
- Fitness center, volleyball, heated pool, sauna & tennis courts
- Newly renovated apartments & townhomes
- 1, 2 & 3 bedrooms
- Cats accepted

1000 W. MOORHEAD CIR.
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Professionally managed by
Sares-Regis Group

2 BR AVAILABLE

• JUNE & JULY
• Community For
Individuals Desiring A
• Quiet & Professional
Atmosphere!
ONE BEDROOMS \$570-\$640
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(A few sublets Available)
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quiet, clean, laundry. No
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- Large 2 Bedroom Units
- Lots of Closets
- Recently Renovated!
- Near CU & Malls
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- Sorry, No Pets
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utils incl. No pets. \$625/mo.
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W/D, frpl, pool. Cat nego.
\$678/mo
Call PMP 778-RENT.

NEAR CHAUTAUQUA 2 BR
ant, garden level front yard

Apts. Unfurnished 6280**Preleasing For Fall**

3 blocks from CU. Lrg 1BR
apts near downtown.

- 600sf
- Swimming pool
- On-site laundry
- Nice, updated units
- \$370 - 1155 Marina Street
No pets please. 444-0930

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1 BRs \$500-\$630; 2 BRs
\$616-\$665. 9-12 mo lse. No
pets. HUDSON APTS 442-6380

LOUISVILLE 2 BR, 2 bath
townhouse-style apt. Gas
kitchen, fireplace, laundry,
storage, off-st parking, big
yard. Close to school &
downtown. \$675. No pets.
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\$415-\$475. 20 mins to Bldg.
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BROOKSIDE APARTMENTS
Luxury apartments waiting
for you. 2BR & 3BR apts
avail now. 1BR waiting list.
All amenities, must see!
\$555-\$1300. Call 499-0205

Lg 1BR, big enough for 2.
Pkg, pool, Indry. \$525/mo.
\$18-772-6968.

WIMBLEDON 1 BR/A/C,
D/W, pool. \$625/mo.
Avail 6/20. 443-6836

NICE 2BR 1 BATH, 748
20th St. No pets. 6/1.
\$700. 443-8342

2 BR near foothills
Surrounded by trees. Town-
house style w/ incd patio
/deck No pets \$759 summer
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2 BR in 8m Contemp Complex
Flex lease. Storage, laundry,
pkgng. No pets \$750-\$850
Central RE Serv. Inc. 447-1505

1 BEDROOM in Classic
Victorian House on the Hill.
No pets. \$500 short term.
Central RE Serv. Inc. 447-1505

NEAR BIKE PATH 2BR 1 1/2
Bath, 2 level, frpl, patio
Avail 7/1. \$750. 440-4977

1 BR & 3 BR UNITS
close to CU & downtown. No
dogs. Avail Immed. 444-4562

LARGEST 2 BRs & BLDR.
Great views, new carpet,
\$100 off 1st mo. Near CU.
N/S, No Pets \$725 499-7920

SPANISH TOWERS 1BR
pool. Close to CU. Avail
6/15. \$625. 441-7867

2BR APT, 1000sf, frpl,
patio. Avail Fall. \$825.
Close to CU. 443-6742

Large 1 & 2 BRs

Apts. Unfurnished 6280

LARGE 2BR, 1 bath, gas &
water, pd. \$675/mo. Folsom &
Valmont Avail 7/1 449-5381

LARGE 1BR with frpl, pool,
hot tub, wheel chair access.
\$450 thru summer w/ail opt.
7/1. 2121 Canyon. 442-8553

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**HAS THE APARTMENT
YOU ARE LOOKING FOR!**

- Unfurnished 1 and 2 BR
apts., located in North,
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- Professional management
team - On-call 24 hrs/day, 7
days/week.
- We care about our residents.
Price of ownership is
evident, we own & manage
our properties.

Call us today for pricing
information and availability

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Lg. BR Skylights, cath. ceiling,

deck, stor. rm, on green-
belt, \$650+. N/S, no pets.
680-5473

You'll feel at home at High-

lander Apts. Spacious 2 BR
apts in country setting from
\$575. 1049 E. 9th Ave,
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Equal Housing Opportunity.

CLEAN-QUIET-CAT OK
2 BR, 2955 E. College. \$720.
Yr lse. Avail 7/5. 449-4576.

★★★★**PARK PLACE APTS.**

1-2 BR's, N Bldg. Frpl, deck,
laundry. \$550-700 No pets.

FOUR STAR REALTY
444-5572 OR 615-6923

Spacious 1BR at \$550 - 2BR at
\$660. Heat & water incl.
Laundry, outdoor pool. No
pets. 5 Bldg. Tyrol 494-3004

CU'S OFF-CAMPUS
Student Services Office
has computerized listing
of rentals. UMC. #336
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\$100 Special!

BEST DEAL WE CARE
1 BR's avail Peace &
quiet, Clubhouse, saun-
a, pool \$510 & up.

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4920 Thunderbolt Cir
494-4362

BOULDER PROPERTY
MGMT • Jared 473-9559
• Colorado Pl. SE corner
28th & Colo. Studios &
1 BRs starting at \$445.

• 1105 11th, 3-4 BRs. start

Apts. Unfurnished 6280

Lg 3 BLDR 1 & 2 BR
Quiet, bus line, A/C, &
shopping. Cats ok.
499-6417

CLOSE TO CAMPUS. Cozy
4 BR, 2 bath in garden-level
of huge house. Extra storage
& off-street parking. \$1260.
Avail now. Sorry, no pets.
THE OMNIBUS GROUP
444-2612

LARGE, BRIGHT 2 Bed-
room garden-level apartment
in duplex near Chautauqua.
Newly painted & carpeted.
Dishw & shared W/D. Extra
storage. Fenced yard.
Off-street parking. \$810. Avail
7/1. Sorry, no pets.
THE OMNIBUS GROUP
444-2612

Now or Fall, 3 BR.

\$1000/mo. 2225 Canyon. 1 1/2
BA, dishw, Indry. 446-2649.

SE BLDR 1 & 2 BR APTS
Beautiful yard. Extra storage.
\$555 & up incl heat & hot
water. Cats ok. 499-4228

REMINGTON POST

Large 1BR, air, dishw, heat
incl, covered pkgng, no pets.
Security dep. \$625 499-2689

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925sf, a/c, pool, storage.
Cats ok. \$710. 499-7716

We've Got 'Em!

1-2-3 BR apts \$465-\$795 Gun-
nabell Meadow Ck 630-1200

SUBLET 1BR on quiet
street July/Aug. Cat OK.
\$620. 938-9916.

FALL RENTALS

• 3 BR Close to CU \$1200
• 4 BR Townhouse Design
Pine St. 1000sf Skylights, frpl,
wood railings \$1695
• Lg Library 4 BR 4 BATH
Underground parking, full appls,
Balcony, Walking distance to
CU \$1650-12075

CURRENT**RENTALS**

• Lg 2 BR Townhouse Design,
Quiet, N Bldg, 1000sf, Carpet
throughout, full appls, Indry
Avail Immed. Call Concord
494-3665
• 1 Q 11 Bedrooms on quiet
St. NE 1000sf Close to park
Avail July 1 Sept \$895 499-
Affordable dep'tments
• 3 Bdr 1 1/2 Bath 1000sf Par Avail

APPENDIX 5

WATER RIGHTS TABULATION

CONCERNING THE TABULATION OF)
WATER RIGHTS IN WATER DIVISION 2)

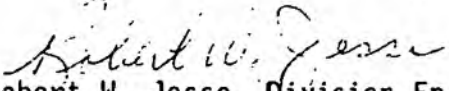
WATER RIGHTS TABULATION

Notice is hereby given that pursuant to Section 37-92-401, C.R.S. (1973 & 1987 Supp.) the Division Engineer of Water Division No. 2, with the approval of the State Engineer, has made such revisions as were determined to be necessary or advisable to the July 1, 1984, tabulation of all decreed water rights and conditional water rights in Water Division No. 2. The 1988 tabulation also reflects the judgements and decrees of the Courts entered prior to January 1, 1988. The tabulation may not include certain water rights claimed in pending or recently concluded proceedings.

This tabulation lists the current status of decreed water rights in order of seniority. The current status is represented by the net amounts of absolute and conditional water rights, along with alternate points of diversion and exchanges. These net amounts are determined by adding the total of original or supplemental water rights to transfers made to the structure, and subtracting transfers made from the structure and abandonments. Conditional rights made absolute are added into the net absolute amount, and subtracted from the net conditional amount. Net amounts are computed and reported by structure and priority date.

This tabulation may be used by the Division Engineer, the State Engineer, and their staffs for administrative purposes. The relative listing of water rights in the tabulation shall not create any presumption of seniority, nor shall the listing of water rights in the tabulation create any presumption against abandonment. The tabulation shall not be construed to modify special provisions of court decrees adjudicating, changing, or otherwise affecting such water rights or to modify contractual arrangements governing the interrelationship of such water rights. This tabulation may include additional information regarding the water rights herein for purposes of identification and description, but this additional information is neither conclusive nor presumptive as to the truth and accuracy of the matters contained therein. The tabulation may be inspected after July 1, 1988, in the offices of the Division Engineer, the State Engineer, each Water Commissioner and the Water Clerk at any time during regular office hours. The State Engineer or Division Engineer will furnish or mail a copy of the tabulation to anyone requesting the same upon a payment of a fee of ten dollars (\$10).

Dated this 1st day of July 1988.


Robert W. Jesse, Division Engineer


Jeris A. Danielson, State Engineer

Explanation of Contents and Codes Used in the Tabulation

This tabulation represents the current status of water right decrees as of December 31, 1987. Each line displays the current net amount of absolute and conditional decrees for a structure by priority date. If the total of absolute and conditional decrees is currently zero, no tabulation line is displayed.

Name of Structure

The decreed structure's name. Some commonly-used abbreviations include:

ditch	D	well	W
reservoir	R, RES	spring	SPR
pipeline	PL	no.	#
pump	P	and	&

Typ

A single letter describing the structure type; if more than one structure type in decreed, an asterisk is shown. Codes are used as follows:

<u>Typ</u>	<u>Structure Type</u>	<u>Typ</u>	<u>Structure Type</u>
D	Ditch	M	Mine
W	Well	L	Pipeline
R	Reservoir	P	Pump
S	Spring	Z	Power Plant
E	Seep	O	Other

Name of Source

The source, typically a stream, from which the water is to be taken.

WD The Water District number.

LOCATION

The component location fields are displayed in small-to-large order:
Q10, Q40, Q160, Section, Township, Range, P.M.

Use

Up to three use code letters are displayed to describe the decreed uses. If more than three uses are decreed, an asterisk is displayed at the third position. Note that lower case letters are different codes than upper case letters!

<u>Use</u>	<u>Use Name</u>	<u>Use</u>	<u>Use Name</u>
I	Irrigation	A	Augmentation
M	Municipal	f	Forest
C	Commercial	G	Geothermal
N	Industrial	H	Household use only
R	Recreation	K	Snowmaking
P	Fishery	m	Minimum streamflow
F	Fire	p	Power generation
D	Domestic	r	Recharge
S	Stock	W	Wildlife
O	Other	X	all beneficial uses

Net Abs

The net amount of absolute water decreed for the structure and priority date. The net amount represents the current cumulative amount of water for the decree listed. To arrive at the net absolute amount, original or supplemental decrees are added to transfers-to and conditionals-made-absolute. Transfers from and abandonments are subtracted out.

DIVISION II

1988 WATER RIGHTS TABULATION INDEX

<u>Title</u>	<u>Pages</u>
Arkansas River & Tributaries	1 - 303
Cimarron River & Tributaries	304 - 308

Division II

Tabulation of Augmentation Plans	309 - 311
----------------------------------	-----------

Arkansas River & Tributaries

Water Rights

Name of Structure	Typ	Name of Source	MO	LOCATION	Use	Net Abs
COLD SPRINGS	D	GREENHORN CR, SP BR	15	NW SW 27 24 S	67 W S M	
HICKLIN A-GREENHORN HIGH	D	GREENHORN CR, SP BR	15	27 24 S	67 W S M	
HIGGASSON SPRING	L	SEEPAGE + SPRINGS	15	SW NE 33 24 S	67 W S M	
HICKLIN B	D	GREENHORN CREEK	15	25 24 S	67 W S I	0.800
CUERNA VERDE ASSN	D	GREENHORN CREEK	15	34 24 S	68 W S IM	0.100
NEW PT HICKLIN A	D	GREENHORN CREEK	15	34 24 S	68 W S ID	0.100
TOWN OF RYE	D	GREENHORN CREEK	15	36 24 S	68 W S IM	0.100
RUXTON CREEK P/L	L	RUXTON CREEK	10	1 18 S	65 W S M	4.000
RUXTON CREEK PIPELINE	L	FONTAINE QUI BOUILLE	14		M	4.000
RUXTON WATER POWER	D	RUXTON CREEK	10	1 18 S	65 W S I	0.740
STARR	D	EVANS GULCH	11	9 S	80 W S MND	2.150
STARR PLACER	D	EVANS GULCH	11	9 S	80 W S N	50.000
HARDSCRABBLE	D	HARDSCRABBLE CREEK	12	14 20 S	69 W S I	0.940
IOWA	D	IOWA GULCH	11	9 S	79 W S N	17.740
CHEYENNE CREEK DITCH	D	CHEYENNE CREEK	10	25 14 S	67 W S I	6.050
MESA PIPELINE	L	CHEYENNE CREEK	10	34 14 S	67 W S MD	1.900
SOUTH CHEYENNE P/L	L	CHEYENNE CREEK	10	34 14 S	67 W S MD	1.250
AUSTIN BLUFF P/L	L	WEST MONUMENT CREEK	10	28 12 S	67 W S MD	0.353
BECKERS LANE	D	FOUNTAIN RIVER	10	NE SE 14 14 S	67 W S M	
CASCADE WATER WORKS	L	CASCADE CREEK	10	22 13 S	68 W S MD	0.353
EL PASO CANAL	*	FOUNTAIN RIVER	10	3 14 S	67 W S MD	1.580
HARMES DITCH	D	FOUNTAIN RIVER	10	3 14 S	67 W S I	0.001
MANITOU IRON SPRINGS	L	RUXTON CREEK	10	7 14 S	67 W S MD	0.099
MEMORIAL PARK	D	FOUNTAIN RIVER	10	NW SE 5 14 S	67 W S M	
RUXTON WATER POWER	L	RUXTON CREEK	10	14 S	68 W S MD	0.070
SCHRIVOR PARK	D	FOUNTAIN RIVER	10	SE SW 4 14 S	67 W S M	
SO CATAMOUNT CR	D	S CATAMOUNT	10	12 13 S	69 W S MD	0.177
SODA SPRINGS PARK	D	FOUNTAIN RIVER	10	NW SW 5 14 S	67 W S M	
EL PASO CANAL	*	FOUNTAIN RIVER	10	3 14 S	67 W S I	22.400
CITY OF COLO SPRINGS	D	BEAVER CREEK	12		M	1.800
CRIPPLE CREEK WATER CO	D	BEAVER CREEK	12		D	1.000
MANITOU WATER WORKS	D	FOUNTAIN RIVER	10	35 13 S	68 W S MD	7.000
PARK CENTER L & W CO	D	FOUR MILE CREEK	12	20 17 S	70 W S I	1.600
BOOTH	D	ARKANSAS RIVER	14	5 21 S	64 W S I	
PUEBLO RESERVOIR	D	ARKANSAS RIVER	14	36 20 S	66 W S M	
PUEBLO WATERWORKS BOARD	D	ARKANSAS RIVER	14	NW NE 33 20 S	65 W S M	7.000
SOUTHSIDE DIVERSION	D	ARKANSAS RIVER	14	34 20 S	65 W S M	
ALTMAN WATER CO	D	BEAVER CREEK	12		M	0.296
BEAVER WATER CO	D	BEAVER CREEK	12		I	0.294
CITY OF COLO SPRINGS	D	BEAVER CREEK	12		M	0.455
GLENDALE	D	BEAVER CREEK	12		I	0.185
MCCLURE	D	BEAVER CREEK	12		I	0.130
CRIPPLE CREEK WATER CO	D	BEAVER CREEK	12		D	1.600
BESSEMER	D	ARKANSAS RIVER	14	33 20 S	66 W S I	2.000
BOOTH	D	ARKANSAS RIVER	14	5 21 S	64 W S I	7.000
IDEAL BASIC INDUSTRIES	D	ARKANSAS RIVER	12		N	1.052
BEAVER WATER CO	D	BEAVER CREEK	12		I	0.028
CRIPPLE CREEK WATER CO	D	BEAVER CREEK	12		D	0.052
PEGGY	D	BEAVER CREEK	12	1 19 S	68 W S I	0.170
ALTMAN WATER CO	D	BEAVER CREEK	12		M	0.920

Net Cond	AltP/Exch U	Adj Date	P Adj Date	Appro Date	O AdminNumber	ID#	Pr#/C#	Line
0.000	C	06/26/1893		03/31/1859	3377.00000		W 4052	1
0.000	C	06/26/1893		03/31/1859	3377.00000		W 4052	2
0.000	C	06/26/1893		03/31/1859	3377.00000		W 4052	3
	C	06/26/1893		05/01/1859	3408.00000			4
	C	06/26/1893		05/01/1859	3408.00000			5
	C	05/23/1893		05/01/1859	3408.00000			6
	C	06/26/1893		05/01/1859	3408.00000			7
	C	03/23/1896		02/20/1860	3703.00000			8
	C	03/23/1896		02/20/1860	3703.00000			9
	C	02/15/1882		04/01/1860	3744.00000			10
	C	09/10/1904		05/01/1860	3774.00000			11
	C	09/10/1904		05/01/1860	3774.00000			12
	C	02/03/1894		05/01/1860	3774.00000			13
	C	09/10/1904		07/10/1860	3844.00000			14
	C	02/15/1882		09/01/1860	3897.00000			15
	C	02/15/1882		09/01/1860	3897.00000			16
	C	02/15/1882		09/01/1860	3897.00000			17
	C	02/15/1882		03/20/1861	4097.00000			18
0.000	A	03/06/1882		03/20/1861	4097.00000	84CW 49		19
	C	02/15/1882		03/20/1861	4097.00000			20
	C	02/15/1882		03/20/1861	4097.00000			21
	C	02/15/1882		03/20/1861	4097.00000			22
	C	02/15/1882		03/20/1861	4097.00000			23
0.000	A	03/06/1882		03/20/1861	4097.00000	84CW 49		24
	C	02/15/1882		03/20/1861	4097.00000			25
0.000	A	03/06/1882		03/20/1861	4097.00000	84CW 49		26
	C	02/15/1882		03/20/1861	4097.00000			27
0.000	A	03/06/1882		03/20/1861	4097.00000	84CW 49		28
	C	02/15/1882		03/21/1861	4098.00000			29
	C	02/03/1894		03/30/1861	4107.00000			30
	C	02/03/1894		03/30/1861	4107.00000			31
	C	02/15/1882		04/01/1861	4109.00000			32
	C	02/03/1894		04/01/1861	4109.00000			33
0.000	C	03/23/1896		04/01/1861	4109.00000	W 145		34
0.000	C	03/23/1896		04/01/1861	4109.00000	W 145		35
	C	03/23/1896		04/01/1861	4109.00000	W 145		36
0.000	C	03/23/1896		04/01/1861	4109.00000	W 145		37
	C	02/03/1894		04/15/1861	4123.00000			38
	C	02/03/1894		04/15/1861	4123.00000			39
	C	02/03/1894		04/15/1861	4123.00000			40
	C	02/03/1894		04/15/1861	4123.00000			41
	C	02/03/1894		04/15/1861	4123.00000			42
	C	02/03/1894		04/20/1861	4128.00000			43
	C	03/23/1896		04/30/1861	4138.00000			44
	C	03/23/1896		04/30/1861	4138.00000			45
	C	02/03/1894		05/01/1861	4139.00000			46
	C	02/03/1894		05/10/1861	4148.00000			47
	C	02/03/1894		05/10/1861	4148.00000			48
	C	02/03/1894		05/20/1861	4158.00000			49
	C	02/03/1894		05/30/1861	4168.00000			50