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**WATER RESOURCES
STATE ENGINEER
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ANNUAL REPORT

1990 Water Year

Irrigation Division IV

ROY ROMER
Governor



JERIS A. DANIELSON
State Engineer

DIVISION OF WATER RESOURCES
WATER DIVISION IV

Keith C. Kepler
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January 8, 1991

Mr. Jeris A. Danielson, State Engineer
Division of Water Resources
1313 Sherman Street, Room 818
Denver, CO 80203

Dear Mr. Danielson:

On behalf of the office and field personnel of Water Division IV, I am pleased to submit this Annual Report for 1990.

The personnel of Division IV have conducted their duties in a most professional manner during the 1990 water year. I would like to recognize their diligent efforts which have resulted in this Annual Report, and this year's diversion records.

Sincerely,

Keith Kepler
Division Engineer

KK: bt

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THE 1990 WATER YEAR

A. 1990 Accomplishments - Summary

The 1990 Water Year in Water Division IV has been eventful in many ways. While water administration aspects of this year are discussed in the next section of this report, it is worth noting here that 1990 was the third consecutive drought year in Division IV, and that the years 1988, 1989, and 1990 represent the driest three consecutive years since 1960 for most of the area's streams.

Briefly, 1990 accomplishments are as follows:

Division IV was able to fill several staff vacancies. Keith Kepler was named Division Engineer in January 1990. This appointment created an opening for the Assistant Division Engineer position. Ken Knox was appointed Assistant Division Engineer in March. Jerry Thrush was appointed as Engineering Aide in August of 1990, filling a vacancy created by the transfer of Becky Nichols in October 1989.

The biggest change for Water Division IV was the re-location of the Division office to 1540 East Niagara in Montrose. The office was previously located in the courthouse where it had resided for some 50 years. The new office is modern and accessible and provides a much better working environment.

Division IV became the statewide maintenance center for the satellite streamflow monitoring system this fall. We are now accepting data collection platforms and shaft encoders from all divisions for repair. Chuck David is devoting up to half his time to statewide maintenance, and half his time to Division IV hydrographic duties. Engineering Aide Jerry Thrush is also devoting approximately half his time to hydrographic duties.

Division IV worked with the Delta County Emergency Preparedness Coordinator to develop a Model Emergency Preparedness Plan for dam break flooding for Delta County. This plan will serve as an interim plan while individual dam owners develop their own plans and will provide the bulk of the information required for writing the individual plans.

Division IV continued to try to improve its service to the water using community by participating in discussions of drought relief and in meeting with various agencies and individuals on a variety of water related issues.

A major effort was made between October 1, 1989 and November 20, 1989 to clean up any remaining errors in the water rights database for the publication of the final revised tabulation.

The decennial abandonment list was developed and printed this year. This year's activities involved review of the summer 1989 field inspections, review of diversion records, and assembly of the final list.

These accomplishments are but a few highlights. Individual program summaries follow.

B. 1990 Water Year Administrative Summary

Snowfall during the winter of 89-90 was minimal. Runoff predictions as of April 1 were 28% of normal for the San Miguel, 35% of normal for the Uncompahgre, 54% of normal for Surface Creek at Cedaredge, and 61% of normal for the Upper Gunnison. All indicators were that the summer of 1990 would be an extreme drought year, similar to 1977. Fortunately, a wet April snow aided much of the division and the runoff predictions were 37%, 45%, 57% and 61% of normal on May 1, respectively.

As indicated earlier, 1990 was the third year of a drought. In fact, the three year period 1988, 89 and 90 marked the driest consecutive 3 year period since 1960, as determined by growing season streamflow on the San Miguel, Uncompahgre, and Gunnison Rivers. Pertinent hydrologic information is presented in appendix A.

The Uncompahgre River basin includes Water Districts 68, which is Ouray County, and Water District, 41, which is the lower part of the Uncompahgre in Montrose and Delta counties. Most of the lower Uncompahgre Valley is served by the Uncompahgre Valley Water Users Association. In January and February, the snowpack was very low and it was anticipated that this would be an extremely dry year.

This office participated in meetings held by the Bureau of Reclamation, Tri-County Water Conservancy District, and the Colorado River Water Conservation District. There were two objectives to these meetings. First, the Bureau of Reclamation wished to fill Ridgway Reservoir in order to complete their dam safety monitoring requirements. This would be the first complete filling for the reservoir. It appeared as though there would be considerable difficulty in filling Ridgway Reservoir since it was anticipated that the Uncompahgre Valley Water Users would be short of water throughout the season. The second objective was to try to find a way to make water stored in Ridgway Reservoir available to irrigators late in the summer. The irrigators who were seen as users for this water were principally in Water District 68 since the Uncompahgre Valley Water Users Association already had storage in Ridgway Reservoir by separate contract. Ultimately, the Colorado River District, Tri-County and the Bureau decided to sell water for \$4 an acre foot plus a 25 cent charge for administrative services. In order to qualify, people had to show that their land met standards of the Bureau of Reclamation. People downstream of the reservoir were to buy the water on the basis that they would be charged for it whether it was delivered or not. Those upstream, notably on Dallas Creek and Cow Creek, were informed they would be able to get a refund if water was not available at their headgates and they were thus unable to take the water by exchange.

April precipitation upstream of Montrose was 2.5 to 3 times normal providing much needed moisture to the Uncompahgre Basin. This resulted in a good spring runoff with no call on the Uncompahgre River during the month of May. These late snowstorms filled Ridgway Reservoir by May 8 despite our earlier concerns that Ridgway might not fill. River flows

were sufficient until June 27, we received a notice that the Uncompahgre Valley Water Users Assn. was short of water. This was an extremely hot and dry period. Following that notice, our inspection of Ridgway Reservoir determined that it was spilling with quite a bit of water in storage above the spillway. In response to this call, we asked the Bureau to open their gates sufficiently to meet the demand of the UVWUA with the surcharged reservoir water. The Bureau cooperated and for some time we were able to meet the demand of the Uncompahgre Valley Water Users with this surcharge water in the Reservoir.

Ridgway Reservoir continued to spill until July 16. The Uncompahgre Valley Water Users had between 16,000 and 18,000 acre feet of water in storage in Ridgway Reservoir with no carry over capability. We predicted that amount of water would be sufficient to meet the anticipated deficiency for the remainder of this season. After some discussions with the Uncompahgre Valley Water Users, we limited upstream water rights to their decreed amounts and began delivering UVWUA's storage water from Ridgway Reservoir. The late summer of 1990 provided good rainfall. It was thus a fairly good water year for water users on the Uncompahgre River mainstream.

The Upper Gunnison area, Water Districts 59, 28 and 62, also saw a small winter snowpack. In response to drought conditions, many ditches turned on very early to try to raise the water table in the meadows. Early summer water supplies were fairly short and it was anticipated that cooperative management agreements or priority administration would be implemented. However, shortly after the 4th of July, there was very good rainfall. As a result, the hay crop in Water Districts 59 and 28 was very near to normal. There was some concern that the fall pasture use of the meadows would be limited by the lack of precipitation in August and early September. However, rainfall in late September once again provided timely moisture.

The Water District 40 area includes the South side of Grand Mesa and the North Fork of the Gunnison. This area was severely impacted this year by three factors: First, Grand Mesa had an extremely low snowpack. The late April snowstorm that helped the remainder of the division did not provide as much moisture to Grand Mesa. Second, a late frost did severe damage to the apple crop this year. Third, carryover reservoir storage as of November 1, 1989 was only 14% of capacity. This extremely low carryover amount was the result of the prior two years of drought. The peak total reservoir storage obtained in the spring of 1990 was 17,117 acre feet, as compared to capacity of approximately 27,292 acre feet (see appendix A). Reservoir storage was thus only about 62% of capacity going into the irrigation season. This is the lowest amount of beginning season reservoir storage since 1977, in which only 8,837 acre feet of water were in storage. As a result of the low water availability and the low snowpack, there were conflicts between trying to meet the demands of direct flow irrigation water rights while reservoirs still wanted to store water. Direct flow irrigation water rights called out some of the reservoir storage.

The apple orchards were as much impacted by the freeze as the drought. Many of the apple growers had sufficient storage water in senior reservoirs. Other farmers and ranchers without senior storage rights were highly impacted by the drought. Junior direct flow rights often yielded no water in 1990. Some irrigators were fully dependent upon limited reservoir supplies.

The Grand Mesa Water Users initiated a cloud seeding program during the 1989-90 irrigation season and the benefit claimed by the contract operator of the seeding program was a 10-19% increase in snowpack.

Kannah Creek in Water District 42 experienced conditions similar to Water District 40. A small amount of reservoir water was used to supply uranium tailings removal operations pursuant to a temporary exchange plan.

Division IV did not have a call on the main stem of the Gunnison River by the Redlands Canal during 1990. However, flows on several days fell below the 670 cfs decreed for power and irrigation use. The stream gage on the Gunnison River near Grand Junction (actually at Whitewater above the Redlands Canal) dropped below 670 cfs for part of January, most of February, and the first half of March. Our records would indicate that there were 58 days between August 31st 1989 and November 1st 1990 when the River flow dropped below 670 cfs. The great majority of these days were in the January/February/March period with only three days in July and three days in August below the 670 cfs. Most of the flows less than 670 cfs were only slightly below the decreed amount.

The water year in the San Miguel Basin, Water District 60, was similar to that in the Uncompahgre Basin. Snowpack was extremely low in the early part of the year. Late snowstorms provided a reasonably good early runoff from high mountains feeding the San Miguel, but were less effective in lower areas. The water supply on Wrights Mesa in the Norwood area served by Gurley and Lone Cone Reservoirs was significantly below normal, and the hay crop from that area has been estimated to be as low as 1/3 of normal. Other areas served by the smaller streams also suffered from the drought. The mainstem of the San Miguel had a fairly good water supply, and the Colorado Cooperative (Highline Ditch) which diverts from the San Miguel River and serves the Nucla area, had a call on the stream for only a few days in August during 1990.

The Paradox Valley, Water District 61, and other areas in the West End including Water Districts 63 and 73 suffered from the severe drought. Much of the land in Water District 61 did not get planted due to the lack of snowpack and reservoir storage going into this year. Paradox Creek (WD-61) was on administration from March 1 through the end of the irrigation season. West Creek (WD-63) was on call from June 18 through the remainder of the season.

C. Dam Safety Program

The Dam Safety Program continued to meet major goals in 1990. Jim Norfleet was able to inspect each high and moderate class dam. One fifth

of the Class III dams were inspected this year. This resulted in 106 safety inspections conducted during the year with 94 conducted by the resident safety engineer, and 12 by the division office engineering staff. An additional 27 water commissioner field inspection reports were filed.

There were no major dam construction projects undertaken in Water Division IV in 1990. Only one set of plans and specifications for a new dam was reviewed by the dam safety engineer. A focus of this year's efforts has been to look at the hazard classifications. This has resulted in the reclassification of about four dams. Division administrative staff assisted in developing cross-sections of major drainages coming off of Grand Mesa, and these were used in the hazard evaluations performed by the dam safety engineer.

Division IV worked with Delta County to complete their county wide emergency action plan by providing information needed for planning in the event of a dam failure. With the help of the Delta County Emergency Preparedness Coordinator, a model emergency preparedness plan was prepared which provided basic information necessary in the event of a dam safety emergency. It is hoped that this emergency preparedness plan will meet the needs of Delta County in their county wide emergency action plan and will serve as a basis for the development of individual emergency preparedness plans. We held two meetings in Cedaredge and Hotchkiss with the intent of informing the dam owners about the Delta County model plan and encouraging them to proceed with the individual emergency preparedness plans which are required by the Dam Safety Rules and Regulations.

As noted above, no major repairs were undertaken in Division IV this year. A review of the list of dams with restricted storage indicates that one Class I (high hazard) dam and four Class II dams are on the restricted list. The remainder of the dams are Class III (low hazard) dams. We may be seeing a trend where the dams on the restricted list tend to stay there since critical problems have already been fixed, and the economics of repairing some of the remaining problems are questionable.

D. Hydrographic Program and Satellite Monitoring

The Division IV hydrographic branch realized significant changes in 1990. Jerry Thrush, Engineering Aide A, was hired August 1 and was dedicated half time to all hydrographic aspects, including measurement, construction and installation of measuring devices, and annual record development. This addition filled the void resulting in the rededication of Chuck David's time to half time hydrographer and half time SMS maintenance manager.

Timing and number of measurements conducted by Division of Water Resources personnel were also re-evaluated. Historically, the DWR has measured streams and maintained gaging stations in cooperation with U. S. Geologic Survey on a four to six week rotation. Due to the increased demand for current and accurate measurements and SMS hardware maintenance, five measurement runs were initiated. Each run incorporates a full day of stream measurements conducted on a variable schedule of two

week intervals during spring runoff or highly variant flows to 3 weeks during transition, and finally to monthly scheduling during periods of storage or dormancy. This increased attention is attempted to provide accurate information in a timely fashion to water commissioners which in turn better serves the water using public.

SMS Maintenance Management

Increasing hardware downtime, repair costs and time delays prompted the Division Water Resources to seek viable alternatives to shipping all malfunctioning equipment back to the original hardware supplier, Sutron Corporation.

Therefore, the State Engineer initiated a maintenance management program for all field hardware utilized in the satellite monitoring system. Based in Division IV, it is currently staffed by Chuck David on a half time basis. Primary goals of the program include:

1. Repair of "down" hardware
2. Preventative maintenance and recalibration of all equipment on a rotational basis.
3. Construction and implementation of databases which provide an accurate and current inventory of all equipment, a history of repair, costs incurred, and average turn around time for all repairs.
4. Provide technical assistance and training toward setup, programming, maintenance, and troubleshooting for all field hardware.

Since implementation October 1, 1990, 14 data collection platforms and 3 shaft encoders have been repaired and recalibrated to original factory specifications. Net savings to the State of Colorado is in excess of \$4200. Of significance is the comparison of this savings during the first three months of program operation with the total initial capital outlay of \$4599 total for inventory parts, tools, and testing equipment. Average turn around, including one week bench testing, is a minimal 13.9 days.

Considering both the age of existing equipment and the anticipated network expansion, the importance and value of the maintenance program will increase greatly.

E. Division Information Systems Activities

Division IV now has three computers available in the Montrose office: a Wang computer which is dedicated to word processing and satellite monitoring, an IBM Compatible Signature AT computer which is used for the Water Rights database, diversion records, and various engineering duties, plus the new IBM Compatible computer which has ground water information on it and is also used for engineering and dam safety work. In addition we have computers in the Grand Junction and Cedaredge offices. A high level of use is made of all of these computers. The dam safety program requires quite a bit of computer time during the winter and unfortunately it appears it may be as much as two more years before the program has machines anticipated under the NATDAM program.

F. Division Involvement with the Water User Community

Division IV was involved in a number of public activities this year including attending a hearing concerning cloud seeding for Grand Mesa, participation in drought relief meetings with regard to Ridgway Reservoir water use which involved several other agencies, and attending the Uncompahgre Valley Water Users annual dinner. We held meetings with dam owners in Cedaredge and Hotchkiss regarding emergency preparedness plans. We attended a meeting of the POWER Organization in Gunnison County to explain basic principals of Colorado Water Rights to this organization which opposes the water export proposals by Arapahoe County and Aurora. We also attended meetings of the Upper Gunnison Conservancy District. In addition to these items, we held a meeting with the Delta County Board of Realtors to discuss well availability and permitting requirements for non-jurisdictional dams.

G. Water Court Activities

Division IV water officials continue to conduct a field inspection for each new water right claim. We feel this is necessary in order to assure proper applications and valid rulings. New legislation has changed the diligence period to six years, and this has resulted in a decline in the number of water court cases. Two hundred fifty-six applications were filed in 1989, and for 1990 we anticipate a total of 170 applications.

The major court activities of importance this year have had to do with the applications in the upper Gunnison area. The Upper Gunnison Water Conservancy District applications sought to gain a second filling of Taylor Park Reservoir. That application resulted in a trial lasting over a week in Gunnison. The resulting Water Court decree granted Upper Gunnison the second filling. That judgment has now been appealed to the State Supreme Court. Other activities in the Upper Gunnison Basin include the Aurora and Arapahoe County applications to divert water to the East Slope.

H. Staff Actions and Changes:

Division IV was able to fill several staff vacancies. Keith Kepler was named Division Engineer in January 1990. This appointment created an opening for the Assistant Division Engineer position. Ken Knox was appointed Assistant Division Engineer in March. Jerry Thrush was appointed as Engineering Aide in August of 1990.

Water Commissioner field staff remained unchanged from 1989 with one exception. Delmar Gail Brooks was appointed to fill the temporary part time position at Leon Cabin on Grand Mesa, replacing Keith Waibel.

I. Continuing Challenges in Division IV

The major continuing challenge in Division IV is to develop a method for better record keeping and daily administration of the Gunnison River. The Gunnison River has not been administered since the completion of Blue Mesa Reservoir. However, new water rights applications in the Upper Gunnison area and throughout the basin create a need to better account

for current uses of the water and prepare for future administration of the water. A continuing challenge in Water Division IV is control over small developments of water which encroach on existing water rights. One such concern is the development of small ponds constructed without authorization of this office. Eventually, administration of small ponds constructed with or without authorization may become a problem. Also, we are trying to enforce well permitting statutes by preventing non-permitted wells and unlicensed contractors. A third area of a continuing challenge is to try to develop better diversion records, particularly for augmentation plans, exchanges, and reservoir water. These items will continue to be a challenge into the future.

J. Impact of the Budget

The available operating and travel monies limit the accomplishments that this Division can make in administering water resources. Water Commissioners are being asked to limit mileage and this limits the number of water rights they visit. Shortage of operating funds has been aggravated by the assignment of the operating expenses for the dam safety engineer to the Division IV budget. While funds were transferred from the Dam Safety operating budget, it is apparent that the amount of funds which was transferred was not sufficient. Last year we had to limit water commissioner mileage in order to feel reasonably secure about our budget. This year we have managed to limit spending in other areas, however, it is not yet clear whether we will be able to function within our budget or whether we will need to impose limits on mileage and other activities which significantly affect our productivity.

THE COMING WATER YEAR

Our major hope is that the 1991 water year shows an end to the current drought. Beyond this, our major objectives for the coming water year are:

1. To begin work in cooperation with the Bureau of Reclamation, the Colorado River Water Conservation District, Tri-County Water Conservancy District, Uncompahgre Valley Water Users Association, Upper Gunnison Water Conservation District, and others, in the development of an accounting tool for the Gunnison River.
2. To make revisions as necessary in the list of critical streams.
3. To make major progress in the determination and documentation of irrigated acreage in Water Division IV.
4. To continue to develop our public relations activities and communicate more with other agencies as well as the public in general. To better acquaint organizations such as realtors and county governments with our role and duties.
5. To further develop water commissioner know-how and activities in the areas of surface water administration, including exchanges in augmentation plans, ground water, etc. To have better records next year.

A. Hydrographic Program

The major goal for the hydrographic program in Division IV in 1991 is expanded utilization. Some of this expanded utilization may require funding approval for expansion of the satellite system. On the Uncompahgre River we have been discussing the need for a gaging station below the East Canal diversion near Olathe, Colorado with the Uncompahgre Valley Water Users Assn. This station would monitor the amount of water which was getting by the Uncompahgre Valley Water Users ditches. From our administration over the past three years, we have come to believe this is a critical measurement. We need to determine and record that the Uncompahgre Valley Water Users are drying up the river and making efficient use of the water. The Uncompahgre Valley Water Users have been cooperating with our efforts in trying to get a gaging station at that location. They may cooperate with construction activities and possibly some materials. We would like to supply the satellite equipment.

The second place we would like to incorporate into the satellite program is at the upper end of Kannah Creek. These measurements would greatly assist our administration on Kannah Creek. In addition, we have contacted the City of Grand Junction, whose water supply is diverted from Kannah Creek in the vicinity of these gaging stations, to determine their interest in water measurement in that area and to try to solicit their support of the satellite system.

The third area where we would like to gain some support is in the utilization of the satellite system in operation of the Gunnison River. The U. S. Bureau of Reclamation power operations people have expressed interest in getting our data for the Gunnison River below the east portal gage and the South Canal gages. The satellite system will eventually be the keystone in the accounting and record keeping we develop for the Gunnison River.

We are also hoping to increase utilization of our satellite system maintenance facility. We believe the results to date show this to be a very successful program.

B. Groundwater Activities

We intend to continue to utilize the water commissioners as our first line of contact for water well drillers and other groundwater enforcement activities. During the 1990 water irrigation year, we had some success catching wells constructed without permits, particularly in water district 60. We intend to continue our direction to the water commissioners to have them contacting well drillers when they see a drill rig and also stopping and making contacts when they see any suspicious backhoe work that may represent construction of a well without a permit.

Although, not under the control of Water Division IV, we expect the testing and eventual permit review of geothermal activities in Ouray to be an area of continued involvement.

C. Water Commissioner Activities

Generally, the efforts in the water commissioner activities will be based on continued improvements in current programs. Those areas are:

1. Improvement of records, including obtaining more records, obtaining records of a wider range of water uses, including municipal uses, groundwater uses, developing better records for augmentation plans, reservoirs deliveries, exchanges, etc.
2. We are hoping to continue to spend some time on continued training of water commissioners in the areas of hydrography, installation of parshall flumes, etc.

We anticipate a stable staff among the water commissioners during the upcoming year.

D. Dam Safety

Division IV is hoping to work with the Dam Safety Branch and the other Divisions to develop work plans with reasonable objectives for both summer and winter work. Developing good objectives for winter work requires some analysis of available equipment (computers), training, a plan for implementation of the rules & regulations, and prioritization of tasks. As of January 1, supervision responsibilities for the Dam Safety Engineers transfers to the Division Engineers. In order to make the work of the Dam Safety Engineer productive and effective, we need to solicit their participation in planning activities and to develop reasonable work objectives.

E. Administration & Budgetary Priorities

The operating budget is a major concern for this division in future years. Costs are escalating while our budget remains the same. Each year we try to be of greater service to the public. Yet without increased operating money, we will have to further limit mileage and other expenses which will in turn limit our service to the water using public.

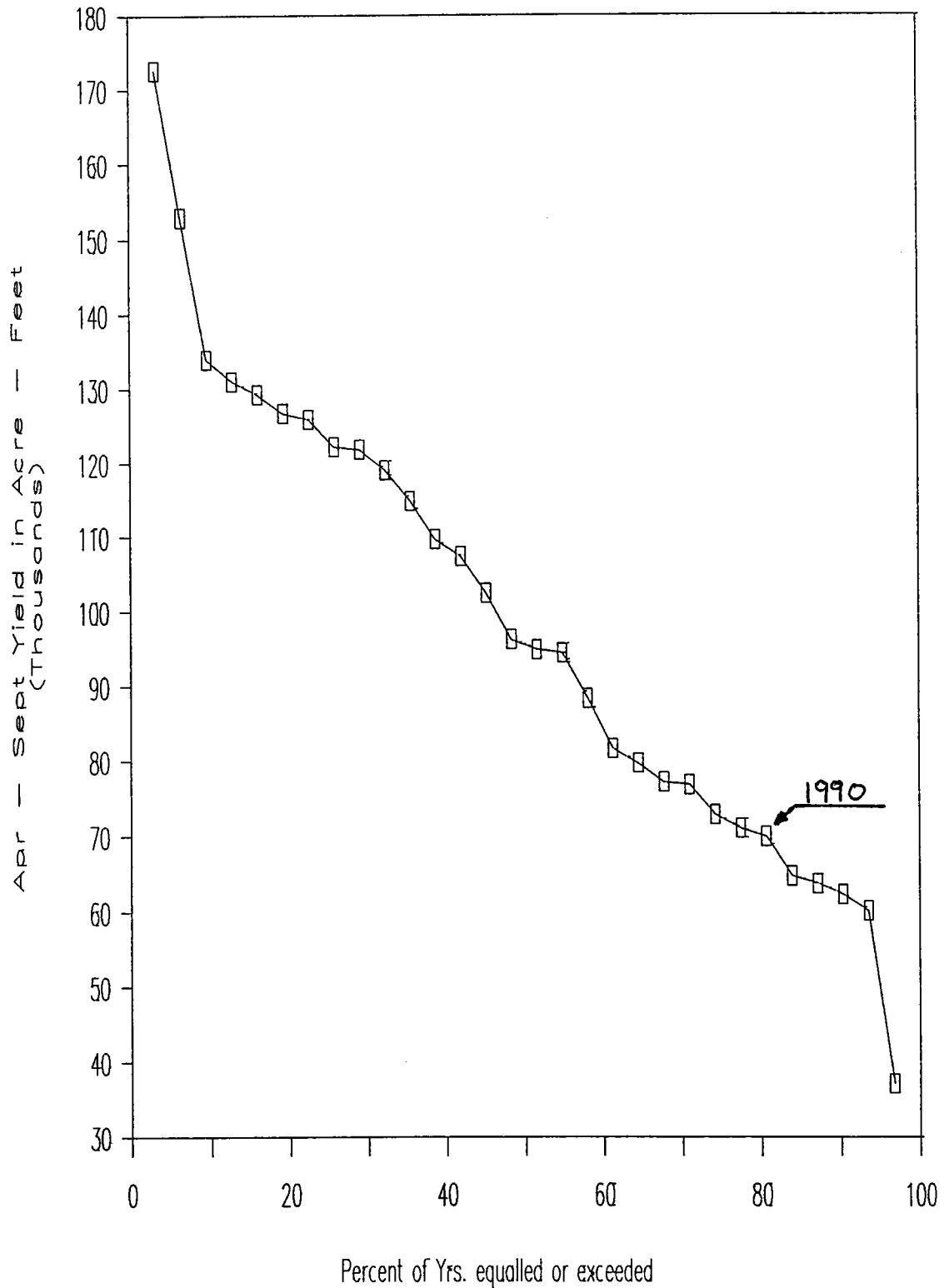
APPENDIX A
HYDROLOGIC ANALYSES OF 1990 WATER YEAR

UNCOMPAGRE RIVER NR RIDGWAY, CO

YEAR	ACRE - FEET							PERCENT OF YEARS EQUALLED	
	APR	MAY	JUN	JUL	AUG	SEP	APR-SEP TOTAL	RANK	OR EXCEEDED
1984	9610	47060	54390	34080	18150	9390	172680	1	3
1983	5180	17770	54250	52160	16790	6740	152890	2	6
1985	11200	25780	52950	25950	10410	7700	133990	3	10
1965	8810	19620	39250	38840	14470	10040	131030	4	13
1975	4040	15850	44640	45900	13040	5790	129260	5	16
1986	6640	21580	45800	29120	11310	12260	126710	6	19
1979	6540	23500	49080	31490	11160	4100	125870	7	23
1973	4020	20860	46350	33000	11790	6140	122160	8	26
1982	5730	17190	38620	29010	18540	12780	121870	9	29
1978	7170	16950	53380	28550	8430	4590	119070	10	32
1970	4750	27640	36180	19290	12100	14890	114850	11	35
1987	10760	25990	38390	18480	9430	6560	109610	12	39
1968	4380	16350	48170	17750	15870	4880	107400	13	42
1962	10450	19560	35480	23340	8450	5190	102470	14	45
1964	6130	24610	30620	16870	12370	5650	96250	15	48
1969	9240	23960	24980	21280	8380	7010	94850	16	52
1971	9050	13240	35890	20220	8530	7570	94500	17	55
1961	6150	23040	32190	10170	8760	7980	88290	18	58
1980	5120	13120	36430	16130	6900	3930	81630	19	61
1974	5910	23810	26580	14130	5890	3400	79720	20	65
1966	7260	24780	23110	11870	6270	3900	77190	21	68
1988	5890	13900	30310	11660	7430	7680	76870	22	71
1967	4320	17210	22020	15050	9680	4580	72860	23	74
1976	4590	16050	26690	13010	6720	3940	71000	24	77
→ 1990	5070	14720	28540	12290	4820	4520	69960	25	81 ←
1963	6410	19350	16920	10160	6480	5430	64750	26	84
1981	4650	8680	22930	16550	6130	4780	63720	27	87
1972	5400	14210	24020	8840	4520	5260	62250	28	90
1989	8310	13960	17640	9760	6870	3530	60070	29	94
1977	5110	7510	9990	5440	4500	4500	37050	30	97
TOTAL							2960820		
AVERAGE							98694		

Uncomphagre River near Ridgway

Flow Duration Curve (1961-1990)



UNCOMPAHGRE RIVER NR RIDGWAY, CO

YEAR	ACRE - FEET						APR-SEP	3 YEAR
	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	AVERAGE
1961	6150	23040	32190	10170	8760	7980	88290	
1962	10450	19560	35480	23340	8450	5190	102470	
1963	6410	19350	16920	10160	6480	5430	64750	85170
1964	6130	24610	30620	16870	12370	5650	96250	87823
1965	8810	19620	39250	38840	14470	10040	131030	97343
1966	7260	24780	23110	11870	6270	3900	77190	101490
1967	4320	17210	22020	15050	9680	4580	72860	93693
1968	4380	16350	48170	17750	15870	4880	107400	85817
1969	9240	23960	24980	21280	8380	7010	94850	91703
1970	4750	27640	36180	19290	12100	14890	114850	105700
1971	9050	13240	35890	20220	8530	7570	94500	101400
1972	5400	14210	24020	8840	4520	5260	62250	90533
1973	4020	20860	46350	33000	11790	6140	122160	92970
1974	5910	23810	26580	14130	5890	3400	79720	88043
1975	4040	15850	44640	45900	13040	5790	129260	110380
1976	4590	16050	26690	13010	6720	3940	71000	93327
1977	5110	7510	9990	5440	4500	4500	37050	79103
1978	7170	16950	53380	28550	8430	4590	119070	75707
1979	6540	23500	49080	31490	11160	4100	125870	93997
1980	5120	13120	36430	16130	6900	3930	81630	108857
1981	4650	8680	22930	16550	6130	4780	63720	90407
1982	5730	17190	38620	29010	18540	12780	121870	89073
1983	5180	17770	54250	52160	16790	6740	152890	112827
1984	9610	47060	54390	34080	18150	9390	172680	149147
1985	11200	25780	52950	25950	10410	7700	133990	153187
1986	6640	21580	45800	29120	11310	12260	126710	144460
1987	10760	25990	38390	18480	9430	6560	109610	123437
1988	5890	13900	30310	11660	7430	7680	76870	104397
1989	8310	13960	17640	9760	6870	3530	60070	82183
1990	5070	14720	28540	12290	4820	4520	69960	68967 ←

TOTAL 2960820

AVERAGE 98694

SAN MIGUEL RIVER NEAR PLACERVILLE
ACRE - FEET

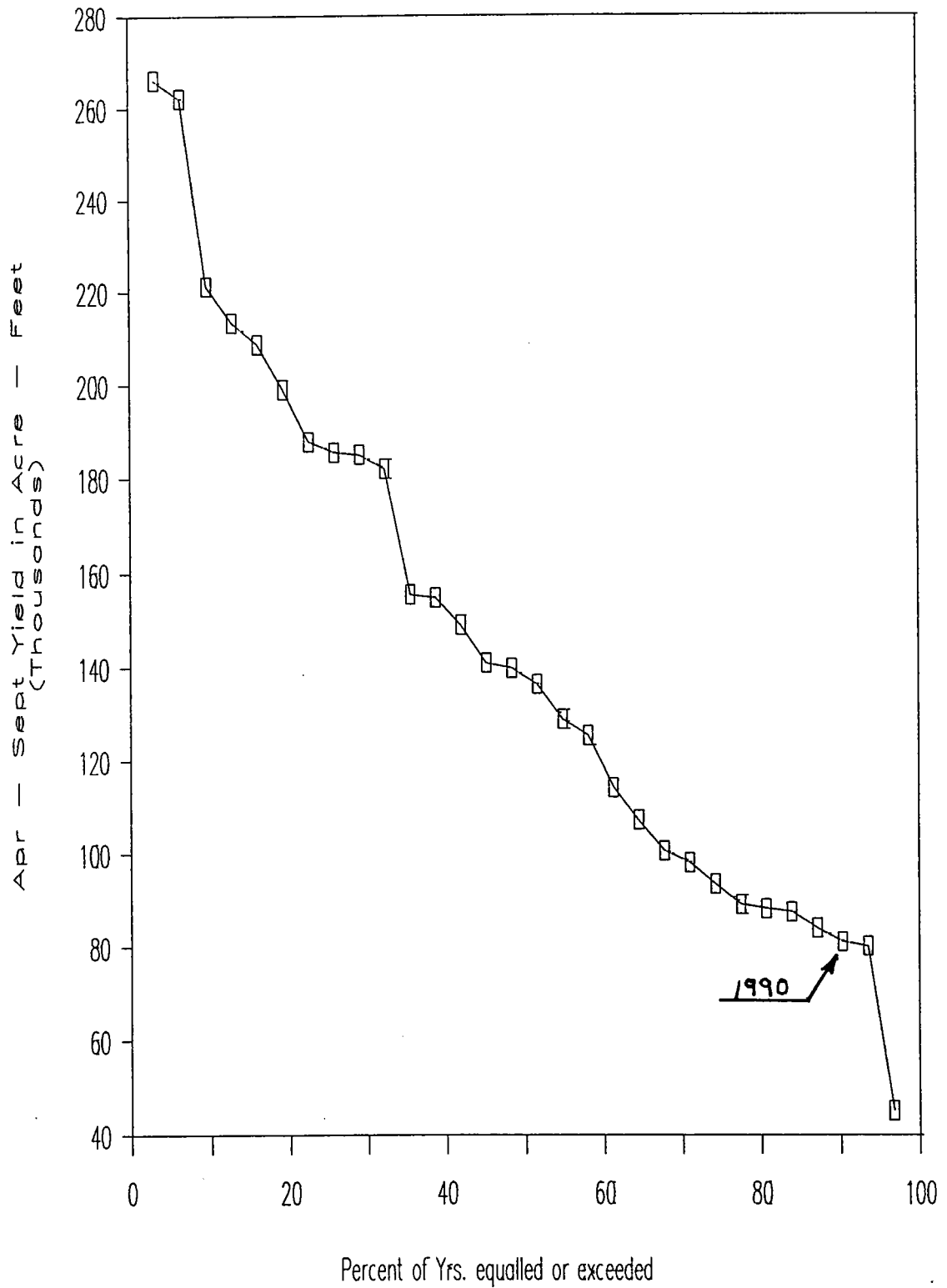
YEAR	APR	MAY	JUN	JUL	AUG	SEP	APR-SEP TOTAL	RANK	PERCENT
									OF YEAR EQUALLE OR EXCE
1983	10100	52650	90930	73580	29730	9130	266120	1	3
1984	23520	91740	70740	44280	20750	11180	262210	2	6
1985	31660	48530	75540	37830	14870	12970	221400	3	10
1987	33110	58120	63150	33700	17350	7990	213420	4	13
1973	8900	49360	75380	50300	17210	7630	208780	5	16
1965	19980	35400	50220	56350	23400	13690	199040	6	19
1975	570	38060	60780	64610	16320	7550	187890	7	23
1986	15810	37990	64110	40620	14400	12650	185580	8	26
1979	13720	38100	72110	41140	14190	5760	185020	9	29
1982	15600	32690	51230	38420	25280	18850	182070	10	32
1970	8860	47030	40920	23480	14910	20330	155530	11	35
1980	10580	32080	62910	29620	12560	7130	154880	12	39
1978	15860	28880	64460	27770	7550	4620	149140	13	42
1962	21940	32070	41560	28260	10350	6750	140930	14	45
1961	14800	41620	46560	13870	11320	11730	139900	15	48
1968	6180	25190	55740	22060	20560	6650	136380	16	52
1971	15890	24130	46100	23100	11510	8080	128810	17	55
1969	14390	32580	29320	27060	12260	9830	125440	18	58
1964	10490	36410	34940	14550	11660	6280	114330	19	61
1988	9730	18980	40380	17190	10630	10310	107220	20	65
1966	12550	33510	28660	13380	7550	5090	100740	21	68
1974	13230	32880	29250	12870	5930	3900	98060	22	71
1976	8870	21670	36100	14310	7030	5510	93490	23	74
1967	5990	23100	24220	15820	12250	7810	89190	24	77
1981	8160	12290	31020	19620	8260	8860	88210	25	81
1989	14560	22580	22390	13940	9780	4350	87600	26	84
1963	10860	25580	19200	9900	10360	8150	84050	27	87
→ 1990	5930	17020	33630	12230	6260	6030	81100	28	90 ←
1972	9970	19040	30080	9740	5130	6280	80240	29	94
1977	6210	8380	13350	6370	5560	5260	45130	30	97

TOTAL 4311900

AVERAGE 143730

San Miguel River near Placerville

Flow Duration Curve (1961-1990)



SAN MIGUEL RIVER NEAR PLACERVILLE
ACRE - FEET

YEAR	APR	MAY	JUN	JUL	AUG	SEP	APR-SEP	3 YEAR
							TOTAL	AVERAGE
1961	14800	41620	46560	13870	11320	11730	139900	
1962	21940	32070	41560	28260	10350	6750	140930	
1963	10860	25580	19200	9900	10360	8150	84050	121627
1964	10490	36410	34940	14550	11660	6280	114330	113103
1965	19980	35400	50220	56350	23400	13690	199040	132473
1966	12550	33510	28660	13380	7550	5090	100740	138037
1967	5990	23100	24220	15820	12250	7810	89190	129657
1968	6180	25190	55740	22060	20560	6650	136380	108770
1969	14390	32580	29320	27060	12260	9830	125440	117003
1970	8860	47030	40920	23480	14910	20330	155530	139117
1971	15890	24130	46100	23100	11510	8080	128810	136593
1972	9970	19040	30080	9740	5130	6280	80240	121527
1973	8900	49360	75380	50300	17210	7630	208780	139277
1974	13230	32880	29250	12870	5930	3900	98060	129027
1975	570	38060	60780	64610	16320	7550	187890	164910
1976	8870	21670	36100	14310	7030	5510	93490	126480
1977	6210	8380	13350	6370	5560	5260	45130	108837
1978	15860	28880	64460	27770	7550	4620	149140	95920
1979	13720	38100	72110	41140	14190	5760	185020	126430
1980	10580	32080	62910	29620	12560	7130	154880	163013
1981	8160	12290	31020	19620	8260	8860	88210	142703
1982	15600	32690	51230	38420	25280	18850	182070	141720
1983	10100	52650	90930	73580	29730	9130	266120	178800
1984	23520	91740	70740	44280	20750	11180	262210	236800
1985	31660	48530	75540	37830	14870	12970	221400	249910
1986	15810	37990	64110	40620	14400	12650	185580	223063
1987	33110	58120	63150	33700	17350	7990	213420	206800
1988	9730	18980	40380	17190	10630	10310	107220	168740
1989	14560	22580	22390	13940	9780	4350	87600	136080
1990	5930	17020	33630	12230	6260	6030	81100	91973

TOTAL 4311900

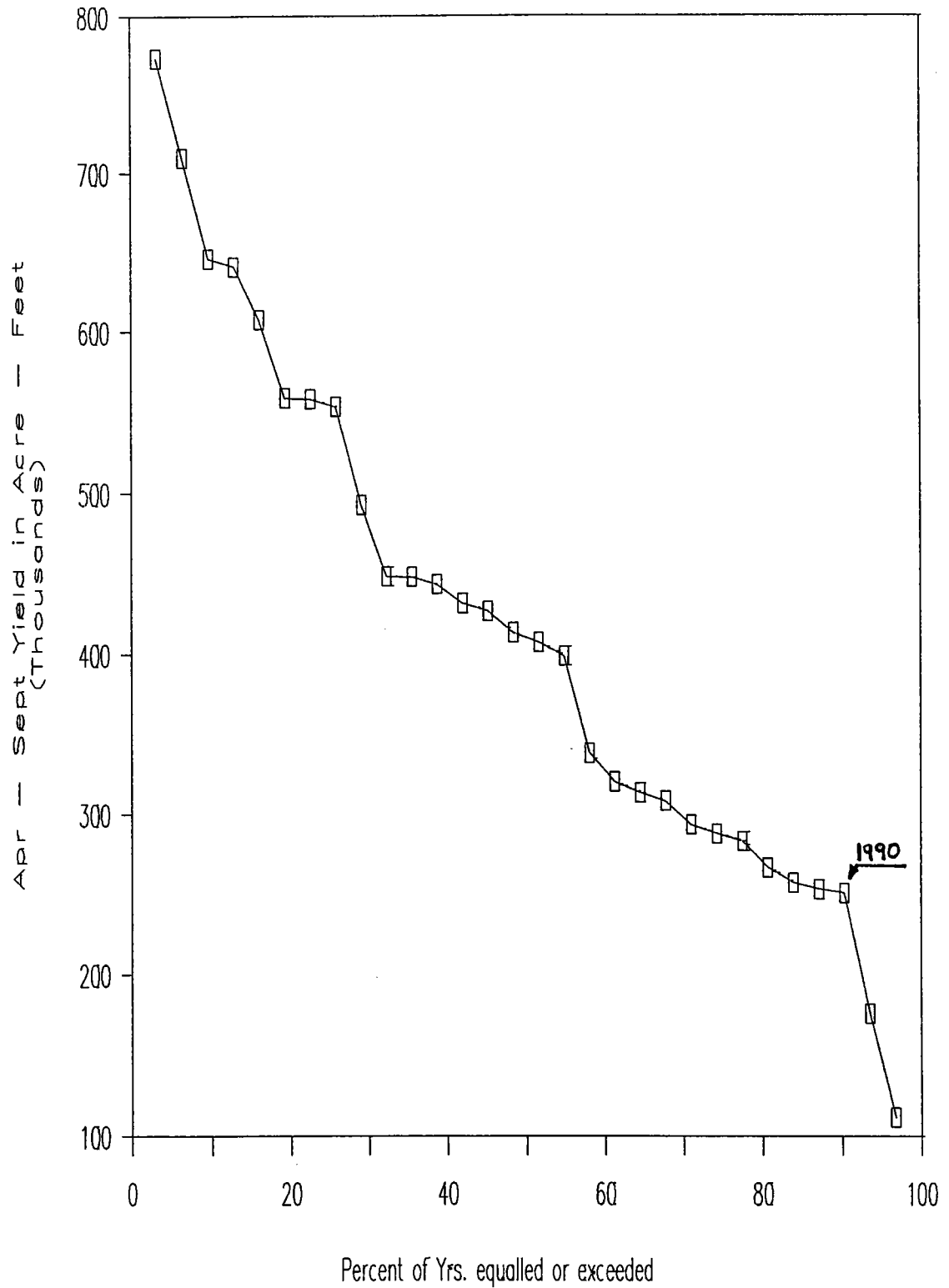
AVERAGE 143730

GUNNISON RIVER NEAR GUNNISON

YEAR	ACRE - FEET						APR-SEP TOTAL	PERCENT OF YEARS EQUALLED	
	APR	MAY	JUN	JUL	AUG	SEP		RANK	OR EXCEED
1984	41530	208000	249900	154400	75270	44050	773150	1	3
1965	64630	137800	202500	184100	70900	50180	710110	2	6
1986	63000	138600	197500	125500	68570	52970	646140	3	10
1962	82180	171400	183900	103500	55010	45000	640990	4	13
1985	71120	176500	172400	88500	45110	54030	607660	5	16
1979	39130	156800	177100	112400	41860	31790	559080	6	19
1980	59070	140400	192000	80040	42150	44460	558120	7	23
1970	58370	180400	151700	78490	36160	48400	553520	8	26
1983	30150	70220	181700	106100	66890	37970	493030	9	29
1978	32970	83630	183900	83750	38830	25480	448560	10	32
1971	56740	87710	137500	84510	56150	25260	447870	11	35
1987	67680	128300	116700	55300	42480	32840	443300	12	39
1969	50830	132900	97090	79440	42450	28810	431520	13	42
1982	36870	91480	141200	71810	45350	39950	426660	14	45
1968	19380	86110	151200	50810	68320	37570	413390	15	48
1975	20010	59640	144500	114900	45420	23230	407700	16	52
1973	15800	87110	127800	100600	42960	24610	398880	17	55
1972	31660	59800	120400	36990	43600	45340	337790	18	58
1967	26800	69350	105100	55100	35810	28110	320270	19	61
1974	25340	109400	85730	39950	34360	18710	313490	20	65
1976	31400	67480	82430	53190	40880	33040	308420	21	68
1988	31150	72450	91280	45230	31320	21900	293330	22	71
1964	12710	72090	78100	44670	43420	36940	287930	23	74
1966	35860	77800	80630	33200	34170	21640	283300	24	77
1963	31890	61420	54850	48910	47960	21810	266840	25	81
1989	47530	64000	64650	32260	31770	17150	257360	26	84
1961	15360	61970	59650	47320	45030	23870	253200	27	87
→ 1990	15870	29230	83910	41090	62050	18940	251090	28	90 ←
1981	14880	26350	56080	30330	25470	22850	175960	29	94
1977	16660	17370	25290	17710	19520	14810	111360	30	97
							TOTAL	12420020	
							AVERAGE	414001	

Gunnison River near Gunnison

Flow Duration Curve (1961 - 1990)



GUNNISON RIVER NEAR GUNNISON

YEAR	ACRE - FEET						APR-SEP	3 YEAR
	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	AVERAGE
1961	15360	61970	59650	47320	45030	23870	253200	
1962	82180	171400	183900	103500	55010	45000	640990	
1963	31890	61420	54850	48910	47960	21810	266840	387010
1964	12710	72090	78100	44670	43420	36940	287930	398587
1965	64630	137800	202500	184100	70900	50180	710110	421627
1966	35860	77800	80630	33200	34170	21640	283300	427113
1967	26800	69350	105100	55100	35810	28110	320270	437893
1968	19380	86110	151200	50810	68320	37570	413390	338987
1969	50830	132900	97090	79440	42450	28810	431520	388393
1970	58370	180400	151700	78490	36160	48400	553520	466143
1971	56740	87710	137500	84510	56150	25260	447870	477637
1972	31660	59800	120400	36990	43600	45340	337790	446393
1973	15800	87110	127800	100600	42960	24610	398880	394847
1974	25340	109400	85730	39950	34360	18710	313490	350053
1975	20010	59640	144500	114900	45420	23230	407700	373357
1976	31400	67480	82430	53190	40880	33040	308420	343203
1977	16660	17370	25290	17710	19520	14810	111360	275827
1978	32970	83630	183900	83750	38830	25480	448560	289447
1979	39130	156800	177100	112400	41860	31790	559080	373000
1980	59070	140400	192000	80040	42150	44460	558120	521920
1981	14880	26350	56080	30330	25470	22850	175960	431053
1982	36870	91480	141200	71810	45350	39950	426660	386913
1983	30150	70220	181700	106100	66890	37970	493030	365217
1984	41530	208000	249900	154400	75270	44050	773150	564280
1985	71120	176500	172400	88500	45110	54030	607660	624613
1986	63000	138600	197500	125500	68570	52970	646140	675650
1987	67680	128300	116700	55300	42480	32840	443300	565700
1988	31150	72450	91280	45230	31320	21900	293330	460923
1989	47530	64000	64650	32260	31770	17150	257360	331330
1990	15870	29230	83910	41090	62050	18940	251090	267260 ←
TOTAL							12420020	
AVERAGE							414001	

SURFACE CREEK NEAR CEDAREGE

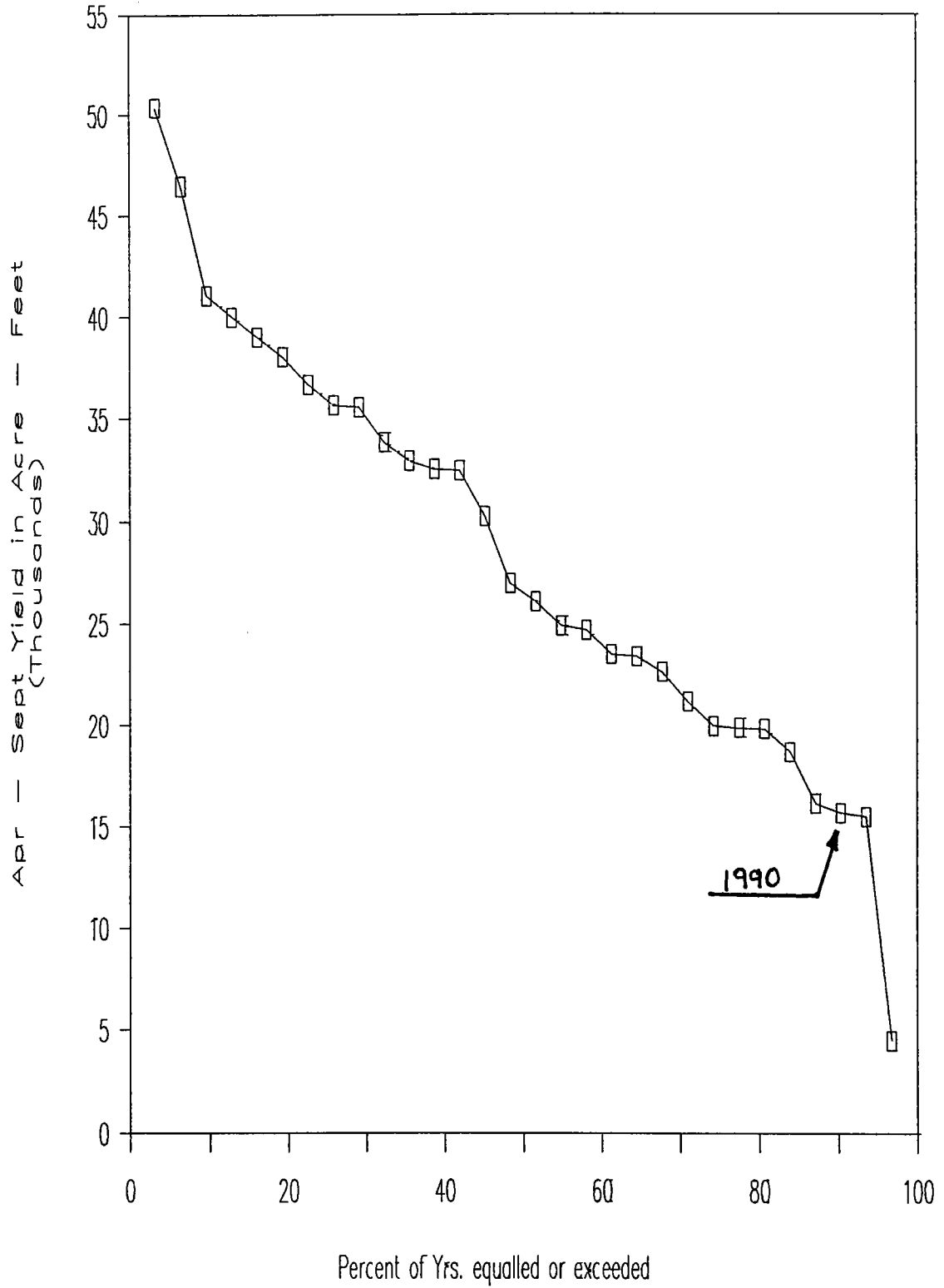
YEAR	ACRE - FEET						APR-SEP TOTAL RANK	PERCENT OF YEARS EQUALLED OR EXCEEDED	
	APR	MAY	JUN	JUL	AUG	SEP			
1983	1410	7180	20400	11720	5740	3900	50350	1	3
1986	3650	13010	15630	6570	4650	2970	46480	2	6
1984	1140	14500	12430	5810	4730	2450	41060	3	10
1973	849	11490	14530	6390	4240	2520	40019	4	13
1985	3240	11870	11130	5350	4890	2530	39010	5	16
1980	1400	8480	15260	6140	4300	2470	38050	6	19
1982	2530	8340	11110	6880	4330	3500	36690	7	23
1987	4540	11170	9230	4990	3480	2260	35670	8	26
1969	4080	12330	8280	4520	4720	1620	35550	9	29
1979	1470	8640	11600	5390	4210	2530	33840	10	32
1962	3850	7700	10330	5220	3870	1970	32940	11	35
1975	616	5820	11120	6920	5140	2930	32546	12	39
1978	1170	8050	12250	5020	3530	2450	32470	13	42
1965	1110	7470	9440	5650	4090	2490	30250	14	45
1970	709	8190	7750	4190	4010	2140	26989	15	48
1971	2780	5560	8100	4330	3350	1970	26090	16	52
1966	3020	8250	4930	4150	3020	1540	24910	17	55
1968	608	6510	7960	4130	2600	2880	24688	18	58
1967	1200	6340	5930	3890	3550	2570	23480	19	61
1988	2200	6390	6240	4110	3460	982	23382	20	65
1974	2040	8480	4870	3190	2500	1540	22620	21	68
1972	2700	6470	4790	3240	2720	1250	21170	22	71
1989	3490	5240	4470	3550	2040	1170	19960	23	74
1976	823	6000	5560	3500	2380	1590	19853	24	77
1964	543	5790	4460	4000	2990	2030	19813	25	81
1961	790	5170	5000	3400	2820	1490	18670	26	84
1981	2010	4520	3530	2710	1910	1460	16140	27	87
→ 1990	2500	3190	4090	2418	2307	1170	15675	28	90 ←
1963	1730	5130	2530	2560	2050	1470	15470	29	94
1977	1060	1750	525	366	539	238	4478	30	97

TOTAL 848313

AVERAGE 28277

Surface Creek near Cedaredge

Flow Duration Curve (1961 - 1990)



SURFACE CREEK NEAR CEDAREGE

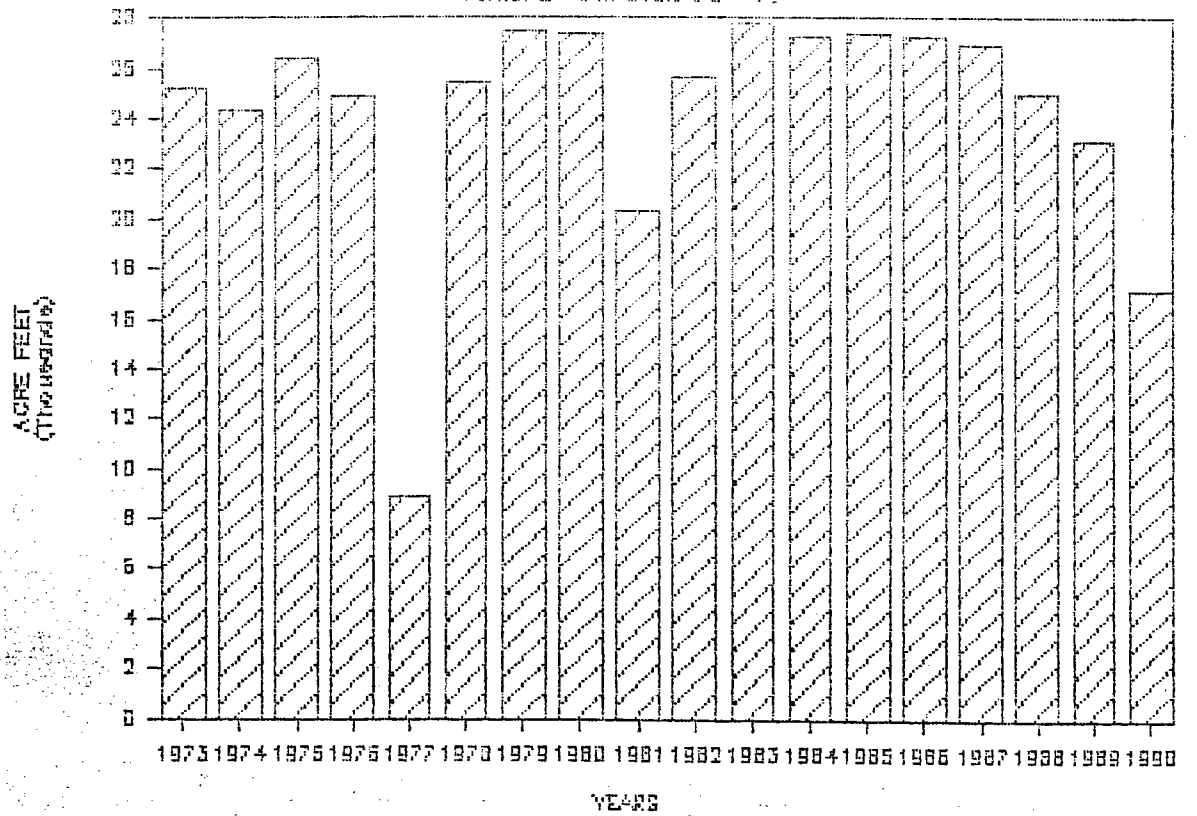
YEAR	ACRE - FEET						APR-SEP	3 YEAR
	APR	MAY	JUN	JUL	AUG	SEP	TOTAL	AVERAGE
1961	790	5170	5000	3400	2820	1490	18670	
1962	3850	7700	10330	5220	3870	1970	32940	
1963	1730	5130	2530	2560	2050	1470	15470	22360
1964	543	5790	4460	4000	2990	2030	19813	22741
1965	1110	7470	9440	5650	4090	2490	30250	21844
1966	3020	8250	4930	4150	3020	1540	24910	24991
1967	1200	6340	5930	3890	3550	2570	23480	26213
1968	608	6510	7960	4130	2600	2880	24688	24359
1969	4080	12330	8280	4520	4720	1620	35550	27906
1970	709	8190	7750	4190	4010	2140	26989	29076
1971	2780	5560	8100	4330	3350	1970	26090	29543
1972	2700	6470	4790	3240	2720	1250	21170	24750
1973	849	11490	14530	6390	4240	2520	40019	29093
1974	2040	8480	4870	3190	2500	1540	22620	27936
1975	616	5820	11120	6920	5140	2930	32546	31728
1976	823	6000	5560	3500	2380	1590	19853	25006
1977	1060	1750	525	366	539	238	4478	18959 ←
1978	1170	8050	12250	5020	3530	2450	32470	18934 ←
1979	1470	8640	11600	5390	4210	2530	33840	23596
1980	1400	8480	15260	6140	4300	2470	38050	34787
1981	2010	4520	3530	2710	1910	1460	16140	29343
1982	2530	8340	11110	6880	4330	3500	36690	30293
1983	1410	7180	20400	11720	5740	3900	50350	34393
1984	1140	14500	12430	5810	4730	2450	41060	42700
1985	3240	11870	11130	5350	4890	2530	39010	43473
1986	3650	13010	15630	6570	4650	2970	46480	42183
1987	4540	11170	9230	4990	3480	2260	35670	40387
1988	2200	6390	6240	4110	3460	982	23382	35177
1989	3490	5240	4470	3550	2040	1170	19960	26337
1990	2500	3190	4090	2418	2307	1170	15675	19672 ←

TOTAL 848313

AVERAGE 28277

GRAND MESA RESERVOIR STORAGE — D40

ANNUAL PEAK STORAGE — AF



BEGINNING AND ENDING RESERVOIR STORAGE FOR GRAND MESA WATER USERS

YEAR	PEAK STOR AF	CARRY OVER AF	% OF THIS YR STORAGE	% OF TOT CAP
1973	25185	12023	48	43
1974	24365	5076	21	18
1975	28445	7864	30	28
1976	24861	3653	15	13
1977	8837	2304	26	8
1978	25390	7858	31	28
1979	27480	9433	34	34
1980	27439	10292	37	37
1981	20273	6865	34	25
1982	25587	17345	68	62
1983	27876	16442	59	59
1984	27292	15964	58	57
1985	27349	15701	58	56
1986	27279	21794	80	78
1987	26933	10020	38	36
1988	25037	8490	34	30
1989	23059	3979	17	14
1990	17117	3818	22	14
1991				

APPENDIX B

RECORD OF STREAM CALLS

DIVISION IV
1990 RIVER CALLS

Water District 28

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
7/09/90	7/16/90	Hot Springs 1 & 2	1904	Hot Springs	L. Stephenson
7/2/90	7/9/90	S. Davidson Ditch	1894	Tomichi	H. Peterson

Water District 40

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
7/3/90	increase flw	Fruitgrowers Res.	10/5/1898	Alfalfa Run	R. Schroder
6/5/90	season	North Fork Orchard	6/17/1889	Bell Creek	Wtr Commission
5/1/90	season	Big Gulch Ditch	8/28/1920	Big Gulch	E. Rupp
6/21/90	120 days	Larson	H 73	Cow Creek	Columbine Rnch
4/2/90	season	Blake Ditch	4/1/1887	Dirty George Cr	C. Hawkins
3/26/90	season	Cedar Park Ditch	2/21/1887	Dirty George Cr	Lynn Sanburg
4/9/90	season	Eagle Ditch	6/6/1908	Dirty George Cr	C. Hawkins
5/21/90	season	West Ditch	12/20/1883	Dirty George Cr	Rolf Sanburg
6/2/90	season	Current Ditch	6/1/1883	Dry Creek	Roy Wolf
6/1/90	season	Fuller #2 Ditch	1/1/1886	Dry Creek	Gary Tharp

Water District 40 cont'd

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
5/9/90	season	Morton Ditch	4/1/1895	Dry Creek	Lynn Hilsen
5/27/90	increase flw	Oak Park Ditch	3/23/1900	Dry Creek	H. Vaughn
6/16/90	season	Welch Ditch	6/1/1883	Dry Creek	Burgess
6/27/90	increase flw	Boise Ditch	3/1/1890	Escalante	B. Calhoun
5/30/90	season	Adobe Ditch	5/5/1907	Forked Tongue Cr	John Alward
5/30/90	season	Forked Tongue Ditch	9/7/1886	Forked Tongue Cr	N. Kehmeier
5/30/90	season	Kennicott Mower	8/20/1886	Forked Tongue Cr	N. Kehmeier
6/11/90	season	Park Ditch	5/3/1884	Forked Tongue Cr	G. Burton
3/21/90	season	Perkins Ditch	9/3/1886	Forked Tongue Cr	Rolf Sanburg
4/6/90	season	Pioneer Ditch	4/1/1887	Forked Tongue Cr	Art Flynn
5/2/90	season	McMurry Ditch	8/31/1895	Hamilton Draw	E. Ferganchick
5/15/90	season	Daisy Ditch	3/1/1890	Happy Hollow Cr	Phil Starr
5/23/90	season	H. J. Neighbors	11/29/1891	Happy Hollow Cr	Clyde Owens
3/19/90	season	Happy Hollow Ditch	4/20/1894	Happy Hollow Cr	John Alward
3/26/90	season	Lucky No. 1 Ditch	4/1/1886	Happy Hollow Cr	Darrel Geyer
3/26/90	season	Lucky No. 2 Ditch	4/1/1887	Happy Hollow Cr	Darrel Geyer
4/11/90	season	Pumpkin Swag Ditch	5/10/1896	Happy Hollow Cr	Clyde Owens

Water District 40 cont'd

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
6/28/90	120 days	Deer Trail	25, 28, 29	Hubbard	Anderson
5/23/90		Japan Ditch	9/28/1907	Kiser Creek	E. Buchheim
6/4/90	season	Kile Ditch	7/1/1919	Kiser Creek	H. Medill
5/22/90	season	Lake Fork	7/26/1886	Kiser Creek	W. Bull
6/4/90	season	R & K Ditch	2/15/1907	Kiser Creek	H. Medill
5/20/90		Roseberry Ditch	6/17/1889	Kiser Creek	C. Fogg
5/4/90	10 days	#4 decree	6/17/1889	Leroux Creek	Tom Alvey
6/15/90	7 days	#4 decree	6/17/1889	Leroux Creek	Tom Alvey
6/22/90	25 days	Cow Creek Ditch	6/17/1889	Leroux Creek	W. Ogburn
4/13/90	10 days	Currant Creek Ditch	6/17/1889	Leroux Creek	Roy Wolf
4/23/90	11 days	Highline Ditch	6/17/1889	Leroux Creek	Sheldon Smith
5/14/90	8 days	#13 Leroux Cr Ditch	2/20/1904	Leroux Creek	Tom Alvey
5/22/90	20 days	Overland Ditch	3/20/1908	Leroux Creek	Pete Kasper
6/11/90	4 days	Stull Ditch	3/20/1908	Leroux Creek	Ward Holder
5/8/90	season	Minn Canal	6/17/1889	Minn Creek	G. Farnsworth
7/16/90	120 days	Fire Mountain	33 B	North Fork	Farmer
9/23/90	60 days	Short Ditch	23	North Fork	W. Cockcroft

Water District 40 cont'd

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
6/14/90	season	Right Hand	9/1/1894	Red Bluff Draw	W. Bull
5/5/90	season	Orchard Ditch	5/15/1899	Rowell Gulch	Art Glaser
3/27/90		Sand Creek Ditch	9/28/1907	Sand Creek	E. Buchheim
4/5/90	season	Sandstone Bluff Ditch	9/28/1907	Sand Creek	E. Buchheim
5/8/90	increase flw	Butte Ditch	11/24/1885	Surface Creek	R. Schroder
5/11/90	increase flw	Eric Johnson Ditch	12/2/1885	Surface Creek	Jene Young
4/25/90	increase flw	Fogg Ditch	4/2/1885	Surface Creek	R. Schroder
6/16/90	increase flw	Forrest Ditch	4/7/1885	Surface Creek	Jim Vela
5/22/90		Old Reliable Ditch	6/17/1889	Surface Creek	Moad Horn
5/30/90		Omega Ditch	9/28/1907	Surface Creek	C. Hamilton
4/13/90	increase flw	Orchard Ranch Ditch	2/21/1883	Surface Creek	N. Kehmeier
6/2/90	increase flw	Paradise Ditch	7/1/1886	Surface Creek	G. Wetterich
6/1/90		Park Reservoir	9/28/1907	Surface Creek	C. Lugje
4/25/90	increase flw	Settle Ditch	3/25/1884	Surface Creek	C. Hawkins
4/16/90	increase flw	Shephard Ditch	10/25/1884	Surface Creek	C. Lutz
5/6/90	increase flw	Stillwater Ditch	1/21/1885	Surface Creek	Jim Turner
6/22/90	season	Sunflower Ditch	4/1/1883	Surface Creek	John Story

Water District 40 cont'd

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
5/24/90		Trickle Ditch	9/18/1907	Surface Creek	Melva Jones
6/1/90		Weir & Johnson	9/18/1907	Surface Creek	Jene Young
6/18/90	120 days	Holybee		Terror Creek	B. Beauter
5/10/90	season	Carbon Ditch	6/20/1887	Ward Creek	Bill Otto
5/13/90	season	Granby Rowell Ditch	5/1/1894	Ward Creek	G. Bertram
3/20/90	season	Pratt Ditch	5/1/1894	Ward Creek	Dale Parker
5/17/90		Rowell Ditch	9/28/1907	Ward Creek	Don Watt
3/27/90	season	Sandstone Bluff Ditch	10/15/1886	Ward Creek	E. Buchheim
5/18/90	season	Sunrise Ditch	10/15/1899	Ward Creek	A. Peterson
6/4/90	season	Todd Ditch	4/1/1891	Ward Creek	C. Toothaker
5/12/90	season	Williams No. 2	5/1/1884	Ward Creek	Paul Fenton
6/20/90	season	Broncho Ditch	6/17/1889	Young Creek	L. C. Waibel
5/29/90	season	Childs Ditch	4/14/1892	Youngs Creek	B. Morris
6/6/90	season	Tongue Creek Ditch	10/15/1886	Youngs Creek	Kehemeir

Water District 41

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
5/9/90	season	Mock Ditch	7/3/1929	Dolores	Gary Pope
5/1/90	season	Albush	7/3/1929	Horsefly	M. Sanders
5/2/90	season	S. E. Dillon	10/1/1882	Spring Creek	G. Fortner
5/2/90	season	C. A. Palmer	2/10/1891	Spring Creek	G. Fortner
6/27/90	24 hrs.	U. V. W. U. A.	Adm #12516	Uncompahgre	Jim Hokit
7/16/90	season	U. V. W. U. A.		Uncompahgre	Jim Hokit

Water District 42

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
3/22/90	10/31/90	Lurvey Ditch #1	6/1/1916	East Creek	Ron Tipping
4/12/90	5/7/90	Kannah Cr Ext Ditch	7/25/1888	Kannah Creek	Ed Gardner
6/19/90	10/31/90	Kannah Cr Ext Ditch	7/25/1888	Kannah Creek	Ed Gardner

Water District 59

NO CALLS

Water District 60

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
4/18/90	10/31/90	Priestly #1	1911	Maverick	Wayne Wilson
6/1/90	10/31/90	Smuggler	1897	Maverick	Leroy Khal
8/20/90	9/3/90	Maverick Draw	1897	Maverick & Naturita	Neil Reems
		Thomas Ditch	12/31/77	Trib. to Naturita	Ed Apenal
8/12/90	8/18/90	B C D Ditch	1911	San Miguel	Neil Reems
8/12/90	8/18/90	Highline Ditch	1916	San Miguel	Highline Canal

Water District 61

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
3/01/90	10/31/90	All Structures		Paradox Creek	

Water District 62

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
7/3/90	season	Collier Ditch	9/1/1889	Little Cimmaron	Estem Orme
6/22/90	season	Schecker Ditch	11/1/1905	Powderhorn	Dick Wilson
7/3/90	season	Powderhorn	11/1/1905	Powderhorn	W. Wilson
6/1/90	season	Rigney Ditch	11/1/1905	Rigney Creek	J. Hodges

Water District 63

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
6/28/90	10/4/90	Bartholemew & H	2/11/1939	West Cr.	W. Schaffer

Water District 68

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
7/24/90	season	Johnson Ditch	PRI 79	Beaver Creek	D. Wolford
5/26/90	6/10/90	Hosner-Rowell	PRI 57	Dallas Creek	P. Decker
4/26/90	season	Albush Ditch	PRI 143	Horsefly Creek	Mrs. Saunders
6/27/90	24 hrs	U. V. W. U. A.	Adm. #12516	Uncompahgre	U. V. W. U. A.
7/16/90	season	U. V. W. U. A.		Uncompahgre	U. V. W. U. A.
5/23/90	6/6/90	Reed Overman	PRI 26	West Dallas Creek	Larry Luke

Water District 73

<u>DATE OF CALL</u>	<u>DURATION OF CALL</u>	<u>NAME OF CALLING STRUCTURE</u>	<u>PRIORITY DATE</u>	<u>STREAM AFFECTED</u>	<u>PERSON PLACING CALL</u>
4/5/90	10/10/90	Upper Saxbury Ditch	6/1/1916	Little Dolores	Mtn Island Rch

APPENDIX C

TRANSMOUNTAIN DIVERSION RECORD

<u>FROM</u>	<u>TO</u>	<u>STRUCTURE</u>	<u>AMOUNT</u>
WD-28	Div. 2	Larkspur	7.81 AF
WD-28	Div. 3	Tarbell	79 AF
Div. 5	WD-40	Leon Lake	1132 AF
WD-40	Div. 5	Divide Creek Highline Feeder	1428 AF
WD-42	Div. 5	City Pipeline	1573 AF
WD-42	Div. 5	New City Pipeline	4408 AF
WD-42	Div. 5	Redlands Canal	538,665 AF
WD-62	Div. 3	Tabor	648 AF
Div. 7	WD-68	Carbon Lake Ditch	88 AF
Div. 7	WD-68	Mineral Point Ditch	no record kept, water flowed into Div 4, not delivered to specific user
Div. 7	WD-68	Red Mountain Ditch	35.5 AF diverted to Div 4, not delivered to specific user
Div. 7	WD-68	St. John Ditch	structure not useable water, not diverted to Div 4
WD-73	Div. 5	Fruita Pipeline	no record kept, not used for municipal supply this year

(BIV)417

APPENDIX D
DIVERSION SUMMARY

WATER DIVISION IV IRRIGATION SUMMARY 1990 ACRE FEET						
<u>WD</u>	<u>STREAM TO IRRIGATION</u>	<u>STORAGE TO IRRIGATION</u>	<u>ALL OTHER SOURCES TO IRRIGATION</u>	<u>TOTAL TO IRRIGATION</u>	<u>ESTIMATED ACREAGE</u>	<u>AVERAGE AF PER ACRE</u>
28	225,552	4,018		229,570	2,715	15.35
40	274,463	219,042	3	493,508	128,701	3.83
41	68,599	78	558,102	626,779	109,890	5.70
42	8,922	1,418		10,340	1,372	7.54
59	295,602			295,602	35,220	8.39
60	68,890	12,362	754	82,006	24,080	3.41
61	4,634	372	4,214	9,220	1,961	4.70
62	93,757	10,014		103,771	21,512	2.64
63	16,684	277		16,961	1,928	8.80
68	105,389	0	4,135	109,524	16,713	6.55
73	<u>2,992</u>	<u>0</u>	<u>73</u>	<u>3,065</u>	<u>904</u>	3.39
	1,165,484	247,581	567,281	1,980,346	235,106	

XVII SUMMARY

APPENDIX E

SUMMARY OF VISITATIONS AND STRUCTURES

1990

<u>Water District</u>	<u>Number of Observations</u>	<u>Structures With 90 Record</u>	<u>Total Structures</u>	<u>Total Active Structures</u>	<u>Inactive Historic Structures</u>	<u>Average # of Observ. per Structure w/Record</u>	<u>% of Total Active Structures w/90 Record</u>
28	3968	271	763	465	268	15	58
40	19297	1131	2416	1780	600	17	64
41	4601	95	548	286	219	48	33
42	5848	182	349	267	61	32	68
59	1623	220	1466	910	130	7	24
60	1691	404	1187	991	157	4	41
61	3210	92	138	98	40	35	94
62	854	292	958	838	77	3	35
63	1552	145	212	170	38	11	85
68	2220	160	897	683	214	14	23
73	166	72	117	92	24	2	78

APPENDIX F

WATER COURT ACTIVITIES

No. Applications for Decrees	170
No. Consultations with Referee	287
No. Decrees Issued by Water Court	238

Type of Decree

Surface Water	303
Ground Water	22
Reservoir	40
Transfer	0
Change of Point of Diversion	4
Alternate Point	4
Change of Use	7
Plan Augmentation	9
In-Stream Flow	0
Cancelled	8

No. Structures in Decrees	497
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Types of Structures

Ditches and Springs	308
Reservoirs	71
Wells	118

TABLE OF ORGANIZATION - PERSONNEL

IRRIGATION DIVISION NO. 4

Division Engineer - Keith C. Kepler
 Assistant Division Engineer - Kenneth W. Knox
 Secretary - Jean Kurtz
 Typist B - Bonnie Trujillo
 Hydrographer - Charles G. David
 Resident Dam Safety Engineer - James G. Norfleet
 Engineering Aide - Jerry Thrush

Water District 28

WATER COMMISSIONER
 Wesley Robinson

Water District 40

PR. WATER COMMISSIONER
 *Richard Drexel

Water District 41

WATER COMMISSIONER
 Crandall Howard

SR. WATER COMMISSIONER
 *Robert H. Starr

Water District 42

SR. WATER COMMISSIONER
 Richard Belden

WATER COMMISSIONER
 Jack Carter

WATER COMMISSIONERS

Jimmie Boyd
 Merritt Denison
 Henry LeValley
 Albert Mahannah
 Kenneth Mahannah
 John L. McHugh
 James Miller
 L. Gregg Scott
 Charles Stein
 Stephen Tuck
 **Gail Brooks

Water District 59

WATER COMMISSIONER
 Robert Drexel

Water District 60

WATER COMMISSIONER
 Lyman D. Campbell

Water District 61

WATER COMMISSIONER
 Clinton L. Oliver

Water District 62

WATER COMMISSIONER
 Crandall Howard
 **Ed Hofmann

Water District 63

SR. WATER COMMISSIONER
 *Richard Belden

Water District 68

WATER COMMISSIONER
 H. Roger Noble

Water District 73

SR. WATER COMMISSIONER
 *Richard Belden

*Annual

**Temporary