**EXHIBIT 71**

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**BEFORE THE STATE OF CALIFORNIA**

**STATE WATER RESOURCES CONTROL BOARD**

| | |
|---|---|
| **IN THE MATTER OF ADMINISTRATIVE CIVIL LIABILITY COMPLAINT ISSUED AGAINST G. SCOTT FAHEY AND SUGAR PINE SPRING WATER, LP** | **EXPERT WITNESS TESTIMONY OF ROSS R. GRUNWALD** |

**GeoResource Management**

December 13, 2015

Mr. Scott Fahey
Sugar Pine Spring Water, LP
2787 Stony Fork Way
Boise, ID 83706

Re: Evaluation of Ground Water Withdrawals to the Sugar Pine Spring Water System

Dear Mr. Fahey,

I have been associated with Sugar Pine Spring Water Company since spring of 1996. Development of water collection facilities has evolved over the intervening twenty years. Most recently water flowing to your collection tank was derived from three development wells and two subsurface infiltration galleries installed below the water table at Deadwood, Sugar Pine, Marco and Polo springs.

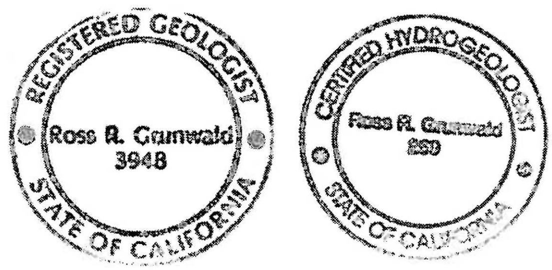
In my report: "Water Availability Analysis" prepared for and submitted to the Chief, Division of Water Rights, California State Water Resources Control Board, on July 14, 2010, the assumption was made that all of the water extractions from the various components of the system would directly impact the surface spring flow. Thus, the reduction of water volume reporting to the drainage basin would correspond to the total water extracted. However, in reality, this is a worst case scenario and does not relate to the actual case. In fact, water extractions from the various components of the system are much greater than any observed reduction in surface spring flow.

No definitive studies have been made to determine what this difference may be. However, in my professional opinion, the reduction of spring flow is, on average, on the order of 30% of the volume of water removed from the wells and infiltration galleries installed by Sugar Pine Spring Water, LP. Since only 30% of the water withdrawn from system impairs the spring water flows, the remaining 70% is clearly sourced from percolating ground water beneath the site.

The above estimate is based on my experience with the project from its inception in 1996 to the present. A detailed study of water withdrawals and spring flow must be made in order to establish a more definitive ratio between surface flow impairment and withdrawal of percolating ground water. Nevertheless, it is clear that the impairment of surface flow from the springs is much less than that reporting to the Sugar Pine Spring Water, LP, collection system.

**• P.O. Box 660, Jamestown, California 95327 • Phone/Fax (209) 984-4488 • grm@mlode.com**

Respectfully submitted,




Ross R. Grunwald
California Professional Geologist #3948
California Certified Hydrogeologist #269

Water Availability Analysis Attached

# GeoResource Management

# WATER AVAILABILITY ANALYSIS

## Prepared for
## G. Scott Fahey
## Application No. 31491

**Submitted To:**
**Chief, Division of Water Rights,**
**California State Water Resources Control Board**

by
GeoResource Management
P.O. Box 3446
Sonora, California 95370

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July 14, 2010

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## 1.0 INTRODUCTION

The purpose of this report is to summarize the results of the water availability analysis conducted for the subject application located within the Hull Creek watershed in Tuolumne County. The objectives of the analysis are as follows:

- To provide information required under California Water Code section 1275 (a), 1375 (d), 1243, 1243.5 and California Code of Regulations, Title 23, section 782, to demonstrate whether water is available for appropriation;

and:

- To determine the impact of the applications/project on stream flow in order to evaluate potential impacts to Public Trust Resources and provisions for compliance with various federal and state requirements. Examples include the California Environmental Quality Act (CEQA), the California Endangered Species Act (CESA), California Fish and Game Code and the federal Endangered Species Act (ESA).

## 2.0 PROJECT DESCRIPTION

### 2.1. Description of the Springs

Marco and Polo Springs, previously unnamed, at located in sections 15 & 22, T 2 N, R 17 E, Monte Diablo Meridian. The longitude and latitude of Marco Spring is: 38.0212 N, 120.0914 W and that of Polo is 38.089 N, 120.0888 W.

Both Marco and Polo Springs are controlled by intersections of northwest-southeast and northeast-southwest trending fractures. The uppermost portions of the springs consist of multiple orifices that issue from areas rather than from a single point (Figures 4 & 6). The springs continue to gain volume as the surface flows continue down toward Hull Creek and reach their maximum flow by the time that they reach the old railroad grade (Figures 4 & 6).

### 2.2. Proposed Diversions

G. Scott Fahey, proposes to extract a maximum of 20 gallons per minute from each of the springs known as Marco and Polo Springs, located in Tuolumne County, California. This volume equates to a total 32.25 acre-feet annually from each spring. The flow from Marco spring discharges into Hull Creek at a point approximately 0.5 miles upstream from the inflow of Polo spring, when measured along the course of Hull Creek. Hull Creek discharges into the Clavey River approximately 2.5 miles below the inflow of Polo spring. The Clavey River is a Tributary of the Tuolumne River (Figures 2, 3, 4, & 6).

Water withdrawn from these springs will be for human consumption, as sold by various vendors and marketed as bottled spring water.

G. Scott Fahey is currently permitted to draw 14 gallons per minute (22.6 acre-feet/year) of surface flow from each of two springs, Deadwood and Sugar Pine (Application No. 29977, Water Rights Permit 20784). Neither of these springs flow into Hull Creek and are situated on the southeastern and opposite side of the ridge on which both Marco and Polo springs are located (Figure 6).

The natural flow from Deadwood Spring flows southwest into Basin Creek and from there into the North Fork of the Tuolumne River. The natural flow from Sugar Pine Spring flows southwest into Cottonwood Creek and then southeast into the Clavey River.

Withdrawals made from the Tuolumne River basin that are made by Mr. Fahey from Deadwood and Sugar Pine Spring are replaced by water purchased from an out-of-basin source and discharged into the Tuolumne River basin from Phoenix Reservoir. This discharged water flows down Sullivan Creek, into Woods Creek and enters the Tuolumne River at Don Pedro Reservoir. As a result of this water replacement, there is presently no net effect on the Tuolumne River watershed as a whole and there will also be no net effect as a result of the proposed project. The withdrawals from Marco and Polo Springs will only impact the watershed above the Don Pedro Reservoir.

Each of the diversions from Marco and Polo springs will be accomplished by means of sub-horizontal wells that will penetrate the root source of each spring to intercept a portion of the spring flow before it reaches the surface. The amount of water flowing from each well will be controlled and monitored at the collar by valves and flow meters. In order to mitigate any effects that these diversions may have during periods of low spring flow, the applicant proposes that these diversions be monitored and regulated in a manner to ensure no less than 2.5 GPM issues from the existing springs' orifices or 20% of the total flow issuing from a spring site, whichever is greater. The amount diverted shall never reduce the surface flow from either spring site by more than 20 GPM

Water flowing from the two developed springs will be conveyed through a pipeline that will be installed along an old railroad grade and introduced into the pipeline that receives the diversions from Sugar Pine spring before those waters will commingle with water from Deadwood Spring. The water will then flow through an existing pipeline to a tank where it will be stored until it is transferred to tanker trucks for transport to a bottling plant.

Figure 1 shows the location of the Hull Creek watershed. Figure 2 shows the Hull Creek drainage basin and the Clavey River drainage above the gaging station. Figure 3 shows in more detail the watershed, the project's points of diversion, and the points of interest evaluated during this analysis, The project is located in Tuolumne County approximately 11 miles northeast of the town of Tuolumne. The application seeks to divert a maximum of 64.5 acre-feet (af) of water for beneficial use when transported by tanker truck to a bottling facility during the season of January 1 to December 31.

## 3.0 CURRENT WATER RIGHTS, DIVERSIONS AND POINTS OF INTEREST

### 3.1 Water Rights and Diversions

Figure 5 shows the only two water rights of record in the Hull Creek drainage basin, up steam of the Marco and Polo Creek/Hull Creek confluences. Water right #A020636-01 is active and allows a diversion of 500 gallons per day at the cabin in Fahey Meadow. Water right # A018652-01 located in Hulls Meadow was canceled and is no longer active. The permitted diversion at Fahey Meadow would total 0.38 acre-feet per annum if the entire permitted volume were diverted. However, likely domestic use at the Fahey Meadow cabin is probably much less. Second, because the cabin is only used seasonally from May 1 to October 31.

The U.S. Forest Service also has a reserved right to use water from the Hull Creek watershed; e.g. for the Hull Creek campground use and range cattle allotment needs. These diversions are seasonal from May 1 to October 31. These usages were estimated and the calculations are included in Appendix I. The estimated consumption for these uses totals 1.34 acre feet per year.

It should be noted that all of the uses detailed above do not actually remove water from the Hull Creek watershed and most of the water consumed undoubtedly is returned to ground water within the basin.

Down stream of the Marco and Polo Creek/Hull Creek confluences are three entities with senior water rights, i.e. the Modesto and Turlock Irrigation Districts, and City and County of San Francisco. The Raker Act, respectively, recognized the senior rights of the Districts and established a water right for San Francisco. Additionally, Board ruling D995 deemed the Tuolumne River to be fully appropriated from July 1 to October 31. Therefore, during that timeframe there is no water consider available for appropriation above Lake Don Pedro. As a result of Application No. 31491, these senior water right holders filed protests of the Application to claim their prior rights and ensure those rights shall not be infringed.

Similar protests by the same senior water right holders were filed against this applicant, when applicant of Application No. 29977, dated July 12, 1991. Those protests were resolved by the Applicant entering Agreements first with the Modesto and Turlock Irrigation Districts, dated December 12, 1992; then the City and County of San Francisco, dated February 17, 1995. The foundation of those agreements is the water diverted pursuant to Application No. 29977 during the period the Tuolumne River is fully appropriated shall be replaced with out of basin Stanislaus River water purchased from the Tuolumne Utility District. That water is released upstream of the Lake Don Pedro dam, so there is no net loss of water upstream of said dam.

That same issue, diverting water during the time a system is fully appropriated, was resolved in writing by the City and County of San Francisco with a letter, dated January 31, 2005. As a result of the inclusion of the two conditions within that letter San Francisco and the Districts protest have been dismissed by the Board.

## 3.2 Proposed Points of Diversion and Points of Interest

Four points of interest (POI) were evaluated in this study. The first POI, labeled "A" on Figures 3, 4 and 6, is the point immediately below the confluence of the unnamed tributary below Marco spring and Hull Creek. The second POI, labeled "B" on Figures 3, 4, & 6, is the point on Hull Creek immediately below the confluence of the unnamed tributary below Polo spring and Hull Creek..

The third POI, labeled "C" on Figures 3 & 4, is the point immediately above the confluence of Hull Creek and the Clavey River. This point of interest measures the effect of the diversions on the entire flow from the Hull Creek watershed.

The fourth location (POI), labeled "D" on Figure 4, is gaging station #11283500, located on the Clavey River below the mouth of Hull Creek. This point of interest measures the effect of the diversions on the flow of the Clavey River below and near the mouth of Hull Creek.

There is no need for any additional POI locations downstream of the Clavey River POI. As explained above, in Section 3.1, the prior rights of the Modesto and Turlock Irrigation Districts, and City and County of San Francisco are protected by the inclusion of two conditions in the Permit to be issue the Applicant. If a potential or actual water supply reduction is determined to or has occurred then upon notice to the Applicant by the Districts replacement water shall be introduced above the Lake Don Pedro dam within one year of said notice. The replacement water shall come from, out of basis, the Stanislaus River. Additionally, the Applicant can and has been purchasing out of basin water in advance as a credit to future replacement water requirements.

## 4.0 METHODS

### 4.1 Alternatives

Two methods were used to calculate the runoff from the Hull Creek drainage. The method frequently used by the California State Water Resources Control Board is the Rational Runoff Method. Although CalTrans uses this method only to estimate peak flows, the SWRCB adopted a similar approach to estimate average annual runoff volume from a drainage basin. Nevertheless, this method is subject to serious drawbacks as explained below. Nevertheless, this method was used initially because it was believed that no adequate gaging station was present in the area.

The second and preferred method was comparison with the flow rates determined from a stream gaging station on the Clavey River a short distance downstream from the mouth of Hull Creek.

### 4.2 Rainfall-Runoff Method

Rainfall runoff methods use rainfall data and land use characteristics to calculate runoff for a particular watershed area. When the rate of rainfall exceeds the rate of infiltration of water into the ground, excess water (runoff) is available to supply surface waters. The rational method is typically used by engineers and hydrologists to design hydraulic structures and predict peak flood flows. However, under the assumptions discussed below, the rational method can be used to estimate the average annual runoff based on the average annual precipitation. The equation is shown below:

$$Q = C\,I\,A$$

Where: Q = Estimated average annual runoff (acre-feet per annum);
C = Runoff coefficient;
I = Average annual precipitation (feet per annum); and
A = Tributary watershed area (acres)

The runoff coefficient "C" in the rational method equation represents the percent of water that will run off the ground surface during a storm event. The California Department of Transportation (Caltrans) Highway Design Manual provides a table showing various values for "C" depending on soil type, relief, vegetation and surface storage (California Department of Transportation, 1995). Where multiple land uses are found within the watershed, it is customary to use an area-weighted runoff coefficient (Bedient and Huber, 1992). In addition, the runoff coefficients given in the Caltrans Highway Design Manual are applicable for storms of up to 5 or 10-year frequencies. Less frequent, higher intensity storms require adjustment. The model also does not account for the fact that a significant percentage of the rainfall that infiltrates into the ground and ground water appears again as springs that flow back into Hull Creek and contribute to the runoff.

Since the rational method is so commonly used, it is important to note the assumptions in its development. The equation assumes that rainfall is of equal intensity over the entire watershed. Because actual rainfall rates vary over space and time, the rational method should only be used within small watershed areas where rainfall is likely to be relatively uniform. For estimation of peak flows, the rational method should not be used for areas larger than 0.5~1 $mi^2$ (321~640 acres) (Bedient and Huber , 1992; Linsley, et al, 1992). When the rational method is used with larger watersheds, the peak runoff will generally be over-predicted (Linsley, et al, 1992). Larger watersheds that include significant tributary inflows should be divided into smaller areas and modeled using flow routing methods or regional regression equations (Linsley, et al, 1992).

## 4.3 Proration of U.S.Geological Survey Streamflow Data

Streamflow can also be estimated based on a proration of areas using the following formula:

$$Q_2 = Q_1 \text{ x } (A_2/A_1) \text{ x } (I_2/I_1)$$

Where: $Q_2$ = Daily flow (cfs) at point of interest on tributary watershed;
$Q_1$ = Daily flow (cfs) at nearby gage;
$A_2$ = Watershed area above point of interest;
$A_1$ = Watershed area above nearby gage;
$I_2$ = Precipitation at point of interest; and
$I_1$ = Precipitation at nearby gage

In the case of Hull Creek, no rainfall data is available except at the Cherry Lake Dam gauge. Therefore, the assumption must be made that precipitation is constant over the entire watershed.

The total average precipitation over a thirty-year period at the Cherry Valley Dam is 47.46 inches, or 3.98 feet (California State Climatologist). The Cherry Valley Dam rainfall recording station is at an elevation of 4765 feet, whereas the elevation of the Hull Creek drainage ranges from a low of 3850 to a high of 6800 feet above mean sea level.

The map of average annual precipitation in northern California from 1961 to 1990 was also reviewed (National Oceanic and Atmospheric Administration, 2010). This map revealed that the average annual precipitation for the Hull Creek and the balance of the Clavey River drainage ranges from 40 to 55 inches (3.33 to 4.58 feet). The distribution of rainfall appears to be approximately the same for the Hull Creek and the balance of the Clavey River watershed.

## 5.0 ANNUAL UNIMPAIRED FLOW

### 5.1 Rainfall and Calculation of Watershed Areas

The drainage areas above points of interest A, B, C, & D were determined and outlined on the US Geological 7.5 minute quadrangles covering the area and the relative areas measured by Golden State Surveying & Engineering of Sonora, California, utilizing the AutoCad computer program algorithm for calculating area. The acreage determined for the areas involved are tabulated in Table 1.

**Table 1. Watershed Areas Above Points of Interest**

| Area Determined | Area (Acres) |
|---|---|
| | |
| Hull Creek above Marco Creek (POI A) | 8,175 |
| | |
| Hull Creek Between Marco and Polo Creeks (POI B) | 413 |
| | |
| Hull Creek Between Polo Creek And Clavey River (POI C) | 987 |
| | |
| Total Hull Creek Drainage above Confluence with Clavey River (POI C) | 9,574 |
| | |
| Clavey River Above Gaging Station #11283500 (Excluding Hull Creek) | 41,569 |
| | |
| Clavey River Above Gaging Station #11283500 (Including Hull Creek, POI D) | 51,143 |
| | |

## 5.2 Calculation of Runoff Using the Rainfall-Runoff Method

To calculate the average annual runoff from Hull Creek and Clavey River watersheds the average annual precipitation is assumed to be 4.0 feet per year.

Using the above, the Runoff Coefficient was calculated using the California Department of Transportation Table for the Hull Creek drainage area as follows:

**Table 2. Tabulation of Characteristics and Determination of Runoff Coefficient of the Hull Creek Watershed**

| Watershed Characteristic | Description from Table | Runoff Capacity | Range | Value Used |
|---|---|---|---|---|
| | | | | |
| Relief | Hilly, with average slopes of 10 to 30% | High | 0.20-0.28 | 0.28 |
| | | | | |
| Soil Infiltration | slow to take up water, clay or shallow loam soils of low infiltration capacity, imperfectly or poorly drained | High | 0.08-0.12 | 0.12 |
| | | | | |
| Vegetal Cover | Good to excellent; about 90% of drainage area in good grassland, woodland or equivalent cover. | Low | 0.04-0.06 | 0.06 |
| | | | | |
| Surface Storage | Low; well defined system of small drainage ways; no ponds or marshes | High | 0.08-0.10 | 0.10 |
| | | | | |
| Total Runoff Determined Coefficient | | | | 0.56 |

Using the formula and figures in Table 1, the average annual runoff of the Hull Creek watershed above POI A (Immediately below inflow of Marco Creek):

Q = 4.0 feet/year X 8175 acres X 0.56

Q = 18,312 acre-feet/year

The area of the drainage above the second point of interest, B (point immediately below the confluence of Polo and Hull Creeks), is 8,587 acres. Using the above assumptions, the runoff calculated at this point is:

Q = 4.0 feet/year X 8,587 acres X 0.56

Q = 19,234 acre-feet/year

The area of the drainage above the third point of interest, C (point immediately above the confluence of Hull Creek and Clavey River), is 9,574 acres. Using the above assumptions, the runoff calculated at this point is:

Q = 4.0 feet/year X 9,574 acres X 0.56

Q = 21,446 acre-feet/year

The area of the drainage above the fourth point of interest, D (point at gaging station #11283500), is 51,143 acres. Using the above assumptions, the runoff calculated at this point is:

Q = 4.0 feet/year X 51,143 acres X 0.56

Q = 114,560acre-feet/year

## 5.3 Calculation of Runoff using USGS Gage Data

In order to calculate the runoff from Hull Creek using nearby stream gage data, a search was made to determine if there were any stream gages in the vicinity that could be used to calculate the Hull Creek runoff. Two gages were identified that were in close proximity to the Hull Creek Drainage. Gage #11278400 is located 11 miles southeast of the mouth of Hull Creek. Gage #11283500 is located on the Clavey River approximately one and one half miles below the mouth of Hull Creek.

Gage 11278400 is located on Cherry Creek below the Dion R. Holm powerhouse. The drainage basin above the gage has an area of 234 $mi^2$ and extends eastward into the Emigrant Wilderness and to the crest of the Sierra. Because the drainage basin extends to higher elevations than Hull Creek, the runoff is affected to a greater extent by snow melt than the flow in Hull Creek. This skews the supply season to later than would be the case in Hull Creek. Furthermore, the flows measured at gage 11278400 are believed to be unreliable because the flows are regulated by Cherry Lake, 11 miles upstream, and Lake Eleanor, 10 miles upstream. Also, the flow above the gage is diverted at times into Cherry Creek Canal 2 miles upstream from the gage for domestic use and to supplement flow to Hetch Hetchy Aqueduct.

On the other hand, gage #11283500 is only one and one half miles from the mouth of Hull Creek and the drainage basin above the gage includes runoff from Hull Creek. In addition, the upper reaches of the Clavey River drainage only extend approximately ten miles farther east than that of Hull Creek and 20% of the flow measured by this gage is derived from Hull Creek. The balance of the Clavey drainage would be affected by the same precipitation events and should have a similar monthly runoff signature as that from Hull Creek .

**Table 3.** **Monthly Measurements of Stream Flow In Clavey River Measured By Gage 11283500 Near Buck Meadows, California, Measured for 30 Years During the Period 1960-1995. Source: USGS & Turlock Irrigation District.**

| Water Year | Oct ($ft^3$/sec) | Nov ($ft^3$/sec) | Dec ($ft^3$/sec) | Jan ($ft^3$/sec) | Feb ($ft^3$/sec) | Mar ($ft^3$/sec) | Apr ($ft^3$/sec) | May ($ft^3$/sec) | Jun ($ft^3$/sec) | Jul ($ft^3$/sec) | Aug ($ft^3$/sec) | Sep ($ft^3$/sec) | Mean Annual Flow ($ft^3$/sec) | Annual Volume (acre-ft) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 | 13.9 | 17.0 | 36.6 | 184 | 351 | 418 | 352 | 83.8 | 18.2 | 9.36 | 7.96 | 14.9 | 125 | 90,496 |
| 1961 | 24.0 | 44.3 | 29.0 | 79.4 | 113 | 215 | 185 | 63.7 | 9.62 | 4.20 | 4.98 | 11.2 | 65.1 | 47,130 |
| 1962 | 12.3 | 27.2 | 28.3 | 372 | 201 | 988 | 642 | 360 | 53.3 | 16.0 | 9.92 | 6.07 | 224 | 162,169 |
| 1963 | 16.2 | 44.5 | 245 | 724 | 192 | 610 | 1034 | 369 | 83.9 | 29.3 | 19.9 | 25.0 | 279 | 201,988 |
| 1964 | 148 | 72.2 | 73.7 | 111 | 156 | 379 | 403 | 191 | 35.5 | 13.7 | 10.7 | 22.3 | 134 | 97,012 |
| 1965 | 57.7 | 999 | 617 | 442 | 375 | 745 | 777 | 449 | 122 | 71.4 | 24.8 | 10.6 | 391 | 283,072 |
| 1966 | 226 | 141 | 129 | 133 | 385 | 551 | 305 | 61.6 | 18.5 | 10.0 | 8.96 | 19.4 | 165 | 119,455 |
| 1967 | 102 | 427 | 195 | 317 | 734 | 471 | 1548 | 1005 | 296 | 53.2 | 30.6 | 9.14 | 434 | 314,203 |
| 1968 | 25.4 | 46.2 | 69.1 | 276 | 281 | 397 | 291 | 80.1 | 17.4 | 11.8 | 6.92 | 24.7 | 126 | 91,220 |
| 1969 | 94.5 | 101 | 1302 | 483 | 497 | 1362 | 1703 | 769 | 202 | 38.5 | 22.7 | 13.9 | 549 | 397,460 |
| 1970 | 48.7 | 207 | 1070 | 414 | 466 | 380 | 504 | 239 | 50.6 | 17.6 | 14.3 | 45.7 | 288 | 208,503 |
| 1971 | 124 | 176 | 202 | 276 | 443 | 575 | 584 | 359 | 68.2 | 18.8 | 14.0 | 15.7 | 237 | 171,581 |
| 1972 | 62.2 | 139 | 110 | 189 | 490 | 405 | 405 | 143 | 21.8 | 9.65 | 7.96 | 17.3 | 167 | 120,903 |
| 1973 | 35.6 | 127 | 253 | 304 | 338 | 799 | 1163 | 336 | 44.5 | 18.5 | 13.5 | 13.0 | 287 | 207,779 |
| 1974 | 277 | 246 | 438 | 205 | 627 | 765 | 873 | 299 | 75.0 | 26.1 | 12.9 | 23.4 | 323 | 233,842 |
| 1975 | 29.0 | 62.0 | 94.0 | 216 | 439 | 446 | 1448 | 813 | 130 | 42.5 | 26.8 | 18.6 | 314 | 227,327 |
| 1976 | 81.1 | 51.0 | 41.6 | 70.0 | 135 | 187 | 195 | 34.5 | 10.2 | 17.6 | 12.4 | 86.9 | 76.9 | 55,673 |
| 1977 | 12.6 | 9.65 | 17.2 | 30.0 | 39.0 | 84.4 | 117 | 43.5 | 5.06 | 1.66 | 2.28 | 10.6 | 31.0 | 22,443 |
| 1978 | 11.4 | 111 | 285 | 452 | 916 | 993 | 1201 | 732 | 161 | 28.5 | 68.3 | 2.89 | 413 | 299,000 |
| 1979 | 30.4 | 47.2 | 214 | 216 | 515 | 810 | 1116 | 277 | 52.0 | 22.9 | 16.2 | 20.3 | 278 | 201,264 |
| 1980 | 51.4 | 71.0 | 1331 | 1156 | 575 | 821 | 926 | 549 | 200 | 38.1 | 23.3 | 23.9 | 478 | 346,058 |
| 1981 | 21.4 | 33.6 | 59.0 | 120 | 213 | 460 | 358 | 79.8 | 15.6 | 7.45 | 6.77 | 20.5 | 116 | 83,981 |
| 1982 | 295 | 510 | 394 | 1426 | 714 | 2057 | 1231 | 409 | 168 | 57.6 | 69.4 | 28.5 | 606 | 438,726 |
| 1983 | 339 | 747 | 527 | 824 | 1482 | 888 | 1754 | 1746 | 566 | 101 | 57.2 | 226 | 771 | 558,181 |
| 1987 | 19.5 | 21.2 | 29.0 | 76.6 | 165 | 282 | 160 | 30.2 | 9.60 | 5.02 | 4.99 | 23.5 | 68.7 | 49,737 |
| 1988 | 22.7 | 41.4 | 88.5 | 125 | 209 | 226 | 187 | 57.9 | 12.8 | 3.98 | 3.12 | 9.13 | 82.0 | 59,365 |
| 1992 | 15.3 | 31.2 | 24.8 | 35.4 | 172 | 284 | 415 | 138 | 27.0 | 48.9 | 8.51 | 4.57 | 50.4 | 36,509 |
| 1993 | 9.62 | 21.9 | 60.5 | 456 | 376 | 902 | 1009 | 1092 | 530 | 122 | 23.0 | 12.7 | 193.9 | 140,379 |
| 1994 | 15.2 | 16.6 | 23.1 | 28.4 | 64.5 | 215 | 291 | 290 | 64.6 | 11.6 | 4.06 | 3.81 | 43.2 | 31,282 |
| 1995 | 13.5 | 57.7 | 69.2 | 696 | 434 | 1446 | 1097 | no data | no data | no data | no data | no data | | |
| | | | | | | | | | | | | | | |
| Mean | 74.5 | 154.9 | 268.5 | 347.9 | 403.2 | 638.7 | 742.5 | 382.8 | 105.8 | 29.5 | 18.5 | 26.4 | 266.1 | 191,621 |
| Monthly Percentage | 2.33 | 4.85 | 8.41 | 10.90 | 12.63 | 20.00 | 23.25 | 12.00 | 3.31 | 0.92 | 0.58 | 0.83 | 100.01 | |

Assuming similar precipitation over the Clavey and Hull Creek watersheds, the average annual runoff at Point of interest A can be calculated by the formula:

$$Q_2 = Q_1 \text{ x } (A_2/A_1)$$

Where: $Q_1$ = Measured average annual runoff from Clavey River watershed, including Hull Creek
(=191,621 acre-feet)

$A_2$ =Area of Hull Creek Drainage Above POI A
(=8,174 acres/640=12.77 $mi^2$)

$A_2$ =Area of Clavey River Drainage above gage #11283500 (includes Hull Creek)
(=51,143, or 79.91 $mi^2$)

$Q_2$ = Runoff in Hull Creek at POI A

Substituting:

$$Q_2 = 12.77 \text{ mi}^2/79.9 \text{ mi}^2 \text{X} 191{,}621 \text{ acre-feet}$$

$$Q_2 = 30{,}626 \text{ acre-feet}$$

Again assuming similar precipitation over the Clavey and Hull Creek watersheds, the average annual runoff at Point of interest B can be calculated by the formula:

$$Q_2 = Q_1 \text{ x } (A_2/A_1)$$

Where: $Q_1$ = Measured average annual runoff from Clavey River watershed, including Hull Creek
(=191,621 acre-feet)

$A_2$ =Area of Hull Creek Drainage Above POI B
(=8,588 acres/640=13.42 $mi^2$)

$A_2$ =Area of Clavey River Drainage, including Hull Creek
(=79.91 $mi^2$)

$Q_2$ = Runoff in Hull Creek at POI B

Substituting:

$$Q_2 = 13.42 \text{ mi}^2/79.91 \text{ mi}^2 \text{X} 191{,}621 \text{acre-feet}$$

$$Q_2 = 32{,}181 \text{ acre-feet}$$

Again assuming similar precipitation over the Clavey and Hull Creek watersheds, the average annual runoff at Point of interest C can be calculated by the formula:

$$Q_2 = Q_1 \times (A_2/A_1)$$

Where: $Q_1$ = Measured average annual runoff from Clavey River watershed, including Hull Creek
(=191,621 acre-feet)

$A_2$ =Area of Hull Creek Drainage Above POI C
(=9574acres/640=14.96 $mi^2$)

$A_2$ =Area of Clavey River Drainage above gage #11283500, including Hull Creek
(=79.91 $mi^2$)

$Q_2$ = Runoff in Hull Creek at POI C

Substituting:

$$Q_2 = 14.96\ mi^2/79.91\ mi^2 X 191{,}621 \text{acre-feet}$$

$$Q_2 = 35{,}874 \text{ acre-feet}$$

## 5.4 Comparison of Flow Rates

The comparison of flow determined for the points of interest by means of the rational runoff method and calculated total annual flow determined by prorating acreages are tabulated in Table 4.

Table 4. Comparison of Total Flow Determinations

| Point of Interest | Mean Flow Rate by Rational Runoff Method (acre-feet/year) | Mean Flow Rate by Gage #11283500 And Prorated Acreages (acre-feet/year) |
|---|---|---|
| | | |
| A | 18,312 | 30,626 |
| | | |
| B | 19,234 | 32,181 |
| | | |
| C | 21,446 | 35,874 |
| | | |
| C | 114,560 | 191,621* |
| | | |

*Mean Measured Flow at Gage #11283500

The table shows a 40% decrease in calculated flow using the rational runoff method when compared to the actual flow data from gage #11283500. The upper reaches of the Clavey drainage have areas that are near or above the tree line and would have a higher runoff coefficient than assumed in Table 2. However, this discrepancy may be greater than can be accounted by an error in the runoff coefficient alone. It is also possible that the upper portion of the Clavey receives greater annual precipitation than determined by the Cherry Dam rain gauge or estimated by the NOAA precipitation map.

Because the Hull Creek drainage is at a lower elevation than the rest of the Clavey drainage basin, it was decided to use the values determined using the rational runoff method for points of interest A, B & C. However, the actual mean runoff figure for gage #11283500 was used for point of interest D. The monthly percentages of runoff at the gage were applied to the flow rates determined by the rational runoff method for Hull Creek.

# 6.0 UNIMPAIRED FLOW DURING THE PROJECT'S DIVERSION SEASON

## 6.1 Data and Assumptions

Sum of daily flows were calculated on a percentage basis by comparison of the average annual runoff to the percentage of flows occurring during this time in the closest reliable stream gage. . However, the Clavey River, into which Hull Creek flows, has no diversions. A gage on the Clavey, located approximately one mile below the mouth of Hull Creek is currently inactive. However, this gage (#11283500) was monitored by the USGS from 1960 until 1988. The gage was then maintained and monitored by the Turlock Irrigation District until September 1995. This gage is located at latitude 37°54'02" and longitude 120°04'15".

## 6.2 Calculations

Because diversions from the springs are expected to take place during the entire year, a calculation was made to estimate the average flow for each month of the year. The mean daily flows from gage 11283500 for the period from 1960 to 1995 were converted to acre-feet per month by the following formula:

$$V = f \times d \times s \times g / v$$

where: V = acre feet/month
and, f = daily flow (cubic feet/second)
d = days per given month
s = seconds/day
g = gallons/cubic foot
v = gallons/acre-foot

The percentage volume for each month was then calculated by dividing the volume for any given month by the total annual volume. This percentage is applied to the annual unimpaired flow calculated for each of the points of interest in the Hull Creek drainage. The results are tabulated in Table 5:

## Table 5. Calculated Unimpaired Flow Volumes at Points of Interest A, B, C, & D.

| Month | Mean Daily flow from 11283500 ($ft^3$/sec) | Mean Volume per Month at 11283500 (acre-feet) | Monthly Percentage of Annual Flow | Calculated Monthly Unimpaired Runoff POI A (acre-feet) | Calculated Mean Daily flow for POI A ($ft^3$/sec) | Calculated Monthly Unimpaired Runoff POI B (acre-feet) | Calculated Mean Daily flow for POI B ($ft^3$/sec) | Recorded Monthly Unimpaired Runoff POI C (acre-feet) | Recorded Mean Daily flow for POI C ($ft^3$/sec) | Recorded Monthly Unimpaired Runoff POI D (acre-feet) | Recorded Mean Daily flow for POI D ($ft^3$/sec) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| October | 74.5 | 4,281 | 2.23 | 408 | 7.1 | 429 | 7.5 | 478 | 8.3 | 4,281 | 74.5 |
| November | 154.9 | 9,218 | 4.81 | 881 | 14.8 | 925 | 15.5 | 1,031 | 17.3 | 9,218 | 154.9 |
| December | 268.5 | 16,511 | 8.62 | 1,578 | 25.7 | 1,658 | 27.0 | 1,849 | 30.1 | 16,511 | 268.5 |
| January | 347.9 | 21,394 | 11.16 | 2,044 | 33.2 | 2,147 | 34.9 | 2,393 | 38.9 | 21,394 | 347.9 |
| February | 403.2 | 22,395 | 11.69 | 2,141 | 38.5 | 2,248 | 40.5 | 2,507 | 45.1 | 22,395 | 403.2 |
| March | 638.7 | 39,277 | 20.50 | 3,754 | 61.0 | 3,943 | 64.1 | 4,396 | 71.5 | 39,277 | 638.7 |
| April | 742.5 | 44,187 | 23.06 | 4,223 | 71.0 | 4,435 | 74.5 | 4,945 | 83.1 | 44,187 | 742.5 |
| May | 382.8 | 23,540 | 12.28 | 2,249 | 36.6 | 2,362 | 38.4 | 2,634 | 42.8 | 23,540 | 382.8 |
| June | 105.8 | 6,296 | 3.29 | 602 | 10.1 | 633 | 10.6 | 706 | 11.9 | 6,296 | 105.8 |
| July | 29.5 | 1,814 | 0.95 | 174 | 2.8 | 183 | 3.0 | 204 | 3.3 | 1,814 | 29.5 |
| August | 18.5 | 1,137 | 0.59 | 108 | 1.8 | 113 | 1.8 | 127 | 2.1 | 1,137 | 18.5 |
| September | 26.4 | 1,571 | 0.82 | 150 | 2.5 | 158 | 2.7 | 175 | 3.0 | 1,571 | 26.4 |
| Yearly Average | | | | | | | | | | | |
| Total | | 191,621 | 100.00 | 18,312 | | 19,234 | | 21446 | | 191,621 | |

## 7.0 BYPASS FLOW

In California basins dominated by rainfall runoff and flowing unimpeded to the Pacific Ocean, bypass flow is normally calculated on the basis of the February median flow. The February median flow metric is accepted as the critical flow level which must be maintained or exceeded in these rivers. This flow is provided in an effort to ensure salmon and steelhead can spawn, their resulting fry are able to thrive, and as fingerlings can be assisted on their return to the sea by the flushing effect of the respective flow metric.

However, this project is located in a drainage basin which is dominated by snowmelt runoff that is impeded from flowing to the sea by New Don Pedro Reservoir. Salmon and steelhead cannot pass the dam that creates New Don Pedro Reservoir and spawn upstream from the dam. Additionally, the applicant is obligated to replace the water diverted upstream of New Don Pedro with out-of-basin waters. This project will have no impact on water quantity or quality downstream from the New Don Pedro Reservoir. As a result, there will be no impact to the bypass flow measurement prescribed for the Tuolumne River downstream of New Don Pedro Dam.

From previous studies by Halstead & Associates (December 2003): "The downstream reaches of Deadwood Creek have not been impacted by the water diversion because of tributary inflows from other springs and creeks." Of the downstream water courses that have had their spring-headwaters diverted by the applicant (Application No. 29977, Water Rights Permit 20784); no correlation has been found to suggest the amount of water, in question, when diverted, has any impact on the quantity or quality of flow along the downstream reaches of a spring's respective stream. The quantity and quality flow parameters were found to be more closely correlated and proportional to the percentage of normal annual rainfall received during that water-year. After being studied during a series of diversion-years, none of the downstream reaches were considered to have less ecological vigor than existed prior to diversion.

As stated by the Dept. of Fish & Game, Stream Alteration Agreement (SAA) No. 4-146-91, Provision 2, bypass flow "is expected to support aquatic life and to maintain in a live healthy condition, the riparian vegetation growing in the reach of the stream that lies" beneath the spring(s). The rate of flow prescribed in aforementioned SAA by the Fish & Game to accomplish that goal was "not less than 2.5 GPM or 20% of the total flow for the spring(s), whichever is greater." The SAA above governs the diversion of water from springs at the same elevation and within two (2) mile of the Marco and Polo springs.

The Fish & Game bypass flow expectation to achieve their stated goal shall be used to set the minimum bypass flow level, surface flow in excess of that amount but no greater than 20 GPM, may be considered available for diversion.

| Total Flows | By Pass Flow | Diversion Flow Available |
|---|---|---|
| 0.0 – 2.5 GPM | 0 - 2.5 GPM | 0.0 |
| 2.5 – 12.5 GPM | 2.5 GPM | 0.01 – 10.0 GPM |
| 12.5 – 25 GPM | 2.5 - 5 GPM | 10.01 – 20.0 GPM |
| > 25 GPM | > 5 GPM | 20 GPM |

## 7.2 Water Rights

Down stream of the Marco and Polo Creek/Hull Creek confluences are three (3) entities with senior water rights, i.e. the Modesto and Turlock Irrigation Districts, and City and County of San Francisco. The Raker Act, respectively, recognized the senior rights of the Districts and established a water right for San Francisco. As a result, Board ruling D995 deemed the Tuolumne River to be fully appropriated from July 1 to October 31. During that timeframe there is no water consider available for appropriation above Lake Don Pedro., Therefore, these senior water right holders filed protests to claim their prior rights and ensure those rights shall not be infringed upon by Application No. 31491.

Similar protests by the same senior water right holders were filed against this Applicant, when applicant of Application No. 29977, dated July 12, 1991. Those protests were resolved by the then applicant entering Agreements: first, with the Modesto and Turlock Irrigation Districts, dated December 12, 1992; then the City and County of San Francisco, dated February 17, 1995. The foundation of those agreements is the water diverted pursuant to Application No. 29977 during the period the Tuolumne River is fully appropriated shall be replaced with out of basin Stanislaus River water, purchased from the Tuolumne Utility District. That water is released into Sullivan Creek thence Lake Don Pedro upstream of the Lake Don Pedro dam, thereby the fully appropriated Tuolumne River has no net loss of water in upstream of said dam.

That same issue, diverting water from the Tuolumne River system during the time period its waters are fully appropriated, was resolved in writing by the City and County of San Francisco with a letter, dated January 31, 2005. That letter requires the inclusion of two (2) detailed conditions; thereby, with those conditions incorporated within the Applicant's Permit, once issued, the Board shall dismissed San Francisco's and the Districts' protest.

## 7.3 Pubic Interest

In the public interest of City and County of San Francisco, the Raker Act established a Tuolumne River water right for San Francisco. That Act and right permits San Francisco to convey water from the Tuolumne River to San Francisco to meet its domestic water needs. With the dismissal of San Francisco's protest, as described above in Section 7.2, the public interest of San Francisco's domestic water supply has been protected.

## 8.0 CUMULATIVE FLOW IMPAIRMENT INDEX (CFII)

Pursuant to CEQA, CESA and ESA, the Division is required to evaluate cumulative impacts to natural hydrology. The CFII is an index that is used to evaluate the cumulative flow impairment demand of all existing and pending projects in a watershed of interest. The CFII is a percentage obtained by dividing **Demand** in acre-feet by **Supply** in acre-feet at a specified **POI**, and for a specified time period, where:

> **Demand** is the "face" value entitlements of all existing and pending water rights, under all bases of right, above the POI in acre-feet, using the Division's Water Rights Information Management System (WRIMS) database and water right files. Demand includes existing and pending water right applications for "Post-1914" appropriators, Statements of Water Diversion and Use for "Riparian" and "Pre-1914" appropriators, small domestic use registrations, stock pond registrations, and any other known authorized diversions; and
>
> **Supply** is the seasonal average unimpaired flow above the POI in acre-feet. For the "coastal" watersheds in the counties of Mendocino, Sonoma, Marin and Napa the season of December 15 through March 31 is used to compute supply.

Based on the WRIMS database, as of October 30, 2006, the total entitlements of recorded water rights above the POIs are estimated to be 1.72 acre-feet for POI A; 1.72 acre-feet for POI B; 1.72 acre-feet for POI C, and 1.72 acre-feet for POI D (See Appendices B-D). It was assumed that there were no other pending applications other than the one addressed in this document. Therefore, only one case was prepared for each POI. If the current application is approved, the water rights will increase to 66.22 acre-feet per annum (33.97 af above POI A).

The total annual unimpaired water available at the POIs are estimated to be 18,312 acre-feet at POI A; 19,234 acre-feet at POI B. 21,446 acre-feet at POI C; and 191,621 acre-feet at POI D. The CFII values were estimated as follows:

> CFII @ POI A = Demand (af) ÷ Supply (af)) x 100% = 0.0094 %;
> CFII @ POI B = Demand (af) ÷ Supply (af)) x 100% = 0.0089 %;
> CFII @ POI C = Demand (af) ÷ Supply (af)) x 100% = 0.0080 %;
> CFII @ POI D = Demand (af) ÷ Supply (af)) x 100% = 0.0009 %;

If the current application is added to the existing water rights, and using the figures from Appendix B, the annual CFII can be calculated as:

> CFII @ POI A = Demand (af) ÷ Supply (af)) x 100% = 0.185 %;
> CFII @ POI B = Demand (af) ÷ Supply (af)) x 100% = 0.344 %;
> CFII @ POI C = Demand (af) ÷ Supply (af)) x 100% = 0.309 %;
> CFII @ POI D = Demand (af) ÷ Supply (af)) x 100% = 0.035 %;

However, because diversions are proposed during the entire year, monthly calculations for the CII were made, including the current application.

**Table 6 CFII calculations and results for POI A (assuming current application is approved)**

| Month | Demand (acre-feet) | Supply (acre-feet) (From Table 5) | Calculation | CFII Percentage |
|---|---|---|---|---|
| | | | | |
| October | 2.83 | 408 | Demand/Supply X 100 | 0.69 |
| November | 2.83 | 881 | Demand/Supply X 100 | 0.32 |
| December | 2.83 | 1,578 | Demand/Supply X 100 | 0.18 |
| January | 2.83 | 2,044 | Demand/Supply X 100 | 0.14 |
| February | 2.83 | 2,141 | Demand/Supply X 100 | 0.13 |
| March | 2.83 | 3,754 | Demand/Supply X 100 | 0.075 |
| April | 2.83 | 4,223 | Demand/Supply X 100 | 0.067 |
| May | 2.83 | 2,249 | Demand/Supply X 100 | 0.13 |
| June | 2.83 | 602 | Demand/Supply X 100 | 0.47 |
| July | 2.83 | 174 | Demand/Supply X 100 | 1.63 |
| August | 2.83 | 108 | Demand/Supply X 100 | 2.62 |
| September | 2.83 | 150 | Demand/Supply X 100 | 1.75 |

**Table 7. CFII calculations and results for POI B (assuming current application is approved)**

| Month | Demand (acre-feet) | Supply (acre-feet) (From Table 5) | Calculation | CFII Percentage |
|---|---|---|---|---|
| | | | | |
| October | 5.52 | 429 | Demand/Supply X 100 | 1.29 |
| November | 5.52 | 925 | Demand/Supply X 100 | 0.60 |
| December | 5.52 | 1,658 | Demand/Supply X 100 | 0.33 |
| January | 5.52 | 2,147 | Demand/Supply X 100 | 0.26 |
| February | 5.52 | 2,248 | Demand/Supply X 100 | 0.25 |
| March | 5.52 | 3,943 | Demand/Supply X 100 | 0.14 |
| April | 5.52 | 4,455 | Demand/Supply X 100 | 0.12 |
| May | 5.52 | 2,362 | Demand/Supply X 100 | 0.23 |
| June | 5.52 | 633 | Demand/Supply X 100 | 0.87 |
| July | 5.52 | 182 | Demand/Supply X 100 | 3.03 |
| August | 5.52 | 113 | Demand/Supply X 100 | 4.89 |
| September | 5.52 | 158 | Demand/Supply X 100 | 3.49 |

**Table 8.** **CFII calculations and results for POI C (assuming current application is approved)**

| Month | Demand (acre-feet) | Supply (acre-feet) (From Table 5) | Calculation | CFII Percentage |
|---|---|---|---|---|
| | | | | |
| October | 5.52 | 478 | Demand/Supply X 100 | 1.15 |
| November | 5.52 | 1032 | Demand/Supply X 100 | 0.53 |
| December | 5.52 | 1849 | Demand/Supply X 100 | 0.30 |
| January | 5.52 | 2393 | Demand/Supply X 100 | 0.23 |
| February | 5.52 | 2507 | Demand/Supply X 100 | 0.22 |
| March | 5.52 | 4396 | Demand/Supply X 100 | 0.12 |
| April | 5.52 | 4945 | Demand/Supply X 100 | 0.11 |
| May | 5.52 | 2634 | Demand/Supply X 100 | 0.21 |
| June | 5.52 | 706 | Demand/Supply X 100 | 0.78 |
| July | 5.52 | 204 | Demand/Supply X 100 | 2.69 |
| August | 5.52 | 127 | Demand/Supply X 100 | 4.32 |
| September | 5.52 | 176 | Demand/Supply X 100 | 3.12 |

**Table 9.** **CFII calculations and results for POI C (assuming current application is approved)**

| Month | Demand (acre-feet) | Supply (acre-feet) (From Table 5) | Calculation | CFII Percentage |
|---|---|---|---|---|
| | | | | |
| October | 5.52 | 4,281 | Demand/Supply X 100 | 0.13 |
| November | 5.52 | 9,218 | Demand/Supply X 100 | 0.060 |
| December | 5.52 | 16,511 | Demand/Supply X 100 | 0.033 |
| January | 5.52 | 21,394 | Demand/Supply X 100 | 0.025 |
| February | 5.52 | 22,395 | Demand/Supply X 100 | 0.024 |
| March | 5.52 | 39,277 | Demand/Supply X 100 | 0.014 |
| April | 5.52 | 44,187 | Demand/Supply X 100 | 0.012 |
| May | 5.52 | 23,540 | Demand/Supply X 100 | 0.023 |
| June | 5.52 | 6,296 | Demand/Supply X 100 | 0.087 |
| July | 5.52 | 1,814 | Demand/Supply X 100 | 0.30 |
| August | 5.52 | 1,137 | Demand/Supply X 100 | 0.48 |
| September | 5.52 | 1,571 | Demand/Supply X 100 | 0.35 |

## 9.0 Determination of Spring Diversion Flow Availability

### 9.1 Characteristics and Occurrence

The location of the springs in the area is controlled by major fault structures in the bedrock that provide pathways along which ground water flows in the bedrock and also to the surface to emerge as springs.

The applicant proposes to develop both Marco and Polo springs by means of boreholes that intercept these faults at a depth below the surface before the ascending spring water comes in contact with the surficial soils. This method of development is essential so that the spring water will not contact the soil profile and become contaminated with soil bacteria. During operation of the spring diversion, it is imperative to maintain surface flow from the springs to prevent infiltration of surface water into the diverted flow. This surface water will contain soil bacteria that could contaminate the diverted spring water.

Therefore, since the applicant must maintain surface flow from the springs, this will result in an inundated ecosystem near the spring water orifices. It will also preserve stream flow downstream from the springs.

### 9.2 Spring Flow Rates

G. Scott Fahey, a Registered Professional Engineer in the state of Idaho (#5763), measured the flows at two locations below each spring orifice area from 2005 to 2007 (Appendix H). The first site at each spring was immediately below the proposed points of diversion for each spring and the second two sites were where the gulches below the spring crossed the old railroad grade (Figure 6).

The flows measured at Marco and Polo springs were compared to those at Deadwood and Sugar Pine springs that have been continuously monitored from May of 2005 to June of 2008 (Figure 8).

In order to measure the flow, dams were built across the spring flow at each site and a four-inch PVC pipe was inserted in each dam. Flows less than approximately 100 gallons per minute were measured by Mr. Fahey by means of a five gallon bucket and stopwatch. Flows greater than 100 gallons per minute were estimated. The flow rates measured from each of the four sites are tabulated in Appendix H. As can be seen from the tabulation, the flow increases significantly below the proposed point of diversion to the railroad grade sites. This demonstrates that the streams continue to gain spring flow between the proposed point of diversion and the railroad grade.

The closest rainfall gauge at a similar elevation, the Cherry Valley Dam gauge, has averaged 47.65 inches per season over the last 45 years (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl/ca1697). The 2004-2005 season at this gauge recorded 68.19 inches of precipitation, 43% above average. The 2005-2006 precipitation season recorded 67.34 inches, 41% above normal. However, the 2006-2007 season only recorded 28.18 inches, 41% below normal.

It is worthy to note that from 1955 to 2007 the seasonal precipitation at the Cherry Valley Dam gauge has ranged from a low of 19.16 inches to a high of 91.03 inches. However only five of the fifty-one complete seasonal records had precipitation totals less than the 2006-2007 season.

Figure 7 shows the normal distribution of this precipitation. Very little rainfall is recorded during the summer with the bulk of the precipitation occurring from November through April.

Table 10 demonstrates the diminution of flows from the springs at the end of the dry season before rain and snowfall replenishes the aquifer. It also shows the relative effects of total annual rainfall on the flows from both Marco and Polo springs.

In order to ensure that surface spring flows are sustained, the proposed diversion flow must be reduced, if necessary, to ensure that surface flow is maintained at 2.5 GPM, or 20% of the total flow, whichever is greater. That minimum stream flow shall be maintained in each stream immediately below each point of diversion. If needed to assure continues stream flow continuity, additional diversion reduction shall occur, so in each spring's stream where they cross the railroad grade below the point of diversion a minimum flow of five gallons per minute shall be maintained.

Table 10 demonstrates the net effect of the diversions at the respective gauging sites if the diversions are maintained to permit the greater of 2.5 GPM or 20% of the total flow is bypassed ~~a~~ at the points of diversion and a flow of five gallons per minute at the railroad grade stream crossings.

| Table 10. Flow Rates in Marco and Polo Springs if Diversions Occurred During the Historical Periods of Measurement | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Total Flows | By Pass Flow | Diversion Flow Available | | | | |
| | | | | | | | 0.0 – 2.5 GPM | 0 - 2.5 GPM | 0 | | | | |
| | | | | | | | 2.5 – 12.5 GPM | 2.5 GPM | 0.01 – 10.0 GPM | | | | |
| | | | | | | | 12.5 – 25 GPM | 2.5 - 5 GPM | 10.01 – 20.0 GPM | | | | |
| | Deadwood & | | | | | | > 25 GPM | > 5 GPM | 20 GPM | | | | |
| | Sugar Pine | | | % of | | Polo | | | | % of | | Marco | |
| Date | Total Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow |
| 5/26/2005 | 80.41 | | | 174% | 70.00 | 20.00 | 50.00 | | | 199% | 80.00 | 20.00 | 60.00 |
| 6/2/2005 | 79.45 | | 1% | 173% | 68.79 | 20.00 | 48.79 | | 0% | 199% | 78.95 | 20.00 | 58.95 |
| 6/7/2005 | 77.12 | | 1% | 172% | 66.41 | 20.00 | 46.41 | | 0% | 199% | 76.55 | 20.00 | 56.55 |
| 6/16/2005 | 73.43 | | 1% | 171% | 62.88 | 20.00 | 42.88 | | 0% | 198% | 72.80 | 20.00 | 52.80 |
| 6/23/2005 | 71.33 | | 1% | 170% | 60.74 | 20.00 | 40.74 | | 0% | 198% | 70.63 | 20.00 | 50.63 |
| 7/1/2005 | 68.93 | | 1% | 169% | 58.37 | 20.00 | 38.37 | | 0% | 198% | 68.17 | 20.00 | 48.17 |
| 7/7/2005 | 66.83 | | 1% | 168% | 56.27 | 20.00 | 36.27 | | 0% | 198% | 66.01 | 20.00 | 46.01 |
| 7/10/2005 | 65.88 | | 1% | 167% | 55.16 | 20.00 | 35.16 | | 0% | 197% | 65.00 | 20.00 | 45.00 |
| 7/15/2005 | 64.88 | | 1% | 166% | 54.01 | 20.00 | 34.01 | | 0% | 197% | 63.93 | 20.00 | 43.93 |
| 7/20/2005 | 63.03 | | 1% | 166% | 52.17 | 20.00 | 32.17 | | 0% | 197% | 62.04 | 20.00 | 42.04 |
| 7/22/2005 | 62.84 | | 1% | 165% | 51.71 | 20.00 | 31.71 | | 0% | 197% | 61.77 | 20.00 | 41.77 |
| 7/29/2005 | 61.11 | | | 164% | 50.00 | 20.00 | 30.00 | | | 196% | 60.00 | 20.00 | 40.00 |
| 8/3/2005 | 60.37 | | 3% | 160% | 48.42 | 20.00 | 28.42 | | -2% | 198% | 59.78 | 20.00 | 39.78 |
| 8/10/2005 | 59.39 | | 3% | 157% | 46.67 | 20.00 | 26.67 | | -2% | 200% | 59.31 | 20.00 | 39.31 |
| 8/12/2005 | 58.90 | | 3% | 154% | 45.34 | 20.00 | 25.34 | | -2% | 201% | 59.31 | 20.00 | 39.31 |
| 8/18/2005 | 57.46 | | 3% | 151% | 43.30 | 20.00 | 23.30 | | -2% | 203% | 58.34 | 20.00 | 38.34 |
| 8/24/2005 | 56.97 | | 3% | 147% | 42.01 | 20.00 | 22.01 | | -2% | 205% | 58.32 | 20.00 | 38.32 |
| 9/2/2005 | 55.66 | | 3% | 144% | 40.15 | 20.00 | 20.15 | | -2% | 206% | 57.45 | 20.00 | 37.45 |
| 9/8/2005 | 54.00 | | 3% | 141% | 38.08 | 20.00 | 18.08 | | -2% | 208% | 56.19 | 20.00 | 36.19 |
| 9/15/2005 | 53.37 | | 3% | 138% | 36.77 | 20.00 | 16.77 | | -2% | 210% | 55.97 | 20.00 | 35.97 |

Table 10. Flow Rates in Marco and Polo Springs if Diversions Occurred During the Historical Periods of Measurement

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Total Flows | By Pass Flow | Diversion Flow Available | | | | |
| | | | | | | | 0.0 – 2.5 GPM | 0 - 2.5 GPM | 0 | | | | |
| | | | | | | | 2.5 – 12.5 GPM | 2.5 GPM | 0.01 – 10.0 GPM | | | | |
| | | | | | | | 12.5 – 25 GPM | 2.5 - 5 GPM | 10.01 – 20.0 GPM | | | | |
| | Deadwood & | | | | | | > 25 GPM | > 5 GPM | 20 GPM | | | | |
| | Sugar Pine | | | % of | | Polo | | | | % of | | Marco | |
| Date | Total Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow |
| 9/28/2005 | 52.02 | | | 135% | 35.00 | 20.00 | 15.00 | | | 211% | 55.00 | 20.00 | 35.00 |
| 10/6/2005 | 51.19 | | 1% | 136% | 34.80 | 20.00 | 14.80 | | 1% | 212% | 54.28 | 20.00 | 34.28 |
| 10/14/2005 | 50.11 | | 1% | 137% | 34.41 | 20.00 | 14.41 | | 1% | 213% | 53.28 | 20.00 | 33.28 |
| 10/17/2005 | 48.66 | | 1% | 139% | 33.75 | 20.00 | 13.75 | | 1% | 213% | 51.88 | 20.00 | 31.88 |
| 10/25/2005 | 48.19 | | 1% | 140% | 33.76 | 20.00 | 13.76 | | 1% | 214% | 51.53 | 20.00 | 31.53 |
| 11/6/2005 | 48.21 | | 1% | 141% | 34.11 | 20.00 | 14.11 | | 1% | 214% | 51.70 | 20.00 | 31.70 |
| 11/12/2005 | 48.36 | | 1% | 143% | 34.55 | 20.00 | 14.55 | | 1% | 215% | 52.01 | 20.00 | 32.01 |
| 12/12/2005 | 48.20 | | 1% | 144% | 34.77 | 20.00 | 14.77 | | 1% | 216% | 51.97 | 20.00 | 31.97 |
| 12/19/2005 | 47.02 | | 1% | 146% | 34.25 | 20.00 | 14.25 | | 1% | 216% | 50.85 | 20.00 | 30.85 |
| 12/23/2005 | 50.51 | | 1% | 147% | 37.14 | 20.00 | 17.14 | | 1% | 217% | 54.77 | 20.00 | 34.77 |
| 12/31/2005 | 59.28 | | 1% | 148% | 44.00 | 20.00 | 24.00 | | 1% | 217% | 64.46 | 20.00 | 44.46 |
| 1/3/2006 | 64.63 | | 1% | 150% | 48.42 | 20.00 | 28.42 | | 1% | 218% | 70.48 | 20.00 | 50.48 |
| 1/5/2006 | 63.09 | | 1% | 151% | 47.70 | 20.00 | 27.70 | | 1% | 219% | 68.98 | 20.00 | 48.98 |
| 1/15/2006 | 63.68 | | 1% | 153% | 48.59 | 20.00 | 28.59 | | 1% | 219% | 69.83 | 20.00 | 49.83 |
| 1/18/2006 | 62.88 | | 1% | 154% | 48.41 | 20.00 | 28.41 | | 1% | 220% | 69.13 | 20.00 | 49.13 |
| 1/22/2006 | 62.81 | | 1% | 155% | 48.80 | 20.00 | 28.80 | | 1% | 221% | 69.25 | 20.00 | 49.25 |
| 1/29/2006 | 62.14 | | 1% | 157% | 48.71 | 20.00 | 28.71 | | 1% | 221% | 68.70 | 20.00 | 48.70 |
| 2/1/2006 | 62.33 | | 1% | 158% | 49.29 | 20.00 | 29.29 | | 1% | 222% | 69.10 | 20.00 | 49.10 |
| 2/10/2006 | 64.45 | | 1% | 160% | 51.41 | 20.00 | 31.41 | | 1% | 222% | 71.64 | 20.00 | 51.64 |
| 2/17/2006 | 64.26 | | 1% | 161% | 51.71 | 20.00 | 31.71 | | 1% | 223% | 71.62 | 20.00 | 51.62 |

Table 10. Flow Rates in Marco and Polo Springs if Diversions Occurred During the Historical Periods of Measurement

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Total Flows | By Pass Flow | Diversion Flow Available | | | | |
| | | | | | | | 0.0 – 2.5 GPM | 0 - 2.5 GPM | 0 | | | | |
| | | | | | | | 2.5 – 12.5 GPM | 2.5 GPM | 0.01 – 10.0 GPM | | | | |
| | | | | | | | 12.5 – 25 GPM | 2.5 - 5 GPM | 10.01 – 20.0 GPM | | | | |
| | Deadwood & | | | | | | > 25 GPM | > 5 GPM | 20 GPM | | | | |
| | Sugar Pine | | | % of | | Polo | | | | % of | | Marco | |
| Date | Total Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow |
| 2/24/2006 | 63.16 | | 1% | 162% | 51.26 | 20.00 | 31.26 | | 1% | 224% | 70.59 | 20.00 | 50.59 |
| 2/28/2006 | 63.86 | | 1% | 164% | 52.27 | 20.00 | 32.27 | | 1% | 224% | 71.56 | 20.00 | 51.56 |
| 3/1/2006 | 73.19 | | 1% | 165% | 60.42 | 20.00 | 40.42 | | 1% | 225% | 82.24 | 20.00 | 62.24 |
| 3/2/2006 | 75.07 | | 1% | 166% | 62.49 | 20.00 | 42.49 | | 1% | 225% | 84.58 | 20.00 | 64.58 |
| 4/7/2006 | 75.24 | | | 168% | 65.00 | 20.00 | 45.00 | | | 226% | 85.00 | 20.00 | 65.00 |
| 6/5/2006 | 79.63 | | | 138% | 55.00 | 20.00 | 35.00 | | | 163% | 65.00 | 20.00 | 45.00 |
| 8/31/2006 | 60.00 | | | 179% | 50.00 | 20.00 | 30.00 | | | 200% | 60.00 | 20.00 | 40.00 |
| 10/1/2006 | 52.00 | | | 175% | 45.00 | 20.00 | 25.00 | | | 192% | 50.00 | 20.00 | 30.00 |
| 11/30/2006 | 50.74 | | 4% | 172% | 43.53 | 20.00 | 23.53 | | -2% | 194% | 49.28 | 20.00 | 29.28 |
| 12/25/2006 | 51.19 | | 4% | 168% | 42.99 | 20.00 | 22.99 | | -2% | 196% | 50.22 | 20.00 | 30.22 |
| 12/31/2006 | 51.04 | | 4% | 164% | 41.94 | 20.00 | 21.94 | | -2% | 198% | 50.57 | 20.00 | 30.57 |
| 1/7/07 | 51.12 | | 4% | 161% | 41.08 | 20.00 | 21.08 | | -2% | 200% | 51.15 | 20.00 | 31.15 |
| 2/1/2007 | 49.10 | | 4% | 157% | 38.57 | 20.00 | 18.57 | | -2% | 202% | 49.61 | 20.00 | 29.61 |
| 2/12/2007 | 51.30 | | 4% | 153% | 39.37 | 20.00 | 19.37 | | -2% | 204% | 52.33 | 20.00 | 32.33 |
| 2/21/2007 | 49.31 | | 4% | 150% | 36.95 | 20.00 | 16.95 | | -2% | 206% | 50.78 | 20.00 | 30.78 |
| 3/1/2007 | 48.61 | | 4% | 146% | 35.54 | 20.00 | 15.54 | | -2% | 208% | 50.53 | 20.00 | 30.53 |
| 3/7/07 | 48.93 | | 4% | 143% | 34.89 | 20.00 | 14.89 | | -2% | 210% | 51.35 | 20.00 | 31.35 |
| 3/11/07 | 50.31 | | 4% | 139% | 34.96 | 20.00 | 14.96 | | -2% | 212% | 53.28 | 20.00 | 33.28 |
| 3/18/07 | 51.20 | | 4% | 135% | 34.65 | 20.00 | 14.65 | | -2% | 214% | 54.73 | 20.00 | 34.73 |
| 4/2/07 | 53.17 | | 4% | 132% | 35.02 | 20.00 | 15.02 | | -2% | 216% | 57.35 | 20.00 | 37.35 |

Table 10. Flow Rates in Marco and Polo Springs if Diversions Occurred During the Historical Periods of Measurement

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Total Flows | By Pass Flow | Diversion Flow Available | | | | |
| | | | | | | | 0.0 – 2.5 GPM | 0 - 2.5 GPM | 0 | | | | |
| | | | | | | | 2.5 – 12.5 GPM | 2.5 GPM | 0.01 – 10.0 GPM | | | | |
| | | | | | | | 12.5 – 25 GPM | 2.5 - 5 GPM | 10.01 – 20.0 GPM | | | | |
| | Deadwood & | | | | | | > 25 GPM | > 5 GPM | 20 GPM | | | | |
| | Sugar Pine | | | % of | | Polo | | | | % of | | Marco | |
| Date | Total Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow |
| 4/22/07 | 51.54 | | 4% | 128% | 33.01 | 20.00 | 13.01 | | -2% | 218% | 56.10 | 20.00 | 36.10 |
| 5/5/07 | 50.60 | | 4% | 124% | 31.50 | 20.00 | 11.50 | | -2% | 220% | 55.57 | 20.00 | 35.57 |
| 5/16/07 | 49.64 | | | 121% | 30.00 | 20.00 | 10.00 | | | 222% | 55.00 | 20.00 | 35.00 |
| 5/20/07 | 49.17 | | 4% | 117% | 28.67 | 20.00 | 8.67 | | 9% | 212% | 52.24 | 20.00 | 32.24 |
| 5/23/07 | 48.80 | | 4% | 112% | 27.41 | 20.00 | 7.41 | | 9% | 203% | 49.61 | 20.00 | 29.61 |
| 6/3/07 | 47.34 | | 4% | 108% | 25.59 | 20.00 | 5.59 | | 9% | 194% | 45.97 | 20.00 | 25.97 |
| 6/15/07 | 46.33 | | 4% | 104% | 24.05 | 19.24 | 4.81 | | 9% | 185% | 42.87 | 20.00 | 22.87 |
| 6/30/2007 | 45.00 | | 4% | 100% | 22.41 | 17.92 | 4.48 | | 9% | 176% | 39.59 | 20.00 | 19.59 |
| 7/12/07 | 41.96 | | | 95% | 20.00 | 16.00 | 4.00 | | | 167% | 35.00 | 20.00 | 15.00 |
| 8/15/07 | 37.86 | | 1% | 94% | 17.78 | 14.23 | 3.56 | | 10% | 157% | 29.72 | 20.00 | 9.72 |
| 8/26/07 | 37.36 | | 1% | 93% | 17.29 | 13.83 | 3.46 | | 10% | 147% | 27.51 | 20.00 | 7.51 |
| 9/10/07 | 35.16 | | 1% | 91% | 16.03 | 12.82 | 3.21 | | 8% | 139% | 24.51 | 19.61 | 4.90 |
| 10/2/07 | 34.41 | | 1% | 90% | 15.45 | 12.36 | 3.09 | | 6% | 133% | 22.90 | 18.32 | 4.58 |
| 10/10/07 | 33.94 | | | 88% | 15.00 | 12.00 | 3.00 | | | 118% | 20.00 | 16.00 | 4.00 |
| 12/12/07 | 31.39 | | | 76% | 12.00 | 9.50 | 2.5 | | | 108% | 17.00 | 13.60 | 3.40 |
| 12/16/07 | 31.30 | | 1% | 78% | 12.18 | 9.68 | 2.5 | | 0% | 108% | 16.90 | 13.52 | 3.38 |
| 12/23/07 | 31.33 | | 1% | 79% | 12.42 | 9.92 | 2.5 | | 0% | 108% | 16.87 | 13.50 | 3.37 |
| 12/31/07 | 31.21 | | 1% | 81% | 12.59 | 10.07 | 2.52 | | 0% | 107% | 16.76 | 13.41 | 3.35 |
| 1/5/08 | 31.33 | | 1% | 82% | 12.86 | 10.29 | 2.57 | | 0% | 107% | 16.78 | 13.42 | 3.36 |
| 1/6/08 | 31.52 | | 1% | 83% | 13.15 | 10.52 | 2.63 | | 0% | 107% | 16.83 | 13.46 | 3.37 |

Table 10. Flow Rates in Marco and Polo Springs if Diversions Occurred During the Historical Periods of Measurement

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Total Flows | By Pass Flow | Diversion Flow Available | | | | |
| | | | | | | | 0.0 – 2.5 GPM | 0 - 2.5 GPM | 0 | | | | |
| | | | | | | | 2.5 – 12.5 GPM | 2.5 GPM | 0.01 – 10.0 GPM | | | | |
| | | | | | | | 12.5 – 25 GPM | 2.5 - 5 GPM | 10.01 – 20.0 GPM | | | | |
| | Deadwood & | | | | | | > 25 GPM | > 5 GPM | 20 GPM | | | | |
| | Sugar Pine | | | % of | | Polo | | | | % of | | Marco | |
| Date | Total Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow |
| 2/1/08 | 31.87 | | 1% | 85% | 13.52 | 10.82 | 2.70 | | 0% | 106% | 16.96 | 13.57 | 3.39 |
| 2/17/08 | 32.52 | | 1% | 86% | 14.03 | 11.22 | 2.81 | | 0% | 106% | 17.26 | 13.81 | 3.45 |
| 2/20/08 | 32.67 | | 1% | 88% | 14.32 | 11.46 | 2.86 | | 0% | 106% | 17.29 | 13.83 | 3.46 |
| 2/23/08 | 33.09 | | 1% | 89% | 14.74 | 11.79 | 2.95 | | 0% | 106% | 17.46 | 13.97 | 3.49 |
| 2/25/08 | 33.27 | | 1% | 90% | 15.05 | 12.04 | 3.01 | | 0% | 105% | 17.51 | 14.01 | 3.50 |
| 2/26/08 | 33.55 | | 1% | 92% | 15.41 | 12.33 | 3.08 | | 0% | 105% | 17.60 | 14.08 | 3.52 |
| 2/27/08 | 33.86 | | 1% | 93% | 15.79 | 12.63 | 3.16 | | 0% | 105% | 17.71 | 14.17 | 3.54 |
| 2/28/08 | 34.01 | | 1% | 95% | 16.10 | 12.88 | 3.22 | | 0% | 104% | 17.74 | 14.19 | 3.55 |
| 2/29/08 | 34.32 | | 1% | 96% | 16.49 | 13.19 | 3.30 | | 0% | 104% | 17.85 | 14.28 | 3.57 |
| 3/2/08 | 35.07 | | 1% | 97% | 17.09 | 13.67 | 3.42 | | 0% | 104% | 18.18 | 14.55 | 3.64 |
| 3/4/08 | 35.41 | | 1% | 99% | 17.51 | 14.01 | 3.50 | | 0% | 103% | 18.31 | 14.64 | 3.66 |
| 3/11/08 | 35.72 | | 1% | 100% | 17.91 | 14.33 | 3.58 | | 0% | 103% | 18.41 | 14.73 | 3.68 |
| 3/12/08 | 36.02 | | 1% | 102% | 18.31 | 14.65 | 3.66 | | 0% | 103% | 18.51 | 14.81 | 3.70 |
| 3/14/08 | 36.48 | | 1% | 103% | 18.80 | 15.04 | 3.76 | | 0% | 102% | 18.69 | 14.95 | 3.74 |
| 3/16/08 | 37.52 | | 1% | 104% | 19.60 | 15.68 | 3.92 | | 0% | 102% | 19.17 | 15.33 | 3.83 |
| 3/20/08 | 37.87 | | 1% | 106% | 20.05 | 16.04 | 4.01 | | 0% | 102% | 19.29 | 15.43 | 3.86 |
| 3/23/08 | 38.16 | | 1% | 107% | 20.47 | 16.38 | 4.09 | | 0% | 102% | 19.38 | 15.50 | 3.88 |
| 3/25/08 | 38.65 | | 1% | 109% | 21.01 | 16.81 | 4.20 | | 0% | 101% | 19.57 | 15.65 | 3.91 |
| 3/29/08 | 40.02 | | 1% | 110% | 22.03 | 17.63 | 4.41 | | 0% | 101% | 20.20 | 16.16 | 4.04 |
| 4/2/08 | 41.39 | | 1% | 111% | 23.08 | 18.46 | 4.62 | | 0% | 101% | 20.83 | 16.66 | 4.17 |

Table 10. Flow Rates in Marco and Polo Springs if Diversions Occurred During the Historical Periods of Measurement

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Total Flows | By Pass Flow | Diversion Flow Available | | | | |
| | | | | | | | 0.0 – 2.5 GPM | 0 - 2.5 GPM | 0 | | | | |
| | | | | | | | 2.5 – 12.5 GPM | 2.5 GPM | 0.01 – 10.0 GPM | | | | |
| | | | | | | | 12.5 – 25 GPM | 2.5 - 5 GPM | 10.01 – 20.0 GPM | | | | |
| | Deadwood & | | | | | | > 25 GPM | > 5 GPM | 20 GPM | | | | |
| | Sugar Pine | | | % of | | Polo | | | | % of | | Marco | |
| Date | Total Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow | | % Change | DW & SP | Total Flow | Diversion | Bypass Flow |
| 4/6/08 | 41.83 | | 1% | 113% | 23.62 | 18.89 | 4.72 | | 0% | 100% | 20.98 | 16.79 | 4.20 |
| 4/8/08 | 42.17 | | 1% | 114% | 24.10 | 19.28 | 4.82 | | 0% | 100% | 21.09 | 16.87 | 4.22 |
| 4/11/08 | 42.49 | | 1% | 116% | 24.58 | 19.66 | 4.92 | | 0% | 100% | 21.18 | 16.95 | 4.24 |
| 4/13/08 | 42.62 | | 1% | 117% | 24.95 | 19.96 | 4.99 | | 0% | 99% | 21.18 | 16.94 | 4.24 |
| 4/20/08 | 43.12 | | 1% | 119% | 25.55 | 20.00 | 5.55 | | 0% | 99% | 21.36 | 17.09 | 4.27 |
| 4/23/08 | 43.13 | | 1% | 120% | 25.86 | 20.00 | 5.86 | | 0% | 99% | 21.30 | 17.04 | 4.26 |
| 4/30/08 | 43.17 | | 1% | 121% | 26.18 | 20.00 | 6.18 | | 0% | 98% | 21.26 | 17.00 | 4.25 |
| 5/18/08 | 40.75 | | | 123% | 25.00 | 20.00 | 5.00 | | | 98% | 20.00 | 16.00 | 4.00 |
| 5/28/08 | 39.71 | | -15% | 108% | 21.49 | 17.19 | 4.30 | | 2% | 101% | 19.99 | 15.99 | 4.00 |
| 6/8/08 | 38.75 | | -15% | 94% | 18.15 | 14.52 | 3.63 | | 2% | 103% | 19.98 | 15.98 | 4.00 |
| 6/15/08 | 37.88 | | | 79% | 15.00 | 12.00 | 3.00 | | | 106% | 20.00 | 16.00 | 4.00 |

## 10.0 Conclusions

Marco and Polo springs issue from a series of orifices that are dispersed over an area and flow continues to increase above the old railroad grade.

Flow in Hull Creek, calculated using the rational method, resulted in a much lower volume than that using prorated areas of Hull Creek and the Clavey River and the data from gage #11283500 on the Clavey. The analysis in this report used the lower flow determined by the rational method. However, the higher flow rates measured at the Clavey gage suggest that the flow at the points of interest on Hull Creek may be significantly higher than that used in the analyses. If higher flow rates are used in the analyses, the effect of the proposed diversions would be even less than calculated.

The proposed diversions of water from Marco and Polo Springs would have an insignificant effect on Hull Creek during the supply season of November through June and an insignificant effect on the Clavey River during the entire year. During the late summer and early fall, the diversions could have a greater effect Hull Creek flow. However, the applicant proposes to maintain a flow of at least 2.5 gallons per minute below each of the spring diversions at all times. Because of the fact that the springs continue to increase in flow below the points of diversions, the flow measured at the old railroad grade will be much greater than 2.5 gallons per minute. The seasonal restriction of diversion during the late summer and fall would result in reduced impact on the flow at the points of interest.

Based on the precipitation and spring flow data it is probable that the proposed diversions of 20 gallons per minute from each spring can be accomplished without restriction during normal and higher than normal rainfall years. During the late summer and early fall of lower than average rainfall seasons, the diverted flow may have to be restricted to maintain flow below the springs.

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## 11.0 REFERENCES


Bedient and Huber, 1992, *Hydrology and Floodplain Analysis*, 2nd ed. Pg 395.

California Department of Transportation. July 1, 1995, *Highway Design Manual*,. http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm

California Water Resources Control Board, January 2007, http://wrims.swrcb.ca.gov/

Halstead & Associates, December 2003, *Environmental Monitoring Report for the Water Diversion/Development Project on Deadwood Spring*, Private Report, Pg. 10, Sec. 7.

Linsley, et al., 1992, *Water Resources Engineering*, 4th edition, Pg. 59.

National Oceanic and Atmospheric Administration, 2010, "Average annual precipitation, northern California: period 1961, 1990", http://www.wrh.noaa.gov/lox/climate/ca.north.gif

National Marine Fisheries Service and The California Department of Fish and Game, June 17, 2002, *Guidelines for Maintaining Instream Flows to Protect Fisheries Resources Downstream of Water Diversions in Mid-California Coastal Streams*, (Errata note, dated 8-19-02)

# FIGURES

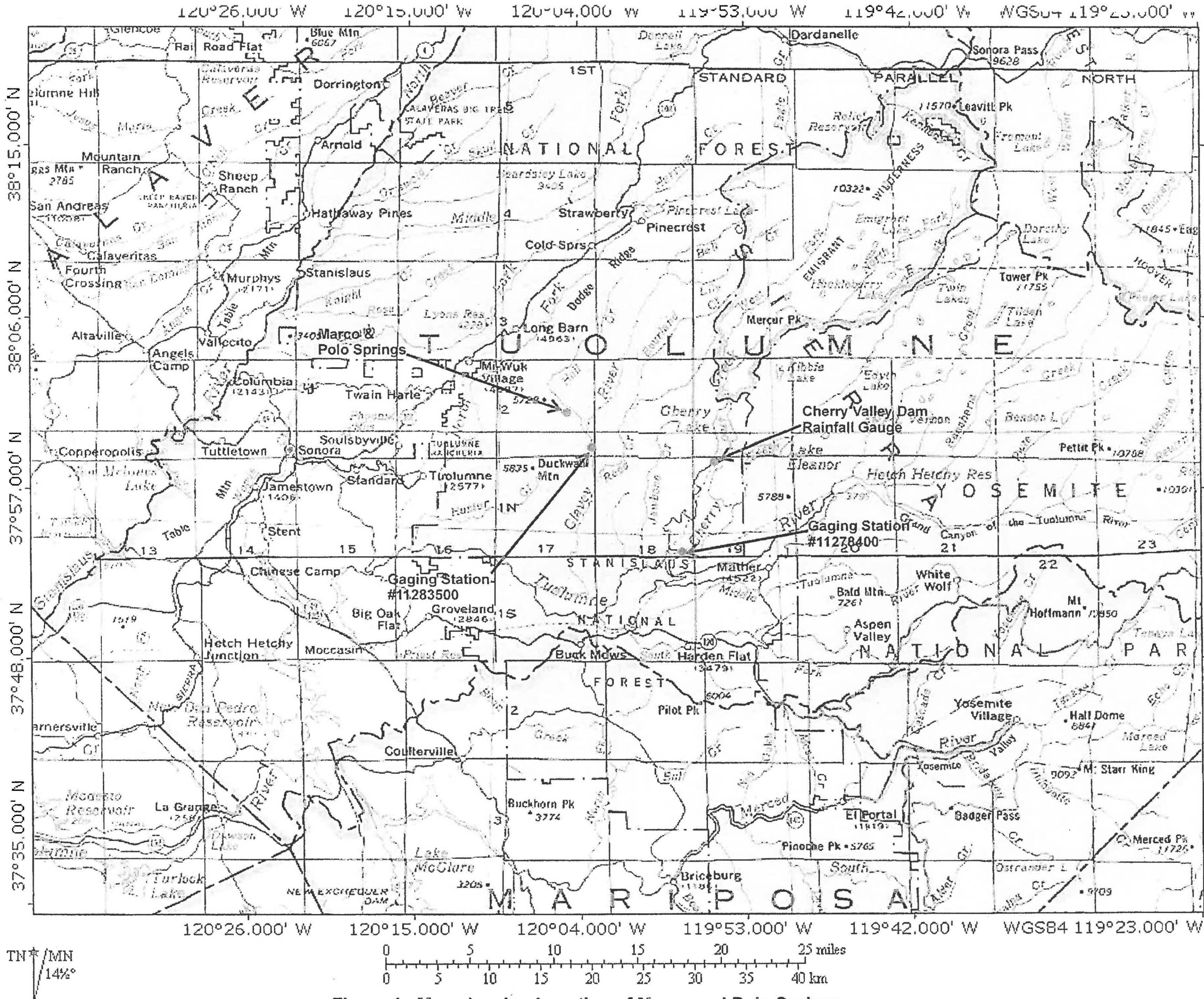



**Figure 1. Map showing Location of Marco and Polo Springs, Cherry Valley Dam Rainfall Gage, and Gaging Stations #11278400 & #11283500**

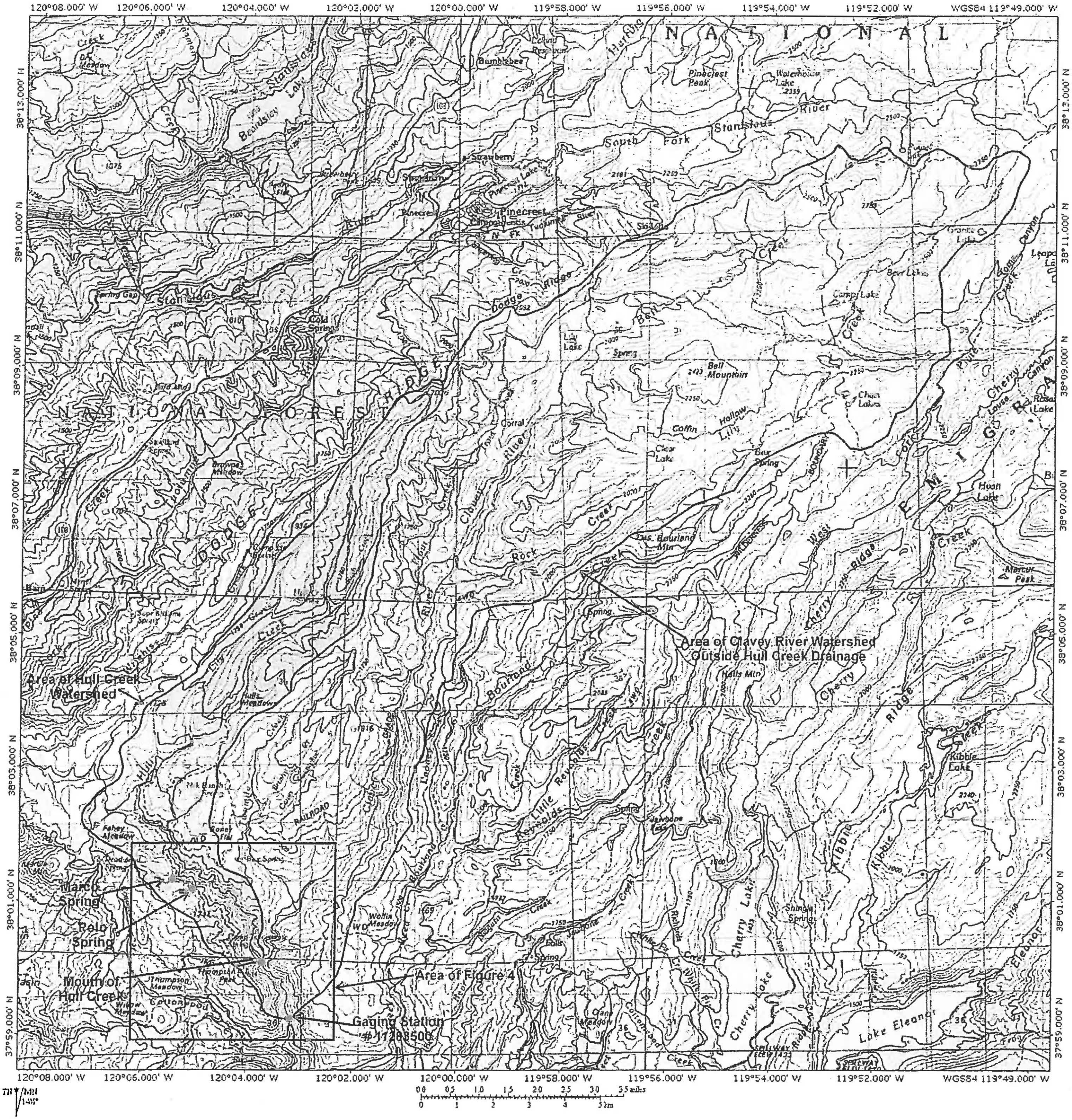



Figure 2. Topographic Map Showing Areas of Clavey and Hull Creek Watersheds,

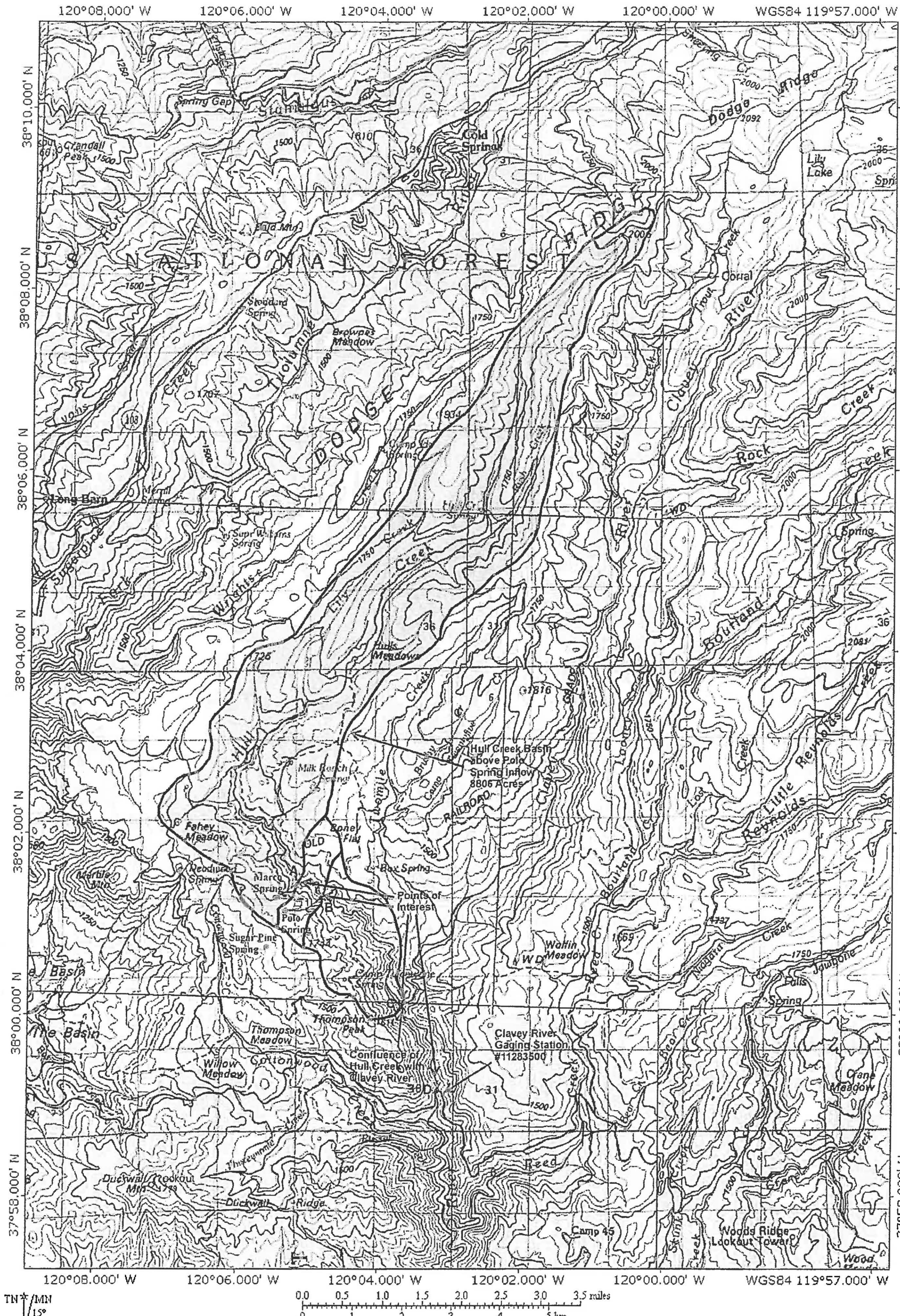



Figure 3. Topographic Map of Hull Creek showing Watershed, Springs and Points of Interest

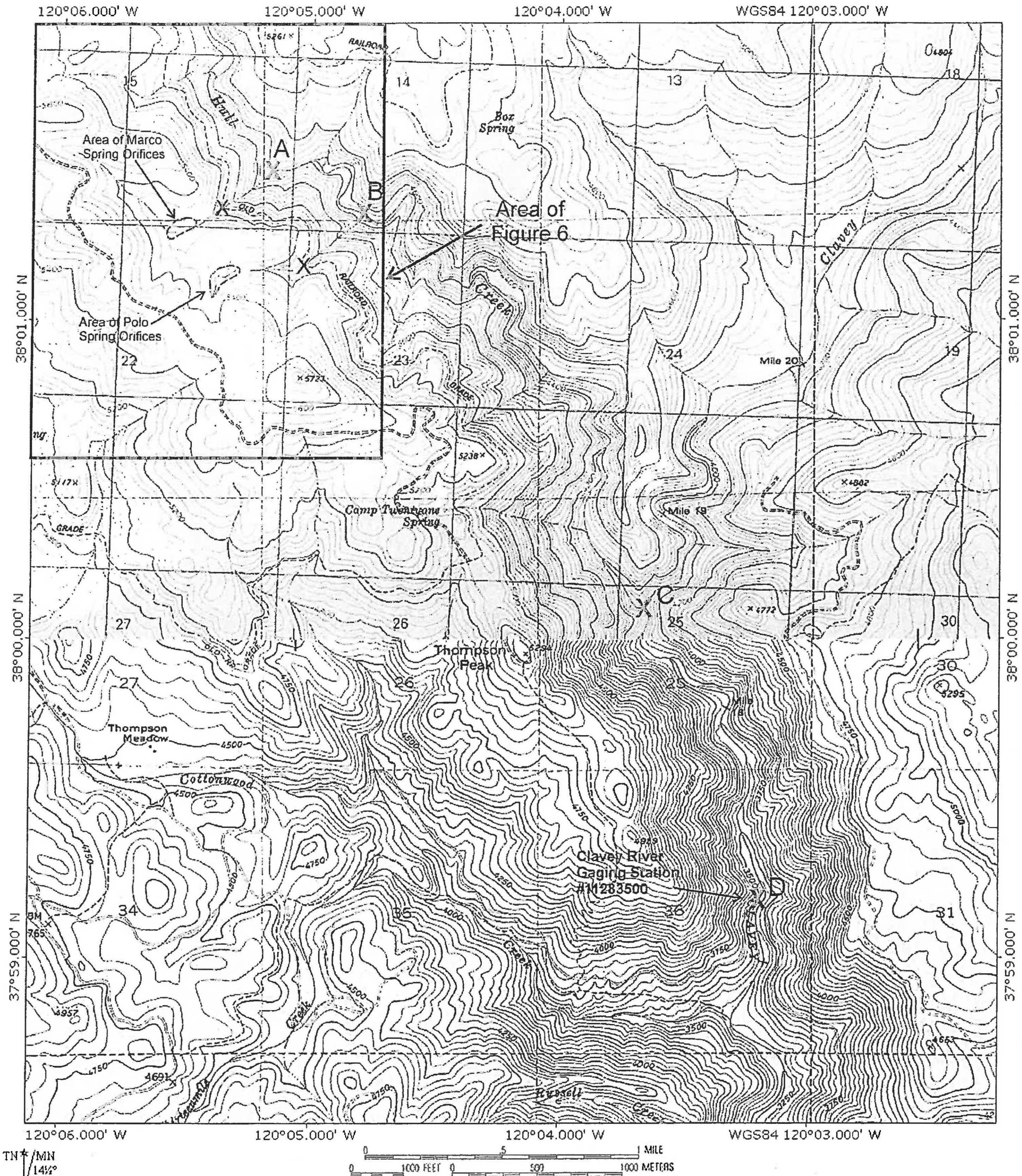



Figure 4. Topographic Map of Marco and Polo Springs and Point of Interest

X Observation Point on Railroad Grade Below Marco and Polo Springs

X Points of Interest

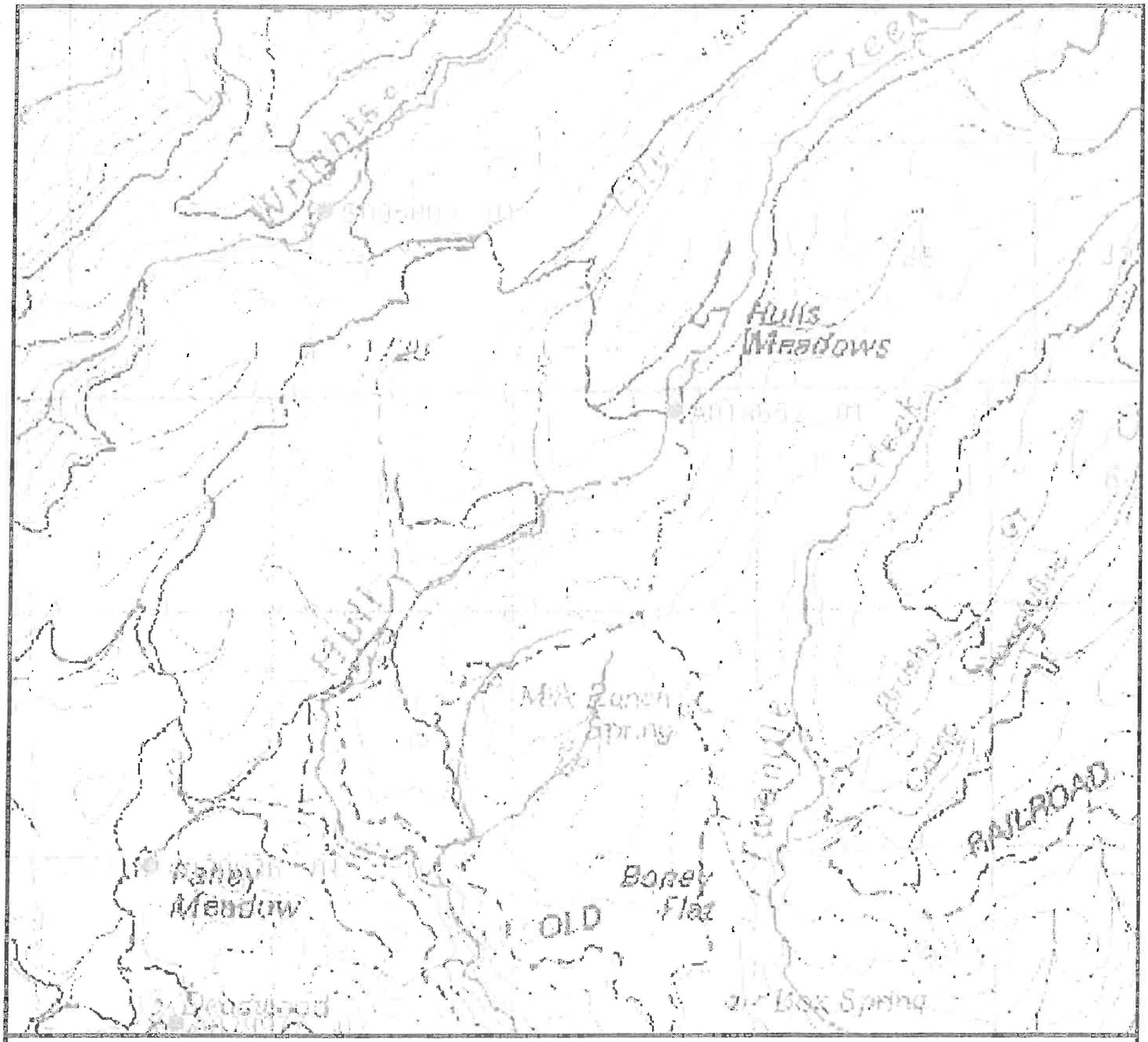



**Figure 5. Map of Water Rights of Record in Hull Creek Basin**

Water Right:

A018652 01 Cancelled

A020636 01 Fahey Meadow--500 gallons/day

N

0 1 2 3

MILES

California Water Resources Control Board-http://wrims.swrcb.ca.gov/

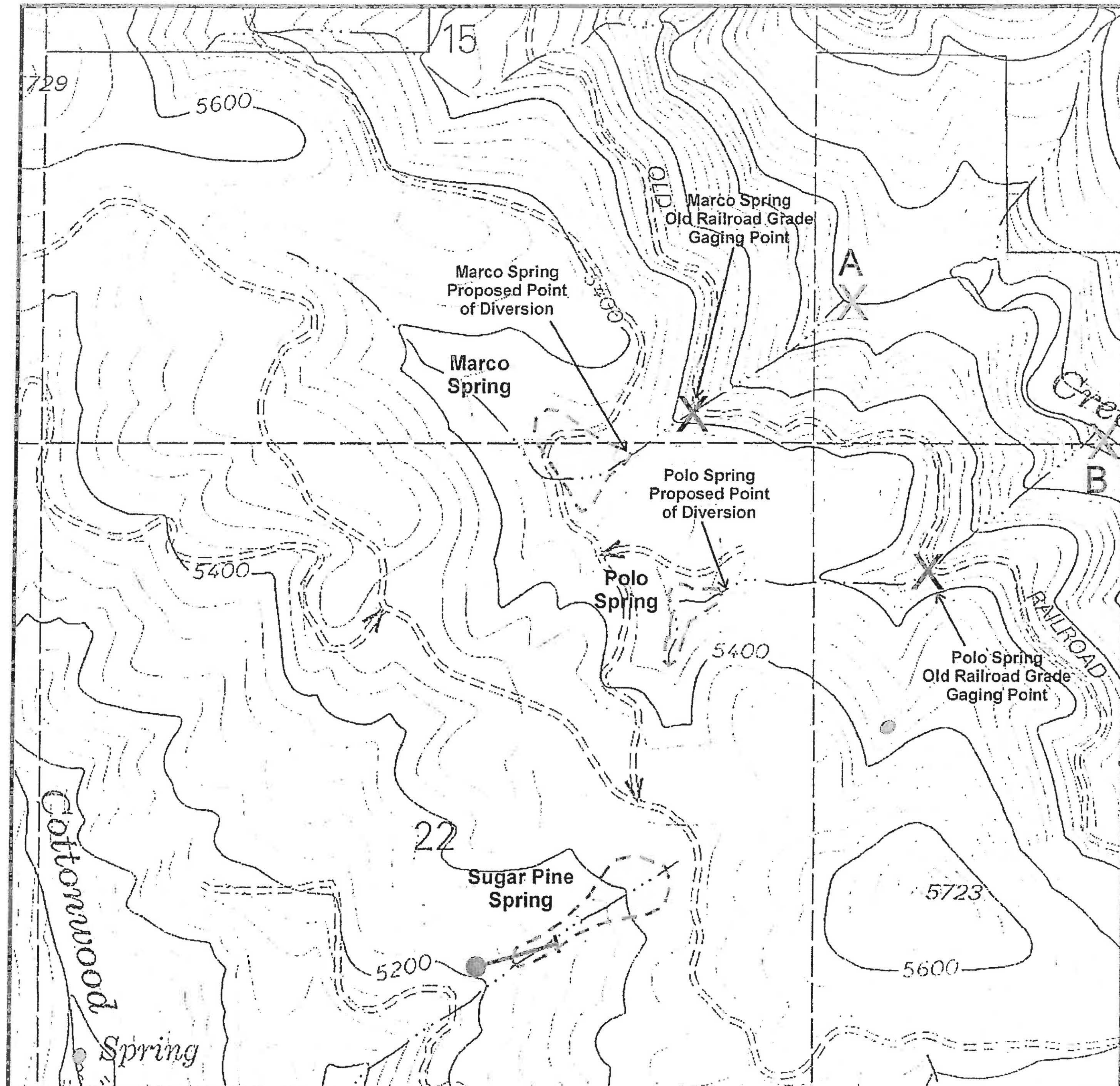
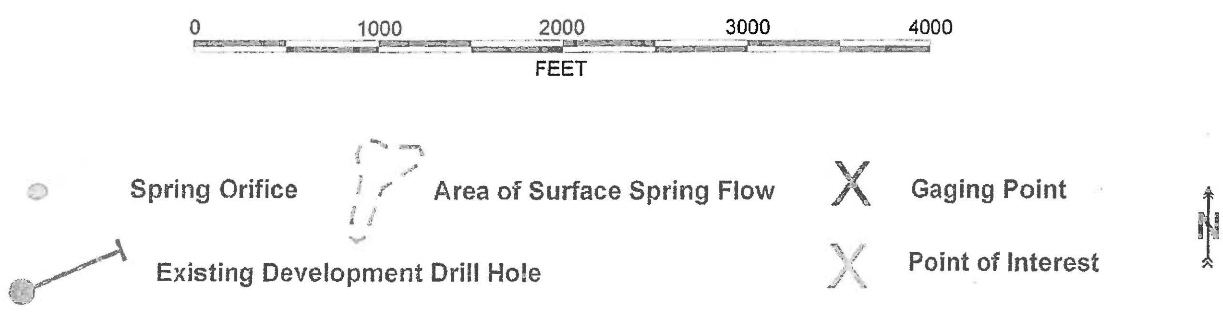



**Figure 6. Topographic Map of Project Area showing Springs and Existing Development Drill Hole.**



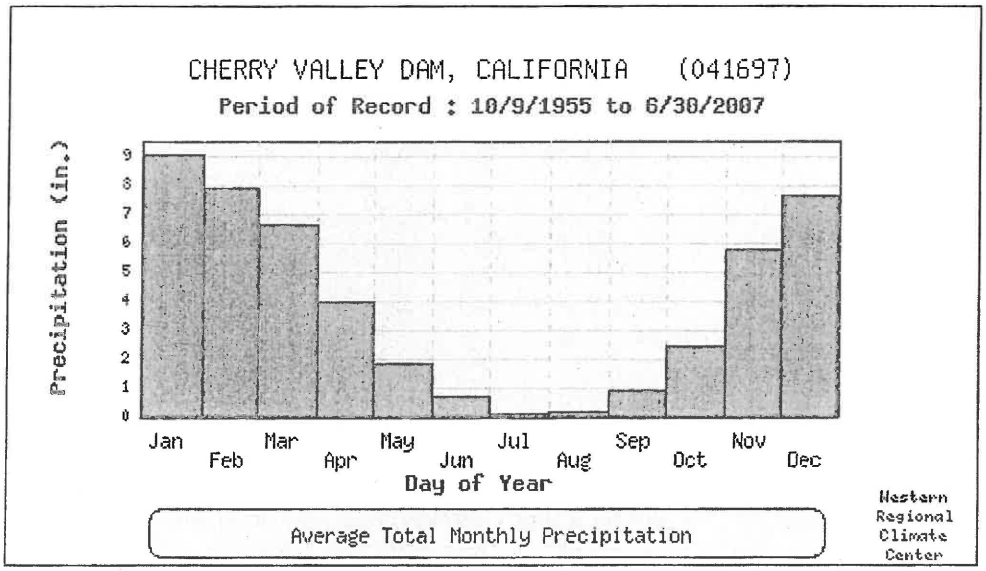



Figure 7. Average Monthly Precipitation for Cherry Valley Dam Rain Gauge

Figure 8. Comparison of Flow Rates for Continuously Monitored Sugar Pine and Deadwood Spring with Marco and Polo Springs

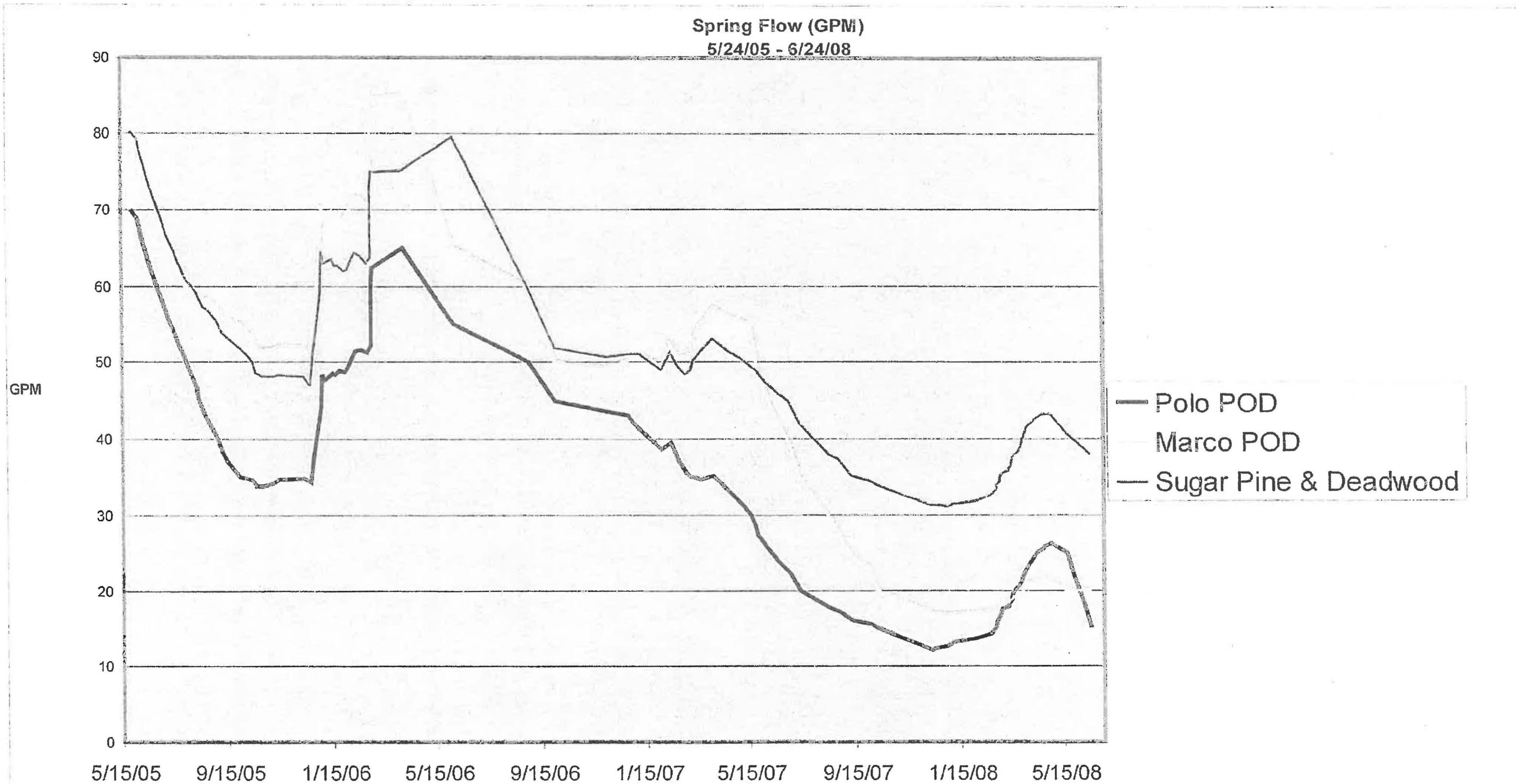


Figure 9. Graph Showing Effect of Spring Flow on Anticipated Diversion Volumes for Marco Spring

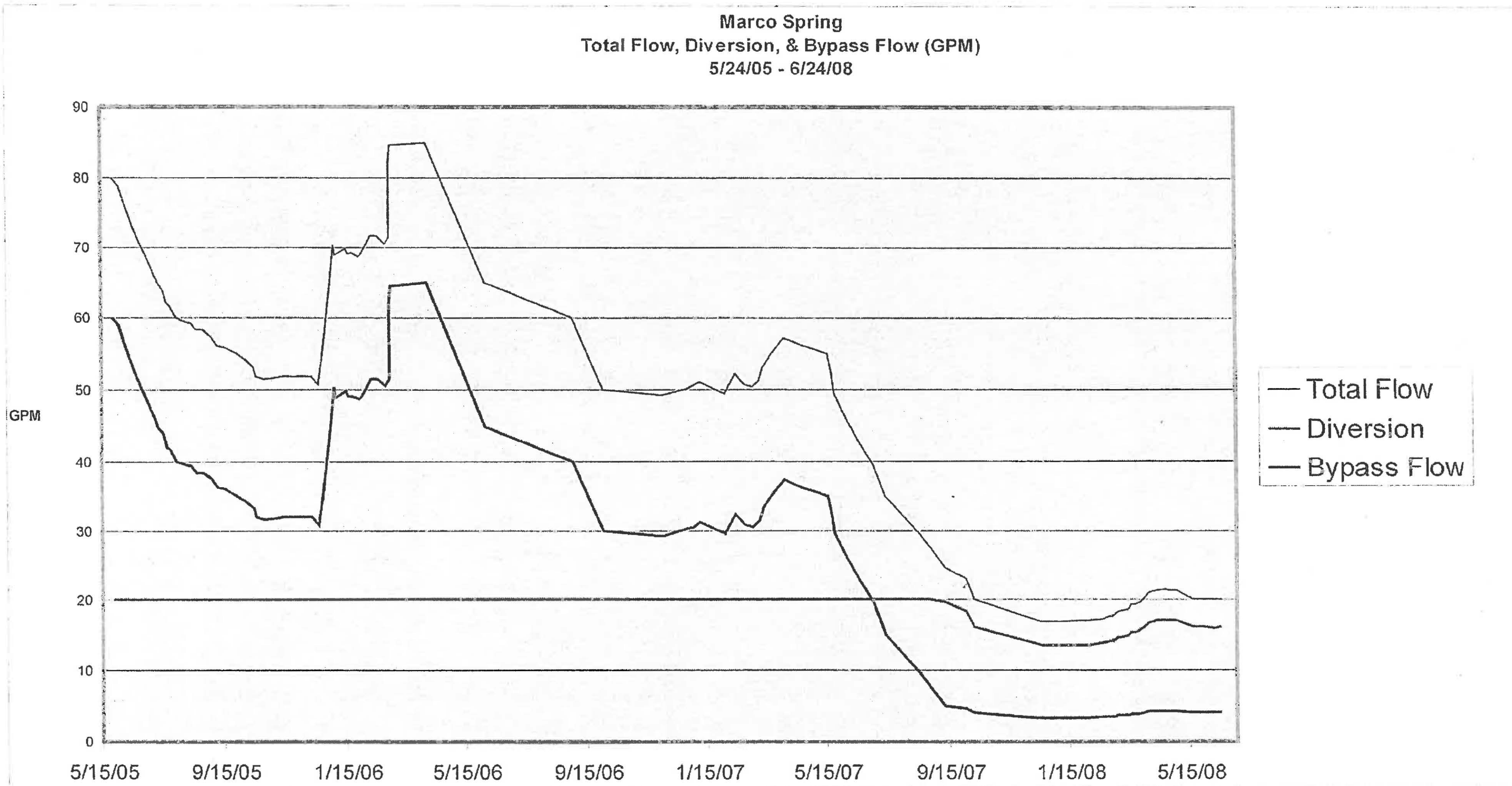
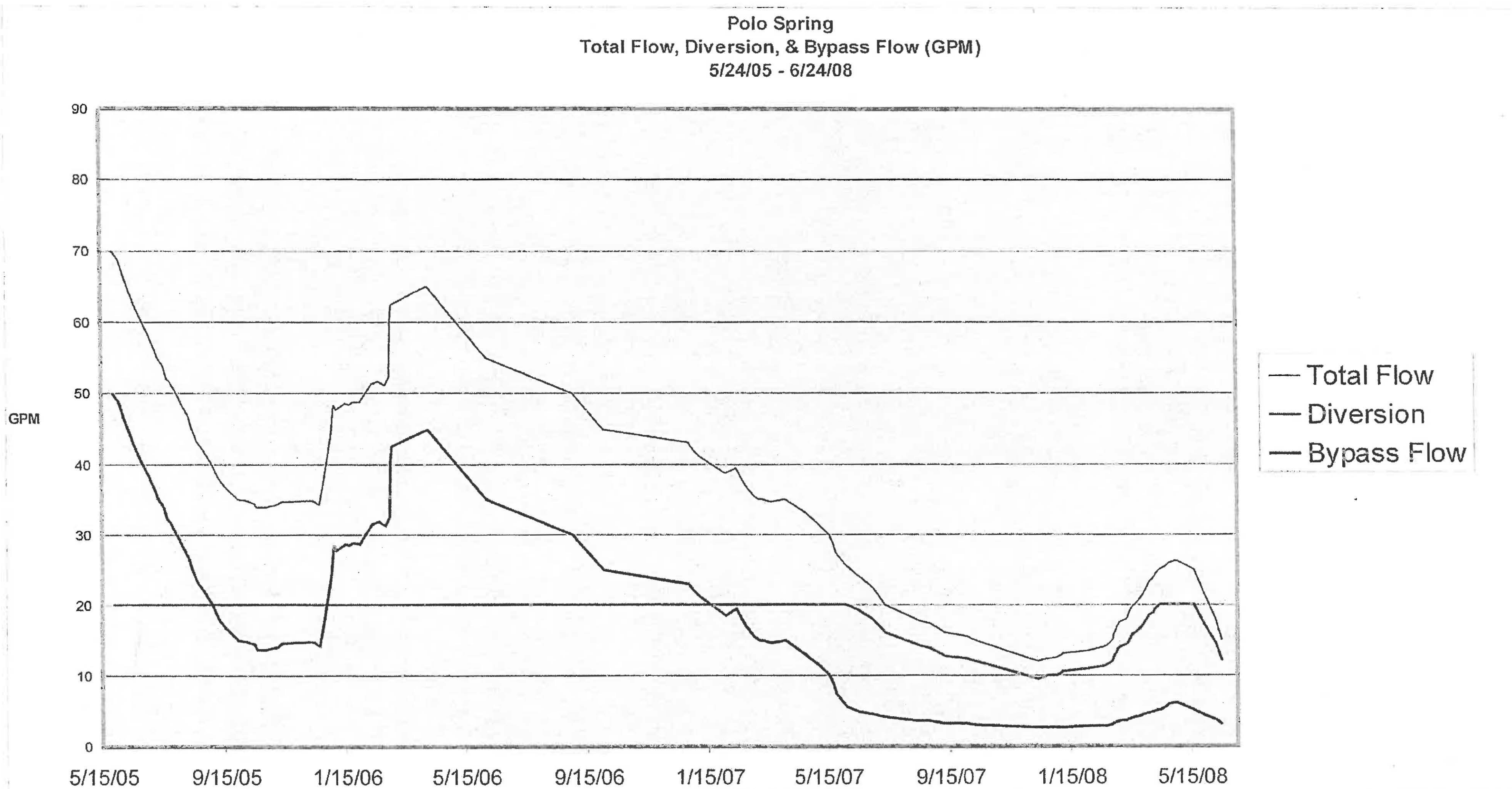


Figure 10. Graph Showing Effect of Spring Flow on Anticipated Diversion Volumes for Polo Spring



## APPENDIX A
## Runoff Coefficient for Undeveloped Areas

| | Watershed Types | | | |
|---|---|---|---|---|
| | Extreme | High | Normal | Low |
| Relief | 0.28 – 0.35<br><br>Steep, rugged terrain with average slopes above 30% | 0.20 – 0.28<br><br>Hilly, with average slopes of 10 to 30% | 0.14 – 0.20<br><br>Rolling with average slope of 5 to 10% | 0.08 – 0.14<br><br>Relatively flat land, with average slope of 0 to 5% |
| Soil Saturation | 0.12 – 0.16<br><br>No effective soil cover; either rock or thin soil mantle of negligible infiltration capacity | 0.08 – 0.12<br><br>Slow to take up water; clay or loam soil of low infiltration capacity; imperfectly or poorly drained | 0.06 – 0.08<br><br>Normal; well-drained, high or medium-textured soils, sandy loams, silt and silty loams. | 0.04 – 0.06<br><br>High; deep sand or other soil that takes up water readily, very high level drained soils. |
| Vegetal Cover | 0.12 – 0.16<br><br>No effective plant cover, bare, or very sparse cover | 0.08 – 0.12<br><br>Poor to fair; clean cultivation crops, or poor natural cover, less than 20% of drainage area over good cover | 0.06 – 0.08<br><br>Fair to good; about 50% of area in good grassland or woodland, not more than 50% of area in cultivated crops | 0.04 – 0.06<br><br>Good to excellent; about 90% of drainage area in good grassland, woodland or equivalent cover |
| Surface Storage | 0.10 – 0.12<br><br>Negligible surface depression few and shallow; drainage ways steep and small, no marshes | 0.08 – 0.10<br><br>Low; very well defined system of drainage ways; no ponds or marshes | 0.06 – 0.08<br><br>Normal; considerable surface depression storage, lakes and pond marshes | 0.04 – 0.06<br><br>High; surface storage high; drainage system not sharply defined, large floodplain storage or large number of pond marshes |

<u>Example 1:</u> The watershed above project site consisting of:

1) Hilly terrain with average slope of 15%,
2) Well-drained gravelly loams,
3) Planted with grapes, and
4) Low, well-defined

Find the runoff coefficient, C, for the above watershed.

<u>Solutions:</u>

| | |
|---|---|
| Relief = | 0.25 |
| Soil infiltration = | 0.11 |
| Vegetal Cover = | 0.07 |
| Surface storage = | 0.09 |
| | ---------------- |
| C = | 0.52 |

<u>Reference Source</u>: California Department of Transportation, *Highway Design Manual*, July 1, 1995, pp. 810-816.

# APPENDIX B
## Demand above POI A

Case ______A_____

| Water Right ID | Source | Direct Diversion Rate (cfs) | Direct Diversion Season | Adjusted Direct Diversion Amount Jan 1-Dec 31 (af)* | Face Value Storage Amount (af) | Storage Season | Adjusted Storage Amount Oct. 1-Mar. 31 (af)* | Cumulative Adjusted Diversion Amount Jan. 1-Dec. 31 (af) | Purpose of Use Code** |
|---|---|---|---|---|---|---|---|---|---|
| A020636-01 | Tributary to FAHEY CREEK, thence HULL CREEK, CLAVEY RIVER | 500 Gallons/Day (0.0008 cfs) | May 1-December 1 | 0.38 | 0 | NA | NA | 0.38 | D |
| A018652-01* | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | U.S. Forest Service Reserved Right | | May 1–Oct 1 | 1.34 | 0 | NA | NA | 1.34 | D, S |
| 39491 | Marco Spring | 20 gallons/min (0.045 cfs) | January 1-December 31 | 32.25 | 0 | 0 | 0 | 32.25 | Z |
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| **Totals:** | | | | 33.97 | | | | 33.97 | |

*Water right revoked on 7/17/2002.
**B-Mining, C-Milling, D-Domestic, E-Fire Protection, G-Dust Control, H-Fish Culture, I-Irrigation, J-Industrial, K-Incidental Power, L-Heat Protection, M-Municipal, N-Frost Protection, P-Power, R-Recreational, S-Stockwatering, T-Snow Making, W-Fish and Wildlife Protection and/or Enhancement, Z-Other.

# APPENDIX C
## Demand above POI B

Case ______A_____

| Water Right ID | Source | Direct Diversion Rate (cfs) | Direct Diversion Season | Adjusted Direct Diversion Amount Jan 1-Dec 31 (af)* | Face Value Storage Amount (af) | Storage Season | Adjusted Storage Amount Oct. 1-Mar. 31 (af)* | Cumulative Adjusted Diversion Amount Jan. 1-Dec. 31 (af) | Purpose of Use Code** |
|---|---|---|---|---|---|---|---|---|---|
| A020636-01 | Tributary to FAHEY CREEK, thence HULL CREEK, CLAVEY RIVER | 500 Gallons/Day (0.0008 cfs) | May 1-December 1 | 0.38 | 0 | NA | NA | 0.38 | D |
| A018652-01* | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | U.S. Forest Service Reserved Right | | May 1–Oct 1 | 1.34 | 0 | NA | NA | 1.34 | D, S |
| 39491 | Marco Spring | 20 gallons/min (0.045 cfs) | January 1-December 31 | 32.25 | 0 | 0 | 0 | 32.25 | Z |
| 39491 | Polo Spring | 20 gallons/min (0.045 cfs) | January 1-December 31 | 32.25 | 0 | 0 | 0 | 32.25 | Z |
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| | | | | | | | | | |
| **Totals:** | | | | 66.22 | | | | 66.22 | |

*Water right revoked on 7/17/2002.

**B-Mining, C-Milling, D-Domestic, E-Fire Protection, G-Dust Control, H-Fish Culture, I-Irrigation, J-Industrial, K-Incidental Power, L-Heat Protection, M-Municipal, N-Frost Protection, P-Power, R-Recreational, S-Stockwatering, T-Snow Making, W-Fish and Wildlife Protection and/or Enhancement, Z-Other.

# APPENDIX D
# Demand above POI C

Case ______A_____

| Water Right ID | Source | Direct Diversion Rate (cfs) | Direct Diversion Season | Adjusted Direct Diversion Amount Jan 1-Dec 31 (af)* | Face Value Storage Amount (af) | Storage Season | Adjusted Storage Amount Oct. 1-Mar. 31 (af)* | Cumulative Adjusted Diversion Amount Jan. 1-Dec. 31 (af) | Purpose of Use Code** |
|---|---|---|---|---|---|---|---|---|---|
| A020636-01 | Tributary to FAHEY CREEK, thence HULL CREEK, CLAVEY RIVER | 500 Gallons/Day (0.0008 cfs) | May 1-December 1 | 0.38 | 0 | NA | NA | 0.38 | D |
| A018652-01* | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | U.S. Forest Service Reserved Right | | May 1–Oct 1 | 1.34 | 0 | NA | NA | 1.34 | D, S |
| 39491 | Marco Spring | 20 gallons/min (0.045 cfs) | January 1-December 31 | 32.25 | 0 | 0 | 0 | 32.25 | Z |
| 39491 | Polo Spring | 20 gallons/min (0.045 cfs) | January 1-December 31 | 32.25 | 0 | 0 | 0 | 32.25 | Z |
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| | | | | | | | | | |
| **Totals:** | | | | 66.22 | | | | 66.22 | |

*Water right revoked on 7/17/2002.
**B-Mining, C-Milling, D-Domestic, E-Fire Protection, G-Dust Control, H-Fish Culture, I-Irrigation, J-Industrial, K-Incidental Power, L-Heat Protection, M-Municipal, N-Frost Protection, P-Power, R-Recreational, S-Stockwatering, T-Snow Making, W-Fish and Wildlife Protection and/or Enhancement, Z-Other.

## APPENDIX E
## Demand above POI D

**Case ______A_____**

| Water Right ID | Source | Direct Diversion Rate (cfs) | Direct Diversion Season | Adjusted Direct Diversion Amount Jan 1-Dec 31 (af)* | Face Value Storage Amount (af) | Storage Season | Adjusted Storage Amount Oct. 1-Mar. 31 (af)* | Cumulative Adjusted Diversion Amount Jan. 1-Dec. 31 (af) | Purpose of Use Code** |
|---|---|---|---|---|---|---|---|---|---|
| A020636-01 | Tributary to FAHEY CREEK, thence HULL CREEK, CLAVEY RIVER | 500 Gallons/Day (0.0008 cfs) | May 1-December 1 | 0.38 | 0 | NA | NA | 0.38 | D |
| A018652-01* | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | U.S. Forest Service Reserved Right | | May 1–Oct 1 | 1.34 | 0 | NA | NA | 1.34 | D, S |
| 39491 | Marco Spring | 20 gallons/min (0.045 cfs) | January 1-December 31 | 32.25 | 0 | 0 | 0 | 32.25 | Z |
| 39491 | Polo Spring | 20 gallons/min (0.045 cfs) | January 1-December 31 | 32.25 | 0 | 0 | 0 | 32.25 | Z |
| | | | | | | | | | |
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| | | | | | | | | | |
| **Totals:** | | | | 66.22 | | | | 66.22 | |

*Water right revoked on 7/17/2002.
**B-Mining, C-Milling, D-Domestic, E-Fire Protection, G-Dust Control, H-Fish Culture, I-Irrigation, J-Industrial, K-Incidental Power, L-Heat Protection, M-Municipal, N-Frost Protection, P-Power, R-Recreational, S-Stockwatering, T-Snow Making, W-Fish and Wildlife Protection and/or Enhancement, Z-Other.

# APPENDIX F
# Flow Records for
# Clavey River Gage #11283500
# From USGS Archive Files

| Gage | Year | Day | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11283500 | 1960 | 1 | 17 | 13 | 13 | 10 | 170 | 85 | 412 | 405 | 213 | 25 | 13 | 7.5 |
| 11283500 | 1960 | 2 | 17 | 14 | 14 | 13 | 235 | 83 | 470 | 455 | 218 | 25 | 13 | 7.5 |
| 11283500 | 1960 | 3 | 16 | 14 | 14 | 16 | 110 | 83 | 543 | 433 | 208 | 25 | 12 | 8.1 |
| 11283500 | 1960 | 4 | 16 | 14 | 14 | 14 | 90 | 83 | 585 | 373 | 171 | 24 | 12 | 8.5 |
| 11283500 | 1960 | 5 | 16 | 14 | 13 | 16 | 100 | 93 | 594 | 349 | 163 | 23 | 12 | 8.1 |
| 11283500 | 1960 | 6 | 16 | 14 | 13 | 17 | 110 | 131 | 627 | 396 | 142 | 23 | 12 | 7.9 |
| 11283500 | 1960 | 7 | 16 | 14 | 13 | 17 | 100 | 236 | 670 | 490 | 129 | 24 | 11 | 7.5 |
| 11283500 | 1960 | 8 | 16 | 14 | 13 | 18 | 1020 | 460 | 576 | 493 | 112 | 24 | 11 | 7.4 |
| 11283500 | 1960 | 9 | 16 | 14 | 13 | 19 | 800 | 318 | 561 | 505 | 104 | 22 | 10 | 7.4 |
| 11283500 | 1960 | 10 | 16 | 14 | 14 | 44 | 310 | 251 | 597 | 531 | 96 | 21 | 10 | 9.5 |
| 11283500 | 1960 | 11 | 16 | 14 | 13 | 33 | 210 | 240 | 573 | 549 | 91 | 20 | 9.7 | 13 |
| 11283500 | 1960 | 12 | 16 | 14 | 13 | 27 | 180 | 270 | 370 | 576 | 84 | 20 | 9.5 | 12 |
| 11283500 | 1960 | 13 | 15 | 14 | 16 | 19 | 160 | 368 | 354 | 513 | 76 | 19 | 9.3 | 10 |
| 11283500 | 1960 | 14 | 15 | 14 | 12 | 22 | 148 | 316 | 416 | 440 | 70 | 19 | 8.9 | 8.3 |
| 11283500 | 1960 | 15 | 15 | 14 | 15 | 21 | 137 | 271 | 390 | 399 | 64 | 18 | 8.7 | 7.5 |
| 11283500 | 1960 | 16 | 15 | 14 | 15 | 18 | 130 | 247 | 351 | 377 | 59 | 17 | 8.7 | 7.9 |
| 11283500 | 1960 | 17 | 14 | 14 | 15 | 21 | 125 | 263 | 362 | 334 | 55 | 17 | 8.9 | 8.1 |
| 11283500 | 1960 | 18 | 14 | 14 | 15 | 21 | 130 | 334 | 364 | 324 | 51 | 16 | 8.3 | 7.9 |
| 11283500 | 1960 | 19 | 14 | 14 | 15 | 21 | 120 | 392 | 366 | 299 | 47 | 15 | 7.9 | 7.4 |
| 11283500 | 1960 | 20 | 14 | 14 | 14 | 21 | 110 | 421 | 401 | 292 | 43 | 15 | 7.7 | 7.2 |
| 11283500 | 1960 | 21 | 14 | 14 | 15 | 23 | 105 | 438 | 421 | 295 | 40 | 14 | 7.4 | 6.8 |
| 11283500 | 1960 | 22 | 14 | 14 | 15 | 42 | 100 | 453 | 399 | 235 | 37 | 15 | 7.4 | 6.8 |
| 11283500 | 1960 | 23 | 14 | 14 | 15 | 35 | 95 | 440 | 284 | 201 | 35 | 14 | 7.7 | 7.2 |
| 11283500 | 1960 | 24 | 14 | 14 | 26 | 40 | 92 | 453 | 259 | 187 | 33 | 14 | 8.3 | 7 |
| 11283500 | 1960 | 25 | 14 | 14 | 60 | 129 | 90 | 520 | 235 | 198 | 32 | 14 | 8.5 | 6.8 |
| 11283500 | 1960 | 26 | 14 | 14 | 26 | 152 | 90 | 510 | 221 | 187 | 31 | 14 | 8.1 | 6.6 |
| 11283500 | 1960 | 27 | 14 | 14 | 20 | 96 | 85 | 834 | 283 | 208 | 30 | 14 | 8.1 | 6.6 |
| 11283500 | 1960 | 28 | 14 | 14 | 20 | 65 | 85 | 797 | 273 | 219 | 28 | 14 | 7.9 | 7.7 |
| 11283500 | 1960 | 29 | 14 | 14 | 18 | 53 | 85 | 520 | 267 | 230 | 27 | 13 | 7.9 | 7.4 |
| 11283500 | 1960 | 30 | 13 | 13 | 17 | 47 | | 518 | 326 | 213 | 26 | 13 | 7.7 | 7.2 |
| 11283500 | 1960 | 31 | 13 | | 17 | 46 | | 443 | | 213 | | 14 | 7.5 | |
| | | | 14.903226 | 13.93333 | 16.96774 | 36.64516 | 183.5172 | 350.6774 | 418.3333 | 352.2258 | 83.83333 | 18.22581 | 9.358065 | 7.96 |

| Gage | Year | Day | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11283500 | 1961 | 1 | 7.4 | 11 | 142 | 24 | 62 | 58 | 193 | 246 | 131 | 15 | 4.4 | 3.9 |
| 11283500 | 1961 | 2 | 7.7 | 11 | 220 | 22 | 72 | 64 | 237 | 203 | 152 | 14 | 4.4 | 3.8 |
| 11283500 | 1961 | 3 | 7.7 | 13 | 89 | 23 | 85 | 70 | 360 | 197 | 136 | 15 | 4.4 | 3.7 |
| 11283500 | 1961 | 4 | 7.4 | 21 | 60 | 26 | 68 | 68 | 392 | 198 | 122 | 18 | 4.4 | 3.6 |
| 11283500 | 1961 | 5 | 7.4 | 17 | 48 | 23 | 62 | 66 | 360 | 163 | 115 | 19 | 4.4 | 3.6 |
| 11283500 | 1961 | 6 | 12 | 20 | 39 | 24 | 58 | 70 | 311 | 155 | 119 | 16 | 4.4 | 3.6 |
| 11283500 | 1961 | 7 | 17 | 27 | 35 | 25 | 60 | 60 | 267 | 187 | 111 | 15 | 4.3 | 3.5 |
| 11283500 | 1961 | 8 | 14 | 19 | 35 | 23 | 57 | 71 | 204 | 263 | 103 | 14 | 4.2 | 3.5 |
| 11283500 | 1961 | 9 | 14 | 17 | 35 | 24 | 60 | 77 | 218 | 260 | 94 | 13 | 4.1 | 3.6 |
| 11283500 | 1961 | 10 | 13 | 16 | 33 | 24 | 80 | 72 | 190 | 284 | 85 | 12 | 4 | 3.7 |
| 11283500 | 1961 | 11 | 13 | 16 | 34 | 23 | 175 | 76 | 187 | 246 | 81 | 11 | 4 | 3.7 |
| 11283500 | 1961 | 12 | 13 | 28 | 29 | 23 | 152 | 74 | 236 | 195 | 70 | 10 | 4.3 | 3.6 |
| 11283500 | 1961 | 13 | 12 | 45 | 29 | 23 | 108 | 74 | 171 | 172 | 63 | 11 | 4.6 | 3.6 |
| 11283500 | 1961 | 14 | 12 | 37 | 31 | 25 | 90 | 81 | 181 | 184 | 59 | 9.9 | 5 | 3.6 |
| 11283500 | 1961 | 15 | 12 | 28 | 31 | 24 | 93 | 115 | 193 | 210 | 51 | 9.1 | 5 | 3.6 |
| 11283500 | 1961 | 16 | 12 | 24 | 30 | 24 | 87 | 90 | 247 | 193 | 44 | 8.5 | 4.6 | 4.2 |
| 11283500 | 1961 | 17 | 12 | 24 | 31 | 26 | 84 | 115 | 249 | 193 | 39 | 7.9 | 4.1 | 9.9 |
| 11283500 | 1961 | 18 | 12 | 26 | 31 | 23 | 76 | 110 | 251 | 204 | 42 | 7.7 | 4.2 | 9.1 |
| 11283500 | 1961 | 19 | 11 | 33 | 30 | 24 | 66 | 110 | 179 | 189 | 41 | 7 | 4.1 | 7.4 |
| 11283500 | 1961 | 20 | 11 | 28 | 29 | 24 | 70 | 123 | 134 | 189 | 37 | 6.7 | 4.2 | 6.4 |
| 11283500 | 1961 | 21 | 11 | 26 | 31 | 26 | 73 | 165 | 118 | 201 | 32 | 6.2 | 4.6 | 5.8 |
| 11283500 | 1961 | 22 | 11 | 25 | 31 | 27 | 85 | 178 | 126 | 190 | 28 | 6.2 | 4 | 5.9 |
| 11283500 | 1961 | 23 | 11 | 24 | 32 | 25 | 77 | 249 | 130 | 179 | 24 | 6.1 | 3.8 | 5.9 |
| 11283500 | 1961 | 24 | 11 | 23 | 34 | 26 | 73 | 216 | 118 | 156 | 23 | 5.8 | 3.8 | 6.1 |
| 11283500 | 1961 | 25 | 11 | 23 | 34 | 26 | 68 | 171 | 125 | 163 | 21 | 5.5 | 3.6 | 5.8 |
| 11283500 | 1961 | 26 | 11 | 31 | 34 | 58 | 65 | 143 | 147 | 154 | 20 | 5.4 | 3.6 | 5.4 |
| 11283500 | 1961 | 27 | 11 | 26 | 30 | 53 | 60 | 145 | 186 | 123 | 19 | 5 | 3.7 | 5.1 |
| 11283500 | 1961 | 28 | 11 | 26 | 27 | 41 | 57 | 135 | 223 | 123 | 18 | 4.9 | 3.9 | 5 |
| 11283500 | 1961 | 29 | 11 | 26 | 25 | 42 | | 131 | 267 | 115 | 16 | 4.6 | 4.3 | 5.8 |
| 11283500 | 1961 | 30 | 11 | 28 | 28 | 47 | | 145 | 262 | 101 | 16 | 4.4 | 4 | 7 |
| 11283500 | 1961 | 31 | 11 | | 26 | 50 | | 185 | | 105 | | 4.4 | 3.9 | |
| | | | 11.245161 | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 11283500 | 1962 | 1 | 6.2 | 7.6 | 60 | 26 | 47 | 124 | 526 | 755 | 600 | 121 | 21 | 11 |
| 11283500 | 1962 | 2 | 5.7 | 7.6 | 95 | 24 | 52 | 126 | 548 | 899 | 664 | 112 | 20 | 11 |
| 11283500 | 1962 | 3 | 5.2 | 7.8 | 47 | 25 | 54 | 125 | 590 | 1020 | 616 | 107 | 20 | 10 |
| 11283500 | 1962 | 4 | 5.1 | 7.8 | 31 | 23 | 54 | 124 | 706 | 1120 | 459 | 98 | 20 | 10 |
| 11283500 | 1962 | 5 | 4.9 | 7.6 | 26 | 24 | 53 | 135 | 854 | 1180 | 444 | 92 | 21 | 10 |
| 11283500 | 1962 | 6 | 4.8 | 7.4 | 24 | 25 | 53 | 261 | 938 | 1120 | 462 | 84 | 21 | 10 |
| 11283500 | 1962 | 7 | 4.7 | 7.2 | 21 | 25 | 102 | 220 | 1030 | 1050 | 492 | 75 | 20 | 10 |
| 11283500 | 1962 | 8 | 4.6 | 7.2 | 21 | 32 | 212 | 194 | 1050 | 1060 | 500 | 70 | 20 | 10 |
| 11283500 | 1962 | 9 | 4.7 | 7 | 18 | 40 | 1830 | 182 | 1130 | 1000 | 502 | 65 | 20 | 9.9 |
| 11283500 | 1962 | 10 | 4.9 | 7 | 20 | 36 | 1540 | 162 | 1090 | 874 | 492 | 60 | 21 | 9.9 |
| 11283500 | 1962 | 11 | 5.4 | 7 | 16 | 33 | 717 | 159 | 1050 | 644 | 451 | 57 | 19 | 9.9 |
| 11283500 | 1962 | 12 | 5.7 | 7 | 19 | 30 | 435 | 143 | 1150 | 580 | 418 | 59 | 18 | 9.9 |
| 11283500 | 1962 | 13 | 5.7 | 7 | 17 | 31 | 468 | 144 | 1240 | 462 | 396 | 62 | 17 | 9.9 |
| 11283500 | 1962 | 14 | 5.5 | 7 | 18 | 20 | 587 | 144 | 1330 | 420 | 368 | 55 | 16 | 10 |
| 11283500 | 1962 | 15 | 5.2 | 7 | 17 | 22 | 1070 | 142 | 1360 | 378 | 320 | 50 | 15 | 10 |
| 11283500 | 1962 | 16 | 5 | 7 | 17 | 24 | 636 | 145 | 1250 | 440 | 301 | 46 | 15 | 10 |
| 11283500 | 1962 | 17 | 4.9 | 7 | 18 | 22 | 404 | 138 | 1160 | 490 | 313 | 42 | 15 | 9.7 |
| 11283500 | 1962 | 18 | 4.8 | 7 | 21 | 24 | 317 | 135 | 1210 | 502 | 333 | 39 | 15 | 9.3 |
| 11283500 | 1962 | 19 | 4.9 | 7.4 | 22 | 28 | 274 | 139 | 1150 | 519 | 322 | 37 | 14 | 9.1 |
| 11283500 | 1962 | 20 | 4.9 | 15 | 24 | 36 | 236 | 170 | 812 | 480 | 317 | 35 | 14 | 9.3 |
| 11283500 | 1962 | 21 | 5.5 | 14 | 26 | 26 | 202 | 160 | 812 | 394 | 290 | 33 | 14 | 9.3 |
| 11283500 | 1962 | 22 | 6.9 | 12 | 25 | 25 | 188 | 192 | 983 | 485 | 269 | 31 | 14 | 9.5 |
| 11283500 | 1962 | 23 | 7 | 12 | 26 | 27 | 175 | 186 | 1090 | 538 | 248 | 29 | 13 | 9.3 |
| 11283500 | 1962 | 24 | 6.9 | 12 | 28 | 25 | 167 | 180 | 1100 | 462 | 220 | 28 | 13 | 8.9 |
| 11283500 | 1962 | 25 | 6.7 | 14 | 27 | 25 | 137 | 202 | 1000 | 411 | 201 | 26 | 12 | 8.9 |
| 11283500 | 1962 | 26 | 6.9 | 45 | 30 | 26 | 149 | 238 | 890 | 362 | 186 | 25 | 12 | 10 |
| 11283500 | 1962 | 27 | 6.9 | 27 | 27 | 28 | 123 | 278 | 915 | 352 | 168 | 24 | 11 | 9.9 |
| 11283500 | 1962 | 28 | 11 | 19 | 26 | 31 | 133 | 333 | 1160 | 402 | 157 | 24 | 11 | 11 |
| 11283500 | 1962 | 29 | 11 | 18 | 26 | 34 | | 407 | 806 | 413 | 145 | 23 | 11 | 11 |
| 11283500 | 1962 | 30 | 8.7 | 44 | 25 | 37 | | 464 | 680 | 504 | 134 | 22 | 11 | 11 |
| 11283500 | 1962 | 31 | 7.8 | | 25 | 42 | | 492 | | 572 | | 22 | 11 | |
| | | | | | | | | | | | | | | |
| 11283500 | 1963 | 1 | 10 | 16 | 17 | 20 | 9980 | 160 | 336 | 960 | 567 | 158 | 41 | 22 |
| 11283500 | 1963 | 2 | 9.9 | 16 | 17 | 20 | 1880 | 154 | 346 | 992 | 582 | 155 | 40 | 21 |
| 11283500 | 1963 | 3 | 9.7 | 16 | 19 | 20 | 852 | 143 | 280 | 1040 | 538 | 147 | 40 | 20 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11283500 | 1963 | 4 | 10 | 15 | 21 | 20 | 647 | 126 | 302 | 1050 | 404 | 137 | 39 | 19 |
| 11283500 | 1963 | 5 | 10 | 15 | 23 | 18 | 495 | 125 | 388 | 1080 | 435 | 130 | 38 | 20 |
| 11283500 | 1963 | 6 | 11 | 15 | 21 | 19 | 402 | 124 | 802 | 1080 | 485 | 125 | 37 | 20 |
| 11283500 | 1963 | 7 | 11 | 15 | 20 | 18 | 350 | 122 | 1550 | 1120 | 442 | 122 | 36 | 21 |
| 11283500 | 1963 | 8 | 11 | 15 | 20 | 18 | 322 | 119 | 1000 | 1910 | 468 | 117 | 35 | 19 |
| 11283500 | 1963 | 9 | 11 | 15 | 19 | 19 | 288 | 122 | 730 | 1940 | 442 | 110 | 34 | 18 |
| 11283500 | 1963 | 10 | 11 | 15 | 18 | 18 | 372 | 122 | 590 | 1250 | 455 | 101 | 34 | 18 |
| 11283500 | 1963 | 11 | 11 | 15 | 18 | 16 | 304 | 115 | 507 | 1010 | 507 | 94 | 33 | 17 |
| 11283500 | 1963 | 12 | 13 | 15 | 18 | 13 | 267 | 110 | 488 | 890 | 448 | 87 | 33 | 17 |
| 11283500 | 1963 | 13 | 22 | 15 | 17 | 13 | 427 | 107 | 500 | 866 | 409 | 83 | 31 | 23 |
| 11283500 | 1963 | 14 | 183 | 16 | 17 | 17 | 471 | 108 | 1180 | 784 | 446 | 79 | 29 | 22 |
| 11283500 | 1963 | 15 | 72 | 17 | 23 | 17 | 356 | 114 | 1110 | 852 | 437 | 75 | 29 | 20 |
| 11283500 | 1963 | 16 | 41 | 17 | 424 | 17 | 317 | 118 | 787 | 1080 | 429 | 71 | 27 | 19 |
| 11283500 | 1963 | 17 | 31 | 16 | 162 | 16 | 282 | 101 | 636 | 1140 | 400 | 68 | 26 | 20 |
| 11283500 | 1963 | 18 | 25 | 16 | 84 | 16 | 255 | 130 | 551 | 1200 | 366 | 65 | 25 | 21 |
| 11283500 | 1963 | 19 | 24 | 16 | 73 | 15 | 245 | 131 | 536 | 1250 | 322 | 64 | 25 | 22 |
| 11283500 | 1963 | 20 | 26 | 16 | 56 | 16 | 235 | 152 | 500 | 1180 | 327 | 61 | 24 | 22 |
| 11283500 | 1963 | 21 | 26 | 16 | 45 | 16 | 225 | 195 | 466 | 1050 | 293 | 58 | 24 | 22 |
| 11283500 | 1963 | 22 | 24 | 16 | 37 | 17 | 208 | 200 | 442 | 1070 | 253 | 57 | 24 | 22 |
| 11283500 | 1963 | 23 | 23 | 15 | 33 | 17 | 190 | 239 | 457 | 1000 | 234 | 55 | 24 | 21 |
| 11283500 | 1963 | 24 | 22 | 15 | 28 | 17 | 183 | 194 | 480 | 814 | 212 | 53 | 24 | 21 |
| 11283500 | 1963 | 25 | 21 | 15 | 22 | 16 | 179 | 218 | 504 | 838 | 208 | 51 | 24 | 20 |
| 11283500 | 1963 | 26 | 20 | 15 | 21 | 16 | 186 | 217 | 462 | 838 | 214 | 50 | 23 | 19 |
| 11283500 | 1963 | 27 | 19 | 24 | 20 | 16 | 188 | 296 | 426 | 836 | 212 | 48 | 22 | 18 |
| 11283500 | 1963 | 28 | 18 | 23 | 23 | 16 | 168 | 669 | 464 | 1060 | 203 | 47 | 22 | 18 |
| 11283500 | 1963 | 29 | 17 | 19 | 22 | 18 | | 462 | 644 | 650 | 167 | 45 | 21 | 17 |
| 11283500 | 1963 | 30 | 17 | 17 | 22 | 676 | | 366 | 830 | 633 | 157 | 44 | 21 | 17 |
| 11283500 | 1963 | 31 | 16 | | 21 | 6410 | | 382 | | 600 | | 43 | 24 | |
| 11283500 | 1964 | 1 | 17 | 22 | 111 | 60 | 102 | 107 | 358 | 424 | 280 | 66 | 18 | 19 |
| 11283500 | 1964 | 2 | 17 | 23 | 102 | 64 | 108 | 105 | 308 | 322 | 256 | 62 | 18 | 17 |
| 11283500 | 1964 | 3 | 16 | 25 | 95 | 58 | 108 | 93 | 275 | 286 | 238 | 60 | 18 | 16 |
| 11283500 | 1964 | 4 | 17 | 27 | 89 | 58 | 109 | 106 | 278 | 270 | 232 | 57 | 18 | 15 |
| 11283500 | 1964 | 5 | 17 | 42 | 87 | 48 | 119 | 115 | 278 | 262 | 209 | 55 | 17 | 14 |
| 11283500 | 1964 | 6 | 18 | 352 | 83 | 60 | 123 | 112 | 249 | 255 | 203 | 53 | 16 | 13 |
| 11283500 | 1964 | 7 | 18 | 115 | 78 | 58 | 117 | 101 | 242 | 249 | 252 | 50 | 16 | 13 |
| 11283500 | 1964 | 8 | 17 | 78 | 77 | 54 | 114 | 89 | 267 | 283 | 245 | 46 | 16 | 12 |
| 11283500 | 1964 | 9 | 18 | 90 | 85 | 50 | 119 | 101 | 322 | 331 | 309 | 43 | 15 | 11 |
| 11283500 | 1964 | 10 | 18 | 74 | 68 | 54 | 124 | 93 | 358 | 468 | 285 | 41 | 15 | 11 |
| 11283500 | 1964 | 11 | 45 | 60 | 72 | 45 | 125 | 92 | 402 | 574 | 311 | 39 | 14 | 11 |
| 11283500 | 1964 | 12 | 41 | 52 | 70 | 52 | 114 | 108 | 433 | 616 | 366 | 37 | 14 | 10 |
| 11283500 | 1964 | 13 | 27 | 49 | 73 | 43 | 108 | 108 | 464 | 644 | 270 | 35 | 14 | 10 |
| 11283500 | 1964 | 14 | 24 | 70 | 68 | 51 | 98 | 103 | 533 | 608 | 227 | 33 | 14 | 10 |
| 11283500 | 1964 | 15 | 23 | 1200 | 70 | 40 | 106 | 124 | 572 | 559 | 213 | 32 | 13 | 9.9 |
| 11283500 | 1964 | 16 | 22 | 234 | 67 | 48 | 94 | 139 | 569 | 548 | 191 | 32 | 13 | 9.7 |
| 11283500 | 1964 | 17 | 21 | 135 | 66 | 54 | 92 | 153 | 533 | 507 | 198 | 31 | 13 | 9.5 |
| 11283500 | 1964 | 18 | 22 | 101 | 66 | 65 | 93 | 183 | 457 | 509 | 170 | 29 | 13 | 9.3 |
| 11283500 | 1964 | 19 | 21 | 97 | 64 | 69 | 99 | 197 | 394 | 500 | 152 | 28 | 12 | 9.3 |
| 11283500 | 1964 | 20 | 21 | 189 | 72 | 91 | 110 | 214 | 344 | 502 | 142 | 27 | 12 | 9.1 |
| 11283500 | 1964 | 21 | 21 | 135 | 71 | 175 | 114 | 225 | 354 | 446 | 133 | 26 | 12 | 8.9 |
| 11283500 | 1964 | 22 | 21 | 102 | 64 | 83 | 120 | 198 | 368 | 374 | 125 | 25 | 12 | 8.7 |
| 11283500 | 1964 | 23 | 23 | 161 | 62 | 80 | 117 | 179 | 364 | 374 | 117 | 24 | 12 | 8.5 |
| 11283500 | 1964 | 24 | 27 | 227 | 62 | 100 | 120 | 170 | 294 | 352 | 107 | 23 | 12 | 8.4 |
| 11283500 | 1964 | 25 | 24 | 151 | 60 | 107 | 122 | 150 | 272 | 352 | 99 | 23 | 11 | 8.2 |
| 11283500 | 1964 | 26 | 24 | 132 | 60 | 107 | 107 | 168 | 274 | 364 | 90 | 22 | 11 | 8.2 |
| 11283500 | 1964 | 27 | 22 | 129 | 58 | 106 | 108 | 190 | 362 | 348 | 83 | 21 | 11 | 8 |
| 11283500 | 1964 | 28 | 22 | 125 | 58 | 101 | 109 | 234 | 528 | 327 | 78 | 22 | 11 | 7.9 |
| 11283500 | 1964 | 29 | 21 | 122 | 60 | 101 | 106 | 267 | 466 | 277 | 74 | 21 | 11 | 8 |
| 11283500 | 1964 | 30 | 23 | 117 | 60 | 104 | | 294 | 444 | 278 | 69 | 20 | 11 | 8.2 |
| 11283500 | 1964 | 31 | 23 | | 60 | 100 | | 326 | | 272 | | 19 | 12 | |
| 11283500 | 1965 | 1 | 8.2 | 28 | 77 | 512 | 502 | 421 | 430 | 1310 | 668 | 254 | 45 | 27 |
| 11283500 | 1965 | 2 | 8 | 36 | 114 | 488 | 495 | 399 | 430 | 1050 | 560 | 229 | 43 | 27 |
| 11283500 | 1965 | 3 | 7.6 | 24 | 111 | 465 | 485 | 395 | 407 | 760 | 582 | 234 | 41 | 26 |
| 11283500 | 1965 | 4 | 7.6 | 22 | 80 | 442 | 480 | 393 | 411 | 685 | 670 | 233 | 39 | 25 |
| 11283500 | 1965 | 5 | 7.5 | 21 | 76 | 521 | 610 | 375 | 413 | 692 | 718 | 203 | 37 | 25 |
| 11283500 | 1965 | 6 | 7.6 | 19 | 61 | 1790 | 672 | 373 | 430 | 668 | 675 | 199 | 36 | 25 |
| 11283500 | 1965 | 7 | 7.6 | 17 | 66 | 1670 | 552 | 349 | 415 | 578 | 618 | 187 | 34 | 28 |
| 11283500 | 1965 | 8 | 7.6 | 17 | 62 | 838 | 508 | 331 | 421 | 542 | 608 | 165 | 33 | 36 |
| 11283500 | 1965 | 9 | 8 | 58 | 68 | 662 | 475 | 322 | 428 | 542 | 468 | 151 | 32 | 39 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11283500 | 1965 | 10 | 8.2 | 92 | 91 | 600 | 442 | 325 | 413 | 620 | 562 | 139 | 33 | 33 |
| 11283500 | 1965 | 11 | 8.2 | 67 | 179 | 548 | 419 | 322 | 397 | 655 | 612 | 126 | 37 | 29 |
| 11283500 | 1965 | 12 | 8 | 248 | 184 | 512 | 399 | 345 | 387 | 736 | 590 | 116 | 83 | 27 |
| 11283500 | 1965 | 13 | 7.6 | 128 | 108 | 475 | 389 | 325 | 389 | 832 | 512 | 110 | 129 | 25 |
| 11283500 | 1965 | 14 | 7.6 | 66 | 98 | 458 | 381 | 318 | 399 | 826 | 425 | 105 | 74 | 24 |
| 11283500 | 1965 | 15 | 7.6 | 58 | 86 | 465 | 367 | 318 | 438 | 829 | 377 | 102 | 94 | 24 |
| 11283500 | 1965 | 16 | 7.6 | 50 | 72 | 460 | 353 | 318 | 500 | 1000 | 351 | 121 | 214 | 23 |
| 11283500 | 1965 | 17 | 8 | 46 | 66 | 455 | 351 | 327 | 510 | 1140 | 385 | 109 | 215 | 22 |
| 11283500 | 1965 | 18 | 8.5 | 38 | 65 | 468 | 359 | 329 | 548 | 1080 | 308 | 129 | 390 | 22 |
| 11283500 | 1965 | 19 | 8.4 | 40 | 163 | 515 | 379 | 347 | 695 | 1040 | 333 | 107 | 107 | 22 |
| 11283500 | 1965 | 20 | 8.2 | 41 | 368 | 542 | 395 | 369 | 984 | 931 | 397 | 93 | 75 | 22 |
| 11283500 | 1965 | 21 | 8.2 | 40 | 430 | 515 | 413 | 403 | 1230 | 948 | 452 | 84 | 59 | 22 |
| 11283500 | 1965 | 22 | 8.2 | 43 | 2460 | 490 | 425 | 417 | 1230 | 682 | 375 | 76 | 50 | 22 |
| 11283500 | 1965 | 23 | 8 | 44 | 8580 | 536 | 403 | 450 | 1070 | 578 | 339 | 69 | 45 | 22 |
| 11283500 | 1965 | 24 | 8.2 | 46 | 7810 | 979 | 389 | 440 | 1100 | 585 | 290 | 64 | 42 | 21 |
| 11283500 | 1965 | 25 | 8.5 | 54 | 2540 | 658 | 389 | 391 | 1260 | 570 | 306 | 61 | 39 | 20 |
| 11283500 | 1965 | 26 | 8.7 | 90 | 1640 | 575 | 397 | 389 | 1260 | 650 | 274 | 58 | 36 | 20 |
| 11283500 | 1965 | 27 | 8.9 | 90 | 2020 | 535 | 490 | 438 | 1360 | 660 | 241 | 56 | 33 | 21 |
| 11283500 | 1965 | 28 | 11 | 70 | 1170 | 502 | 470 | 413 | 1450 | 675 | 254 | 53 | 31 | 22 |
| 11283500 | 1965 | 29 | 51 | 67 | 836 | 480 | | 413 | 1470 | 754 | 254 | 50 | 30 | 22 |
| 11283500 | 1965 | 30 | 31 | 72 | 690 | 478 | | 423 | 1460 | 754 | 264 | 48 | 29 | 21 |
| 11283500 | 1965 | 31 | 19 | | 594 | 498 | | 432 | | 721 | | 47 | 27 | |
| 11283500 | 1966 | 1 | 20 | 18 | 181 | 138 | 115 | 147 | 775 | 442 | 106 | 26 | 15 | 9.3 |
| 11283500 | 1966 | 2 | 20 | 18 | 175 | 129 | 103 | 142 | 760 | 430 | 96 | 25 | 14 | 8.9 |
| 11283500 | 1966 | 3 | 19 | 18 | 180 | 129 | 115 | 130 | 690 | 468 | 90 | 24 | 13 | 8.4 |
| 11283500 | 1966 | 4 | 19 | 18 | 193 | 123 | 112 | 128 | 742 | 448 | 86 | 24 | 12 | 8 |
| 11283500 | 1966 | 5 | 19 | 18 | 190 | 133 | 120 | 135 | 721 | 460 | 83 | 23 | 12 | 7.9 |
| 11283500 | 1966 | 6 | 19 | 18 | 179 | 151 | 224 | 138 | 692 | 438 | 81 | 22 | 12 | 7.8 |
| 11283500 | 1966 | 7 | 19 | 18 | 171 | 160 | 163 | 153 | 652 | 425 | 89 | 22 | 11 | 7.7 |
| 11283500 | 1966 | 8 | 18 | 18 | 164 | 164 | 147 | 181 | 632 | 419 | 100 | 21 | 11 | 7.7 |
| 11283500 | 1966 | 9 | 18 | 18 | 159 | 162 | 143 | 205 | 618 | 381 | 107 | 24 | 11 | 7.8 |
| 11283500 | 1966 | 10 | 18 | 19 | 154 | 153 | 134 | 327 | 718 | 535 | 94 | 22 | 11 | 7.7 |
| 11283500 | 1966 | 11 | 18 | 19 | 147 | 145 | 113 | 385 | 595 | 417 | 81 | 21 | 10 | 7.7 |
| 11283500 | 1966 | 12 | 18 | 20 | 155 | 138 | 130 | 369 | 542 | 355 | 75 | 20 | 10 | 7.9 |
| 11283500 | 1966 | 13 | 18 | 31 | 139 | 136 | 113 | 508 | 492 | 318 | 69 | 20 | 10 | 8.3 |
| 11283500 | 1966 | 14 | 19 | 228 | 138 | 135 | 116 | 530 | 470 | 319 | 63 | 20 | 10 | 8.8 |
| 11283500 | 1966 | 15 | 26 | 195 | 118 | 138 | 115 | 482 | 502 | 292 | 58 | 19 | 10 | 9 |
| 11283500 | 1966 | 16 | 24 | 199 | 110 | 138 | 117 | 438 | 540 | 283 | 54 | 18 | 9 | 9 |
| 11283500 | 1966 | 17 | 22 | 548 | 100 | 133 | 119 | 389 | 565 | 276 | 50 | 18 | 9.2 | 8.6 |
| 11283500 | 1966 | 18 | 22 | 1130 | 103 | 127 | 123 | 381 | 575 | 268 | 47 | 17 | 9 | 9.2 |
| 11283500 | 1966 | 19 | 21 | 605 | 103 | 129 | 125 | 393 | 448 | 272 | 44 | 17 | 8.8 | 13 |
| 11283500 | 1966 | 20 | 21 | 314 | 105 | 116 | 123 | 375 | 395 | 255 | 42 | 16 | 8.6 | 13 |
| 11283500 | 1966 | 21 | 20 | 215 | 107 | 115 | 127 | 365 | 371 | 248 | 39 | 16 | 8.4 | 12 |
| 11283500 | 1966 | 22 | 20 | 172 | 108 | 120 | 136 | 381 | 371 | 234 | 39 | 15 | 8.5 | 10 |
| 11283500 | 1966 | 23 | 19 | 574 | 88 | 114 | 152 | 435 | 381 | 215 | 37 | 15 | 8.5 | 9.6 |
| 11283500 | 1966 | 24 | 19 | 721 | 102 | 114 | 163 | 488 | 435 | 198 | 36 | 14 | 8.4 | 9.3 |
| 11283500 | 1966 | 25 | 18 | 423 | 103 | 108 | 143 | 505 | 488 | 184 | 35 | 14 | 8.4 | 9 |
| 11283500 | 1966 | 26 | 18 | 304 | 100 | 110 | 149 | 525 | 515 | 177 | 33 | 14 | 8.2 | 9 |
| 11283500 | 1966 | 27 | 18 | 250 | 107 | 107 | 142 | 580 | 500 | 163 | 31 | 13 | 8.4 | 9 |
| 11283500 | 1966 | 28 | 18 | 229 | 114 | 102 | 145 | 622 | 468 | 150 | 29 | 13 | 8.6 | 8.7 |
| 11283500 | 1966 | 29 | 18 | 213 | 201 | 108 | | 658 | 432 | 139 | 28 | 13 | 8.6 | 8.4 |
| 11283500 | 1966 | 30 | 18 | 197 | 204 | 120 | | 688 | 435 | 125 | 27 | 13 | 8.7 | 8.1 |
| 11283500 | 1966 | 31 | 18 | | 166 | 116 | | 745 | | 116 | | 15 | 9.2 | |
| 11283500 | 1967 | 1 | 8.1 | 9.3 | 201 | 113 | 502 | 254 | 547 | 402 | 935 | 731 | 92 | 33 |
| 11283500 | 1967 | 2 | 8.3 | 9.2 | 593 | 109 | 404 | 261 | 510 | 451 | 804 | 683 | 86 | 32 |
| 11283500 | 1967 | 3 | 8.5 | 9.3 | 865 | 108 | 357 | 278 | 483 | 525 | 755 | 626 | 81 | 33 |
| 11283500 | 1967 | 4 | 8.7 | 9.3 | 353 | 107 | 327 | 255 | 493 | 580 | 949 | 557 | 77 | 33 |
| 11283500 | 1967 | 5 | 9 | 9.3 | 866 | 108 | 325 | 230 | 478 | 580 | 1160 | 502 | 73 | 33 |
| 11283500 | 1967 | 6 | 8.9 | 12 | 3590 | 90 | 329 | 226 | 500 | 646 | 947 | 460 | 68 | 31 |
| 11283500 | 1967 | 7 | 8.8 | 27 | 1340 | 99 | 333 | 234 | 573 | 893 | 1090 | 423 | 65 | 30 |
| 11283500 | 1967 | 8 | 8.8 | 19 | 590 | 97 | 342 | 257 | 521 | 1250 | 1130 | 395 | 62 | 30 |
| 11283500 | 1967 | 9 | 8.8 | 15 | 434 | 91 | 342 | 271 | 502 | 1460 | 1120 | 366 | 60 | 29 |
| 11283500 | 1967 | 10 | 8.6 | 14 | 379 | 93 | 358 | 271 | 513 | 1420 | 1110 | 333 | 57 | 29 |
| 11283500 | 1967 | 11 | 8.4 | 13 | 332 | 94 | 363 | 262 | 494 | 1070 | 1090 | 317 | 55 | 29 |
| 11283500 | 1967 | 12 | 8.5 | 13 | 295 | 97 | 359 | 385 | 465 | 901 | 1080 | 317 | 52 | 28 |
| 11283500 | 1967 | 13 | 8.9 | 13 | 277 | 99 | 377 | 353 | 481 | 879 | 1010 | 312 | 50 | 27 |
| 11283500 | 1967 | 14 | 9.1 | 13 | 251 | 103 | 367 | 314 | 511 | 999 | 987 | 298 | 47 | 27 |
| 11283500 | 1967 | 15 | 9.3 | 13 | 231 | 105 | 324 | 322 | 496 | 1370 | 1030 | 285 | 45 | 26 |

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| 11283500 | 1967 | 16 | 9.5 | 148 | 225 | 106 | 305 | 3520 | 454 | 1830 | 1130 | 245 | 44 | 26 |
| 11283500 | 1967 | 17 | 9.6 | 127 | 217 | 101 | 291 | 3020 | 452 | 2170 | 1210 | 237 | 43 | 25 |
| 11283500 | 1967 | 18 | 9.6 | 60 | 211 | 99 | 292 | 1750 | 490 | 2250 | 1270 | 224 | 41 | 46 |
| 11283500 | 1967 | 19 | 9.6 | 42 | 208 | 96 | 295 | 1250 | 471 | 2250 | 1170 | 208 | 40 | 41 |
| 11283500 | 1967 | 20 | 9.5 | 288 | 208 | 102 | 277 | 990 | 454 | 2540 | 1050 | 188 | 38 | 32 |
| 11283500 | 1967 | 21 | 9.5 | 202 | 190 | 313 | 265 | 873 | 444 | 2900 | 1060 | 172 | 38 | 30 |
| 11283500 | 1967 | 22 | 9.7 | 176 | 171 | 377 | 261 | 873 | 430 | 2960 | 1050 | 162 | 37 | 28 |
| 11283500 | 1967 | 23 | 9.8 | 102 | 165 | 238 | 255 | 848 | 426 | 2790 | 965 | 160 | 36 | 28 |
| 11283500 | 1967 | 24 | 9.6 | 74 | 153 | 216 | 249 | 759 | 431 | 2560 | 934 | 150 | 35 | 42 |
| 11283500 | 1967 | 25 | 9.6 | 60 | 147 | 188 | 260 | 693 | 421 | 2300 | 949 | 142 | 40 | 32 |
| 11283500 | 1967 | 26 | 9.4 | 57 | 139 | 186 | 233 | 636 | 424 | 2070 | 901 | 130 | 71 | 30 |
| 11283500 | 1967 | 27 | 9.3 | 54 | 115 | 213 | 241 | 601 | 453 | 1940 | 854 | 122 | 59 | 28 |
| 11283500 | 1967 | 28 | 9.5 | 353 | 125 | 261 | 240 | 802 | 426 | 1870 | 801 | 116 | 45 | 27 |
| 11283500 | 1967 | 29 | 9.6 | 803 | 130 | 587 | | 755 | 403 | 1560 | 811 | 112 | 40 | 27 |
| 11283500 | 1967 | 30 | 9.4 | 312 | 124 | 722 | | 628 | 398 | 1400 | 786 | 106 | 37 | 26 |
| 11283500 | 1967 | 31 | 9.4 | | 115 | 726 | | 593 | | 1180 | | 99 | 34 | |
| 11283500 | 1968 | 1 | 26 | 20 | 33 | 47 | 75 | 352 | 533 | 420 | 173 | 26 | 13 | 9.3 |
| 11283500 | 1968 | 2 | 26 | 20 | 31 | 43 | 85 | 309 | 455 | 420 | 173 | 25 | 12 | 9.4 |
| 11283500 | 1968 | 3 | 45 | 20 | 34 | 37 | 92 | 301 | 379 | 422 | 169 | 24 | 11 | 8 |
| 11283500 | 1968 | 4 | 35 | 20 | 37 | 39 | 97 | 302 | 381 | 401 | 153 | 24 | 11 | 7.7 |
| 11283500 | 1968 | 5 | 31 | 20 | 129 | 37 | 101 | 302 | 398 | 379 | 142 | 23 | 10 | 7.7 |
| 11283500 | 1968 | 6 | 30 | 20 | 60 | 37 | 100 | 274 | 366 | 325 | 116 | 22 | 10 | 7.5 |
| 11283500 | 1968 | 7 | 28 | 20 | 62 | 36 | 98 | 255 | 360 | 299 | 110 | 21 | 9.8 | 7 |
| 11283500 | 1968 | 8 | 27 | 20 | 56 | 37 | 99 | 288 | 386 | 301 | 104 | 21 | 9.4 | 6.7 |
| 11283500 | 1968 | 9 | 27 | 20 | 47 | 36 | 119 | 272 | 421 | 298 | 96 | 21 | 9.2 | 6.6 |
| 11283500 | 1968 | 10 | 26 | 19 | 44 | 49 | 125 | 245 | 476 | 270 | 95 | 20 | 9 | 6.7 |
| 11283500 | 1968 | 11 | 26 | 19 | 43 | 46 | 113 | 231 | 522 | 265 | 95 | 19 | 8.8 | 6.8 |
| 11283500 | 1968 | 12 | 24 | 19 | 42 | 43 | 105 | 230 | 505 | 281 | 91 | 18 | 9 | 6.8 |
| 11283500 | 1968 | 13 | 24 | 19 | 28 | 42 | 104 | 228 | 456 | 294 | 85 | 18 | 11 | 6.6 |
| 11283500 | 1968 | 14 | 24 | 23 | 35 | 42 | 101 | 228 | 446 | 263 | 78 | 18 | 13 | 6.5 |
| 11283500 | 1968 | 15 | 23 | 26 | 41 | 149 | 96 | 211 | 465 | 306 | 74 | 18 | 12 | 6.7 |
| 11283500 | 1968 | 16 | 23 | 24 | 39 | 163 | 105 | 233 | 425 | 331 | 71 | 17 | 11 | 6.8 |
| 11283500 | 1968 | 17 | 23 | 24 | 34 | 129 | 308 | 235 | 352 | 334 | 66 | 17 | 11 | 6.6 |
| 11283500 | 1968 | 18 | 22 | 23 | 37 | 97 | 338 | 236 | 305 | 296 | 61 | 16 | 10 | 6.4 |
| 11283500 | 1968 | 19 | 22 | 54 | 38 | 84 | 296 | 219 | 301 | 306 | 55 | 16 | 11 | 6.2 |
| 11283500 | 1968 | 20 | 22 | 47 | 36 | 78 | 888 | 214 | 302 | 311 | 51 | 15 | 22 | 6.2 |
| 11283500 | 1968 | 21 | 21 | 35 | 36 | 80 | 812 | 227 | 288 | 338 | 46 | 14 | 21 | 6.6 |
| 11283500 | 1968 | 22 | 22 | 30 | 36 | 85 | 571 | 243 | 269 | 267 | 43 | 14 | 20 | 7 |
| 11283500 | 1968 | 23 | 22 | 28 | 38 | 88 | 589 | 236 | 287 | 205 | 40 | 13 | 16 | 7.2 |
| 11283500 | 1968 | 24 | 22 | 26 | 41 | 87 | 569 | 256 | 318 | 175 | 38 | 13 | 13 | 7 |
| 11283500 | 1968 | 25 | 21 | 25 | 45 | 88 | 448 | 284 | 332 | 177 | 35 | 13 | 13 | 6.7 |
| 11283500 | 1968 | 26 | 21 | 25 | 51 | 87 | 414 | 284 | 382 | 219 | 32 | 13 | 12 | 6.4 |
| 11283500 | 1968 | 27 | 21 | 25 | 53 | 82 | 403 | 295 | 434 | 235 | 30 | 12 | 11 | 6.2 |
| 11283500 | 1968 | 28 | 21 | 26 | 56 | 66 | 383 | 334 | 441 | 245 | 28 | 12 | 10 | 6 |
| 11283500 | 1968 | 29 | 21 | 28 | 62 | 73 | 359 | 412 | 462 | 238 | 27 | 12 | 9.7 | 6 |
| 11283500 | 1968 | 30 | 21 | 38 | 58 | 72 | | 497 | 457 | 208 | 27 | 12 | 9.2 | 6.2 |
| 11283500 | 1968 | 31 | 20 | | 51 | 64 | | 477 | | 181 | | 12 | 8.5 | |
| 11283500 | 1969 | 1 | 6.5 | 17 | 55 | 104 | 688 | 373 | 1460 | 1560 | 1420 | 369 | 67 | 25 |
| 11283500 | 1969 | 2 | 6.7 | 22 | 42 | 103 | 630 | 361 | 1370 | 1500 | 1410 | 363 | 63 | 24 |
| 11283500 | 1969 | 3 | 6.7 | 514 | 52 | 104 | 600 | 353 | 1180 | 1300 | 1400 | 355 | 59 | 23 |
| 11283500 | 1969 | 4 | 6.7 | 210 | 49 | 112 | 572 | 337 | 1080 | 1190 | 1290 | 326 | 56 | 23 |
| 11283500 | 1969 | 5 | 8.3 | 102 | 48 | 125 | 573 | 329 | 1720 | 1310 | 1220 | 312 | 53 | 23 |
| 11283500 | 1969 | 6 | 14 | 76 | 51 | 141 | 576 | 333 | 1440 | 1630 | 1120 | 300 | 51 | 23 |
| 11283500 | 1969 | 7 | 11 | 59 | 49 | 157 | 525 | 322 | 1180 | 1900 | 1060 | 282 | 49 | 24 |
| 11283500 | 1969 | 8 | 7.9 | 47 | 49 | 154 | 482 | 313 | 1060 | 2050 | 931 | 279 | 46 | 30 |
| 11283500 | 1969 | 9 | 7.4 | 53 | 46 | 139 | 450 | 312 | 1000 | 2240 | 766 | 269 | 44 | 26 |
| 11283500 | 1969 | 10 | 7.4 | 66 | 53 | 121 | 425 | 312 | 992 | 2120 | 766 | 260 | 43 | 25 |
| 11283500 | 1969 | 11 | 7.3 | 55 | 121 | 121 | 438 | 298 | 1190 | 2070 | 630 | 252 | 43 | 24 |
| 11283500 | 1969 | 12 | 8.9 | 94 | 76 | 128 | 532 | 298 | 1400 | 2040 | 588 | 238 | 41 | 24 |
| 11283500 | 1969 | 13 | 22 | 111 | 80 | 515 | 472 | 290 | 1430 | 2040 | 615 | 228 | 39 | 22 |
| 11283500 | 1969 | 14 | 50 | 77 | 81 | 772 | 450 | 288 | 1330 | 2010 | 808 | 227 | 37 | 22 |
| 11283500 | 1969 | 15 | 24 | 81 | 186 | 458 | 601 | 296 | 1140 | 1800 | 895 | 210 | 36 | 22 |
| 11283500 | 1969 | 16 | 20 | 84 | 179 | 328 | 572 | 312 | 1130 | 1760 | 757 | 195 | 34 | 22 |
| 11283500 | 1969 | 17 | 17 | 79 | 122 | 265 | 502 | 337 | 1270 | 1880 | 648 | 175 | 34 | 25 |
| 11283500 | 1969 | 18 | 16 | 95 | 108 | 345 | 482 | 381 | 1400 | 1910 | 620 | 166 | 34 | 25 |
| 11283500 | 1969 | 19 | 15 | 209 | 100 | 4210 | 445 | 411 | 1420 | 1730 | 678 | 159 | 32 | 22 |
| 11283500 | 1969 | 20 | 14 | 123 | 71 | 4680 | 413 | 432 | 1640 | 1580 | 672 | 153 | 32 | 22 |
| 11283500 | 1969 | 21 | 13 | 95 | 64 | 6780 | 395 | 448 | 1890 | 1560 | 632 | 144 | 31 | 22 |
| 11283500 | 1969 | 22 | 13 | 80 | 79 | 2520 | 379 | 438 | 1980 | 1650 | 572 | 134 | 29 | 22 |

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| 11283500 | 1969 | 23 | 13 | 74 | 89 | 1350 | 377 | 490 | 1880 | 1730 | 588 | 131 | 29 | 21 |
| 11283500 | 1969 | 24 | 12 | 75 | 174 | 1160 | 407 | 542 | 1400 | 1690 | 505 | 120 | 28 | 20 |
| 11283500 | 1969 | 25 | 12 | 71 | 291 | 4230 | 401 | 598 | 1220 | 1590 | 515 | 109 | 28 | 21 |
| 11283500 | 1969 | 26 | 12 | 57 | 185 | 4970 | 389 | 662 | 1140 | 1570 | 440 | 99 | 27 | 23 |
| 11283500 | 1969 | 27 | 12 | 59 | 140 | 2120 | 369 | 763 | 1180 | 1620 | 415 | 93 | 27 | 20 |
| 11283500 | 1969 | 28 | 12 | 51 | 138 | 1420 | 373 | 934 | 1320 | 1470 | 389 | 89 | 26 | 19 |
| 11283500 | 1969 | 29 | 12 | 48 | 124 | 1080 | | 1110 | 1460 | 1440 | 363 | 82 | 26 | 19 |
| 11283500 | 1969 | 30 | 23 | 51 | 113 | 889 | | 1300 | 1550 | 1440 | 363 | 78 | 26 | 19 |
| 11283500 | 1969 | 31 | 20 | | 107 | 757 | | 1420 | | 1420 | | 73 | 25 | |
| 11283500 | 1970 | 1 | 19 | 28 | 30 | 136 | 520 | 634 | 364 | 418 | 353 | 112 | 25 | 15 |
| 11283500 | 1970 | 2 | 19 | 28 | 31 | 116 | 477 | 590 | 370 | 468 | 322 | 100 | 24 | 15 |
| 11283500 | 1970 | 3 | 18 | 28 | 31 | 105 | 456 | 497 | 411 | 545 | 298 | 93 | 23 | 15 |
| 11283500 | 1970 | 4 | 19 | 27 | 30 | 96 | 444 | 461 | 396 | 585 | 285 | 86 | 23 | 15 |
| 11283500 | 1970 | 5 | 19 | 29 | 29 | 89 | 432 | 439 | 418 | 616 | 273 | 80 | 22 | 15 |
| 11283500 | 1970 | 6 | 19 | 102 | 31 | 91 | 407 | 441 | 458 | 630 | 252 | 75 | 21 | 15 |
| 11283500 | 1970 | 7 | 19 | 77 | 30 | 104 | 399 | 442 | 458 | 492 | 234 | 69 | 20 | 15 |
| 11283500 | 1970 | 8 | 19 | 64 | 33 | 107 | 399 | 452 | 429 | 478 | 238 | 65 | 19 | 14 |
| 11283500 | 1970 | 9 | 19 | 68 | 34 | 233 | 383 | 429 | 443 | 421 | 648 | 62 | 18 | 14 |
| 11283500 | 1970 | 10 | 19 | 61 | 32 | 624 | 369 | 421 | 490 | 525 | 370 | 59 | 18 | 14 |
| 11283500 | 1970 | 11 | 19 | 61 | 33 | 362 | 364 | 389 | 483 | 449 | 249 | 56 | 17 | 14 |
| 11283500 | 1970 | 12 | 19 | 73 | 34 | 319 | 477 | 381 | 451 | 387 | 213 | 53 | 17 | 14 |
| 11283500 | 1970 | 13 | 19 | 65 | 33 | 333 | 495 | 418 | 439 | 395 | 211 | 50 | 16 | 13 |
| 11283500 | 1970 | 14 | 20 | 63 | 32 | 928 | 455 | 481 | 387 | 537 | 232 | 48 | 16 | 14 |
| 11283500 | 1970 | 15 | 57 | 59 | 32 | 649 | 440 | 509 | 362 | 626 | 227 | 45 | 16 | 15 |
| 11283500 | 1970 | 16 | 240 | 62 | 32 | 4660 | 415 | 500 | 354 | 712 | 178 | 43 | 16 | 15 |
| 11283500 | 1970 | 17 | 213 | 67 | 31 | 3080 | 514 | 511 | 334 | 732 | 178 | 42 | 17 | 14 |
| 11283500 | 1970 | 18 | 103 | 52 | 32 | 1470 | 441 | 471 | 335 | 697 | 179 | 40 | 18 | 14 |
| 11283500 | 1970 | 19 | 71 | 47 | 92 | 1020 | 414 | 429 | 369 | 607 | 185 | 38 | 17 | 14 |
| 11283500 | 1970 | 20 | 56 | 43 | 836 | 1040 | 387 | 410 | 341 | 524 | 179 | 36 | 16 | 17 |
| 11283500 | 1970 | 21 | 49 | 42 | 1200 | 4640 | 368 | 411 | 324 | 446 | 161 | 35 | 16 | 15 |
| 11283500 | 1970 | 22 | 46 | 41 | 634 | 3260 | 355 | 430 | 308 | 503 | 159 | 33 | 16 | 15 |
| 11283500 | 1970 | 23 | 43 | 39 | 297 | 1680 | 351 | 457 | 298 | 513 | 144 | 33 | 16 | 14 |
| 11283500 | 1970 | 24 | 41 | 37 | 322 | 1970 | 352 | 485 | 305 | 497 | 131 | 28 | 15 | 14 |
| 11283500 | 1970 | 25 | 39 | 36 | 961 | 1200 | 346 | 530 | 336 | 449 | 120 | 28 | 15 | 14 |
| 11283500 | 1970 | 26 | 36 | 35 | 506 | 951 | 355 | 543 | 400 | 462 | 128 | 28 | 15 | 14 |
| 11283500 | 1970 | 27 | 34 | 34 | 305 | 1120 | 363 | 503 | 350 | 445 | 459 | 27 | 15 | 14 |
| 11283500 | 1970 | 28 | 33 | 32 | 211 | 870 | 425 | 466 | 321 | 384 | 267 | 27 | 15 | 13 |
| 11283500 | 1970 | 29 | 31 | 31 | 186 | 717 | | 472 | 312 | 367 | 165 | 27 | 15 | 13 |
| 11283500 | 1970 | 30 | 30 | 31 | 163 | 638 | | 443 | 344 | 354 | 131 | 26 | 15 | 13 |
| 11283500 | 1970 | 31 | 29 | | 143 | 567 | | 394 | | 355 | | 25 | 15 | |
| 11283500 | 1971 | 1 | 13 | 16 | 296 | 131 | 280 | 192 | 709 | 609 | 326 | 166 | 25 | 15 |
| 11283500 | 1971 | 2 | 13 | 16 | 444 | 130 | 271 | 185 | 683 | 658 | 321 | 158 | 25 | 15 |
| 11283500 | 1971 | 3 | 12 | 16 | 226 | 96 | 252 | 191 | 677 | 579 | 361 | 139 | 24 | 15 |
| 11283500 | 1971 | 4 | 13 | 22 | 235 | 109 | 234 | 185 | 719 | 508 | 355 | 126 | 23 | 15 |
| 11283500 | 1971 | 5 | 13 | 139 | 213 | 108 | 223 | 174 | 783 | 462 | 423 | 116 | 23 | 15 |
| 11283500 | 1971 | 6 | 13 | 218 | 185 | 103 | 216 | 169 | 770 | 472 | 446 | 108 | 22 | 15 |
| 11283500 | 1971 | 7 | 13 | 130 | 189 | 103 | 213 | 172 | 640 | 464 | 496 | 99 | 22 | 17 |
| 11283500 | 1971 | 8 | 14 | 79 | 241 | 105 | 214 | 173 | 564 | 484 | 535 | 91 | 21 | 16 |
| 11283500 | 1971 | 9 | 14 | 70 | 317 | 104 | 215 | 179 | 586 | 453 | 523 | 85 | 21 | 15 |
| 11283500 | 1971 | 10 | 16 | 83 | 237 | 106 | 229 | 189 | 637 | 607 | 464 | 80 | 20 | 14 |
| 11283500 | 1971 | 11 | 14 | 76 | 200 | 116 | 301 | 193 | 673 | 740 | 425 | 75 | 20 | 14 |
| 11283500 | 1971 | 12 | 14 | 91 | 179 | 127 | 377 | 259 | 685 | 754 | 443 | 71 | 20 | 14 |
| 11283500 | 1971 | 13 | 14 | 77 | 163 | 114 | 402 | 295 | 742 | 826 | 473 | 66 | 19 | 13 |
| 11283500 | 1971 | 14 | 14 | 55 | 147 | 117 | 410 | 254 | 644 | 792 | 435 | 61 | 18 | 13 |
| 11283500 | 1971 | 15 | 14 | 49 | 137 | 138 | 427 | 239 | 704 | 837 | 403 | 57 | 18 | 12 |
| 11283500 | 1971 | 16 | 14 | 46 | 149 | 145 | 431 | 251 | 789 | 833 | 394 | 53 | 18 | 12 |
| 11283500 | 1971 | 17 | 13 | 41 | 143 | 202 | 361 | 268 | 757 | 638 | 365 | 50 | 17 | 12 |
| 11283500 | 1971 | 18 | 14 | 38 | 138 | 370 | 314 | 289 | 564 | 584 | 338 | 53 | 17 | 12 |
| 11283500 | 1971 | 19 | 14 | 38 | 133 | 436 | 312 | 327 | 498 | 601 | 313 | 54 | 17 | 12 |
| 11283500 | 1971 | 20 | 15 | 36 | 125 | 411 | 275 | 363 | 482 | 602 | 309 | 47 | 17 | 12 |
| 11283500 | 1971 | 21 | 20 | 34 | 123 | 366 | 260 | 390 | 445 | 617 | 298 | 43 | 16 | 12 |
| 11283500 | 1971 | 22 | 20 | 34 | 126 | 315 | 246 | 418 | 409 | 451 | 278 | 40 | 17 | 13 |
| 11283500 | 1971 | 23 | 25 | 32 | 116 | 278 | 230 | 448 | 385 | 491 | 254 | 37 | 17 | 12 |
| 11283500 | 1971 | 24 | 25 | 31 | 107 | 250 | 220 | 438 | 397 | 585 | 232 | 35 | 17 | 12 |
| 11283500 | 1971 | 25 | 20 | 520 | 108 | 229 | 224 | 565 | 369 | 641 | 226 | 33 | 16 | 13 |
| 11283500 | 1971 | 26 | 18 | 614 | 115 | 226 | 202 | 1880 | 353 | 682 | 212 | 31 | 16 | 14 |
| 11283500 | 1971 | 27 | 18 | 221 | 131 | 241 | 197 | 1410 | 338 | 504 | 477 | 30 | 16 | 15 |
| 11283500 | 1971 | 28 | 17 | 214 | 130 | 257 | 203 | 998 | 356 | 447 | 262 | 29 | 15 | 15 |
| 11283500 | 1971 | 29 | 17 | 408 | 138 | 268 | | 887 | 401 | 420 | 196 | 28 | 16 | 15 |
| 11283500 | 1971 | 30 | 17 | 277 | 141 | 276 | | 933 | 495 | 404 | 175 | 27 | 15 | 21 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11283500 | 1971 | 31 | 17 | | 135 | 284 | | 830 | | 361 | | 26 | 15 | |
| 11283500 | 1972 | 1 | 22 | 18 | 74 | 119 | 106 | 340 | 300 | 545 | 281 | 40 | 14 | 7.9 |
| 11283500 | 1972 | 2 | 19 | 18 | 76 | 118 | 102 | 324 | 313 | 583 | 247 | 35 | 13 | 7.6 |
| 11283500 | 1972 | 3 | 18 | 18 | 60 | 114 | 103 | 428 | 364 | 582 | 223 | 32 | 13 | 7.9 |
| 11283500 | 1972 | 4 | 17 | 18 | 63 | 104 | 105 | 564 | 407 | 546 | 219 | 32 | 12 | 8.1 |
| 11283500 | 1972 | 5 | 17 | 18 | 63 | 106 | 168 | 573 | 494 | 548 | 185 | 30 | 12 | 9.6 |
| 11283500 | 1972 | 6 | 16 | 17 | 78 | 105 | 205 | 564 | 489 | 561 | 194 | 28 | 11 | 10 |
| 11283500 | 1972 | 7 | 16 | 17 | 72 | 102 | 171 | 561 | 427 | 489 | 304 | 27 | 11 | 9.4 |
| 11283500 | 1972 | 8 | 15 | 17 | 58 | 99 | 152 | 584 | 376 | 456 | 213 | 26 | 10 | 8.7 |
| 11283500 | 1972 | 9 | 15 | 17 | 64 | 98 | 146 | 651 | 352 | 442 | 263 | 25 | 9.5 | 8.2 |
| 11283500 | 1972 | 10 | 15 | 17 | 66 | 95 | 142 | 638 | 321 | 393 | 257 | 25 | 9.1 | 7.8 |
| 11283500 | 1972 | 11 | 14 | 74 | 60 | 95 | 143 | 603 | 355 | 426 | 199 | 23 | 9.2 | 7.6 |
| 11283500 | 1972 | 12 | 14 | 388 | 57 | 95 | 147 | 580 | 371 | 463 | 162 | 23 | 8.9 | 7.9 |
| 11283500 | 1972 | 13 | 14 | 145 | 54 | 95 | 153 | 532 | 354 | 473 | 150 | 22 | 8.6 | 8.2 |
| 11283500 | 1972 | 14 | 14 | 79 | 58 | 95 | 162 | 549 | 319 | 497 | 141 | 21 | 8.8 | 8 |
| 11283500 | 1972 | 15 | 14 | 64 | 60 | 99 | 162 | 560 | 359 | 497 | 132 | 20 | 9.1 | 7.6 |
| 11283500 | 1972 | 16 | 17 | 51 | 51 | 106 | 162 | 585 | 424 | 464 | 123 | 19 | 9.2 | 7.3 |
| 11283500 | 1972 | 17 | 20 | 46 | 56 | 110 | 171 | 612 | 422 | 422 | 111 | 19 | 9.3 | 7.1 |
| 11283500 | 1972 | 18 | 20 | 45 | 57 | 111 | 182 | 602 | 400 | 348 | 104 | 18 | 9.4 | 7.1 |
| 11283500 | 1972 | 19 | 20 | 40 | 58 | 114 | 196 | 538 | 351 | 318 | 97 | 18 | 9.4 | 7.5 |
| 11283500 | 1972 | 20 | 20 | 40 | 56 | 118 | 212 | 531 | 340 | 282 | 88 | 18 | 9.7 | 7.8 |
| 11283500 | 1972 | 21 | 19 | 41 | 57 | 118 | 222 | 551 | 374 | 240 | 81 | 18 | 9.6 | 7.7 |
| 11283500 | 1972 | 22 | 19 | 42 | 546 | 118 | 305 | 526 | 423 | 224 | 74 | 18 | 9 | 7.5 |
| 11283500 | 1972 | 23 | 18 | 40 | 458 | 148 | 282 | 425 | 449 | 218 | 68 | 18 | 8.5 | 7.3 |
| 11283500 | 1972 | 24 | 18 | 43 | 316 | 121 | 240 | 379 | 497 | 265 | 63 | 17 | 8.1 | 7.3 |
| 11283500 | 1972 | 25 | 18 | 42 | 561 | 129 | 222 | 416 | 410 | 301 | 58 | 16 | 8 | 7.3 |
| 11283500 | 1972 | 26 | 18 | 41 | 311 | 118 | 225 | 431 | 408 | 323 | 54 | 16 | 7.7 | 7.6 |
| 11283500 | 1972 | 27 | 18 | 84 | 227 | 106 | 237 | 355 | 486 | 344 | 51 | 15 | 7.5 | 8.1 |
| 11283500 | 1972 | 28 | 18 | 137 | 178 | 111 | 266 | 315 | 543 | 354 | 47 | 15 | 7.6 | 8.3 |
| 11283500 | 1972 | 29 | 17 | 150 | 154 | 121 | 378 | 289 | 536 | 337 | 44 | 14 | 8.7 | 8.4 |
| 11283500 | 1972 | 30 | 18 | 99 | 131 | 110 | | 281 | 498 | 307 | 53 | 14 | 9.5 | 8 |
| 11283500 | 1972 | 31 | 18 | | 124 | 108 | | 304 | | 300 | | 15 | 8.6 | |
| 11283500 | 1973 | 1 | 8 | 15 | 39 | 73 | 142 | 503 | 327 | 998 | 951 | 98 | 23 | 15 |
| 11283500 | 1973 | 2 | 8.2 | 14 | 37 | 75 | 141 | 446 | 305 | 1060 | 751 | 89 | 23 | 15 |
| 11283500 | 1973 | 3 | 8.6 | 14 | 40 | 79 | 145 | 419 | 301 | 1170 | 611 | 80 | 22 | 15 |
| 11283500 | 1973 | 4 | 9.1 | 38 | 59 | 50 | 190 | 386 | 320 | 1060 | 567 | 71 | 22 | 15 |
| 11283500 | 1973 | 5 | 8.7 | 37 | 34 | 49 | 178 | 347 | 371 | 814 | 551 | 66 | 23 | 14 |
| 11283500 | 1973 | 6 | 8.4 | 24 | 30 | 58 | 245 | 346 | 469 | 732 | 552 | 62 | 23 | 14 |
| 11283500 | 1973 | 7 | 8 | 24 | 30 | 53 | 455 | 325 | 616 | 936 | 529 | 59 | 23 | 14 |
| 11283500 | 1973 | 8 | 8.3 | 32 | 30 | 69 | 329 | 316 | 669 | 1110 | 497 | 55 | 21 | 13 |
| 11283500 | 1973 | 9 | 8.8 | 25 | 30 | 95 | 266 | 297 | 743 | 1270 | 490 | 52 | 21 | 13 |
| 11283500 | 1973 | 10 | 13 | 24 | 32 | 100 | 566 | 308 | 747 | 1330 | 428 | 49 | 21 | 13 |
| 11283500 | 1973 | 11 | 18 | 34 | 33 | 134 | 550 | 411 | 813 | 1500 | 380 | 46 | 20 | 13 |
| 11283500 | 1973 | 12 | 14 | 28 | 34 | 620 | 422 | 354 | 944 | 1560 | 365 | 43 | 20 | 13 |
| 11283500 | 1973 | 13 | 12 | 25 | 33 | 483 | 359 | 338 | 923 | 1580 | 329 | 41 | 19 | 13 |
| 11283500 | 1973 | 14 | 13 | 90 | 31 | 324 | 336 | 309 | 696 | 1630 | 299 | 40 | 19 | 12 |
| 11283500 | 1973 | 15 | 15 | 53 | 32 | 260 | 300 | 296 | 645 | 1540 | 234 | 39 | 18 | 13 |
| 11283500 | 1973 | 16 | 16 | 83 | 33 | 946 | 271 | 298 | 600 | 1620 | 222 | 38 | 17 | 13 |
| 11283500 | 1973 | 17 | 17 | 50 | 278 | 728 | 250 | 303 | 676 | 1700 | 207 | 37 | 16 | 13 |
| 11283500 | 1973 | 18 | 16 | 41 | 478 | 601 | 239 | 290 | 728 | 1540 | 209 | 36 | 16 | 13 |
| 11283500 | 1973 | 19 | 16 | 38 | 464 | 503 | 233 | 292 | 673 | 1640 | 204 | 35 | 16 | 13 |
| 11283500 | 1973 | 20 | 18 | 34 | 387 | 363 | 235 | 321 | 651 | 1240 | 201 | 34 | 16 | 13 |
| 11283500 | 1973 | 21 | 19 | 31 | 256 | 313 | 240 | 295 | 648 | 1070 | 193 | 33 | 16 | 13 |
| 11283500 | 1973 | 22 | 19 | 32 | 314 | 255 | 232 | 284 | 750 | 1000 | 184 | 32 | 15 | 13 |
| 11283500 | 1973 | 23 | 16 | 28 | 270 | 228 | 228 | 294 | 928 | 976 | 172 | 31 | 15 | 14 |
| 11283500 | 1973 | 24 | 15 | 28 | 188 | 209 | 283 | 313 | 1150 | 965 | 150 | 30 | 16 | 14 |
| 11283500 | 1973 | 25 | 13 | 30 | 143 | 197 | 297 | 339 | 1270 | 831 | 144 | 29 | 16 | 14 |
| 11283500 | 1973 | 26 | 13 | 32 | 126 | 176 | 336 | 351 | 1450 | 736 | 140 | 28 | 17 | 14 |
| 11283500 | 1973 | 27 | 13 | 38 | 120 | 164 | 432 | 366 | 1570 | 736 | 144 | 27 | 17 | 13 |
| 11283500 | 1973 | 28 | 13 | 43 | 113 | 160 | 603 | 357 | 1540 | 886 | 134 | 26 | 17 | 13 |
| 11283500 | 1973 | 29 | 13 | 42 | 82 | 160 | | 330 | 1350 | 936 | 118 | 25 | 16 | 12 |
| 11283500 | 1973 | 30 | 12 | 40 | 90 | 162 | | 314 | 1090 | 1030 | 109 | 24 | 15 | 15 |
| 11283500 | 1973 | 31 | 12 | | 81 | 150 | | 324 | | 864 | | 24 | 15 | |
| 11283500 | 1974 | 1 | 13 | 22 | 358 | 441 | 293 | 500 | 1670 | 956 | 603 | 91 | 33 | 17 |
| 11283500 | 1974 | 2 | 12 | 23 | 219 | 329 | 266 | 1270 | 1410 | 1090 | 547 | 85 | 32 | 16 |
| 11283500 | 1974 | 3 | 12 | 22 | 198 | 313 | 263 | 820 | 1120 | 1090 | 514 | 78 | 31 | 16 |
| 11283500 | 1974 | 4 | 12 | 22 | 178 | 295 | 255 | 750 | 925 | 1020 | 537 | 73 | 30 | 16 |
| 11283500 | 1974 | 5 | 12 | 22 | 158 | 269 | 247 | 710 | 790 | 1130 | 500 | 68 | 41 | 15 |
| 11283500 | 1974 | 6 | 12 | 35 | 147 | 238 | 228 | 670 | 700 | 1250 | 542 | 63 | 49 | 15 |
| 11283500 | 1974 | 7 | 16 | 52 | 145 | 253 | 229 | 630 | 675 | 1340 | 509 | 60 | 40 | 14 |

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| 11283500 | 1974 | 8 | 35 | 111 | 145 | 242 | 221 | 600 | 682 | 1330 | 428 | 58 | 35 | 14 |
| 11283500 | 1974 | 9 | 26 | 70 | 147 | 219 | 216 | 550 | 665 | 1260 | 385 | 93 | 32 | 14 |
| 11283500 | 1974 | 10 | 21 | 322 | 150 | 197 | 217 | 510 | 600 | 1180 | 384 | 473 | 30 | 14 |
| 11283500 | 1974 | 11 | 19 | 1510 | 160 | 197 | 210 | 485 | 582 | 1130 | 369 | 160 | 29 | 14 |
| 11283500 | 1974 | 12 | 20 | 1820 | 148 | 237 | 211 | 510 | 585 | 1110 | 364 | 107 | 27 | 13 |
| 11283500 | 1974 | 13 | 18 | 423 | 167 | 257 | 196 | 515 | 598 | 998 | 334 | 86 | 26 | 13 |
| 11283500 | 1974 | 14 | 17 | 292 | 158 | 241 | 201 | 522 | 618 | 865 | 311 | 74 | 25 | 13 |
| 11283500 | 1974 | 15 | 16 | 206 | 144 | 278 | 186 | 555 | 658 | 904 | 283 | 66 | 25 | 13 |
| 11283500 | 1974 | 16 | 16 | 182 | 141 | 520 | 193 | 620 | 712 | 801 | 261 | 60 | 24 | 13 |
| 11283500 | 1974 | 17 | 15 | 536 | 163 | 1330 | 174 | 565 | 790 | 679 | 244 | 56 | 24 | 12 |
| 11283500 | 1974 | 18 | 15 | 670 | 174 | 1080 | 188 | 532 | 990 | 550 | 200 | 52 | 24 | 12 |
| 11283500 | 1974 | 19 | 15 | 313 | 155 | 1170 | 180 | 523 | 720 | 484 | 185 | 49 | 22 | 12 |
| 11283500 | 1974 | 20 | 15 | 241 | 147 | 835 | 168 | 520 | 631 | 431 | 166 | 46 | 22 | 11 |
| 11283500 | 1974 | 21 | 16 | 199 | 161 | 651 | 170 | 505 | 681 | 430 | 170 | 44 | 22 | 11 |
| 11283500 | 1974 | 22 | 18 | 166 | 183 | 559 | 177 | 485 | 815 | 522 | 172 | 42 | 21 | 11 |
| 11283500 | 1974 | 23 | 101 | 142 | 173 | 502 | 170 | 460 | 872 | 604 | 164 | 40 | 20 | 11 |
| 11283500 | 1974 | 24 | 59 | 145 | 153 | 453 | 170 | 455 | 707 | 662 | 146 | 39 | 20 | 11 |
| 11283500 | 1974 | 25 | 36 | 127 | 153 | 426 | 172 | 523 | 615 | 758 | 129 | 39 | 19 | 11 |
| 11283500 | 1974 | 26 | 33 | 127 | 153 | 396 | 179 | 495 | 572 | 828 | 121 | 39 | 19 | 11 |
| 11283500 | 1974 | 27 | 28 | 118 | 368 | 360 | 172 | 584 | 551 | 870 | 109 | 39 | 18 | 11 |
| 11283500 | 1974 | 28 | 26 | 119 | 507 | 345 | 190 | 780 | 591 | 822 | 104 | 38 | 18 | 11 |
| 11283500 | 1974 | 29 | 25 | 130 | 943 | 327 | | 810 | 648 | 722 | 100 | 36 | 18 | 11 |
| 11283500 | 1974 | 30 | 24 | 130 | 867 | 314 | | 1030 | 763 | 633 | 96 | 37 | 17 | 11 |
| 11283500 | 1974 | 31 | 23 | | 553 | 303 | | 950 | | 614 | | 35 | 17 | |
| 11283500 | 1975 | 1 | 11 | 45 | 25 | 32 | 75 | 370 | 476 | 737 | 1840 | 279 | 52 | 33 |
| 11283500 | 1975 | 2 | 13 | 32 | 25 | 32 | 94 | 392 | 446 | 782 | 1630 | 258 | 50 | 32 |
| 11283500 | 1975 | 3 | 27 | 28 | 132 | 36 | 93 | 367 | 442 | 946 | 1440 | 241 | 48 | 32 |
| 11283500 | 1975 | 4 | 19 | 26 | 406 | 38 | 117 | 368 | 413 | 863 | 1380 | 231 | 46 | 31 |
| 11283500 | 1975 | 5 | 17 | 25 | 121 | 37 | 108 | 427 | 410 | 689 | 1420 | 228 | 43 | 30 |
| 11283500 | 1975 | 6 | 15 | 25 | 79 | 112 | 104 | 488 | 372 | 653 | 1440 | 227 | 40 | 28 |
| 11283500 | 1975 | 7 | 14 | 24 | 66 | 169 | 118 | 601 | 344 | 704 | 1290 | 215 | 40 | 27 |
| 11283500 | 1975 | 8 | 14 | 27 | 57 | 301 | 143 | 715 | 329 | 915 | 1130 | 188 | 40 | 27 |
| 11283500 | 1975 | 9 | 16 | 27 | 54 | 159 | 561 | 532 | 318 | 1140 | 1060 | 177 | 39 | 28 |
| 11283500 | 1975 | 10 | 16 | 26 | 51 | 119 | 548 | 439 | 323 | 1330 | 1030 | 161 | 37 | 28 |
| 11283500 | 1975 | 11 | 16 | 25 | 52 | 102 | 330 | 376 | 318 | 1530 | 975 | 153 | 37 | 30 |
| 11283500 | 1975 | 12 | 15 | 24 | 49 | 91 | 249 | 334 | 325 | 1690 | 928 | 141 | 36 | 31 |
| 11283500 | 1975 | 13 | 14 | 24 | 59 | 85 | 326 | 331 | 368 | 1930 | 840 | 126 | 34 | 32 |
| 11283500 | 1975 | 14 | 14 | 23 | 53 | 84 | 344 | 310 | 407 | 2110 | 875 | 114 | 33 | 30 |
| 11283500 | 1975 | 15 | 13 | 22 | 51 | 86 | 242 | 303 | 404 | 2030 | 828 | 107 | 32 | 28 |
| 11283500 | 1975 | 16 | 13 | 22 | 49 | 87 | 195 | 314 | 380 | 1860 | 710 | 100 | 31 | 27 |
| 11283500 | 1975 | 17 | 12 | 22 | 51 | 84 | 165 | 284 | 354 | 2020 | 633 | 98 | 30 | 26 |
| 11283500 | 1975 | 18 | 12 | 22 | 48 | 87 | 149 | 272 | 346 | 2200 | 504 | 96 | 29 | 26 |
| 11283500 | 1975 | 19 | 12 | 23 | 47 | 95 | 157 | 290 | 352 | 2190 | 420 | 93 | 29 | 26 |
| 11283500 | 1975 | 20 | 12 | 22 | 45 | 98 | 234 | 327 | 364 | 1820 | 411 | 89 | 50 | 25 |
| 11283500 | 1975 | 21 | 12 | 46 | 42 | 98 | 196 | 333 | 422 | 1200 | 411 | 85 | 82 | 25 |
| 11283500 | 1975 | 22 | 12 | 68 | 42 | 99 | 175 | 342 | 473 | 1070 | 403 | 81 | 81 | 24 |
| 11283500 | 1975 | 23 | 12 | 38 | 29 | 102 | 168 | 325 | 516 | 1270 | 429 | 76 | 64 | 24 |
| 11283500 | 1975 | 24 | 13 | 33 | 29 | 101 | 177 | 343 | 593 | 1600 | 450 | 71 | 51 | 23 |
| 11283500 | 1975 | 25 | 13 | 32 | 38 | 105 | 194 | 1160 | 788 | 1730 | 344 | 66 | 42 | 23 |
| 11283500 | 1975 | 26 | 13 | 31 | 36 | 108 | 217 | 754 | 603 | 1740 | 306 | 63 | 40 | 22 |
| 11283500 | 1975 | 27 | 14 | 29 | 38 | 96 | 248 | 602 | 552 | 1670 | 325 | 59 | 38 | 22 |
| 11283500 | 1975 | 28 | 69 | 28 | 42 | 65 | 307 | 511 | 582 | 1630 | 316 | 57 | 37 | 22 |
| 11283500 | 1975 | 29 | 51 | 26 | 37 | 79 | | 456 | 642 | 1560 | 315 | 55 | 36 | 21 |
| 11283500 | 1975 | 30 | 33 | 26 | 37 | 63 | | 453 | 710 | 1590 | 296 | 55 | 35 | 22 |
| 11283500 | 1975 | 31 | 39 | | 32 | 64 | | 493 | | 1690 | | 53 | 34 | |
| 11283500 | 1976 | 1 | 21 | 126 | 55 | 29 | 37 | 175 | 138 | 294 | 52 | 16 | 7.4 | 7.8 |
| 11283500 | 1976 | 2 | 21 | 143 | 59 | 30 | 37 | 115 | 132 | 328 | 49 | 15 | 7.5 | 7.4 |
| 11283500 | 1976 | 3 | 21 | 127 | 64 | 43 | 37 | 106 | 141 | 273 | 46 | 15 | 7.3 | 7.2 |
| 11283500 | 1976 | 4 | 21 | 113 | 66 | 48 | 40 | 101 | 136 | 282 | 44 | 15 | 7.4 | 7 |
| 11283500 | 1976 | 5 | 21 | 104 | 62 | 51 | 38 | 94 | 123 | 263 | 42 | 14 | 7.4 | 7.2 |
| 11283500 | 1976 | 6 | 22 | 91 | 59 | 47 | 43 | 91 | 113 | 262 | 39 | 13 | 7.1 | 7.4 |
| 11283500 | 1976 | 7 | 35 | 81 | 54 | 44 | 47 | 96 | 112 | 249 | 38 | 13 | 7 | 7.2 |
| 11283500 | 1976 | 8 | 34 | 125 | 54 | 44 | 53 | 102 | 155 | 280 | 37 | 12 | 6.9 | 6.9 |
| 11283500 | 1976 | 9 | 30 | 100 | 52 | 47 | 79 | 106 | 142 | 344 | 37 | 11 | 6.8 | 6.6 |
| 11283500 | 1976 | 10 | 69 | 97 | 52 | 46 | 73 | 113 | 160 | 489 | 44 | 11 | 6.5 | 6.6 |
| 11283500 | 1976 | 11 | 278 | 81 | 54 | 46 | 69 | 128 | 161 | 318 | 49 | 11 | 6.1 | 22 |
| 11283500 | 1976 | 12 | 135 | 84 | 58 | 47 | 69 | 129 | 150 | 288 | 61 | 10 | 5.8 | 46 |
| 11283500 | 1976 | 13 | 96 | 84 | 55 | 44 | 73 | 131 | 134 | 270 | 53 | 9.9 | 5.6 | 34 |
| 11283500 | 1976 | 14 | 83 | 82 | 36 | 44 | 91 | 133 | 135 | 255 | 44 | 9.6 | 6.1 | 24 |
| 11283500 | 1976 | 15 | 78 | 78 | 42 | 43 | 85 | 135 | 183 | 212 | 38 | 9.3 | 49 | 18 |

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| 11283500 | 1976 | 16 | 73 | 83 | 48 | 44 | 74 | 148 | 147 | 175 | 34 | 9.5 | 108 | 15 |
| 11283500 | 1976 | 17 | 66 | 92 | 52 | 45 | 78 | 167 | 139 | 167 | 31 | 9.7 | 45 | 14 |
| 11283500 | 1976 | 18 | 59 | 76 | 49 | 45 | 74 | 198 | 151 | 146 | 30 | 9.7 | 31 | 13 |
| 11283500 | 1976 | 19 | 52 | 63 | 46 | 43 | 103 | 159 | 209 | 130 | 28 | 9.7 | 36 | 12 |
| 11283500 | 1976 | 20 | 47 | 69 | 46 | 39 | 80 | 147 | 303 | 118 | 27 | 8.9 | 31 | 11 |
| 11283500 | 1976 | 21 | 43 | 60 | 47 | 40 | 88 | 149 | 342 | 110 | 26 | 8.3 | 24 | 10 |
| 11283500 | 1976 | 22 | 42 | 56 | 53 | 39 | 82 | 163 | 305 | 103 | 26 | 8 | 19 | 9.7 |
| 11283500 | 1976 | 23 | 43 | 56 | 46 | 40 | 77 | 167 | 284 | 96 | 25 | 7.9 | 17 | 9.8 |
| 11283500 | 1976 | 24 | 43 | 56 | 49 | 41 | 71 | 163 | 301 | 89 | 23 | 9.9 | 15 | 9.5 |
| 11283500 | 1976 | 25 | 40 | 51 | 46 | 35 | 71 | 169 | 323 | 85 | 21 | 9.4 | 14 | 8.8 |
| 11283500 | 1976 | 26 | 222 | 50 | 46 | 37 | 69 | 149 | 244 | 81 | 20 | 8.2 | 13 | 8.4 |
| 11283500 | 1976 | 27 | 494 | 54 | 46 | 39 | 70 | 136 | 195 | 76 | 19 | 7.4 | 12 | 8.3 |
| 11283500 | 1976 | 28 | 163 | 58 | 49 | 38 | 75 | 124 | 163 | 71 | 18 | 6.8 | 11 | 8.5 |
| 11283500 | 1976 | 29 | 102 | 44 | 49 | 37 | 147 | 117 | 172 | 64 | 17 | 6.5 | 9.7 | 8.6 |
| 11283500 | 1976 | 30 | 126 | 50 | 49 | 37 | | 125 | 224 | 58 | 16 | 6.3 | 8.9 | 9 |
| 11283500 | 1976 | 31 | 115 | | 37 | 37 | | 150 | | 55 | | 6.6 | 8.3 | |
| 11283500 | 1977 | 1 | 9.7 | 8 | 11 | 10 | 15 | 36 | 42 | 78 | 105 | 11 | 2 | 1.4 |
| 11283500 | 1977 | 2 | 16 | 8 | 11 | 20 | 14 | 30 | 36 | 91 | 94 | 9.4 | 1.9 | 1.4 |
| 11283500 | 1977 | 3 | 23 | 7.9 | 11 | 49 | 14 | 33 | 33 | 119 | 78 | 8.8 | 1.8 | 1.4 |
| 11283500 | 1977 | 4 | 26 | 7.7 | 11 | 27 | 14 | 28 | 36 | 88 | 66 | 9 | 1.8 | 1.5 |
| 11283500 | 1977 | 5 | 20 | 7.6 | 11 | 22 | 14 | 28 | 70 | 68 | 59 | 8.9 | 1.8 | 1.4 |
| 11283500 | 1977 | 6 | 16 | 7.5 | 10 | 15 | 14 | 27 | 112 | 64 | 57 | 8.4 | 1.8 | 1.4 |
| 11283500 | 1977 | 7 | 14 | 7.5 | 9.7 | 16 | 15 | 28 | 128 | 58 | 57 | 7.8 | 1.9 | 1.3 |
| 11283500 | 1977 | 8 | 12 | 7.6 | 9.6 | 14 | 16 | 30 | 146 | 58 | 48 | 7.2 | 1.8 | 1.3 |
| 11283500 | 1977 | 9 | 11 | 7.6 | 10 | 13 | 21 | 38 | 130 | 81 | 64 | 6.6 | 1.8 | 1.3 |
| 11283500 | 1977 | 10 | 10 | 7.6 | 10 | 15 | 18 | 35 | 103 | 101 | 151 | 6.2 | 1.8 | 1.2 |
| 11283500 | 1977 | 11 | 9.6 | 7.8 | 9.6 | 13 | 20 | 34 | 97 | 112 | 87 | 5.9 | 1.8 | 1.2 |
| 11283500 | 1977 | 12 | 9.1 | 8.2 | 9.8 | 14 | 21 | 38 | 105 | 121 | 56 | 5.6 | 1.7 | 1.2 |
| 11283500 | 1977 | 13 | 8.7 | 8.6 | 14 | 13 | 22 | 38 | 116 | 124 | 44 | 5.2 | 1.6 | 1.3 |
| 11283500 | 1977 | 14 | 8.4 | 23 | 10 | 12 | 24 | 29 | 110 | 167 | 37 | 5 | 1.6 | 1.4 |
| 11283500 | 1977 | 15 | 8.3 | 28 | 9.5 | 13 | 25 | 36 | 109 | 182 | 33 | 4.7 | 1.5 | 1.4 |
| 11283500 | 1977 | 16 | 8.1 | 18 | 9.1 | 13 | 26 | 34 | 126 | 139 | 29 | 4.5 | 1.5 | 1.7 |
| 11283500 | 1977 | 17 | 8.1 | 15 | 8.6 | 12 | 28 | 29 | 135 | 118 | 26 | 4.1 | 1.5 | 2.2 |
| 11283500 | 1977 | 18 | 8 | 17 | 8.3 | 14 | 28 | 28 | 118 | 109 | 24 | 3.6 | 1.5 | 2.8 |
| 11283500 | 1977 | 19 | 8 | 20 | 8.2 | 15 | 28 | 30 | 90 | 108 | 22 | 3.4 | 1.7 | 2.8 |
| 11283500 | 1977 | 20 | 7.9 | 19 | 8.5 | 16 | 28 | 30 | 72 | 113 | 22 | 3.2 | 1.8 | 4.5 |
| 11283500 | 1977 | 21 | 7.8 | 18 | 8.4 | 18 | 78 | 34 | 69 | 140 | 21 | 3.2 | 1.6 | 5.1 |
| 11283500 | 1977 | 22 | 7.8 | 16 | 8 | 20 | 86 | 44 | 69 | 138 | 19 | 3 | 1.5 | 4.6 |
| 11283500 | 1977 | 23 | 8 | 15 | 9.2 | 23 | 65 | 70 | 68 | 194 | 17 | 2.8 | 1.4 | 3.8 |
| 11283500 | 1977 | 24 | 8 | 14 | 9.5 | 19 | 50 | 67 | 68 | 197 | 16 | 2.7 | 1.4 | 3.3 |
| 11283500 | 1977 | 25 | 8.1 | 14 | 7.3 | 18 | 41 | 56 | 64 | 163 | 14 | 2.6 | 1.4 | 3.1 |
| 11283500 | 1977 | 26 | 8.2 | 13 | 8.9 | 18 | 40 | 50 | 62 | 134 | 13 | 2.5 | 1.5 | 2.9 |
| 11283500 | 1977 | 27 | 8 | 12 | 8.6 | 18 | 37 | 52 | 60 | 121 | 12 | 2.5 | 1.6 | 2.8 |
| 11283500 | 1977 | 28 | 8 | 11 | 8.1 | 17 | 38 | 59 | 57 | 113 | 11 | 2.4 | 1.7 | 2.8 |
| 11283500 | 1977 | 29 | 8 | 11 | 9.3 | 16 | | 53 | 53 | 109 | 10 | 2.3 | 1.7 | 2.9 |
| 11283500 | 1977 | 30 | 8 | 11 | 11 | 15 | | 46 | 48 | 106 | 12 | 2.2 | 1.6 | 3.1 |
| 11283500 | 1977 | 31 | 8 | | 11 | 16 | | 38 | | 108 | | 2.1 | 1.4 | |
| 11283500 | 1978 | 1 | 3.2 | 4.2 | 14 | 152 | 175 | 376 | 1290 | 957 | 1180 | 346 | 47 | 19 |
| 11283500 | 1978 | 2 | 3 | 4 | 14 | 136 | 171 | 908 | 992 | 1060 | 1090 | 357 | 44 | 18 |
| 11283500 | 1978 | 3 | 2.8 | 3.9 | 13 | 127 | 167 | 951 | 833 | 1300 | 1040 | 300 | 41 | 17 |
| 11283500 | 1978 | 4 | 2.7 | 3.9 | 13 | 170 | 165 | 1920 | 802 | 1450 | 1090 | 248 | 39 | 18 |
| 11283500 | 1978 | 5 | 2.7 | 7.3 | 13 | 490 | 350 | 2190 | 707 | 1380 | 1160 | 246 | 37 | 51 |
| 11283500 | 1978 | 6 | 2.6 | 13 | 12 | 530 | 600 | 1450 | 710 | 1110 | 1120 | 256 | 35 | 355 |
| 11283500 | 1978 | 7 | 2.6 | 9 | 12 | 310 | 695 | 1040 | 665 | 1060 | 1150 | 271 | 33 | 234 |
| 11283500 | 1978 | 8 | 2.6 | 7.1 | 12 | 240 | 680 | 861 | 637 | 1180 | 1050 | 244 | 33 | 111 |
| 11283500 | 1978 | 9 | 2.7 | 6.6 | 12 | 385 | 1500 | 769 | 644 | 1350 | 1030 | 223 | 33 | 67 |
| 11283500 | 1978 | 10 | 2.7 | 6.1 | 12 | 330 | 900 | 702 | 723 | 1340 | 905 | 230 | 32 | 220 |
| 11283500 | 1978 | 11 | 2.7 | 5.8 | 12 | 240 | 725 | 675 | 895 | 1260 | 728 | 214 | 30 | 150 |
| 11283500 | 1978 | 12 | 2.6 | 5.6 | 13 | 200 | 635 | 611 | 1020 | 1350 | 816 | 185 | 29 | 81 |
| 11283500 | 1978 | 13 | 2.6 | 5.4 | 13 | 190 | 630 | 550 | 1130 | 1530 | 864 | 158 | 28 | 59 |
| 11283500 | 1978 | 14 | 2.5 | 5.4 | 14 | 350 | 480 | 522 | 1070 | 1670 | 846 | 158 | 28 | 53 |
| 11283500 | 1978 | 15 | 2.6 | 5.3 | 88 | 420 | 407 | 510 | 1010 | 1640 | 756 | 159 | 27 | 70 |
| 11283500 | 1978 | 16 | 2.5 | 5.2 | 67 | 455 | 350 | 525 | 876 | 1130 | 622 | 147 | 26 | 62 |
| 11283500 | 1978 | 17 | 2.4 | 5.3 | 200 | 490 | 315 | 582 | 782 | 1030 | 557 | 130 | 26 | 50 |
| 11283500 | 1978 | 18 | 2.4 | 5.4 | 125 | 395 | 290 | 640 | 785 | 1130 | 598 | 120 | 25 | 43 |
| 11283500 | 1978 | 19 | 2.4 | 5.3 | 78 | 400 | 294 | 663 | 794 | 1160 | 580 | 108 | 25 | 40 |
| 11283500 | 1978 | 20 | 2.5 | 6.9 | 60 | 340 | 303 | 706 | 863 | 1260 | 543 | 99 | 24 | 37 |
| 11283500 | 1978 | 21 | 2.6 | 12 | 59 | 302 | 313 | 849 | 765 | 1360 | 539 | 93 | 23 | 35 |
| 11283500 | 1978 | 22 | 2.8 | 49 | 180 | 276 | 341 | 990 | 713 | 1390 | 521 | 87 | 23 | 34 |
| 11283500 | 1978 | 23 | 2.9 | 35 | 495 | 256 | 373 | 842 | 710 | 1240 | 494 | 82 | 24 | 32 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11283500 | 1978 | 24 | 2.9 | 26 | 270 | 242 | 382 | 761 | 876 | 775 | 491 | 78 | 23 | 30 |
| 11283500 | 1978 | 25 | 2.9 | 21 | 160 | 228 | 369 | 737 | 2630 | 687 | 439 | 73 | 23 | 29 |
| 11283500 | 1978 | 26 | 3 | 18 | 132 | 218 | 353 | 814 | 1810 | 716 | 395 | 73 | 23 | 28 |
| 11283500 | 1978 | 27 | 3.2 | 16 | 375 | 207 | 348 | 862 | 1450 | 827 | 374 | 72 | 22 | 27 |
| 11283500 | 1978 | 28 | 3.6 | 15 | 295 | 198 | 340 | 942 | 1340 | 1100 | 356 | 65 | 22 | 27 |
| 11283500 | 1978 | 29 | 4.2 | 15 | 240 | 191 | | 1020 | 1150 | 1250 | 301 | 60 | 21 | 26 |
| 11283500 | 1978 | 30 | 4.2 | 14 | 265 | 184 | | 1530 | 1120 | 1290 | 329 | 55 | 19 | 26 |
| 11283500 | 1978 | 31 | 4.4 | | 185 | 179 | | 1900 | | 1250 | | 50 | 19 | |
| 11283500 | 1979 | 1 | 25 | 20 | 84 | 43 | 106 | 260 | 507 | 1250 | 580 | 88 | 29 | 20 |
| 11283500 | 1979 | 2 | 25 | 21 | 72 | 44 | 102 | 222 | 499 | 1080 | 566 | 83 | 28 | 19 |
| 11283500 | 1979 | 3 | 24 | 22 | 54 | 41 | 93 | 220 | 497 | 1290 | 545 | 80 | 27 | 18 |
| 11283500 | 1979 | 4 | 24 | 22 | 52 | 41 | 95 | 231 | 528 | 1440 | 545 | 78 | 27 | 18 |
| 11283500 | 1979 | 5 | 23 | 21 | 53 | 48 | 96 | 258 | 646 | 1540 | 530 | 75 | 26 | 17 |
| 11283500 | 1979 | 6 | 23 | 21 | 43 | 51 | 98 | 321 | 751 | 1410 | 510 | 72 | 26 | 17 |
| 11283500 | 1979 | 7 | 22 | 20 | 34 | 50 | 100 | 425 | 695 | 1090 | 463 | 69 | 25 | 16 |
| 11283500 | 1979 | 8 | 22 | 19 | 37 | 81 | 101 | 540 | 732 | 860 | 361 | 65 | 25 | 15 |
| 11283500 | 1979 | 9 | 21 | 19 | 40 | 95 | 103 | 601 | 810 | 743 | 325 | 62 | 24 | 15 |
| 11283500 | 1979 | 10 | 21 | 19 | 42 | 81 | 107 | 644 | 717 | 724 | 322 | 58 | 24 | 15 |
| 11283500 | 1979 | 11 | 23 | 31 | 39 | 1580 | 110 | 700 | 671 | 794 | 315 | 57 | 23 | 14 |
| 11283500 | 1979 | 12 | 22 | 27 | 37 | 1210 | 113 | 701 | 681 | 976 | 308 | 55 | 24 | 14 |
| 11283500 | 1979 | 13 | 21 | 29 | 36 | 515 | 221 | 698 | 818 | 1190 | 311 | 53 | 24 | 13 |
| 11283500 | 1979 | 14 | 20 | 28 | 35 | 349 | 803 | 685 | 922 | 1310 | 284 | 50 | 24 | 13 |
| 11283500 | 1979 | 15 | 19 | 26 | 34 | 273 | 464 | 832 | 997 | 1380 | 226 | 47 | 24 | 13 |
| 11283500 | 1979 | 16 | 19 | 27 | 33 | 227 | 365 | 749 | 1020 | 1350 | 199 | 45 | 23 | 14 |
| 11283500 | 1979 | 17 | 19 | 28 | 45 | 192 | 288 | 609 | 921 | 1360 | 187 | 42 | 22 | 16 |
| 11283500 | 1979 | 18 | 19 | 28 | 67 | 173 | 261 | 544 | 718 | 1450 | 166 | 40 | 22 | 16 |
| 11283500 | 1979 | 19 | 19 | 28 | 50 | 148 | 269 | 494 | 638 | 1440 | 151 | 39 | 21 | 16 |
| 11283500 | 1979 | 20 | 19 | 33 | 46 | 141 | 263 | 464 | 624 | 1370 | 157 | 39 | 21 | 16 |
| 11283500 | 1979 | 21 | 19 | 62 | 48 | 137 | 283 | 436 | 652 | 1370 | 156 | 44 | 22 | 17 |
| 11283500 | 1979 | 22 | 19 | 50 | 50 | 131 | 262 | 412 | 696 | 1280 | 150 | 54 | 22 | 17 |
| 11283500 | 1979 | 23 | 18 | 44 | 48 | 126 | 237 | 388 | 714 | 1110 | 146 | 45 | 21 | 17 |
| 11283500 | 1979 | 24 | 18 | 39 | 48 | 125 | 220 | 398 | 651 | 998 | 141 | 40 | 20 | 18 |
| 11283500 | 1979 | 25 | 18 | 36 | 49 | 124 | 224 | 441 | 664 | 933 | 133 | 37 | 20 | 18 |
| 11283500 | 1979 | 26 | 17 | 36 | 50 | 100 | 231 | 498 | 876 | 970 | 124 | 35 | 19 | 18 |
| 11283500 | 1979 | 27 | 17 | 35 | 52 | 109 | 213 | 744 | 1650 | 967 | 115 | 34 | 19 | 17 |
| 11283500 | 1979 | 28 | 17 | 36 | 52 | 104 | 216 | 730 | 1350 | 870 | 107 | 33 | 18 | 17 |
| 11283500 | 1979 | 29 | 17 | 38 | 48 | 84 | | 617 | 1300 | 755 | 99 | 32 | 19 | 16 |
| 11283500 | 1979 | 30 | 18 | 48 | 43 | 106 | | 566 | 1340 | 672 | 93 | 31 | 21 | 16 |
| 11283500 | 1979 | 31 | 21 | | 41 | 105 | | 524 | | 617 | | 30 | 21 | |
| 11283500 | 1980 | 1 | 16 | 25 | 67 | 594 | 412 | 645 | 499 | 1240 | 617 | 446 | 62 | 27 |
| 11283500 | 1980 | 2 | 16 | 25 | 61 | 321 | 393 | 685 | 471 | 1300 | 592 | 497 | 59 | 27 |
| 11283500 | 1980 | 3 | 16 | 34 | 56 | 214 | 377 | 780 | 451 | 1350 | 580 | 407 | 55 | 26 |
| 11283500 | 1980 | 4 | 16 | 52 | 52 | 169 | 366 | 790 | 452 | 1440 | 506 | 360 | 52 | 25 |
| 11283500 | 1980 | 5 | 16 | 35 | 49 | 145 | 360 | 861 | 569 | 1370 | 470 | 318 | 51 | 25 |
| 11283500 | 1980 | 6 | 16 | 30 | 48 | 132 | 369 | 821 | 582 | 1330 | 472 | 306 | 49 | 24 |
| 11283500 | 1980 | 7 | 16 | 29 | 51 | 127 | 372 | 725 | 517 | 1280 | 522 | 278 | 47 | 24 |
| 11283500 | 1980 | 8 | 16 | 29 | 55 | 126 | 362 | 661 | 500 | 1140 | 626 | 276 | 45 | 24 |
| 11283500 | 1980 | 9 | 17 | 29 | 53 | 269 | 347 | 617 | 514 | 1110 | 707 | 257 | 42 | 25 |
| 11283500 | 1980 | 10 | 17 | 29 | 53 | 667 | 333 | 599 | 566 | 824 | 726 | 238 | 40 | 25 |
| 11283500 | 1980 | 11 | 17 | 28 | 50 | 856 | 323 | 596 | 606 | 643 | 688 | 227 | 39 | 25 |
| 11283500 | 1980 | 12 | 17 | 27 | 42 | 5100 | 312 | 566 | 623 | 582 | 645 | 217 | 37 | 24 |
| 11283500 | 1980 | 13 | 17 | 27 | 44 | 9870 | 301 | 546 | 739 | 592 | 590 | 209 | 35 | 23 |
| 11283500 | 1980 | 14 | 17 | 27 | 41 | 6740 | 395 | 537 | 897 | 673 | 511 | 198 | 34 | 23 |
| 11283500 | 1980 | 15 | 17 | 28 | 40 | 2620 | 834 | 541 | 892 | 702 | 562 | 190 | 34 | 24 |
| 11283500 | 1980 | 16 | 17 | 34 | 38 | 2070 | 1350 | 525 | 957 | 720 | 611 | 177 | 35 | 24 |
| 11283500 | 1980 | 17 | 17 | 67 | 36 | 1770 | 2890 | 517 | 1110 | 870 | 626 | 169 | 35 | 23 |
| 11283500 | 1980 | 18 | 18 | 67 | 36 | 1370 | 4520 | 524 | 1240 | 1050 | 647 | 164 | 34 | 23 |
| 11283500 | 1980 | 19 | 21 | 58 | 36 | 1010 | 4670 | 508 | 1270 | 1200 | 602 | 145 | 33 | 24 |
| 11283500 | 1980 | 20 | 76 | 46 | 36 | 857 | 2650 | 516 | 1320 | 1330 | 599 | 131 | 34 | 24 |
| 11283500 | 1980 | 21 | 52 | 42 | 42 | 767 | 2830 | 509 | 1110 | 1360 | 557 | 125 | 32 | 23 |
| 11283500 | 1980 | 22 | 33 | 44 | 40 | 697 | 1980 | 486 | 809 | 1300 | 513 | 117 | 31 | 23 |
| 11283500 | 1980 | 23 | 28 | 53 | 38 | 643 | 1450 | 475 | 650 | 1010 | 467 | 109 | 31 | 22 |
| 11283500 | 1980 | 24 | 31 | 49 | 107 | 600 | 1230 | 490 | 624 | 672 | 444 | 102 | 31 | 22 |
| 11283500 | 1980 | 25 | 28 | 98 | 138 | 571 | 1010 | 479 | 669 | 569 | 455 | 96 | 32 | 21 |
| 11283500 | 1980 | 26 | 33 | 172 | 78 | 548 | 870 | 458 | 923 | 515 | 466 | 88 | 31 | 21 |
| 11283500 | 1980 | 27 | 31 | 121 | 69 | 523 | 745 | 446 | 1090 | 478 | 422 | 81 | 30 | 20 |
| 11283500 | 1980 | 28 | 29 | 88 | 67 | 501 | 770 | 451 | 1280 | 462 | 375 | 76 | 29 | 20 |
| 11283500 | 1980 | 29 | 28 | 77 | 63 | 484 | 710 | 468 | 1370 | 462 | 421 | 75 | 28 | 20 |
| 11283500 | 1980 | 30 | 26 | 72 | 163 | 457 | | 498 | 1330 | 550 | 450 | 70 | 27 | 19 |
| 11283500 | 1980 | 31 | 25 | | 453 | 432 | | 517 | | 589 | | 66 | 27 | |

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| 11283500 | 1981 | 1 | 19 | 20 | 21 | 26 | 80 | 102 | 293 | 677 | 207 | 23 | 9.4 | 6.1 |
| 11283500 | 1981 | 2 | 19 | 20 | 22 | 26 | 82 | 105 | 286 | 619 | 200 | 21 | 9.2 | 6.2 |
| 11283500 | 1981 | 3 | 18 | 20 | 24 | 26 | 77 | 100 | 255 | 500 | 171 | 20 | 9.1 | 6.1 |
| 11283500 | 1981 | 4 | 18 | 19 | 159 | 35 | 73 | 103 | 239 | 424 | 156 | 20 | 9.1 | 6.2 |
| 11283500 | 1981 | 5 | 18 | 19 | 63 | 34 | 72 | 101 | 302 | 399 | 171 | 21 | 9 | 6.1 |
| 11283500 | 1981 | 6 | 18 | 19 | 41 | 28 | 71 | 100 | 383 | 362 | 157 | 22 | 8.8 | 6.1 |
| 11283500 | 1981 | 7 | 18 | 19 | 32 | 26 | 69 | 104 | 407 | 346 | 129 | 21 | 8.5 | 6 |
| 11283500 | 1981 | 8 | 18 | 18 | 26 | 26 | 68 | 109 | 377 | 338 | 112 | 20 | 8.1 | 6 |
| 11283500 | 1981 | 9 | 17 | 19 | 28 | 26 | 85 | 117 | 393 | 379 | 100 | 19 | 7.8 | 6 |
| 11283500 | 1981 | 10 | 17 | 19 | 27 | 25 | 84 | 131 | 433 | 402 | 91 | 18 | 7.6 | 6 |
| 11283500 | 1981 | 11 | 18 | 25 | 26 | 25 | 80 | 155 | 400 | 396 | 82 | 18 | 7.5 | 6 |
| 11283500 | 1981 | 12 | 18 | 31 | 27 | 25 | 84 | 147 | 387 | 374 | 74 | 17 | 7.4 | 6 |
| 11283500 | 1981 | 13 | 20 | 26 | 26 | 25 | 87 | 157 | 402 | 369 | 68 | 17 | 7.6 | 6.3 |
| 11283500 | 1981 | 14 | 20 | 24 | 26 | 25 | 152 | 132 | 449 | 372 | 63 | 16 | 7.6 | 6.5 |
| 11283500 | 1981 | 15 | 23 | 23 | 26 | 25 | 174 | 129 | 479 | 319 | 58 | 16 | 7.4 | 6.6 |
| 11283500 | 1981 | 16 | 24 | 22 | 27 | 27 | 165 | 138 | 503 | 272 | 54 | 16 | 7.3 | 6.6 |
| 11283500 | 1981 | 17 | 24 | 22 | 27 | 33 | 169 | 137 | 499 | 223 | 51 | 15 | 7.1 | 6.3 |
| 11283500 | 1981 | 18 | 24 | 22 | 28 | 31 | 185 | 131 | 493 | 239 | 49 | 14 | 6.9 | 6.5 |
| 11283500 | 1981 | 19 | 23 | 22 | 30 | 29 | 183 | 263 | 471 | 509 | 47 | 14 | 6.7 | 6.7 |
| 11283500 | 1981 | 20 | 23 | 21 | 29 | 28 | 193 | 306 | 399 | 362 | 44 | 14 | 6.8 | 6.3 |
| 11283500 | 1981 | 21 | 22 | 21 | 29 | 28 | 167 | 316 | 392 | 272 | 41 | 13 | 6.9 | 6.3 |
| 11283500 | 1981 | 22 | 21 | 21 | 30 | 27 | 159 | 357 | 523 | 242 | 39 | 13 | 6.9 | 6.3 |
| 11283500 | 1981 | 23 | 21 | 21 | 32 | 78 | 161 | 339 | 687 | 268 | 36 | 12 | 6.8 | 6.2 |
| 11283500 | 1981 | 24 | 20 | 23 | 32 | 67 | 171 | 304 | 769 | 360 | 33 | 12 | 6.8 | 6.2 |
| 11283500 | 1981 | 25 | 20 | 22 | 31 | 52 | 144 | 367 | 676 | 337 | 31 | 11 | 6.8 | 8 |
| 11283500 | 1981 | 26 | 24 | 21 | 30 | 49 | 121 | 493 | 640 | 332 | 29 | 11 | 6.8 | 11 |
| 11283500 | 1981 | 27 | 24 | 21 | 29 | 305 | 107 | 378 | 441 | 321 | 27 | 11 | 6.6 | 9.3 |
| 11283500 | 1981 | 28 | 23 | 21 | 30 | 341 | 104 | 334 | 474 | 307 | 26 | 10 | 6.4 | 8.5 |
| 11283500 | 1981 | 29 | 22 | 21 | 30 | 147 | | 346 | 635 | 282 | 24 | 10 | 6.2 | 8.4 |
| 11283500 | 1981 | 30 | 21 | 21 | 28 | 100 | | 319 | 709 | 273 | 24 | 9.7 | 6 | 8.3 |
| 11283500 | 1981 | 31 | 20 | | 27 | 85 | | 288 | | 238 | | 9.5 | 6 | |
| 11283500 | 1982 | 1 | 8 | 63 | 167 | 743 | 298 | 708 | 596 | 1880 | 557 | 357 | 87 | 30 |
| 11283500 | 1982 | 2 | 7.7 | 64 | 164 | 548 | 297 | 1040 | 547 | 1870 | 532 | 288 | 84 | 29 |
| 11283500 | 1982 | 3 | 9.8 | 70 | 158 | 449 | 301 | 738 | 538 | 1920 | 518 | 264 | 80 | 28 |
| 11283500 | 1982 | 4 | 13 | 68 | 150 | 443 | 303 | 629 | 604 | 1960 | 479 | 260 | 80 | 27 |
| 11283500 | 1982 | 5 | 12 | 65 | 147 | 755 | 286 | 580 | 548 | 1880 | 445 | 238 | 79 | 26 |
| 11283500 | 1982 | 6 | 10 | 69 | 141 | 590 | 274 | 546 | 510 | 1750 | 400 | 221 | 77 | 25 |
| 11283500 | 1982 | 7 | 12 | 75 | 134 | 467 | 267 | 527 | 471 | 1750 | 400 | 221 | 76 | 25 |
| 11283500 | 1982 | 8 | 17 | 67 | 131 | 416 | 261 | 500 | 456 | 1620 | 406 | 216 | 87 | 24 |
| 11283500 | 1982 | 9 | 13 | 60 | 133 | 405 | 250 | 499 | 459 | 1380 | 438 | 206 | 79 | 23 |
| 11283500 | 1982 | 10 | 14 | 57 | 140 | 395 | 238 | 953 | 1190 | 1030 | 457 | 192 | 71 | 22 |
| 11283500 | 1982 | 11 | 37 | 56 | 132 | 387 | 227 | 1660 | 10300 | 871 | 465 | 189 | 67 | 23 |
| 11283500 | 1982 | 12 | 30 | 65 | 128 | 372 | 220 | 1170 | 8140 | 821 | 441 | 184 | 65 | 23 |
| 11283500 | 1982 | 13 | 21 | 300 | 149 | 349 | 274 | 1020 | 5050 | 927 | 403 | 176 | 62 | 22 |
| 11283500 | 1982 | 14 | 19 | 2900 | 140 | 339 | 1540 | 1200 | 3180 | 1060 | 372 | 165 | 60 | 22 |
| 11283500 | 1982 | 15 | 17 | 470 | 139 | 336 | 5150 | 1000 | 2560 | 1010 | 407 | 156 | 57 | 24 |
| 11283500 | 1982 | 16 | 16 | 290 | 133 | 332 | 12000 | 822 | 2110 | 1110 | 426 | 150 | 55 | 49 |
| 11283500 | 1982 | 17 | 16 | 660 | 121 | 328 | 5000 | 688 | 1830 | 1160 | 436 | 144 | 53 | 45 |
| 11283500 | 1982 | 18 | 16 | 350 | 117 | 324 | 2100 | 635 | 1720 | 1070 | 434 | 137 | 51 | 44 |
| 11283500 | 1982 | 19 | 18 | 265 | 1410 | 321 | 1500 | 584 | 1770 | 1030 | 479 | 133 | 49 | 51 |
| 11283500 | 1982 | 20 | 21 | 210 | 4110 | 316 | 1390 | 546 | 1810 | 1120 | 437 | 128 | 47 | 54 |
| 11283500 | 1982 | 21 | 21 | 180 | 1840 | 302 | 1330 | 527 | 1750 | 1150 | 374 | 126 | 46 | 43 |
| 11283500 | 1982 | 22 | 19 | 255 | 837 | 276 | 1310 | 511 | 1720 | 1150 | 332 | 121 | 44 | 37 |
| 11283500 | 1982 | 23 | 18 | 270 | 603 | 271 | 1160 | 510 | 1850 | 1220 | 327 | 117 | 42 | 34 |
| 11283500 | 1982 | 24 | 16 | 535 | 494 | 291 | 1000 | 518 | 1810 | 1240 | 323 | 113 | 40 | 63 |
| 11283500 | 1982 | 25 | 16 | 350 | 442 | 303 | 890 | 539 | 1690 | 1170 | 308 | 111 | 38 | 264 |
| 11283500 | 1982 | 26 | 15 | 260 | 406 | 403 | 760 | 580 | 1620 | 1140 | 304 | 106 | 37 | 615 |
| 11283500 | 1982 | 27 | 15 | 225 | 520 | 408 | 663 | 556 | 1600 | 1080 | 298 | 103 | 36 | 164 |
| 11283500 | 1982 | 28 | 160 | 200 | 460 | 382 | 629 | 617 | 1810 | 916 | 292 | 101 | 34 | 100 |
| 11283500 | 1982 | 29 | 130 | 183 | 481 | 339 | | 566 | 1760 | 677 | 350 | 98 | 37 | 79 |
| 11283500 | 1982 | 30 | 77 | 168 | 961 | 316 | | 533 | 1710 | 600 | 438 | 94 | 34 | 67 |
| 11283500 | 1982 | 31 | 69 | | 717 | 302 | | 630 | | 600 | | 90 | 32 | |
| 11283500 | 1983 | 1 | 61 | 293 | 1000 | 460 | 527 | 3730 | 1100 | 1150 | 2030 | 1120 | 184 | 142 |
| 11283500 | 1983 | 2 | 56 | 224 | 640 | 436 | 489 | 2880 | 1110 | 1060 | 1640 | 1130 | 171 | 113 |
| 11283500 | 1983 | 3 | 52 | 185 | 500 | 417 | 458 | 2060 | 1070 | 1060 | 1700 | 1140 | 162 | 84 |
| 11283500 | 1983 | 4 | 48 | 160 | 465 | 388 | 430 | 1570 | 978 | 1140 | 1760 | 1160 | 151 | 71 |
| 11283500 | 1983 | 5 | 46 | 144 | 430 | 370 | 414 | 1350 | 905 | 1070 | 1910 | 1110 | 140 | 64 |
| 11283500 | 1983 | 6 | 44 | 133 | 395 | 353 | 474 | 1200 | 828 | 993 | 2110 | 1020 | 134 | 60 |
| 11283500 | 1983 | 7 | 48 | 125 | 360 | 334 | 1330 | 1300 | 786 | 963 | 2190 | 932 | 131 | 56 |
| 11283500 | 1983 | 8 | 47 | 123 | 330 | 327 | 1580 | 1200 | 784 | 955 | 2010 | 755 | 124 | 53 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11283500 | 1983 | 9 | 44 | 128 | 308 | 312 | 1040 | 1140 | 815 | 970 | 2000 | 699 | 121 | 52 |
| 11283500 | 1983 | 10 | 42 | 144 | 290 | 304 | 837 | 1120 | 826 | 925 | 2120 | 544 | 117 | 51 |
| 11283500 | 1983 | 11 | 40 | 131 | 281 | 299 | 718 | 1340 | 766 | 880 | 2300 | 584 | 113 | 49 |
| 11283500 | 1983 | 12 | 39 | 139 | 278 | 303 | 795 | 1330 | 717 | 905 | 1940 | 594 | 107 | 46 |
| 11283500 | 1983 | 13 | 38 | 131 | 293 | 302 | 1470 | 4360 | 674 | 900 | 1770 | 600 | 97 | 45 |
| 11283500 | 1983 | 14 | 37 | 135 | 273 | 298 | 1080 | 2740 | 634 | 895 | 1830 | 584 | 99 | 44 |
| 11283500 | 1983 | 15 | 36 | 134 | 260 | 292 | 937 | 1830 | 615 | 980 | 1940 | 556 | 112 | 42 |
| 11283500 | 1983 | 16 | 35 | 130 | 249 | 311 | 817 | 1520 | 624 | 1060 | 2010 | 467 | 98 | 41 |
| 11283500 | 1983 | 17 | 34 | 128 | 272 | 301 | 739 | 1390 | 670 | 1220 | 2030 | 425 | 84 | 40 |
| 11283500 | 1983 | 18 | 34 | 935 | 280 | 318 | 822 | 1260 | 709 | 1490 | 1990 | 405 | 80 | 39 |
| 11283500 | 1983 | 19 | 34 | 929 | 262 | 338 | 767 | 1130 | 750 | 1770 | 1700 | 387 | 83 | 38 |
| 11283500 | 1983 | 20 | 33 | 441 | 660 | 301 | 724 | 1080 | 928 | 2080 | 1530 | 361 | 84 | 37 |
| 11283500 | 1983 | 21 | 34 | 324 | 2000 | 291 | 672 | 1080 | 899 | 2390 | 1400 | 331 | 81 | 37 |
| 11283500 | 1983 | 22 | 39 | 386 | 4400 | 803 | 645 | 1010 | 909 | 2600 | 1490 | 336 | 78 | 38 |
| 11283500 | 1983 | 23 | 56 | 421 | 3000 | 772 | 660 | 966 | 1040 | 2730 | 1580 | 328 | 76 | 43 |
| 11283500 | 1983 | 24 | 123 | 327 | 1300 | 1770 | 671 | 962 | 1060 | 2930 | 1470 | 303 | 73 | 45 |
| 11283500 | 1983 | 25 | 1490 | 290 | 910 | 1070 | 712 | 913 | 968 | 3080 | 1420 | 310 | 69 | 43 |
| 11283500 | 1983 | 26 | 2260 | 267 | 790 | 817 | 875 | 841 | 886 | 3170 | 1400 | 262 | 66 | 41 |
| 11283500 | 1983 | 27 | 445 | 259 | 695 | 1150 | 995 | 898 | 848 | 3220 | 1360 | 248 | 62 | 40 |
| 11283500 | 1983 | 28 | 269 | 310 | 630 | 857 | 1390 | 937 | 1130 | 3170 | 1320 | 235 | 60 | 40 |
| 11283500 | 1983 | 29 | 204 | 700 | 582 | 786 | | 843 | 1300 | 3230 | 1250 | 219 | 58 | 47 |
| 11283500 | 1983 | 30 | 774 | 1990 | 535 | 657 | | 853 | 1300 | 2770 | 1170 | 209 | 56 | 175 |
| 11283500 | 1983 | 31 | 477 | | 494 | 585 | | 1110 | | 2610 | | 200 | 62 | |
| 11283500 | 1987 | 1 | 30 | 20 | 19 | 23 | 30 | 49 | 202 | 312 | 59 | 13 | 6.3 | 5.1 |
| 11283500 | 1987 | 2 | 27 | 20 | 20 | 25 | 29 | 51 | 233 | 191 | 54 | 13 | 6.1 | 5.3 |
| 11283500 | 1987 | 3 | 25 | 20 | 21 | 40 | 32 | 52 | 283 | 172 | 50 | 13 | 5.9 | 5.5 |
| 11283500 | 1987 | 4 | 25 | 19 | 20 | 72 | 30 | 58 | 213 | 197 | 45 | 13 | 5.7 | 5.4 |
| 11283500 | 1987 | 5 | 26 | 19 | 21 | 40 | 28 | 283 | 185 | 213 | 41 | 12 | 5.5 | 5.5 |
| 11283500 | 1987 | 6 | 26 | 19 | 25 | 34 | 28 | 435 | 211 | 216 | 40 | 12 | 5.3 | 5.6 |
| 11283500 | 1987 | 7 | 26 | 19 | 27 | 33 | 30 | 267 | 258 | 192 | 44 | 12 | 5.1 | 5.8 |
| 11283500 | 1987 | 8 | 25 | 20 | 23 | 25 | 31 | 195 | 301 | 179 | 56 | 11 | 5 | 5.7 |
| 11283500 | 1987 | 9 | 25 | 20 | 19 | 21 | 32 | 169 | 306 | 282 | 49 | 11 | 4.9 | 5.4 |
| 11283500 | 1987 | 10 | 25 | 20 | 18 | 23 | 44 | 148 | 335 | 288 | 40 | 11 | 4.9 | 5.2 |
| 11283500 | 1987 | 11 | 24 | 20 | 19 | 25 | 63 | 129 | 342 | 228 | 35 | 10 | 4.8 | 5 |
| 11283500 | 1987 | 12 | 24 | 20 | 21 | 21 | 76 | 127 | 312 | 197 | 31 | 10 | 4.8 | 5 |
| 11283500 | 1987 | 13 | 24 | 19 | 22 | 27 | 524 | 244 | 286 | 174 | 28 | 9.7 | 4.9 | 5.1 |
| 11283500 | 1987 | 14 | 23 | 19 | 21 | 21 | 231 | 215 | 321 | 154 | 26 | 9.3 | 4.9 | 5.3 |
| 11283500 | 1987 | 15 | 23 | 19 | 20 | 21 | 135 | 187 | 330 | 139 | 25 | 8.7 | 5 | 5.4 |
| 11283500 | 1987 | 16 | 23 | 19 | 20 | 16 | 98 | 167 | 326 | 260 | 26 | 8 | 5.3 | 5.2 |
| 11283500 | 1987 | 17 | 22 | 19 | 21 | 23 | 90 | 168 | 340 | 195 | 25 | 7.6 | 5.3 | 5 |
| 11283500 | 1987 | 18 | 22 | 19 | 22 | 27 | 77 | 192 | 328 | 140 | 23 | 8.3 | 5 | 4.9 |
| 11283500 | 1987 | 19 | 22 | 19 | 23 | 24 | 65 | 173 | 203 | 116 | 22 | 8.9 | 4.8 | 4.8 |
| 11283500 | 1987 | 20 | 22 | 20 | 24 | 22 | 64 | 142 | 201 | 103 | 21 | 8.8 | 4.8 | 4.6 |
| 11283500 | 1987 | 21 | 23 | 20 | 22 | 22 | 57 | 143 | 247 | 139 | 20 | 8.8 | 4.8 | 4.5 |
| 11283500 | 1987 | 22 | 23 | 20 | 20 | 23 | 56 | 133 | 286 | 144 | 19 | 9.1 | 4.8 | 4.5 |
| 11283500 | 1987 | 23 | 22 | 20 | 23 | 25 | 57 | 142 | 270 | 124 | 19 | 9.1 | 4.8 | 4.3 |
| 11283500 | 1987 | 24 | 22 | 20 | 22 | 29 | 48 | 128 | 269 | 105 | 18 | 8.7 | 4.7 | 4.3 |
| 11283500 | 1987 | 25 | 22 | 20 | 20 | 35 | 52 | 134 | 269 | 89 | 17 | 8.5 | 4.8 | 4.4 |
| 11283500 | 1987 | 26 | 21 | 19 | 21 | 30 | 43 | 138 | 288 | 81 | 16 | 8.1 | 4.7 | 4.5 |
| 11283500 | 1987 | 27 | 21 | 19 | 23 | 30 | 47 | 150 | 344 | 79 | 15 | 7.7 | 4.6 | 4.7 |
| 11283500 | 1987 | 28 | 21 | 19 | 19 | 40 | 48 | 153 | 292 | 72 | 14 | 7.3 | 4.4 | 4.7 |
| 11283500 | 1987 | 29 | 21 | 19 | 20 | 37 | | 155 | 287 | 67 | 14 | 6.9 | 4.4 | 4.6 |
| 11283500 | 1987 | 30 | 21 | 21 | 19 | 33 | | 173 | 396 | 65 | 14 | 6.6 | 4.4 | 4.5 |
| 11283500 | 1987 | 31 | 21 | | 21 | 31 | | 201 | | 62 | | 6.5 | 4.9 | |
| 11283500 | 1988 | 1 | 4.4 | 17 | 19 | 36 | 80 | 290 | 169 | 226 | 119 | 21 | 6.2 | 2.8 |
| 11283500 | 1988 | 2 | 4.4 | 15 | 22 | 37 | 73 | 210 | 185 | 199 | 109 | 19 | 5.4 | 2.9 |
| 11283500 | 1988 | 3 | 4.3 | 14 | 21 | 72 | 66 | 220 | 222 | 186 | 104 | 18 | 5.1 | 2.8 |
| 11283500 | 1988 | 4 | 4.4 | 16 | 22 | 97 | 66 | 210 | 170 | 189 | 98 | 17 | 4.9 | 2.7 |
| 11283500 | 1988 | 5 | 4.4 | 15 | 23 | 209 | 63 | 230 | 190 | 174 | 89 | 16 | 4.9 | 2.6 |
| 11283500 | 1988 | 6 | 4.3 | 18 | 37 | 161 | 67 | 230 | 210 | 167 | 78 | 16 | 4.8 | 2.7 |
| 11283500 | 1988 | 7 | 4.4 | 20 | 91 | 123 | 70 | 220 | 222 | 157 | 85 | 15 | 4.7 | 2.6 |
| 11283500 | 1988 | 8 | 4.5 | 24 | 56 | 101 | 74 | 230 | 220 | 158 | 89 | 15 | 4.7 | 2.6 |
| 11283500 | 1988 | 9 | 4.6 | 20 | 50 | 89 | 91 | 240 | 190 | 162 | 85 | 14 | 4.5 | 2.6 |
| 11283500 | 1988 | 10 | 4.9 | 17 | 70 | 86 | 104 | 210 | 200 | 164 | 78 | 13 | 4.4 | 2.7 |
| 11283500 | 1988 | 11 | 5 | 15 | 89 | 108 | 113 | 170 | 220 | 205 | 70 | 13 | 4.1 | 2.7 |
| 11283500 | 1988 | 12 | 5.2 | 14 | 63 | 86 | 120 | 150 | 210 | 257 | 65 | 12 | 4 | 2.8 |
| 11283500 | 1988 | 13 | 5.4 | 17 | 38 | 75 | 123 | 140 | 200 | 252 | 60 | 11 | 4 | 2.8 |
| 11283500 | 1988 | 14 | 6 | 31 | 29 | 67 | 120 | 150 | 240 | 235 | 56 | 11 | 4 | 2.8 |
| 11283500 | 1988 | 15 | 5.9 | 29 | 37 | 71 | 128 | 160 | 230 | 230 | 50 | 11 | 4.1 | 2.9 |
| 11283500 | 1988 | 16 | 5.8 | 24 | 36 | 71 | 134 | 150 | 220 | 234 | 47 | 11 | 4.1 | 3 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11283500 | 1988 | 17 | 5.6 | 24 | 33 | 88 | 117 | 160 | 200 | 349 | 44 | 10 | 4.1 | 3 |
| 11283500 | 1988 | 18 | 5.5 | 42 | 28 | 79 | 109 | 179 | 180 | 254 | 41 | 9.3 | 3.9 | 3 |
| 11283500 | 1988 | 19 | 5.4 | 37 | 29 | 63 | 97 | 203 | 200 | 196 | 38 | 8.4 | 3.7 | 3 |
| 11283500 | 1988 | 20 | 5.3 | 33 | 25 | 66 | 102 | 215 | 210 | 183 | 38 | 7.7 | 3.5 | 3.2 |
| 11283500 | 1988 | 21 | 5.3 | 33 | 26 | 63 | 119 | 218 | 200 | 182 | 39 | 7.4 | 3.4 | 3.3 |
| 11283500 | 1988 | 22 | 5.6 | 31 | 54 | 61 | 131 | 196 | 200 | 174 | 36 | 7.2 | 3.3 | 3.6 |
| 11283500 | 1988 | 23 | 14 | 32 | 59 | 66 | 151 | 220 | 170 | 157 | 32 | 6.8 | 3.3 | 3.8 |
| 11283500 | 1988 | 24 | 14 | 27 | 50 | 80 | 160 | 253 | 200 | 148 | 31 | 6.7 | 3.3 | 3.9 |
| 11283500 | 1988 | 25 | 13 | 24 | 40 | 99 | 175 | 251 | 250 | 134 | 29 | 18 | 3.2 | 3.8 |
| 11283500 | 1988 | 26 | 11 | 21 | 44 | 107 | 198 | 276 | 400 | 125 | 30 | 27 | 3.1 | 3.8 |
| 11283500 | 1988 | 27 | 9.3 | 18 | 39 | 102 | 213 | 283 | 350 | 109 | 27 | 18 | 3 | 3.9 |
| 11283500 | 1988 | 28 | 15 | 18 | 43 | 98 | 277 | 236 | 320 | 102 | 25 | 12 | 3 | 3.9 |
| 11283500 | 1988 | 29 | 34 | 18 | 40 | 98 | 295 | 198 | 315 | 185 | 24 | 9.5 | 2.9 | 3.8 |
| 11283500 | 1988 | 30 | 39 | 17 | 39 | 96 | | 195 | 287 | 165 | 22 | 8 | 2.9 | 3.6 |
| 11283500 | 1988 | 31 | 23 | | 31 | 87 | | 176 | | 140 | | 7 | 2.8 | |

# APPENDIX G
## Flow Records for
## Clavey River Gage #11283500
## From Turlock Irrigation District Files

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 30 | 20 | 19 | 23 | 30 | 49 | 202 | 312 | 59 | 13 | 6.3 | 5.1 |
| 2 | 27 | 20 | 20 | 25 | 29 | 51 | 233 | 191 | 54 | 13 | 6.1 | 5.3 |
| 3 | 25 | 20 | 21 | 40 | 32 | 52 | 283 | 172 | 50 | 13 | 5.9 | 5.5 |
| 4 | 25 | 19 | 20 | 72 | 30 | 58 | 213 | 197 | 45 | 13 | 5.7 | 5.4 |
| 5 | 26 | 19 | 21 | 40 | 28 | 283 | 185 | 213 | 41 | 12 | 5.5 | 5.5 |
| 6 | 26 | 19 | 25 | 34 | 28 | 435 | 211 | 216 | 40 | 12 | 5.3 | 5.6 |
| 7 | 26 | 19 | 27 | 33 | 30 | 267 | 258 | 192 | 44 | 12 | 5.1 | 5.8 |
| 8 | 25 | 20 | 23 | 25 | 31 | 195 | 301 | 179 | 56 | 11 | 5 | 5.7 |
| 9 | 25 | 20 | 19 | 21 | 32 | 169 | 306 | 282 | 49 | 11 | 4.9 | 5.4 |
| 10 | 25 | 20 | 18 | 23 | 44 | 148 | 335 | 288 | 40 | 11 | 4.9 | 5.2 |
| 11 | 24 | 20 | 19 | 25 | 63 | 129 | 342 | 228 | 35 | 10 | 4.8 | 5 |
| 12 | 24 | 20 | 21 | 21 | 76 | 127 | 312 | 197 | 31 | 10 | 4.8 | 5 |
| 13 | 24 | 19 | 22 | 27 | 524 | 244 | 286 | 174 | 28 | 9.7 | 4.9 | 5.1 |
| 14 | 23 | 19 | 21 | 21 | 231 | 215 | 321 | 154 | 26 | 9.3 | 4.9 | 5.3 |
| 15 | 23 | 19 | 20 | 21 | 135 | 187 | 330 | 139 | 25 | 8.7 | 5 | 5.4 |
| 16 | 23 | 19 | 20 | 16 | 98 | 167 | 326 | 260 | 26 | 8 | 5.3 | 5.2 |
| 17 | 22 | 19 | 21 | 23 | 90 | 168 | 340 | 195 | 25 | 7.6 | 5.3 | 5 |
| 18 | 22 | 19 | 22 | 27 | 77 | 192 | 328 | 140 | 23 | 8.3 | 5 | 4.9 |
| 19 | 22 | 19 | 23 | 24 | 65 | 173 | 203 | 116 | 22 | 8.9 | 4.8 | 4.8 |
| 20 | 22 | 20 | 24 | 22 | 64 | 142 | 201 | 103 | 21 | 8.8 | 4.8 | 4.6 |
| 21 | 23 | 20 | 22 | 22 | 57 | 143 | 247 | 139 | 20 | 8.8 | 4.8 | 4.5 |
| 22 | 23 | 20 | 20 | 23 | 56 | 133 | 286 | 144 | 19 | 9.1 | 4.8 | 4.5 |
| 23 | 22 | 20 | 23 | 25 | 57 | 142 | 270 | 124 | 19 | 9.1 | 4.8 | 4.3 |
| 24 | 22 | 20 | 22 | 29 | 48 | 128 | 269 | 105 | 18 | 8.7 | 4.7 | 4.3 |
| 25 | 22 | 20 | 20 | 35 | 52 | 134 | 269 | 89 | 17 | 8.5 | 4.8 | 4.4 |
| 26 | 21 | 19 | 21 | 30 | 43 | 138 | 288 | 81 | 16 | 8.1 | 4.7 | 4.5 |
| 27 | 21 | 19 | 23 | 30 | 47 | 150 | 344 | 79 | 15 | 7.7 | 4.6 | 4.7 |
| 28 | 21 | 19 | 19 | 40 | 48 | 153 | 292 | 72 | 14 | 7.3 | 4.4 | 4.7 |
| 29 | 21 | 19 | 20 | 37 | — | 155 | 287 | 67 | 14 | 6.9 | 4.4 | 4.6 |
| 30 | 21 | 21 | 19 | 33 | — | 173 | 396 | 65 | 14 | 6.6 | 4.4 | 4.5 |
| 31 | 21 | --- | 21 | 31 | — | 201 | — | 62 | --- | 6.5 | 4.9 | --- |
| TOTAL | 727 | 586 | 656 | 898 | 2145 | 5101 | 8464 | 4975 | 906 | 297.6 | 155.6 | 149.8 |
| MEAN | 23.5 | 19.5 | 21.2 | 29 | 76.6 | 165 | 282 | 160 | 30.2 | 9.6 | 5.02 | 4.99 |
| MAX | 30 | 21 | 27 | 72 | 524 | 435 | 396 | 312 | 59 | 13 | 6.3 | 5.8 |
| MIN | 21 | 19 | 18 | 16 | 28 | 49 | 185 | 62 | 14 | 6.5 | 4.4 | 4.3 |
| AC-FT | 1440 | 1160 | 1300 | 1780 | 4250 | 10120 | 16790 | 9870 | 1800 | 590 | 309 | 297 |

More? [Y/N DEF AULT=Y]:
□[;H□[ 2J□[1;1H □[1;1H U. S. DEPAR' MENT OF T HE INTERI OR - U.S. GEOLOGI( AL SURVE #NAME? RESOURCES

STATIO N NUMBEI 11283500 CLAVEY R NR BUCK MEADOWS C A SOUR CE AGEN( USGS S TATE 06 COUNTY 1 9
LATIT UDE 375 402 LONG ITUDE 12 00415 NA D27 DRAI NAGE AREA 144* CO NTRIBUTI G DRAINA E AREA DATUM 23 74.08 NG VD29
Date P rocessed: 2006-11- 21 09:19 By turloc k
Lowes t aging s tatus in period is APPROVED
DD #1
D ischarge, cubic fe et per se cond
WATER YEAR OC1OBER 1987 TO SEPTE MBER 1988
DA ILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.4 | 17 | 19 | 36 | 80 | 290 | 169 | 226 | 119 | 21 | 6.2 | 2.8 |
| 2 | 4.4 | 15 | 22 | 37 | 73 | 210 | 185 | 199 | 109 | 19 | 5.4 | 2.9 |
| 3 | 4.3 | 14 | 21 | 72 | 66 | 220 | 222 | 186 | 104 | 18 | 5.1 | 2.8 |
| 4 | 4.4 | 16 | 22 | 97 | 66 | 210 | 170 | 189 | 98 | 17 | 4.9 | 2.7 |
| 5 | 4.4 | 15 | 23 | 209 | 63 | 230 | 190 | 174 | 89 | 16 | 4.9 | 2.6 |
| 6 | 4.3 | 18 | 37 | 161 | 67 | 230 | 210 | 167 | 78 | 16 | 4.8 | 2.7 |
| 7 | 4.4 | 20 | 91 | 123 | 70 | 220 | 222 | 157 | 85 | 15 | 4.7 | 2.6 |
| 8 | 4.5 | 24 | 56 | 101 | 74 | 230 | 220 | 158 | 89 | 15 | 4.7 | 2.6 |
| 9 | 4.6 | 20 | 50 | 89 | 91 | 240 | 190 | 162 | 85 | 14 | 4.5 | 2.6 |
| 10 | 4.9 | 17 | 70 | 86 | 104 | 210 | 200 | 164 | 78 | 13 | 4.4 | 2.7 |
| 11 | 5 | 15 | 89 | 108 | 113 | 170 | 220 | 205 | 70 | 13 | 4.1 | 2.7 |
| 12 | 5.2 | 14 | 63 | 86 | 120 | 150 | 210 | 257 | 65 | 12 | 4 | 2.8 |
| 13 | 5.4 | 17 | 38 | 75 | 123 | 140 | 200 | 252 | 60 | 11 | 4 | 2.8 |
| 14 | 6 | 31 | 29 | 67 | 120 | 150 | 240 | 235 | 56 | 11 | 4 | 2.8 |
| 15 | 5.9 | 29 | 37 | 71 | 128 | 160 | 230 | 230 | 50 | 11 | 4.1 | 2.9 |
| 16 | 5.8 | 24 | 36 | 71 | 134 | 150 | 220 | 234 | 47 | 11 | 4.1 | 3 |
| 17 | 5.6 | 24 | 33 | 88 | 117 | 160 | 200 | 349 | 44 | 10 | 4.1 | 3 |

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 5.5 | 42 | 28 | 79 | 109 | 179 | 180 | 254 | 41 | 9.3 | 3.9 | 3 |
| 19 | 5.4 | 37 | 29 | 63 | 97 | 203 | 200 | 196 | 38 | 8.4 | 3.7 | 3 |
| 20 | 5.3 | 33 | 25 | 66 | 102 | 215 | 210 | 183 | 38 | 7.7 | 3.5 | 3.2 |
| 21 | 5.3 | 33 | 26 | 63 | 119 | 218 | 200 | 182 | 39 | 7.4 | 3.4 | 3.3 |
| 22 | 5.6 | 31 | 54 | 61 | 131 | 196 | 200 | 174 | 36 | 7.2 | 3.3 | 3.6 |
| 23 | 14 | 32 | 59 | 66 | 151 | 220 | 170 | 157 | 32 | 6.8 | 3.3 | 3.8 |
| 24 | 14 | 27 | 50 | 80 | 160 | 253 | 200 | 148 | 31 | 6.7 | 3.3 | 3.9 |
| 25 | 13 | 24 | 40 | 99 | 175 | 251 | 250 | 134 | 29 | 18 | 3.2 | 3.8 |
| 26 | 11 | 21 | 44 | 107 | 198 | 276 | 400 | 125 | 30 | 27 | 3.1 | 3.8 |
| 27 | 9.3 | 18 | 39 | 102 | 213 | 283 | 350 | 109 | 27 | 18 | 3 | 3.9 |
| 28 | 15 | 18 | 43 | 98 | 277 | 236 | 320 | 102 | 25 | 12 | 3 | 3.9 |
| 29 | 34 | 18 | 40 | 98 | 295 | 198 | 315 | 185 | 24 | 9.5 | 2.9 | 3.8 |
| 30 | 39 | 17 | 39 | 96 | --- | 195 | 287 | 165 | 22 | 8 | 2.9 | 3.6 |
| 31 | 23 | --- | 31 | 87 | --- | 176 | --- | 140 | --- | 7 | 2.8 | --- |
| TOTAL | 282.9 | 681 | 1283 | 2742 | 3636 | 6469 | 6780 | 5798 | 1738 | 396 | 123.3 | 93.6 |
| MEAN | 9.13 | 22.7 | 41.4 | 88.5 | 125 | 209 | 226 | 187 | 57.9 | 12.8 | 3.98 | 3.12 |
| MAX | 39 | 42 | 91 | 209 | 295 | 290 | 400 | 349 | 119 | 27 | 6.2 | 3.9 |
| MIN | 4.3 | 14 | 19 | 36 | 63 | 140 | 169 | 102 | 22 | 6.7 | 2.8 | 2.6 |
| AC-FT | 561 | 1350 | 2540 | 5440 | 7210 | 12830 | 13450 | 11500 | 3450 | 785 | 245 | 186 |

More? [Y/N DEF AULT=Y]:

□[;H□[ 2J□[1;1H □[1;1H U. S. DEPAR' MENT OF T HE INTERI OR - U.S. GEOLOGI( AL SURVE #NAME? RESOURCES

STATIO N NUMBEI 11283500 CLAVEY R NR BUCK MEADOWS C A SOUR CE AGEN( USGS S TATE 06 COUNTY 1 9

LATIT UDE 375 402 LONG ITUDE 12 00415 NA D27 DRAI NAGE AREA 144* CO NTRIBUTI G DRAINA E AREA DATUM 23 74.08 NG VD29

Date P rocessed: 2006-11- 21 09:19 By turloc k

Lowes t aging s tatus in period is APPROVED

DD #1

D ischarge, cubic fe et per se cond

WATER YEAR OC1 OBER 1988 TO SEPTE MBER 1989

DA ILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.4 | 4.4 | 46 | 50 | 133 | 197 | 685 | 341 | 141 | 33 | 8.4 | 5.4 |
| 2 | 3.4 | 4.5 | 43 | 50 | 116 | 367 | 570 | 355 | 146 | 30 | 8.3 | 5.4 |
| 3 | 3.3 | 4.6 | 45 | 50 | 95 | 285 | 580 | 359 | 149 | 28 | 8.2 | 5.3 |
| 4 | 3.3 | 4.8 | 40 | 53 | 71 | 217 | 614 | 426 | 162 | 26 | 8 | 5.3 |
| 5 | 3.3 | 4.9 | 37 | 62 | 71 | 206 | 732 | 443 | 149 | 24 | 7.8 | 5.1 |
| 6 | 3.4 | 4.9 | 40 | 55 | 82 | 387 | 826 | 457 | 137 | 22 | 7.8 | 4.9 |
| 7 | 3.6 | 4.8 | 42 | 59 | 85 | 747 | 875 | 419 | 170 | 21 | 7.6 | 4.8 |
| 8 | 3.8 | 4.9 | 45 | 56 | 79 | 2400 | 859 | 410 | 168 | 19 | 8.6 | 4.8 |
| 9 | 3.9 | 5.3 | 43 | 56 | 109 | 1390 | 872 | 411 | 189 | 18 | 9.9 | 4.9 |
| 10 | 3.8 | 5.6 | 39 | 59 | 135 | 1080 | 842 | 495 | 154 | 17 | 9.8 | 4.9 |
| 11 | 3.8 | 6 | 38 | 59 | 116 | 1150 | 747 | 344 | 139 | 16 | 8.7 | 4.9 |
| 12 | 3.8 | 6.4 | 41 | 55 | 101 | 852 | 712 | 310 | 131 | 16 | 7.9 | 4.9 |
| 13 | 3.9 | 14 | 42 | 54 | 95 | 660 | 624 | 268 | 123 | 16 | 7.4 | 4.8 |
| 14 | 4.2 | 44 | 45 | 52 | 89 | 516 | 652 | 277 | 113 | 15 | 7.1 | 4.7 |
| 15 | 4.2 | 24 | 41 | 49 | 84 | 468 | 624 | 325 | 100 | 14 | 6.8 | 4.7 |
| 16 | 4.3 | 17 | 33 | 49 | 85 | 479 | 593 | 297 | 94 | 14 | 6.5 | 5.1 |
| 17 | 4.3 | 32 | 40 | 49 | 89 | 409 | 536 | 289 | 89 | 14 | 6.3 | 36 |
| 18 | 4.1 | 20 | 37 | 53 | 99 | 396 | 550 | 301 | 77 | 13 | 6.3 | 35 |
| 19 | 4 | 14 | 34 | 58 | 123 | 562 | 493 | 254 | 68 | 13 | 6.4 | 40 |
| 20 | 4 | 13 | 40 | 68 | 127 | 622 | 554 | 249 | 62 | 13 | 6.4 | 27 |
| 21 | 4 | 12 | 45 | 77 | 120 | 521 | 605 | 246 | 57 | 12 | 6.4 | 22 |
| 22 | 4 | 13 | 40 | 77 | 143 | 545 | 447 | 236 | 52 | 11 | 6.3 | 16 |
| 23 | 4 | 125 | 39 | 77 | 222 | 573 | 366 | 228 | 48 | 11 | 6.1 | 14 |
| 24 | 4 | 82 | 58 | 71 | 306 | 880 | 347 | 185 | 45 | 10 | 6.1 | 12 |
| 25 | 4 | 69 | 56 | 62 | 233 | 1140 | 320 | 162 | 43 | 10 | 6.1 | 11 |
| 26 | 4 | 59 | 46 | 63 | 235 | 714 | 295 | 175 | 44 | 9.6 | 6 | 10 |
| 27 | 4 | 48 | 47 | 60 | 271 | 606 | 274 | 187 | 42 | 9.2 | 5.9 | 9.5 |
| 28 | 4 | 45 | 51 | 61 | 229 | 1060 | 287 | 184 | 40 | 9 | 5.7 | 9.2 |
| 29 | 4.1 | 46 | 50 | 66 | --- | 1060 | 303 | 160 | 36 | 8.7 | 5.5 | 17 |
| 30 | 4.3 | 45 | 48 | 73 | --- | 794 | 329 | 143 | 34 | 8.5 | 5.3 | 99 |
| 31 | 4.4 | --- | 52 | 100 | --- | 703 | --- | 131 | --- | 8.4 | 5.3 | --- |
| TOTAL | 120.6 | 783.1 | 1343 | 1883 | 3743 | 21986 | 17113 | 9067 | 3002 | 489.4 | 218.9 | 437.6 |
| MEAN | 3.89 | 26.1 | 43.3 | 60.7 | 134 | 709 | 570 | 292 | 100 | 15.8 | 7.06 | 14.6 |
| MAX | 4.4 | 125 | 58 | 100 | 306 | 2400 | 875 | 495 | 189 | 33 | 9.9 | 99 |
| MIN | 3.3 | 4.4 | 33 | 49 | 71 | 197 | 274 | 131 | 34 | 8.4 | 5.3 | 4.7 |
| AC-FT | 239 | 1550 | 2660 | 3730 | 7420 | 43610 | 33940 | 17980 | 5950 | 971 | 434 | 868 |

More? [Y/N DEF AULT=Y]:

D[;HD[ 2JD[1;1H D[1;1H U. S. DEPAR MENT OF T HE INTERI OR - U.S. GEOLOGI AL SURVE #NAME? RESOURCES

STATIO N NUMBEI 11283500 CLAVEY R NR BUCK MEADOWS CA SOUR CE AGEN USGS S TATE 06 COUNTY 1 9
LATIT UDE 375 402 LONG ITUDE 12 00415 NA D27 DRAI NAGE AREA 144* CO NTRIBUTI G DRAINA E AREA DATUM 23 74.08 NG VD29
Date P rocessed: 2006-11- 21 09:19 By turloc k
Lowes t aging s tatus in period is APPROVED
DD #1
D ischarge, cubic fe et per se cond
WATER YEAR OC OBER 1989 TO SEPTE MBER 1990
DA ILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 45 | 69 | 56 | 28 | 64 | 201 | 326 | 192 | 195 | 23 | 7 | 4.1 |
| 2 | 28 | 64 | 55 | 32 | 58 | 190 | 351 | 189 | 159 | 21 | 6.7 | 4.1 |
| 3 | 21 | 59 | 58 | 26 | 62 | 264 | 362 | 196 | 142 | 20 | 6.5 | 4 |
| 4 | 18 | 56 | 60 | 28 | 67 | 293 | 381 | 201 | 127 | 20 | 6.3 | 3.8 |
| 5 | 16 | 58 | 66 | 29 | 62 | 228 | 349 | 206 | 116 | 19 | 6.1 | 3.6 |
| 6 | 15 | 57 | 68 | 29 | 72 | 207 | 357 | 204 | 108 | 18 | 5.7 | 3.6 |
| 7 | 14 | 51 | 64 | 33 | 60 | 203 | 354 | 187 | 100 | 18 | 5.6 | 3.6 |
| 8 | 13 | 46 | 59 | 47 | 53 | 214 | 365 | 168 | 92 | 18 | 5.5 | 3.4 |
| 9 | 12 | 42 | 55 | 68 | 65 | 227 | 315 | 157 | 85 | 17 | 5.5 | 3.2 |
| 10 | 12 | 40 | 50 | 59 | 63 | 245 | 318 | 153 | 79 | 16 | 5.7 | 3.1 |
| 11 | 11 | 40 | 44 | 53 | 71 | 218 | 353 | 134 | 71 | 15 | 5.4 | 3 |
| 12 | 11 | 41 | 43 | 52 | 84 | 190 | 356 | 124 | 64 | 17 | 5.1 | 2.9 |
| 13 | 10 | 40 | 44 | 130 | 84 | 169 | 368 | 120 | 58 | 15 | 4.8 | 2.8 |
| 14 | 10 | 37 | 40 | 124 | 63 | 167 | 407 | 116 | 56 | e14 | 4.6 | 2.8 |
| 15 | 10 | 34 | 41 | 101 | 62 | 169 | 394 | 108 | 57 | e13 | 4.6 | 2.8 |
| 16 | 10 | 32 | 39 | 92 | 76 | 191 | 398 | 102 | 59 | e20 | 4.5 | 2.9 |
| 17 | 10 | 30 | 36 | 69 | 51 | 211 | 302 | 100 | 52 | e14 | 4.6 | 3 |
| 18 | 10 | 29 | 35 | 74 | 61 | 269 | 250 | 93 | 47 | e13 | 4.6 | 3.1 |
| 19 | 9.8 | 28 | 34 | 65 | 72 | 312 | 289 | 86 | 44 | e12 | 4.7 | 3.3 |
| 20 | 9.6 | 27 | 33 | 60 | 75 | 337 | 285 | 81 | 41 | e11 | 5.2 | 3.4 |
| 21 | 10 | 26 | 36 | 59 | 72 | 371 | 304 | 75 | 38 | e11 | 5.4 | 3.6 |
| 22 | 30 | 26 | 33 | 62 | 74 | 382 | 263 | 70 | 35 | e10 | 5.3 | 3.9 |
| 23 | 156 | 25 | 34 | 61 | 87 | 376 | 394 | 88 | 33 | e9.6 | 5.1 | 4.6 |
| 24 | 871 | 29 | 33 | 59 | 103 | 394 | 399 | 137 | 31 | e9.4 | 4.9 | 4.9 |
| 25 | 311 | 46 | 31 | 61 | 117 | 415 | 320 | 155 | 30 | e9.0 | 4.6 | 6.4 |
| 26 | 167 | 156 | 31 | 62 | 128 | 400 | 319 | 129 | 28 | 8.7 | 4.6 | 7.4 |
| 27 | 130 | 71 | 32 | 58 | 150 | 382 | 323 | 151 | 27 | 8.6 | 4.7 | 6.4 |
| 28 | 114 | 70 | 29 | 55 | 180 | 364 | 327 | 424 | 25 | 8.4 | 4.8 | 6.1 |
| 29 | 96 | 63 | 28 | 56 | --- | 317 | 302 | 307 | 25 | 8 | 4.6 | 7.1 |
| 30 | 84 | 59 | 26 | 61 | --- | 304 | 228 | 200 | 24 | 7.7 | 4.3 | 6.3 |
| 31 | 75 | --- | 30 | 61 | --- | 306 | --- | 227 | --- | 7.4 | 4.1 | --- |
| TOTAL | 2339.4 | 1451 | 1323 | 1854 | 2236 | 8516 | 10059 | 4880 | 2048 | 431.8 | 161.1 | 123.2 |
| MEAN | 75.5 | 48.4 | 42.7 | 59.8 | 79.9 | 275 | 335 | 157 | 68.3 | 13.9 | 5.2 | 4.11 |
| MAX | 871 | 156 | 68 | 130 | 180 | 415 | 407 | 424 | 195 | 23 | 7 | 7.4 |
| MIN | 9.6 | 25 | 26 | 26 | 51 | 167 | 228 | 70 | 24 | 7.4 | 4.1 | 2.8 |
| AC-FT | 4640 | 2880 | 2620 | 3680 | 4440 | 16890 | 19950 | 9680 | 4060 | 856 | 320 | 244 |

e Estimate d
More? [Y/N DEF AULT=Y]:

D[;HD[ 2JD[1;1H D[1;1H U. S. DEPAR MENT OF T HE INTERI OR - U.S. GEOLOGI AL SURVE #NAME? RESOURCES

STATIO N NUMBEI 11283500 CLAVEY R NR BUCK MEADOWS CA SOUR CE AGEN USGS S TATE 06 COUNTY 1 9
LATIT UDE 375 402 LONG ITUDE 12 00415 NA D27 DRAI NAGE AREA 144* CO NTRIBUTI G DRAINA E AREA DATUM 23 74.08 NG VD29
Date P rocessed: 2006-11- 21 09:19 By turloc k
Lowes t aging s tatus in period is APPROVED
DD #1
D ischarge, cubic fe et per se cond
WATER YEAR OC OBER 1990 TO SEPTE MBER 1991
DA ILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 5.2 | 8.2 | 8.4 | 9.1 | 10 | 109 | 321 | 644 | 434 | 125 | 12 | 5.7 |
| 2 | 4.9 | 9.9 | 7.9 | 9.4 | 11 | 69 | 283 | 452 | 506 | 96 | 12 | 5.6 |
| 3 | 4.7 | 8.5 | 7.7 | 10 | 14 | 138 | 296 | 374 | 505 | e78 | 12 | 5.5 |
| 4 | 4.7 | 7.7 | 7.8 | 14 | 13 | 824 | 388 | 367 | 487 | e63 | 11 | 5.2 |
| 5 | 4.5 | 7.3 | 7.7 | 14 | 28 | 882 | 494 | 498 | 449 | e54 | 11 | 5 |
| 6 | 4.3 | 6.7 | 7.7 | 13 | 24 | 340 | 530 | 692 | 386 | e54 | 11 | 4.8 |
| 7 | 4.3 | 6.4 | 7.6 | 12 | 17 | 207 | 480 | 803 | 344 | e49 | 11 | 5.2 |

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 4.4 | 6.4 | 7.4 | 13 | 15 | 165 | 446 | 923 | 334 | e45 | 11 | 5.2 |
| 9 | 4.5 | 6.5 | 7.4 | 12 | 14 | 162 | 464 | 767 | 332 | e41 | 10 | 5.4 |
| 10 | 4.5 | 6.5 | 7.4 | 12 | 14 | 147 | 482 | 497 | 317 | e37 | 9.7 | 5.1 |
| 11 | 4.5 | 6.4 | 7.7 | 11 | 14 | 120 | 378 | 439 | 298 | e34 | 9.3 | 5.1 |
| 12 | 4.5 | 6.3 | 8.8 | 11 | 14 | 115 | 328 | 386 | 273 | e32 | 9.1 | 5.2 |
| 13 | 4.4 | 6.2 | 9.4 | 12 | 13 | 122 | 351 | 494 | 252 | e29 | 9.1 | 5.3 |
| 14 | 4.5 | 6.2 | 9 | 13 | 13 | 107 | 433 | 454 | 213 | e27 | 9.3 | 5.1 |
| 15 | 4.5 | 6.2 | 9.1 | 12 | 14 | 105 | 469 | 528 | 181 | e27 | 9.2 | 4.9 |
| 16 | 4.5 | 6.2 | 9.3 | 12 | 15 | 95 | 390 | 671 | 161 | 26 | 9.5 | 4.7 |
| 17 | 4.5 | 6.2 | 9.1 | 11 | 16 | 105 | 352 | 641 | 144 | 25 | 9.3 | 4.6 |
| 18 | 4.6 | 6.2 | 9.7 | 11 | 17 | 108 | 348 | 461 | 129 | 24 | 8.8 | 4.5 |
| 19 | 5.2 | 6.6 | 11 | 11 | 14 | 129 | 372 | 386 | 117 | 24 | 8.4 | 4.3 |
| 20 | 5.7 | 9.8 | 9.6 | 10 | 14 | 127 | 392 | 399 | 105 | 24 | 7.9 | 4.2 |
| 21 | 5.7 | 10 | 9.2 | 10 | 14 | 108 | 398 | 418 | 94 | 27 | 7.5 | 4.2 |
| 22 | 5.7 | 8.9 | e8.4 | 9.3 | 14 | 95 | 422 | 535 | 87 | 25 | 7.1 | 4.2 |
| 23 | 5.6 | 8.3 | e8.5 | 9.5 | 14 | 105 | 439 | 669 | 79 | 22 | 6.8 | 4.2 |
| 24 | 5.4 | 7.9 | 8.8 | 10 | 13 | 148 | 497 | 740 | 73 | 20 | 6.6 | 4.2 |
| 25 | 5.3 | 8 | 9 | 9.8 | 13 | 189 | 455 | 730 | 69 | 18 | 6.3 | 4.1 |
| 26 | 5 | 11 | 9.1 | 9.3 | 14 | 129 | 385 | 651 | 65 | 18 | 6 | 4 |
| 27 | 4.9 | 9.5 | 9.3 | 9.4 | 14 | 119 | 418 | 538 | 62 | 17 | 6 | 3.9 |
| 28 | 4.8 | 8.5 | 9.6 | 9 | 32 | 148 | 465 | 492 | 102 | 16 | 6.1 | 3.9 |
| 29 | 4.9 | 8.5 | 9.3 | 8.6 | --- | 161 | 567 | 506 | 342 | 15 | 6.3 | 3.9 |
| 30 | 4.9 | 8.5 | 8.9 | 9.1 | --- | 197 | 648 | 486 | 196 | 14 | 6.2 | 4 |
| 31 | 5.6 | --- | 8.9 | 9.7 | --- | 261 | --- | 421 | --- | 13 | 6 | --- |
| TOTAL | 150.7 | 229.5 | 268.7 | 336.2 | 432 | 5836 | 12691 | 17062 | 7136 | 1119 | 271.5 | 141.2 |
| MEAN | 4.86 | 7.65 | 8.67 | 10.8 | 15.4 | 188 | 423 | 550 | 238 | 36.1 | 8.76 | 4.71 |
| MAX | 5.7 | 11 | 11 | 14 | 32 | 882 | 648 | 923 | 506 | 125 | 12 | 5.7 |
| MIN | 4.3 | 6.2 | 7.4 | 8.6 | 10 | 69 | 283 | 367 | 62 | 13 | 6 | 3.9 |
| AC-FT | 299 | 455 | 533 | 667 | 857 | 11580 | 25170 | 33840 | 14150 | 2220 | 539 | 280 |

STATI STICS OF MONTHLY MEAN DA1FOR WATIR YEARS ·960 - 199 1, BY WAT ER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 28.5 | 78 | 159 | 276 | 326 | 421 | 608 | 706 | 344 | 86.7 | 24 | 18.1 |
| MAX | 226 | 339 | 999 | 1331 | 1426 | 1482 | 2057 | 1754 | 1746 | 566 | 101 | 69.4 |
| (WY) | 1983 | 1983 | 1965 | 1980 | 1982 | 1983 | 1982 | 1983 | 1983 | 1983 | 1983 | 1982 |
| MIN | 2.89 | 7.65 | 8.67 | 10.8 | 15.4 | 39 | 84.4 | 117 | 30.2 | 5.06 | 1.66 | 2.28 |
| (WY) | 1978 | 1991 | 1991 | 1991 | 1991 | 1977 | 1977 | 1977 | 1987 | 1977 | 1977 | 1977 |

| SUMMA | RY STATI STICS FO | R 1990 CA LENDAR Y AR | | FOR 1991 WATER Y(AR | | WATER Y EARS 196( | | -1991 |
|---|---|---|---|---|---|---|---|---|
| ANNUA | L TOTAL | 30958 | 0 | 45673 | 0.8 | | | |
| ANNUA | L MEAN | 84 | 0.8 | 125 | | 256 | | |
| HIGHE | ST ANNUA L MEAN | | | | | 771 | | 1983 |
| LOWES | T ANNUAL MEAN | | | | | 31 | 0 | 1977 |
| HIGHE | ST DAILY MEAN | 424 May | 28 | 923 May | 8 | 12000 Feb | | 16 1982 |
| LOWES | T DAILY MEAN | 2 .8 Sep | 13 | 3 .9 Sep | 27 | 1 .2 Sep | | 10 1977 |
| ANNUA | L SEVEN- DAY MINIM UM | 2 .9 Sep | 11 | 4 .0 Sep | 24 | 1 .3 Sep | | 7 1977 |
| MAXIM | UM PEAK FLOW | | | | | 19400 Jan | | 13 1980 |
| MAXIM | UM PEAK STAGE | | | | | 21 .47 Jan | | 13 1980 |
| ANNUA | L RUNOFF (AC-FT) | 61410 | | 90590 | | 185300 | | |
| 10 PE | RCENT EX CEEDS | 305 | | 457 | | 668 | | |
| 50 PE | RCENT EX CEEDS | 21 | | 13 | | 74 | | |
| 90 PE | RCENT EX CEEDS | 4 | 0.5 | 4 | 0.9 | 9 | 0 | |

e Estimate d
More? [Y/N DEF AULT=Y]:
□[;H□[ 2J□[1;1H □[1;1H U. S. DEPAR' MENT OF T HE INTERI OR - U.S. GEOLOGI( AL SURVE #NAME? RESOURCES

STATIO N NUMBEI 11283500 CLAVEY R NR BUCK MEADOWS CA SOUR CE AGEN( USGS S TATE 06 COUNTY 1 9
LATIT UDE 375 402 LONG ITUDE 12 00415 NA D27 DRAI NAGE AREA 144* CO NTRIBUTII G DRAINA E AREA DATUM 23 74.08 NG VD29
Date P rocessed: 2006-11- 21 09:19 By turloc k
Lowes t aging s tatus in period is APPROVED
DD #1
D ischarge, cubic fe et per se cond
WATER YEAR OC1OBER 1991 TO SEPTE MBER 1992
DA ILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 20 | 23 | 31 | 36 | 261 | 440 | 284 | 46 | 86 | 12 | 6.4 |
| 2 | 4 | 22 | 25 | 30 | 34 | 237 | 471 | 241 | 39 | 46 | 11 | 6.5 |
| 3 | 4 | 25 | 23 | 31 | 31 | 304 | 523 | 227 | 35 | 33 | 10 | 7.4 |
| 4 | 4 | 28 | 22 | 30 | 34 | 286 | 541 | 226 | 32 | 27 | 9.8 | 6.9 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 3.9 | 29 | 21 | 43 | 33 | 275 | 486 | 217 | 30 | 23 | 9.2 | 6.5 |
| 6 | 3.9 | 31 | 21 | 41 | 32 | 333 | 411 | 232 | 28 | 21 | 9 | 6.1 |
| 7 | 3.8 | 33 | 23 | 43 | 40 | 277 | 396 | 268 | 28 | 19 | 8.7 | 5.6 |
| 8 | 3.8 | 31 | 24 | 39 | 59 | 253 | 414 | 250 | 31 | 17 | 8.5 | 5.2 |
| 9 | 3.8 | 29 | 22 | 38 | 64 | 234 | 408 | 236 | 29 | 16 | 8.3 | 5 |
| 10 | 3.8 | 34 | 22 | 38 | 87 | 232 | 390 | 181 | 26 | 15 | 8.1 | 4.7 |
| 11 | 3.8 | 32 | 22 | 35 | 135 | 249 | 394 | 162 | 24 | 14 | 7.7 | 4.5 |
| 12 | 3.8 | 26 | 21 | 33 | 250 | 281 | 372 | 155 | 23 | 235 | 7.2 | 4.4 |
| 13 | 3.8 | 22 | 20 | 37 | 257 | 301 | 575 | 144 | 23 | 173 | 6.8 | 4.3 |
| 14 | 3.8 | 20 | 20 | 35 | 173 | 327 | 499 | 140 | 24 | 108 | 6.8 | 4.3 |
| 15 | 3.8 | 18 | 20 | 34 | 178 | 320 | 430 | 128 | 24 | 96 | 12 | 4.2 |
| 16 | 3.8 | 17 | 18 | 35 | 148 | 293 | 366 | 117 | 28 | 74 | 26 | 4.1 |
| 17 | 3.8 | 22 | 19 | 36 | 135 | 254 | 474 | 111 | 28 | 135 | 15 | 3.9 |
| 18 | 3.8 | 53 | 27 | 36 | 129 | 235 | 507 | 103 | 25 | 78 | 11 | 3.9 |
| 19 | 3.8 | 34 | 36 | 35 | 125 | 228 | 401 | 95 | 22 | 48 | 8.7 | 3.9 |
| 20 | 3.8 | 30 | 23 | 34 | 281 | 220 | 417 | 88 | 21 | 36 | 7.4 | 3.9 |
| 21 | 3.8 | 37 | 23 | 36 | 329 | 221 | 432 | 76 | 20 | 30 | 6.6 | 3.9 |
| 22 | 3.8 | 58 | 25 | 32 | 325 | 243 | 369 | 68 | 21 | 27 | 6.1 | 3.9 |
| 23 | 3.8 | 50 | 24 | 33 | 337 | 254 | 302 | 63 | 18 | 24 | 5.8 | 3.7 |
| 24 | 4.1 | 39 | 22 | 34 | 275 | 241 | 303 | 60 | 18 | 22 | 5.7 | 3.6 |
| 25 | 4.7 | 37 | 21 | 36 | 270 | 250 | 329 | 57 | 21 | 21 | 5.6 | 3.4 |
| 26 | 165 | 36 | 22 | 35 | 293 | 306 | 358 | 56 | 22 | 19 | 5.5 | 3.5 |
| 27 | 98 | 36 | 21 | 35 | 299 | 313 | 357 | 53 | 19 | 17 | 5.3 | 3.4 |
| 28 | 39 | 34 | 34 | 36 | 305 | 384 | 345 | 72 | 17 | 16 | 5.2 | 3.4 |
| 29 | 28 | 29 | 51 | 35 | 281 | 390 | 369 | 63 | 18 | 15 | 4.9 | 3.3 |
| 30 | 25 | 23 | 41 | 36 --- | | 413 | 372 | 52 | 71 | 13 | 4.7 | 3.3 |
| 31 | 23 --- | | 34 | 36 --- | | 390 --- | | 47 --- | | 12 | 5.3 --- | |
| TOTAL | 475.2 | 935 | 770 | 1098 | 4975 | 8805 | 12451 | 4272 | 811 | 1516 | 263.9 | 137.1 |
| MEAN | 15.3 | 31.2 | 24.8 | 35.4 | 172 | 284 | 415 | 138 | 27 | 48.9 | 8.51 | 4.57 |
| MAX | 165 | 58 | 51 | 43 | 337 | 413 | 575 | 284 | 71 | 235 | 26 | 7.4 |
| MIN | 3.8 | 17 | 18 | 30 | 31 | 220 | 302 | 47 | 17 | 12 | 4.7 | 3.3 |
| AC-FT | 943 | 1850 | 1530 | 2180 | 9870 | 17460 | 24700 | 8470 | 1610 | 3010 | 523 | 272 |

STATI STICS OF MONTHLY MEAN DA1 FOR WATI R YEARS ·960 - 199 2, BY WAT ER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 28.1 | 76.4 | 155 | 268 | 320 | 417 | 602 | 687 | 334 | 85.4 | 23.5 | 17.6 |
| MAX | 226 | 339 | 999 | 1331 | 1426 | 1462 | 2057 | 1754 | 1746 | 566 | 101 | 69.4 |
| (WY) | 1983 | 1983 | 1965 | 1980 | 1982 | 1983 | 1982 | 1983 | 1983 | 1983 | 1983 | 1982 |
| MIN | 2.89 | 7.65 | 8.67 | 10.8 | 15.4 | 39 | 84.4 | 117 | 27 | 5.06 | 1.66 | 2.28 |
| (WY) | 1978 | 1991 | 1991 | 1991 | 1991 | 1977 | 1977 | 1977 | 1992 | 1977 | 1977 | 1977 |

| SUMMA | RY STATI STICS FO | R 1991 CA LENDAR Y AR | | | FOR 1992 WATER YI AR | | | WATER Y EARS 196( | | -1992 |
|---|---|---|---|---|---|---|---|---|---|---|
| ANNUA | L TOTAL | 47205 | 0.1 | | 36509 | 0.2 | | | | |
| ANNUA | L MEAN | 129 | | | 99 | 0.8 | | 251 | | |
| HIGHE | ST ANNUA L MEAN | | | | | | | 771 | | 1983 |
| LOWES | T ANNUAL MEAN | | | | | | | 31 | 0 | 1977 |
| HIGHE | ST DAILY MEAN | 923 May | | 8 | 575 Apr | | 13 | 12000 Feb | | 16 1982 |
| LOWES | T DAILY MEAN | 3 .8 Oct | | 7 | 3 .3 Sep | | 29 | 1 .2 Sep | | 10 1977 |
| ANNUA | L SEVEN- DAY MINIM UM | 3 .8 Oct | | 7 | 3 .4 Sep | | 24 | 1 .3 Sep | | 7 1977 |
| MAXIM | UM PEAK FLOW | | | | 727 Apr | | 13 | 19400 Jan | | 13 1980 |
| MAXIM | UM PEAK STAGE | | | | 7 .34 Apr | | 13 | 21 .47 Jan | | 13 1980 |
| ANNUA | L RUNOFF (AC-FT) | 93630 | | | 72420 | | | 181500 | | |
| 10 PE | RCENT EXCEEDS | 457 | | | 326 | | | 648 | | |
| 50 PE | RCENT EXCEEDS | 24 | | | 32 | | | 71 | | |
| 90 PE | RCENT EXCEEDS | 4 | 0.4 | | 4 | 0 | | 8 | 0.7 | |

More? [Y/N DEF AULT=Y]:
□[;H□[ 2J□[1;1H □[1;1H U. S. DEPAR' MENT OF T HE INTERI OR - U.S. GEOLOGI( AL SURVE #NAME? RESOURCES

STATIO N NUMBEI 11283500 CLAVEY R NR BUCK MEADOWS CA SOUR CE AGEN( USGS S TATE 06 COUNTY 1 9
LATIT UDE 375 402 LONG ITUDE 12 00415 NA D27 DRAI NAGE AREA 144* CO NTRIBUTII G DRAINA E AREA DATUM 2374.08 NG VD29
Date P rocessed: 2006-11- 21 09:19 By turloc k
Lowes t aging s tatus in period is APPROVED
DD #1
D ischarge, cubic fe et per se cond
WATER YEAR OC1 OBER 1992 TO SEPTE MBER 1993
DA ILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.2 | 40 | 13 | 68 | 253 | 305 | 1320 | 1490 | 860 | 262 | 38 | 15 |
| 2 | 3.3 | 48 | 14 | 66 | 240 | 303 | 1090 | 1460 | 670 | 262 | 36 | 14 |

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 3.3 | 57 | 13 | 54 | 235 | 320 | 1030 | 1370 | 582 | 252 | 34 | 14 |
| 4 | 3.5 | 47 | 13 | 53 | 224 | 337 | 1100 | 1050 | 635 | 214 | 33 | 14 |
| 5 | 3.6 | 36 | 12 | 53 | 267 | 352 | 1040 | 989 | 873 | 213 | 31 | 14 |
| 6 | 3.7 | 32 | 15 | 58 | 313 | 393 | 843 | 1090 | 600 | 212 | 29 | 14 |
| 7 | 3.7 | 29 | 92 | 527 | 303 | 443 | 791 | 1040 | 560 | 208 | 27 | 14 |
| 8 | 3.7 | 28 | 35 | 527 | 443 | 490 | 882 | 1050 | 615 | 194 | 26 | 13 |
| 9 | 3.7 | 24 | 302 | 349 | 551 | 523 | 997 | 1120 | 569 | 175 | 25 | 13 |
| 10 | 3.6 | 21 | 120 | 254 | 449 | 528 | 1020 | 1310 | 624 | 158 | 25 | 12 |
| 11 | 3.6 | 18 | 185 | 184 | 421 | 538 | 966 | 1420 | 656 | 146 | 24 | 12 |
| 12 | 3.6 | 17 | 91 | 164 | 385 | 564 | 909 | 1330 | 614 | 136 | 24 | 12 |
| 13 | 3.6 | 15 | 60 | 724 | 351 | 619 | 819 | 842 | 594 | 125 | 23 | 12 |
| 14 | 3.6 | 15 | 54 | 963 | 328 | 828 | 772 | 897 | 639 | 116 | 23 | 12 |
| 15 | 3.6 | 14 | 48 | 535 | 305 | 850 | 848 | 977 | 638 | 105 | 23 | 12 |
| 16 | 3.7 | 14 | 42 | 704 | 286 | 699 | 933 | 990 | 572 | 94 | 22 | 12 |
| 17 | 3.8 | 13 | 46 | 566 | 284 | 2000 | 846 | 1170 | 500 | 83 | 22 | 12 |
| 18 | 3.9 | 13 | 39 | 490 | 356 | 1770 | 940 | 1230 | 507 | 78 | 21 | 13 |
| 19 | 4 | 13 | 35 | 367 | 707 | 1260 | 804 | 1230 | 507 | 74 | 20 | 14 |
| 20 | 4 | 13 | 41 | 436 | 594 | 1090 | 851 | 1220 | 510 | 71 | 20 | 13 |
| 21 | 4.6 | 13 | 37 | 1170 | 487 | 1090 | 1060 | 1130 | 456 | 68 | 20 | 13 |
| 22 | 6.7 | 13 | 35 | 1870 | 430 | 1160 | 1210 | 964 | 379 | 64 | 19 | 13 |
| 23 | 7 | 15 | 35 | 887 | 458 | 1220 | 1170 | 986 | 366 | 61 | 18 | 12 |
| 24 | 6.2 | 18 | 36 | 602 | 459 | 1910 | 843 | 1050 | 372 | 61 | 18 | 12 |
| 25 | 5.7 | 17 | 36 | 471 | 390 | 1800 | 890 | 1490 | 386 | 58 | 17 | 12 |
| 26 | 5.6 | 16 | 38 | 404 | 365 | 1650 | 997 | 1060 | 380 | 55 | 17 | 12 |
| 27 | 5.3 | 15 | 37 | 369 | 336 | 1250 | 1150 | 846 | 357 | 53 | 16 | 12 |
| 28 | 5.3 | 15 | 50 | 343 | 318 | 1020 | 1230 | 692 | 335 | 50 | 16 | 11 |
| 29 | 25 | 15 | 146 | 320 --- | | 872 | 1390 | 617 | 284 | 47 | 15 | 11 |
| 30 | 77 | 14 | 89 | 299 --- | | 881 | 1530 | 693 | 258 | 44 | 15 | 11 |
| 31 | 77 --- | | 68 | 274 --- | | 908 --- | | 1040 --- | | 41 | 15 --- | |
| TOTAL | 298.1 | 658 | 1877 | 14151 | 10538 | 27973 | 30271 | 33843 | 15898 | 3780 | 712 | 380 |
| MEAN | 9.62 | 21.9 | 60.5 | 456 | 376 | 902 | 1009 | 1092 | 530 | 122 | 23 | 12.7 |
| MAX | 77 | 57 | 302 | 1870 | 707 | 2000 | 1530 | 1490 | 873 | 262 | 38 | 15 |
| MIN | 3.2 | 13 | 12 | 53 | 224 | 303 | 772 | 617 | 258 | 41 | 15 | 11 |
| AC-FT | 591 | 1310 | 3720 | 28070 | 20900 | 55480 | 60040 | 67130 | 31530 | 7500 | 1410 | 754 |

STATI STICS OF MONTHLY MEAN DA1FOR WATI R YEARS ·960 - 199 3, BY WAT ER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 27.5 | 74.7 | 152 | 274 | 322 | 433 | 615 | 700 | 340 | 86.6 | 23.5 | 17.5 |
| MAX | 226 | 339 | 999 | 1331 | 1426 | 1482 | 2057 | 1754 | 1746 | 566 | 101 | 69.4 |
| (WY) | 1983 | 1983 | 1965 | 1980 | 1982 | 1983 | 1982 | 1983 | 1983 | 1983 | 1983 | 1982 |
| MIN | 2.89 | 7.65 | 8.67 | 10.8 | 15.4 | 39 | 84.4 | 117 | 27 | 5.06 | 1.66 | 2.28 |
| (WY) | 1978 | 1991 | 1991 | 1991 | 1991 | 1977 | 1977 | 1977 | 1992 | 1977 | 1977 | 1977 |

| SUMMA RY STATI STICS FO | R 1992 CA LENDAR Y AR | | FOR 1993 WATER YI AR | | WATER Y EARS 196( -1993 | |
|---|---|---|---|---|---|---|
| ANNUA L TOTAL | 37162 | 0.1 | 140379 | 0.1 | | |
| ANNUA L MEAN | 102 | | 385 | | 255 | |
| HIGHE ST ANNUAL MEAN | | | | | 771 | 1983 |
| LOWES T ANNUAL MEAN | | | | | 31 | 0 1977 |
| HIGHE ST DAILY MEAN | 575 Apr | 13 | 2000 Mar | 17 | 12000 Feb | 16 1982 |
| LOWES T DAILY MEAN | 3 .2 Oct | 1 | 3 .2 Oct | 1 | 1 .2 Sep | 10 1977 |
| ANNUA L SEVEN- DAY MINIMUM | 3 .3 Sep | 27 | 3 .5 Oct | 1 | 1 .3 Sep | 7 1977 |
| MAXIM UM PEAK FLOW | | | 2760 Mar | 17 | 19400 Jan | 13 1980 |
| MAXIM UM PEAK STAGE | | | 11 .58 Mar | 17 | 21 .47 Jan | 13 1980 |
| ANNUA L RUNOFF (AC-FT) | 73710 | | 278400 | | 184600 | |
| 10 PE RCENT EXCEEDS | 326 | | 1070 | | 672 | |
| 50 PE RCENT EXCEEDS | 35 | | 185 | | 71 | |
| 90 PE RCENT EXCEEDS | 4 | 0.3 | 12 | | 8 | 0.8 |

More? [Y/N DEF AULT=Y]:
□[;H□[ 2J□[1;1H □[1;1H U. S. DEPAR'MENT OF T HE INTERI OR - U.S. GEOLOGI(AL SURVE #NAME? RESOURCES

STATIO N NUMBEI 11283500 CLAVEY R NR BUCK MEADOWS CA SOUR CE AGEN(USGS S TATE 06 COUNTY 1 9
LATIT UDE 375 402 LONG ITUDE 12 00415 NA D27 DRAI NAGE AREA 144* CO NTRIBUTI G DRAINA E AREA DATUM 23 74.08 NG VD29

Date P rocessed: 2006-11- 21 09:19 By turloc k
Lowes t aging s tatus in period is APPROVED
DD #1
D ischarge, cubic fe et per se cond
WATER YEAR OC1OBER 1993 TO SEPTE MBER 1994
DA ILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 14 | 27 | 25 | 31 | 132 | 289 | 345 | 177 | 21 | 6.1 | 3.3 |
| 2 | 11 | 13 | 22 | 24 | 29 | 140 | 301 | 364 | 148 | 20 | 5.8 | 3.2 |
| 3 | 11 | 13 | 21 | 24 | 30 | 160 | 328 | 364 | 137 | 19 | 5.5 | 3.2 |
| 4 | 11 | 13 | 20 | 26 | 28 | 178 | 300 | 363 | 121 | 18 | 5.4 | 3.3 |
| 5 | 11 | 13 | 19 | 34 | 27 | 217 | 245 | 361 | 110 | 18 | 5.3 | 3.4 |
| 6 | 12 | 13 | 19 | 28 | 28 | 230 | 233 | 346 | 103 | 17 | 5.1 | 3.4 |
| 7 | 13 | 13 | 18 | 27 | 109 | 207 | 201 | 324 | 95 | 16 | 4.9 | 3.3 |
| 8 | 13 | 13 | 18 | 26 | 116 | 203 | 201 | 316 | 86 | 16 | 4.6 | 3.3 |
| 9 | 12 | 13 | 20 | 25 | 76 | 223 | 220 | 314 | 80 | 15 | 4.4 | 3.2 |
| 10 | 12 | 13 | 21 | 22 | 65 | 234 | 190 | 362 | 75 | 13 | 4.4 | 3.2 |
| 11 | 14 | 17 | 27 | 22 | 63 | 228 | 193 | 399 | 69 | 13 | 4.4 | 3.2 |
| 12 | 16 | 24 | 29 | 22 | 48 | 205 | 209 | 403 | 64 | 12 | 4.2 | 3.5 |
| 13 | 15 | 21 | 25 | 23 | 48 | 195 | 236 | 344 | 59 | 12 | 4 | 3.7 |
| 14 | 15 | 18 | 29 | 23 | 42 | 253 | 286 | 324 | 55 | 11 | 3.9 | 3.8 |
| 15 | 17 | 17 | 26 | 23 | 42 | 307 | 339 | 283 | 51 | 11 | 3.8 | 4 |
| 16 | 30 | 16 | 23 | 22 | 42 | 293 | 399 | 218 | 48 | 10 | 3.6 | 3.9 |
| 17 | 26 | 16 | 22 | 23 | 95 | 241 | 412 | 186 | 45 | 9.7 | 3.5 | 3.7 |
| 18 | 23 | 16 | 22 | 23 | 93 | 237 | 407 | 219 | 43 | 9.1 | 3.4 | 3.6 |
| 19 | 20 | 16 | 22 | 24 | 69 | 263 | 429 | 262 | 41 | 8.8 | 3.4 | 3.5 |
| 20 | 18 | 16 | 21 | 25 | 71 | 235 | 429 | 269 | 39 | 8.6 | 3.4 | 3.5 |
| 21 | 17 | 16 | 21 | 25 | 66 | 238 | 390 | 320 | 37 | 8.6 | 3.4 | 3.5 |
| 22 | 17 | 17 | 21 | 25 | 59 | 244 | 329 | 326 | 35 | 8.7 | 3.4 | 3.4 |
| 23 | 16 | 18 | 21 | 44 | 63 | 189 | 289 | 268 | 33 | 8.6 | 3.4 | 3.4 |
| 24 | 16 | 17 | 22 | 52 | 67 | 165 | 251 | 253 | 31 | 8.1 | 3.4 | 3.7 |
| 25 | 15 | 16 | 22 | 41 | 76 | 152 | 249 | 253 | 30 | 7.8 | 3.4 | 4.2 |
| 26 | 15 | 16 | 23 | 44 | 88 | 141 | 236 | 215 | 28 | 7.4 | 3.4 | 4.4 |
| 27 | 14 | 16 | 30 | 36 | 114 | 154 | 272 | 220 | 27 | 7.1 | 3.3 | 4.2 |
| 28 | 14 | 17 | 29 | 30 | 122 | 216 | 249 | 205 | 25 | 6.7 | 3.3 | 4.2 |
| 29 | 14 | 18 | 26 | 30 --- | | 245 | 291 | 183 | 23 | 6.4 | 3.3 | 6.5 |
| 30 | 14 | 40 | 25 | 31 --- | | 250 | 317 | 175 | 22 | 6.2 | 3.3 | 7.7 |
| 31 | 14 --- | | 24 | 30 --- | | 293 --- | | 196 --- | | 6.1 | 3.3 --- | |
| TOTAL | 477 | 499 | 715 | 879 | 1807 | 6668 | 8720 | 8980 | 1937 | 359.9 | 126 | 114.4 |
| MEAN | 15.4 | 16.6 | 23.1 | 28.4 | 64.5 | 215 | 291 | 290 | 64.6 | 11.6 | 4.06 | 3.81 |
| MAX | 30 | 40 | 30 | 52 | 122 | 307 | 429 | 403 | 177 | 21 | 6.1 | 7.7 |
| MIN | 11 | 13 | 18 | 22 | 27 | 132 | 190 | 175 | 22 | 6.1 | 3.3 | 3.2 |
| AC-FT | 946 | 990 | 1420 | 1740 | 3580 | 13230 | 17300 | 17810 | 3840 | 714 | 250 | 227 |

STATI STICS OF MONTHLY MEAN DA1FOR WATI R YEARS ·960 - 199 4, BY WAT ER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 27.1 | 72.9 | 148 | 267 | 314 | 426 | 605 | 687 | 331 | 84.3 | 22.8 | 17 |
| MAX | 226 | 339 | 999 | 1331 | 1426 | 1482 | 2057 | 1754 | 1746 | 566 | 101 | 69.4 |
| (WY) | 1983 | 1983 | 1965 | 1980 | 1982 | 1983 | 1982 | 1983 | 1983 | 1983 | 1983 | 1982 |
| MIN | 2.89 | 7.65 | 8.67 | 10.8 | 15.4 | 39 | 84.4 | 117 | 27 | 5.06 | 1.66 | 2.28 |
| (WY) | 1978 | 1991 | 1991 | 1991 | 1991 | 1977 | 1977 | 1977 | 1992 | 1977 | 1977 | 1977 |

| SUMMA | RY STATI STICS FO | R 1993 CA LENDAR YAR | | FOR 1994 WATER YI AR | | | WATER Y EARS 196( | | -1994 |
|---|---|---|---|---|---|---|---|---|---|
| ANNUA | L TOTAL | 139237 | | 31282 | 0.3 | | | | |
| ANNUA | L MEAN | 381 | | 85 | 0.7 | | 250 | | |
| HIGHE | ST ANNUA L MEAN | | | | | | 771 | | 1983 |
| LOWES | T ANNUAL MEAN | | | | | | 31 | 0 | 1977 |
| HIGHE | ST DAILY MEAN | 2000 Mar | 17 | 429 Apr | | 19 | 12000 Feb | | 16 1982 |
| LOWES | T DAILY MEAN | 11 Sep | 28 | 3 .2 Sep | | 2 | 1 .2 Sep | | 10 1977 |
| ANNUA | L SEVEN- DAY MINIM UM | 11 Sep | 28 | 3 .3 Aug | | 28 | 1 .3 Sep | | 7 1977 |
| MAXIM | UM PEAK FLOW | | | 537 Apr | | 20 | 19400 Jan | | 13 1980 |
| MAXIM | UM PEAK STAGE | | | 6 .61 Apr | | 20 | 21 .47 Jan | | 13 1980 |
| ANNUA | L RUNOFF (AC-FT) | 276200 | | 62050 | | | 180800 | | |
| 10 PE | RCENT EX CEEDS | 1070 | | 276 | | | 656 | | |
| 50 PE | RCENT EX CEEDS | 175 | | 24 | | | 69 | | |
| 90 PE | RCENT EX CEEDS | 13 | | 3 | 0.7 | | 8 | 0.6 | |

More? [Y/N DEF AULT=Y]:
Π[;H◌[ 2JΠ[1;1H Π[1;1H U. S. DEPAR' MENT OF T HE INTERI OR - U.S. GEOLOGI( AL SURVE #NAME? RESOURCES

STATIO N NUMBEI 11283500 CLAVEY R NR BUCK MEADOWS C A SOUR CE AGEN( USGS S TATE 06 COUNTY 1 9
LATIT UDE 375 402 LONG ITUDE 12 00415 NA D27 DRAI NAGE AREA 144* CO NTRIBUTII G DRAINA E AREA DATUM 23 74.08 NG VD29

Date P rocessed: 2006-11- 21 09:19 By turloc k
Lowes t aging s tatus in period is APPROVED
DD #1

D ischarge, cubic fe et per se cond
WATER YEAR OC1 OBER 1994 TO SEPTE MBER 1995
DA ILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 6.6 | 8.8 | 57 | 70 | 494 | 483 | 699 | 5840 | 1370 | --- | --- | --- |
| 2 | 5.8 | 12 | 66 | 60 | 539 | 491 | 691 | --- | 1210 | --- | --- | --- |
| 3 | 5.4 | 12 | 78 | 65 | 520 | 1030 | 728 | 2100 | 1150 | --- | --- | --- |
| 4 | 19 | 11 | 102 | 92 | 508 | 815 | 864 | 1860 | 1210 | --- | --- | --- |
| 5 | 61 | 36 | 105 | 175 | 503 | 642 | 972 | 1680 | 1020 | --- | --- | --- |
| 6 | 27 | 349 | 102 | 122 | 499 | 573 | 998 | 1390 | 822 | --- | --- | --- |
| 7 | 21 | 153 | 84 | 340 | 479 | 520 | 1570 | 1210 | 723 | --- | --- | --- |
| 8 | 19 | 94 | 61 | 327 | 467 | 483 | 1410 | 1110 | 649 | --- | --- | --- |
| 9 | 17 | 62 | 60 | 622 | 436 | 3220 | 1060 | 1110 | 634 | --- | --- | --- |
| 10 | 16 | 70 | 58 | 2910 | 413 | 8150 | 905 | 1120 | 790 | --- | --- | --- |
| 11 | 16 | 51 | 55 | 1530 | 401 | 4810 | 935 | 1240 | 891 | --- | --- | --- |
| 12 | 15 | 49 | 61 | 847 | 394 | 2500 | 1040 | 1190 | 920 | --- | --- | --- |
| 13 | 14 | 44 | 58 | 1420 | 387 | 1890 | 1210 | 1090 | 911 | --- | --- | --- |
| 14 | 13 | 38 | 50 | 2930 | 383 | 1770 | 990 | 927 | --- | --- | --- | --- |
| 15 | 12 | 40 | 56 | 1740 | 344 | 1610 | 836 | 870 | --- | --- | --- | --- |
| 16 | 11 | 42 | 54 | 915 | 330 | 1430 | 739 | 860 | --- | --- | --- | --- |
| 17 | 11 | 42 | 55 | 626 | 314 | 1240 | 679 | 954 | --- | --- | --- | --- |
| 18 | 10 | 38 | 58 | 511 | 307 | 1280 | 646 | 1050 | --- | --- | --- | --- |
| 19 | 10 | 38 | 59 | 446 | 322 | 1370 | 610 | 1270 | --- | --- | --- | --- |
| 20 | 10 | 46 | 59 | 402 | 370 | 1370 | 608 | 1500 | --- | --- | --- | --- |
| 21 | 9.8 | 44 | 59 | 364 | 427 | 1340 | 570 | 1500 | --- | --- | --- | --- |
| 22 | 9.5 | 41 | 62 | 356 | 458 | 1130 | 570 | 1400 | --- | --- | --- | --- |
| 23 | 9.4 | 41 | 62 | 434 | 468 | 1090 | 633 | 1270 | --- | --- | --- | --- |
| 24 | 9.3 | 43 | 87 | 599 | 479 | 898 | 776 | 1250 | --- | --- | --- | --- |
| 25 | 9.1 | 60 | 83 | 696 | 491 | 778 | 970 | 1130 | --- | --- | --- | --- |
| 26 | 8.9 | 58 | 84 | 559 | 492 | 708 | 1060 | 1180 | --- | --- | --- | --- |
| 27 | 8.9 | 51 | 82 | 539 | 466 | 673 | 1340 | 1300 | --- | --- | --- | --- |
| 28 | 8.8 | 55 | 83 | 512 | 460 | 648 | 2220 | 1320 | --- | --- | --- | --- |
| 29 | 8.7 | 51 | 73 | 469 | --- | 625 | 3440 | 1310 | --- | --- | --- | --- |
| 30 | 8.6 | 52 | 67 | 442 | --- | 619 | 3130 | 1280 | --- | --- | --- | --- |
| 31 | 8.4 | --- | 66 | 449 | --- | 647 | --- | 1360 | --- | --- | --- | --- |

# APPENDIX H
# Flow Records for
# Marco and Polo Creeks

# Application #31491
# Spring Flow Recap

## Marco Creek

| Below POD | GPM | "Old Railroad Grade" | GPM |
|---|---|---|---|
| 5/24/05 | 80 | 5/24/05 | 120 |
| 7/26/05 | 60 | 7/26/05 | 90 |
| 9/21/05 | 55 | 9/21/05 | 82 |
| 5/9/06 | 85 | 5/9/06 | 120 |
| 6/5/06 | 65 | 6/5/06 | 100 |
| 7/20/06 | 60 | 7/20/06 | 100 |
| 9/20/06 | 50 | 9/20/06 | 85 |
| 5/10/07 | 55 | 5/10/07 | 80 |
| 7/16/07 | 35 | 7/16/07 | 65 |
| 10/20/07 | 20 | 10/20/07 | 50 |
| 12/4/07 | 17 | 12/4/07 | 45 |
| 5/15/08 | 20 | 5/15/08 | 45 |
| 6/24/08 | 20 | 6/24/08 | 45 |

## Polo Creek

| Below POD | GPM | "Old Railroad Grade" | GPM |
|---|---|---|---|
| 5/24/05 | 70 | 5/24/05 | 110 |
| 7/26/05 | 50 | 7/26/05 | 80 |
| 9/21/05 | 35 | 9/21/05 | 65 |
| 5/9/06 | 65 | 5/9/06 | 115 |
| 6/5/06 | 55 | 6/5/06 | 100 |
| 7/20/06 | 50 | 7/20/06 | 90 |
| 9/20/06 | 45 | 9/20/06 | 85 |
| 5/10/07 | 30 | 5/10/07 | 60 |
| 7/16/07 | 20 | 7/16/07 | 45 |
| 10/20/07 | 15 | 10/20/07 | 25 |
| 12/4/07 | 12 | 12/4/07 | 23 |
| 5/15/08 | 25 | 5/15/08 | 45 |
| 6/24/08 | 15 | 6/24/08 | 45 |

REGISTERED PROFESSIONAL ENGINEER
7/7/08
5763
STATE OF IDAHO
G. SCOTT FAHEY

# APPENDIX I
## Water Demand Analysis of US Forest Service Usage

# Water Availably Analysis
## U. S. Forest Service Usage

**Hull Creek Campground -**

21 sites X 4 person/site X 5 gal/person/camping-day X 235 camping-days/year X 40% occupancy =

= 39,480 gallons/year = 39,480gals./325,830 gals./acre-ft. = 0.12 ac.-ft./yr.

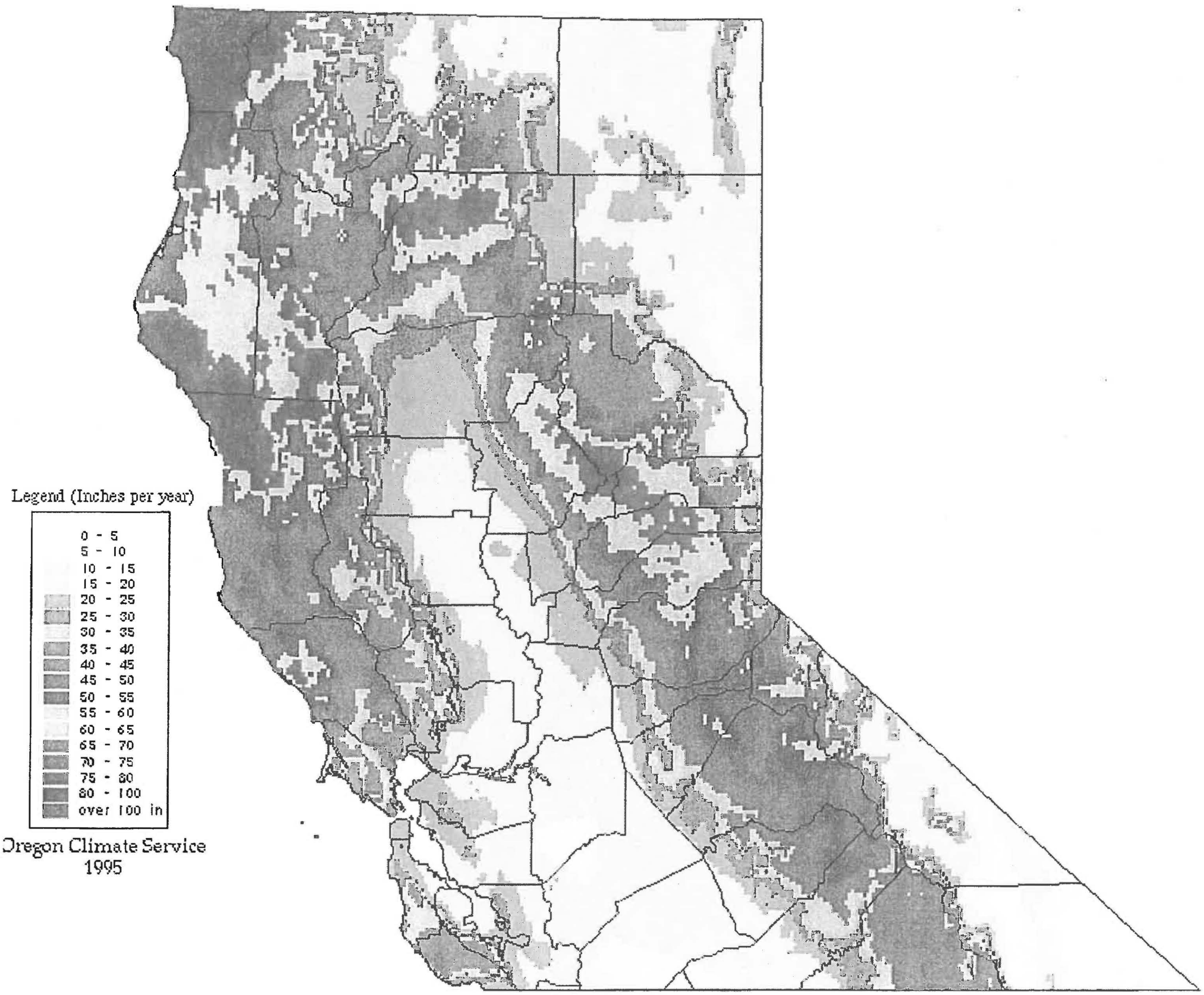
**Range Cattle –**

250 head-cattle X 106 days/year X 15 gals/day/head = 397,500 gals. /yr. =

= 397,500 gals./yr./325,830 gals./acre-ft. = 1.22 ac.-ft./yr.

**Total Reserved Right Usage** = Hull Creek Campground + Hull Creek Range Cattle
= 0.12 ac.-ft./yr.+ 1.22 ac.-ft./yr.
= 1.34 ac.-ft.

# APPENDIX J
## Map of Annual Average Precipitation
## Northern California, 1961-1990




Annual Average Precipitation (Inches),
Northern California

Period: 1961-1990