

DRAFT

COLORADO RIVER SIMULATION SYSTEM HYDROLOGY DATA BASE

United States Department of the Interior
Bureau of Reclamation
Upper Colorado Region

JUNE 1983

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I. Introduction

The Colorado River Simulation System (CRSS) is a simulation model of the Colorado River System and is designed to help project future conditions relating to both water supply and water quality under varying assumptions and levels of development.

The CRSS consists of four major components:

1. Hydrology Data Base
2. Demand Data Base
3. System logic model (CRSM)
4. TAPEDIT program (output utility)

Natural flow and salinity data provide the basis for hydrologic input to CRSM. This volume documents these data which are pertinent to the Upper Basin.

II. Methods

The following section is a general discussion of the methods used to derive the natural flows and the natural salt at various points in the Upper Colorado River Basin. Details of these derivations will be handled in later sections.

The Upper Colorado River Basin was divided into 19 reaches which are listed in Table 1 and indicated in figure 1. Each reach is identified by the USGS station number at its downstream boundary. Natural flow and salt were derived for each station for the period 1906 through 1978.

A. Natural Flow Derivations

Natural flows for each station were determined for the period 1906 to 1978. This was done by adjusting historical flow data as collected by the USGS for consumptive uses, reservoir regulation, exports from the basin, municipal and industrial uses, incidental depletions (including stockpond evaporation, livestock use, fish and wildlife uses, etc.), and imports to the basin. Only six of the 19 USGS gaging

stations have records back to 1906. All recorded flows were first adjusted to natural flows and the remaining missing periods obtained directly by regression analysis.

Further details of this analysis are discussed in Section III with details of natural flow derivation for each station shown in Appendix A.

B. Natural Salt Derivations

The monthly natural salt load in units of 1000 tons was computed for the period 1906 to 1978 for the 19 stations above and including Lees Ferry, Arizona. This was done by first plotting on log-log paper historic salt loads against recorded flows. A curve of best fit in the form $TDS=AQ^B$ was then determined for each month at each station. On a log-log plot this curve is a straight line with B equal to the slope of the line and A equal to a constant. Theoretical values of TDS were determined from the curves and compared to the recorded values. It was assumed that irrigated acreage could be used as an index of man-caused salinity and that most of the deviation of the points from the best fit line could be accounted for by changes in irrigated acreage from year to year.

These deviations (in terms of log cycles) were plotted against their respective irrigated acreage and the deviation corresponding to zero irrigated acreage was then determined by a projection of the resulting straight-line curve of best fit. These values or "zero-acreage factors" were determined for each month at each station. They were then plotted against time and were adjusted or smoothed by a corresponding curve (generally a sine curve) of best fit determined by trial.

Using these adjusted zero-acreage factors, the zero-acreage curves of salt vs. flow for each month could be determined: $Natural\ TDS=A'Q^B$, where A' equals the A constant adjusted by the zero-acreage factor and B equals the slope (same as before). With

these relationships it would have been possible to determine the monthly and annual natural salt loading, given the average monthly virgin flows. However, it was felt that the relationships were not strong enough to do this with a high degree of reliability and that the method would be better used to provide a way to distribute an independent annual estimate of man-caused salt loading on a monthly basis. The independent estimate used was that of Von Irons described in USGS Professional Paper 441.

Data presented in P.P. 441 include the 1914-57 average annual discharge adjusted to 1957 conditions and the natural annual salt load for 1957 conditions for various sub-basins. The historic mean monthly values of runoff and salt load were determined for these basins from the water supply records. A monthly distribution of the P.P. 441 discharge data was then made using the monthly pattern of the historical record.

Using these monthly flows thus determined, a first estimate of monthly natural salt loading was made using the equation $TDS=A'Q^B$ as derived earlier. The monthly salt values were further adjusted by a constant factor such that the sum or annual salt load agreed with that in P.P. 441.

It was assumed that the natural salinity load follows some kind of regular pattern with time, so that adjusted monthly salt value were plotted versus their respective months on arithmetic plot and a smoothed curve fit through the data such that month-to-month variations were lessened while at the same time maintaining the annual total. The zero acreage factors were recomputed and adjusted and the A' coefficient was revised (A_0) so that the equations computed the monthly natural salinity as determined by the distribution of annual P.P. 441 flow values.

Equations were then developed for man-caused salinity, or the difference of historical and natural salinity, in terms of flow and irrigated acreage. With this, a general equation for monthly salt loading was derived. As a check, the equations

of how equation

were used to reconstruct the historical salt flow using the historical runoff and estimated annual irrigated acreage. Further details of natural salt derivation for the data base are discussed in Sections III, IV and Appendix B.

III. Analyses

Development of the natural streamflow records and the natural salinity records for the CRSS data base required the analysis of a considerable amount of data. The following section is a discussion of these data and their analyses.

A. Streamflow

Six of the 19 stations used in the Upper Basin data base have historical records back to 1906. These stations are Colorado River at Glenwood Springs, Colorado; Gunnison River below Blue Mesa Dam, Colorado; Gunnison River at Crystal Dam, Colorado, Colorado River near Cisco, Utah; Green River below Fontenelle Dam, Wyoming; and Green River at Green River, Utah. Table 1 indicates the period of record of historic flow used in data analysis at each station. To obtain natural flows, the historic flows were adjusted by the following factors:

1. Consumptive use - Monthly crop consumptive use was calculated by the Blaney-Criddle method. The Upper Colorado River Basin was broken into many small areas and the consumptive use was calculated for each area based on crop distribution patterns, growing seasons, and climate from 1906 to 1978. Consumptive use values for all areas within a reach were added to arrive at a monthly total consumptive use value for the reach.
2. Reservoir regulation - Reservoir regulation was analyzed in three parts; monthly change in surface storage, monthly change in bank storage and evaporation. The monthly change in surface storage was calculated by subtracting the previous month's contents from the current month's (the month being evaluated) content. The monthly change in bank storage was assumed to be 10 percent of the change in surface storage.

Evaporation was computed by multiplying the monthly average water surface area for each reservoir by their respective monthly rate of evaporation. For some small reservoirs the evaporation was assumed to be negligible. The changes in surface storage, bank storage and evaporation were added algebraically for each reservoir on a monthly basis. Monthly reservoir regulation values for all reservoirs in a reach were then totaled to compute the reservoir regulation factor for the reach.

3. Exports - Monthly flows for out-of-basin exports were obtained from the U.S. Geological Survey and irrigation districts. the export factor of a reach is the monthly sum of all export flows out of the reach.

4. Municipal and Industrial Use - Municipal and Industrial or M&I use was determined from tabulated values of annual consumptive powerplant uses. The monthly values were calculated by dividing the annual values by twelve. Refinements are being investigated that would more realistically relate the monthly values to actual use patterns.

5. Imports - Monthly flows for into-basin imports were obtained from the U.S. Geological Survey and irrigation districts. The import factor of a reach is the monthly sum of all import flows into the reach.

6. Incidental depletions - Incidental depletions or miscellaneous adjustments account for such uses as stock pond evaporation, fish and wildlife uses, etc.

Generally, only annual totals were estimated with monthly values being determined by a fixed percentage distribution. Not everyone of the above factors were used in the streamflow adjustments of each station. The specific adjustment factors used at each station are shown in Appendix A.

B. Salinity

Considerable analysis was required to determine the natural salt load at each station. The general equation used to model natural salt load is:

$$TDS = A_0 Q^B$$

where TDS = Total dissolved solids (1,000 tons)

A_0 = Zero acreage factor

Q = Natural flow (1,000 acre-feet)

B = Slope of best fit line on a log-log plot of historical salt load versus historical flow.

As explained in II-B above, the relationship was developed for each station by determining the equation coefficients A_0 and B. A_0 was computed as described in II-B and it was assumed that the B coefficient has the same value for both historical and natural salt-flow relationships. The equation coefficients used at each station are shown in Appendix B.

IV. Synthesis of Data Base

When the analyses as discussed above was complete, a data base of natural streamflow and natural salt loads was synthesized as explained in the following discussion.

A. Natural Streamflow

Natural streamflow was determined at each station for the respective period of record by the following equation.

$$\text{Natural streamflow} = HF + CU + REG + EX + INC + MI - IM$$

where: HF = Historical or recorded flow

CU = Consumptive use of plants

REG = Reservoir regulation (changes in surface and bank storage and evaporation)

EX = Transmountain exports out of the drainage area

INC = Incidental depletions including evaporation from stockponds, livestock use, fish and wildlife uses, etc.

MI = Municipal and industrial depletions

IM = Transmountain imports into the drainage area

A system of computer programs and files were used to calculate the natural flow. Although the equation as shown above for the computations of natural flow and, hence, the mathematics for the programs are simple, the number of computations made is extremely large. A separate program was used to determine natural flow for each station. Although they are all similar, each program was designed specifically for its respective reach and the terms of the equation or factors needed for that reach. The individual items used to determine each factor for each station are shown in Appendix A. Data pertinent to the computer programs and files are given in Appendix C. *being to both*

Natural flow was computed at each station for its respective period of record and then extended by multiple regression analyses to the 1906-1978 period of record. Table 2 indicates those stations or records used in the correlations and the correlation coefficient for each analysis. The regression equations for each station for the respective periods of correlation are also shown in Appendix A. Natural streamflows for each station are shown in Appendix D.

B. Natural Salt

Natural salt load or total dissolved solids in 1000 tons were computed from 1906 to 1978 for the 19 Upper Basin stations. These data are shown in Appendix D. As indicated earlier, the natural salt load was computed using the equation $TDS = A_0 Q^B$. Once the A_0 and B coefficients were determined for each month at each station, the monthly natural salt loads were computed by using the natural flows determined by the water budgets and correlations.

TABLE 1 - Stations for Natural Flow and Natural Salinity, Upper Colorado River Basin

<u>Station Number</u>	<u>Station Name</u>	<u>Records</u>
1. 090725	Colorado River at Glenwood Spring, Colo.	1906-78
2. 090955	Colorado River near Cameo, Colo.	1934-78
3. 091246	Gunnison River ^{above see page 14} below Blue Mesa Dam, Colo.	1906-78
4. 091278	Gunnison River at Crystal Dam, Colo.	1906-78
5. 091525	Gunnison River near Grand Junction. Colo.	1917-78
6. 091800	Dolores River near Cisco, Utah	1937-78
7. 091805	Colorado River near Cisco, Utah	1906-78
8. 092112	Green River below Fontenelle Dam, Wyoming	1906-78
9. 092170	Green River near Green River, Wyoming	1952-78
10. 092345	Green River near Greendale, Utah	1915-45 1951-78
11. 092510	Yampa River near Maybell, Colo.	1917-78
12. 092600	Little Snake River near Lily, Colo.	1921-78
13. 093020	Duchesne River near Randlett, Utah	1943-78
14. 093065	White River near Watson, Utah	1924-78
15. 093150	Green River at Green River, Utah	1906-78
16. 093285	San Rafael River near Green River, Utah	1941-78
17. 093555	San Juan River near ^{Ute} Archuleta, N.M.	1910-18 1928-78
18. 093795	San Juan River near Bluff, Utah	1907-10 1915-78
19. 093800	Colorado River at Lees Ferry, Arizona	1912-78

Table 2

Extension of Natural Streamflow Data

STATION	PERIOD OF EXISTING RECORD	STATIONS USED FOR MULTIPLE REGRESSION ANALYSES	PERIOD OF EXTENSION	COMMON PERIOD OF CORRELATION	MULTIPLE CORRELATION COEFFICIENT - R
09 0955 Colorado R. nr Cameo, Co.	1934-78	09 0725 Colo. R. at Glenwood Springs 09 1805 Colo. R. nr Cisco, Utah	1906-1933	1934-1974	0.996891
09 1525 Gunnison R. nr Grand Junct.	1917-78	09 1805 Colo. R. nr Cisco, Utah 09 0725 Colo. R. at Glenwood Springs	1906-1916	1917-1974	0.892317*
09 2170 Green R. nr Green R., Wy.	1952-78	09 2165 Green R. at Green R., Wy.	1906, 1915-45	-	used directly
		09 2010 New Fork R. nr Boulder, Wyo. 09 3150 Green R. nr Green R., Ut. 09 1885 Green R. nr. Warren Bridge	1946	1932-1945 1952-1969	0.858571*
		09 2095 Green R. nr Fontenelle, Wyo. 09 2010 New Fork R. nr Boulder, Wyo. 09 1885 Green R. nr Warren Bridge 09 3150 Green R. nr Green R., Ut.	1947-1951	1952-1969	0.927977*
09 2345 Green R. nr Green Dale, Ut.	1951-78	09 3150 Green R. nr Green, R., Ut. 10 1285 Weber River nr Oakley	1907-1914	1915-1945 1952-1974	0.770953*
		09 3150 Green R. nr Green R., Ut. 10 1285 Weber River nr Oakley	1906-1914	1951-1974	0.942302
		09 2170 Green R. nr Green River, Wyo. 09 3150 Green R. nr Green River, Ut. 10 1285 Weber River nr Oakley	1915-1928	1951-1974	0.993279
		09 2170 Green R. nr Green River, Wyo. 09 3150 Green R. nr Green River, Ut. 10 1285 Weber River nr Oakley 09 2295 Henrys Fork nr Manila	1929-1950	1951-1974	0.994394
09 3020 Duchesne R. nr Randlett, Ut.	1943-1978	09 2950 Duchesne R. at Myton 09 3150 Green R. nr Green R., Ut. 10 1285 Weber R. nr Oakley	1906-1942	1943-1974	0.903237*

Table 2
Extension of Natural Streamflow Data

STATION	PERIOD OF EXISTING RECORD	STATIONS USED FOR MULTIPLE REGRESSION ANALYSES	PERIOD OF EXTENSION	COMMON PERIOD OF CORRELATION	MULTIPLE CORRELATION COEFFICIENT - R
09 3285 San Rafael R. nr Green Rv.	1910-18&1946-78	09 3150 Green R. nr Green R., Ut.	1906-1909	1910-18&1946-74	0.886976
		09 3265 Ferron Cr. nr Ferron, Ut.			
		09 3245 Cottonwood Cr. nr Orangeville			
		09 3150 Green R. nr Green R., Ut.	1919-1921	1912-17&1949-70	0.961496
		09 3245 Cottonwood Cr. nr Orangeville			
		09 3180 Huntington Cr. nr Huntington	1922-1927		
		09 3150 Green R. nr Green R., Ut.	1933-1945	1910-17&1946-70	0.957468
		09 3180 Huntington Cr. nr Huntington			
		09 3150 Green R. nr Green R., Ut.	1928-1932	1946-1973	0.940127
09 3555 San Juan R. nr Archuleta	1955-1978	Natural flow at Blanco Adjusted for citizens ditch used directly	1908-1909 1928-1954		
		09 3655 La Plata R. at Hesperus	1906	1928-1974	0.952913
		09 1805 Colorado R. at Cisco			
		09 1805 Colorado R. at Cisco	1907	1928-1974	0.925963
		09 3150 Green R. nr Green R., Ut.			
		09 0725 Colorado R. at Glenwood Spr.			
		Animas River at Aztec 1/			
		09 1805 Colorado River at Cisco	1910	1928-1974	0.946734
09 3555 San Juan R. nr Archuleta cont.		09 3505 San Juan River at Rosa			
		09 3425 San Juan River at Pagosa Sprgs.	1911-1912	1936-1964	0.996913
		09 1805 Colorado River at Cisco			
		09 3650 San Juan River at Farmington			
		09 3645 Animas River nr Farmington	1913-1927	1928-1974	0.975713*
09 3795 San Juan R. at Bluff	1915-16& 1928-78	09 3655 La Plata R. at Hesperus			
		09 1805 Colorado R. at Cisco	1906	1928-1974	0.935769

Table 2
Extension of Natural Streamflow Data

STATION	PERIOD OF EXISTING RECORD	STATIONS USED FOR MULTIPLE REGRESSION ANALYSES	PERIOD OF EXTENSION	COMMON PERIOD OF CORRELATION	MULTIPLE CORRELATION COEFFICIENT - R
09 3795 San Juan R. at Bluff	1915-16&1928-78	09 3655 La Plata R. at Hesperus 09 1805 Colorado R. at Cisco	1906	1928-1974	0.935769
		09 1805 Colorado R. at Cisco 09 3150 Green R. nr Green R., Ut 09 0725 Colo. R. at Glenwood Sprgs.	1907	1915-1974	0.743039*
		09 3555 San Juan R. at Blanco 09 1805 Colorado R. at Cisco 09 3150 Green R. nr Green R., Ut.	1908-1909	1928-1974	0.982050
		Animas River at Aztec <u>1/</u> 09 1805 Colorado R. at Cisco	1910	1915-1974	0.969299
		09 3505 San Juan River at Rosa 09 3425 San Juan River at Pagosa Sprg 09 1805 Colorado R. at Cisco	1911-1912	1936-1964	0.976634
		09 3650 San Juan R. nr Farmington 09 3645 Animas R. nr Farmington	1913-1914	1915-1974	0.962413*
		Engineering Advisory Committee UCRC Estimates used directly	1917-1927		
		<u>1/</u> Regression equation derived using 09 3645 Animas River near Farmington N.M.			

* Correlation performed with monthly standardized data

APPENDIX A

Natural Flow Computation Adjustment Factors
Regression Equations used for Data Extensions
Consumptive Use Study

ASSIGNMENT FACTORS FOR INDIVIDUAL STATIONS

090725 Colorado River at Glenwood Springs, Colorado

Reservoir Regulation

Shadow Mountain Lake

Lake Granby

Willow Creek Reservoir

William Fork Reservoir

Dillon Reservoir

Green Mountain Reservoir

Homestake Lake

Consumptive Use for Irrigation

Incidental Losses

Trans basin Diversion - Exports

Grand River Ditch

Eureka Ditch

Alva Adams Tunnel

Berthoud Pass Ditch -

Jones Pass Tunnel

Moffat Tunnel

West Hoosier Ditch

East Hoosier Ditch

Hoosier Pass Tunnel

Boreas Pass Ditch

Vidler Tunnel

Freemont Pass Ditch

Roberts Tunnel

Columbine Ditch

Ewing Ditch

Wurtz Ditch

Homestake Tunnel

090955 Colorado River near Cameo, Colorado

Reservoir Regulation

Reudi Reservoir

Trans basin Diversions - Exports

Twin Lakes Tunnel

Boustead Tunnel

B. Ivanhoe Tunnel

Trans basin Imports

Highland Feeder

Consumptive Use for Irrigation

Incidental losses

(Glenwood Springs Adjustments)

091246 Gunnison River ~~below~~ Blue Mesa Dam, Colorado
(JUST ABOVE LAKE)

Reservoir Regulation

Taylor Park
~~Paonia~~
~~Silver Jack~~
~~Blue Mesa~~
~~Morrow Point~~
~~Fruitgrowers~~

↗
we don't think so!
BM was included.

Trans basin Diversion - Exports

Larkspur Ditch
Tarbell Ditch
Tabor Ditch
~~Highland Feeder~~

Consumptive Use for Irrigation

Incidental Losses

091278 Gunnison River at Crystal Dam site

Reservoir Regulation

Taylor Park
~~Paonia~~
Silver Jack
Blue Mesa
Morrow Point
~~Fruitgrowers~~

Trans basin Diversions - Exports

Larkspur Ditch
Tarbell Ditch
Tabor Ditch
~~Highland Feeder~~

Consumptive Use for Irrigation

Incidental Losses

091525 Gunnison River near Grand Junction, Colorado

Reservoir Regulation

Taylor Park
Paonia
Silver Jack
Blue Mesa
Morrow Point
Fruitgrowers
Crystal

Trans basin Diversions - Exports

Larkspur Ditch
Tarbell Ditch
Tabor Ditch
Highland Feeder

Consumptive Use for Irrigation

Incidental Losses

091800 Dolores River near Cisco, Utah

Trans basin Diversions - Exports
SICD Diversions
MVIC Diversions

Consumptive Use for Irrigation

Incidental Adjustments

091805 Colorado River near Cisco, Utah

Reservoir Regulation
Vega Reservoir

Trans basin Diversions - Exports
SICD Diversions
MVIC Diversions

Consumptive Use for Irrigation

Incidental Adjustments

(Colorado River at Cameo adjustments)

(Gunnison River near Grand Junction adjustments)

092112 Green River at Fontenelle Dam, Wyoming

Reservoir Regulation
Fontenelle Reservoir

Consumptive Use for Irrigation

Incidental Losses

092170 Green River near Green River, Wyoming

Reservoir Regulation
Fontenelle Reservoir

M&I Uses
Juan Bridge Powerplant

Consumptive Use for Irrigation

Incidental Losses

092345 Green River near Greendale, Utah

Reservoir Regulation

Meeks Cabin Reservoir
Flaming Gorge Reservoir
Naughton Reservoir

M&I Uses

Naughton Powerplant

Consumptive Use for Irrigation

Misc. Adjustments

Green River near Green River, Wyoming adjustments

092510 Yampa River near Maybell, Colorado

M&I Uses

Hayden Powerplant

Consumptive Use for Irrigation

Incidental Losses

092600 Little Snake River near Lily, Colorado

Additional work remains to be done to derive satisfactory natural streamflows and natural salt at this station. The data presently (May 1983) in the data base were derived as follows:

1906 through 1974 period - Streamflow

Historic flow 1921-1974 416.6

Consumptive use above station
estimated as 29% of all above

Yampa River at confluence 24.0

Approximate natural flow 440.6

Natural flow in reach above Green River, Utah 861

(based on 5/26/78 computations - since revised)

Ratio for natural flow in Little Snake near Lily

$441/861 = 0.512$

1975-1978 period

Historic flow used without adjustment

1906-1974 period - Salt

conductivity at Lily 1968-75 225 micromhos

conversion to mg/l (1974) 0.63

mg/l = $0.63 \times 225 =$ 142 mg/l

092600 (cont'd)

Historic Tons 1968-74 at Lily
Historic flow 1968-74 = 495 TAF
Historic tons at Lily (142:735)495 = 96 TTons

Approximate Historic Tons in reach above Green River, Utah ^{1/}
Natural Tons 1968-74 655 TTons
1975 level man-made tons 1968-74 229 TTons
Approximate historic tons 884 TTons

Ratio Lily to reach above Green River, Utah ^{1/}
 $96/884 = 0.11$

1975-78 period
Historic tons used without adjustment

^{1/} Based on computations of 5/26/78 since revised.

093020 Duchesne River near Randlett, Utah

Reservoir Regulation
Strawberry Reservoir
Moon Lake Reservoir
Starvation Reservoir

Trans basin Diversion - Exports
Duchesne Tunnel
Strawberry Tunnel
Willow Creek Ditch
Hobble Creek Ditch

Consumptive Use for Irrigation

Incidental Losses

093065 White River near Watson, Utah

Consumptive Use for Irrigation

Incidental Losses

093150 Green River near Green River, Utah

Reservoir Regulation
Steinaker Reservoir
Scofield Reservoir

Trans basin Diversions - Export
Fairview Tunnel

M&I Uses
Carbon Powerplant

Consumptive Use for Irrigation

Misc. adjustments

(Green River near Greendale, Utah adjustments)

093285 San Rafael River near Green River, Utah

Reservoir Regulation
Joes Valley

Trans basin Diversions - Export

Ephraim Tunnel
Spring City Tunnel
Candland Ditch
Horseshoe Tunnel
Larson Tunnel
Coal Fork Tunnel
Twin Creek Tunnel
Black Canyon Ditch
Cedar Creek Tunnel
Reeder Ditch
J. August Ditch
Madsen Ditch

M&I Uses
Huntington Powerplant

Consumptive Use for Irrigation

Incidental Losses

093555 San Juan River near Archuleta, New Mexico

Reservoir Regulation
Vallecito Reservoir
Navajo Reservoir

Trans basin Diversion

Treasure Pass Ditch
Piedra Pass Ditch (DON LA FONT)
Squaw Pass Ditch (LUDWIGS CREEK)
Fuchs Ditch (PINK PASS DITCH)
Raber-Lohr Ditch (WELLS PASS)
San Juan Chama (PIEDRA TUNNEL)

Consumptive Use for Irrigation

Incidental Losses

093795 San Juan River near Bluff, Utah

Reservoir Regulation
Lemon Reservoir
Jackson Gulch Reservoir

Trans basin Imports
Montezuma Irrigation District
Summit Irrigation District

M&I Uses
Four Corners Powerplant

Consumptive Use for Irrigation

Misc. Adjustments

093800 Colorado River at Lees Ferry, Arizona

Reservoir Regulation

Lake Powell

M&I Uses

Cameo Powerplant

Nucla Powerplant

Navajo Powerplant

Consumptive Use for Irrigation

Misc. Adjustments

(Colorado River at Cisco, Utah Adjustments)

(Green River near Green River, Utah Adjustments)

(San Rafael River Adjustments)

(San Juan River near Bluff, Utah Adjustments)

CORRELATION EQUATIONS: Independent Variables are listed in order - in Table 2

- 09 0955 Colorado River near Cameo Colorado:
1906-1933 $y=1.36768 x_1 + 0.0851343 x_2 + 5.676520$
- 09 1525 Gunnison River near Grand Junction, Colorado:
1906-1916 $y=0.489783 x_1 - 0.455222 x_2 - 1.441157$
- 09 1800 Dolores River near Cisco, Utah:
1906-1912 $y=$
1913-1936 $y=0.0716506 x_1 + 0.376460 x_2 - 0.799753 x_3 - 8.691399$
- 09 2170 Green River near Green River, Wyoming:
1946 $y=0.441965 x_1 + 0.396892 x_2 + 0.159542 x_3 + 0.005155$
1947-1951 $y=0.539394 x_1 + 0.144419 x_2 + 0.0801881 x_3 + 0.225409 x_4 + 0.125571$
1907-1914 $y=0.619664 x_1 + 0.255285 x_2 + 0.099028$
- 09 2345 Green River near Greendale, Utah
1906-1914 $y=0.404193 x_1 - 1.03094 x_2 + 4.211779$
1915-1928 $y=0.955703 x_1 + 0.161188 x_2 - 1.00553 x_3 - 8.261191$
1929-1950 $y=0.920195 x_1 + 0.140735 x_2 - 0.896382 x_3 + 1.76910 x_4 - 9.004250$
- 09 2510 Yampa River near Maybell, Colorado:
1906-1917 $y=0.110316 x_1 + 0.138665 x_2 - 21.251103$
- 09 3020 Duchesne River near Randlett, Utah:
1906-1942 $y=0.821670 x_1 + 0.082461 x_2 + 0.241304 x_3 + 0.193364$
- 09 3065 White River near Watson, Utah:
1906-1923 $y=0.0408469 x_1 + 0.0129857 x_2 + 0.0203325 x_3 + 12.487709$
- 09 3285 San Rafael River near Green River, Utah
1906-1909 $y=0.0389775 x_1 - 1.842472$
1919-1921 $y=1.53609 x_1 + 0.873910 x_2 + 0.00547026 x_3 + 0.908203$
1922-1927 &
1933-1945 $y=1.14135 x_1 + 0.712769 x_2 + 0.00839308 x_3 + 0.276133$
1928-1932 $y=1.74556 x_1 + 0.0130105 x_2 - 2.102451$
- 09 3800 Colorado River at Lees Ferry, Arizona:
1906-1911 $y=$
- 09 3555 San Juan River near Archuleta
1906 $y=21.1286 x_1 + 0.0446354 x_2 + 7.739882$
1907 $y=0.419108 x_1 + 0.0261598 x_2 - 0.837487 x_3 - 7.284336$
1910 $y=2.01318 x_1 + 0.0383715 x_2 + 0.824476$
1911-1912 $y=1.16756 x_1 + 0.437488 x_2 + 0.0024429 x_3 + 0.577535$
1913-1927 $y=1.14776 x_1 - 0.0999249 x_2 + 0.156055$
- 09 3795 San Juan River at Bluff:
1906 $y=27.5720 x_1 + 0.105552 x_2 + 25.5545906$
1907 $y=1.02634 x_1 - 0.0388708 x_2 - 0.372043 x_3 + 0.013137$
1908-1909 $y=1.36890 x_1 + 0.0708512 x_2 - 0.0488247 x_3 + 16.955891$
1910 $y=3.32065 x_1 - 0.0777701 x_2 + 20.668927$
1911-1912 $y=1.42872 x_1 + 1.23598 x_2 + 0.0307399 x_3 + 17.706602$
1913-1914 $y=0.941817 x_1 + 0.0156674 x_2 + 0.005960$

UNITED STATES GOVERNMENT

Memorandum

TO : Chief, Water Resources Branch
Head, Special Studies Section

DATE: May 16, 1978

FROM : John E. Redlinger

SUBJECT: Upper Colorado Consumptive Use Study for the Colorado River
Simulation System Data Base

One of the major sources of stream depletion in the Upper Colorado River Basin is the consumptive use of water by irrigated crops. Consumptive use or evapotranspiration is defined as the sum of the volumes of water used by the vegetative growth of a given area in transpiration or building of plant tissue and that evaporated from adjacent soil, snow, or intercepted precipitation on the area in any specified time. If the unit of time is small, such as a week or a month, the consumptive use rate is expressed in acre-inches per acre or depth in inches; whereas, if the unit of time is large such as crop growing season or a 12-month period the consumptive use rate is usually expressed as acre-foot per acre or depth in feet. The sources of water to supply consumptive use are precipitation, surface, and ground water.

The purpose of this phase of the study was to determine the net man-caused monthly consumptive use by irrigated areas and other related developments during the time 1906-1974. This was assumed to be equal to the total consumptive use of irrigated crops minus the consumptive use which could normally be expected under natural conditions.

Numerous problems were encountered in developing the methodology. Initially the various methods used to compute consumptive use were surveyed. These include the Lowey Johnson method (1940), Jensen-Haise (1963), Blaney Criddle (1962). Also investigated were the Erickson studies (1938-41), the ASCE Bulletin, "Consumptive Use of Water and Irrigation Water Requirements, and the Soil Conservation Service's Technical Release No. 21 Irrigation Water Requirements," etc.

The primary factors considered were the availability of required data, the established acceptance of the final results, and the amount of expertise judgment required to interpret and adjust the variables.

Using these criteria the Blaney Criddle method, as modified in the Soil Conservation Service's Technical Release No. 21, was adopted. This expresses the consumptive use as a function of temperature, crop coefficient, and monthly percent of daylight.

$$c.u. = (.0175 T - .314) K \frac{(TP)}{100}$$

c.u. - Consumptive use in inches, for the growing season

T = Mean monthly temperature in degrees fahrenheit

P = Monthly percentage of daylight hours in the year

K = Crop coefficient, which reflects the growth stage

Temperature

Temperature data was collected from all weather stations in and around the Upper Colorado River Basin. These were inspected for length of record and applicability to the local irrigated areas. Forty stations were selected for use. However, in most cases these stations were still not in the most representative location. A monthly temperature correction of 4 degrees per 1,000 feet difference in elevation was generally applied to more closely approximate the temperature conditions of the irrigated areas.

Daylight Percentages

The monthly daylight percentage values, which vary depending on the latitude, were obtained from tables in the technical release. These percentages were linearly adjusted for the short months falling at the ends of the growing season.

Crop Coefficients

Values for K, a coefficient reflecting the growth stage of a particular crop, were obtained from the curves supplied in the publication. Local irrigated crop percentages were estimated using county census data.

Due to handling problems associated with the large amount of data, the number of crops considered was limited to 10. They were alfalfa, pasture grass, spring grain, potatoes, small vegetables, spring wheat, corn, dry beans, orchard without cover, and sugar beets.

Effective Rainfall

Effective rainfall is defined as precipitation occurring during the growing season that is available to meet the consumptive water requirements. It does not include such precipitation as is lost to deep percolation below the root zone nor to surface runoff.

Since most of the irrigated crops are located in arid to semi-arid valley areas, which produce little actual runoff, the consumptive use of the displaced natural vegetation was assumed to be equal to the effective rainfall. Therefore, the consumptive use actually caused by irrigation was considered equal to the crop consumptive use minus the effective precipitation.

The effective precipitation was determined using formulas provided in the SCS TR 21 manual and assuming a 3-inch net depth of application.

Growing Season

The growing season limits, except for alfalfa, grass, and grain, agree with the limits recommended from the SCS manual.

The growing season for small grain was started at 50° rather than the recommended 45° producing average consumptive use estimates more in line with the 1965 Type I figures. The small grain growing season was ended at the recommended 32° frost.

Alfalfa and grass were initially started at the recommended 50° and 45° temperature dates. However, these starting temperatures were adjusted so that the average consumptive use estimates were in general agreement with the 65 Type I and 48 Report estimates.

The end of the growing season for both crops was set at the recommended SCS values.

Frost Data

Since, in most cases, only limited frost data existed, mean frost temperatures were calculated and used as limits for those years of either nonexistent or non-computer recorded data. These temperatures were sometimes altered if the average consumptive use rate or the average growing season length was not in general agreement with the 48 and 65 reports.

The following limits for growing season were used:

<u>Crop</u>	<u>Planting date (mean temperature)</u>	<u>Maturing date (mean temperature)</u>	<u>Growing season (days)</u>
Alfalfa	50° or 28° frost	28°-frost	Variable
Grasses	45° or 28° frost	45°	Variable
Orchards	50°	45°	Variable
Beans, dry	60°	32°-frost	90-100
Corn	55°	32°-frost	140-max
Grain, spring	50°	32°-frost	130-max
Potatoes	60°	32°-frost	130-max
Sugar beets	28°-frost	28°-frost	180-max
Wheat, spring	45°		90-max
Vegetables, small	60°	32°-frost	120-max

Short Growing Seasons

Much of the farmland in the Upper Colorado River Basin is dependent upon the high spring streamflow for its irrigation water. These areas which produce primarily grass, hay, and alfalfa, have a limited momentary water supply which dictates a shorter growing season. As expected, this shortened season will vary considerably throughout the basin depending upon the local irrigation practices and streamflow conditions. Both the Engineering Advisory Committee's Report in 1948 and the 1965 Type I study addressed this irrigation characteristic in their estimates of consumptive use. Their primary means for estimating the short supply crop's consumptive use was to establish a cutoff date which would prematurely end the growing season two to three weeks after the estimated date of final irrigation.

Using these two reports as a guide, this study attempted to consider the yearly fluctuation in local streamflow for determining the length of the short growing season.

The annual streamflow values were rated in order of magnitude from 1.2 to 0.5, with 1.0 representing the mean. It was assumed that in general the irrigation efficiency during high streamflow years would be less than that found during low flow years. This characteristic was taken into account by disproportionately emphasizing the lower rating values.

The average short growing season length, based on estimates from the '48 and '65 reports, was then adjusted yearly by the streamflow rating.

As the census data did not provide estimates of short supply irrigated crops, it was necessary to divide the grass and alfalfa acreages into short and full supply crops. The percentages used were again based primarily on the '48 and '65 reports.

Incidental Losses

The total depletion attributed to irrigation includes not only the direct use from irrigated crops but also other uses incidental to the irrigated crops, seeped areas, and phreatophytes. These losses, which were estimated in the '65 Type I study, were assumed to vary directly with irrigated acreage. The '65 depletions were used to estimate yearly incidental losses by comparing the yearly acreage to that of 1965.

Winter Carryover

During the winter, when the perennial crops are dormant, water is stored in the soil within the root zone. This water is then available for consumptive use needs in the spring and is an indication of natural use which would exist, regardless of irrigation.

A brief analysis of this water supply was made to determine its magnitude in relation to the overall consumptive use requirements. It was assumed that the upper mountain valleys, possessing the greater winter precipitation, were the most critical. The net consumptive use of pasture grass was calculated using average temperature and precipitation data for the months September through May.

Resulting from investigating 16 upper elevation irrigated areas yielded only 3 stations which produced more effective precipitation than consumptive use. These were areas around Frazer (1.18 in/acre), Steamboat (3.61 in/acre), and Aspen (3.07 in/acre).

For the purpose of this study the affects of winter carryover were considered negligible and no attempt was made to further evaluate its effects.

Groundwater

Groundwater is a natural water supply and in areas where it is available to vegetation it will increase the amount of natural use. However, little

data exists for estimating how much and on which areas groundwater would be naturally used. The ability to estimate the amount of groundwater use was considered beyond the scope of this analysis.

Data Considered

The irrigated acreage was arrived at through considering estimates from several sources. These include:

State engineer reports, census data, the 1948 Engineering Advisory Commission's Report, 1965 Type I Study, 1948 Colorado River Storage Project's estimates, 1937 Jacobs-Stevens "Surplus Waters of the Colorado River System," report, 1946 Bureau of Reclamation Colorado River Comprehensive Development report, State Agricultural Statistics, Colorado Water Conservation Board reports, Colorado Needs Inventory reports and others.

Because of the inconsistencies involved in comparing the reports, primary emphasis was given to the census data, the '48 Engineering Advisory's report and the '65 Type I study. Curves were drawn and adjusted to estimate the acreage between census years and reflect the '48 and '65 estimates.

Drainage Areas

To analyze irrigation depletions in detail, the Upper Colorado River Basin was broken down as shown below. The major drainage areas were defined by the 12 stream gauge locations, then each basin was subdivided based on the irrigation characteristics and available data.

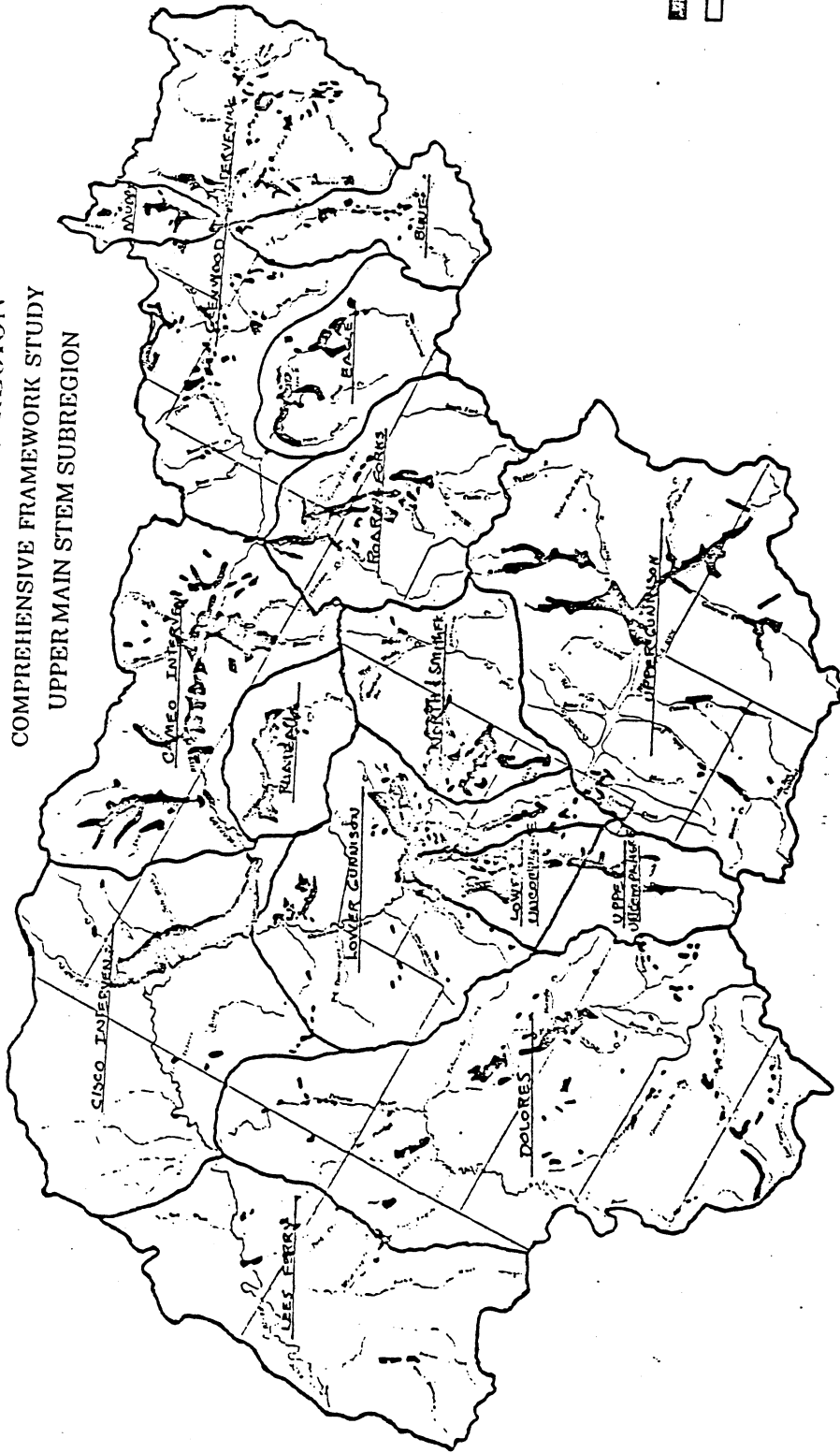
Irrigated Acreage in Upper Colorado River Basin above Lee Ferry

- I. Colorado River above Glenwood Springs
 - A. Muddy River
 - B. Blue River
 - C. Eagle River
 - D. Frazier River
 - E. Intervening areas
- II. Colorado River above Cameo—below Glenwood Springs
 - A. Roaring Forks River
 - B. Intervening areas
- III. Gunnison River
 - A. Lower Uncompahgre below Ouray County line
 - B. Upper Uncompahgre—Ouray County
 - C. Upper Gunnison above Gunnison County line
 - D. North and Smith Forks
 - E. Intervening areas

- IV. Colorado River, above Cisco--below Cameo, not including the Gunnison
 - A. Plateau Creek
 - B. Dolores River
 - C. Grand Valley and intervening areas
- V. Green River above Green River, Wyoming
 - A. Above Fontenelle
 - B. Big Sandy
- VI. Green River above Linwood--below Green River, Wyoming
 - A. Henrys Fork
 - B. Blacks Fork
- VII. Duchesne River above Randlett
 - A. Upper Benches
 - B. Lower Valleys
- VIII. Green River above Green River, Utah, below Linwood, not including Duchesne
 - A. Yampa River
 - B. White River
 - C. Price River
 - D. Intervening areas
- IX. San Rafael River
- X. San Juan above Archuletta
 - A. Pine River
 - B. Intervening areas
- XI. San Juan above Bluff, below Archuletta
 - A. McElmo Creek
 - B. Animas River
 - C. Intervening areas
- XII. Colorado River above Lee Ferry--below Cisco, not including the San Juan, Green, or San Rafael Rivers

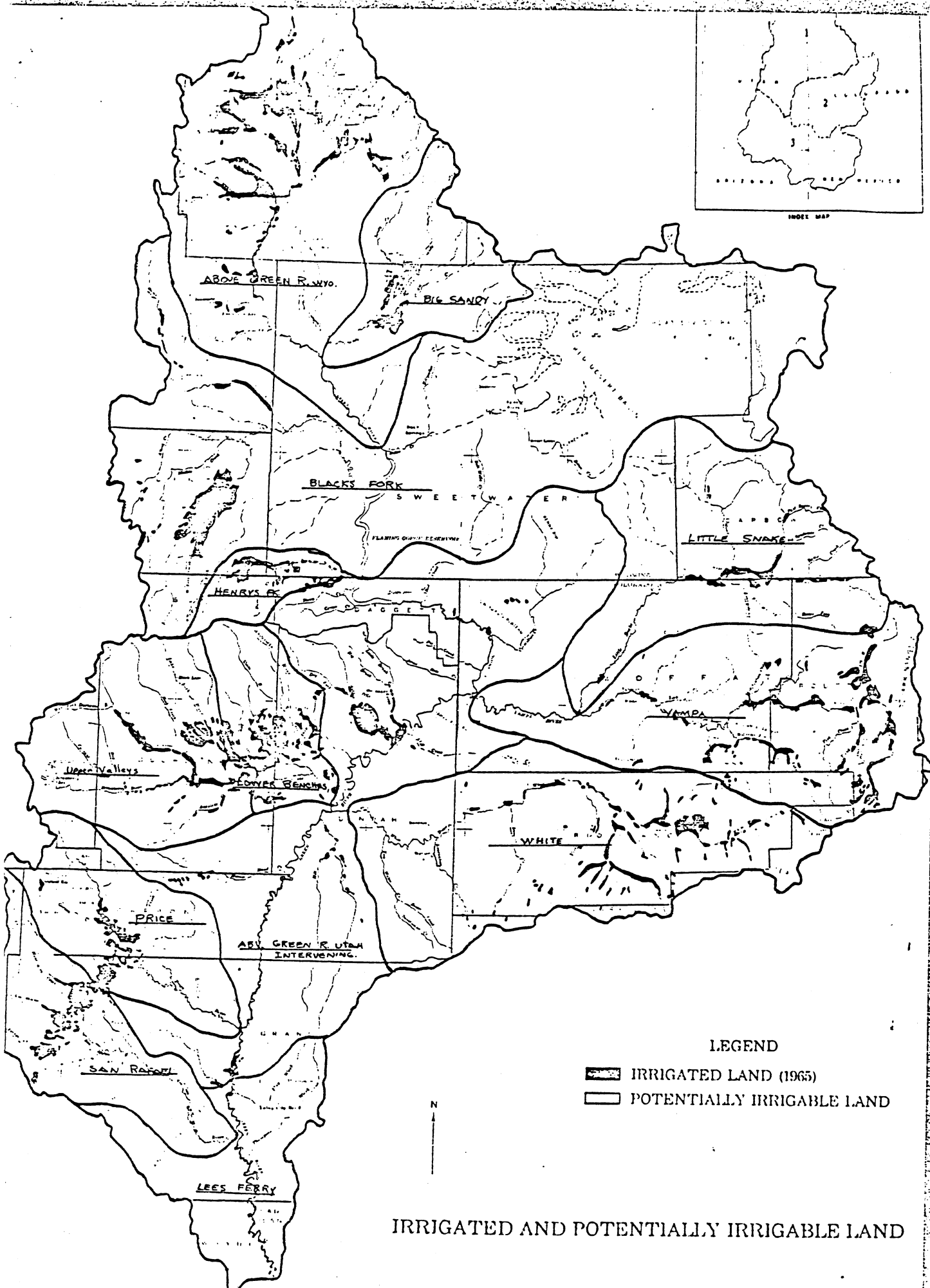
The input and output of a typical run are included. Also included is a copy of the program used in this study.

UPPER COLORADO REGION
COMPREHENSIVE FRAMEWORK STUDY
UPPER MAIN STEM SUBREGION



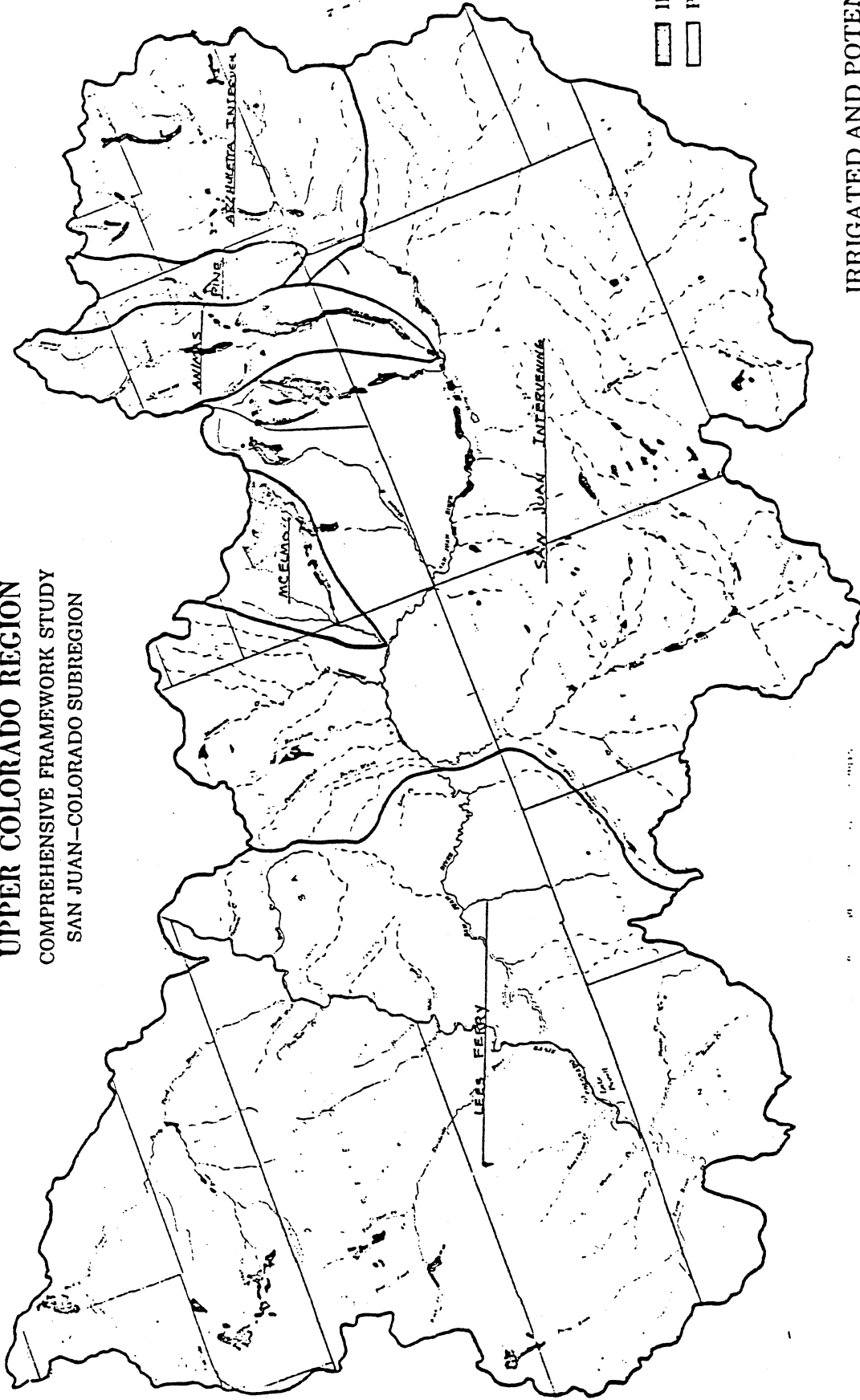
LEGEND
 ■ IRRIGATED LAND (1985)
 □ POTENTIALLY IRRIGABLE

IRRIGATED AND POTENTIALLY IRRIGABLE



IRRIGATED AND POTENTIALLY IRRIGABLE LAND

UPPER COLORADO REGION
COMPREHENSIVE FRAMEWORK STUDY
SAN JUAN-COLORADO SUBREGION



LEGEND
IRRIGATED LAND
POTENTIALLY IRRIGATED LAND

IRRIGATED AND POTENTIALLY IRRIGATED LAND

..... C - R - S - M
..... D - A - T - A
..... B - A - S - E
..... U - P - P - E - A
..... C - O - L - R - A - D - D
..... R - I - V - E - R
..... B - A - S - I - N
..... C - O - N - S - U - N - T - I - V - E
..... U - S - E - S
..... A - N - D
..... L - O - S - E - S

EASLE

USC(2)
CLIMATE STATION Sta. Yr. Temp. Ad.
2454 6 74 -2.2-DEG

CLIMATE STATION 1440 6 30 -3.6-DEG

STREAMGUAGE NO
Rating file 725

MEAN FROST TEMPS
28 SPR 54.0
32 FALL 56.0
28 FALL 55.0
FROST NONE

ID NO FOR CROPS 3

LATITUDE 40

SHORT SEASON CROPS ALFALFA GRASS
PERCENT OF NORMAL CROP 19% 25%
LGS OF AVG SHORT SEASON 73. Days 66. Days

INCIDENTAL CONS USE (AVS GAUGE YR) 2.38 (1000 Ac-ft)

(Input)

SUMMARY OF CUMULATIVE USE COMPUTATIONS
SUMMARY OF CONSUMPTIVE USE CALCULATIONS

	1915-1945	1965	1906-1974
ACRES	15.87	17.20	15.28
AVG ALFAL TEMP	62.88	57.51	59.98
COWS USE	1.35	.99	1.24
CHF PREC	.26	.25	.24
NET COWS USE (FT)	1.09	.74	1.00
NET USE (ACR-FT)	19.36	15.15	17.34
ALFALFA ACRES	3.39	3.56	3.41
DAYS OF SEASON	117.55	80.00	103.75
COWS USE (LN)	19.53	12.49	17.61
NET COWS USE	16.19	10.39	14.64
ACR-FT	4.58	3.43	4.15
SITALFA ACRES	.80	.93	.80
DAYS OF SEASON	71.26	63.00	67.81
COWS USE (LN)	12.42	10.19	11.45
NET COWS USE	10.68	8.40	9.72
ACR-FT	.70	.65	.64
GRASS ACRES	6.82	8.76	6.87
NET COWS USE	14.13	9.39	13.02
ACR-FT	7.96	6.85	7.41
SUTGRS ACRES	2.27	2.92	2.29
NET COWS USE	7.79	6.11	7.00
ACR-FT	1.45	1.49	1.32
S GRAIN ACRES	1.61	.48	1.25
NET COWS USE	11.99	7.09	10.64
ACR-FT	1.63	.28	1.17

(Summary of Output)

SUMMARY OF CONSUMPTIVE USE CALCULATIONS

YEAR	IPKG ACKRES	STREAM FLOW RATING	ANNUAL AVG TEMP (FH)	ANNUAL PREC (IN)	GRW SEAS TEMP PREC(IN)	CROP	ACRES	DAYS	CONS USE (IN)	EFF PREC (IN)	NET USE (IN)	NET USE (IN)	INCIDENT CONS USE(AC-FT)	TOTAL CONS USE(AC-FT)
1971	16.7	1.03	60.4	9.43	59.3	ALFALFA	4.0	95	15.76	1.83	13.94	5.73	2.31	18.93
						SUTALF	1.2	75	12.72	1.34	11.37	1.10		
						GRASS PAST	7.7	124	15.01	2.90	12.09	7.71		
						SUTGRA	2.6	68	9.54	1.11	8.36	1.79		
						SPR GRAIN	.2	93	11.57	1.60	10.00	.24		
						POTATOES	.1	71	11.08	1.66	9.43	.05		
1972	16.6	.91	41.2	10.21	60.0	ALFALFA	5.1	106	17.28	1.73	15.55	6.60	2.30	20.00
						SUTALF	1.2	50	9.89	.76	9.13	.91		
						GRASS PAST	7.5	149	15.59	2.97	13.62	9.52		
						SUTGRA	2.5	53	7.34	.71	6.63	1.38		
						SPR GRAIN	.2	103	12.70	1.45	11.66	.24		
						POTATOES	.0	86	12.90	1.29	11.61	.05		
1973	16.6	.98	39.4	11.61	58.0	ALFALFA	5.1	94	14.55	3.55	10.99	4.84	2.30	15.84
						SUTALF	1.2	71	11.25	3.27	7.99	.83		
						GRASS PAST	7.6	124	14.31	3.53	10.79	5.53		
						SUTGRA	2.5	64	8.28	3.02	5.37	1.10		
						SPR GRAIN	.2	91	10.61	2.40	7.21	.14		
						POTATOES	.0	61	9.88	2.02	6.86	.72		
1974	16.5	1.00	39.0	10.54	58.7	ALFALFA	5.4	102	15.95	2.60	13.26	6.04	2.28	18.67
						SUTALF	1.3	73	12.19	2.16	10.03	1.06		
						GRASS PAST	7.2	167	15.92	3.11	12.81	7.67		
						SUTGRA	2.4	66	9.04	1.81	7.23	1.44		
						SPR GRAIN	.2	96	11.65	2.44	9.20	.15		
						POTATOES	.0	67	9.77	1.94	7.83	.01		

(Output)

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
TEMPERATURE	17.6	25.7	37.0	41.7	49.8	60.8	63.6	62.8	53.4	44.5	26.6	10.5	41.2
PRECIPITATION	.53	.36	.36	.69	.63	.77	.17	.76	1.67	1.93	.27	2.07	10.21

5-AC. SOIL MOISTURE CAP. 3.0 IN.		GROWING SEASON 5 26 TO 9 9LENGTH 106 DAYS											
CROP	ALFALFA	0.00	0.00	0.00	0.00	1.10	1.13	1.11	1.06	1.02	0.00	0.00	0.00
CRUP	KC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSUMPTIVE USE	(IN)	0.00	0.00	0.00	0.00	.61	5.11	5.67	4.91	.97	0.00	0.00	0.00
	(AF)	0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00	0.00	0.00	0.00	17.28
EFFECTIVE PRECIP.	(IN)	0.00	0.00	0.00	0.00	.09	.62	.07	.60	.35	0.00	0.00	0.00
NET IRR. CONS. USE	(IN)	0.00	0.00	0.00	0.00	.52	4.50	5.60	4.31	.62	0.00	0.00	1.73
	(IN)	0.00	0.00	0.00	0.00	.52	4.50	5.60	4.31	.62	0.00	0.00	15.55

1-AC. SOIL MOISTURE CAP. 3.0 IN.		GROWING SEASON 5 26 TO 7 23LENGTH 58 DAYS											
CROP	SHTLF	0.00	0.00	0.00	0.00	1.10	1.13	1.11	0.00	0.00	0.00	0.00	0.00
CRUP	KC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSUMPTIVE USE	(IN)	0.00	0.00	0.00	0.00	.61	5.11	4.16	0.00	0.00	0.00	0.00	0.00
	(AF)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	9.89
EFFECTIVE PRECIP.	(IN)	0.00	0.00	0.00	0.00	.09	.62	.05	0.00	0.00	0.00	0.00	0.00
NET IRR. CONS. USE	(IN)	0.00	0.00	0.00	0.00	.52	4.50	4.11	0.00	0.00	0.00	0.00	.76
	(IN)	0.00	0.00	0.00	0.00	.52	4.50	4.11	0.00	0.00	0.00	0.00	9.13

8-AC. SOIL MOISTURE CAP. 3.0 IN.		GROWING SEASON 5 26 TO 9 9LENGTH 106 DAYS											
CROP	GRASS PAST	0.00	0.00	0.00	0.00	.91	.92	.92	.91	.88	0.00	0.00	0.00
CRUP	KC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSUMPTIVE USE	(IN)	0.00	0.00	0.00	0.00	.51	4.16	4.70	4.22	.85	0.00	0.00	14.43
	(AF)	0.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00	1.00	0.00	0.00	9.00
EFFECTIVE PRECIP.	(IN)	0.00	0.00	0.00	0.00	.09	.59	.07	.58	.34	0.00	0.00	0.00
NET IRR. CONS. USE	(IN)	0.00	0.00	0.00	0.00	.42	3.58	4.64	3.63	.50	0.00	0.00	1.66
	(IN)	0.00	0.00	0.00	0.00	.42	3.58	4.64	3.63	.50	0.00	0.00	12.77

3-AC. SOIL MOISTURE CAP. 3.0 IN.		GROWING SEASON 5 26 TO 7 18LENGTH 53 DAYS											
CROP	SHTGRA	0.00	0.00	0.00	0.00	.91	.92	.92	0.00	0.00	0.00	0.00	0.00
CRUP	KC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSUMPTIVE USE	(IN)	0.00	0.00	0.00	0.00	.51	4.16	2.67	0.00	0.00	0.00	0.00	7.36
	(AF)	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	2.00
EFFECTIVE PRECIP.	(IN)	0.00	0.00	0.00	0.00	.09	.59	.04	0.00	0.00	0.00	0.00	.71
NET IRR. CONS. USE	(IN)	0.00	0.00	0.00	0.00	.42	3.58	2.64	0.00	0.00	0.00	0.00	6.63
	(IN)	0.00	0.00	0.00	0.00	.42	3.58	2.64	0.00	0.00	0.00	0.00	6.63

(Output)

JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV D ANNUA
 CROP SPR GRAIN 0.AC. SOIL MOISTURE CAP. 3.0 IN. GROWING SEASON 5 26 TO 9 6LENGTH 103,DAYS
 CROP KC 0.00 0.00 0.00 0.00 0.00 .36 .71 1.21 .67 .12 0.00 0.00 0.00 0.00
 CONSUMPTIVE USE (IN) 0.00 0.00 0.00 0.00 0.00 .20 3.22 6.21 3.08 .08 0.00 0.00 0.00 0.00 12.7
 (AF) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.00
 EFFECTIVE PRECIP. (IN) 0.00 0.00 0.00 0.00 0.00 .08 .56 .07 .55 .20 0.00 0.00 0.00 0.00 1.4
 NET IRR. CONS. USE (IN) 0.00 0.00 0.00 0.00 0.00 .12 2.67 6.13 2.54 0.00 0.00 0.00 0.00 0.00 11.4
 CROP POTATOES 0.AC. SOIL MOISTURE CAP. 3.0 IN. GROWING SEASON 6 12 TO 9 6LENGTH 186 DAYS
 CROP KC 0.00 0.00 0.00 0.00 0.00 1.43 1.95 1.33 1.06 0.00 0.00 0.00 0.00 0.00
 CONSUMPTIVE USE (IN) 0.00 0.00 0.00 0.00 0.00 0.00 1.19 4.84 6.18 .68 0.00 0.00 0.00 0.00 12.9
 (AF) 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.00
 EFFECTIVE PRECIP. (IN) 0.00 0.00 0.00 0.00 0.00 .33 .33 .07 .65 .24 0.00 0.00 0.00 0.00 1.2
 NET IRR. CONS. USE (IN) 0.00 0.00 0.00 0.00 0.00 .86 4.78 5.53 .44 0.00 0.00 0.00 0.00 0.00 11.6

(Output)

MONTHLY CONSUMPTIVE USE (1000 AC-F)

	EAGLE RIVER			COLDGRADU								
O	N	D	J	F	M	A	M	J	J	A	S	
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	3.7	4.0	.5	FAGLC06
.1	0.0	0.0	0.0	0.0	0.0	.0	.0	2.2	5.3	3.4	1.1	FAGLC07
.1	0.0	0.0	0.0	0.0	0.0	0.0	.0	1.9	4.7	3.0	1.2	FAGLC08
0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	3.9	6.1	3.5	.7	FAGLC09
.3	0.0	0.0	0.0	0.0	0.0	.0	.8	5.0	5.7	3.9	1.3	FAGLC010
.1	0.0	0.0	0.0	0.0	0.0	.0	1.6	4.7	5.2	4.0	1.0	FAGLC011
0.0	0.0	0.0	0.0	0.0	0.0	.0	.2	4.4	5.1	2.4	.9	FAGLC012
.0	0.0	0.0	0.0	0.0	0.0	.0	2.4	4.4	5.3	4.3	1.3	FAGLC013
.2	0.0	0.0	0.0	0.0	0.0	.0	.5	3.6	4.9	3.3	2.5	FAGLC014
0.0	0.0	0.0	0.0	0.0	0.0	.0	.1	3.3	6.8	2.3	1.7	FAGLC015
.7	0.0	0.0	0.0	0.0	0.0	.0	.5	5.6	7.4	3.5	1.8	FAGLC016
0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	4.8	7.5	5.2	1.8	FAGLC017
.5	0.0	0.0	0.0	0.0	0.0	0.0	.1	3.4	4.3	3.3	0.0	FAGLC018
0.0	0.0	0.0	0.0	0.0	0.0	.0	1.5	5.0	6.4	4.0	2.0	FAGLC019
.1	0.0	0.0	0.0	0.0	0.0	0.0	.2	4.5	7.9	5.5	2.1	FAGLC020
.4	0.0	0.0	0.0	0.0	0.0	.0	1.4	4.2	5.2	1.7	2.5	FAGLC021
1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.2	7.3	3.0	3.4	FAGLC022
.7	0.0	0.0	0.0	0.0	0.0	.0	.6	5.0	7.7	4.7	1.4	FAGLC023
.1	0.0	0.0	0.0	0.0	0.0	.0	1.2	6.1	7.1	4.8	.7	FAGLC024
.1	0.0	0.0	0.0	0.0	0.0	.1	3.3	5.2	6.1	2.4	1.2	FAGLC025
.1	0.0	0.0	0.0	0.0	0.0	.0	.9	4.2	6.0	5.2	2.6	FAGLC026
.2	0.0	0.0	0.0	0.0	0.0	.0	1.5	2.8	5.7	2.6	.8	FAGLC027
.3	0.0	0.0	0.0	0.0	0.0	.0	1.4	4.4	5.2	3.9	2.7	FAGLC028
.0	0.0	0.0	0.0	0.0	0.0	.0	.8	4.9	5.6	4.6	.5	FAGLC029
.4	0.0	0.0	0.0	0.0	0.0	.1	.4	4.9	5.5	3.6	1.6	FAGLC030
.3	0.0	0.0	0.0	0.0	0.0	.0	1.0	5.7	4.7	3.9	.9	FAGLC031
.1	0.0	0.0	0.0	0.0	0.0	.0	1.1	4.7	5.2	2.6	1.1	FAGLC032
.1	0.0	0.0	0.0	0.0	0.0	0.0	.5	6.1	6.0	4.1	1.6	FAGLC033
.5	0.0	0.0	0.0	0.0	0.0	.1	2.3	4.3	6.6	3.8	1.4	FAGLC034
.5	0.0	0.0	0.0	0.0	0.0	.0	.7	6.5	9.3	6.2	1.4	FAGLC035
.4	0.0	0.0	0.0	0.0	0.0	.0	3.6	7.6	9.4	5.6	2.0	FAGLC036
.3	0.0	0.0	0.0	0.0	0.0	.0	1.7	6.5	5.3	5.9	2.7	FAGLC037
.3	0.0	0.0	0.0	0.0	0.0	.0	1.4	6.7	9.8	7.0	1.3	FAGLC038
.5	0.0	0.0	0.0	0.0	0.0	.1	3.0	6.7	9.2	6.2	2.0	FAGLC039
.3	0.0	0.0	0.0	0.0	0.0	.0	4.0	8.5	8.9	5.3	1.8	FAGLC040
.2	0.0	0.0	0.0	0.0	0.0	.0	2.0	5.5	7.8	5.8	.4	FAGLC041
0.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	5.5	7.6	6.4	2.4	FAGLC042
.2	0.0	0.0	0.0	0.0	0.0	.0	.1	1.5	7.9	4.4	1.1	FAGLC043
.1	0.0	0.0	0.0	0.0	0.0	0.0	.1	2.5	6.6	4.9	1.8	FAGLC044
.3	0.0	0.0	0.0	0.0	0.0	0.0	.1	2.0	6.6	5.0	1.4	FAGLC045
.2	0.0	0.0	0.0	0.0	0.0	.0	.1	4.4	6.9	4.0	1.9	FAGLC046
0.0	0.0	0.0	0.0	0.0	0.0	.0	.1	1.3	6.6	4.7	1.7	FAGLC047
.3	0.0	0.0	0.0	0.0	0.0	.0	.1	3.9	5.5	4.1	2.2	FAGLC048
.2	0.0	0.0	0.0	0.0	0.0	.0	.1	2.5	6.0	4.4	1.3	FAGLC049
.1	0.0	0.0	0.0	0.0	0.0	0.0	.0	3.9	5.7	3.8	1.1	FAGLC050
.6	0.0	0.0	0.0	0.0	0.0	0.0	.1	2.6	6.1	3.3	1.2	FAGLC051
.0	0.0	0.0	0.0	0.0	0.0	0.0	.1	4.2	5.0	2.4	1.8	FAGLC052
.3	0.0	0.0	0.0	0.0	0.0	0.0	.0	4.0	4.6	2.8	1.7	FAGLC053
.3	0.0	0.0	0.0	0.0	0.0	.0	.7	4.7	4.5	3.1	1.2	FAGLC054
.2	0.0	0.0	0.0	0.0	0.0	0.0	.0	2.0	4.6	3.9	1.0	FAGLC055
.2	0.0	0.0	0.0	0.0	0.0	.0	.9	4.8	4.5	3.1	2.1	FAGLC056
.2	0.0	0.0	0.0	0.0	0.0	0.0	.0	2.5	5.5	3.5	1.2	FAGLC057
.2	0.0	0.0	0.0	0.0	0.0	0.0	1.0	4.9	5.4	4.3	1.6	FAGLC058
.2	0.0	0.0	0.0	0.0	0.0	0.0	.2	4.2	4.9	3.4	.6	FAGLC059
.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	4.7	5.9	4.1	2.1	FAGLC060
.2	0.0	0.0	0.0	0.0	0.0	0.0	.2	5.6	4.5	4.9	.0	FAGLC061
0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	4.2	6.7	4.8	1.7	FAGLC062
.3	0.0	0.0	0.0	0.0	0.0	0.0	.7	4.0	6.5	3.3	2.2	FAGLC063
.6	0.0	0.0	0.0	0.0	0.0	0.0	.0	3.9	7.0	2.8	1.7	FAGLC064
.5	0.0	0.0	0.0	0.0	0.0	0.0	.0	4.2	6.0	4.5	0.0	FAGLC065
.6	0.0	0.0	0.0	0.0	0.0	0.0	.1	4.8	7.9	4.4	2.5	FAGLC066
.1	0.0	0.0	0.0	0.0	0.0	0.0	.0	2.8	7.0	5.1	1.9	FAGLC067
.3	0.0	0.0	0.0	0.0	0.0	0.0	.0	6.0	6.4	4.0	1.4	FAGLC068
.1	0.0	0.0	0.0	0.0	0.0	0.0	1.5	3.3	6.5	5.8	2.5	FAGLC069
0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	4.0	7.0	5.0	.7	FAGLC070
0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	6.1	6.4	5.8	.6	FAGLC071
.1	0.0	0.0	0.0	0.0	0.0	0.0	.7	6.1	7.2	4.7	1.2	FAGLC072
.1	0.0	0.0	0.0	0.0	0.0	0.0	.0	3.5	4.8	5.5	1.8	FAGLC073
.3	0.0	0.0	0.0	0.0	0.0	0.0	1.2	5.4	6.2	4.2	1.4	FAGLC074

APPENDIX B

NATURAL SALT DERIVATION DISCUSSION AND EXAMPLE

DEVELOPING MONTHLY STREAMFLOW-SALT LOADING RELATIONSHIPS

1. Plot monthly TDS, 1000 tons (Y) against monthly runoff, 1000 AF (X) on log-log plot. Use a homogeneous period of time, e.g. period of no significant upstream storage, exclude early historical data.

2. Compute best fit power curve

$$TDS=A(Q)^B$$

3. Compute monthly TDS from equation and compare with recorded TDS. Determine difference, Del, in terms of log cycles rather than absolute.

4. Assume that irrigated acreage can be used as an index of man-caused salinity and that most of the deviation of the points from the best fit line can be accounted for by changes in irrigated acreage from year to year. Plot each Del (Y) against the estimate of irrigated acreage from that particular year (x) on arithmetic plot. Include early historical data if available. (Using same-year irrigated acreage data isn't logical for correlations with the early months of the year. However, year-to-year changes of irrigated acreage are small, so the error is negligible).

5. Compute best fit straight line curve of above

$$Del=2_0 + 2_1 (\text{Acreage})$$

6. Determine zero-acreage factor, which is $\log^{-1}(2_0)$. If factor turns out to be greater than 1.0, use 1.0.

7. Plot the zero acreage factors (Y) against the month of the year (X) on arithmetic plot. Points will usually fall into a rough sinusoidal pattern with a low around August and a high around February.

8. Compute the 12 month average zero acreage factor.

9. By trial determine the best fit sine curve

$$y=a \text{ Sin } (b x + c)$$

where

$y=\pm$ distance about the mean

x =month of the year from 1 to 12

a, b, c ,=Constants to be determined

If a relationship other than a sine curve is apparent, use it. If there is considerable scatter and no pattern evident, use the mean as the best fit curve.

Note: The curve should never have a value greater than one.

10. Use the curve derived above to compute new monthly zero acreage factors, hereafter called adjusted zero acreage factors. (It is recognized that there could be considerable error in any of the originally computed zero acreage factors. The last few steps are an attempt to make the computer month-to-month values of man-made salinity more consistent and, hopefully, make them more correct.) If the computations have been made correctly, the average of the adjusted zero-acreage factors should equal the average of the original zero acreage factors.

11. Determine zero-acreage curves of salt vs. flow for each month and plot on original plots.

$$\text{Natural TDS} = A^1 Q^B$$

where

$A^1 = (A)$ (Adjusted zero-acreage factor)

$B =$ Same as before

12. Theoretically, it should now be possible to compute the average annual natural salt loading if the average monthly virgin flows were known. However, the relationships are not strong enough to provide this value with any reliability.

The major use of the procedure described above is that it provides a mechanism for distributing an independent estimate of man-caused salt loading on a monthly and yearly basis. Such an independent estimate is that of Von Irons in P.P. 441.

SALINITY-RUNOFF RELATIONSHIPS USING THE
VON IRONS ESTIMATES OF NATURAL SALINITY

1. In P.P. 441 there are given for various basins: (1) the 1914-57 average annual discharge, adjusted to 1957 conditions, (2) the natural salt load for 1957 conditions. Extract these data for the basin under study. These data will hereafter be called VI data.
2. Go to the records for that basin and determine the mean monthly values of runoff and salt load for the period of record. These data will hereafter be called historical data.
3. Distribute the VI average annual flow according to the monthly pattern of the historical average flow.
4. Make the first estimate of monthly natural salt loading by entering the monthly equations

$$\text{TDS, natural} = A^1 Q^B$$

WITH THE VI monthly flows derived in Step 3.

5. Adjust the above monthly values by a constant factor so that the total agrees with the VI values of average annual natural salt loading.
6. Plot the adjusted monthly values (Y) versus month (X) on arithmetic plot. It is assumed that the natural salinity load follows some kind of regular pattern with time. So, fit a smoothed curve through the data that will lessen month-to-month variations, and at the same time achieve the desired annual total.
7. Recompute the zero acreage factors and plot. Fit a smooth curve and recompute monthly values of salinity.
8. Repeat steps 6 and 7 until the two curves are reasonably smooth and the correct annual value is achieved.
9. Revise the A^1 so that the equations will compute the VI values of monthly natural salinity determined above. Call the revised coefficients A_0 .
10. Compute the man-caused salinity for each month in terms of log cycles.

Call this C.

$$C = \text{Log (Hist. TDS)} - \text{Log (A}_0\text{QB)}$$

11. In absolute terms, the per irrigated acre contribution of salt is

$$\frac{\text{Log } -1 [\text{Log}(\text{AoQ}^B)+C] - \text{AoQ}^B}{D}$$

where D = Average irrigated acreage during the historical period, 1,000 acres.

12. The general equation for monthly salt loading becomes

$$\text{TDS} = \text{AoQ}^B + \frac{(\text{Log } -1 [\text{Log}(\text{AoQ}^B)+C] - \text{AoQ}^B) (E)}{(D)}$$

where E = Irrigated acreage for the particular year under study, 1,000 acres.

Q=Depleted flow for month of year under study

13. For the 12 Upper Basin stations the computed constants are shown on Table 4.

14. As a check, use the equations to reconstruct the historical salt flow using the historical runoff and estimated annual irrigated acreage. Further adjustment of constants may be required.

EXAMPLE OF PROCEDURE
GREEN RIVER NEAR GREEN RIVER, WYOMING

1. The monthly salinity records for Green River near Green River extend from May 1951 through December 1974. There are also monthly records for May through October 1905. Fontenelle Reservoir, upstream of the station, began storing in April 1964. Initial plotting of data indicated that the reservoir was not causing a change in runoff-salt load relationship at the gage. Therefore, the total recent period of 1951-74 was used to develop relationships.

Plots of runoff, 1000 acre-feet versus salt load, 1000 tons were made for each month. The plot for May is shown as Figure 1. Basic data is shown in Table 1.

2. A power curve of best fit was computed for the data. (The 1905 point was excluded from the fitting). The equation is

$$\text{TDS} = 1.8276 (\text{Flow})^{0.7091}$$

$$\text{with } R^2 = 0.8971$$

3. Using the equation the TDS for each year was computed. The difference, Del, between computed and recorded TDS was computed for each year in terms of log cycles. (The Del for 1905 was also computed). Computations shown in Table 1. Also shown in Table 1 is the yearly estimate of irrigated acreage which will be used as the index of man-caused salinity.

4. A plot of irrigated acreage versus Del was made as shown on Figure 2.

5. A straight line curve of best fit was computed for the data. It was

$$\text{Del} = 0.2350 + 0.001336 (\text{Acreage}) \text{ with } R^2 = 0.2375$$

6. The zero acreage factor is the interception of the curve with the zero acreage axis which is -0.2350 cycles, or in absolute terms

$$\text{Log}^{-1} [-.2350] = 58\%$$

7. The zero acreage factors for each month were plotted against time as shown in figure 3. Values are presented in Table 2.

8. The average zero acreage factor is 0.7325.

9. The data exhibits a rough sinusoidal pattern, so a sine curve was fitted to the data. By trial the approximate best fit curve was found to be

$$\text{Factor} = 0.7325 + 0.09 \text{ Sine } (0.5236X + .70854)$$

where X = Month of the year, from 1 to 12 and

Sine function is in Radians

(Note: An interpretation that can be made of this particular curve is that in January and February when the factors are the highest, the historical salinity load of the river isn't too much greater than it was under natural conditions. The period when the factor is lowest, July and August, reflect the effects of heavy salinity contribution from return flows.)

10. The new zero acreage factors were computed from the curve and are shown in Table 2.

11. The adjusted natural curve coefficients, A^1 , were computed and are shown in Table 2. The estimated natural salinity relationship for May is shown on Figure 1.

12. At this point, the independent estimate of natural salinity values are introduced. According to the Von Irons Study (P.P. 441), the natural salinity load of the Green River near Green River, Wyoming for 1957 modified conditions is 319,300 tons per year and the average (1914-57) annual flow for 1957 conditions is 1,305,000 acre-feet.

13. Distribute the above annual flow according to the pattern of historical runoff. Computations shown in Table 3. For example, in May, $Q = 180 \times \frac{1305}{1268} = 185 \times 1000 \text{ AF}$.

14. Make an estimate of monthly natural salinity by using the equations

$$\text{TDS} = A^1 Q^B$$

and the adjusted monthly discharges. For example, in May, $\text{TDS} = 1.298 (185)^{0.71} = 53 \times 1000 \text{ tons}$.

15. Adjust these estimates of natural monthly by a constant factor to achieve the estimate of annual natural salinity.

$$\text{For example, in May, TDS} = 53 \times \frac{319}{398} = 42$$

16. Compute the new A constants for the runoff equation. Call them A_o .

$$\text{For example, in May, } A_o = 1.298 \times \frac{319}{398} = 1.04$$

17. Plot the monthly estimates of natural salinity versus time. Graphically adjust the values to achieve a smooth pattern. Check to see that correct annual total is achieved.

18. Recompute A_o and the zero acreage factors, A_o/A . Plot the zero acreage factors versus time and graphically adjust for consistent pattern.

19. Repeat steps 17 and 18 until reasonably consistent patterns in the monthly natural salinity and zero acreage factor curves are obtained and the correct annual total is achieved. Also, at this time natural monthly salinity values are compared against others on the stream system in order to insure consistency by location as well as time. (For this particular station, Green River near Green River, Wyoming, very little of this type of adjustments was required. The May value of A_o remained at 1.04).

20. Compute C from the equation

$$C = \text{Log} [\text{Hist. TDS}] - \text{Log}[A_o (\text{Hist. Q})^B]$$

Example for May,

$$\begin{aligned} C &= \text{Log} [68] - \text{Log} [(1.04) (180)^{0.71}] \\ &= 0.214 \end{aligned}$$

21. Final Salinity-Runoff relationship for May is

$$\begin{aligned} \text{TDS} &= A_o Q^B + (\text{Log}^{-1}[\text{Log}(A_o Q^B) + C] - A_o Q^B) \frac{(E)}{(D)} \\ &= 1.04 Q^{0.71} + (\text{Log}^{-1}[\text{Log} 1.04 Q^{0.71} + .214] - 1.04 Q^{0.71}) \frac{(E)}{(177)} \end{aligned}$$

where 177 = average irrigated acreage during the period of record, 1000 acres

E = Irrigated acreage for year under study

Q = May depleted flow for year under study, 1000 AF

22. Check values by reconstructing historical records.

<u>Date</u>	<u>Irrigated Acreage (1000 acres)</u>	<u>Historical Flow (1000 AF)</u>	<u>Computed TDS (1000 Tons)</u>	<u>Recorded TDS (1000 Tons)</u>	<u>Computed -Recorded %</u>
May 1948	157	187	67	80	84
May 1954	153	282	90	79	114
May 1957	155	176	64	81	79
May 1961	170	60	31	26	<u>119</u>
					Avg. =99%
					S.D. =20%

Recomputed annual salt loads for these same years were as follows:

<u>Date</u>	<u>Computed TDS (1000 Tons)</u>	<u>Recorded TDS (1000 Tons)</u>	<u>Compute -Recorded %</u>
1948	445	510	87
1954	454	462	98
1957	542	594	91
1961	289	243	<u>119</u>
			Avg.=99%
			S.D.=14%

This limited analysis indicated (1) no particular bias in over- or under- estimating salt load, and (2) the monthly errors in the same year are compensating and the computed annual total is more accurate than the computed monthlies (?)

1000
700
500
300
100

MONTHLY TOTAL DISSOLVED SOLIDS, 1000 TONS

BEST FIT - HISTORICAL
INVESTIGATIVE
ESTIMATE OF
NATURAL SALINITY OF
RIVER

111.0
110.0
109.0

72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

500

GREEN RIVER NR GREEN RIVER, WYO
MAY

MONTHLY STREAMFLOW, 1000 AF

100

1000

150

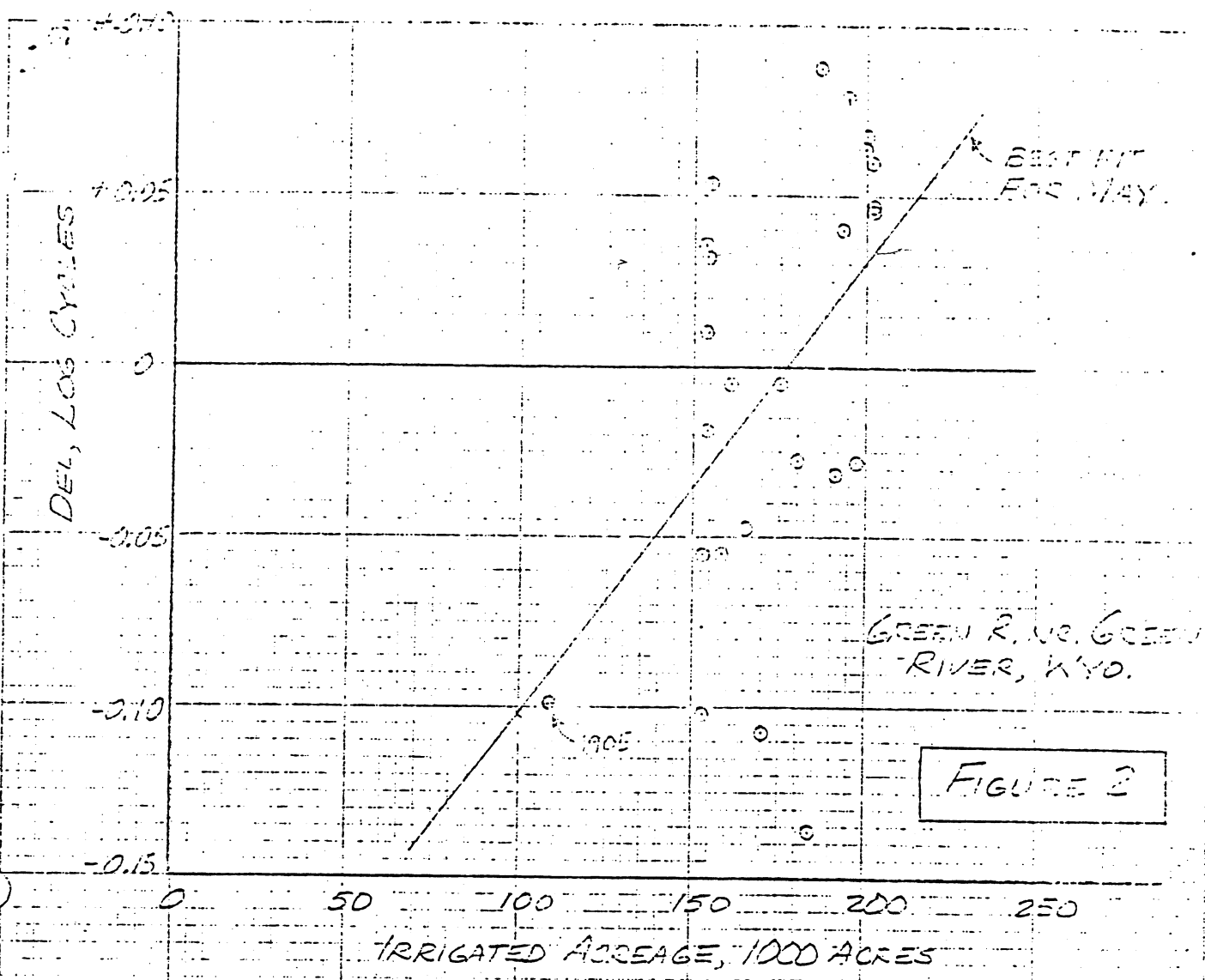


FIGURE 2

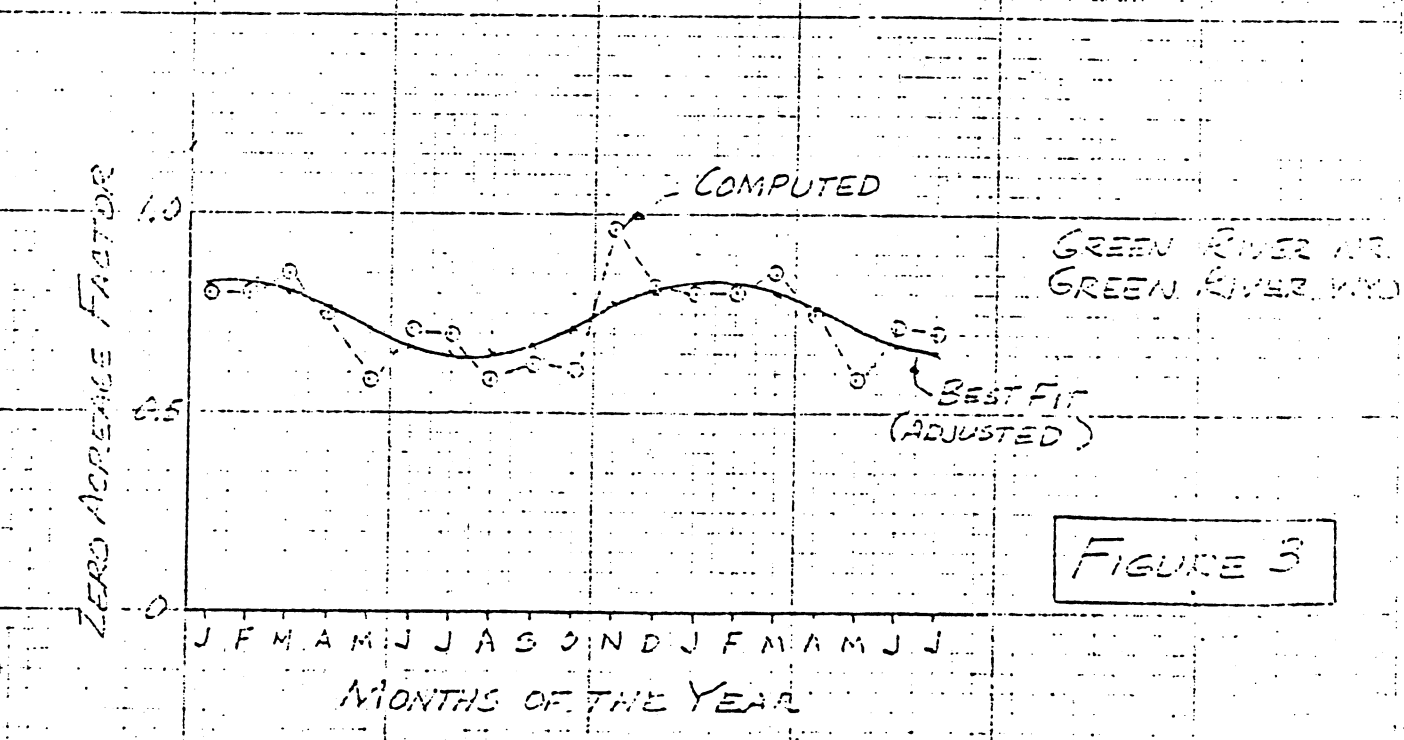


FIGURE 3

3

Table 1
Salt-Runoff Relationships for May
Green River near Green River, Wyoming

Year	Flow (1,000 AF)	Recorded TDS (1,000 Tons)	Computed TDS (1,000 Tons)	Del (Cycles)	Irrigated Acreage (1,000 Acres)
1905	97	37.5	47.0	-.0981	109
1951	317	111	108.5	.0099	154
52	348	111	115.9	-.0188	154
53	74	42	38.7	.0356	153
54	282	79	99.9	-.1019	153
55	127	50	56.7	-.0546	153
56	310	115	106.8	.0321	154
57	176	81	71.5	.0542	155
58	291	90	102.1	-.0548	158
59	79	40	40.5	-.0054	161
60	66	32	35.7	-.0475	165
61	60	26	33.3	-.1075	170
62	256	92	93.2	-.0056	175
63	100	45	47.9	-.0271	180
64	138	44	60.2	-.1361	184
65	94	56	45.8	.0873	187
66	160	62	66.8	-.0324	191
67	138	66	60.2	.0399	193
68	56	38	31.7	.0787	195
69	207	75	80.2	-.0291	197
70	84	49	42.3	.0639	199
71	280	116	99.3	.0675	200
72	294	118	102.8	.0599	201
73	171	78	70.0	.0470	202
74	207	89	80.2	.0452	202

TDS=1.8276 (Flow) 0.7091=AQ^B

Del=-0.2350+0.00133 (Acreage)

Zero Acreage Factor=Log -1 (-0.2350) = 0.58

R² = 0.8971 (w/o 1905)

R² = 0.2375 (w/o 1905)

Table 2

Salt Runoff Relationships for
Green River near Green River, Wyoming

Month	<u>Historical</u>	<u>TDS Curve</u>	<u>Computed Zero-Acreage Factor</u>	<u>Adjusted Zero-Acreage Factor</u>	<u>First Est. of</u>	<u>Natural TDS Curve</u>
	A	B			A ¹	B
Jan	1.6087	0.7588	0.80	0.82	1.322	0.7588
Feb	1.9095	0.7027	0.80	0.82	1.566	0.7027
Mar	1.4306	0.7976	0.85	0.80	1.144	0.7976
Apr	2.5364	0.6692	0.75	0.76	1.928	0.6692
May	1.8276	0.7091	0.58	0.71	1.298	0.7091
Jun	0.5835	0.8837	0.71	0.67	0.391	0.8837
Jul	1.6358	0.6846	0.70	0.65	1.063	0.6846
Aug	1.1117	0.7763	0.59	0.65	0.723	0.7763
Sep	1.0726	0.8172	0.62	0.67	0.719	0.8172
Oct	2.3376	0.6553	0.61	0.71	1.660	0.6553
Nov	2.1477	0.6845	0.96	0.76	1.632	0.6845
Dec	2.5816	0.6411	0.82	0.80	2.065	0.6411
Avg			0.732	0.735		

Table 3
Distribution of Natural Salinity Estimates
Green River near Green River, Wyo.

Month	First Estimate of Natural Salinity		Average Historical Flow (1952-76) (1000 AF)	Average Flow (1914-57, 1957 modified) (1000 AF)	Computed TDS-A ⁰ (1000 Tons)	Adjusted to Von Iorns Value (1000 Tons)	A ⁰ (1000 Tons)	Zero Acreage Factor, A ⁰ /A ¹	Natural Salinity (1000 Tons)	Final Estimates		Average Historical TDS (1952-76) (1000 tons)
	A	B								Zero Acreage Factor, A ⁰ /A ¹	Natural Salinity (1000 Tons)	
January	1.609	0.76	36	37	20	16	1.06	0.66	16	0.66	1.06	21
February	1.909	0.70	41	42	22	18	1.26	0.66	18	0.66	1.26	24
March	1.431	0.80	61	63	31	25	0.92	0.64	26	0.66	0.96	36
April	2.536	0.67	100	103	43	34	1.55	0.61	34	0.61	1.55	54
May	1.828	0.71	180	185	53	42	1.04	0.57	42	0.57	1.04	68
June	0.584	0.88	342	352	70	56	0.31	0.54	56	0.54	0.31	99
July	1.636	0.68	197	203	40	32	0.85	0.52	32	0.52	0.85	61
August	1.112	0.78	98	101	26	21	0.58	0.52	21	0.52	0.58	37
September	1.073	0.82	76	78	25	20	0.58	0.54	19	0.52	0.55	33
October	2.338	0.66	56	58	24	19	1.33	0.57	19	0.57	1.33	32
November	2.148	0.68	46	47	23	18	1.31	0.61	18	0.61	1.31	29
December	2.502	0.64	35	36	21	17	1.66	0.64	17	0.64	1.66	24
			1,268	1,303	398	319			319			322

Natural Salinity Equation Coefficients - October through September

TDS AoQ^B

TDS=1000 tons salt-monthly

Q=1000 acre-feet-monthly runoff

Ao=Zero acreage (natural conditions) coefficient

B=Power coefficient

<u>Station</u>	<u>Ao</u>	<u>B</u>	<u>Station</u>	<u>Ao</u>	<u>B</u>
9072500	7.93	.350	9127800	.46	.970
	11.92	.240		7.26	.280
	17.67	.140		2.69	.550
	12.39	.240		1.65	.660
	9.53	.290		1.22	.730
	6.69	.390		.51	.910
	2.98	.570		.34	.880
	1.83	.620		.32	.820
	3.68	.490		.33	.770
	6.26	.400		.39	.780
	3.48	.520		.34	.780
	3.75	.500		.50	.840
9095500			9152500		
	11.36	.430		3.88	.540
	16.70	.340		6.39	.380
	17.94	.320		2.68	.630
	20.74	.300		1.79	.730
	14.57	.370		.68	.970
	12.50	.410		.86	.970
	7.20	.510		3.50	.560
	2.39	.660		2.72	.580
	3.46	.560		3.18	.460

9.67 .410

4.07 .430

8.80 .450

2.67 .560

7.11 .500

3.25 .550

9124600

9180000

.46 .970

7.32 .420

7.26 .280

7.26 .410

2.69 .550

6.92 .460

1.65 .660

6.68 .490

1.22 .730

5.22 .600

.51 .910

9.44 .350

.34 .880

3.93 .500

.32 .820

2.50 .540

.33 .770

2.70 .500

.39 .790

3.82 .480

.54 .780

3.56 .590

.50 .840

4.85 .530

9180500

9251000

10.92 .500

.97 .710

24.09 .340

.83 .760

14.50 .430

1.60 .550

13.28 .470

1.16 .790

9.63 .530

.36 .990

4.14 .690

1.24 .650

7.00 .560

4.83 .320

4.52 .600

.15 .930

7.05 .490

2.88 .430

12.08 .430

1.21 .570

11.29 .470

1.11 .700

8.31 .540

.74 .920

9211200

.61 .730
.77 .720
.82 .760
1.02 .690
1.71 .560
.30 .980
.32 .880
.41 .770
.09 1.020
.29 .810
.38 .790
.43 .820

930200

1.03 .660
.94 .730
1.36 .610
.89 .780
.88 .760
.82 .810
1.78 .600
1.06 .590
.99 .580
1.33 .500
1.93 .660
.75 .670

921700

1.25 .660
1.95 .680
1.86 .640
1.34 .760
1.83 .700
.88 .800
1.34 .670
.88 .710
.32 .880
.97 .680
.67 .780
.70 .820

9306500

.68 .740
1.02 .620
1.41 .590
1.79 .640
.84 .930
.47 1.040
.62 .930
.36 .910
.52 .750
.85 .680
.49 .830
.53 .820

9234500

1.12 .760
.84 .900
1.06 .830
1.13 .920
.90 1.040
2.76 .680
1.13 .800
1.25 .720
.21 .970
.51 .830
.47 .950
.55 .990

9315000

.75 .900
1.77 .790
3.61 .710
1.91 .870
.92 .970
1.55 .830
1.06 .860
.26 .990
.24 .970
.55 .870
.46 .960
.67 .930

9328500

3.07 .790
4.06 .770
4.98 .670
5.80 .580
4.98 .830
4.10 .710
6.57 .580
3.91 .560
1.91 .640
1.51 .770
1.18 .960
2.37 .870

9355500

1.89	.440
2.32	.400
1.99	.450
1.55	.530
.60	.940
.39	.870
.22	.890
.14	.890
.24	.780
.60	.590
.60	.670
1.37	.470

9379500

1.23	.780
3.13	.620
3.93	.620
1.97	.820
1.44	.820
1.49	.810
1.36	.760
.78	.810
.83	.750
1.92	.610
1.98	.660
.74	.830

9380000

4.52	.690
6.66	.650
6.21	.660
7.15	.640
4.49	.730
2.47	.810
5.34	.680
3.31	.690
1.94	.720
3.36	.660
1.57	.810
2.11	.770

APPENDIX C
COMPUTER FILES AND PROGRAMS

Computer Programs and Files

A system of computer programs and files were used to calculate the natural flow and natural salt load. Although the mathematics of the programs are simple, the number of computations made is extremely large. A flow chart of the computer programs and files used in the computation of natural flow and natural salt load for one reach is shown in figure 1. Each block in the flow chart is labeled by the name of the corresponding file residing on user No. UC0460A. The four spaces in the file name represent the reach name or USGS station number.

Water Use Computation Files

The WU-F files contain the input data for each reach which include monthly consumptive use values for subreach areas, end of month reservoir contents for both surface and bank storage, monthly evaporation for individual reservoirs, monthly exports and imports, and monthly M&I uses. Some reaches, however, do not contain any reservoirs, transmountain imports or exports, or M&I.

Although the WU-P programs are all similar, they are designed specific to each reach and already know what terms of the equation and how many are within their reach.

The water use program, WU-P, takes data from the WU-F file and computes the monthly reach totals for CU (consumptive use), REG (reservoir regulation), EX (transmountain exports), MI (municipal and industrial), and IM (transmountain import flows). The program writes these monthly totals onto a binary file called WU-U, which is input for the natural flow computation program, NT-P. The WU-P program creates a formatted output file called WU-O which details the computations made in the program. The TA-F file is also created by the WU-P program and is a monthly algebraic total of all water uses above the station or $TA = CU + REG + EX + MI - IM + TAs \text{ upstream}$ (where TA = total adjustments.) The TA-F file, for the station being evaluated, is only used as input for WU-P and NT-P programs at downstream stations.

Natural Flow Computation Files

The natural flow computation program (NT-P) receives input from the WU-U binary file and the TA-F files, if any, from upstream stations. The NT-P program then computes a monthly algebraic total of all water uses above the station and adds that to the historical flow to compute the natural flow.

The NT-P programs produce two output files per station. The NT-O file, a detailed output of the natural flow computation, and the NT-F file, a listing of the natural streamflows. The NT-F file is used as an input file for three separate programs; DBPL1, a plotting program; FLOTAB, a statistics program; and SALTGEN, the salt load computation program. The NT-F files created by the NT-P program may not be completed. Unless the historical record on the HS-F file was complete from 1960 to 1978, the NT-F file will have to be modified by merging the NFD-file. These NFD-files contain natural flow data that were generated by regression analysis with other stream gages for the periods in which historical records did not exist.

Salt Load Computation Files

The Program which calculates the natural salt load is SALTGEN and it must be run separately for each reach. The program reads input from two separate files.

The SGCOEFF file, a listing of salt equation coefficients for each reach, and the NT-F file for the reach being evaluated.

Data Base Basin Configuration

The network of computer programs and files of the data base were built in a similar configuration as that of the Upper Basin (fig. 2). Each reach, or station, has associated with it a WU-F, WU-P, WU-S, NT-S, and NT-P file, plus an assortment of output and input files. The TA-F file, an output of the NT-P program, is used as input for downstream stations in the manner shown in figure 2.

The five stations, 1246, 1278, 1800, 2510, and 3065 are independent of the other 13 stations of the data base. For example, the 3150 station needs input from only stations 3020 and 2345 to perform computations. The reason is that all of the input data in the WU-F file for both the 2510 and 3065 stations are also included in the WU3150F file.

In running the computer programs (WU-P) of the data base one must follow the sequence illustrated in figure 8. Once all of the WU-P programs are successfully run, the NT-P programs may be run in any order. If for any reason, an error was made in the computation of a WU-P program, it and all other downstream station programs must be run again in the same sequence as that illustrated in figure 2.

The command for running the water use programs (WU-P) is "CALL, RUNSUB (A=WU____S)" in the case of submit files, and "CALL WU____S," in the case of procedure files. The four spaces are for the USGS station number. See table 4 for a listing of which stations have procedure files and which have submit files. For each station there is a procedure file to run the natural flow computation program, and the command for executing the procedure file and running the program is "CALL, NT____S."

The command for running the natural salt load computation program is "CALL, SALTER(A=NT____F, TEM=NS____F)."

Tables 1 through 5 list and describe the various computer files and programs residing on UC0403E. Table 2 lists the period of record of the HS-F (historical flow files) and the NFD-files. Table 3 lists the files containing monthly consumptive use, transmountain exports, and reservoir regulation values, which were extracted from the WU-0 file. Table 4 is a listing of files which contain accumulated monthly values of the various depletions. Table 5 contains a listing of the plotting programs which plot hydrographs for various categories.

Table 1 - Listing of Water Use Files and Programs

These files are all associated with the computation of depletions above the respective USGS stations.

USGS station No.	data file		program	submit file	formatted output file		Total adj file		Binary output	
	WU_____F		WU____P	WU_____S	WU	0	TA	F	WU	U
1 0725				Submit						
2 0955				Submit						
3 1246				Submit						
4 1278				Submit						
5 1525				Submit						
6 1800				Procedure						
7 1805				Submit						
8 2112				Procedure						
9 2170				Procedure						
10 2345				Submit						
11 2510				Procedure						
12 3020				Submit						
13 3065				Procedure						
14 3150				Submit						
15 3285				Submit						
16 3555				Procedure						
17 3795				Submit						
18 3800				Procedure						

Insert the four digits of the station number to obtain the file name (e.g., WU0725F, WU0725P, WU0725S, WU07250, TA0725F, WU0725U).

Table 3 - Listing of Natural Salt Load Files and Water

Depletions Within the Reaches

These files were created by the program "SALTGEN"

These files were extracted out of the WU____0 files for the purposes of plotting.

Reach or USGS station number	Natural salt load file NS_____F	Consumptive use summary file CU_____F	Export summary file EX____F	Reservoir regulation summary file RG_____F
0725				
0955				
1246				
1278				
1525				
1800				No file
1805				
2112			No file	No file
2170			No file	
2345			No file	
2510			No file	No file
3020				
3065			No file	No file
3150				
3285				
3555				
3795			No file	
3800			No file	

Table 4 - Listing of Upper Basin Accumulated Water Depletions

CONUSE1 through CONUSE6 are accumulated consumptive use values for reaches above and including the following stations:

0955 = CONUSE3

2345 = CONUSE1

1805 = CONUSE4

3150 = CONUSE2

3795 = CONUSE5

3800 = CONUSE6

RESREG1 through RESREG3, RESREG5, and RESREG6 are accumulated reservoir regulation files above and including the following stations:

1805 = RESREG1

3150 = RESREG2

0955 = RESREG3

3795 = RESREG5

3800 = RESREG6

TRANS2 through TRANS4 and TRANS6 are accumulated transbasin export files above and including the following stations:

3150 = TRANS2

0955 = TRANS3

1805 = TRANS4

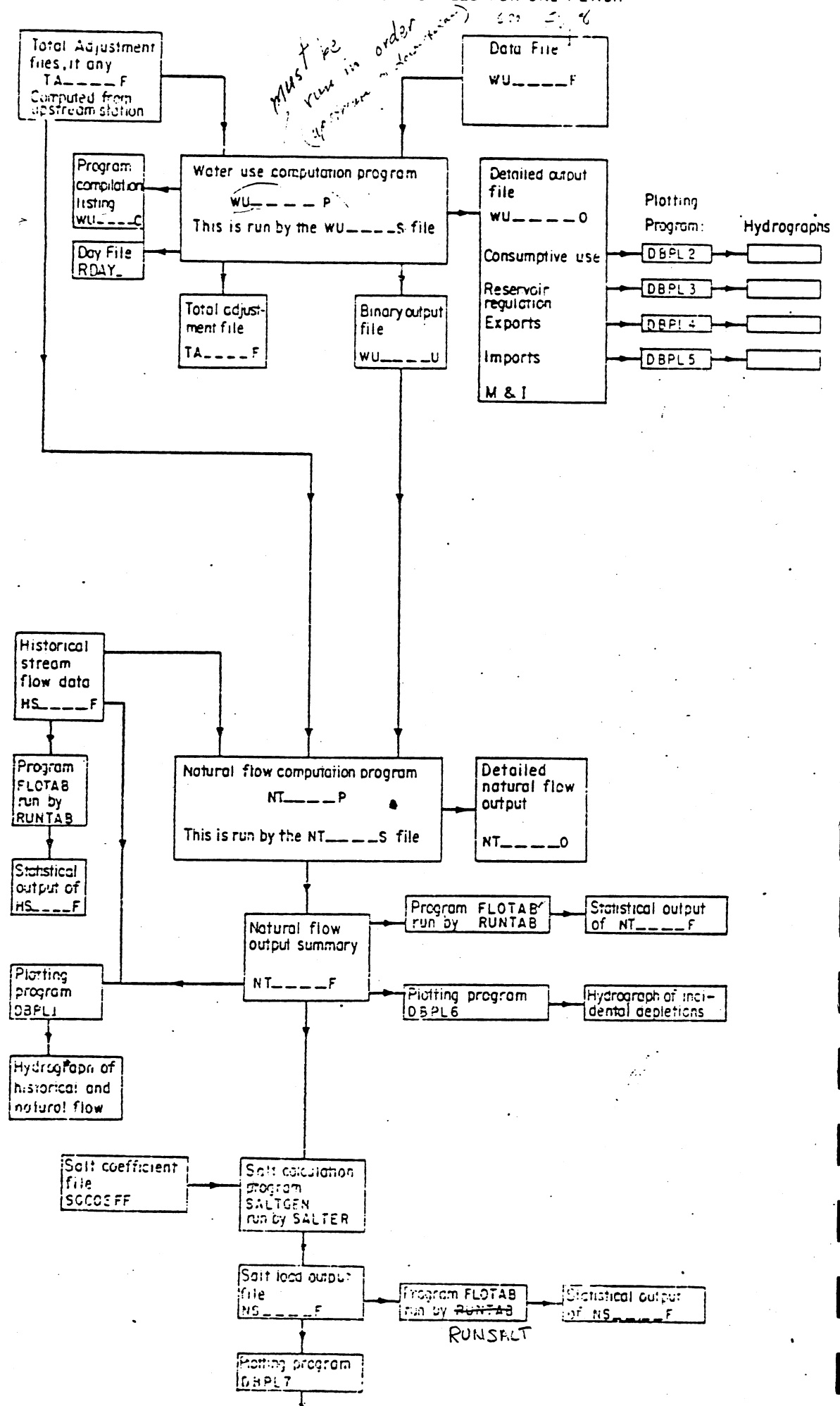
3800 = TRANS6

Table 5 - Listing of Plotting Programs

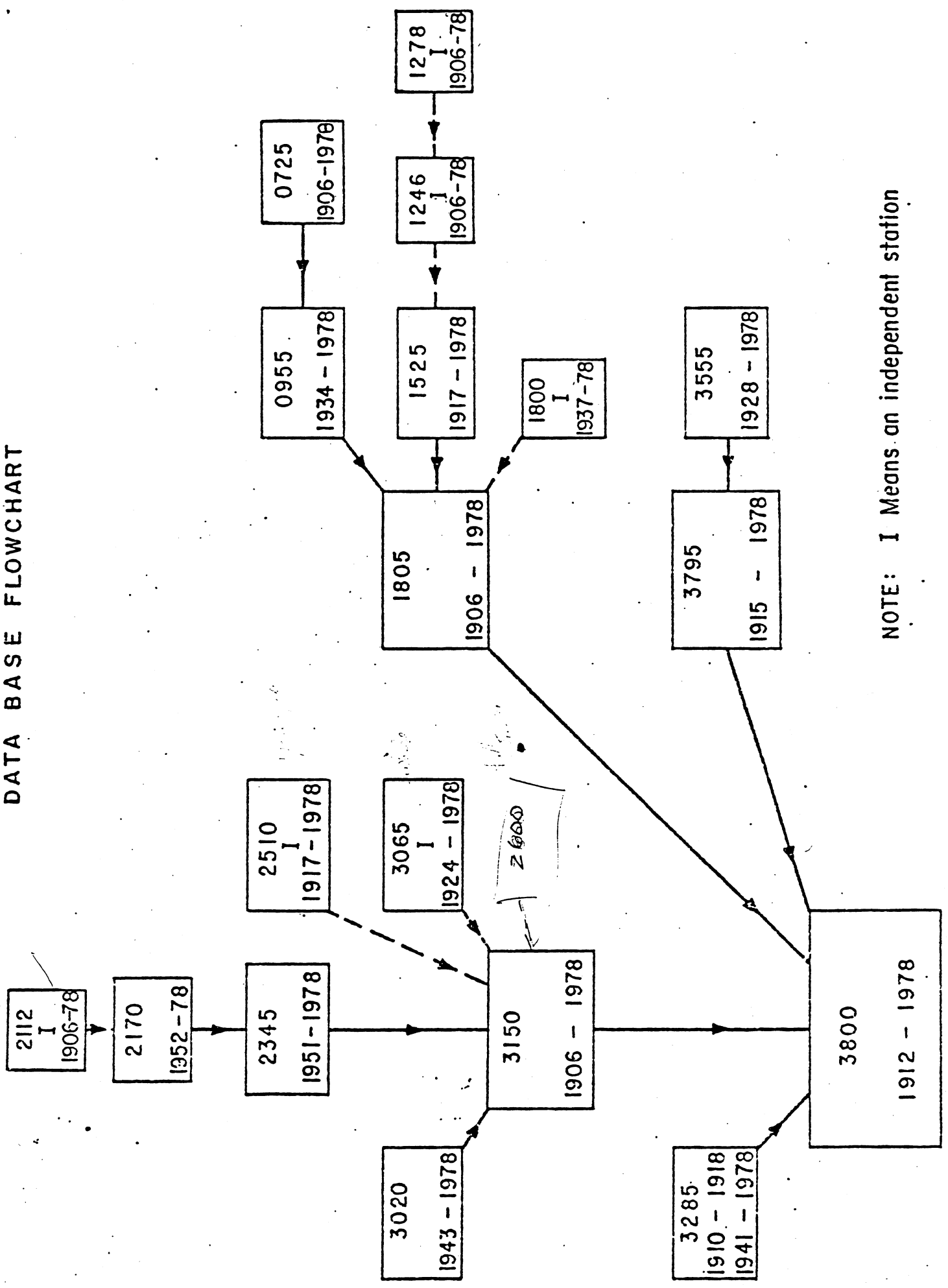
These programs plot monthly data from 1906, or a later year, to 1978 and also a mass curve. Ten years of monthly data, corresponding to decades will be plotted per page.

<u>Submit File</u>	<u>Program</u>	<u>Plot File</u>	<u>Hydrograph</u>
DBPLS1	DBPL1	RCURVE1	Natural and historical flow data
DBPLS2	DBPL2	RCURVE2	Consumptive use
DBPLS3	DBPL3	RCURVE3	Reservoir regulation
DBPLS4	DBPL4	RCURVE4	Exports
DBPLS5	DBPL5	RCURVE5	Imports
DBPLS6	DBPL6	RCURVE6	Incidental depletions
DBPLS7	DBPL7	RCURVE7	Natural salt load

NATURAL FLOW AND SALINITY CALCULATION FLOWCHART
OF COMPUTER PROGRAMS AND FILES FOR ONE REACH



UPPER COLORADO RIVER BASIN
DATA BASE FLOWCHART



NOTE: I Means an independent station

APPENDIX D

Natural Flow and Natural Salt Tables

Data Base

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF0725 FLOW AT GLENWOOD SPRINGS, CO ON THE COLORADO RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	67.	60.	37.	38.	38.	65.	167.	603.	810.	417.	193.	210.	2705.	1997.
1907	108.	65.	49.	42.	50.	96.	196.	433.	1002.	718.	229.	116.	3105.	2349.
1908	93.	60.	46.	53.	40.	63.	128.	244.	528.	237.	144.	69.	1705.	1138.
1909	55.	46.	42.	47.	37.	53.	94.	365.	1492.	565.	199.	154.	3150.	2516.
1910	95.	66.	48.	52.	41.	115.	192.	432.	496.	169.	104.	92.	1900.	1289.
1911	62.	54.	41.	43.	42.	58.	107.	506.	720.	336.	141.	84.	2193.	1669.
1912	89.	54.	40.	47.	43.	50.	84.	469.	1165.	618.	218.	109.	2987.	2336.
1913	93.	54.	46.	45.	37.	43.	179.	452.	455.	223.	112.	88.	1828.	1309.
1914	90.	63.	42.	45.	42.	62.	155.	771.	1133.	383.	186.	112.	3084.	2441.
1915	102.	58.	38.	39.	37.	46.	136.	287.	585.	309.	110.	68.	1814.	1317.
1916	71.	48.	43.	44.	40.	77.	143.	458.	730.	333.	198.	113.	2297.	1663.
1917	97.	62.	48.	43.	41.	48.	172.	423.	1204.	620.	178.	99.	3036.	2419.
1918	74.	69.	59.	51.	49.	79.	127.	571.	1198.	357.	133.	100.	2867.	2252.
1919	89.	68.	52.	47.	40.	64.	157.	464.	346.	179.	115.	82.	1702.	1144.
1920	65.	60.	52.	45.	40.	47.	75.	735.	1025.	404.	178.	106.	2832.	2239.
1921	83.	68.	51.	50.	39.	77.	103.	640.	1176.	373.	194.	125.	2978.	2291.
1922	76.	63.	65.	50.	47.	76.	103.	473.	700.	228.	207.	88.	2095.	1503.
1923	59.	51.	49.	47.	41.	47.	93.	517.	931.	450.	204.	109.	2598.	1991.
1924	111.	76.	53.	52.	49.	52.	149.	498.	814.	260.	100.	66.	2280.	1721.
1925	84.	68.	45.	45.	41.	78.	167.	420.	470.	237.	125.	111.	1891.	1293.
1926	91.	65.	49.	45.	39.	55.	198.	602.	888.	420.	166.	72.	2690.	2108.
1927	65.	57.	46.	43.	39.	53.	136.	711.	712.	325.	183.	99.	2469.	1883.
1928	96.	79.	62.	59.	47.	73.	129.	853.	815.	452.	154.	96.	2915.	2249.
1929	78.	67.	43.	47.	41.	58.	136.	595.	946.	425.	236.	162.	2833.	2101.
1930	111.	76.	55.	51.	47.	55.	266.	386.	604.	225.	222.	104.	2204.	1482.
1931	80.	51.	40.	36.	35.	44.	95.	273.	398.	136.	84.	63.	1337.	903.
1932	52.	38.	30.	29.	31.	44.	144.	552.	676.	315.	129.	65.	2106.	1688.
1933	58.	50.	41.	41.	34.	47.	73.	287.	949.	266.	108.	74.	2027.	1575.
1934	63.	47.	42.	37.	34.	45.	107.	364.	184.	77.	73.	46.	1118.	732.
1935	39.	35.	33.	33.	30.	41.	76.	209.	720.	293.	120.	71.	1700.	1297.
1936	57.	53.	34.	36.	34.	44.	215.	768.	615.	270.	187.	87.	2401.	1868.
1937	66.	54.	40.	35.	36.	48.	97.	443.	379.	197.	92.	74.	1561.	1117.
1938	67.	59.	42.	40.	39.	68.	168.	549.	950.	340.	132.	121.	2575.	2007.
1939	71.	54.	53.	50.	41.	68.	149.	608.	461.	159.	88.	57.	1859.	1377.
1940	56.	44.	36.	36.	37.	49.	92.	379.	417.	160.	70.	67.	1442.	1048.
1941	72.	49.	42.	36.	37.	50.	85.	559.	513.	200.	106.	70.	1821.	1357.
1942	75.	59.	48.	43.	41.	46.	171.	397.	753.	269.	104.	54.	2060.	1590.
1943	51.	49.	44.	44.	42.	56.	191.	378.	652.	291.	124.	69.	1989.	1511.
1944	55.	49.	43.	37.	38.	48.	80.	334.	589.	241.	82.	45.	1640.	1244.
1945	46.	42.	37.	37.	36.	45.	69.	363.	567.	348.	209.	79.	1878.	1347.
1946	70.	61.	47.	43.	41.	61.	194.	303.	504.	203.	104.	69.	1701.	1205.
1947	66.	56.	45.	33.	42.	58.	112.	549.	675.	494.	184.	93.	2408.	1831.
1948	80.	72.	50.	48.	48.	52.	158.	622.	549.	196.	106.	62.	2044.	1525.
1949	55.	51.	47.	45.	41.	55.	124.	412.	766.	395.	132.	68.	2190.	1698.
1950	69.	48.	43.	40.	40.	49.	118.	278.	614.	212.	84.	63.	1658.	1222.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AFO725 FLOW AT GLENWOOD SPRINGS, CO ON THE COLORADO RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	54.	49.	50.	39.	44.	47.	91.	450.	47.	440.	167.	78.	2250.	1722.
1952	71.	58.	54.	49.	43.	48.	186.	567.	91.	322.	195.	104.	2873.	2249.
1953	65.	55.	48.	58.	45.	58.	87.	284.	740.	243.	147.	65.	1894.	1353.
1954	51.	55.	50.	49.	39.	45.	95.	240.	188.	120.	70.	53.	1056.	643.
1955	61.	49.	41.	37.	34.	43.	116.	304.	370.	178.	125.	55.	1414.	968.
1956	45.	50.	50.	44.	38.	55.	130.	610.	560.	153.	101.	49.	1884.	1453.
1957	43.	46.	42.	44.	41.	49.	83.	406.	1124.	800.	236.	107.	3021.	2413.
1958	81.	68.	58.	47.	47.	55.	85.	703.	621.	154.	88.	56.	2063.	1563.
1959	46.	49.	49.	45.	40.	47.	86.	316.	648.	208.	117.	65.	1716.	1258.
1960	100.	70.	48.	42.	40.	82.	204.	381.	657.	218.	95.	58.	1996.	1460.
1961	51.	48.	42.	35.	38.	48.	68.	304.	442.	151.	117.	158.	1501.	965.
1962	165.	84.	56.	52.	59.	62.	354.	653.	728.	407.	147.	70.	2836.	2142.
1963	67.	64.	49.	42.	45.	57.	102.	298.	263.	118.	122.	83.	1311.	782.
1964	51.	50.	38.	37.	33.	38.	73.	360.	416.	206.	112.	60.	1474.	1056.
1965	49.	47.	48.	48.	39.	43.	111.	404.	843.	509.	236.	113.	2491.	1868.
1966	102.	70.	60.	51.	42.	64.	102.	308.	250.	135.	88.	56.	1329.	795.
1967	66.	53.	42.	43.	38.	62.	113.	314.	532.	273.	112.	90.	1738.	1233.
1968	74.	63.	51.	41.	43.	50.	83.	239.	714.	249.	165.	83.	1854.	1285.
1969	67.	57.	54.	54.	43.	49.	153.	496.	477.	285.	124.	85.	1944.	1410.
1970	100.	69.	54.	52.	48.	50.	89.	647.	728.	325.	141.	107.	2409.	1789.
1971	108.	79.	56.	57.	54.	86.	186.	404.	819.	383.	153.	112.	2499.	1793.
1972	86.	68.	63.	55.	51.	81.	126.	366.	658.	206.	115.	107.	1983.	1357.
1973	95.	71.	66.	56.	48.	60.	89.	463.	716.	414.	182.	84.	2343.	1683.
1974	73.	69.	56.	57.	50.	71.	122.	660.	653.	298.	139.	80.	2327.	1733.
1975	75.	66.	54.	55.	52.	64.	93.	306.	660.	490.	158.	72.	2146.	1550.
1976	62.	58.	54.	52.	54.	62.	110.	344.	447.	240.	135.	86.	1704.	1141.
1977	71.	50.	39.	36.	36.	43.	93.	200.	262.	107.	80.	57.	1074.	661.
1978	63.	50.	52.	49.	45.	58.	137.	412.	936.	423.	140.	78.	2442.	1908.
MIN	39.	35.	30.	29.	30.	38.	68.	200.	184.	77.	70.	45.	1056.	643.
MAX	165.	84.	66.	59.	59.	115.	354.	853.	1492.	800.	236.	210.	3150.	2516.
TOTAL	5393.	4245.	3457.	3278.	3031.	4181.	9477.	33073.	50145.	22379.	10273.	6309.	155241.	115074.
MEAN	74.	58.	47.	45.	42.	57.	130.	453.	687.	307.	141.	86.	2127.	1576.
STDEV	21.	10.	8.	7.	6.	14.	50.	152.	264.	144.	45.	29.	540.	474.
DIST	3.	3.	2.	2.	2.	3.	6.	21.	32.	14.	7.	4.	100.	74.

82/03/16.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF0725 SALT AT GLENWOOD SPRINGS, CO ON THE COLORADO RIVER

13.51.21.
PAGE 3

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	35	32	29	30	27	34	55	97	98	70	54	54	615	320
1907	41	32	30	30	30	40	60	79	109	87	59	40	638	335
1908	39	32	30	32	28	34	47	55	79	56	46	31	509	238
1909	32	30	30	31	27	31	40	71	132	79	55	47	605	322
1910	39	33	30	32	28	43	60	79	77	49	39	36	543	264
1911	34	31	30	31	28	33	43	87	92	64	46	34	552	286
1912	38	31	30	31	28	31	37	83	117	57	39	39	605	319
1913	39	31	30	31	27	29	57	74	74	54	40	35	530	267
1914	38	32	30	31	28	34	53	113	115	68	53	40	634	349
1915	40	32	29	30	27	30	49	61	83	62	40	31	514	256
1916	35	30	30	31	28	36	50	82	93	64	54	40	573	289
1917	39	32	30	31	28	30	56	78	119	82	51	37	614	335
1918	36	33	31	32	29	37	47	94	119	66	44	38	605	325
1919	38	33	31	32	28	34	53	82	65	50	41	34	519	250
1920	34	32	31	31	28	30	35	110	110	69	52	39	599	323
1921	37	33	31	32	28	36	42	100	118	67	54	42	619	327
1922	36	32	32	32	29	36	42	83	91	55	43	35	546	271
1923	33	31	30	31	28	30	39	88	105	72	55	39	582	304
1924	41	34	31	32	29	31	52	86	98	58	38	31	561	294
1925	37	33	30	31	28	37	55	77	75	56	43	39	541	263
1926	39	32	30	31	28	32	61	97	102	70	50	32	603	330
1927	34	31	30	31	28	31	49	107	92	63	52	37	587	311
1928	39	34	31	33	29	36	48	120	98	72	48	37	625	338
1929	36	33	30	31	28	33	49	96	106	70	60	48	619	321
1930	41	34	31	32	29	32	72	74	85	55	58	38	580	285
1931	37	31	30	29	27	29	40	59	69	45	35	30	460	213
1932	32	29	28	28	26	29	51	92	90	63	44	30	540	295
1933	33	30	30	30	26	30	34	61	106	58	40	32	511	260
1934	34	30	30	29	26	29	43	71	47	36	40	26	433	197
1935	29	28	29	29	26	29	35	50	92	61	42	32	480	239
1936	33	31	29	29	27	29	64	113	86	59	53	35	586	321
1937	34	31	30	29	27	30	41	80	67	52	36	32	490	240
1938	35	32	30	30	28	35	55	91	106	64	44	41	591	317
1939	35	31	31	32	28	35	52	97	74	48	36	28	526	271
1940	32	30	29	29	27	30	39	73	71	48	32	31	471	230
1941	35	30	30	29	27	31	37	92	78	52	39	31	514	260
1942	36	32	30	30	28	30	56	75	94	59	39	28	537	284
1943	31	30	30	31	28	32	60	72	88	61	43	31	537	281
1944	32	30	30	29	27	30	36	67	84	56	34	25	482	243
1945	30	29	29	30	27	29	33	71	82	65	56	33	515	251
1946	35	32	30	30	28	33	60	63	78	52	39	31	513	253
1947	34	31	30	29	28	33	44	91	90	75	52	36	574	300
1948	37	33	31	31	29	31	53	99	81	52	39	29	546	285
1949	32	31	30	31	28	32	47	77	95	68	44	31	546	287
1950	35	30	30	30	28	30	45	60	86	53	35	30	492	244

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF0725 SALT AT GLENWOOD SPRINGS, CO ON THE COLORADO RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	32	30	31	30	28	30	39	81	94	71	50	33	549.	285.
1952	35	32	31	32	28	30	59	103	113	63	54	38	618.	337.
1953	34	31	30	33	29	33	38	61	94	56	47	30	515.	249.
1954	31	31	31	32	28	29	40	55	48	42	32	27	426.	185.
1955	33	30	30	30	27	29	45	63	67	50	43	28	474.	225.
1956	30	30	31	31	27	32	48	98	82	47	38	26	519.	274.
1957	30	30	30	31	28	30	37	76	115	91	60	39	595.	319.
1958	37	33	31	31	29	32	38	107	86	47	36	28	534.	277.
1959	30	30	30	31	28	30	38	65	88	53	41	30	495.	243.
1960	40	33	30	30	28	37	62	73	88	54	37	29	542.	277.
1961	32	30	30	29	27	30	33	63	73	47	41	47	482.	216.
1962	47	35	31	32	31	33	85	102	93	69	47	31	636.	349.
1963	35	32	30	30	29	32	42	63	56	42	42	34	468.	203.
1964	31	30	29	29	26	28	34	70	71	53	40	29	472.	228.
1965	31	30	30	31	28	29	44	76	100	76	60	40	574.	295.
1966	40	33	31	32	28	34	42	64	55	44	36	28	467.	205.
1967	34	31	30	31	27	33	44	65	80	59	40	36	510.	248.
1968	36	31	31	30	28	31	37	55	92	57	50	34	512.	241.
1969	35	31	31	32	28	30	52	86	76	60	43	35	539.	274.
1970	40	33	31	32	29	31	39	101	93	63	46	39	576.	296.
1971	41	34	31	33	30	38	59	76	98	68	48	40	595.	300.
1972	38	33	32	32	30	37	47	71	88	53	41	39	541.	259.
1973	39	33	32	32	29	33	38	82	92	70	52	34	568.	283.
1974	36	33	31	33	30	35	46	103	88	61	45	33	574.	298.
1975	36	33	31	32	30	34	40	64	89	75	48	32	542.	266.
1976	34	32	31	32	30	33	43	68	73	56	45	35	512.	241.
1977	35	30	30	29	27	29	39	49	56	41	34	28	428.	185.
1978	34	30	31	32	29	32	49	77	105	70	46	33	568.	301.
MIN	29	28	28	28	26	28	33	49	47	36	32	25	426.	185.
MAX	47	35	32	33	31	43	85	120	132	91	60	54	638.	349.
TOTAL	2588.	2301.	2210.	2249.	2046.	2353.	3430.	5848.	6470.	4402.	3285.	2513.	39695.	20149.
MEAN	35	32	30	31	28	32	47	80	89	60	45	34	544.	276.
STDEV	3	1	1	1	1	3	10	17	17	11	8	6	53.	40.
DIST	7	6	6	6	5	6	9	15	16	11	8	6	100.	51.

82/03/17.
UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AFO955 FLOW

15.37.59.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	115	104	66	66	67	110	275	986	1311	678	313	348	4438	3250
1907	178	110	85	73	85	159	332	703	1603	1142	368	193	5032	3780
1908	152	101	79	92	75	114	226	413	848	383	234	120	2836	1870
1909	97	84	77	88	69	98	165	738	1997	917	335	251	4916	3817
1910	156	113	87	93	76	207	344	736	799	276	169	155	3211	2155
1911	111	96	77	79	76	113	203	848	1164	553	230	145	3695	2768
1912	167	99	76	85	78	93	158	840	1796	980	353	181	4907	3775
1913	154	111	83	83	70	83	322	757	741	365	181	157	3107	2185
1914	148	111	75	83	76	110	274	1234	1732	641	308	191	4983	3882
1915	176	103	70	70	68	84	248	513	958	488	179	120	3078	2207
1916	121	85	77	82	76	149	276	800	1200	548	342	195	3952	2825
1917	174	109	86	75	74	88	287	725	1966	1004	298	172	5057	3982
1918	125	116	101	88	86	136	214	934	1874	566	215	171	4628	3588
1919	148	118	94	83	72	114	280	792	580	293	191	138	2903	1945
1920	108	104	91	82	76	87	133	1271	1693	663	295	179	4783	3760
1921	141	119	91	90	74	139	180	1062	1928	610	328	215	4977	3781
1922	129	111	114	90	83	131	186	866	1160	374	213	153	3609	2585
1923	100	92	89	86	75	85	174	883	1485	732	342	190	4331	3274
1924	184	131	93	90	88	91	270	844	1293	417	163	116	3782	2824
1925	139	115	80	79	74	132	300	692	760	390	212	197	3169	2141
1926	159	113	87	80	71	99	348	991	1400	655	258	122	4383	3395
1927	113	99	82	79	73	96	257	1183	1158	542	305	197	4183	3139
1928	168	138	110	104	86	130	236	1393	1304	710	252	165	4795	3643
1929	135	117	76	82	73	108	254	1023	1531	682	396	296	4773	3489
1930	195	134	98	88	88	99	463	643	988	365	365	177	3703	2459
1931	134	90	73	67	67	79	159	448	625	224	141	114	2221	1456
1932	95	73	58	55	63	82	269	963	1096	520	221	119	3614	2848
1933	99	89	73	73	62	85	123	486	1504	426	178	132	3330	2539
1934	106	85	87	87	76	92	204	678	305	144	119	86	2069	1330
1935	73	62	62	62	52	63	116	371	1357	551	197	128	3093	2396
1936	112	93	73	74	68	76	335	1225	1039	431	278	138	3943	3030
1937	112	90	76	70	71	90	164	800	671	349	161	134	2789	1984
1938	124	104	92	91	72	118	278	900	1580	615	229	203	4392	3372
1939	126	104	104	91	75	112	214	911	751	266	142	115	3019	2142
1940	98	78	63	63	63	78	142	604	647	229	110	116	2291	1622
1941	126	86	74	65	67	82	135	1004	891	399	187	128	3243	2429
1942	164	124	104	90	86	103	339	787	1283	489	188	104	3862	2899
1943	93	93	88	84	80	96	276	564	1049	467	228	128	3247	2356
1944	107	98	86	74	71	79	113	618	1032	477	153	87	2993	2240
1945	87	86	77	74	71	78	113	635	946	636	341	132	3276	2329
1946	120	113	93	85	79	97	284	488	890	342	164	111	2865	2004
1947	119	99	88	64	71	97	168	901	1133	840	302	166	4047	3041
1948	146	128	93	88	88	99	252	1028	961	394	193	103	3573	2636
1949	103	93	78	77	69	95	197	645	1243	678	229	128	3634	2763
1950	135	101	85	76	75	87	191	458	1029	381	146	114	2877	2058

82/03/17.
UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF0955 FLOW

15.37.59.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	104.	94.	92.	76.	74.	88.	139.	628.	1113.	680.	260.	118.	3467.	2560.
1952	117.	100.	97.	93.	80.	98.	308.	1072.	1670.	574.	335.	185.	4731.	3624.
1953	113.	101.	88.	93.	88.	92.	120.	411.	1177.	413.	237.	106.	3023.	2121.
1954	89.	100.	84.	82.	72.	76.	151.	421.	335.	209.	113.	103.	1837.	1117.
1955	131.	99.	83.	73.	67.	86.	169.	501.	645.	321.	216.	96.	2487.	1637.
1956	76.	90.	84.	74.	65.	91.	196.	910.	924.	250.	147.	72.	2978.	2280.
1957	70.	80.	74.	78.	74.	81.	142.	653.	1745.	1350.	421.	185.	4953.	3890.
1958	142.	120.	98.	120.	85.	106.	156.	1034.	1037.	281.	151.	104.	3390.	2508.
1959	89.	89.	81.	77.	72.	80.	124.	480.	1048.	330.	174.	100.	2743.	1982.
1960	154.	118.	89.	75.	76.	124.	286.	545.	1030.	352.	159.	102.	3112.	2214.
1961	98.	92.	81.	69.	67.	79.	106.	476.	718.	232.	172.	230.	2419.	1532.
1962	241.	135.	100.	88.	103.	101.	523.	1030.	1215.	719.	248.	125.	4627.	3487.
1963	115.	110.	92.	82.	79.	94.	152.	483.	420.	191.	175.	129.	2121.	1246.
1964	87.	86.	71.	59.	55.	65.	116.	579.	710.	364.	192.	112.	2496.	1769.
1965	90.	92.	89.	88.	74.	80.	171.	639.	1371.	881.	359.	193.	4128.	3062.
1966	177.	123.	111.	88.	71.	106.	163.	530.	461.	236.	147.	99.	2310.	1389.
1967	103.	91.	84.	80.	67.	100.	158.	481.	870.	457.	178.	141.	2810.	1966.
1968	115.	98.	91.	78.	77.	84.	122.	417.	1200.	423.	289.	136.	3130.	2162.
1969	120.	105.	93.	96.	74.	82.	278.	846.	777.	503.	202.	143.	3319.	2404.
1970	162.	120.	101.	94.	78.	86.	136.	1069.	1171.	543.	223.	196.	3980.	2920.
1971	174.	136.	120.	115.	86.	121.	294.	605.	1298.	617.	239.	179.	3985.	2815.
1972	143.	115.	111.	106.	99.	134.	188.	554.	1082.	334.	174.	166.	3208.	2158.
1973	167.	130.	111.	95.	84.	104.	124.	740.	1203.	731.	275.	145.	3909.	2799.
1974	125.	115.	104.	103.	88.	122.	186.	966.	981.	429.	202.	114.	3535.	2562.
1975	117.	109.	97.	92.	84.	107.	147.	518.	1124.	862.	252.	137.	3645.	2651.
1976	122.	114.	103.	97.	96.	112.	187.	567.	747.	387.	207.	140.	2880.	1888.
1977	133.	100.	93.	87.	77.	80.	138.	294.	398.	155.	119.	90.	1766.	985.
1978	100.	87.	89.	76.	63.	89.	205.	608.	1438.	635.	196.	106.	3692.	2886.
MIN	70.	62.	58.	55.	52.	63.	106.	294.	305.	144.	110.	72.	1766.	985.
MAX	241.	138.	120.	115.	103.	207.	523.	1393.	1997.	1350.	421.	348.	5057.	3982.
TOTAL	9343.	7570.	6387.	5978.	5494.	7312.	15666.	54443.	81210.	37287.	16815.	10780.	258286.	188606.
MEAN	128.	104.	87.	82.	75.	100.	215.	746.	1112.	511.	230.	148.	3538.	2584.
STDEV	32.	16.	13.	11.	9.	23.	84.	247.	398.	235.	75.	48.	859.	752.
DIST	4.	3.	2.	2.	2.	3.	6.	21.	31.	14.	7.	4.	100.	73.

82/03/17:
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF0955 SALT

15.37.59.
PAGE 3

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	87	81	69	73	69	86	126	226	193	140	117	133	1399	685
1907	106	83	74	75	76	100	139	181	216	173	126	99	1446	709
1908	99	80	73	80	72	87	114	127	151	111	102	78	1174	503
1909	81	75	72	79	70	82	97	187	244	159	120	113	1379	687
1910	100	83	75	81	72	111	142	186	146	97	89	88	1270	571
1911	86	79	72	77	72	87	108	205	180	129	102	86	1283	622
1912	103	80	72	79	73	80	95	203	230	163	123	96	1396	691
1913	99	83	74	78	70	76	137	190	140	109	91	89	1236	575
1914	97	83	71	78	72	86	126	262	225	137	116	98	1452	750
1915	105	81	70	74	70	77	120	147	162	122	91	78	1196	551
1916	89	76	72	78	72	97	127	197	183	128	122	99	1341	635
1917	104	82	75	76	71	78	129	185	242	164	114	93	1414	720
1918	91	84	79	80	76	94	111	218	235	130	99	93	1389	695
1919	97	84	77	78	71	87	128	196	122	99	93	84	1216	545
1920	85	81	76	78	72	78	87	267	222	139	114	95	1395	716
1921	96	85	76	80	72	94	102	238	239	134	119	104	1438	713
1922	92	83	82	80	75	92	103	208	180	110	98	88	1290	601
1923	82	78	75	79	72	77	100	210	207	144	122	98	1344	661
1924	107	88	77	80	76	79	125	204	191	115	87	77	1306	635
1925	95	84	73	77	72	93	132	179	142	112	98	100	1255	564
1926	100	83	75	77	71	82	143	227	200	138	107	78	1382	707
1927	87	80	74	77	71	81	122	255	180	128	115	100	1369	685
1928	103	89	81	83	76	92	117	284	192	143	106	91	1457	736
1929	94	84	72	78	71	85	121	232	210	140	130	122	1440	703
1930	110	88	78	80	76	82	165	170	165	109	125	95	1342	608
1931	93	77	71	73	69	75	96	134	127	89	82	76	1062	446
1932	81	72	66	69	67	76	125	223	174	126	100	78	1256	647
1933	82	77	71	75	67	77	84	142	208	116	91	82	1171	550
1934	84	76	75	79	72	80	108	177	85	74	76	66	1052	444
1935	72	68	67	71	63	68	81	119	196	129	95	80	1109	525
1936	86	78	71	75	70	74	140	261	169	116	111	84	1335	686
1937	86	77	72	74	70	79	97	197	132	107	87	82	1161	533
1938	90	81	76	77	71	88	127	213	214	135	101	101	1375	688
1939	91	81	79	80	72	86	111	215	141	95	82	76	1211	562
1940	82	73	67	72	67	75	90	164	130	90	73	77	1059	473
1941	91	76	71	73	69	76	88	229	155	113	93	80	1213	585
1942	102	86	79	80	76	84	141	195	190	123	93	73	1320	648
1943	80	78	75	78	74	81	127	156	170	120	101	80	1221	573
1944	85	79	75	75	70	75	80	166	169	121	85	66	1146	536
1945	77	76	72	75	71	74	80	169	161	136	121	82	1195	546
1946	89	83	76	79	73	82	128	142	155	106	87	75	1176	531
1947	89	80	75	72	70	82	98	213	178	153	115	92	1316	642
1948	97	87	77	79	76	82	121	232	162	112	94	72	1292	627
1949	83	78	72	76	70	81	107	171	187	140	102	80	1247	605
1950	94	80	74	76	72	78	105	136	168	111	83	76	1153	520

82/03/17.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF0955 SALT

15.37.59.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	84.	78.	76.	76.	72.	78.	89.	168.	176.	140.	107.	77.	1222.	573.
1952	88.	80.	78.	81.	74.	82.	134.	239.	221.	131.	120.	97.	1424.	724.
1953	87.	80.	75.	81.	71.	80.	83.	127.	181.	114.	103.	73.	1155.	505.
1954	78.	80.	74.	78.	71.	74.	93.	129.	90.	86.	74.	72.	999.	398.
1955	92.	80.	74.	75.	69.	78.	99.	145.	130.	103.	99.	70.	1112.	476.
1956	73.	77.	74.	75.	68.	79.	106.	215.	158.	93.	83.	60.	1163.	572.
1957	71.	74.	71.	77.	72.	76.	90.	172.	226.	186.	133.	97.	1345.	674.
1958	96.	85.	78.	76.	75.	85.	95.	233.	169.	98.	84.	73.	1246.	595.
1959	78.	77.	73.	76.	71.	75.	84.	141.	170.	104.	90.	71.	1110.	499.
1960	99.	85.	75.	76.	72.	90.	129.	153.	168.	107.	86.	72.	1213.	557.
1961	81.	78.	73.	74.	69.	75.	78.	140.	138.	90.	89.	108.	1092.	445.
1962	120.	89.	78.	79.	81.	83.	175.	233.	185.	143.	105.	79.	1451.	736.
1963	87.	82.	76.	73.	73.	80.	93.	141.	102.	83.	90.	81.	1068.	420.
1964	78.	76.	70.	71.	64.	69.	81.	159.	137.	108.	94.	75.	1082.	486.
1965	79.	78.	76.	80.	72.	75.	99.	170.	198.	156.	124.	99.	1304.	622.
1966	105.	86.	81.	79.	71.	85.	97.	150.	107.	91.	83.	71.	1105.	445.
1967	84.	78.	74.	77.	69.	83.	95.	141.	153.	119.	91.	84.	1147.	508.
1968	87.	79.	76.	77.	73.	77.	83.	128.	183.	115.	113.	83.	1175.	510.
1969	89.	81.	77.	81.	72.	76.	127.	204.	144.	124.	96.	85.	1256.	599.
1970	101.	85.	79.	81.	73.	78.	88.	239.	181.	128.	100.	99.	1332.	636.
1971	104.	89.	83.	86.	76.	89.	131.	164.	192.	135.	104.	95.	1347.	621.
1972	96.	84.	81.	84.	80.	93.	104.	155.	173.	105.	90.	92.	1236.	536.
1973	103.	87.	81.	81.	75.	84.	84.	187.	184.	144.	110.	86.	1306.	599.
1974	91.	84.	79.	83.	76.	90.	103.	223.	164.	116.	96.	76.	1281.	606.
1975	88.	82.	78.	81.	75.	85.	92.	148.	177.	154.	106.	83.	1248.	571.
1976	90.	84.	79.	82.	79.	87.	104.	157.	141.	111.	97.	84.	1193.	513.
1977	93.	80.	76.	79.	73.	75.	89.	102.	99.	76.	76.	68.	986.	366.
1978	82.	76.	75.	76.	68.	79.	109.	164.	203.	136.	95.	73.	1236.	612.
MIN	71.	68.	66.	69.	63.	68.	78.	102.	85.	74.	73.	60.	986.	366.
MAX	120.	89.	83.	86.	81.	111.	175.	284.	244.	186.	133.	133.	1457.	750.
TOTAL	6631.	5892.	5465.	5666.	5253.	5999.	7984.	13563.	12618.	8881.	7334.	6234.	91519.	43046.
MEAN	91.	81.	75.	78.	72.	82.	109.	186.	173.	122.	100.	85.	1254.	590.
STDEV	10.	4.	4.	3.	3.	7.	21.	41.	36.	23.	15.	13.	119.	90.
DIST	7.	6.	6.	6.	6.	7.	9.	15.	14.	10.	8.	7.	100.	47.

B2/03/16.
UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF1246 FLOW AT BLUE MESA DAM ON THE GUNNISON RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	28.	25.	27.	26.	22.	39.	107.	334.	454.	214.	100.	62.	1438.	1109.
1907	51.	32.	27.	26.	21.	51.	119.	222.	534.	391.	152.	80.	1706.	1266.
1908	55.	33.	26.	25.	22.	36.	92.	135.	248.	143.	106.	45.	966.	618.
1909	36.	26.	27.	25.	21.	39.	93.	361.	557.	327.	125.	149.	1786.	1338.
1910	72.	32.	27.	25.	22.	89.	175.	318.	286.	104.	62.	43.	1255.	883.
1911	35.	29.	27.	26.	21.	36.	110.	330.	453.	259.	111.	68.	1505.	1152.
1912	120.	46.	34.	29.	25.	42.	113.	363.	458.	272.	103.	58.	1663.	1206.
1913	57.	29.	28.	20.	20.	30.	107.	240.	231.	115.	77.	61.	1020.	693.
1914	48.	38.	30.	26.	21.	47.	104.	383.	435.	243.	113.	67.	1555.	1165.
1915	66.	48.	30.	27.	23.	47.	85.	140.	270.	141.	67.	38.	983.	637.
1916	33.	28.	25.	23.	19.	38.	108.	310.	439.	203.	148.	67.	1441.	1060.
1917	65.	38.	32.	23.	23.	29.	75.	185.	565.	287.	105.	56.	1483.	1112.
1918	47.	31.	26.	23.	26.	34.	62.	290.	496.	182.	124.	86.	1428.	1031.
1919	60.	34.	27.	20.	19.	36.	84.	280.	215.	133.	87.	48.	1043.	712.
1920	37.	34.	29.	25.	25.	44.	49.	435.	550.	236.	103.	55.	1623.	1271.
1921	47.	39.	31.	29.	24.	35.	62.	285.	590.	240.	122.	74.	1578.	1177.
1922	45.	38.	29.	27.	25.	35.	69.	330.	365.	126.	82.	41.	1213.	891.
1923	27.	28.	24.	22.	21.	30.	69.	308.	434.	232.	134.	80.	1409.	1043.
1924	61.	45.	29.	27.	26.	32.	112.	301.	358.	114.	54.	33.	1192.	885.
1925	34.	33.	27.	25.	23.	40.	132.	224.	209.	136.	91.	62.	1037.	701.
1926	48.	39.	26.	20.	19.	32.	83.	236.	322.	134.	74.	37.	1070.	775.
1927	38.	31.	28.	24.	24.	33.	88.	355.	347.	180.	104.	106.	1358.	970.
1928	70.	52.	40.	33.	28.	49.	89.	448.	392.	181.	87.	48.	1518.	1111.
1929	37.	49.	24.	21.	20.	45.	83.	350.	437.	191.	167.	157.	1582.	1061.
1930	88.	53.	33.	23.	21.	29.	173.	185.	285.	113.	124.	49.	1175.	756.
1931	38.	30.	29.	23.	21.	27.	44.	70.	112.	57.	46.	26.	523.	283.
1932	31.	30.	28.	23.	19.	27.	85.	280.	320.	172.	88.	41.	1144.	857.
1933	27.	33.	25.	21.	17.	36.	44.	176.	342.	100.	66.	35.	922.	662.
1934	28.	30.	28.	23.	21.	32.	58.	126.	59.	46.	46.	24.	521.	289.
1935	18.	6.	24.	21.	17.	30.	48.	128.	404.	147.	80.	47.	971.	728.
1936	36.	30.	20.	22.	20.	30.	175.	396.	241.	105.	103.	50.	1228.	917.
1937	37.	28.	20.	20.	20.	26.	104.	329.	190.	95.	60.	33.	961.	717.
1938	39.	32.	25.	25.	22.	34.	132.	275.	447.	165.	80.	64.	1338.	1019.
1939	50.	39.	27.	26.	18.	51.	102.	250.	178.	70.	56.	38.	906.	600.
1940	26.	26.	23.	20.	16.	29.	64.	174.	147.	52.	42.	28.	647.	437.
1941	29.	27.	21.	22.	21.	29.	55.	320.	334.	168.	83.	34.	1142.	876.
1942	65.	46.	34.	26.	22.	30.	154.	293.	415.	159.	80.	31.	1355.	1021.
1943	27.	29.	28.	23.	21.	29.	169.	242.	293.	137.	108.	56.	1162.	842.
1944	36.	37.	25.	21.	23.	28.	57.	324.	399.	187.	75.	26.	1236.	966.
1945	32.	29.	23.	25.	21.	27.	52.	234.	244.	157.	111.	38.	993.	687.
1946	36.	32.	24.	23.	20.	33.	95.	142.	252.	98.	61.	27.	842.	586.
1947	53.	30.	33.	19.	19.	28.	66.	304.	333.	217.	103.	66.	1243.	921.
1948	53.	40.	33.	27.	25.	29.	94.	432.	386.	155.	81.	30.	1386.	1067.
1949	37.	32.	27.	24.	21.	29.	107.	258.	442.	235.	90.	30.	1331.	1042.
1950	39.	37.	25.	25.	22.	25.	111.	169.	258.	105.	50.	21.	889.	643.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF1246 FLOW AT BLUE MESA DAM ON THE GUNNISON RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	30	26	28	25	25	33	62	183	298	108	70	22	911	651
1952	30	27	27	28	23	26	146	376	539	181	115	50	1568	1243
1953	39	31	32	28	20	32	50	143	339	123	79	25	939	654
1954	30	34	28	23	22	27	54	101	91	81	50	23	562	327
1955	36	26	25	22	15	20	62	135	189	79	74	9	692	465
1956	20	26	29	24	19	28	84	235	243	70	47	14	839	633
1957	23	28	23	21	22	27	74	233	683	463	188	71	1855	1452
1958	46	43	41	32	28	32	95	458	380	101	67	35	1358	1034
1959	29	31	27	25	23	27	51	122	237	75	54	20	721	486
1960	51	38	25	23	25	47	138	160	286	104	60	23	982	689
1961	29	26	25	21	18	30	47	173	199	69	69	61	769	488
1962	64	46	32	30	29	30	185	329	355	197	80	32	1408	1065
1963	36	30	24	22	24	46	69	161	113	71	59	39	694	414
1964	26	31	22	19	19	22	50	220	230	119	86	36	879	618
1965	25	30	28	28	22	29	93	266	453	340	148	87	1548	1151
1966	57	45	40	34	31	47	89	196	167	94	60	21	882	546
1967	29	28	28	22	21	41	53	159	215	111	62	41	810	538
1968	28	28	19	20	20	27	45	181	358	127	138	34	1022	710
1969	32	25	14	17	19	14	118	278	230	167	84	38	1035	794
1970	66	29	22	19	15	25	71	456	330	165	96	110	1405	1021
1971	57	39	23	22	15	42	103	168	327	157	75	44	1071	755
1972	37	37	26	22	18	53	68	155	247	78	49	28	817	548
1973	45	29	18	14	19	28	44	239	372	208	79	31	1125	862
1974	29	17	15	14	7	30	69	264	207	83	52	13	800	624
1975	21	22	17	16	15	21	48	192	390	296	87	26	1149	925
1976	21	25	17	18	20	24	70	170	215	87	57	28	752	542
1977	27	17	7	7	13	18	40	55	65	30	28	21	329	190
1978	19	22	20	24	15	41	76	208	445	183	54	14	1121	912
MIN	18	6	7	7	7	14	40	55	59	30	28	9	329	190
MAX	120	53	41	34	31	89	185	458	683	463	188	157	1855	1452
TOTAL	3002	2369	1907	1702	1529	2469	6414	18281	23930	11496	6300	3412	82811	60120
MEAN	41	32	26	23	21	34	88	250	328	157	86	47	1134	824
STDEV	17	8	6	4	4	11	36	96	132	82	32	28	330	276
DIST	4	3	2	2	2	3	8	22	29	14	8	4	100	73

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF1246 SALT AT BLUE MESA DAM ON THE GUNNISON RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	12.	18.	16.	14.	12.	14.	21.	38.	37.	27.	20.	16.	244.	122.
1907	21.	19.	16.	14.	11.	18.	23.	27.	42.	44.	27.	20.	282.	135.
1908	23.	19.	16.	14.	12.	13.	18.	18.	23.	20.	21.	12.	208.	79.
1909	15.	18.	16.	14.	11.	14.	18.	40.	43.	38.	23.	33.	285.	139.
1910	29.	19.	16.	14.	12.	30.	32.	36.	26.	15.	14.	12.	255.	109.
1911	15.	19.	16.	14.	11.	13.	21.	37.	37.	31.	21.	17.	254.	127.
1912	48.	21.	19.	15.	13.	15.	22.	40.	37.	33.	20.	15.	298.	132.
1913	23.	19.	17.	14.	11.	11.	21.	29.	22.	17.	16.	16.	214.	88.
1914	20.	20.	17.	14.	11.	17.	20.	42.	36.	30.	22.	17.	266.	128.
1915	27.	21.	17.	15.	12.	17.	17.	18.	25.	19.	14.	11.	214.	79.
1916	14.	18.	16.	13.	10.	14.	21.	35.	36.	26.	27.	17.	247.	118.
1917	26.	20.	18.	13.	12.	11.	15.	23.	43.	34.	20.	15.	251.	116.
1918	19.	19.	16.	13.	13.	13.	13.	33.	39.	24.	23.	21.	247.	109.
1919	25.	19.	16.	12.	10.	13.	17.	32.	21.	19.	18.	13.	215.	88.
1920	15.	19.	17.	14.	13.	16.	10.	47.	43.	29.	20.	15.	258.	129.
1921	19.	20.	18.	15.	12.	13.	13.	33.	45.	30.	23.	19.	260.	120.
1922	19.	20.	17.	15.	13.	13.	14.	37.	31.	18.	17.	11.	224.	100.
1923	11.	18.	15.	13.	11.	11.	14.	35.	35.	29.	25.	20.	238.	114.
1924	25.	21.	17.	15.	13.	12.	22.	34.	31.	16.	12.	9.	227.	103.
1925	14.	19.	16.	14.	12.	15.	25.	27.	20.	19.	18.	16.	216.	91.
1926	20.	20.	16.	12.	10.	12.	17.	28.	28.	19.	16.	10.	208.	92.
1927	16.	19.	17.	13.	12.	12.	17.	39.	30.	24.	20.	25.	245.	110.
1928	28.	22.	20.	17.	14.	18.	18.	48.	33.	24.	18.	13.	271.	122.
1929	15.	22.	15.	12.	11.	16.	17.	39.	36.	25.	29.	35.	272.	116.
1930	35.	22.	18.	13.	11.	11.	32.	23.	26.	16.	23.	13.	244.	97.
1931	16.	19.	17.	13.	11.	10.	10.	10.	13.	9.	11.	8.	146.	42.
1932	13.	19.	17.	13.	10.	10.	17.	32.	28.	23.	18.	11.	212.	100.
1933	11.	19.	16.	12.	10.	13.	10.	22.	29.	15.	14.	10.	182.	76.
1934	12.	19.	17.	13.	11.	12.	12.	17.	8.	8.	11.	7.	146.	45.
1935	8.	12.	15.	12.	10.	11.	10.	17.	34.	20.	16.	13.	179.	81.
1936	15.	19.	14.	13.	11.	11.	32.	43.	23.	15.	20.	13.	229.	113.
1937	15.	18.	14.	12.	11.	10.	20.	37.	19.	14.	13.	9.	193.	90.
1938	16.	19.	16.	14.	11.	13.	25.	32.	36.	22.	17.	16.	237.	115.
1939	21.	20.	16.	14.	10.	18.	20.	30.	18.	20.	13.	11.	202.	79.
1940	11.	18.	15.	12.	9.	11.	13.	22.	15.	9.	10.	8.	154.	59.
1941	12.	18.	14.	13.	11.	11.	12.	36.	29.	22.	17.	10.	205.	99.
1942	26.	21.	19.	14.	12.	11.	29.	34.	34.	21.	16.	9.	247.	118.
1943	11.	19.	17.	13.	11.	11.	31.	29.	26.	19.	21.	15.	223.	105.
1944	15.	20.	16.	12.	12.	10.	12.	37.	33.	24.	16.	8.	215.	106.
1945	13.	19.	15.	14.	11.	10.	11.	28.	23.	21.	21.	11.	197.	83.
1946	15.	19.	16.	13.	11.	12.	19.	19.	23.	15.	13.	8.	182.	75.
1947	14.	19.	15.	12.	10.	11.	14.	35.	29.	27.	20.	17.	222.	105.
1948	22.	20.	18.	15.	13.	11.	19.	46.	32.	21.	17.	9.	243.	118.
1949	15.	19.	17.	13.	11.	11.	21.	30.	36.	29.	18.	9.	229.	116.
1950	16.	20.	16.	14.	12.	10.	21.	21.	24.	15.	11.	7.	187.	82.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF1246 SALT AT BLUE MESA DAM ON THE GUNNISON RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	12.	18.	17.	14.	13.	12.	13.	23.	27.	16.	15.	7.	186.	78.
1952	12.	18.	16.	15.	12.	10.	27.	41.	42.	24.	22.	13.	253.	134.
1953	16.	19.	18.	15.	11.	11.	11.	12.	29.	17.	16.	7.	190.	76.
1954	12.	20.	17.	13.	11.	10.	11.	14.	11.	13.	11.	7.	150.	49.
1955	15.	18.	16.	13.	9.	8.	13.	18.	19.	12.	15.	3.	158.	62.
1956	8.	18.	17.	13.	10.	11.	17.	28.	23.	11.	11.	4.	172.	79.
1957	10.	18.	15.	12.	12.	10.	15.	28.	50.	50.	32.	18.	270.	143.
1958	19.	21.	21.	16.	14.	12.	19.	49.	32.	15.	14.	10.	241.	114.
1959	12.	19.	17.	14.	12.	10.	11.	16.	22.	12.	12.	6.	163.	61.
1960	21.	20.	16.	13.	13.	17.	26.	21.	26.	15.	13.	7.	208.	88.
1961	12.	18.	16.	12.	10.	11.	10.	22.	19.	11.	15.	16.	173.	62.
1962	26.	21.	18.	16.	14.	11.	34.	37.	30.	25.	16.	9.	258.	126.
1963	15.	19.	15.	13.	13.	17.	14.	21.	13.	11.	13.	11.	173.	59.
1964	11.	19.	15.	11.	11.	8.	11.	27.	22.	17.	17.	10.	179.	76.
1965	10.	19.	17.	15.	12.	11.	18.	31.	37.	39.	27.	21.	256.	125.
1966	23.	21.	21.	17.	15.	17.	18.	24.	17.	14.	13.	6.	206.	73.
1967	12.	18.	17.	13.	11.	15.	11.	20.	21.	16.	14.	11.	179.	68.
1968	12.	18.	12.	12.	11.	10.	10.	23.	31.	18.	25.	10.	192.	81.
1969	13.	18.	12.	10.	10.	6.	23.	32.	22.	22.	17.	11.	196.	99.
1970	27.	19.	15.	12.	9.	10.	14.	48.	29.	22.	19.	26.	249.	114.
1971	23.	20.	15.	13.	9.	15.	20.	21.	28.	21.	16.	12.	214.	91.
1972	15.	20.	16.	13.	10.	19.	14.	20.	23.	12.	11.	8.	181.	69.
1973	18.	19.	13.	10.	10.	11.	10.	29.	31.	26.	16.	9.	202.	96.
1974	12.	16.	12.	9.	5.	11.	14.	31.	20.	13.	12.	4.	159.	78.
1975	9.	17.	13.	10.	9.	8.	10.	24.	33.	35.	18.	8.	192.	102.
1976	9.	18.	13.	11.	11.	9.	14.	22.	21.	13.	13.	8.	161.	70.
1977	11.	16.	8.	6.	8.	7.	9.	9.	8.	6.	7.	6.	101.	31.
1978	8.	17.	14.	13.	9.	15.	15.	25.	36.	24.	12.	5.	194.	101.
MIN	8.	12.	8.	6.	5.	6.	9.	9.	8.	6.	7.	3.	101.	31.
MAX	48.	22.	21.	17.	15.	30.	34.	49.	50.	50.	32.	35.	298.	143.
TOTAL	1232.	1394.	1174.	959.	818.	914.	1264.	2141.	2052.	1518.	1262.	904.	15631.	6975.
MEAN	17.	19.	16.	13.	11.	13.	17.	29.	28.	21.	17.	12.	214.	96.
STDEV	7.	1.	2.	2.	1.	4.	6.	9.	9.	8.	5.	6.	39.	25.
DIST	8.	9.	8.	6.	5.	6.	8.	14.	13.	10.	8.	6.	100.	45.

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NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	32.	29.	29.	29.	26.	46.	135.	407.	534.	235.	106.	66.	1674.	1311.
1907	56.	37.	29.	29.	26.	61.	149.	271.	629.	428.	162.	84.	1960.	1477.
1908	61.	38.	28.	28.	26.	43.	115.	165.	293.	156.	114.	49.	1115.	729.
1909	39.	30.	29.	28.	25.	46.	116.	440.	655.	358.	134.	159.	2060.	1569.
1910	78.	36.	29.	28.	26.	106.	220.	387.	334.	112.	78.	46.	1481.	1054.
1911	38.	33.	30.	29.	26.	43.	137.	401.	532.	284.	119.	73.	1743.	1355.
1912	132.	52.	37.	33.	29.	49.	166.	442.	538.	297.	110.	61.	1945.	1442.
1913	63.	33.	30.	28.	23.	36.	135.	292.	272.	125.	81.	65.	1184.	824.
1914	53.	42.	32.	29.	25.	55.	131.	465.	511.	264.	123.	71.	1802.	1371.
1915	73.	54.	32.	30.	27.	55.	107.	172.	319.	151.	72.	41.	1132.	748.
1916	36.	33.	28.	25.	22.	45.	136.	378.	516.	222.	159.	72.	1670.	1252.
1917	72.	43.	34.	26.	27.	34.	94.	226.	664.	315.	114.	59.	1708.	1299.
1918	53.	35.	28.	26.	30.	40.	78.	354.	581.	198.	132.	92.	1647.	1211.
1919	66.	39.	29.	21.	22.	42.	105.	342.	251.	142.	92.	52.	1202.	840.
1920	41.	39.	31.	28.	29.	52.	62.	532.	645.	257.	111.	59.	1884.	1496.
1921	52.	45.	33.	33.	28.	41.	77.	349.	693.	263.	131.	80.	1824.	1382.
1922	51.	43.	31.	31.	29.	41.	87.	401.	428.	137.	88.	45.	1409.	1053.
1923	30.	32.	26.	24.	24.	35.	87.	374.	510.	256.	144.	85.	1627.	1226.
1924	67.	51.	31.	31.	30.	38.	139.	367.	418.	124.	59.	35.	1388.	1048.
1925	37.	38.	29.	28.	27.	48.	165.	274.	245.	146.	96.	66.	1199.	830.
1926	53.	44.	28.	22.	22.	37.	103.	289.	378.	145.	79.	40.	1239.	915.
1927	42.	36.	30.	27.	28.	39.	110.	432.	407.	197.	113.	114.	1574.	1146.
1928	77.	59.	43.	38.	33.	58.	112.	547.	462.	198.	93.	51.	1772.	1319.
1929	42.	55.	26.	23.	23.	53.	103.	425.	515.	211.	180.	166.	1822.	1255.
1930	95.	61.	36.	25.	25.	34.	217.	226.	335.	124.	133.	52.	1363.	903.
1931	42.	34.	31.	26.	24.	31.	55.	85.	131.	61.	49.	29.	600.	333.
1932	34.	35.	30.	25.	22.	32.	106.	342.	377.	189.	94.	43.	1329.	1014.
1933	31.	38.	27.	23.	21.	42.	55.	217.	401.	111.	70.	39.	1073.	783.
1934	33.	35.	30.	25.	25.	37.	72.	155.	69.	48.	48.	26.	604.	345.
1935	21.	7.	26.	23.	21.	36.	61.	155.	475.	162.	85.	50.	1121.	852.
1936	40.	33.	23.	24.	23.	36.	220.	480.	283.	113.	110.	53.	1438.	1096.
1937	40.	32.	22.	22.	23.	30.	130.	401.	220.	104.	64.	36.	1123.	855.
1938	42.	36.	30.	28.	22.	41.	168.	345.	529.	182.	85.	68.	1576.	1224.
1939	54.	43.	31.	30.	20.	60.	123.	290.	200.	72.	59.	38.	1019.	685.
1940	28.	30.	24.	21.	16.	33.	80.	211.	173.	56.	45.	31.	746.	520.
1941	33.	33.	23.	22.	23.	33.	65.	378.	381.	182.	87.	38.	1297.	1007.
1942	72.	51.	38.	31.	27.	37.	187.	344.	473.	169.	82.	33.	1544.	1173.
1943	29.	30.	28.	25.	24.	35.	202.	285.	340.	149.	118.	61.	1325.	976.
1944	40.	42.	28.	23.	25.	33.	71.	383.	462.	207.	78.	28.	1420.	1123.
1945	35.	33.	24.	27.	24.	31.	62.	291.	296.	176.	119.	40.	1159.	826.
1946	38.	36.	27.	26.	25.	41.	119.	170.	287.	101.	65.	31.	964.	676.
1947	38.	32.	23.	21.	21.	32.	78.	345.	382.	237.	110.	70.	1388.	1042.
1948	58.	44.	35.	31.	30.	35.	160.	517.	432.	167.	85.	32.	1626.	1276.
1949	39.	35.	31.	24.	23.	33.	128.	307.	511.	255.	93.	34.	1513.	1201.
1950	42.	41.	26.	25.	24.	28.	130.	194.	293.	112.	53.	24.	991.	729.

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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	31.	29.	32.	27.	25.	37.	72.	212.	318.	138.	73.	24.	1016.	740.
1952	33.	30.	29.	31.	27.	29.	182.	457.	624.	199.	123.	55.	1818.	1461.
1953	45.	36.	33.	31.	24.	37.	62.	171.	394.	133.	85.	28.	1077.	760.
1954	32.	39.	30.	25.	25.	32.	65.	121.	102.	87.	55.	27.	639.	375.
1955	38.	29.	26.	23.	18.	23.	76.	161.	216.	87.	78.	25.	799.	540.
1956	22.	29.	32.	26.	22.	32.	104.	279.	278.	76.	52.	17.	968.	738.
1957	25.	29.	23.	23.	24.	32.	91.	302.	806.	568.	203.	78.	2202.	1767.
1958	51.	50.	45.	34.	31.	35.	117.	550.	443.	109.	71.	39.	1575.	1219.
1959	31.	34.	30.	27.	26.	29.	63.	146.	272.	79.	59.	22.	819.	561.
1960	57.	41.	27.	27.	29.	58.	173.	193.	327.	110.	59.	24.	1123.	802.
1961	31.	34.	28.	24.	21.	34.	57.	204.	225.	71.	72.	67.	868.	557.
1962	70.	52.	36.	33.	33.	34.	220.	384.	398.	216.	83.	37.	1595.	1218.
1963	41.	36.	28.	23.	27.	57.	79.	182.	120.	71.	59.	42.	764.	452.
1964	26.	31.	22.	21.	20.	25.	69.	281.	275.	127.	87.	38.	1021.	752.
1965	29.	32.	31.	31.	25.	31.	119.	331.	527.	381.	155.	92.	1783.	1359.
1966	68.	50.	42.	37.	32.	54.	114.	244.	181.	97.	58.	22.	1001.	636.
1967	33.	32.	33.	28.	25.	47.	58.	177.	229.	111.	63.	45.	881.	574.
1968	30.	32.	27.	31.	30.	40.	55.	231.	424.	132.	145.	37.	1215.	842.
1969	40.	37.	31.	35.	28.	33.	155.	335.	256.	185.	96.	48.	1279.	932.
1970	82.	48.	37.	36.	29.	41.	92.	564.	411.	192.	113.	131.	1776.	1259.
1971	77.	59.	47.	38.	38.	71.	138.	219.	387.	177.	81.	53.	1383.	921.
1972	45.	49.	37.	36.	34.	68.	83.	178.	271.	82.	48.	32.	962.	614.
1973	53.	33.	30.	23.	24.	36.	59.	326.	459.	240.	89.	36.	1409.	1085.
1974	34.	29.	27.	19.	23.	50.	93.	348.	235.	92.	56.	14.	1022.	768.
1975	32.	34.	30.	29.	22.	30.	66.	252.	463.	344.	93.	26.	1422.	1125.
1976	29.	30.	27.	33.	34.	36.	86.	202.	240.	92.	59.	39.	907.	620.
1977	34.	26.	17.	17.	19.	17.	56.	64.	73.	33.	32.	23.	411.	226.
1978	26.	28.	28.	28.	20.	52.	99.	259.	541.	212.	60.	20.	1372.	1110.
MIN	21.	7.	17.	17.	16.	17.	55.	64.	69.	33.	32.	14.	411.	226.
MAX	132.	61.	47.	38.	38.	106.	220.	564.	806.	568.	203.	166.	2202.	1767.
TOTAL	3369.	2748.	2181.	1993.	1852.	2988.	8059.	22224.	27875.	12642.	6728.	3726.	96386.	70800.
MEAN	46.	38.	30.	27.	25.	41.	110.	304.	382.	173.	92.	51.	1320.	970.
STDEV	19.	9.	5.	5.	4.	13.	45.	117.	157.	95.	34.	30.	387.	330.
DIST	3.	3.	2.	2.	2.	3.	8.	23.	29.	13.	7.	4.	100.	73.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	13	19	17	15	13	17	25	44	42	29	21	17	272	140
1907	23	20	17	15	13	21	28	32	47	47	29	21	312	153
1908	25	20	17	15	13	16	22	21	26	21	22	13	230	90
1909	16	19	17	15	13	17	22	47	49	41	25	35	315	159
1910	32	20	17	15	13	36	39	42	29	16	16	13	288	127
1911	16	19	17	15	13	16	26	44	41	34	22	18	281	145
1912	53	22	20	17	14	18	31	47	42	35	21	16	334	155
1913	26	19	17	15	12	13	25	34	25	18	17	17	238	102
1914	22	21	18	15	13	20	25	49	40	32	23	18	295	146
1915	30	22	18	16	13	19	21	22	28	21	15	11	236	91
1916	15	19	17	14	12	16	26	42	40	28	28	18	274	136
1917	29	21	19	14	14	13	18	27	49	37	22	15	278	132
1918	22	20	17	14	15	15	16	39	44	25	24	22	273	125
1919	27	20	17	12	12	15	20	38	23	20	18	14	237	102
1920	17	20	18	15	14	19	13	55	48	31	21	15	286	147
1921	21	21	18	16	14	15	16	39	51	32	24	20	287	137
1922	21	21	18	16	14	15	17	44	35	19	18	12	249	115
1923	13	19	16	13	12	13	17	41	40	31	26	21	263	130
1924	27	22	18	16	15	14	26	41	34	18	13	10	252	119
1925	15	20	17	15	14	17	30	32	23	20	19	17	239	105
1926	22	21	17	13	11	14	20	33	32	20	16	11	230	105
1927	17	20	17	15	14	14	21	46	34	25	22	27	272	127
1928	31	23	21	18	16	21	22	56	37	27	19	14	302	140
1929	17	22	16	13	12	19	20	46	40	25	31	37	300	133
1930	38	23	19	14	13	13	39	27	29	18	24	14	270	113
1931	17	20	18	14	13	12	12	12	14	10	11	8	161	48
1932	14	20	17	14	12	12	21	38	32	24	19	12	234	115
1933	13	20	16	13	11	15	12	26	33	16	15	11	202	87
1934	14	20	17	14	13	14	15	20	9	8	11	8	161	52
1935	9	12	16	13	11	13	13	20	38	22	17	13	198	92
1936	16	19	15	13	12	13	39	51	25	16	21	14	256	132
1937	16	19	15	13	12	11	25	44	21	15	14	10	215	105
1938	17	20	17	15	12	15	31	39	41	24	17	17	265	135
1939	22	21	18	15	11	21	23	33	20	11	13	11	220	88
1940	12	19	15	12	9	12	16	26	17	9	10	9	167	69
1941	13	19	15	13	12	12	13	42	32	24	18	11	224	111
1942	29	22	20	16	13	14	34	38	38	22	17	9	273	133
1943	12	19	17	14	12	13	36	33	29	20	22	16	244	119
1944	16	21	17	13	13	12	15	42	37	26	16	8	236	120
1945	14	19	15	13	12	12	13	34	26	23	22	11	217	96
1946	16	20	16	14	13	15	23	22	26	15	14	9	201	85
1947	16	19	15	12	11	12	16	39	32	29	21	18	240	116
1948	24	21	19	16	14	13	30	54	35	22	17	9	274	141
1949	16	20	18	13	12	12	24	35	40	31	19	10	250	131
1950	17	20	16	14	12	10	25	24	26	16	12	7	201	91

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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	13.	19.	17.	15.	13.	14.	15.	26.	28.	19.	15.	7.	200.	87.
1952	14.	19.	17.	16.	14.	11.	33.	49.	47.	26.	23.	15.	282.	154.
1953	18.	20.	18.	16.	12.	13.	13.	22.	33.	19.	17.	8.	210.	86.
1954	13.	20.	17.	14.	13.	12.	13.	16.	12.	13.	12.	8.	164.	55.
1955	16.	19.	16.	13.	10.	9.	15.	21.	21.	13.	16.	7.	176.	70.
1956	9.	19.	18.	14.	12.	12.	20.	32.	25.	12.	12.	5.	190.	90.
1957	10.	19.	15.	13.	12.	12.	18.	35.	57.	59.	34.	19.	303.	168.
1958	21.	22.	22.	17.	15.	13.	23.	57.	36.	16.	15.	11.	266.	131.
1959	13.	19.	18.	15.	13.	11.	13.	19.	25.	12.	13.	7.	177.	69.
1960	23.	21.	16.	14.	14.	20.	32.	24.	28.	16.	13.	7.	229.	100.
1961	13.	20.	17.	13.	11.	13.	12.	25.	21.	11.	15.	17.	189.	70.
1962	28.	22.	19.	17.	16.	13.	39.	42.	33.	27.	17.	10.	283.	142.
1963	17.	20.	17.	13.	14.	20.	16.	23.	13.	11.	13.	12.	188.	63.
1964	11.	19.	15.	12.	11.	10.	14.	33.	25.	18.	18.	11.	195.	90.
1965	12.	19.	18.	16.	13.	12.	23.	37.	41.	43.	28.	22.	283.	144.
1966	28.	22.	21.	18.	15.	19.	22.	29.	18.	14.	13.	7.	226.	84.
1967	14.	19.	18.	15.	13.	17.	12.	22.	22.	16.	14.	12.	194.	72.
1968	13.	19.	16.	16.	15.	15.	12.	28.	35.	19.	26.	10.	223.	93.
1969	16.	20.	18.	17.	14.	12.	29.	38.	24.	24.	19.	13.	243.	114.
1970	33.	21.	19.	18.	14.	15.	18.	58.	34.	25.	22.	30.	307.	135.
1971	31.	23.	22.	18.	17.	25.	26.	27.	32.	23.	17.	14.	275.	108.
1972	18.	22.	19.	18.	16.	24.	17.	22.	25.	13.	11.	9.	213.	76.
1973	21.	19.	18.	13.	12.	13.	12.	37.	37.	30.	18.	10.	241.	116.
1974	14.	19.	17.	12.	12.	18.	18.	39.	22.	14.	13.	5.	201.	93.
1975	13.	19.	18.	15.	12.	11.	14.	30.	37.	39.	19.	8.	235.	120.
1976	12.	19.	16.	17.	16.	13.	17.	25.	22.	14.	13.	11.	195.	78.
1977	14.	18.	13.	11.	10.	7.	12.	10.	9.	6.	8.	7.	124.	37.
1978	11.	18.	17.	15.	11.	19.	19.	30.	42.	27.	13.	6.	228.	119.
MIN	9.	12.	13.	11.	9.	7.	12.	10.	9.	6.	8.	5.	124.	37.
MAX	53.	23.	22.	18.	17.	36.	39.	58.	57.	59.	34.	37.	334.	168.
TOTAL	1378.	1454.	1268.	1065.	942.	1087.	1545.	2512.	2306.	1634.	1328.	975.	17494.	7997.
MEAN	19.	20.	17.	15.	13.	15.	21.	34.	32.	22.	18.	13.	240.	110.
STDEV	8.	1.	2.	2.	1.	4.	8.	11.	10.	10.	5.	6.	44.	29.
DIST	8.	8.	7.	6.	5.	6.	9.	14.	13.	9.	8.	6.	100.	46.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF 1525 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	68.	62.	61.	58.	50.	68.	275.	942.	931.	364.	179.	128.	3186.	2512.
1907	107.	70.	56.	42.	49.	86.	212.	447.	866.	569.	217.	126.	2847.	2094.
1908	87.	59.	60.	60.	57.	86.	198.	282.	442.	215.	142.	82.	1757.	1136.
1909	67.	65.	64.	64.	49.	67.	161.	646.	1048.	455.	204.	159.	3047.	2309.
1910	92.	76.	72.	72.	61.	141.	300.	616.	465.	185.	113.	100.	2292.	1565.
1911	82.	73.	68.	60.	58.	103.	173.	648.	642.	321.	146.	102.	2478.	1785.
1912	157.	82.	68.	63.	56.	75.	144.	809.	929.	470.	209.	116.	3179.	2352.
1913	98.	87.	65.	65.	55.	71.	283.	561.	428.	205.	116.	113.	2146.	1476.
1914	89.	81.	55.	66.	54.	76.	231.	852.	845.	389.	207.	132.	3076.	2316.
1915	129.	79.	56.	48.	50.	63.	230.	449.	544.	250.	114.	75.	2087.	1474.
1916	67.	60.	60.	66.	66.	131.	296.	686.	710.	320.	250.	136.	2849.	2012.
1917	64.	57.	55.	52.	50.	80.	208.	644.	1189.	552.	198.	98.	3247.	2593.
1918	70.	62.	55.	55.	58.	84.	164.	606.	799.	273.	135.	107.	2468.	1841.
1919	70.	75.	68.	50.	49.	81.	269.	564.	418.	249.	153.	86.	2132.	1500.
1920	61.	71.	60.	56.	75.	67.	111.	1201.	1067.	434.	177.	82.	3462.	2813.
1921	84.	83.	57.	65.	60.	90.	133.	686.	1131.	413.	235.	142.	3179.	2363.
1922	83.	77.	75.	61.	51.	74.	179.	973.	744.	259.	153.	80.	2810.	2154.
1923	59.	62.	61.	55.	45.	51.	135.	762.	796.	218.	249.	141.	2834.	2111.
1924	120.	89.	65.	60.	57.	56.	210.	667.	717.	228.	105.	60.	2435.	1822.
1925	87.	80.	60.	58.	57.	93.	275.	465.	415.	279.	149.	152.	2171.	1434.
1926	137.	80.	61.	49.	56.	70.	275.	587.	641.	286.	141.	66.	2451.	1789.
1927	90.	75.	65.	59.	58.	76.	236.	795.	644.	369.	170.	199.	2835.	2044.
1928	147.	99.	81.	82.	68.	104.	186.	905.	671.	329.	150.	99.	2921.	2091.
1929	85.	84.	58.	45.	46.	110.	206.	929.	892.	410.	322.	310.	3498.	2437.
1930	160.	115.	74.	50.	77.	72.	410.	452.	569.	226.	233.	93.	2532.	1658.
1931	94.	71.	68.	66.	58.	52.	68.	182.	243.	166.	105.	58.	1229.	657.
1932	95.	77.	66.	47.	69.	76.	348.	768.	594.	323.	167.	88.	2719.	2033.
1933	63.	67.	53.	38.	41.	65.	76.	395.	684.	238.	121.	86.	1925.	1392.
1934	71.	61.	57.	46.	44.	48.	101.	224.	134.	137.	102.	48.	1074.	596.
1935	35.	31.	49.	44.	38.	45.	68.	314.	714.	292.	148.	88.	1866.	1388.
1936	76.	61.	50.	50.	45.	55.	310.	709.	432.	206.	154.	93.	2242.	1658.
1937	59.	61.	53.	44.	44.	65.	559.	685.	367.	210.	116.	78.	1951.	1432.
1938	81.	68.	65.	58.	49.	82.	362.	693.	858.	333.	163.	149.	2962.	2246.
1939	94.	79.	71.	68.	58.	110.	238.	484.	354.	148.	93.	86.	1883.	1224.
1940	55.	62.	51.	50.	47.	64.	145.	438.	316.	132.	87.	68.	1515.	1030.
1941	101.	65.	58.	53.	53.	66.	130.	954.	701.	353.	177.	82.	2793.	2137.
1942	199.	121.	85.	72.	65.	78.	559.	832.	810.	317.	162.	74.	3374.	2518.
1943	66.	66.	61.	58.	49.	56.	319.	458.	501.	250.	206.	124.	2214.	1528.
1944	72.	76.	62.	52.	49.	55.	104.	837.	791.	363.	138.	62.	2660.	2094.
1945	80.	75.	66.	57.	49.	55.	96.	704.	527.	305.	215.	72.	2302.	1633.
1946	88.	75.	59.	60.	49.	63.	210.	279.	438.	195.	119.	70.	1705.	1122.
1947	79.	69.	57.	46.	49.	57.	104.	560.	581.	394.	195.	140.	2330.	1639.
1948	118.	95.	69.	57.	64.	74.	331.	934.	656.	278.	136.	66.	2877.	2199.
1949	73.	72.	73.	53.	55.	71.	237.	548.	769.	417.	158.	75.	2601.	1971.
1950	78.	77.	56.	56.	59.	62.	222.	358.	471.	220.	108.	56.	1824.	1374.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF 1525 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	70.	53.	65.	51.	49.	57.	61.	353.	479.	251.	130.	52.	1671.	1144.
1952	57.	63.	50.	57.	50.	54.	360.	895.	949.	332.	207.	101.	3174.	2535.
1953	65.	64.	74.	67.	86.	62.	86.	276.	608.	231.	144.	67.	1794.	1200.
1954	55.	78.	54.	51.	48.	48.	92.	202.	173.	172.	101.	70.	1144.	639.
1955	80.	54.	53.	50.	43.	62.	118.	331.	359.	164.	136.	58.	1508.	972.
1956	44.	57.	61.	54.	48.	60.	154.	418.	422.	150.	91.	36.	1592.	1143.
1957	38.	59.	50.	55.	58.	59.	142.	595.	1345.	839.	296.	157.	3694.	2921.
1958	103.	105.	83.	67.	71.	81.	250.	964.	713.	204.	121.	72.	2835.	2132.
1959	60.	73.	67.	60.	53.	55.	57.	246.	420.	153.	98.	41.	1382.	875.
1960	105.	76.	54.	51.	44.	92.	285.	329.	486.	190.	94.	48.	1856.	1291.
1961	56.	62.	55.	45.	42.	58.	76.	355.	376.	136.	118.	123.	1501.	942.
1962	126.	93.	63.	57.	64.	60.	423.	647.	609.	343.	117.	58.	2659.	2022.
1963	86.	69.	58.	52.	75.	87.	118.	291.	193.	135.	94.	86.	1343.	736.
1964	57.	70.	52.	47.	48.	46.	90.	511.	438.	228.	136.	64.	1786.	1266.
1965	54.	68.	63.	60.	49.	53.	197.	635.	833.	595.	242.	167.	3016.	2261.
1966	143.	102.	86.	74.	61.	104.	220.	413.	293.	173.	87.	44.	1799.	1100.
1967	75.	64.	75.	57.	51.	87.	75.	304.	392.	188.	114.	74.	1555.	959.
1968	61.	64.	68.	75.	62.	62.	58.	456.	713.	215.	247.	59.	2139.	1442.
1969	77.	78.	67.	70.	57.	63.	339.	629.	417.	301.	149.	104.	2350.	1685.
1970	164.	104.	80.	72.	61.	75.	118.	841.	630.	302.	175.	229.	2849.	1890.
1971	154.	112.	93.	75.	64.	105.	207.	370.	607.	282.	142.	98.	2309.	1467.
1972	86.	100.	79.	63.	55.	108.	86.	274.	408.	149.	86.	79.	1574.	917.
1973	117.	86.	73.	62.	55.	78.	101.	730.	834.	414.	159.	81.	2790.	2079.
1974	86.	74.	72.	68.	76.	117.	182.	593.	397.	173.	89.	45.	1972.	1346.
1975	66.	69.	56.	50.	42.	56.	91.	442.	756.	540.	162.	67.	2398.	1830.
1976	58.	77.	66.	63.	66.	65.	115.	397.	385.	172.	93.	73.	1629.	1069.
1977	76.	59.	45.	46.	37.	47.	50.	82.	141.	69.	58.	59.	768.	341.
1978	49.	59.	51.	52.	40.	78.	173.	515.	841.	351.	101.	51.	2361.	1880.
MIN	35.	31.	45.	38.	37.	45.	50.	82.	134.	69.	58.	36.	768.	341.
MAX	199.	121.	93.	82.	77.	141.	559.	1201.	1345.	839.	322.	310.	3694.	2921.
TOTAL	6305.	5425.	4609.	4190.	3965.	5349.	14017.	41622.	44701.	21197.	11122.	6911.	169414.	121536.
MEAN	86.	74.	63.	57.	54.	73.	192.	570.	612.	290.	152.	95.	2321.	1665.
STDEV	32.	16.	10.	9.	9.	20.	103.	234.	252.	131.	53.	46.	656.	576.
DIST	4.	3.	3.	2.	2.	3.	8.	25.	26.	13.	7.	4.	100.	72.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF1525 SALT

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	38.	31.	36.	35.	30.	51.	81.	144.	74.	51.	49.	47.	667.	351.
1907	48.	32.	34.	27.	30.	65.	70.	94.	71.	62.	54.	46.	634.	298.
1908	43.	30.	31.	36.	34.	65.	68.	72.	52.	41.	43.	37.	551.	233.
1909	37.	31.	37.	37.	29.	51.	60.	116.	78.	57.	52.	53.	639.	311.
1910	45.	33.	40.	40.	37.	105.	85.	113.	54.	38.	38.	41.	668.	290.
1911	42.	33.	38.	36.	35.	77.	63.	116.	62.	49.	43.	41.	636.	290.
1912	60.	34.	38.	37.	34.	57.	57.	132.	74.	57.	53.	44.	677.	320.
1913	46.	35.	37.	38.	33.	54.	83.	107.	52.	40.	38.	44.	606.	281.
1914	44.	34.	33.	38.	33.	57.	74.	136.	71.	53.	53.	48.	673.	333.
1915	54.	34.	34.	30.	30.	48.	74.	94.	58.	44.	38.	35.	571.	269.
1916	38.	30.	35.	38.	39.	97.	85.	120.	65.	49.	59.	48.	704.	319.
1917	37.	30.	34.	32.	30.	60.	70.	116.	83.	61.	52.	40.	644.	329.
1918	38.	31.	34.	33.	35.	63.	61.	112.	69.	45.	42.	42.	609.	287.
1919	39.	33.	38.	31.	30.	61.	80.	107.	51.	44.	45.	38.	596.	282.
1920	36.	32.	35.	34.	45.	50.	49.	166.	79.	55.	48.	37.	667.	349.
1921	42.	34.	34.	38.	36.	68.	54.	120.	81.	54.	57.	50.	668.	309.
1922	42.	33.	41.	36.	31.	56.	64.	147.	67.	44.	45.	36.	642.	322.
1923	35.	31.	36.	33.	27.	39.	55.	128.	69.	55.	59.	49.	615.	306.
1924	52.	35.	37.	36.	34.	42.	70.	118.	65.	42.	36.	31.	599.	296.
1925	43.	34.	35.	35.	34.	70.	81.	96.	51.	46.	44.	51.	621.	274.
1926	55.	34.	36.	38.	36.	68.	54.	120.	81.	54.	57.	50.	668.	309.
1927	44.	33.	41.	36.	31.	56.	64.	147.	67.	44.	45.	36.	642.	322.
1928	57.	37.	43.	45.	41.	78.	65.	141.	63.	49.	44.	41.	704.	319.
1929	43.	34.	35.	29.	28.	82.	72.	143.	72.	54.	68.	76.	734.	339.
1930	60.	39.	40.	31.	46.	55.	102.	94.	59.	42.	56.	39.	664.	297.
1931	45.	32.	38.	38.	35.	40.	37.	56.	40.	37.	36.	30.	464.	169.
1932	45.	33.	38.	30.	41.	58.	93.	128.	60.	49.	47.	38.	660.	330.
1933	36.	32.	33.	26.	25.	49.	39.	87.	64.	43.	39.	38.	510.	234.
1934	39.	31.	34.	29.	27.	37.	47.	63.	30.	34.	36.	27.	433.	173.
1935	26.	23.	31.	28.	23.	35.	37.	76.	65.	47.	44.	38.	475.	226.
1936	40.	30.	31.	31.	27.	42.	87.	122.	52.	40.	45.	39.	588.	302.
1937	35.	30.	33.	29.	27.	49.	62.	120.	48.	41.	38.	36.	547.	271.
1938	42.	32.	37.	35.	30.	62.	95.	121.	71.	49.	46.	51.	670.	336.
1939	45.	34.	39.	35.	35.	82.	75.	98.	47.	35.	34.	38.	601.	255.
1940	34.	31.	32.	31.	28.	49.	57.	93.	45.	33.	32.	33.	498.	227.
1941	47.	31.	35.	33.	32.	50.	53.	145.	65.	51.	49.	37.	627.	314.
1942	68.	40.	44.	41.	39.	59.	121.	134.	69.	48.	46.	35.	743.	373.
1943	37.	31.	36.	35.	29.	42.	88.	95.	56.	44.	53.	46.	593.	283.
1944	39.	33.	36.	32.	30.	42.	47.	135.	68.	51.	42.	31.	587.	302.
1945	41.	33.	37.	34.	30.	42.	45.	122.	57.	48.	54.	34.	578.	272.
1946	44.	33.	35.	36.	30.	48.	70.	71.	52.	39.	39.	34.	530.	233.
1947	41.	32.	34.	29.	30.	44.	47.	107.	59.	53.	51.	49.	576.	267.
1948	51.	36.	39.	34.	38.	56.	90.	144.	63.	46.	42.	32.	671.	343.
1949	39.	32.	40.	33.	33.	54.	75.	105.	68.	54.	46.	35.	614.	302.
1950	41.	33.	34.	34.	35.	47.	72.	82.	54.	41.	37.	30.	541.	250.

82/03/17.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF1525 SALT

15.37.59.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	38.	29.	37.	32.	30.	43.	35.	82.	54.	44.	41.	29.	493.	215.
1952	34.	31.	31.	34.	30.	42.	30.	140.	74.	49.	53.	41.	655.	359.
1953	37.	31.	40.	39.	31.	47.	42.	71.	61.	42.	43.	33.	517.	216.
1954	34.	33.	33.	32.	29.	37.	44.	59.	34.	37.	35.	34.	441.	174.
1955	41.	29.	33.	31.	26.	47.	51.	79.	48.	36.	42.	30.	493.	213.
1956	30.	30.	36.	33.	29.	46.	59.	90.	51.	35.	33.	23.	494.	235.
1957	28.	30.	32.	34.	35.	45.	56.	111.	87.	74.	65.	52.	648.	328.
1958	47.	37.	43.	38.	43.	61.	77.	146.	65.	40.	39.	34.	673.	329.
1959	35.	33.	38.	35.	32.	42.	34.	66.	51.	35.	35.	25.	462.	186.
1960	48.	33.	33.	32.	27.	69.	83.	78.	55.	39.	34.	27.	558.	255.
1961	34.	31.	33.	29.	26.	44.	40.	82.	49.	34.	39.	46.	485.	204.
1962	53.	36.	36.	34.	38.	45.	103.	116.	61.	50.	38.	30.	642.	330.
1963	43.	32.	35.	32.	45.	66.	51.	73.	36.	33.	34.	38.	517.	193.
1964	34.	32.	32.	30.	29.	35.	43.	101.	52.	42.	42.	32.	506.	239.
1965	33.	32.	36.	35.	29.	41.	68.	115.	70.	63.	58.	54.	635.	316.
1966	57.	37.	44.	42.	37.	78.	72.	90.	43.	37.	32.	26.	594.	242.
1967	40.	31.	41.	34.	31.	65.	39.	75.	50.	39.	38.	35.	517.	203.
1968	36.	31.	38.	42.	37.	47.	34.	95.	65.	41.	58.	31.	555.	235.
1969	41.	34.	38.	40.	34.	48.	91.	114.	51.	47.	44.	42.	623.	304.
1970	61.	37.	42.	41.	37.	57.	51.	135.	62.	47.	48.	65.	682.	295.
1971	59.	38.	46.	42.	38.	79.	69.	84.	61.	46.	43.	40.	646.	260.
1972	43.	37.	42.	37.	33.	81.	42.	71.	51.	35.	32.	36.	539.	198.
1973	51.	35.	40.	37.	33.	59.	46.	125.	70.	54.	46.	36.	631.	295.
1974	43.	33.	40.	39.	45.	87.	65.	110.	50.	37.	33.	27.	608.	262.
1975	37.	32.	34.	31.	26.	43.	44.	93.	67.	61.	46.	33.	546.	265.
1976	35.	33.	37.	37.	40.	49.	50.	87.	49.	37.	34.	34.	523.	224.
1977	40.	30.	30.	29.	23.	36.	31.	35.	31.	25.	26.	31.	367.	122.
1978	32.	30.	32.	32.	25.	59.	63.	102.	70.	51.	35.	28.	558.	285.
MIN	26.	23.	30.	26.	23.	35.	31.	35.	30.	25.	26.	23.	367.	122.
MAX	68.	40.	46.	45.	46.	105.	121.	166.	87.	74.	68.	76.	743.	373.
TOTAL	3098.	2386.	2657.	2507.	2391.	4040.	4688.	7704.	4345.	3327.	3207.	2831.	43181.	20064.
MEAN	42.	33.	36.	34.	33.	55.	64.	106.	60.	46.	44.	39.	592.	275.
STDEV	8.	3.	4.	4.	5.	15.	20.	26.	12.	9.	8.	9.	77.	53.
DIST	7.	6.	6.	6.	6.	9.	11.	18.	10.	8.	7.	7.	100.	46.

82/03/16.
UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF1800 FLOW NEAR CISCO, UT ON THE DOLORES RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	21.	19.	10.	9.	9.	19.	57.	220.	298.	156.	70.	76.	964.	730.
1907	35.	19.	13.	10.	12.	28.	65.	145.	339.	244.	78.	39.	1026.	793.
1908	27.	15.	11.	16.	16.	29.	63.	94.	175.	84.	48.	25.	603.	416.
1909	20.	18.	17.	18.	13.	20.	52.	212.	409.	192.	73.	50.	1092.	864.
1910	29.	21.	20.	20.	17.	53.	94.	201.	185.	72.	36.	31.	779.	552.
1911	26.	20.	19.	16.	16.	37.	55.	210.	253.	133.	49.	32.	867.	651.
1912	55.	23.	19.	17.	15.	24.	46.	265.	362.	199.	74.	36.	1136.	872.
1913	28.	29.	20.	23.	21.	36.	125.	193.	162.	70.	31.	40.	779.	550.
1914	21.	23.	12.	24.	16.	30.	100.	223.	127.	202.	84.	40.	903.	652.
1915	58.	26.	17.	11.	16.	24.	119.	226.	195.	70.	30.	19.	810.	609.
1916	8.	16.	17.	25.	31.	96.	175.	312.	276.	147.	130.	43.	1277.	909.
1917	82.	22.	18.	6.	13.	28.	62.	260.	385.	191.	81.	39.	1187.	899.
1918	9.	7.	9.	10.	13.	29.	49.	130.	40.	57.	31.	33.	418.	276.
1919	11.	21.	27.	12.	12.	36.	104.	239.	180.	95.	52.	27.	816.	618.
1920	3.	14.	17.	25.	34.	33.	43.	550.	463.	185.	68.	22.	1457.	1241.
1921	22.	30.	22.	24.	27.	37.	44.	268.	476.	178.	96.	61.	1286.	966.
1922	24.	29.	26.	20.	12.	31.	85.	531.	343.	116.	57.	33.	1307.	1076.
1923	5.	22.	24.	24.	18.	20.	90.	306.	198.	133.	87.	55.	981.	727.
1924	21.	24.	20.	8.	25.	15.	116.	242.	148.	71.	24.	20.	734.	577.
1925	3.	10.	13.	7.	14.	15.	98.	166.	136.	109.	60.	89.	720.	509.
1926	46.	27.	19.	10.	16.	30.	138.	209.	122.	37.	15.	17.	687.	507.
1927	27.	18.	19.	20.	22.	30.	136.	283.	226.	171.	77.	149.	1176.	816.
1928	61.	35.	30.	25.	27.	42.	97.	256.	160.	54.	37.	29.	853.	567.
1929	28.	26.	14.	8.	8.	48.	150.	384.	274.	109.	135.	152.	1334.	917.
1930	64.	37.	26.	6.	33.	26.	154.	136.	225.	80.	86.	27.	899.	595.
1931	24.	18.	14.	15.	22.	12.	10.	57.	57.	58.	34.	34.	354.	181.
1932	39.	26.	18.	13.	35.	33.	173.	423.	220.	148.	74.	44.	1246.	964.
1933	15.	21.	10.	9.	13.	22.	11.	129.	138.	71.	41.	39.	350.	350.
1934	18.	13.	17.	15.	12.	16.	23.	41.	32.	52.	35.	18.	293.	148.
1935	5.	3.	14.	14.	10.	9.	46.	166.	313.	122.	59.	44.	806.	648.
1936	27.	19.	19.	17.	22.	23.	146.	198.	117.	44.	34.	35.	701.	505.
1937	17.	15.	11.	11.	12.	23.	269.	316.	117.	67.	30.	18.	906.	769.
1938	15.	10.	10.	10.	11.	40.	303.	241.	239.	90.	37.	48.	1055.	874.
1939	20.	14.	11.	10.	9.	55.	125.	124.	76.	37.	19.	26.	525.	362.
1940	11.	9.	7.	8.	13.	23.	136.	200.	110.	42.	24.	22.	604.	488.
1941	39.	15.	14.	14.	20.	41.	184.	628.	281.	146.	56.	44.	1480.	1238.
1942	199.	61.	34.	26.	22.	50.	525.	414.	264.	94.	48.	16.	1753.	1297.
1943	13.	13.	12.	12.	14.	22.	224.	165.	138.	62.	53.	31.	757.	589.
1944	18.	14.	10.	9.	12.	17.	104.	480.	302.	118.	47.	19.	1004.	1004.
1945	12.	14.	12.	12.	16.	14.	146.	322.	125.	70.	52.	16.	810.	662.
1946	20.	11.	9.	11.	10.	19.	80.	85.	102.	51.	37.	20.	454.	318.
1947	15.	14.	11.	9.	11.	18.	64.	200.	140.	85.	54.	40.	660.	489.
1948	42.	21.	16.	15.	26.	26.	257.	300.	168.	77.	45.	14.	1006.	801.
1949	12.	10.	11.	13.	18.	24.	195.	261.	250.	110.	50.	17.	971.	816.
1950	15.	13.	10.	12.	16.	22.	142.	109.	106.	48.	25.	11.	528.	404.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
 STA - AF1800 FLOW NEAR CISCO, UT ON THE DOLORES RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	9.	7.	8.	9.	9.	11.	19.	70.	88.	40.	24.	8.	302.	217.
1952	7.	6.	7.	14.	10.	16.	335.	386.	287.	108.	47.	21.	1243.	1116.
1953	13.	7.	10.	11.	9.	16.	50.	90.	129.	51.	36.	12.	434.	320.
1954	19.	11.	8.	9.	9.	12.	65.	86.	48.	28.	21.	22.	338.	226.
1955	28.	11.	7.	6.	7.	32.	75.	147.	105.	40.	39.	12.	509.	367.
1956	6.	6.	9.	8.	9.	21.	74.	123.	100.	30.	18.	6.	411.	327.
1957	3.	6.	5.	6.	13.	13.	120.	307.	398.	200.	102.	57.	1230.	1024.
1958	39.	29.	20.	13.	32.	35.	348.	401.	207.	53.	28.	17.	1222.	1009.
1959	11.	9.	10.	10.	10.	11.	36.	69.	69.	24.	25.	9.	292.	198.
1960	12.	9.	7.	9.	9.	46.	182.	144.	146.	48.	19.	9.	638.	520.
1961	9.	7.	7.	6.	7.	14.	76.	169.	113.	32.	29.	31.	499.	390.
1962	28.	12.	10.	8.	25.	18.	212.	174.	126.	68.	35.	14.	730.	580.
1963	12.	9.	8.	5.	17.	40.	75.	98.	48.	25.	27.	19.	384.	246.
1964	8.	8.	6.	5.	6.	7.	47.	159.	100.	46.	53.	19.	464.	352.
1965	9.	6.	10.	11.	9.	10.	188.	264.	207.	145.	76.	40.	975.	804.
1966	35.	21.	22.	23.	14.	68.	146.	170.	83.	49.	23.	14.	666.	448.
1967	8.	7.	17.	9.	10.	27.	41.	89.	79.	42.	47.	24.	399.	251.
1968	11.	6.	7.	8.	11.	13.	67.	198.	206.	65.	69.	17.	677.	536.
1969	6.	8.	6.	11.	11.	13.	232.	203.	114.	84.	42.	27.	755.	632.
1970	16.	14.	14.	13.	11.	13.	54.	256.	126.	68.	51.	80.	715.	504.
1971	24.	19.	15.	16.	15.	45.	98.	141.	149.	66.	45.	20.	654.	454.
1972	25.	19.	19.	14.	12.	44.	49.	70.	81.	35.	17.	12.	396.	234.
1973	54.	23.	19.	19.	18.	33.	195.	555.	351.	157.	52.	19.	1493.	1257.
1974	13.	10.	13.	10.	11.	30.	89.	169.	78.	42.	25.	7.	496.	378.
1975	8.	10.	8.	8.	9.	18.	158.	337.	263.	172.	44.	24.	1059.	930.
1976	13.	10.	9.	10.	15.	20.	95.	167.	123.	41.	25.	20.	547.	426.
1977	14.	8.	5.	6.	8.	8.	19.	26.	30.	31.	25.	13.	193.	107.
1978	13.	9.	7.	9.	8.	22.	241.	272.	211.	70.	26.	8.	896.	794.
MIN	3.	3.	5.	5.	6.	7.	10.	26.	30.	24.	15.	6.	193.	107.
MAX	199.	61.	34.	26.	35.	96.	525.	628.	476.	244.	135.	152.	1753.	1297.
TOTAL	1765.	1191.	1015.	932.	1112.	1978.	8862.	16458.	13515.	6605.	3531.	2320.	59283.	45440.
MEAN	24.	16.	14.	13.	15.	27.	121.	225.	185.	90.	48.	32.	812.	622.
STDEV	26.	9.	6.	6.	7.	15.	90.	128.	106.	54.	25.	26.	344.	295.
DIST	3.	2.	2.	2.	2.	3.	15.	28.	23.	11.	6.	4.	100.	77.

82/03/16.
UNITS: 1000 TDNS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF1800 SALT NEAR CISCO, UT ON THE DOLORES RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	27	24	20	20	20	26	30	46	47	43	44	48	394	165
1907	32	24	23	20	23	30	32	37	50	53	46	34	405	172
1908	29	22	21	26	27	31	31	29	36	32	35	27	346	128
1909	26	24	25	27	24	27	28	45	55	48	45	38	412	176
1910	30	25	27	29	29	38	38	44	37	30	30	30	386	148
1911	29	25	27	26	27	33	29	45	43	40	35	30	390	157
1912	39	26	27	27	27	29	27	51	51	48	45	32	430	177
1913	30	29	28	31	32	33	44	43	34	29	27	34	395	151
1914	26	26	22	32	28	31	39	46	30	49	49	34	413	165
1915	40	27	25	22	27	29	43	47	38	29	27	23	377	157
1916	18	23	25	33	41	47	52	56	45	42	63	36	479	194
1917	47	26	26	16	24	30	31	50	53	48	47	34	432	182
1918	19	16	19	21	25	31	27	35	27	17	27	31	293	106
1919	20	25	32	22	23	33	40	48	36	34	37	28	378	158
1920	12	22	25	32	43	32	26	75	58	47	43	25	440	206
1921	27	29	29	32	38	33	26	51	59	46	53	43	466	182
1922	28	29	31	29	23	31	36	74	50	37	39	31	438	198
1923	14	26	30	32	29	27	37	55	38	40	50	41	418	170
1924	26	27	27	18	36	25	42	48	33	30	23	24	360	153
1925	12	19	22	18	26	24	39	39	31	36	40	52	359	146
1926	37	28	27	21	27	31	46	45	30	22	18	22	353	142
1927	29	24	27	29	33	31	46	53	41	45	46	69	471	184
1928	41	31	33	32	38	35	39	50	34	26	30	29	418	149
1929	30	27	23	18	18	37	48	62	45	36	64	69	478	191
1930	42	32	31	16	42	29	49	35	41	31	49	28	425	156
1931	28	24	23	25	33	23	12	22	20	27	29	31	297	81
1932	34	28	26	24	44	32	52	65	40	42	45	36	468	199
1933	23	25	20	20	24	28	13	35	32	30	32	34	314	109
1934	25	21	26	26	23	25	19	19	15	26	29	22	274	78
1935	14	11	23	24	21	21	27	40	48	38	39	36	343	152
1936	29	25	27	27	34	28	47	43	29	24	28	32	373	144
1937	24	22	21	22	23	28	64	56	29	29	26	23	368	178
1938	23	19	20	21	22	34	68	48	42	33	30	38	398	192
1939	26	21	21	20	20	38	44	34	23	22	20	27	317	123
1940	20	18	17	19	24	28	46	44	28	23	23	25	315	141
1941	34	22	23	24	31	35	53	81	45	42	38	36	465	221
1942	68	39	35	33	34	37	90	65	44	34	35	21	534	232
1943	22	20	21	22	25	28	59	39	32	28	37	30	363	158
1944	24	21	20	20	23	25	40	70	47	38	35	23	387	195
1945	21	22	22	22	27	24	47	57	30	29	37	21	359	163
1946	26	19	19	22	21	26	35	27	27	25	30	24	301	115
1947	23	21	21	19	22	26	31	44	32	32	37	34	343	139
1948	35	25	25	25	37	29	63	54	35	31	34	19	313	183
1949	21	19	21	23	29	29	55	50	43	37	36	22	384	185
1950	23	21	20	23	28	28	47	31	28	25	24	17	313	131

82/03/16.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF1800 SALT NEAR CISCO, UT ON THE DOLORES RIVER

13.51.21.
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YEAR	OCT	NOV	DEC.	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	18.	16.	17.	20.	19.	22.	17.	25.	25.	22.	23.	15.	241.	90.
1952	16.	15.	17.	25.	20.	25.	72.	62.	46.	36.	35.	24.	392.	216.
1953	21.	16.	20.	22.	20.	25.	28.	20.	31.	25.	30.	18.	284.	112.
1954	25.	20.	18.	19.	20.	23.	32.	28.	19.	19.	21.	25.	268.	97.
1955	30.	20.	17.	16.	17.	32.	34.	37.	28.	23.	31.	18.	301.	121.
1956	16.	15.	19.	18.	19.	28.	34.	34.	27.	20.	20.	12.	261.	114.
1957	11.	15.	15.	16.	24.	23.	43.	55.	54.	49.	55.	41.	401.	200.
1958	34.	29.	27.	23.	42.	33.	73.	64.	39.	26.	26.	22.	437.	201.
1959	20.	18.	20.	20.	21.	22.	24.	25.	22.	18.	24.	15.	248.	88.
1960	21.	18.	16.	19.	20.	36.	53.	37.	33.	24.	20.	15.	312.	147.
1961	18.	16.	17.	16.	17.	24.	34.	40.	29.	20.	26.	30.	286.	123.
1962	30.	20.	19.	19.	36.	26.	57.	41.	30.	29.	29.	19.	355.	157.
1963	21.	18.	18.	16.	28.	34.	34.	30.	19.	18.	25.	23.	284.	100.
1964	18.	17.	16.	14.	15.	19.	27.	39.	27.	24.	37.	23.	275.	117.
1965	19.	16.	19.	22.	19.	21.	54.	51.	39.	42.	46.	34.	381.	185.
1966	33.	25.	28.	31.	25.	41.	47.	40.	25.	25.	22.	20.	362.	137.
1967	18.	16.	25.	19.	20.	30.	25.	28.	24.	23.	35.	26.	289.	100.
1968	20.	15.	17.	18.	22.	23.	32.	43.	39.	28.	43.	22.	323.	143.
1969	16.	17.	16.	22.	21.	23.	60.	44.	29.	32.	32.	28.	339.	165.
1970	23.	22.	23.	23.	22.	23.	29.	50.	30.	29.	36.	49.	360.	138.
1971	28.	24.	24.	26.	27.	36.	39.	36.	33.	29.	34.	24.	359.	137.
1972	28.	24.	27.	24.	23.	35.	28.	25.	24.	21.	19.	18.	296.	98.
1973	39.	26.	26.	28.	29.	32.	55.	76.	51.	43.	37.	23.	465.	224.
1974	22.	18.	23.	21.	22.	31.	37.	40.	24.	23.	24.	13.	297.	124.
1975	18.	19.	18.	18.	20.	26.	49.	58.	44.	45.	33.	26.	373.	196.
1976	21.	19.	19.	21.	26.	27.	38.	40.	30.	23.	24.	23.	310.	131.
1977	22.	17.	14.	15.	18.	20.	17.	15.	15.	20.	24.	19.	216.	67.
1978	22.	18.	17.	19.	19.	28.	61.	52.	39.	29.	24.	15.	342.	181.
MIN	11.	11.	14.	14.	15.	19.	12.	15.	15.	18.	18.	12.	216.	67.
MAX	68.	39.	35.	33.	44.	47.	90.	81.	59.	53.	64.	69.	534.	232.
TOTAL	1878.	1608.	1654.	1659.	1910.	2122.	2972.	3274.	2572.	2323.	2486.	2087.	26546.	11142.
MEAN	26.	22.	23.	23.	26.	29.	41.	45.	35.	32.	34.	29.	364.	153.
STDEV	9.	5.	5.	5.	7.	5.	15.	14.	10.	9.	10.	11.	66.	38.
DIST	7.	6.	6.	6.	7.	8.	11.	12.	10.	9.	9.	8.	100.	42.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF 1805 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	206	184	114	108	109	186	482	1748	2382	1288	611	624	8042	5901
1907	315	186	142	112	133	256	533	1156	2705	2002	672	342	8552	6396
1908	254	158	122	163	159	262	528	753	1405	734	422	231	5191	3419
1909	198	177	170	174	135	195	444	1667	3250	1576	629	414	9030	6937
1910	274	203	192	196	171	447	761	1591	1509	649	330	265	6588	4510
1911	246	197	182	165	161	328	454	1666	2033	1108	440	271	7252	5262
1912	473	220	183	172	156	225	396	2090	2887	1621	637	304	9363	6994
1913	291	229	171	179	155	208	720	1444	1378	690	341	292	6099	4231
1914	267	215	141	180	151	225	602	2151	2625	1360	634	348	8898	6737
1915	262	217	141	180	151	178	602	1171	1725	868	336	195	6026	4366
1916	201	165	155	182	186	424	773	1758	2246	1119	781	353	8343	5896
1917	430	206	166	123	139	193	535	1549	3525	1836	632	328	9662	7445
1918	215	186	171	155	159	265	414	1525	2640	936	394	292	7354	5516
1919	246	221	204	152	136	250	614	1575	1204	647	396	240	5884	4040
1920	170	185	173	178	191	202	285	2945	3353	1356	585	287	9909	7938
1921	259	241	187	189	174	279	344	2032	3712	1275	679	430	9803	7364
1922	252	231	228	179	150	258	452	2351	2348	808	450	277	7983	5959
1923	170	188	189	184	154	170	451	1867	2476	1340	683	372	8246	6134
1924	314	243	184	150	189	170	624	1657	2105	778	307	195	6930	5177
1925	216	190	149	135	144	222	624	1300	1348	835	431	448	6043	4107
1926	332	224	172	142	144	215	799	1793	2183	1037	424	197	7661	5812
1927	233	187	166	163	160	209	661	2219	2093	1180	621	579	8471	6152
1928	392	277	232	209	192	283	552	2450	2144	1143	462	289	8624	6289
1929	268	229	145	140	129	268	702	2242	2710	1213	878	729	9654	6867
1930	433	278	204	145	207	205	983	1156	1875	739	724	295	7244	4754
1931	263	175	143	135	153	147	237	705	1010	493	299	218	3978	2445
1932	237	170	130	117	177	195	762	2249	1985	1082	501	252	7857	6078
1933	191	181	133	132	126	177	196	915	2359	788	368	255	5821	4258
1934	207	155	154	140	125	148	297	860	500	348	258	137	3330	2006
1935	124	105	127	127	112	129	293	856	2316	998	434	260	5882	4464
1936	219	184	143	143	154	167	837	2110	1614	738	495	261	7066	5300
1937	178	175	149	117	133	197	615	1803	1192	696	328	241	5824	4307
1938	221	189	170	153	144	259	950	1873	2743	1124	461	441	6691	6691
1939	255	203	181	164	142	282	575	1468	1194	497	255	255	5491	3735
1940	167	155	128	133	140	179	423	1295	1131	465	240	225	4681	3314
1941	323	186	158	142	156	210	469	2548	1902	972	458	270	7792	5891
1942	584	311	231	182	168	231	1384	1980	2277	950	424	207	8929	6591
1943	183	190	170	162	153	183	825	1188	1690	846	530	300	6420	4550
1944	199	204	170	139	147	166	312	2016	2183	1049	367	173	7124	5559
1945	184	187	152	148	152	164	348	1673	1672	1088	675	230	6672	4780
1946	239	214	160	151	143	196	579	882	1461	640	369	208	5244	3562
1947	225	206	178	127	141	186	340	1693	1861	1377	576	369	7278	5272
1948	339	270	197	162	186	226	857	2240	1811	777	397	188	7649	5684
1949	197	194	179	169	175	243	637	1489	2268	1246	445	218	7459	5639
1950	255	209	166	186	190	184	547	916	1603	672	274	178	5378	3737

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NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	184.	164.	168.	136.	140.	155.	180.	1006.	1684.	995.	422.	179.	5414.	3866.
1952	183.	177.	179.	192.	154.	180.	1006.	2378.	2958.	1015.	580.	289.	9280.	7357.
1953	169.	166.	179.	182.	135.	181.	251.	769.	1962.	716.	437.	194.	5341.	3698.
1954	171.	213.	166.	167.	137.	148.	295.	721.	560.	432.	243.	219.	3471.	2007.
1955	253.	171.	145.	136.	124.	201.	377.	999.	1118.	540.	400.	166.	4631.	3034.
1956	124.	167.	174.	151.	134.	182.	406.	1405.	1474.	450.	278.	117.	5063.	3736.
1957	113.	167.	146.	166.	169.	169.	407.	1509.	3466.	2468.	879.	433.	10091.	7850.
1958	309.	290.	226.	186.	216.	236.	754.	2390.	2044.	572.	308.	208.	7739.	5760.
1959	167.	187.	172.	153.	141.	151.	192.	780.	1557.	545.	315.	145.	4505.	3074.
1960	285.	217.	156.	142.	131.	269.	718.	1017.	1692.	631.	279.	163.	5700.	4059.
1961	163.	173.	150.	130.	124.	162.	247.	980.	1240.	423.	335.	418.	4546.	2891.
1962	435.	263.	182.	160.	236.	194.	1078.	1911.	1975.	1172.	416.	198.	8220.	6136.
1963	233.	207.	161.	155.	191.	225.	327.	873.	690.	378.	323.	273.	4035.	2268.
1964	144.	181.	142.	137.	124.	131.	259.	1227.	1257.	665.	390.	186.	4844.	3408.
1965	167.	183.	183.	164.	141.	152.	566.	1554.	2366.	1636.	701.	423.	8235.	6122.
1966	415.	276.	235.	196.	166.	289.	542.	1138.	883.	492.	270.	161.	5066.	3056.
1967	187.	171.	193.	150.	138.	212.	239.	842.	1371.	721.	344.	237.	4807.	3173.
1968	185.	164.	135.	150.	149.	160.	228.	1019.	2204.	741.	640.	200.	5974.	4191.
1969	204.	194.	156.	174.	159.	154.	819.	1664.	1317.	945.	393.	274.	6454.	4746.
1970	330.	241.	185.	168.	143.	175.	298.	2127.	1983.	966.	470.	493.	7578.	5374.
1971	344.	268.	209.	189.	158.	254.	557.	1087.	2065.	996.	417.	288.	6833.	4705.
1972	255.	232.	208.	185.	153.	273.	264.	849.	1563.	526.	268.	244.	5018.	3201.
1973	341.	221.	168.	170.	171.	215.	411.	2032.	2433.	1337.	508.	230.	8238.	6213.
1974	204.	209.	171.	145.	137.	254.	426.	1703.	1455.	681.	327.	159.	5870.	4265.
1975	176.	197.	154.	156.	139.	184.	314.	1241.	2136.	1544.	419.	191.	6850.	5234.
1976	173.	198.	159.	141.	160.	178.	357.	1056.	1207.	565.	285.	199.	4679.	3185.
1977	208.	160.	127.	119.	106.	124.	164.	348.	537.	243.	178.	153.	2466.	1291.
1978	151.	158.	140.	135.	123.	216.	560.	1401.	2553.	1084.	282.	152.	6954.	5597.
MIN	113.	105.	114.	108.	106.	124.	164.	348.	500.	243.	178.	117.	2466.	1291.
MAX	584.	311.	235.	209.	236.	447.	1384.	2945.	3712.	2468.	879.	729.	10091.	7938.
TOTAL	17974.	14715.	12262.	11425.	11154.	15417.	38073.	110639.	140380.	68466.	32779.	20076.	493360.	357558.
MEAN	246.	202.	168.	157.	153.	211.	522.	1516.	1923.	938.	449.	275.	6758.	4898.
STDEV	89.	37.	27.	23.	24.	58.	242.	551.	709.	411.	158.	115.	1768.	1522.
DIST	4.	3.	2.	2.	2.	3.	8.	22.	28.	14.	7.	4.	100.	72.

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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	157	142	111	120	116	153	223	399	318	263	230	269	2499	1202
1907	194	142	122	122	128	190	235	311	339	317	241	194	2536	1203
1908	174	135	114	146	141	193	234	241	246	206	194	157	2181	927
1909	154	140	132	150	130	158	213	388	371	286	233	215	2569	1257
1910	181	147	139	159	147	279	288	377	255	196	172	169	2507	1114
1911	171	145	136	146	142	225	215	387	295	246	197	171	2478	1144
1912	237	151	136	149	140	174	199	444	350	290	235	182	2687	1283
1913	186	153	132	152	139	165	279	355	243	201	175	178	2360	1078
1914	179	149	122	153	138	174	252	452	334	269	234	196	2650	1306
1915	177	150	122	153	138	148	252	313	272	222	174	143	2263	1059
1916	155	137	127	153	154	269	290	400	309	247	258	198	2697	1247
1917	226	147	131	128	132	157	236	371	386	306	234	190	2642	1298
1918	160	142	132	142	142	195	204	367	335	229	187	178	2414	1136
1919	171	151	143	141	130	187	255	375	228	195	188	160	2323	1053
1920	142	142	133	152	156	161	166	545	376	269	226	176	2644	1356
1921	176	156	137	156	148	202	184	436	396	261	242	220	2715	1278
1922	173	153	150	152	137	191	215	476	316	215	199	173	2551	1222
1923	142	143	138	154	139	144	215	415	324	267	243	203	2527	1221
1924	194	156	136	140	155	143	260	386	300	211	167	143	2392	1157
1925	161	143	125	133	134	172	257	334	241	218	195	224	2338	1050
1926	199	152	133	136	134	168	295	405	305	239	194	144	2504	1245
1927	167	143	131	146	142	165	266	460	299	253	232	258	2660	1277
1928	216	163	151	164	156	204	240	488	302	249	202	177	2712	1280
1929	179	153	123	136	126	196	275	463	339	256	273	292	2811	1333
1930	227	163	143	138	162	163	332	311	283	207	249	179	2558	1133
1931	177	139	122	133	138	130	150	231	209	174	164	152	1921	764
1932	168	138	118	125	150	157	288	464	291	244	210	165	2516	1286
1933	151	141	119	132	125	147	135	270	317	213	182	166	2096	934
1934	157	134	126	136	125	130	170	261	148	150	153	118	1808	728
1935	122	117	117	129	117	118	169	260	314	235	196	167	2062	978
1936	162	142	123	137	139	142	303	446	263	207	208	168	2439	1220
1937	146	140	125	124	129	159	255	406	227	202	172	161	2244	1090
1938	162	143	133	141	134	192	326	416	341	248	202	223	2660	1330
1939	174	147	136	146	133	203	246	359	227	174	158	166	2269	1006
1940	141	134	117	132	132	148	207	333	221	170	148	155	2038	931
1941	196	142	128	136	140	165	219	500	285	233	201	171	2517	1237
1942	264	170	150	153	146	177	402	430	311	230	194	148	2775	1373
1943	148	143	132	145	138	151	301	316	269	219	215	181	2359	1105
1944	154	147	132	135	136	141	174	434	305	240	181	134	2314	1154
1945	148	143	126	139	138	140	185	388	268	244	241	156	2317	1086
1946	169	149	129	141	134	158	247	264	251	194	182	149	2166	956
1947	164	148	135	129	133	151	183	391	282	270	224	202	2412	1127
1948	201	162	141	145	154	174	307	463	278	211	188	140	2564	1260
1949	153	144	135	148	149	183	260	362	311	259	198	152	2455	1192
1950	174	148	131	155	155	151	239	271	262	198	158	136	2179	970

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	148.	137.	131.	134.	132.	134.	128.	286.	269.	235.	194.	137.	2065.	918.
1952	148.	140.	131.	157.	139.	149.	336.	480.	354.	237.	225.	177.	2673.	1407.
1953	142.	137.	135.	153.	130.	150.	154.	244.	289.	204.	197.	143.	2077.	891.
1954	143.	149.	131.	147.	131.	130.	169.	234.	157.	164.	149.	152.	1856.	724.
1955	174.	138.	123.	134.	124.	161.	194.	285.	220.	181.	189.	131.	2054.	879.
1956	121.	137.	133.	140.	129.	150.	202.	350.	252.	167.	159.	109.	2051.	971.
1957	116.	137.	124.	147.	146.	143.	203.	365.	383.	347.	273.	221.	2603.	1297.
1958	192.	166.	149.	155.	166.	180.	286.	481.	295.	185.	167.	148.	2570.	1248.
1959	141.	143.	133.	141.	133.	132.	133.	246.	258.	181.	169.	122.	1932.	818.
1960	184.	150.	127.	136.	128.	197.	278.	288.	269.	193.	159.	130.	2240.	1029.
1961	140.	139.	125.	131.	124.	138.	153.	282.	231.	163.	174.	216.	2016.	829.
1962	228.	160.	136.	144.	174.	157.	349.	421.	290.	252.	192.	145.	2648.	1313.
1963	167.	148.	129.	142.	156.	174.	179.	263.	173.	155.	171.	172.	2028.	771.
1964	131.	141.	122.	134.	124.	120.	157.	322.	233.	198.	186.	140.	2008.	910.
1965	141.	142.	136.	146.	133.	132.	244.	372.	317.	291.	246.	218.	2516.	1224.
1966	223.	163.	152.	159.	145.	207.	238.	308.	196.	174.	157.	129.	2249.	915.
1967	149.	138.	140.	140.	131.	167.	150.	257.	243.	205.	176.	159.	2056.	855.
1968	148.	136.	120.	140.	137.	137.	147.	288.	306.	207.	235.	145.	2147.	948.
1969	156.	144.	127.	150.	141.	134.	300.	387.	238.	230.	187.	172.	2367.	1155.
1970	198.	155.	137.	148.	134.	146.	170.	448.	291.	232.	204.	236.	2499.	1142.
1971	202.	161.	144.	156.	141.	189.	242.	300.	297.	235.	192.	177.	2437.	1073.
1972	174.	153.	144.	154.	138.	198.	159.	259.	259.	179.	156.	162.	2136.	855.
1973	202.	151.	131.	148.	147.	169.	204.	436.	322.	267.	211.	157.	2544.	1229.
1974	156.	148.	132.	138.	131.	189.	208.	393.	250.	200.	172.	128.	2243.	1050.
1975	145.	145.	126.	143.	132.	151.	175.	325.	302.	284.	193.	142.	2262.	1085.
1976	144.	145.	128.	136.	142.	148.	188.	295.	228.	184.	161.	145.	2044.	895.
1977	158.	135.	116.	125.	114.	115.	122.	151.	153.	128.	129.	126.	1573.	555.
1978	134.	135.	121.	133.	123.	169.	242.	349.	329.	244.	160.	125.	2266.	1164.
MIN	116.	117.	111.	120.	114.	115.	122.	151.	148.	128.	129.	109.	1573.	555.
MAX	264.	170.	152.	164.	174.	279.	402.	545.	396.	347.	273.	292.	2811.	1407.
TOTAL	12332.	10644.	9554.	10394.	10075.	12058.	16556.	26279.	20546.	16356.	14330.	12365.	171489.	79737.
MEAN	169.	146.	131.	142.	138.	165.	227.	360.	281.	224.	196.	169.	2349.	1092.
STDEV	29.	9.	9.	10.	11.	30.	59.	81.	54.	42.	32.	36.	264.	184.
DIST	7.	6.	6.	6.	6.	7.	10.	15.	12.	10.	8.	7.	100.	46.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2112 FLOW AT FONTENELLE DAM ON THE GREEN RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	28	24	18	18	17	29	104	316	395	314	148	81	1492	1129
1907	37	40	31	33	42	75	180	398	508	431	178	55	2007	1517
1908	44	34	17	34	17	45	95	218	294	197	139	46	1165	804
1909	40	25	6	27	20	89	126	360	654	375	183	143	2047	1515
1910	46	40	6	6	36	175	130	342	268	89	73	32	1243	829
1911	56	39	21	47	56	97	45	33	267	188	102	41	992	532
1912	46	34	27	23	21	35	60	162	584	416	169	67	1644	1223
1913	53	45	61	33	26	61	135	269	523	362	156	81	1805	1289
1914	57	50	21	25	26	63	147	357	599	319	125	56	1845	1422
1915	36	31	24	20	18	41	71	100	176	187	95	70	869	534
1916	62	42	35	25	28	80	140	247	494	351	149	61	1713	1232
1917	51	31	24	22	20	32	113	309	603	629	170	82	2084	1653
1918	52	41	32	23	21	44	93	205	770	278	126	58	1744	1346
1919	51	40	28	22	19	36	81	166	164	57	42	34	739	468
1920	44	33	23	21	21	46	86	284	514	268	117	57	1514	1153
1921	48	41	30	27	25	67	115	277	752	206	104	59	1749	1349
1922	46	39	34	29	25	74	90	342	650	241	131	74	1775	1323
1923	45	37	30	24	21	33	101	351	454	384	144	65	1689	1290
1924	66	49	32	29	28	45	142	247	222	128	57	45	1089	738
1925	42	36	28	21	23	55	98	218	340	322	138	73	1394	978
1926	65	45	39	37	32	61	117	222	204	150	82	50	1103	692
1927	41	35	22	26	25	40	64	220	504	338	133	106	1555	1127
1928	74	60	39	29	22	52	72	394	329	248	141	61	1521	1043
1929	45	39	27	25	21	48	123	182	300	186	101	71	1168	791
1930	59	43	37	29	29	49	116	222	412	244	118	59	1417	995
1931	79	35	28	19	20	36	56	81	164	73	55	32	677	373
1932	28	23	19	16	19	39	77	202	365	275	108	50	1220	919
1933	39	32	24	17	32	30	56	94	397	169	68	37	980	716
1934	30	28	27	19	24	34	25	88	75	62	43	25	478	250
1935	22	19	19	18	19	32	55	94	405	183	76	39	982	738
1936	26	25	18	17	22	34	135	408	531	198	154	57	1624	1271
1937	43	35	29	23	21	35	145	246	291	231	89	48	1237	913
1938	38	28	25	22	23	34	138	197	453	246	106	77	1386	1034
1939	77	46	38	31	26	64	74	203	195	135	85	41	1014	607
1940	33	25	26	22	22	36	30	93	160	54	46	26	573	337
1941	36	27	27	22	20	37	82	177	354	171	104	48	1104	784
1942	62	47	27	23	17	36	164	152	356	234	101	44	1262	906
1943	31	26	26	27	27	46	177	241	499	380	151	66	1694	1297
1944	48	39	30	25	25	32	216	161	361	259	100	39	1334	997
1945	39	30	22	24	25	35	69	121	251	311	150	74	1151	751
1946	55	37	32	30	24	41	143	216	336	187	100	51	1251	881
1947	53	47	43	27	27	78	85	342	430	348	189	80	1747	1204
1948	68	54	41	30	21	42	79	201	379	155	79	40	1186	814
1949	34	25	24	25	21	43	99	214	364	218	99	44	1210	895
1950	49	51	28	26	29	40	203	249	571	418	168	77	1908	1441

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2112 FLOW AT FONTENELLE DAM ON THE GREEN RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	60.	63.	42.	38.	40.	49.	146.	321.	510.	371.	216.	88.	1945.	1348.
1952	65.	38.	36.	40.	38.	44.	152.	301.	375.	193.	116.	59.	1456.	1022.
1953	36.	25.	25.	29.	30.	41.	70.	67.	371.	229.	123.	44.	1091.	737.
1954	31.	32.	23.	25.	29.	36.	65.	287.	253.	261.	108.	47.	1198.	866.
1955	36.	33.	18.	20.	19.	28.	60.	129.	266.	154.	92.	39.	893.	609.
1956	31.	25.	32.	38.	30.	66.	130.	307.	571.	223.	125.	60.	1637.	1231.
1957	43.	36.	26.	33.	28.	45.	55.	186.	494.	385.	135.	70.	1525.	1120.
1958	58.	45.	42.	33.	41.	42.	86.	291.	284.	120.	76.	43.	1159.	780.
1959	31.	30.	29.	22.	23.	36.	60.	77.	369.	172.	103.	43.	994.	677.
1960	50.	38.	28.	25.	20.	54.	79.	69.	199.	117.	54.	35.	767.	463.
1961	44.	40.	25.	22.	20.	31.	50.	72.	210.	87.	52.	42.	695.	419.
1962	43.	32.	28.	32.	33.	39.	182.	262.	387.	280.	133.	49.	1498.	1111.
1963	44.	42.	24.	18.	20.	40.	49.	108.	350.	191.	92.	83.	1061.	698.
1964	52.	42.	27.	19.	20.	28.	55.	133.	353.	345.	102.	46.	1222.	887.
1965	29.	34.	34.	36.	29.	33.	116.	195.	606.	476.	198.	104.	1889.	1392.
1966	99.	72.	53.	53.	42.	46.	108.	147.	176.	142.	82.	50.	1070.	573.
1967	36.	38.	37.	30.	31.	44.	72.	145.	481.	466.	134.	64.	1574.	1164.
1968	55.	45.	37.	35.	31.	43.	70.	90.	405.	225.	171.	105.	1310.	789.
1969	73.	47.	40.	34.	21.	37.	176.	291.	300.	201.	114.	43.	1376.	968.
1970	39.	32.	25.	23.	26.	29.	40.	119.	339.	191.	76.	42.	981.	689.
1971	37.	39.	28.	33.	31.	42.	93.	281.	670.	356.	163.	66.	1839.	1400.
1972	65.	49.	30.	34.	37.	85.	113.	286.	778.	315.	165.	76.	2032.	1492.
1973	68.	51.	40.	33.	25.	33.	97.	208.	270.	196.	118.	78.	1216.	770.
1974	50.	53.	35.	27.	20.	54.	107.	235.	560.	264.	117.	45.	1567.	1165.
1975	40.	36.	23.	23.	25.	39.	59.	142.	334.	529.	132.	44.	1426.	1064.
1976	46.	43.	39.	31.	30.	34.	135.	328.	405.	292.	146.	64.	1594.	1161.
1977	49.	36.	26.	24.	24.	38.	55.	28.	167.	88.	71.	53.	659.	338.
1978	41.	37.	35.	29.	26.	53.	98.	191.	534.	406.	163.	66.	1680.	1230.
MIN	22.	19.	6.	6.	17.	28.	25.	28.	75.	54.	42.	25.	478.	250.
MAX	99.	72.	61.	53.	56.	175.	216.	408.	778.	629.	216.	143.	2084.	1653.
TOTAL	3472.	2782.	2129.	1926.	1879.	3461.	7327.	15516.	28932.	18486.	8564.	4262.	98735.	70261.
MEAN	48.	38.	29.	26.	26.	47.	100.	213.	396.	253.	117.	58.	1353.	962.
STDEV	14.	10.	9.	7.	7.	22.	42.	95.	158.	117.	40.	21.	385.	330.
DIST	4.	3.	2.	2.	2.	4.	7.	16.	29.	19.	9.	4.	100.	71.

82/03/16.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2112 SALT AT FONTENELLE DAM ON THE GREEN RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	7	8	7	7	8	8	19	34	40	31	20	16	206	124
1907	9	11	11	11	14	21	31	41	52	39	23	11	274	163
1908	10	10	7	7	9	13	18	26	30	21	19	10	178	94
1909	9	8	3	10	9	24	23	38	67	35	23	25	275	163
1910	10	11	3	4	13	47	23	37	27	11	11	7	204	98
1911	12	11	8	15	16	27	9	6	27	20	15	9	174	62
1912	10	10	10	9	9	10	12	21	60	38	22	13	224	130
1913	11	12	19	11	11	17	24	30	53	34	21	16	259	142
1914	12	13	8	9	11	17	26	38	61	31	17	12	255	156
1915	8	9	9	8	9	11	14	14	18	20	14	14	148	65
1916	12	11	12	9	11	22	25	29	50	33	20	12	248	137
1917	11	11	9	9	9	9	21	34	62	54	22	16	263	170
1918	11	11	11	9	9	12	17	25	79	28	17	12	242	149
1919	11	11	10	9	9	10	15	21	16	8	7	8	135	60
1920	10	10	9	8	9	13	16	32	52	27	16	12	214	127
1921	10	11	11	10	10	18	21	31	77	22	15	12	249	151
1922	10	11	12	10	10	20	17	37	67	25	18	15	251	145
1923	10	10	11	9	9	9	19	37	46	36	19	13	229	138
1924	13	13	11	10	11	13	25	29	22	15	9	10	181	91
1925	9	10	10	8	10	15	18	26	34	31	19	14	206	110
1926	13	12	13	12	12	17	21	26	20	17	12	11	187	85
1927	9	10	9	10	10	11	12	26	51	32	18	20	219	122
1928	14	15	13	10	10	14	14	41	33	25	19	13	221	113
1929	10	11	10	9	9	13	22	20	30	20	15	14	186	95
1930	12	12	13	10	11	13	21	26	42	25	16	12	214	114
1931	15	10	10	8	9	10	11	12	16	9	9	7	127	49
1932	7	7	8	7	9	11	15	24	37	27	15	11	178	103
1933	9	9	9	7	9	8	11	13	40	19	11	8	154	83
1934	7	8	10	8	10	9	5	13	7	8	7	6	100	34
1935	6	6	8	8	9	9	11	14	41	20	12	9	151	85
1936	7	8	8	7	10	9	24	42	54	21	20	12	221	141
1937	9	10	11	9	9	10	26	28	29	24	13	10	189	107
1938	8	8	9	9	10	9	24	24	46	25	15	15	204	120
1939	15	12	13	11	11	18	14	24	20	15	13	9	174	74
1940	8	8	10	9	10	10	6	13	16	7	8	6	111	43
1941	8	8	10	9	9	10	16	22	36	19	15	10	172	92
1942	12	12	10	9	8	10	28	28	36	24	15	10	194	108
1943	7	8	10	10	11	12	30	20	51	36	20	13	236	145
1944	10	11	11	9	10	9	36	21	37	26	14	9	203	119
1945	9	9	9	9	10	10	13	16	25	30	20	15	175	85
1946	11	10	11	11	10	11	25	26	34	20	14	11	195	105
1947	11	12	14	10	11	21	16	37	44	33	24	16	249	129
1948	13	14	14	11	9	12	15	24	38	17	12	9	188	95
1949	8	8	9	9	9	12	18	26	37	23	14	10	183	103
1950	10	13	10	10	11	11	34	29	58	39	22	15	262	160

82/03/16.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2112 SALT AT FONTENELLE DAM ON THE GREEN RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	12.	15.	14.	13.	13.	14.	26.	35.	52.	35.	27.	17.	272.	148.
1952	13.	11.	13.	13.	13.	12.	27.	33.	38.	21.	16.	12.	221.	119.
1953	8.	8.	10.	10.	12.	12.	14.	10.	38.	24.	17.	10.	171.	85.
1954	7.	9.	9.	10.	11.	10.	13.	32.	25.	26.	15.	10.	178.	96.
1955	8.	10.	8.	8.	9.	8.	12.	17.	27.	17.	13.	9.	145.	73.
1956	7.	8.	11.	13.	11.	18.	23.	34.	58.	23.	17.	12.	237.	138.
1957	9.	10.	10.	9.	11.	13.	11.	23.	50.	36.	18.	14.	214.	120.
1958	12.	12.	14.	11.	14.	12.	16.	32.	29.	14.	12.	9.	186.	91.
1959	8.	9.	11.	9.	10.	10.	12.	12.	37.	19.	15.	9.	159.	79.
1960	11.	11.	10.	9.	9.	15.	15.	11.	20.	14.	9.	8.	141.	59.
1961	10.	11.	10.	8.	9.	9.	10.	11.	21.	11.	9.	9.	127.	53.
1962	9.	9.	10.	11.	12.	11.	31.	30.	39.	28.	18.	10.	220.	128.
1963	10.	11.	9.	7.	9.	11.	10.	15.	35.	20.	14.	16.	168.	81.
1964	11.	11.	10.	8.	9.	8.	11.	18.	36.	33.	15.	10.	179.	97.
1965	7.	10.	12.	12.	11.	9.	21.	24.	62.	43.	25.	19.	255.	149.
1966	17.	17.	17.	16.	14.	13.	20.	19.	18.	16.	12.	11.	189.	72.
1967	8.	11.	12.	11.	12.	12.	14.	19.	49.	42.	18.	13.	220.	124.
1968	11.	12.	13.	12.	12.	12.	13.	13.	41.	23.	22.	19.	204.	91.
1969	14.	12.	14.	12.	9.	10.	30.	32.	30.	21.	16.	9.	211.	114.
1970	9.	9.	9.	9.	11.	8.	8.	16.	34.	20.	12.	9.	155.	79.
1971	9.	11.	10.	11.	12.	12.	17.	31.	69.	34.	21.	13.	250.	151.
1972	13.	13.	11.	12.	13.	23.	21.	32.	80.	31.	21.	15.	284.	163.
1973	13.	13.	14.	11.	10.	9.	18.	25.	27.	21.	16.	15.	193.	91.
1974	11.	13.	12.	10.	9.	15.	20.	27.	57.	27.	16.	10.	227.	131.
1975	9.	10.	9.	9.	10.	11.	12.	19.	34.	47.	18.	10.	196.	111.
1976	10.	12.	13.	11.	11.	10.	24.	35.	41.	29.	19.	13.	229.	129.
1977	10.	10.	10.	9.	10.	11.	11.	5.	17.	11.	11.	11.	126.	44.
1978	9.	10.	12.	10.	11.	15.	18.	23.	54.	38.	21.	13.	236.	134.
MIN	6.	6.	3.	4.	8.	8.	5.	5.	7.	7.	7.	6.	100.	34.
MAX	17.	17.	19.	16.	16.	47.	36.	42.	80.	54.	27.	25.	284.	170.
TOTAL	740.	768.	770.	708.	763.	960.	1336.	1818.	2940.	1842.	1185.	874.	14703.	7936.
MEAN	10.	11.	11.	10.	10.	13.	18.	25.	40.	25.	16.	12.	201.	109.
STDEV	2.	2.	2.	2.	2.	6.	7.	9.	16.	10.	4.	3.	42.	33.
DIST	5.	5.	5.	5.	5.	7.	9.	12.	20.	13.	8.	6.	100.	54.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF2170 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	30.	24.	18.	18.	17.	31.	122.	309.	416.	339.	158.	86.	1567.	1186.
1907	54.	49.	36.	35.	38.	80.	195.	272.	652.	732.	216.	78.	2437.	1851.
1908	63.	42.	29.	22.	22.	45.	99.	119.	363.	300.	154.	63.	1322.	881.
1909	71.	41.	23.	30.	23.	82.	122.	250.	811.	528.	212.	130.	2323.	1711.
1910	72.	55.	31.	24.	31.	142.	210.	268.	289.	171.	85.	50.	1428.	938.
1911	58.	39.	27.	35.	39.	71.	94.	155.	420.	257.	96.	46.	1337.	925.
1912	65.	40.	31.	28.	28.	50.	90.	177.	652.	370.	155.	71.	1756.	1288.
1913	73.	62.	31.	34.	29.	59.	170.	217.	351.	328.	121.	75.	1551.	1066.
1914	74.	57.	32.	35.	34.	79.	179.	370.	599.	329.	126.	59.	1973.	1477.
1915	34.	30.	25.	20.	18.	49.	84.	99.	178.	205.	103.	76.	920.	567.
1916	74.	49.	38.	26.	33.	121.	157.	239.	522.	379.	161.	66.	1863.	1297.
1917	54.	31.	25.	23.	20.	33.	135.	293.	622.	679.	182.	87.	2181.	1728.
1918	59.	47.	34.	23.	22.	55.	107.	193.	835.	300.	135.	62.	1872.	1435.
1919	56.	45.	28.	22.	19.	40.	95.	167.	168.	65.	46.	36.	787.	495.
1920	45.	34.	23.	22.	22.	57.	102.	270.	544.	292.	125.	61.	1596.	1208.
1921	51.	46.	31.	28.	28.	94.	137.	260.	806.	227.	111.	63.	1881.	1431.
1922	48.	44.	37.	31.	28.	111.	108.	337.	688.	262.	143.	80.	1916.	1395.
1923	47.	40.	31.	25.	22.	38.	120.	344.	475.	418.	155.	69.	1782.	1356.
1924	75.	56.	34.	31.	32.	58.	168.	243.	226.	146.	66.	46.	1180.	783.
1925	42.	39.	29.	22.	25.	73.	114.	217.	362.	357.	146.	79.	1504.	1050.
1926	78.	54.	43.	40.	36.	82.	139.	224.	208.	165.	89.	52.	1211.	735.
1927	42.	38.	31.	28.	28.	49.	83.	219.	560.	368.	143.	117.	1693.	1219.
1928	93.	79.	43.	31.	23.	67.	82.	396.	344.	274.	152.	66.	1649.	1095.
1929	50.	43.	30.	26.	22.	64.	149.	174.	301.	200.	108.	75.	1242.	824.
1930	58.	38.	36.	20.	23.	55.	162.	161.	356.	231.	241.	81.	1461.	910.
1931	89.	40.	29.	19.	20.	42.	62.	68.	164.	76.	57.	31.	696.	370.
1932	25.	22.	18.	15.	17.	43.	83.	192.	363.	301.	113.	51.	1242.	938.
1933	38.	33.	22.	15.	17.	27.	60.	77.	400.	183.	71.	36.	979.	721.
1934	27.	28.	26.	19.	24.	35.	22.	78.	74.	65.	45.	23.	466.	239.
1935	19.	18.	18.	18.	18.	33.	59.	78.	410.	199.	82.	39.	991.	747.
1936	24.	26.	17.	16.	21.	36.	156.	422.	538.	215.	152.	60.	1680.	1330.
1937	42.	36.	28.	22.	20.	38.	174.	249.	292.	252.	95.	50.	1298.	967.
1938	36.	28.	23.	21.	22.	34.	157.	194.	460.	270.	112.	84.	1441.	1080.
1939	85.	52.	38.	31.	27.	93.	78.	202.	196.	145.	107.	82.	1078.	621.
1940	31.	25.	26.	21.	22.	41.	28.	84.	164.	57.	49.	25.	571.	332.
1941	36.	28.	26.	22.	19.	45.	95.	178.	361.	186.	110.	51.	1156.	819.
1942	67.	54.	26.	24.	24.	43.	200.	151.	364.	257.	107.	45.	1360.	971.
1943	29.	26.	26.	28.	29.	59.	200.	237.	498.	419.	159.	69.	1779.	1354.
1944	49.	43.	30.	25.	25.	31.	267.	155.	362.	285.	105.	39.	1417.	1069.
1945	38.	31.	21.	24.	27.	41.	78.	111.	251.	342.	159.	83.	1206.	782.
1946	48.	44.	33.	29.	28.	59.	140.	176.	292.	184.	84.	48.	1165.	792.
1947	54.	47.	38.	26.	29.	107.	104.	349.	450.	356.	170.	67.	1798.	1259.
1948	66.	53.	37.	30.	23.	54.	104.	215.	412.	169.	79.	39.	1280.	900.
1949	36.	28.	26.	24.	22.	57.	113.	238.	426.	245.	89.	45.	1348.	1021.
1950	55.	52.	30.	28.	30.	57.	211.	227.	616.	429.	143.	68.	1945.	1482.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF2170 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	62.	60.	41.	34.	38.	66.	146.	289.	531.	382.	190.	79.	1917.	1348.
1952	81.	50.	43.	41.	42.	52.	190.	348.	436.	228.	130.	67.	1708.	1202.
1953	42.	28.	27.	32.	33.	44.	77.	74.	406.	266.	142.	50.	1220.	823.
1954	34.	36.	24.	26.	27.	48.	88.	281.	257.	294.	127.	54.	1296.	921.
1955	40.	39.	18.	20.	20.	33.	74.	127.	269.	169.	96.	41.	947.	639.
1956	33.	27.	35.	37.	29.	91.	158.	310.	599.	247.	139.	60.	1765.	1315.
1957	41.	35.	26.	22.	37.	57.	60.	176.	514.	433.	145.	75.	1620.	1183.
1958	66.	48.	41.	33.	47.	51.	99.	292.	310.	125.	79.	45.	1238.	827.
1959	34.	32.	31.	24.	25.	49.	73.	79.	361.	189.	103.	46.	1044.	702.
1960	51.	42.	27.	27.	23.	75.	84.	66.	205.	124.	56.	35.	816.	479.
1961	42.	47.	27.	20.	19.	30.	50.	62.	217.	93.	56.	41.	705.	423.
1962	41.	29.	27.	32.	48.	77.	203.	256.	389.	300.	144.	51.	1597.	1148.
1963	39.	35.	25.	18.	18.	42.	51.	101.	358.	205.	106.	85.	1083.	715.
1964	61.	52.	30.	23.	22.	29.	79.	169.	351.	370.	124.	54.	1364.	969.
1965	33.	32.	32.	36.	31.	40.	127.	206.	622.	512.	215.	89.	1975.	1468.
1966	95.	66.	35.	36.	36.	90.	134.	166.	190.	169.	90.	54.	1162.	659.
1967	42.	37.	28.	29.	30.	47.	70.	141.	475.	489.	159.	77.	1625.	1176.
1968	63.	48.	36.	35.	33.	50.	81.	97.	403.	242.	161.	98.	1347.	823.
1969	68.	54.	36.	37.	23.	58.	198.	313.	350.	221.	129.	51.	1536.	1081.
1970	44.	36.	25.	23.	25.	31.	55.	122.	352.	205.	83.	52.	1054.	735.
1971	39.	43.	31.	36.	36.	60.	109.	281.	686.	378.	180.	75.	1953.	1454.
1972	69.	54.	41.	47.	55.	113.	126.	301.	824.	325.	161.	84.	2200.	1577.
1973	79.	60.	41.	39.	30.	42.	124.	221.	298.	217.	136.	95.	1382.	860.
1974	56.	60.	42.	37.	35.	77.	120.	236.	571.	276.	131.	53.	1693.	1203.
1975	43.	40.	24.	25.	26.	41.	63.	151.	344.	565.	149.	53.	1525.	1124.
1976	50.	46.	49.	35.	33.	47.	140.	337.	424.	308.	163.	70.	1701.	1209.
1977	48.	34.	21.	20.	26.	37.	54.	24.	168.	85.	70.	51.	637.	330.
1978	37.	34.	33.	28.	28.	63.	104.	192.	548.	424.	172.	71.	1733.	1268.
MIN	19.	18.	17.	15.	17.	27.	22.	24.	74.	57.	45.	23.	466.	239.
MAX	95.	79.	49.	47.	55.	142.	267.	422.	835.	732.	241.	130.	2437.	1851.
TOTAL	3789.	3038.	2206.	1985.	2000.	4195.	8542.	15072.	30297.	20396.	9132.	4517.	105170.	74307.
MEAN	52.	42.	30.	27.	27.	57.	117.	206.	415.	279.	125.	62.	1441.	1018.
STDEV	18.	12.	7.	7.	8.	24.	50.	90.	173.	134.	43.	20.	419.	351.
DIST	4.	3.	2.	2.	2.	4.	8.	14.	29.	19.	9.	4.	100.	71.

82/03/17.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2170 SALT

15.37.59.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	12.	17.	12.	12.	13.	14.	33.	52.	65.	51.	35.	27.	342.	201.
1907	17.	27.	18.	20.	23.	29.	46.	47.	96.	86.	44.	25.	480.	275.
1908	19.	25.	16.	14.	16.	18.	29.	26.	57.	47.	34.	21.	323.	160.
1909	21.	24.	14.	18.	17.	30.	34.	44.	116.	69.	44.	38.	468.	263.
1910	21.	30.	17.	15.	20.	46.	48.	47.	47.	32.	21.	17.	362.	174.
1911	18.	23.	15.	20.	24.	27.	28.	32.	65.	42.	24.	16.	334.	167.
1912	20.	24.	17.	17.	19.	20.	27.	35.	56.	54.	34.	23.	385.	212.
1913	21.	32.	17.	20.	19.	23.	42.	40.	56.	50.	28.	24.	372.	187.
1914	21.	31.	17.	20.	21.	29.	43.	59.	89.	50.	29.	20.	429.	241.
1915	13.	20.	14.	13.	14.	20.	26.	23.	31.	36.	25.	24.	259.	116.
1916	21.	27.	19.	16.	21.	41.	40.	43.	79.	55.	35.	22.	419.	216.
1917	17.	20.	15.	15.	15.	14.	36.	50.	92.	82.	39.	27.	421.	259.
1918	18.	27.	18.	15.	16.	22.	31.	37.	119.	47.	31.	21.	400.	234.
1919	18.	26.	16.	14.	14.	17.	28.	33.	29.	17.	13.	13.	238.	107.
1920	15.	22.	14.	14.	16.	22.	30.	47.	82.	46.	29.	20.	356.	204.
1921	17.	26.	17.	17.	19.	33.	36.	46.	115.	39.	26.	21.	412.	236.
1922	16.	25.	19.	18.	19.	38.	31.	55.	100.	43.	32.	25.	422.	229.
1923	16.	24.	17.	15.	16.	16.	33.	56.	73.	59.	34.	22.	381.	220.
1924	22.	30.	18.	18.	21.	23.	41.	43.	38.	29.	18.	16.	316.	152.
1925	15.	23.	16.	14.	17.	27.	32.	40.	57.	53.	33.	25.	352.	182.
1926	22.	29.	21.	22.	23.	30.	37.	41.	35.	31.	22.	18.	331.	144.
1927	15.	23.	17.	17.	19.	20.	24.	40.	84.	54.	32.	35.	378.	202.
1928	25.	38.	21.	18.	16.	25.	26.	61.	55.	44.	34.	22.	385.	186.
1929	17.	25.	16.	16.	16.	24.	38.	34.	56.	36.	26.	24.	321.	157.
1930	18.	23.	18.	13.	17.	22.	44.	32.	56.	39.	48.	26.	353.	168.
1931	24.	24.	16.	12.	15.	18.	21.	18.	28.	18.	16.	12.	222.	86.
1932	10.	16.	12.	11.	13.	18.	26.	37.	57.	47.	27.	18.	291.	167.
1933	14.	21.	13.	11.	13.	12.	21.	19.	62.	34.	19.	13.	252.	136.
1934	11.	19.	15.	13.	17.	15.	11.	19.	14.	17.	19.	9.	172.	61.
1935	9.	14.	12.	12.	14.	14.	21.	19.	64.	35.	21.	14.	249.	139.
1936	10.	18.	11.	11.	15.	15.	40.	64.	81.	37.	34.	20.	356.	222.
1937	15.	22.	16.	14.	15.	16.	42.	44.	47.	42.	23.	17.	314.	176.
1938	13.	19.	14.	13.	16.	15.	40.	37.	71.	44.	27.	27.	334.	191.
1939	23.	29.	19.	18.	19.	33.	25.	38.	33.	44.	22.	15.	303.	125.
1940	12.	17.	15.	14.	16.	17.	12.	20.	28.	15.	14.	10.	191.	76.
1941	13.	19.	15.	14.	14.	19.	28.	35.	57.	34.	26.	18.	292.	154.
1942	20.	29.	15.	15.	17.	18.	47.	44.	47.	42.	26.	16.	332.	177.
1943	12.	18.	15.	17.	19.	23.	47.	43.	76.	59.	35.	23.	385.	224.
1944	16.	25.	16.	15.	18.	14.	57.	32.	57.	45.	25.	14.	335.	191.
1945	14.	20.	13.	15.	18.	17.	25.	25.	41.	51.	35.	26.	301.	142.
1946	16.	26.	17.	17.	19.	23.	37.	35.	47.	34.	21.	17.	309.	152.
1947	17.	27.	19.	16.	19.	37.	30.	56.	69.	53.	37.	22.	403.	208.
1948	20.	29.	18.	18.	16.	21.	30.	40.	64.	32.	20.	14.	323.	166.
1949	13.	19.	15.	15.	16.	22.	38.	43.	66.	41.	22.	16.	320.	181.
1950	18.	29.	16.	17.	20.	22.	48.	41.	91.	60.	32.	22.	417.	241.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF2170 SALT

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	19.	32.	20.	19.	23.	25.	38.	49.	80.	55.	40.	25.	426.	222.
1952	23.	28.	21.	23.	25.	21.	45.	56.	67.	39.	30.	22.	399.	207.
1953	15.	19.	15.	19.	21.	18.	25.	19.	63.	43.	32.	17.	305.	150.
1954	13.	22.	14.	16.	19.	19.	27.	48.	42.	46.	29.	19.	315.	164.
1955	14.	24.	12.	13.	15.	15.	24.	27.	44.	32.	24.	15.	258.	127.
1956	12.	18.	18.	21.	19.	32.	40.	52.	89.	41.	31.	20.	395.	222.
1957	14.	22.	15.	14.	23.	22.	21.	35.	78.	60.	32.	24.	360.	193.
1958	20.	27.	20.	19.	27.	20.	29.	50.	50.	26.	20.	16.	324.	155.
1959	13.	21.	17.	15.	17.	20.	24.	20.	57.	34.	25.	16.	278.	135.
1960	17.	25.	15.	17.	16.	28.	26.	17.	35.	26.	16.	13.	250.	104.
1961	15.	27.	16.	13.	14.	13.	18.	17.	36.	21.	15.	15.	221.	93.
1962	14.	19.	15.	19.	28.	28.	47.	45.	61.	47.	32.	18.	374.	200.
1963	14.	22.	15.	12.	14.	17.	19.	23.	57.	36.	25.	27.	281.	135.
1964	19.	29.	16.	15.	16.	13.	25.	34.	56.	54.	29.	18.	323.	168.
1965	12.	20.	17.	20.	20.	17.	34.	39.	92.	67.	44.	28.	412.	233.
1966	25.	34.	18.	21.	23.	32.	36.	33.	32.	32.	22.	18.	326.	133.
1967	15.	23.	16.	17.	20.	19.	23.	30.	73.	65.	35.	25.	360.	191.
1968	19.	27.	18.	20.	21.	20.	25.	23.	63.	41.	35.	30.	343.	151.
1969	20.	29.	18.	21.	17.	23.	46.	52.	55.	38.	30.	17.	367.	192.
1970	15.	22.	15.	15.	18.	14.	20.	27.	56.	36.	21.	18.	275.	138.
1971	14.	25.	17.	20.	22.	23.	31.	48.	100.	55.	38.	24.	419.	234.
1972	21.	29.	20.	25.	30.	39.	34.	51.	118.	50.	35.	26.	477.	252.
1973	22.	32.	20.	22.	20.	18.	34.	41.	48.	38.	31.	29.	354.	160.
1974	18.	32.	20.	21.	22.	28.	33.	43.	85.	44.	30.	18.	394.	205.
1975	15.	24.	14.	15.	18.	17.	22.	31.	55.	72.	33.	18.	335.	179.
1976	17.	26.	22.	20.	21.	19.	37.	55.	66.	48.	36.	23.	389.	205.
1977	16.	21.	13.	13.	18.	16.	19.	8.	29.	20.	18.	17.	210.	77.
1978	13.	22.	17.	17.	19.	24.	30.	37.	82.	59.	37.	23.	381.	209.
MIN	9.	14.	11.	11.	13.	12.	11.	8.	14.	15.	13.	9.	172.	61.
MAX	25.	38.	22.	25.	30.	46.	57.	64.	119.	86.	48.	38.	480.	275.
TOTAL	1221.	1781.	1195.	1197.	1346.	1622.	2330.	2766.	4660.	3183.	2093.	1493.	24887.	12939.
MEAN	17.	24.	16.	16.	18.	22.	32.	38.	64.	44.	29.	20.	341.	177.
STDEV	4.	5.	2.	3.	4.	7.	9.	12.	24.	14.	8.	5.	66.	47.
DIST	5.	7.	5.	5.	5.	7.	9.	11.	19.	13.	8.	6.	100.	52.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2345 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	61.	50.	34.	35.	38.	153.	224.	587.	659.	366.	175.	125.	2509.	1835.
1907	75.	79.	61.	61.	86.	166.	320.	576.	872.	761.	293.	123.	3472.	2529.
1908	90.	62.	36.	33.	37.	90.	153.	275.	412.	300.	194.	87.	1767.	1140.
1909	85.	51.	20.	49.	39.	202.	219.	530.	1044.	656.	280.	240.	3416.	2448.
1910	95.	69.	30.	24.	56.	277.	281.	507.	361.	139.	86.	62.	1986.	1288.
1911	81.	55.	38.	57.	77.	156.	127.	279.	445.	255.	105.	55.	1729.	1106.
1912	93.	54.	40.	43.	42.	92.	156.	387.	867.	450.	193.	92.	2508.	1859.
1913	87.	81.	40.	57.	51.	103.	306.	404.	475.	415.	143.	97.	2260.	1600.
1914	84.	77.	42.	50.	60.	159.	301.	680.	841.	386.	144.	75.	2899.	2208.
1915	56.	41.	26.	21.	21.	64.	133.	176.	283.	258.	103.	92.	1274.	849.
1916	95.	60.	42.	30.	40.	129.	228.	398.	656.	464.	189.	67.	2398.	1746.
1917	85.	41.	30.	24.	27.	52.	228.	504.	948.	901.	224.	105.	3170.	2582.
1918	74.	62.	47.	34.	32.	80.	150.	294.	1033.	410.	143.	68.	2426.	1887.
1919	75.	60.	35.	24.	23.	72.	152.	264.	245.	85.	55.	36.	1127.	747.
1920	49.	40.	25.	27.	32.	83.	147.	472.	781.	388.	144.	65.	2252.	1787.
1921	60.	61.	36.	34.	42.	151.	183.	452.	1109.	319.	141.	77.	2664.	2062.
1922	53.	52.	45.	35.	37.	157.	148.	532.	930.	342.	161.	86.	2577.	1952.
1923	51.	51.	38.	33.	28.	60.	211.	531.	690.	524.	207.	83.	2506.	1956.
1924	95.	73.	41.	32.	45.	76.	254.	350.	339.	187.	75.	44.	1612.	1130.
1925	46.	45.	28.	24.	34.	102.	166.	294.	449.	437.	188.	102.	1914.	1346.
1926	107.	70.	53.	46.	44.	121.	211.	351.	318.	221.	111.	50.	1703.	1101.
1927	47.	42.	35.	32.	33.	70.	116.	376.	690.	482.	153.	176.	2253.	1664.
1928	123.	103.	52.	46.	36.	115.	128.	619.	509.	346.	164.	66.	1601.	1307.
1929	68.	57.	33.	34.	29.	133.	238.	363.	522.	307.	146.	129.	2059.	1430.
1930	89.	56.	45.	21.	47.	79.	229.	239.	474.	280.	305.	97.	1960.	1221.
1931	110.	51.	34.	22.	26.	63.	91.	112.	230.	93.	70.	21.	923.	526.
1932	25.	25.	15.	16.	20.	72.	138.	355.	488.	390.	127.	51.	1723.	1371.
1933	43.	44.	22.	17.	19.	48.	88.	155.	557.	240.	76.	32.	1340.	1039.
1934	24.	29.	30.	24.	32.	44.	34.	109.	91.	71.	50.	12.	550.	305.
1935	13.	15.	17.	17.	20.	39.	65.	114.	551.	244.	94.	26.	1214.	974.
1936	17.	27.	15.	15.	24.	45.	193.	523.	638.	274.	207.	62.	2039.	1627.
1937	50.	46.	31.	20.	24.	71.	220.	377.	416.	331.	119.	66.	1772.	1344.
1938	43.	37.	33.	27.	31.	63.	203.	326.	631.	341.	112.	125.	1973.	1501.
1939	110.	67.	50.	40.	32.	139.	127.	303.	251.	173.	87.	46.	1425.	854.
1940	39.	29.	30.	24.	27.	60.	53.	163.	233.	74.	55.	26.	814.	525.
1941	43.	34.	29.	26.	28.	67.	124.	325.	509.	253.	142.	68.	1648.	1210.
1942	111.	81.	44.	31.	32.	75.	295.	280.	523.	325.	103.	40.	1941.	1424.
1943	35.	38.	36.	35.	40.	84.	252.	303.	585.	486.	201.	59.	2153.	1626.
1944	52.	55.	36.	28.	32.	59.	329.	272.	534.	379.	121.	34.	1930.	1513.
1945	44.	38.	24.	31.	36.	60.	111.	222.	366.	444.	199.	86.	1662.	1143.
1946	60.	54.	40.	37.	35.	84.	198.	244.	370.	231.	109.	55.	1519.	1044.
1947	64.	61.	51.	29.	41.	156.	151.	512.	612.	458.	226.	80.	2442.	1732.
1948	79.	69.	50.	40.	33.	89.	177.	335.	510.	212.	99.	39.	1731.	1234.
1949	35.	33.	30.	29.	28.	87.	162.	375.	629.	335.	114.	49.	1906.	1501.
1950	75.	69.	39.	40.	42.	96.	271.	329.	769.	514.	179.	74.	2496.	1883.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2345 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	79.	80.	61.	45.	61.	93.	212.	400.	678.	447.	286.	116.	2558.	1738.
1952	99.	57.	54.	49.	52.	63.	317.	603.	617.	302.	169.	84.	2467.	1839.
1953	53.	37.	34.	48.	48.	73.	96.	110.	506.	302.	168.	63.	1538.	1014.
1954	37.	42.	32.	28.	39.	62.	101.	316.	273.	351.	139.	61.	1479.	1041.
1955	44.	41.	20.	24.	25.	44.	106.	175.	339.	217.	124.	51.	1210.	838.
1956	39.	36.	45.	50.	37.	150.	203.	378.	693.	296.	169.	76.	2173.	1570.
1957	52.	39.	26.	28.	43.	66.	86.	272.	736.	525.	202.	99.	2172.	1619.
1958	78.	57.	46.	43.	55.	66.	134.	411.	414.	169.	104.	55.	1632.	1128.
1959	39.	34.	38.	29.	32.	65.	98.	119.	429.	271.	138.	63.	1356.	918.
1960	68.	51.	37.	26.	29.	149.	140.	140.	282.	166.	78.	50.	1214.	728.
1961	50.	54.	27.	28.	27.	64.	82.	98.	284.	127.	77.	60.	977.	590.
1962	64.	54.	45.	43.	84.	151.	388.	407.	520.	388.	183.	64.	2392.	1704.
1963	49.	47.	33.	23.	39.	54.	73.	136.	418.	251.	128.	102.	1353.	877.
1964	66.	53.	33.	26.	30.	42.	132.	313.	532.	451.	142.	57.	1875.	1428.
1965	29.	29.	39.	39.	58.	63.	193.	396.	1016.	675.	290.	129.	2957.	2280.
1966	120.	78.	47.	48.	42.	109.	192.	266.	245.	193.	96.	51.	1487.	896.
1967	46.	41.	27.	23.	33.	79.	100.	249.	705.	608.	177.	72.	2161.	1662.
1968	49.	42.	28.	27.	43.	81.	114.	163.	644.	301.	190.	108.	1788.	1222.
1969	74.	48.	30.	29.	28.	94.	300.	453.	426.	268.	146.	43.	1940.	1447.
1970	9.	36.	16.	34.	39.	54.	87.	233.	554.	272.	106.	65.	1505.	1147.
1971	91.	54.	31.	68.	67.	108.	199.	504.	940.	463.	193.	65.	2785.	2106.
1972	80.	70.	39.	54.	72.	196.	203.	494.	1062.	388.	180.	81.	2920.	2147.
1973	79.	61.	50.	52.	46.	90.	271.	433.	437.	327.	173.	117.	2136.	1469.
1974	62.	68.	50.	47.	54.	154.	191.	428.	713.	319.	129.	37.	2252.	1651.
1975	27.	32.	12.	28.	40.	63.	89.	293.	616.	773.	179.	55.	2208.	1772.
1976	50.	42.	46.	33.	52.	94.	206.	477.	509.	335.	176.	74.	2093.	1527.
1977	42.	25.	16.	15.	30.	39.	80.	49.	202.	107.	82.	51.	738.	438.
1978	33.	36.	30.	38.	40.	102.	161.	316.	761.	478.	187.	75.	2257.	1716.
MIN	9.	15.	12.	15.	19.	39.	34.	49.	91.	71.	50.	12.	550.	305.
MAX	123.	103.	61.	68.	86.	277.	388.	680.	1109.	901.	305.	240.	3472.	2582.
TOTAL	4606.	3734.	2599.	2479.	2881.	6905.	12844.	24803.	40998.	25318.	11025.	5376.	143568.	103964.
MEAN	63.	51.	36.	34.	39.	95.	176.	340.	562.	347.	151.	74.	1967.	1424.
STDEV	26.	17.	11.	12.	14.	45.	76.	144.	232.	164.	58.	36.	607.	499.
DIST	3.	3.	2.	2.	2.	5.	9.	17.	29.	18.	8.	4.	100.	72.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2345 SALT

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	26.	28.	20.	31.	40.	76.	86.	123.	114.	68.	64.	66.	741.	391.
1907	30.	43.	32.	49.	92.	81.	114.	121.	150.	126.	104.	64.	1005.	511.
1908	34.	34.	21.	28.	38.	54.	63.	71.	72.	58.	70.	46.	590.	265.
1909	33.	29.	13.	41.	41.	92.	84.	114.	178.	111.	99.	125.	960.	487.
1910	36.	38.	18.	21.	59.	113.	103.	111.	64.	31.	32.	33.	657.	308.
1911	31.	31.	22.	47.	82.	77.	54.	72.	78.	51.	39.	29.	613.	255.
1912	35.	30.	23.	36.	43.	54.	64.	91.	149.	81.	70.	49.	725.	385.
1913	33.	44.	22.	47.	54.	59.	110.	94.	83.	76.	52.	51.	726.	363.
1914	33.	42.	23.	41.	63.	78.	109.	137.	144.	72.	53.	40.	834.	461.
1915	24.	24.	16.	19.	21.	43.	57.	52.	50.	51.	39.	48.	442.	209.
1916	36.	34.	23.	26.	42.	68.	87.	93.	113.	83.	68.	35.	709.	377.
1917	33.	24.	18.	21.	27.	38.	87.	110.	162.	145.	80.	55.	799.	504.
1918	29.	34.	26.	29.	33.	50.	62.	75.	176.	75.	52.	36.	678.	388.
1919	30.	33.	20.	21.	24.	46.	63.	69.	44.	20.	21.	19.	411.	196.
1920	21.	23.	16.	23.	33.	51.	61.	105.	134.	72.	53.	35.	627.	373.
1921	25.	34.	21.	29.	44.	76.	73.	102.	189.	61.	52.	40.	745.	425.
1922	23.	29.	25.	29.	38.	78.	61.	115.	159.	95.	59.	45.	726.	400.
1923	22.	29.	22.	28.	29.	41.	82.	115.	119.	62.	74.	44.	696.	408.
1924	36.	40.	23.	28.	47.	48.	95.	85.	60.	39.	29.	23.	552.	279.
1925	20.	26.	17.	21.	35.	58.	68.	75.	78.	79.	68.	54.	599.	300.
1926	39.	39.	28.	38.	46.	66.	82.	85.	56.	45.	41.	26.	591.	268.
1927	21.	24.	20.	27.	35.	46.	51.	89.	119.	86.	56.	92.	666.	345.
1928	44.	55.	28.	38.	38.	63.	55.	128.	89.	65.	60.	35.	696.	336.
1929	28.	32.	19.	29.	30.	70.	90.	87.	91.	59.	54.	68.	656.	327.
1930	34.	32.	25.	18.	49.	49.	87.	64.	83.	55.	108.	51.	655.	289.
1931	40.	29.	20.	19.	27.	42.	42.	37.	41.	22.	27.	11.	357.	142.
1932	13.	15.	10.	14.	20.	47.	58.	86.	85.	72.	47.	27.	495.	301.
1933	19.	25.	14.	16.	19.	36.	41.	47.	97.	48.	29.	17.	407.	233.
1934	13.	17.	18.	21.	33.	34.	19.	37.	17.	18.	19.	7.	251.	90.
1935	8.	9.	11.	16.	21.	31.	32.	38.	96.	49.	35.	14.	358.	214.
1936	10.	16.	10.	13.	25.	34.	76.	113.	110.	54.	75.	33.	569.	353.
1937	22.	26.	18.	18.	25.	46.	84.	89.	73.	63.	44.	35.	545.	310.
1938	19.	22.	19.	24.	32.	43.	79.	81.	109.	65.	42.	65.	600.	334.
1939	40.	37.	27.	33.	33.	72.	55.	76.	45.	37.	33.	24.	512.	212.
1940	18.	18.	18.	21.	27.	41.	27.	49.	42.	18.	21.	14.	314.	136.
1941	20.	20.	18.	23.	29.	44.	53.	80.	89.	50.	52.	36.	514.	273.
1942	40.	44.	24.	27.	33.	48.	107.	72.	38.	62.	91.	62.	608.	332.
1943	17.	22.	21.	30.	41.	51.	94.	76.	102.	87.	72.	31.	644.	359.
1944	22.	31.	21.	24.	33.	41.	117.	71.	93.	70.	45.	18.	586.	351.
1945	20.	22.	15.	26.	37.	41.	49.	61.	64.	80.	72.	45.	534.	255.
1946	25.	31.	23.	32.	36.	51.	78.	66.	65.	47.	41.	29.	522.	255.
1947	27.	34.	28.	25.	43.	77.	62.	112.	106.	82.	81.	42.	720.	362.
1948	31.	38.	27.	34.	34.	53.	71.	82.	83.	44.	37.	21.	560.	285.
1949	17.	20.	18.	25.	28.	52.	66.	89.	109.	64.	26.	64.	556.	328.
1950	30.	38.	22.	34.	44.	56.	100.	81.	132.	91.	65.	39.	731.	404.

82/03/17.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF2345 SALT

15.37.59.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	31.	43.	32.	37.	65.	55.	82.	93.	117.	81.	101.	61.	799.	373.
1952	37.	32.	29.	41.	55.	43.	113.	126.	107.	58.	62.	44.	746.	404.
1953	23.	22.	20.	40.	51.	47.	44.	37.	88.	58.	61.	33.	523.	227.
1954	17.	24.	19.	24.	41.	42.	45.	79.	48.	66.	51.	32.	489.	239.
1955	20.	24.	13.	21.	25.	33.	47.	52.	60.	44.	46.	27.	412.	203.
1956	18.	21.	25.	41.	39.	75.	79.	90.	120.	57.	62.	40.	667.	346.
1957	22.	23.	16.	24.	45.	44.	40.	71.	127.	92.	73.	52.	628.	330.
1958	31.	32.	25.	36.	58.	44.	57.	95.	73.	36.	39.	29.	555.	261.
1959	18.	20.	22.	25.	33.	43.	44.	39.	75.	53.	51.	33.	457.	212.
1960	28.	29.	21.	23.	30.	75.	59.	44.	50.	35.	29.	26.	449.	188.
1961	22.	30.	16.	24.	28.	43.	38.	34.	50.	28.	29.	32.	375.	151.
1962	26.	31.	25.	36.	91.	76.	133.	95.	91.	72.	66.	34.	775.	390.
1963	22.	27.	19.	21.	41.	38.	35.	43.	73.	50.	47.	54.	469.	201.
1964	27.	30.	19.	23.	30.	32.	56.	78.	93.	81.	52.	30.	552.	308.
1965	15.	17.	22.	33.	61.	42.	76.	93.	173.	114.	103.	68.	817.	456.
1966	43.	42.	26.	40.	43.	61.	76.	70.	44.	40.	36.	27.	548.	229.
1967	21.	24.	16.	20.	35.	49.	45.	66.	122.	104.	64.	38.	605.	337.
1968	22.	24.	17.	23.	45.	50.	50.	49.	111.	58.	69.	56.	574.	269.
1969	30.	28.	18.	25.	28.	55.	108.	102.	75.	53.	53.	23.	598.	338.
1970	6.	21.	11.	29.	40.	39.	40.	63.	96.	53.	39.	34.	473.	253.
1971	35.	31.	18.	55.	71.	61.	78.	110.	161.	83.	70.	35.	807.	432.
1972	31.	38.	22.	44.	77.	90.	79.	109.	181.	72.	65.	43.	852.	441.
1973	31.	34.	27.	42.	49.	54.	100.	99.	77.	62.	63.	61.	699.	338.
1974	26.	37.	27.	39.	57.	77.	75.	98.	123.	61.	48.	19.	687.	358.
1975	14.	19.	9.	24.	41.	42.	41.	75.	107.	127.	65.	29.	593.	350.
1976	22.	25.	25.	28.	55.	55.	80.	106.	89.	64.	64.	39.	651.	338.
1977	19.	15.	11.	14.	30.	31.	37.	21.	36.	25.	31.	27.	297.	119.
1978	16.	21.	18.	32.	42.	58.	66.	79.	131.	85.	68.	40.	655.	361.
MIN	6.	9.	9.	13.	19.	31.	19.	21.	17.	18.	19.	7.	251.	90.
MAX	44.	55.	32.	55.	92.	113.	133.	137.	189.	145.	108.	125.	1005.	511.
TOTAL	1875.	2106.	1491.	2104.	3011.	3969.	5083.	5942.	7103.	4704.	4018.	2829.	44236.	22832.
MEAN	26.	29.	20.	29.	41.	54.	70.	81.	97.	64.	55.	39.	606.	313.
SIDEV.	8.	8.	5.	9.	16.	17.	24.	26.	39.	25.	20.	19.	148.	92.
DIST	4.	5.	3.	5.	7.	9.	11.	13.	16.	11.	9.	6.	100.	52.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2510 FLOW NEAR MAYBELL, COLORADO ON THE YAMPA RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	22	16	3	3	3	51	111	391	492	252	106	93	1543	1246
1907	39	26	15	12	23	65	155	322	610	487	155	60	1969	1575
1908	38	17	5	8	9	38	92	167	296	167	93	35	963	721
1909	31	16	4	15	7	70	105	364	742	389	146	111	1998	1599
1910	42	26	11	9	17	127	171	352	279	95	44	31	1202	896
1911	33	19	12	17	23	69	77	276	383	191	62	29	1191	926
1912	63	22	13	12	10	35	77	358	629	317	116	47	1699	1381
1913	41	33	11	18	13	38	168	297	308	199	65	48	1240	972
1914	38	30	9	16	16	59	154	480	584	265	99	45	1793	1482
1915	55	25	8	6	8	25	110	213	317	145	45	31	988	785
1916	34	21	12	14	18	104	155	370	441	212	123	45	1547	1177
1917	46	34	30	24	22	42	213	618	785	295	58	31	2198	1912
1918	23	22	20	19	20	57	139	374	467	152	34	27	1354	1132
1919	36	30	23	20	21	42	189	417	161	33	22	14	1007	800
1920	14	19	15	15	18	24	62	682	558	147	47	27	1629	1449
1921	24	26	27	21	28	97	149	568	700	137	45	25	1849	1554
1922	19	18	20	18	21	47	98	437	369	93	31	19	1191	997
1923	13	16	22	20	21	26	182	526	431	141	46	24	1467	1279
1924	26	20	15	15	16	20	150	333	310	67	25	19	1015	860
1925	27	24	22	18	18	42	194	342	221	80	31	32	1050	836
1926	33	23	25	24	21	54	227	394	270	66	33	17	1186	957
1927	20	18	20	20	17	36	190	520	365	113	41	21	1381	1188
1928	31	40	33	26	30	89	171	618	362	100	35	28	1563	1252
1929	25	28	23	25	22	117	294	699	555	177	53	60	2079	1725
1930	44	34	30	21	21	48	263	279	260	41	48	32	1121	843
1931	43	41	31	20	20	46	164	242	192	47	25	12	883	645
1932	18	18	15	11	11	56	200	520	384	141	49	20	1445	1246
1933	21	23	15	10	17	29	113	479	68	310	26	14	1125	969
1934	13	11	12	7	19	33	97	165	45	16	12	3	433	322
1935	9	12	11	16	20	28	70	240	399	90	30	11	935	799
1936	10	14	13	15	16	27	255	485	272	58	32	11	1207	1070
1937	13	12	11	11	14	37	100	404	263	87	30	15	996	853
1938	20	21	23	22	24	50	170	428	386	91	34	28	1296	1075
1939	17	19	22	16	14	75	179	392	190	38	21	16	996	799
1940	19	15	10	9	14	35	144	385	213	38	16	9	908	780
1941	22	19	15	14	16	39	92	458	262	64	32	15	1047	876
1942	40	28	24	21	19	50	239	374	346	75	26	11	1253	1034
1943	11	15	13	12	14	46	195	244	279	89	30	15	960	806
1944	11	14	12	10	10	18	44	315	364	85	22	8	913	807
1945	10	16	13	12	10	23	89	449	402	181	69	25	1299	1121
1946	18	19	16	14	18	40	215	226	244	61	25	14	911	747
1947	20	25	20	14	15	76	164	500	325	140	40	24	1362	1129
1948	22	27	38	37	37	57	195	465	256	67	31	13	1244	983
1949	17	17	16	15	16	44	192	430	445	135	33	14	1372	1201
1950	24	20	16	15	15	28	133	274	350	100	26	14	1013	856

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF2510 FLOW NEAR MAYBELL, COLORADO ON THE YAMPA RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	17.	17.	16.	14.	15.	33.	110.	338.	331.	127.	37.	18.	1074.	906.
1952	21.	16.	12.	14.	15.	19.	240.	524.	494.	191.	45.	21.	1511.	1349.
1953	13.	12.	14.	15.	12.	25.	72.	224.	387.	66.	35.	13.	888.	750.
1954	10.	16.	12.	15.	15.	23.	104.	223.	100.	32.	16.	13.	577.	459.
1955	23.	16.	13.	12.	11.	28.	120.	306.	213.	47.	26.	9.	824.	686.
1956	8.	16.	20.	17.	14.	30.	214.	414.	285.	46.	27.	11.	1101.	959.
1957	9.	13.	12.	13.	13.	29.	125.	440.	691.	378.	74.	32.	1828.	1634.
1958	29.	29.	25.	20.	28.	41.	162.	564.	352.	51.	23.	13.	1338.	1129.
1959	14.	15.	13.	14.	15.	22.	89.	275.	304.	64.	30.	13.	866.	732.
1960	41.	32.	23.	14.	13.	41.	240.	295.	286.	51.	22.	11.	1068.	872.
1961	13.	15.	13.	12.	12.	19.	56.	240.	215.	37.	19.	32.	684.	548.
1962	62.	34.	22.	20.	41.	45.	387.	450.	325.	133.	30.	12.	1559.	1295.
1963	18.	17.	13.	13.	22.	29.	79.	269.	159.	32.	21.	17.	689.	539.
1964	9.	12.	8.	8.	9.	14.	67.	341.	305.	100.	26.	15.	915.	813.
1965	11.	14.	17.	17.	15.	18.	156.	392.	471.	167.	55.	30.	1362.	1187.
1966	39.	25.	20.	21.	16.	88.	122.	248.	130.	35.	16.	9.	768.	534.
1967	16.	13.	13.	12.	13.	43.	88.	252.	324.	125.	31.	20.	949.	789.
1968	18.	15.	12.	14.	14.	28.	89.	348.	488.	116.	46.	20.	1206.	1041.
1969	22.	19.	17.	17.	16.	26.	251.	420.	228.	88.	33.	25.	1163.	988.
1970	28.	25.	22.	22.	22.	30.	82.	524.	453.	144.	41.	21.	1411.	1202.
1971	29.	26.	22.	23.	22.	67.	277.	403.	488.	135.	34.	19.	1545.	1303.
1972	19.	22.	20.	22.	26.	73.	127.	275.	313.	149.	20.	15.	979.	764.
1973	25.	23.	22.	19.	16.	27.	97.	480.	376.	149.	44.	17.	1299.	1102.
1974	17.	20.	22.	19.	15.	36.	225.	614.	389.	95.	31.	12.	1495.	1323.
1975	13.	17.	9.	14.	17.	28.	93.	346.	447.	231.	42.	12.	1269.	1117.
1976	16.	18.	17.	16.	20.	33.	88.	314.	236.	86.	32.	14.	888.	723.
1977	15.	12.	10.	9.	13.	21.	54.	123.	113.	14.	12.	11.	404.	303.
1978	12.	12.	11.	14.	16.	35.	199.	403.	555.	210.	48.	19.	1535.	1367.
MIN	8.	11.	3.	3.	3.	14.	44.	123.	45.	14.	12.	3.	404.	303.
MAX	63.	41.	38.	37.	41.	127.	387.	699.	785.	487.	155.	111.	2198.	1912.
TOTAL	1761.	1503.	1222.	1156.	1254.	3202.	10955.	27747.	26446.	8929.	3125.	1713.	89015.	74077.
MEAN	24.	21.	17.	16.	17.	44.	150.	380.	362.	122.	43.	23.	1219.	1015.
STDEV	13.	7.	7.	5.	6.	24.	67.	124.	151.	91.	29.	18.	367.	322.
DIST	2.	2.	1.	1.	1.	4.	12.	31.	30.	10.	4.	2.	100.	83.

82/03/16.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2510 SALT NEAR MAYBELL, COLORADO ON THE YAMPA RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	9.	7.	3.	2.	1.	16.	22.	39.	41.	28.	29.	48.	245.	130.
1907	13.	10.	7.	8.	8.	19.	24.	32.	45.	41.	38.	32.	278.	143.
1908	13.	7.	4.	6.	3.	13.	21.	17.	33.	22.	26.	20.	185.	94.
1909	11.	7.	4.	10.	2.	20.	21.	36.	49.	36.	36.	56.	289.	143.
1910	14.	10.	6.	7.	6.	29.	25.	35.	32.	16.	16.	17.	212.	109.
1911	12.	8.	6.	11.	8.	19.	19.	28.	37.	24.	20.	17.	209.	109.
1912	18.	9.	7.	8.	4.	13.	19.	36.	46.	32.	31.	26.	248.	133.
1913	14.	12.	6.	12.	5.	13.	25.	30.	34.	25.	21.	26.	221.	113.
1914	13.	11.	5.	10.	6.	17.	24.	47.	45.	29.	28.	25.	259.	145.
1915	17.	9.	5.	5.	3.	10.	22.	22.	34.	21.	16.	17.	181.	99.
1916	12.	8.	6.	9.	6.	25.	24.	37.	39.	26.	32.	25.	250.	126.
1917	15.	12.	10.	14.	8.	14.	27.	59.	51.	31.	19.	17.	277.	168.
1918	9.	9.	8.	12.	7.	17.	23.	37.	40.	21.	13.	15.	213.	122.
1919	12.	11.	9.	12.	7.	14.	26.	41.	26.	9.	10.	8.	185.	101.
1920	6.	8.	7.	10.	6.	10.	18.	65.	44.	21.	16.	15.	226.	147.
1921	9.	10.	10.	14.	10.	24.	24.	55.	48.	20.	16.	14.	254.	147.
1922	8.	7.	8.	12.	7.	15.	21.	43.	37.	16.	12.	11.	198.	116.
1923	6.	7.	9.	12.	7.	10.	26.	51.	39.	20.	16.	14.	217.	136.
1924	10.	8.	7.	10.	5.	9.	24.	33.	34.	13.	10.	11.	175.	105.
1925	10.	10.	9.	12.	6.	14.	26.	34.	29.	15.	12.	18.	194.	104.
1926	12.	9.	9.	14.	7.	17.	27.	39.	32.	13.	13.	10.	202.	111.
1927	8.	7.	8.	12.	6.	13.	26.	50.	36.	18.	15.	12.	213.	131.
1928	11.	14.	11.	15.	10.	23.	25.	59.	36.	17.	13.	16.	250.	137.
1929	10.	11.	9.	15.	8.	27.	30.	66.	44.	23.	18.	32.	292.	163.
1930	14.	12.	10.	13.	7.	15.	29.	28.	31.	10.	17.	18.	205.	99.
1931	14.	14.	11.	12.	7.	15.	25.	25.	28.	11.	11.	7.	179.	88.
1932	8.	7.	7.	8.	4.	17.	26.	50.	37.	20.	17.	12.	214.	134.
1933	9.	9.	7.	7.	6.	11.	22.	31.	41.	13.	11.	9.	176.	107.
1934	6.	5.	6.	5.	7.	12.	21.	17.	15.	6.	6.	2.	109.	59.
1935	5.	5.	6.	10.	7.	11.	19.	25.	38.	16.	12.	7.	160.	97.
1936	5.	6.	7.	10.	5.	11.	28.	47.	32.	12.	13.	7.	183.	120.
1937	6.	5.	6.	8.	5.	13.	21.	40.	32.	15.	12.	9.	172.	108.
1938	8.	8.	9.	13.	8.	25.	25.	42.	37.	16.	13.	16.	212.	120.
1939	7.	8.	9.	10.	5.	20.	25.	39.	28.	10.	9.	9.	179.	101.
1940	8.	6.	6.	7.	5.	12.	24.	38.	29.	10.	8.	6.	158.	100.
1941	9.	8.	7.	9.	6.	13.	21.	45.	32.	13.	12.	9.	183.	110.
1942	13.	11.	9.	13.	7.	16.	28.	37.	36.	14.	11.	7.	201.	115.
1943	5.	6.	7.	8.	5.	15.	26.	25.	32.	16.	12.	9.	166.	99.
1944	5.	6.	6.	7.	4.	8.	16.	32.	36.	15.	10.	5.	151.	99.
1945	5.	7.	5.	8.	3.	10.	20.	44.	38.	23.	21.	14.	201.	126.
1946	8.	8.	7.	9.	6.	14.	27.	23.	31.	13.	11.	8.	164.	93.
1947	8.	9.	8.	9.	5.	21.	25.	49.	35.	20.	15.	14.	217.	128.
1948	9.	10.	12.	20.	13.	17.	26.	45.	31.	26.	12.	8.	217.	116.
1949	7.	7.	7.	10.	6.	14.	26.	42.	40.	20.	13.	8.	200.	128.
1950	9.	8.	7.	10.	5.	11.	23.	28.	36.	17.	11.	8.	173.	103.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF2510 SALT NEAR MAYBELL, COLORADO ON THE YAMPA RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	7.	7.	7.	10.	5.	12.	22.	34.	35.	19.	14.	11.	183.	110.
1952	8.	7.	6.	9.	5.	8.	41.	51.	28.	16.	16.	12.	208.	136.
1953	6.	6.	7.	10.	4.	10.	19.	23.	37.	13.	8.	8.	156.	93.
1954	5.	7.	6.	10.	5.	10.	21.	23.	21.	9.	8.	8.	131.	74.
1955	9.	7.	6.	8.	4.	11.	22.	31.	29.	11.	11.	6.	155.	93.
1956	4.	7.	8.	11.	5.	11.	27.	41.	33.	11.	11.	7.	175.	111.
1957	5.	6.	6.	9.	5.	11.	23.	43.	48.	36.	23.	18.	231.	149.
1958	11.	11.	9.	12.	10.	14.	25.	54.	36.	11.	10.	8.	211.	126.
1959	6.	6.	7.	9.	5.	9.	20.	28.	34.	13.	12.	8.	157.	95.
1960	14.	11.	9.	10.	4.	14.	28.	30.	33.	11.	10.	7.	180.	102.
1961	6.	7.	7.	8.	4.	8.	18.	24.	29.	10.	9.	18.	147.	81.
1962	18.	12.	9.	12.	14.	15.	32.	44.	35.	20.	12.	7.	230.	131.
1963	8.	7.	7.	9.	8.	11.	20.	27.	25.	9.	9.	10.	149.	81.
1964	5.	5.	5.	6.	3.	7.	19.	34.	34.	17.	11.	9.	155.	103.
1965	5.	6.	8.	11.	5.	8.	24.	39.	41.	22.	18.	17.	204.	126.
1966	13.	10.	8.	13.	5.	23.	22.	25.	23.	9.	8.	6.	166.	80.
1967	7.	6.	6.	8.	4.	14.	20.	26.	35.	19.	12.	12.	170.	99.
1968	7.	6.	6.	9.	5.	11.	20.	35.	41.	20.	16.	11.	187.	114.
1969	9.	8.	8.	11.	6.	10.	28.	41.	30.	16.	13.	14.	193.	115.
1970	10.	9.	9.	13.	8.	11.	20.	51.	40.	21.	15.	12.	218.	131.
1971	11.	10.	9.	14.	8.	19.	29.	40.	41.	20.	13.	11.	224.	130.
1972	8.	9.	8.	13.	9.	20.	23.	28.	34.	11.	9.	9.	181.	96.
1973	10.	9.	9.	12.	6.	10.	21.	47.	37.	21.	16.	10.	207.	125.
1974	7.	8.	9.	12.	5.	13.	27.	59.	37.	16.	12.	7.	213.	140.
1975	6.	7.	5.	9.	6.	11.	21.	34.	40.	27.	15.	7.	188.	122.
1976	7.	8.	8.	10.	7.	12.	20.	31.	30.	15.	13.	8.	169.	97.
1977	7.	5.	6.	7.	4.	9.	17.	13.	22.	5.	6.	6.	108.	58.
1978	6.	6.	6.	10.	6.	13.	26.	40.	44.	25.	17.	11.	208.	135.
MIN	4.	5.	3.	2.	1.	7.	16.	13.	15.	5.	6.	2.	108.	58.
MAX	18.	14.	12.	20.	14.	29.	32.	66.	51.	41.	38.	56.	292.	168.
TOTAL	661.	598.	539.	743.	439.	1028.	1715.	2737.	2590.	1291.	1084.	970.	14395.	8333.
MEAN	9.	8.	7.	10.	6.	14.	23.	37.	35.	18.	15.	13.	197.	114.
STDEV	3.	2.	2.	3.	2.	5.	3.	11.	7.	7.	7.	9.	38.	22.
DIST	5.	4.	4.	5.	3.	7.	12.	19.	18.	9.	8.	7.	100.	58.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2600 FLOW NEAR LILY, COLORADO ON THE LITTLE SNAKE RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	14.	6.	2.	1.	2.	44.	72.	132.	129.	92.	54.	21.	569.	424.
1907	14.	17.	7.	3.	21.	52.	110.	175.	194.	226.	105.	48.	974.	706.
1908	27.	11.	3.	2.	3.	17.	36.	83.	90.	103.	34.	28.	437.	312.
1909	25.	5.	2.	1.	3.	8.	43.	115.	247.	205.	109.	28.	791.	609.
1910	29.	10.	2.	2.	3.	85.	69.	109.	57.	19.	46.	21.	451.	254.
1911	22.	6.	3.	3.	13.	26.	26.	7.	65.	48.	47.	13.	279.	147.
1912	2.	3.	3.	0.	2.	21.	45.	18.	206.	107.	81.	28.	516.	375.
1913	21.	18.	3.	4.	6.	27.	93.	72.	110.	126.	72.	32.	583.	401.
1914	22.	14.	2.	1.	2.	55.	88.	146.	196.	87.	54.	20.	688.	517.
1915	38.	21.	5.	8.	11.	21.	58.	69.	58.	18.	48.	18.	374.	203.
1916	37.	18.	4.	3.	7.	80.	37.	147.	30.	3.	49.	22.	438.	218.
1917	55.	8.	9.	2.	2.	12.	82.	132.	291.	221.	105.	42.	961.	725.
1918	31.	20.	20.	20.	16.	26.	16.	37.	30.	90.	68.	25.	390.	172.
1919	34.	16.	6.	1.	1.	43.	18.	22.	62.	41.	31.	22.	296.	142.
1920	8.	6.	3.	8.	18.	35.	58.	100.	199.	87.	79.	27.	629.	444.
1921	14.	24.	1.	5.	20.	70.	16.	147.	253.	101.	95.	49.	795.	517.
1922	18.	12.	1.	1.	12.	55.	11.	56.	277.	78.	68.	45.	635.	422.
1923	13.	12.	3.	11.	7.	39.	96.	11.	124.	80.	87.	37.	520.	311.
1924	28.	21.	2.	3.	22.	22.	103.	62.	31.	55.	44.	14.	406.	251.
1925	3.	4.	2.	1.	16.	35.	21.	48.	26.	76.	54.	48.	333.	170.
1926	46.	17.	1.	1.	1.	51.	38.	80.	56.	76.	56.	15.	438.	250.
1927	5.	1.	1.	1.	3.	13.	10.	33.	49.	139.	66.	108.	428.	231.
1928	43.	23.	1.	23.	19.	26.	10.	22.	143.	50.	54.	16.	430.	225.
1929	29.	10.	3.	4.	3.	66.	42.	18.	166.	75.	61.	43.	519.	301.
1930	24.	5.	2.	2.	34.	27.	8.	38.	98.	82.	109.	45.	475.	226.
1931	22.	4.	5.	4.	8.	24.	9.	14.	26.	67.	37.	8.	227.	116.
1932	7.	3.	2.	2.	2.	25.	41.	103.	110.	111.	74.	42.	521.	365.
1933	8.	12.	2.	6.	3.	22.	2.	50.	108.	98.	48.	25.	386.	259.
1934	6.	2.	1.	10.	7.	5.	2.	7.	14.	42.	37.	12.	145.	65.
1935	2.	2.	2.	2.	2.	2.	5.	14.	96.	99.	48.	27.	300.	215.
1936	2.	1.	2.	2.	5.	12.	8.	74.	55.	87.	76.	35.	359.	225.
1937	12.	16.	2.	2.	5.	55.	35.	102.	90.	109.	52.	37.	516.	335.
1938	13.	13.	10.	5.	11.	41.	5.	84.	97.	101.	77.	59.	514.	288.
1939	36.	18.	16.	12.	6.	33.	33.	32.	27.	62.	49.	29.	352.	154.
1940	17.	7.	3.	1.	6.	27.	5.	25.	48.	51.	33.	22.	246.	129.
1941	23.	7.	2.	8.	17.	28.	22.	71.	95.	78.	81.	40.	471.	266.
1942	52.	34.	20.	1.	8.	42.	84.	58.	122.	73.	69.	22.	586.	338.
1943	15.	12.	10.	10.	13.	24.	21.	52.	57.	76.	59.	29.	377.	205.
1944	14.	17.	10.	3.	12.	53.	47.	90.	116.	88.	44.	16.	510.	341.
1945	15.	10.	2.	6.	16.	23.	24.	64.	61.	82.	53.	20.	378.	232.
1946	24.	13.	7.	14.	13.	28.	3.	106.	72.	64.	45.	23.	412.	245.
1947	13.	16.	17.	4.	21.	55.	36.	95.	114.	80.	72.	34.	556.	324.
1948	18.	15.	4.	7.	11.	48.	58.	72.	76.	65.	40.	20.	432.	270.
1949	10.	10.	4.	10.	16.	35.	18.	134.	104.	81.	44.	22.	489.	338.
1950	29.	25.	14.	2.	24.	85.	59.	160.	71.	104.	73.	31.	677.	394.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2600 FLOW NEAR LILY, COLORADO ON THE LITTLE SNAKE RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	13.	6.	21.	6.	23.	16.	11.	27.	94.	69.	49.	25.	362.	201.
1952	18.	20.	1.	14.	15.	15.	74.	315.	163.	91.	54.	29.	808.	643.
1953	13.	14.	10.	8.	14.	27.	10.	33.	86.	73.	40.	17.	346.	203.
1954	8.	13.	9.	9.	18.	22.	15.	25.	36.	58.	29.	27.	268.	133.
1955	18.	13.	7.	2.	7.	45.	22.	58.	54.	58.	43.	16.	344.	192.
1956	6.	3.	1.	22.	4.	18.	9.	55.	114.	48.	33.	13.	326.	226.
1957	3.	6.	2.	1.	2.	48.	25.	66.	99.	125.	71.	31.	478.	315.
1958	17.	36.	12.	7.	18.	36.	36.	43.	172.	62.	30.	18.	487.	313.
1959	8.	8.	10.	5.	13.	11.	1.	32.	16.	75.	38.	10.	228.	125.
1960	13.	17.	2.	7.	10.	17.	60.	44.	69.	51.	25.	11.	325.	223.
1961	9.	2.	1.	1.	9.	12.	20.	13.	75.	40.	29.	27.	237.	147.
1962	30.	11.	6.	5.	70.	2.	106.	182.	56.	88.	34.	20.	610.	431.
1963	14.	17.	3.	2.	9.	18.	23.	46.	61.	33.	32.	29.	285.	162.
1964	10.	5.	2.	4.	7.	16.	29.	56.	97.	56.	30.	3.	316.	238.
1965	2.	4.	5.	12.	17.	28.	55.	130.	148.	100.	57.	19.	577.	433.
1966	28.	10.	24.	14.	12.	68.	47.	81.	65.	34.	20.	13.	416.	228.
1967	11.	14.	2.	3.	8.	43.	28.	28.	171.	100.	26.	12.	445.	326.
1968	5.	9.	2.	1.	4.	40.	22.	91.	181.	70.	43.	9.	478.	364.
1969	14.	9.	1.	11.	13.	38.	81.	149.	93.	68.	32.	16.	524.	391.
1970	10.	16.	1.	17.	20.	26.	19.	110.	174.	96.	33.	13.	534.	398.
1971	27.	16.	7.	16.	27.	19.	44.	87.	151.	82.	23.	18.	517.	364.
1972	18.	9.	1.	19.	29.	47.	16.	36.	38.	29.	27.	7.	274.	118.
1973	21.	26.	1.	3.	1.	60.	42.	184.	157.	102.	31.	22.	650.	485.
1974	14.	17.	6.	19.	24.	70.	8.	141.	149.	64.	25.	3.	540.	362.
1975	3.	6.	5.	4.	5.	15.	24.	160.	150.	47.	7.	5.	433.	381.
1976	5.	8.	9.	8.	19.	26.	39.	146.	100.	18.	4.	1.	382.	303.
1977	5.	4.	2.	2.	3.	7.	24.	32.	18.	5.	1.	0.	103.	79.
1978	1.	3.	8.	7.	8.	31.	51.	161.	189.	39.	4.	4.	507.	440.
MIN	1.	1.	1.	0.	1.	2.	1.	7.	14.	3.	1.	0.	103.	65.
MAX	55.	36.	24.	23.	70.	85.	110.	315.	291.	226.	109.	108.	974.	725.
TOTAL	1287.	862.	386.	454.	864.	2443.	2663.	5814.	7722.	5683.	3650.	1784.	33612.	21882.
MEAN	18.	12.	5.	6.	12.	33.	36.	80.	106.	78.	50.	24.	460.	300.
STDEV	12.	7.	5.	6.	10.	20.	28.	56.	64.	40.	24.	16.	166.	139.
DIST	4.	3.	1.	1.	3.	7.	8.	17.	23.	17.	11.	5.	100.	65.

82/03/16.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2600 SALT NEAR LILY, COLORADO ON THE LITTLE SNAKE RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	3	2	2	2	1	11	10	15	11	7	8	7	81	44
1907	4	4	3	3	5	13	16	16	17	18	14	8	121	67
1908	6	3	2	2	2	6	6	5	6	6	7	5	57	24
1909	5	2	2	3	2	9	8	13	22	14	14	9	103	57
1910	6	3	2	2	2	22	14	13	4	2	5	4	80	33
1911	5	3	2	3	4	10	5	3	7	4	6	3	55	19
1912	4	2	2	2	2	7	6	6	17	9	10	6	72	38
1913	5	4	2	3	2	8	15	9	7	8	8	6	77	39
1914	5	4	2	3	2	13	15	19	16	7	8	5	98	57
1915	7	4	3	3	3	6	9	6	6	3	5	4	59	24
1916	7	4	2	3	3	18	10	14	7	4	8	5	85	35
1917	9	3	3	2	3	6	15	16	24	15	11	7	115	70
1918	5	4	4	5	4	8	6	6	7	6	6	5	68	25
1919	6	4	3	2	2	10	9	7	3	2	3	4	56	21
1920	3	3	2	3	5	8	7	17	16	6	8	5	83	45
1921	4	5	3	4	5	16	7	17	22	7	9	7	105	53
1922	4	3	3	3	4	13	5	13	18	5	8	7	84	41
1923	3	3	3	4	3	8	15	10	11	7	9	6	83	43
1924	6	4	3	3	5	6	14	8	4	3	4	3	63	29
1925	2	2	2	2	4	9	8	7	3	5	6	7	58	22
1926	8	4	3	3	2	11	12	10	5	4	6	3	70	30
1927	3	2	2	3	2	5	7	9	6	8	7	14	68	30
1928	8	5	3	6	5	10	7	13	9	4	6	4	79	33
1929	6	4	2	3	3	15	14	11	14	6	8	9	96	45
1930	7	3	3	3	7	8	10	5	6	4	12	7	74	26
1931	6	3	3	3	3	7	5	2	2	3	4	2	43	13
1932	2	2	2	3	2	8	10	13	9	7	8	6	71	38
1933	3	3	2	3	2	6	3	5	10	5	5	4	51	23
1934	2	2	2	3	3	3	3	1	-0	2	3	2	27	5
1935	1	2	2	2	2	3	2	2	8	5	5	4	38	18
1936	1	2	2	2	2	4	7	13	4	5	8	5	57	29
1937	3	3	3	3	3	10	7	12	6	6	5	6	65	31
1938	3	3	3	3	4	7	9	10	8	5	7	9	72	31
1939	6	4	4	4	3	10	9	6	2	3	5	4	60	20
1940	3	3	2	2	3	7	5	5	3	2	3	4	42	15
1941	4	3	2	3	4	7	5	11	7	4	8	6	64	27
1942	9	5	5	3	3	10	16	8	9	4	6	4	82	37
1943	3	3	3	3	4	7	9	5	4	5	8	5	60	24
1944	3	3	3	2	3	10	7	9	10	6	5	3	65	32
1945	3	3	2	3	4	6	5	8	6	6	8	4	59	25
1946	4	3	3	4	3	7	8	7	4	4	5	4	58	23
1947	3	4	4	3	5	13	8	14	8	6	9	6	82	36
1948	4	4	3	4	4	11	12	10	4	3	5	3	67	29
1949	2	3	3	4	4	9	9	14	11	6	5	4	72	39
1950	5	4	3	3	5	14	10	12	7	6	8	5	84	36

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF2600 SALT NEAR LILY, COLORADO ON THE LITTLE SNAKE RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	4.	2.	4.	3.	5.	6.	4.	6.	7.	5.	8.	5.	59.	22.
1952	5.	4.	3.	4.	4.	5.	17.	30.	15.	6.	8.	6.	106.	69.
1953	3.	3.	3.	4.	4.	7.	2.	3.	8.	4.	5.	3.	50.	17.
1954	2.	3.	3.	4.	4.	6.	4.	3.	0.	3.	4.	5.	41.	11.
1955	4.	3.	3.	2.	2.	9.	5.	6.	3.	3.	5.	3.	48.	17.
1956	2.	2.	2.	5.	2.	7.	8.	9.	7.	3.	5.	3.	55.	26.
1957	2.	2.	2.	2.	2.	9.	6.	7.	14.	11.	9.	6.	71.	38.
1958	4.	6.	4.	4.	5.	8.	8.	11.	10.	3.	4.	3.	72.	34.
1959	2.	3.	3.	3.	4.	4.	2.	3.	3.	4.	5.	3.	38.	12.
1960	4.	4.	2.	3.	3.	7.	13.	4.	5.	3.	3.	3.	54.	24.
1961	2.	2.	2.	2.	3.	4.	3.	2.	3.	2.	4.	5.	33.	10.
1962	7.	3.	3.	3.	13.	6.	24.	16.	6.	6.	5.	4.	96.	52.
1963	3.	3.	2.	2.	3.	5.	4.	5.	3.	2.	4.	6.	42.	13.
1964	2.	2.	2.	2.	2.	4.	4.	7.	7.	5.	4.	2.	44.	23.
1965	1.	2.	3.	4.	4.	6.	10.	12.	13.	10.	10.	6.	81.	45.
1966	7.	3.	5.	5.	4.	14.	8.	7.	2.	2.	3.	3.	64.	19.
1967	3.	3.	2.	3.	3.	9.	5.	4.	11.	8.	5.	3.	59.	27.
1968	2.	3.	2.	3.	3.	9.	5.	4.	15.	5.	7.	3.	63.	32.
1969	4.	3.	2.	5.	4.	9.	17.	17.	5.	4.	5.	4.	79.	44.
1970	3.	4.	3.	5.	5.	6.	3.	11.	11.	6.	5.	3.	66.	32.
1971	5.	4.	3.	5.	6.	8.	13.	10.	12.	6.	5.	4.	80.	41.
1972	4.	3.	2.	5.	6.	13.	5.	6.	5.	3.	4.	3.	59.	19.
1973	5.	5.	2.	3.	2.	11.	8.	18.	10.	7.	6.	5.	81.	43.
1974	3.	4.	3.	5.	5.	13.	8.	15.	9.	4.	4.	2.	76.	37.
1975	3.	3.	3.	2.	3.	7.	9.	66.	24.	16.	5.	5.	145.	114.
1976	3.	4.	4.	4.	7.	11.	18.	25.	13.	9.	2.	1.	101.	65.
1977	3.	3.	2.	2.	1.	3.	8.	9.	13.	6.	1.	0.	53.	37.
1978	2.	2.	4.	4.	4.	17.	16.	27.	28.	14.	3.	2.	124.	86.
MIN	1.	2.	2.	2.	1.	3.	2.	1.	-0.	2.	1.	0.	27.	5.
MAX	9.	6.	5.	6.	13.	22.	24.	66.	28.	18.	14.	14.	145.	114.
TOTAL	299.	232.	199.	232.	263.	637.	636.	779.	656.	421.	454.	342.	5149.	2491.
MEAN	4.	3.	3.	3.	4.	9.	9.	11.	9.	6.	6.	5.	71.	34.
STDEV	2.	1.	1.	1.	2.	4.	5.	9.	6.	3.	3.	2.	22.	18.
DIST	6.	5.	4.	5.	5.	12.	12.	15.	13.	8.	9.	7.	100.	48.

82/03/16.
UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3020 FLOW NEAR RANDLETT, UTAH ON THE DUCHESNE RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	17.	23.	26.	26.	25.	40.	53.	198.	261.	111.	47.	35.	860.	623.
1907	20.	31.	39.	40.	41.	52.	94.	201.	349.	297.	78.	33.	1275.	942.
1908	25.	29.	34.	29.	28.	31.	36.	68.	194.	97.	51.	25.	646.	395.
1909	31.	29.	27.	36.	30.	49.	47.	182.	446.	188.	77.	61.	1204.	863.
1910	31.	40.	37.	34.	37.	91.	113.	209.	143.	40.	20.	17.	813.	506.
1911	22.	26.	30.	41.	44.	45.	36.	112.	232.	77.	25.	15.	705.	457.
1912	26.	29.	31.	28.	26.	33.	35.	127.	315.	117.	40.	23.	829.	593.
1913	29.	35.	37.	28.	30.	40.	67.	194.	189.	99.	39.	37.	824.	550.
1914	31.	37.	31.	42.	34.	44.	103.	289.	311.	122.	45.	25.	1114.	825.
1915	29.	31.	32.	31.	32.	38.	56.	115.	235.	86.	31.	26.	743.	492.
1916	28.	33.	35.	38.	39.	72.	103.	203.	258.	95.	45.	26.	975.	659.
1917	37.	36.	29.	25.	45.	69.	73.	168.	415.	221.	66.	33.	1216.	877.
1918	28.	38.	40.	37.	33.	40.	40.	112.	251.	103.	35.	25.	782.	507.
1919	32.	37.	38.	26.	35.	54.	70.	190.	156.	71.	33.	25.	768.	488.
1920	26.	31.	31.	31.	36.	48.	45.	227.	294.	111.	57.	26.	964.	677.
1921	29.	39.	34.	36.	42.	56.	60.	196.	443.	174.	66.	36.	1209.	873.
1922	25.	30.	48.	38.	36.	55.	68.	311.	448.	137.	63.	34.	1293.	964.
1923	26.	42.	45.	40.	35.	45.	80.	247.	309.	170.	56.	28.	1122.	806.
1924	33.	38.	40.	39.	42.	42.	53.	140.	134.	66.	26.	17.	671.	393.
1925	16.	26.	29.	30.	28.	32.	30.	128.	156.	79.	38.	27.	620.	393.
1926	27.	30.	34.	30.	38.	34.	63.	163.	164.	63.	34.	16.	696.	453.
1927	14.	21.	26.	28.	28.	39.	46.	174.	225.	114.	37.	69.	821.	559.
1928	41.	42.	38.	33.	33.	43.	49.	231.	186.	87.	35.	21.	840.	553.
1929	22.	30.	31.	34.	32.	40.	38.	159.	236.	106.	52.	31.	810.	538.
1930	22.	27.	29.	33.	33.	34.	54.	112.	215.	75.	49.	24.	706.	456.
1931	25.	27.	29.	29.	27.	33.	30.	76.	125.	63.	28.	17.	508.	293.
1932	12.	21.	31.	33.	33.	37.	38.	171.	227.	100.	36.	21.	759.	536.
1933	17.	22.	24.	28.	27.	34.	27.	82.	210.	78.	34.	17.	600.	397.
1934	11.	19.	44.	29.	28.	24.	26.	72.	100.	48.	27.	16.	442.	245.
1935	9.	13.	23.	22.	20.	26.	29.	85.	220.	61.	33.	18.	560.	396.
1936	11.	19.	22.	26.	25.	24.	61.	216.	184.	84.	47.	25.	746.	546.
1937	17.	24.	31.	33.	34.	38.	55.	231.	181.	89.	33.	26.	793.	556.
1938	19.	25.	34.	30.	33.	36.	66.	161.	219.	71.	18.	30.	742.	518.
1939	28.	39.	39.	35.	30.	48.	57.	119.	118.	32.	19.	23.	587.	327.
1940	31.	22.	25.	29.	28.	32.	26.	128.	112.	43.	27.	22.	516.	309.
1941	27.	32.	34.	31.	31.	30.	36.	202.	239.	90.	27.	17.	796.	567.
1942	34.	43.	44.	43.	39.	43.	74.	127.	215.	67.	25.	14.	767.	482.
1943	21.	26.	32.	31.	33.	35.	62.	129.	167.	100.	81.	21.	738.	459.
1944	23.	28.	28.	29.	30.	48.	56.	184.	329.	157.	53.	21.	987.	727.
1945	28.	30.	33.	35.	32.	37.	30.	94.	159.	119.	79.	23.	700.	403.
1946	25.	30.	30.	28.	25.	34.	66.	92.	120.	87.	48.	22.	606.	365.
1947	20.	36.	36.	29.	40.	41.	36.	214.	213.	111.	58.	26.	859.	574.
1948	18.	34.	36.	33.	30.	44.	41.	128.	118.	61.	43.	20.	607.	349.
1949	9.	18.	31.	29.	27.	49.	63.	180.	315.	125.	53.	18.	918.	683.
1950	28.	33.	34.	37.	31.	46.	58.	131.	280.	115.	62.	31.	885.	583.

R2/03/16.
 UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
 STA- AF3020 FLOW NEAR RANDLETT, UTAH ON THE DUCHESNE RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	24.	31.	39.	32.	30.	28.	25.	113.	206.	117.	76.	20.	742.	461.
1952	27.	37.	40.	36.	31.	38.	129.	398.	398.	150.	98.	49.	1432.	1076.
1953	16.	28.	41.	45.	38.	40.	21.	23.	204.	84.	43.	22.	605.	332.
1954	14.	24.	31.	33.	29.	26.	28.	103.	60.	64.	38.	20.	469.	255.
1955	22.	22.	22.	30.	26.	39.	32.	90.	125.	65.	43.	19.	534.	311.
1956	11.	19.	37.	35.	27.	30.	37.	151.	186.	66.	30.	21.	649.	440.
1957	9.	20.	24.	27.	25.	27.	18.	71.	304.	128.	51.	29.	731.	521.
1958	25.	47.	35.	34.	38.	42.	42.	216.	196.	65.	37.	18.	797.	520.
1959	9.	17.	26.	27.	29.	20.	11.	29.	134.	61.	39.	18.	419.	234.
1960	16.	16.	25.	27.	29.	32.	22.	58.	112.	50.	37.	23.	447.	241.
1961	9.	16.	22.	24.	21.	15.	8.	40.	78.	49.	45.	32.	357.	174.
1962	34.	33.	32.	26.	48.	54.	98.	138.	261.	115.	45.	18.	902.	612.
1963	24.	18.	26.	22.	34.	15.	16.	98.	147.	59.	36.	42.	536.	320.
1964	17.	21.	26.	23.	21.	28.	23.	126.	217.	125.	32.	17.	676.	490.
1965	13.	22.	35.	31.	26.	31.	45.	109.	389.	274.	121.	70.	1166.	816.
1966	51.	45.	48.	43.	42.	48.	51.	111.	93.	73.	36.	26.	665.	327.
1967	16.	23.	37.	39.	35.	45.	23.	103.	341.	185.	86.	24.	958.	652.
1968	19.	23.	38.	40.	39.	46.	38.	79.	357.	120.	74.	21.	895.	595.
1969	22.	32.	44.	50.	43.	57.	90.	281.	197.	96.	59.	27.	999.	665.
1970	27.	26.	40.	32.	35.	30.	10.	87.	171.	83.	44.	23.	607.	350.
1971	13.	26.	27.	40.	41.	32.	36.	80.	262.	111.	47.	7.	721.	489.
1972	17.	35.	32.	32.	34.	39.	31.	104.	246.	92.	34.	9.	706.	473.
1973	34.	36.	41.	35.	34.	55.	57.	229.	217.	121.	67.	24.	949.	623.
1974	18.	37.	34.	28.	27.	42.	22.	126.	153.	83.	45.	16.	630.	384.
1975	8.	32.	24.	27.	26.	27.	9.	65.	303.	271.	72.	17.	879.	647.
1976	10.	25.	29.	29.	28.	33.	31.	130.	125.	63.	28.	22.	551.	348.
1977	11.	17.	19.	22.	22.	16.	25.	32.	115.	37.	28.	21.	365.	209.
1978	9.	16.	22.	23.	21.	32.	47.	110.	254.	102.	10.	7.	651.	513.
MIN	8.	13.	19.	22.	20.	15.	8.	23.	60.	32.	10.	7.	357.	174.
MAX	51.	47.	48.	50.	48.	91.	129.	398.	448.	297.	121.	70.	1432.	1076.
TOTAL	1591.	2095.	2386.	2343.	2342.	2863.	3474.	10582.	16268.	7515.	3375.	1827.	56661.	37838.
MEAN	22.	29.	33.	32.	32.	39.	48.	145.	223.	103.	46.	25.	776.	518.
STDEV	9.	8.	7.	6.	6.	13.	25.	70.	92.	52.	20.	11.	227.	190.
DIST	3.	4.	4.	4.	4.	5.	6.	19.	29.	13.	6.	3.	100.	67.

82/03/16.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3020 SALT NEAR RANDETT, UTAH ON THE DUCHESNE RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	7.	9.	10.	11.	10.	16.	19.	24.	25.	14.	24.	8.	178.	82.
1907	7.	12.	13.	16.	15.	20.	27.	24.	30.	23.	34.	8.	228.	104.
1908	9.	11.	12.	12.	11.	13.	15.	13.	21.	13.	26.	6.	162.	62.
1909	10.	11.	10.	15.	12.	19.	18.	23.	34.	18.	34.	12.	215.	93.
1910	10.	14.	12.	14.	14.	32.	30.	25.	18.	8.	14.	5.	196.	81.
1911	8.	10.	11.	16.	16.	18.	15.	17.	23.	12.	16.	5.	167.	67.
1912	9.	11.	11.	12.	10.	14.	15.	18.	28.	14.	22.	6.	171.	76.
1913	9.	13.	12.	12.	12.	16.	22.	24.	21.	13.	22.	8.	184.	80.
1914	10.	13.	11.	16.	13.	18.	29.	30.	28.	15.	24.	7.	212.	101.
1915	10.	12.	11.	13.	12.	15.	20.	17.	23.	12.	19.	7.	172.	73.
1916	9.	12.	12.	15.	14.	26.	29.	24.	25.	13.	24.	7.	210.	91.
1917	11.	13.	11.	11.	16.	25.	23.	22.	33.	20.	31.	8.	222.	98.
1918	9.	13.	13.	15.	13.	15.	16.	17.	24.	14.	20.	7.	177.	71.
1919	10.	13.	13.	11.	13.	21.	23.	23.	19.	11.	19.	6.	183.	76.
1920	9.	12.	11.	13.	13.	19.	17.	26.	27.	14.	28.	7.	195.	84.
1921	9.	14.	12.	15.	15.	21.	21.	24.	34.	18.	31.	8.	220.	96.
1922	9.	11.	14.	15.	14.	21.	22.	31.	34.	16.	30.	8.	225.	103.
1923	9.	14.	14.	16.	13.	17.	25.	27.	28.	17.	28.	7.	215.	97.
1924	10.	13.	13.	16.	15.	17.	19.	20.	17.	11.	17.	5.	173.	67.
1925	7.	10.	11.	12.	11.	14.	14.	19.	19.	12.	21.	7.	156.	63.
1926	9.	11.	12.	13.	14.	14.	21.	21.	19.	11.	20.	5.	170.	72.
1927	6.	9.	10.	12.	11.	16.	18.	22.	23.	14.	21.	13.	174.	77.
1928	12.	15.	13.	14.	13.	17.	18.	26.	20.	12.	20.	6.	186.	78.
1929	8.	11.	11.	14.	12.	16.	16.	21.	24.	14.	26.	7.	180.	74.
1930	8.	11.	11.	14.	12.	14.	20.	17.	22.	11.	25.	6.	171.	70.
1931	9.	10.	11.	12.	11.	14.	14.	14.	16.	11.	17.	5.	143.	54.
1932	5.	9.	11.	14.	13.	15.	16.	22.	23.	13.	21.	6.	167.	74.
1933	7.	9.	9.	12.	11.	14.	13.	14.	22.	12.	20.	5.	148.	61.
1934	5.	8.	14.	12.	11.	11.	12.	13.	14.	9.	17.	5.	132.	49.
1935	5.	6.	9.	10.	9.	11.	13.	15.	23.	10.	19.	5.	135.	61.
1936	5.	8.	9.	11.	10.	11.	21.	25.	20.	12.	24.	7.	164.	79.
1937	7.	10.	11.	14.	13.	16.	20.	26.	20.	13.	20.	7.	174.	79.
1938	7.	10.	12.	13.	12.	15.	22.	21.	23.	11.	13.	7.	166.	77.
1939	9.	14.	13.	14.	12.	19.	20.	18.	16.	8.	13.	6.	161.	61.
1940	8.	9.	10.	12.	11.	14.	13.	19.	15.	9.	17.	6.	142.	55.
1941	9.	12.	12.	13.	12.	13.	15.	24.	24.	13.	17.	5.	168.	76.
1942	11.	15.	14.	17.	14.	17.	23.	18.	22.	11.	16.	4.	183.	75.
1943	8.	10.	11.	13.	12.	15.	21.	19.	19.	13.	35.	6.	182.	72.
1944	8.	11.	10.	12.	12.	19.	20.	23.	29.	17.	26.	6.	193.	88.
1945	9.	11.	11.	14.	12.	15.	14.	15.	19.	15.	35.	6.	177.	63.
1946	9.	11.	11.	12.	10.	14.	22.	15.	16.	12.	25.	6.	163.	66.
1947	7.	13.	12.	12.	14.	17.	15.	25.	22.	14.	28.	7.	187.	77.
1948	7.	12.	12.	14.	12.	18.	17.	19.	16.	10.	164.	5.	161.	61.
1949	4.	8.	11.	12.	11.	19.	21.	23.	28.	15.	27.	5.	184.	87.
1950	9.	12.	12.	15.	12.	18.	20.	19.	26.	14.	29.	7.	194.	79.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3020 SALT NEAR RANDELT, UTAH ON THE DUCHESNE RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	8.	12.	13.	13.	12.	12.	12.	17.	22.	14.	34.	6.	175.	66.
1952	9.	13.	13.	15.	12.	16.	33.	36.	32.	16.	40.	10.	244.	117.
1953	7.	11.	13.	17.	14.	16.	11.	7.	22.	12.	23.	6.	158.	52.
1954	6.	9.	11.	14.	11.	12.	13.	16.	11.	11.	21.	6.	140.	51.
1955	8.	9.	9.	13.	10.	16.	14.	15.	16.	11.	23.	5.	149.	56.
1956	5.	8.	12.	14.	11.	13.	16.	20.	20.	11.	18.	6.	155.	67.
1957	4.	8.	9.	12.	10.	12.	10.	13.	27.	15.	26.	7.	154.	65.
1958	9.	16.	12.	14.	14.	17.	17.	25.	21.	11.	21.	5.	181.	74.
1959	4.	7.	10.	12.	12.	9.	7.	8.	17.	10.	22.	5.	123.	42.
1960	6.	7.	10.	12.	11.	14.	11.	12.	15.	9.	21.	6.	135.	48.
1961	4.	7.	9.	11.	9.	7.	6.	9.	12.	9.	24.	8.	116.	37.
1962	10.	12.	11.	11.	17.	21.	28.	19.	25.	14.	24.	5.	198.	86.
1963	8.	8.	10.	10.	13.	7.	9.	16.	18.	10.	20.	9.	139.	53.
1964	7.	9.	10.	10.	9.	12.	12.	18.	22.	15.	19.	5.	148.	67.
1965	6.	9.	12.	13.	11.	13.	17.	17.	31.	22.	46.	13.	210.	88.
1966	14.	15.	14.	17.	15.	19.	19.	17.	14.	11.	20.	7.	182.	61.
1967	6.	9.	12.	16.	13.	18.	12.	16.	29.	18.	37.	6.	193.	75.
1968	7.	9.	13.	16.	14.	18.	16.	14.	30.	15.	33.	6.	191.	74.
1969	8.	12.	14.	19.	15.	22.	27.	30.	21.	13.	29.	7.	215.	90.
1970	9.	10.	13.	13.	13.	13.	7.	15.	20.	12.	23.	6.	154.	53.
1971	5.	10.	10.	16.	15.	13.	15.	14.	25.	14.	25.	3.	165.	68.
1972	7.	13.	11.	13.	13.	16.	14.	16.	24.	13.	20.	3.	163.	67.
1973	11.	13.	13.	14.	13.	21.	20.	26.	22.	15.	31.	6.	205.	83.
1974	7.	13.	12.	12.	11.	17.	11.	18.	18.	12.	24.	5.	160.	60.
1975	4.	12.	9.	12.	10.	12.	7.	12.	27.	22.	32.	5.	164.	68.
1976	5.	10.	11.	12.	11.	14.	14.	19.	16.	11.	17.	6.	145.	59.
1977	5.	7.	8.	10.	9.	8.	12.	8.	16.	8.	17.	6.	115.	44.
1978	4.	7.	9.	10.	9.	13.	18.	17.	25.	13.	9.	3.	137.	73.
MIN	4.	6.	8.	10.	9.	7.	6.	7.	11.	8.	9.	3.	115.	37.
MAX	14.	16.	14.	19.	17.	32.	33.	36.	34.	23.	46.	13.	244.	117.
TOTAL	564.	790.	829.	970.	894.	1160.	1275.	1417.	1629.	959.	1735.	465.	12686.	5280.
MEAN	8.	11.	11.	13.	12.	16.	17.	19.	22.	13.	24.	6.	174.	72.
STDEV	2.	2.	1.	2.	2.	4.	6.	6.	5.	3.	7.	2.	28.	16.
DIST	4.	6.	7.	8.	7.	9.	10.	11.	13.	8.	14.	4.	100.	42.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3065 FLOW NEAR WATSON, UTAH ON THE WHITE RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	25	23	19	19	19	29	46	125	157	89	48	48	647	417
1907	30	25	22	21	23	33	55	98	185	145	57	34	727	482
1908	28	23	20	21	20	28	44	62	221	118	41	27	479	268
1909	26	23	21	23	20	31	43	117	221	117	55	44	743	500
1910	29	25	23	22	23	47	62	113	100	46	31	28	551	322
1911	27	24	22	23	23	35	40	105	131	75	37	28	570	351
1912	38	25	23	22	22	27	38	127	194	110	51	32	707	469
1913	30	27	22	23	22	27	61	102	101	64	35	32	545	327
1914	29	26	21	23	22	31	55	150	180	92	48	33	710	478
1915	34	25	21	20	21	24	49	81	113	61	32	26	507	303
1916	26	23	22	23	23	42	60	121	145	78	55	33	651	403
1917	37	25	23	20	21	25	51	116	232	134	51	33	768	534
1918	26	25	24	23	22	29	39	103	175	72	36	30	605	390
1919	28	26	24	21	21	29	50	105	81	45	33	27	491	282
1920	23	23	22	23	24	26	33	179	207	89	46	30	726	509
1921	27	27	23	23	24	35	37	139	240	86	51	37	749	502
1922	26	26	25	23	22	32	40	152	167	62	39	30	644	421
1923	22	24	24	23	22	25	47	131	166	93	52	34	662	436
1924	35	30	29	27	24	28	32	93	122	36	28	25	509	282
1925	25	23	22	22	22	36	57	107	99	68	43	44	568	332
1926	47	37	37	36	32	41	63	122	145	66	46	23	694	396
1927	36	24	25	25	31	53	31	99	107	65	42	37	573	301
1928	34	33	28	26	24	46	47	185	129	77	54	42	725	439
1929	55	39	25	28	25	71	147	218	250	191	121	116	1285	805
1930	64	42	31	23	31	37	74	76	121	42	63	34	638	313
1931	31	23	14	18	21	32	40	66	71	30	31	25	402	207
1932	26	23	26	26	26	44	47	132	122	70	54	31	627	371
1933	28	25	26	25	27	42	50	72	174	45	35	26	575	341
1934	25	26	25	25	30	26	34	50	23	18	20	18	319	124
1935	18	17	20	21	21	24	23	63	136	46	28	24	440	268
1936	20	22	20	22	21	24	40	127	104	48	38	24	510	318
1937	23	20	18	10	16	32	22	84	70	65	34	36	429	241
1938	29	19	17	18	21	42	43	125	169	64	43	55	643	401
1939	30	20	18	20	20	73	40	99	82	34	29	30	494	254
1940	27	22	20	21	21	25	37	105	72	29	25	28	433	244
1941	31	22	18	18	22	31	34	161	129	54	41	32	592	377
1942	44	29	24	23	22	43	107	159	155	58	35	27	725	479
1943	29	27	23	21	24	33	40	56	93	46	48	25	466	236
1944	21	23	21	19	21	32	29	96	120	52	29	21	484	296
1945	21	20	20	25	26	28	30	111	112	67	46	28	532	319
1946	26	27	21	22	21	30	43	70	81	36	34	26	436	230
1947	28	24	23	17	19	43	35	144	122	74	45	32	605	375
1948	34	28	27	23	21	38	59	133	101	42	35	24	564	334
1949	23	22	19	15	14	39	44	108	165	83	40	31	604	401
1950	34	26	21	20	17	30	33	64	131	48	28	27	479	276

B2/03/16.
UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3065 FLOW NEAR WATSON, UTAH ON THE WHITE RIVER

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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	27.	23.	23.	18.	24.	27.	26.	81.	121.	63.	43.	25.	500.	291.
1952	25.	23.	21.	20.	19.	21.	77.	151.	218.	60.	50.	38.	723.	506.
1953	27.	22.	26.	25.	23.	35.	30.	70.	145.	40.	40.	22.	506.	285.
1954	22.	24.	21.	23.	26.	24.	35.	73.	41.	28.	21.	36.	372.	176.
1955	27.	20.	18.	16.	19.	47.	31.	88.	84.	27.	27.	16.	419.	230.
1956	21.	22.	21.	20.	19.	44.	33.	103.	98.	30.	28.	18.	457.	264.
1957	20.	21.	18.	21.	22.	31.	29.	76.	225.	179.	71.	40.	753.	510.
1958	33.	33.	28.	24.	35.	35.	45.	153.	143.	43.	31.	27.	630.	384.
1959	28.	25.	22.	23.	21.	24.	30.	67.	107.	40.	34.	26.	446.	244.
1960	29.	23.	20.	17.	19.	35.	40.	70.	105.	30.	22.	22.	432.	246.
1961	22.	21.	19.	19.	19.	23.	22.	66.	75.	26.	25.	38.	375.	189.
1962	39.	26.	23.	21.	37.	66.	85.	141.	138.	72.	33.	32.	705.	436.
1963	29.	25.	21.	20.	24.	24.	29.	78.	38.	23.	30.	32.	373.	168.
1964	17.	19.	16.	17.	19.	26.	30.	86.	106.	43.	31.	20.	429.	265.
1965	21.	20.	22.	23.	22.	34.	35.	98.	165.	80.	39.	34.	594.	378.
1966	36.	28.	27.	24.	21.	62.	32.	76.	37.	20.	24.	19.	406.	166.
1967	23.	18.	19.	18.	18.	29.	24.	70.	107.	42.	25.	23.	414.	243.
1968	23.	20.	18.	18.	20.	25.	29.	73.	162.	46.	48.	24.	505.	309.
1969	26.	24.	26.	24.	19.	33.	52.	123.	77.	43.	31.	33.	512.	296.
1970	33.	27.	24.	26.	25.	25.	27.	128.	148.	62.	40.	32.	596.	364.
1971	33.	28.	26.	26.	22.	36.	43.	88.	147.	61.	31.	32.	571.	339.
1972	28.	29.	24.	24.	22.	26.	30.	75.	120.	35.	23.	25.	462.	260.
1973	30.	26.	25.	27.	21.	33.	28.	130.	147.	68.	36.	29.	600.	374.
1974	30.	27.	25.	25.	19.	42.	44.	133.	110.	48.	32.	23.	557.	335.
1975	27.	25.	19.	21.	21.	32.	29.	83.	168.	103.	37.	26.	591.	383.
1976	28.	25.	18.	16.	26.	34.	31.	91.	80.	32.	27.	20.	429.	235.
1977	24.	20.	18.	20.	19.	24.	26.	28.	27.	18.	18.	17.	259.	98.
1978	17.	18.	17.	18.	17.	28.	36.	97.	186.	81.	31.	25.	573.	400.
MIN	17.	17.	14.	10.	14.	21.	22.	28.	23.	18.	18.	16.	259.	98.
MAX	64.	42.	37.	36.	37.	73.	147.	218.	250.	191.	121.	116.	1285.	805.
TOTAL	2095.	1801.	1622.	1584.	1634.	2499.	3140.	7644.	9426.	4515.	2837.	2221.	41018.	24725.
MEAN	29.	25.	22.	22.	22.	34.	43.	105.	129.	62.	39.	30.	562.	339.
STDEV	8.	4.	4.	4.	4.	11.	19.	35.	51.	33.	15.	12.	145.	113.
DIST	5.	4.	4.	4.	4.	6.	8.	19.	23.	11.	7.	5.	100.	60.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF3065 SALT NEAR WATSON, UTAH ON THE WHITE RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	7	7	8	12	13	15	22	29	23	16	12	13	178	90
1907	8	7	9	12	15	18	26	23	26	23	14	10	192	98
1908	8	7	8	13	14	15	21	16	17	13	11	8	150	66
1909	8	7	8	13	14	17	21	27	30	20	14	12	190	98
1910	8	8	9	13	15	26	29	27	16	11	9	8	178	83
1911	8	7	9	13	16	19	19	25	20	15	10	8	168	79
1912	10	7	9	13	15	14	18	30	27	19	13	9	184	94
1913	8	8	9	13	15	14	28	24	17	13	9	9	168	82
1914	8	8	8	13	15	16	26	34	26	17	12	9	103	103
1915	9	8	8	12	14	13	23	20	18	13	9	8	154	73
1916	8	7	9	13	16	23	28	28	22	15	14	9	191	93
1917	10	7	9	12	14	14	24	27	31	22	13	9	192	104
1918	8	7	9	13	15	15	19	24	25	14	10	9	169	83
1919	8	8	9	13	14	16	24	25	14	11	9	8	157	73
1920	7	7	9	13	16	14	16	40	28	16	12	9	188	101
1921	8	8	9	13	16	19	18	32	32	16	13	10	194	98
1922	8	8	10	13	15	17	19	35	24	13	10	9	180	91
1923	7	7	9	13	15	13	22	30	24	17	13	10	181	93
1924	10	8	10	15	16	15	15	22	19	9	8	7	155	66
1925	7	7	9	13	15	20	27	25	16	14	11	12	176	82
1926	12	10	12	18	21	22	29	28	22	14	12	7	206	93
1927	10	7	9	14	20	29	15	24	17	13	11	10	180	69
1928	9	9	9	14	16	25	22	42	20	15	13	11	208	99
1929	13	10	10	15	17	39	64	48	33	27	26	26	328	172
1930	15	10	11	13	21	20	34	18	19	10	15	10	196	82
1931	9	7	7	11	14	17	19	16	13	8	8	7	137	56
1932	8	7	10	14	18	24	22	31	19	14	13	9	188	86
1933	8	8	10	14	18	23	24	18	25	10	9	8	174	77
1934	7	8	9	14	20	14	16	13	5	6	6	6	124	40
1935	6	6	8	12	14	13	12	16	21	11	8	7	133	59
1936	6	7	8	13	14	13	19	30	17	11	10	7	155	76
1937	7	6	8	8	11	17	11	20	13	13	9	10	133	57
1938	8	6	7	11	14	23	21	29	24	13	11	14	183	87
1939	8	7	8	12	14	40	19	23	14	9	8	9	171	66
1940	8	7	8	13	14	13	18	25	13	8	7	8	142	63
1941	9	7	8	11	15	17	16	37	20	12	11	9	171	85
1942	11	8	9	13	15	24	48	36	23	12	9	8	217	119
1943	8	8	9	13	16	18	19	14	16	11	12	7	151	60
1944	7	7	9	12	15	17	14	23	19	12	8	6	147	67
1945	6	7	8	14	17	15	14	26	18	14	12	8	159	72
1946	7	8	8	13	14	16	21	17	14	9	9	8	145	61
1947	8	7	9	11	13	23	17	33	19	15	12	9	176	84
1948	9	8	10	13	14	21	27	31	17	10	9	7	177	85
1949	7	7	8	10	10	21	21	26	24	16	10	9	168	86
1950	9	8	8	12	12	16	16	16	20	11	8	8	144	63

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UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF3065 SALT NEAR WATSON, UTAH ON THE WHITE RIVER

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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	8.	7.	9.	11.	16.	14.	13.	20.	19.	13.	11.	8.	149.	65.
1952	7.	7.	8.	12.	13.	11.	35.	35.	30.	13.	13.	11.	194.	112.
1953	8.	7.	10.	14.	16.	19.	14.	17.	22.	10.	17.	7.	154.	63.
1954	7.	7.	9.	13.	17.	13.	17.	18.	8.	8.	6.	10.	132.	51.
1955	8.	7.	8.	11.	13.	26.	15.	21.	14.	7.	8.	5.	142.	58.
1956	6.	7.	9.	12.	13.	24.	16.	25.	16.	8.	8.	6.	149.	65.
1957	6.	7.	8.	13.	15.	16.	14.	19.	30.	26.	17.	11.	182.	89.
1958	9.	9.	10.	14.	23.	19.	21.	35.	22.	10.	8.	8.	188.	88.
1959	8.	7.	9.	13.	14.	13.	15.	16.	17.	10.	9.	8.	139.	58.
1960	8.	7.	8.	11.	13.	19.	19.	17.	17.	8.	6.	7.	141.	62.
1961	7.	7.	8.	12.	13.	12.	11.	16.	13.	7.	7.	10.	124.	48.
1962	10.	8.	9.	12.	24.	37.	39.	33.	21.	14.	9.	7.	223.	106.
1963	8.	8.	9.	12.	16.	13.	14.	19.	8.	7.	8.	9.	130.	48.
1964	5.	6.	7.	11.	13.	14.	15.	21.	17.	10.	8.	6.	134.	63.
1965	7.	7.	9.	13.	15.	18.	17.	23.	24.	15.	10.	9.	168.	80.
1966	10.	8.	10.	14.	14.	35.	16.	19.	8.	6.	7.	6.	151.	48.
1967	7.	6.	8.	11.	12.	15.	12.	17.	17.	10.	7.	7.	130.	56.
1968	7.	6.	8.	11.	14.	13.	14.	18.	24.	11.	12.	7.	145.	66.
1969	8.	7.	10.	14.	13.	18.	25.	29.	14.	10.	9.	9.	164.	77.
1970	9.	8.	9.	14.	17.	13.	13.	30.	22.	13.	10.	9.	168.	78.
1971	9.	8.	10.	15.	15.	19.	20.	21.	22.	13.	8.	9.	169.	76.
1972	8.	8.	9.	14.	15.	14.	15.	18.	19.	9.	7.	7.	143.	61.
1973	8.	8.	10.	15.	14.	18.	14.	30.	22.	14.	9.	8.	170.	80.
1974	9.	8.	9.	14.	13.	23.	21.	31.	18.	11.	9.	7.	171.	80.
1975	8.	8.	8.	12.	14.	17.	14.	20.	24.	18.	10.	8.	162.	77.
1976	8.	8.	8.	11.	17.	18.	15.	22.	14.	8.	8.	6.	143.	59.
1977	7.	7.	8.	12.	13.	13.	13.	7.	6.	6.	5.	5.	102.	32.
1978	6.	6.	8.	12.	12.	15.	18.	23.	26.	15.	9.	7.	156.	82.
MIN	5.	6.	7.	8.	10.	11.	11.	7.	5.	6.	5.	5.	102.	32.
MAX	15.	10.	12.	18.	24.	40.	64.	48.	33.	27.	26.	26.	328.	172.
TOTAL	592.	542.	639.	933.	1103.	1355.	1488.	1803.	1432.	918.	740.	631.	12176.	5640.
MEAN	8.	7.	9.	13.	15.	19.	20.	25.	20.	13.	10.	9.	167.	77.
STDEV	2.	1.	1.	1.	2.	6.	8.	7.	6.	4.	3.	3.	31.	21.
DIST	5.	4.	5.	8.	9.	11.	12.	15.	12.	8.	6.	5.	100.	46.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF3150 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	153.	122.	81.	86.	90.	375.	571.	1548.	1808.	991.	478.	340.	6644.	4918.
1907	190.	194.	149.	150.	211.	415.	834.	1529.	2380.	2118.	784.	342.	9297.	6861.
1908	232.	153.	90.	80.	88.	220.	392.	729.	1172.	820.	530.	227.	4734.	3113.
1909	221.	128.	49.	122.	95.	500.	554.	1407.	2916.	1739.	766.	632.	9130.	6616.
1910	251.	177.	79.	61.	139.	703.	757.	1385.	988.	394.	269.	177.	5381.	3524.
1911	204.	135.	93.	143.	191.	386.	328.	781.	1311.	701.	326.	151.	6752.	3121.
1912	236.	134.	101.	106.	103.	227.	391.	1026.	2391.	1193.	554.	246.	6708.	5001.
1913	226.	209.	100.	127.	129.	259.	778.	1131.	1279.	1078.	420.	275.	6024.	4266.
1914	224.	197.	105.	126.	149.	397.	780.	1872.	2283.	1029.	439.	216.	7815.	5964.
1915	248.	163.	97.	94.	102.	191.	458.	714.	1054.	583.	303.	209.	4215.	2809.
1916	253.	172.	118.	110.	133.	562.	648.	1369.	1550.	850.	503.	214.	6481.	4417.
1917	312.	156.	129.	80.	117.	209.	721.	1654.	2928.	1970.	601.	281.	9158.	7272.
1918	210.	185.	169.	150.	137.	251.	397.	949.	1972.	908.	362.	199.	5891.	4226.
1919	236.	182.	132.	88.	102.	279.	494.	1013.	759.	313.	202.	145.	3945.	2580.
1920	127.	126.	94.	110.	143.	248.	397.	1745.	2215.	899.	446.	200.	6749.	5256.
1921	166.	199.	119.	126.	172.	472.	458.	1630.	2967.	906.	486.	270.	7971.	5961.
1922	158.	148.	139.	110.	139.	396.	373.	1725.	2440.	782.	423.	256.	7089.	5320.
1923	136.	156.	134.	138.	120.	228.	702.	1653.	1966.	1077.	527.	239.	7075.	5398.
1924	243.	202.	130.	92.	167.	207.	685.	1031.	960.	459.	239.	136.	4551.	3135.
1925	111.	125.	75.	93.	132.	278.	484.	959.	969.	806.	403.	297.	4732.	3218.
1926	303.	193.	149.	118.	130.	347.	633.	1178.	1001.	561.	331.	140.	5084.	3374.
1927	126.	105.	106.	105.	114.	222.	400.	1353.	1473.	1038.	400.	534.	5976.	4264.
1928	312.	261.	148.	175.	160.	399.	411.	1985.	1456.	389.	389.	187.	6587.	4556.
1929	224.	172.	100.	127.	113.	487.	735.	1614.	1875.	921.	488.	419.	7274.	5144.
1930	265.	168.	133.	81.	235.	249.	630.	775.	1252.	594.	674.	274.	5330.	3251.
1931	249.	149.	116.	96.	110.	219.	306.	521.	664.	361.	224.	104.	3119.	1852.
1932	99.	92.	56.	81.	94.	256.	501.	1478.	1428.	913.	408.	206.	5611.	4320.
1933	124.	136.	79.	93.	97.	194.	276.	712.	1621.	619.	264.	146.	4362.	3228.
1934	91.	90.	103.	102.	122.	135.	192.	406.	284.	232.	181.	87.	2026.	1115.
1935	55.	57.	58.	70.	85.	118.	184.	501.	1514.	629.	275.	144.	3691.	2829.
1936	68.	84.	62.	70.	94.	142.	469.	1486.	1297.	630.	471.	189.	5063.	3882.
1937	125.	132.	84.	64.	98.	283.	462.	1287.	1098.	780.	316.	213.	4942.	3626.
1938	134.	126.	125.	105.	130.	268.	489.	1197.	1584.	760.	355.	349.	5622.	4030.
1939	253.	178.	160.	132.	107.	396.	464.	969.	690.	396.	257.	168.	4170.	2519.
1940	139.	101.	92.	86.	101.	203.	268.	825.	721.	283.	185.	130.	3134.	2097.
1941	167.	118.	100.	105.	130.	220.	326.	1277.	1315.	609.	397.	210.	4975.	3527.
1942	329.	245.	174.	118.	127.	291.	874.	1046.	1468.	664.	331.	140.	5808.	4053.
1943	124.	130.	122.	118.	135.	243.	609.	829.	1228.	863.	472.	181.	5051.	3528.
1944	134.	151.	117.	91.	117.	259.	546.	1035.	1563.	840.	307.	122.	5282.	3984.
1945	132.	123.	94.	114.	133.	192.	305.	995.	1152.	965.	494.	200.	4899.	3417.
1946	174.	154.	120.	128.	123.	241.	574.	833.	950.	537.	303.	160.	4297.	2894.
1947	157.	176.	161.	96.	156.	420.	452.	1545.	1484.	933.	506.	228.	6313.	4415.
1948	187.	184.	158.	146.	141.	320.	581.	1193.	1125.	505.	284.	137.	4962.	3404.
1949	105.	108.	104.	107.	115.	283.	512.	1346.	1746.	832.	324.	155.	5737.	4436.
1950	215.	196.	135.	149.	152.	364.	646.	1102.	1782.	973.	433.	205.	6352.	4502.

82/03/17.
 UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
 STA- AF3150 FLOW

15.37.59.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	172.	172.	178.	121.	173.	211.	393.	978.	1511.	882.	534.	228.	5554.	3765.
1952	217.	169.	141.	145.	146.	169.	1023.	2276.	2033.	777.	463.	249.	7808.	6109.
1953	134.	125.	133.	147.	148.	225.	237.	489.	1402.	630.	361.	152.	4184.	2759.
1954	98.	130.	112.	115.	143.	177.	295.	758.	540.	584.	269.	180.	3399.	2176.
1955	152.	124.	85.	86.	92.	244.	329.	769.	862.	466.	302.	125.	3635.	2426.
1956	91.	91.	136.	164.	105.	321.	493.	1346.	1474.	527.	317.	149.	5214.	3840.
1957	95.	102.	68.	91.	106.	243.	305.	982.	2137.	1444.	533.	258.	6362.	4868.
1958	196.	235.	156.	134.	190.	255.	450.	1497.	1431.	447.	252.	148.	5391.	3825.
1959	104.	104.	118.	102.	122.	151.	230.	549.	998.	579.	312.	138.	3509.	2356.
1960	189.	154.	109.	99.	108.	326.	557.	645.	913.	392.	206.	127.	3826.	2507.
1961	110.	109.	84.	84.	97.	143.	205.	437.	794.	314.	220.	214.	2811.	1749.
1962	255.	167.	132.	120.	410.	408.	1157.	1482.	1345.	873.	354.	156.	6859.	4856.
1963	146.	138.	92.	76.	141.	155.	240.	666.	876.	426.	275.	247.	3478.	2207.
1964	127.	114.	77.	82.	93.	141.	307.	969.	1339.	822.	287.	103.	4461.	3437.
1965	83.	96.	121.	132.	154.	199.	533.	1241.	2317.	1382.	612.	299.	7169.	5472.
1966	300.	193.	186.	163.	142.	437.	485.	854.	627.	385.	209.	135.	4117.	2352.
1967	122.	121.	79.	87.	113.	277.	288.	725.	1799.	1146.	368.	161.	5286.	3958.
1968	124.	119.	68.	97.	123.	256.	310.	837.	1991.	714.	439.	189.	5267.	3852.
1969	171.	139.	110.	139.	130.	281.	846.	1559.	1104.	624.	329.	168.	5600.	4133.
1970	150.	149.	114.	145.	158.	189.	241.	1178.	1655.	742.	293.	164.	5178.	3816.
1971	216.	165.	118.	187.	203.	277.	636.	1236.	2116.	923.	347.	157.	6582.	4912.
1972	177.	170.	115.	167.	208.	422.	418.	1011.	1924.	616.	307.	138.	5674.	3969.
1973	206.	194.	111.	101.	117.	320.	530.	1622.	1474.	858.	377.	228.	6137.	4483.
1974	154.	183.	142.	154.	160.	407.	502.	1566.	1644.	665.	283.	111.	5971.	4377.
1975	79.	144.	85.	147.	153.	236.	258.	948.	1880.	1565.	369.	131.	5995.	4651.
1976	122.	133.	137.	124.	194.	279.	400.	1123.	1089.	552.	262.	121.	4535.	3164.
1977	93.	87.	63.	87.	95.	100.	161.	259.	483.	209.	167.	118.	1922.	1112.
1978	87.	101.	102.	103.	103.	266.	497.	1079.	1964.	984.	289.	193.	5707.	4524.
MIN	55.	57.	49.	61.	85.	100.	161.	259.	284.	209.	167.	87.	1922.	1112.
MAX	329.	261.	186.	187.	410.	703.	1157.	2276.	2967.	2118.	784.	632.	9297.	7272.
TOTAL	12594.	10822.	8213.	8287.	9904.	20669.	35372.	82421.	107799.	57287.	27467.	14803.	395638.	282879.
MEAN	173.	148.	113.	114.	136.	283.	485.	1129.	1477.	785.	376.	203.	5420.	3875.
STDEV	66.	40.	31.	29.	46.	111.	201.	409.	585.	367.	131.	92.	1519.	1268.
DIST	3.	3.	2.	2.	3.	5.	9.	21.	27.	14.	7.	4.	100.	71.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF3150 SALT

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	69.	79.	82.	92.	72.	212.	249.	374.	346.	222.	172.	129.	2099.	1192.
1907	84.	114.	126.	149.	165.	231.	345.	370.	452.	431.	276.	130.	2873.	1597.
1908	101.	86.	88.	86.	71.	136.	180.	177.	227.	189.	190.	89.	1629.	774.
1909	97.	82.	57.	124.	77.	269.	242.	340.	551.	363.	270.	229.	2702.	1496.
1910	108.	106.	81.	69.	110.	358.	317.	335.	193.	100.	99.	70.	1945.	944.
1911	90.	85.	90.	144.	150.	218.	155.	190.	254.	165.	119.	61.	1719.	763.
1912	103.	85.	96.	110.	83.	140.	180.	249.	454.	261.	198.	95.	2053.	1144.
1913	99.	120.	95.	143.	101.	156.	325.	274.	248.	239.	152.	106.	2057.	1086.
1914	98.	115.	98.	128.	118.	222.	325.	451.	435.	230.	158.	84.	2463.	1441.
1915	107.	99.	93.	100.	82.	121.	206.	174.	205.	140.	111.	82.	1520.	725.
1916	109.	103.	107.	114.	106.	297.	278.	331.	298.	194.	181.	84.	2201.	1102.
1917	132.	96.	114.	86.	94.	131.	304.	399.	553.	404.	214.	108.	2634.	1660.
1918	92.	110.	138.	150.	109.	152.	182.	230.	377.	206.	132.	78.	1956.	995.
1919	102.	108.	116.	94.	81.	166.	220.	246.	149.	81.	75.	58.	1497.	697.
1920	59.	81.	91.	114.	113.	150.	182.	421.	422.	204.	161.	79.	2077.	1229.
1921	74.	116.	107.	129.	136.	257.	206.	394.	560.	206.	175.	104.	2463.	1365.
1922	71.	92.	120.	114.	110.	222.	172.	416.	463.	181.	153.	99.	2215.	1233.
1923	62.	96.	117.	139.	95.	141.	297.	399.	376.	239.	189.	93.	2242.	1311.
1924	105.	117.	114.	98.	132.	129.	291.	250.	187.	114.	88.	55.	1682.	842.
1925	52.	80.	78.	98.	105.	166.	216.	233.	189.	186.	146.	114.	1662.	824.
1926	128.	113.	126.	121.	103.	199.	272.	285.	195.	136.	121.	56.	1856.	888.
1927	58.	70.	99.	109.	91.	137.	183.	327.	284.	232.	145.	196.	1932.	1026.
1928	132.	144.	125.	171.	126.	223.	188.	478.	281.	165.	141.	74.	2248.	1112.
1929	98.	103.	95.	129.	90.	264.	309.	390.	359.	209.	175.	156.	2377.	1266.
1930	114.	101.	116.	87.	184.	151.	271.	188.	243.	142.	239.	105.	1942.	844.
1931	108.	92.	106.	101.	88.	136.	146.	127.	131.	92.	83.	43.	1252.	496.
1932	47.	63.	63.	88.	75.	155.	222.	357.	276.	207.	147.	81.	1062.	1062.
1933	57.	86.	81.	98.	77.	123.	133.	173.	312.	148.	97.	59.	1445.	766.
1934	44.	62.	97.	107.	97.	91.	98.	99.	58.	63.	68.	36.	918.	318.
1935	28.	43.	65.	77.	69.	82.	94.	123.	292.	150.	101.	58.	1180.	658.
1936	33.	58.	68.	77.	76.	95.	210.	359.	251.	150.	169.	75.	1622.	970.
1937	58.	84.	84.	72.	79.	168.	207.	311.	214.	180.	115.	84.	1656.	913.
1938	61.	81.	111.	110.	103.	290.	218.	290.	305.	176.	129.	132.	1878.	989.
1939	109.	106.	132.	134.	86.	222.	208.	235.	136.	100.	95.	67.	1630.	680.
1940	64.	68.	89.	92.	81.	128.	130.	201.	142.	75.	69.	53.	1191.	547.
1941	75.	77.	95.	109.	104.	136.	154.	309.	254.	146.	144.	82.	1685.	863.
1942	138.	136.	141.	121.	101.	172.	359.	254.	283.	157.	121.	57.	2040.	1053.
1943	57.	83.	109.	121.	107.	148.	263.	201.	238.	197.	170.	72.	1766.	900.
1944	61.	93.	106.	96.	93.	156.	240.	251.	301.	193.	112.	50.	1752.	984.
1945	61.	79.	91.	118.	106.	122.	145.	241.	224.	217.	177.	79.	1660.	828.
1946	78.	95.	108.	130.	98.	147.	250.	203.	186.	130.	111.	64.	1599.	769.
1947	71.	105.	133.	101.	123.	233.	204.	373.	286.	211.	181.	89.	2111.	1074.
1948	83.	109.	132.	146.	112.	188.	253.	289.	219.	124.	104.	55.	1812.	884.
1949	50.	72.	97.	111.	92.	168.	236.	326.	335.	118.	118.	62.	1848.	1078.
1950	94.	114.	118.	149.	120.	207.	277.	267.	342.	219.	156.	80.	2143.	1104.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF3150 SALT

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	77.	103.	143.	124.	136.	132.	181.	237.	291.	201.	191.	89.	1905.	910.
1952	95.	102.	121.	145.	116.	109.	411.	548.	388.	180.	167.	96.	2478.	1527.
1953	61.	80.	116.	147.	117.	139.	117.	119.	271.	150.	131.	61.	1510.	657.
1954	46.	83.	103.	118.	113.	114.	141.	184.	107.	140.	99.	71.	1321.	573.
1955	69.	80.	84.	92.	74.	148.	155.	187.	169.	115.	111.	51.	1335.	626.
1956	43.	62.	118.	161.	84.	187.	219.	326.	284.	128.	116.	60.	1789.	957.
1957	45.	68.	72.	97.	84.	148.	145.	238.	407.	308.	191.	100.	1904.	1099.
1958	87.	132.	130.	135.	150.	154.	203.	362.	276.	111.	93.	59.	1892.	952.
1959	49.	70.	107.	107.	97.	100.	114.	134.	195.	139.	114.	56.	1281.	582.
1960	84.	95.	101.	104.	87.	189.	243.	157.	179.	99.	77.	51.	1467.	679.
1961	51.	72.	84.	90.	78.	95.	103.	107.	156.	82.	82.	84.	1084.	448.
1962	110.	101.	115.	123.	315.	227.	457.	358.	260.	199.	129.	62.	2458.	1274.
1963	67.	87.	90.	83.	112.	102.	118.	162.	171.	107.	101.	96.	1294.	558.
1964	59.	75.	79.	89.	75.	94.	146.	235.	259.	189.	105.	42.	1446.	829.
1965	40.	65.	109.	134.	122.	125.	234.	301.	441.	297.	218.	114.	2200.	1273.
1966	127.	113.	148.	161.	113.	241.	216.	208.	124.	98.	78.	54.	1680.	646.
1967	57.	78.	80.	93.	90.	165.	138.	176.	345.	252.	134.	64.	1673.	912.
1968	58.	77.	102.	103.	98.	154.	147.	203.	380.	167.	158.	75.	1694.	898.
1969	77.	87.	102.	140.	103.	167.	349.	377.	215.	149.	120.	67.	1952.	1089.
1970	68.	92.	104.	145.	125.	120.	118.	285.	318.	173.	107.	65.	1722.	895.
1971	95.	100.	107.	181.	159.	165.	273.	299.	404.	209.	126.	63.	2181.	1185.
1972	79.	102.	105.	164.	163.	234.	190.	245.	368.	147.	112.	56.	1967.	951.
1973	91.	114.	102.	106.	93.	186.	234.	392.	284.	196.	137.	89.	2022.	1105.
1974	70.	108.	122.	153.	127.	227.	223.	378.	316.	157.	104.	45.	2030.	1074.
1975	38.	90.	85.	147.	121.	144.	126.	230.	360.	331.	134.	53.	1858.	1046.
1976	57.	84.	119.	126.	152.	166.	183.	272.	212.	134.	96.	49.	1651.	801.
1977	44.	60.	68.	93.	76.	71.	84.	64.	96.	57.	63.	48.	825.	301.
1978	42.	68.	96.	107.	83.	160.	221.	262.	375.	221.	106.	54.	1794.	1079.
MIN	28.	43.	57.	69.	69.	71.	84.	64.	58.	57.	63.	36.	825.	301.
MAX	138.	144.	148.	181.	315.	358.	457.	548.	560.	431.	276.	229.	2873.	1660.
TOTAL	5607.	6664.	7477.	8526.	7853.	12147.	15621.	19962.	20737.	13099.	9945.	5786.	133424.	69419.
MEAN	77.	91.	102.	117.	108.	166.	214.	273.	284.	179.	136.	79.	1828.	951.
STDEV	27.	20.	20.	26.	35.	53.	76.	98.	109.	72.	45.	33.	404.	282.
DIST	4.	5.	6.	6.	6.	9.	12.	15.	16.	10.	7.	4.	100.	52.

82/03/16.
UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3285 FLOW NEAR GREEN RIVER, UT ON THE SAN RAFAEL

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	4.	3.	1.	2.	2.	13.	20.	59.	68.	36.	16.	11.	233.	183.
1907	5.	6.	2.	4.	6.	14.	31.	58.	91.	80.	27.	10.	338.	260.
1908	7.	4.	2.	1.	2.	7.	13.	27.	43.	29.	7.	7.	159.	113.
1909	7.	3.	0.	3.	2.	18.	20.	53.	111.	65.	26.	22.	330.	249.
1910	8.	10.	8.	9.	11.	45.	47.	87.	33.	28.	14.	17.	316.	195.
1911	14.	6.	6.	14.	11.	10.	10.	39.	51.	23.	20.	11.	215.	122.
1912	22.	4.	4.	3.	4.	6.	6.	33.	113.	31.	18.	5.	249.	183.
1913	24.	12.	3.	3.	3.	8.	20.	74.	44.	28.	18.	15.	252.	167.
1914	5.	7.	4.	3.	4.	6.	15.	113.	111.	34.	19.	5.	327.	274.
1915	10.	3.	4.	3.	3.	13.	15.	33.	48.	23.	8.	5.	167.	119.
1916	1.	7.	4.	4.	5.	23.	12.	40.	77.	36.	33.	8.	251.	167.
1917	52.	5.	5.	1.	6.	8.	12.	55.	153.	52.	26.	19.	394.	271.
1918	4.	5.	4.	3.	4.	7.	6.	16.	61.	55.	24.	12.	201.	138.
1919	6.	4.	3.	3.	3.	4.	16.	71.	28.	10.	7.	7.	162.	125.
1920	4.	4.	3.	3.	3.	4.	7.	70.	80.	21.	11.	5.	214.	178.
1921	5.	4.	4.	4.	4.	6.	9.	49.	132.	29.	16.	9.	269.	218.
1922	8.	7.	6.	5.	5.	9.	12.	70.	99.	34.	21.	7.	283.	215.
1923	4.	5.	5.	4.	4.	6.	14.	69.	77.	40.	13.	7.	248.	200.
1924	7.	6.	5.	4.	4.	5.	14.	40.	25.	10.	5.	5.	129.	89.
1925	4.	3.	3.	3.	3.	6.	14.	42.	27.	16.	9.	6.	136.	100.
1926	6.	4.	4.	4.	4.	7.	18.	51.	27.	12.	6.	4.	146.	107.
1927	4.	4.	3.	3.	3.	6.	11.	56.	47.	23.	12.	12.	183.	137.
1928	6.	5.	3.	3.	3.	7.	13.	83.	40.	8.	8.	4.	192.	156.
1929	5.	3.	2.	2.	2.	8.	12.	58.	61.	25.	13.	11.	203.	156.
1930	6.	4.	3.	2.	4.	6.	21.	33.	35.	20.	17.	8.	159.	109.
1931	6.	3.	3.	2.	2.	4.	9.	20.	15.	9.	3.	2.	80.	53.
1932	2.	2.	2.	2.	2.	4.	13.	52.	43.	22.	9.	3.	156.	131.
1933	4.	4.	3.	3.	3.	4.	6.	22.	73.	22.	9.	4.	158.	123.
1934	3.	3.	4.	3.	3.	4.	11.	15.	8.	4.	4.	2.	66.	39.
1935	2.	2.	2.	3.	3.	4.	6.	25.	86.	18.	7.	4.	163.	136.
1936	3.	3.	3.	3.	3.	4.	16.	84.	48.	18.	12.	6.	203.	167.
1937	4.	4.	3.	3.	3.	5.	14.	67.	41.	19.	10.	7.	178.	138.
1938	5.	4.	4.	4.	4.	6.	15.	53.	54.	9.	9.	7.	181.	139.
1939	6.	5.	4.	4.	3.	9.	17.	47.	29.	12.	6.	5.	147.	105.
1940	4.	3.	3.	3.	3.	5.	9.	63.	31.	11.	5.	5.	146.	114.
1941	5.	4.	4.	2.	2.	6.	2.	61.	76.	41.	14.	4.	220.	179.
1942	5.	5.	4.	6.	5.	6.	14.	42.	79.	44.	32.	4.	246.	179.
1943	2.	3.	3.	4.	5.	6.	15.	23.	39.	32.	22.	4.	159.	109.
1944	2.	2.	3.	2.	3.	6.	4.	60.	109.	43.	19.	5.	259.	217.
1945	4.	3.	3.	3.	3.	6.	1.	32.	52.	35.	22.	5.	171.	121.
1946	3.	3.	2.	2.	4.	6.	11.	22.	32.	31.	23.	3.	142.	96.
1947	3.	5.	4.	2.	5.	4.	12.	55.	60.	32.	25.	7.	214.	159.
1948	3.	4.	4.	3.	6.	7.	12.	39.	34.	21.	13.	4.	149.	106.
1949	2.	2.	2.	2.	2.	9.	17.	49.	82.	29.	11.	5.	212.	178.
1950	3.	3.	3.	2.	6.	5.	3.	18.	32.	27.	11.	3.	117.	90.

82/03/16.
UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3285 FLOW NEAR GREEN RIVER, UT ON THE SAN RAFAEL

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	1.	2.	3.	3.	3.	2.	1.	21.	45.	25.	19.	4.	129.	92.
1952	6.	4.	3.	3.	5.	14.	24.	102.	145.	44.	26.	9.	384.	315.
1953	4.	4.	4.	6.	7.	6.	3.	8.	51.	25.	13.	4.	134.	88.
1954	4.	4.	3.	4.	5.	4.	3.	16.	17.	16.	9.	5.	90.	52.
1955	2.	2.	2.	2.	2.	6.	3.	11.	23.	18.	14.	4.	91.	54.
1956	2.	1.	2.	3.	3.	3.	3.	25.	24.	12.	6.	3.	87.	64.
1957	1.	1.	1.	2.	4.	3.	2.	13.	112.	43.	19.	6.	206.	170.
1958	10.	21.	5.	5.	8.	6.	14.	76.	78.	20.	14.	6.	263.	189.
1959	2.	3.	4.	3.	4.	3.	2.	6.	21.	14.	9.	3.	71.	42.
1960	1.	2.	2.	1.	2.	8.	3.	14.	30.	17.	9.	4.	92.	64.
1961	8.	2.	2.	2.	3.	3.	2.	13.	22.	13.	12.	19.	101.	51.
1962	4.	4.	2.	2.	8.	6.	12.	37.	58.	26.	14.	6.	178.	132.
1963	5.	2.	2.	2.	4.	2.	2.	21.	30.	14.	15.	10.	109.	66.
1964	3.	2.	2.	1.	2.	3.	1.	22.	41.	23.	15.	5.	121.	87.
1965	2.	1.	3.	4.	3.	3.	6.	24.	94.	58.	30.	7.	235.	181.
1966	5.	6.	6.	4.	4.	10.	8.	27.	21.	8.	5.	6.	110.	65.
1967	3.	2.	3.	2.	3.	3.	1.	19.	57.	26.	7.	5.	130.	102.
1968	-1.	3.	3.	3.	3.	4.	15.	20.	68.	17.	11.	0.	134.	109.
1969	4.	3.	3.	4.	4.	10.	15.	76.	52.	26.	12.	7.	217.	170.
1970	1.	4.	5.	3.	5.	4.	2.	36.	68.	26.	6.	2.	163.	132.
1971	0.	4.	4.	3.	3.	5.	5.	15.	37.	17.	7.	2.	100.	74.
1972	3.	5.	3.	3.	4.	5.	3.	21.	25.	5.	1.	1.	80.	54.
1973	9.	5.	3.	3.	4.	19.	7.	58.	73.	25.	9.	2.	215.	162.
1974	3.	4.	3.	3.	3.	4.	1.	24.	33.	14.	4.	1.	98.	73.
1975	2.	6.	3.	3.	4.	5.	3.	10.	68.	47.	10.	6.	165.	128.
1976	-1.	5.	3.	3.	4.	2.	3.	20.	22.	7.	2.	2.	73.	52.
1977	3.	3.	3.	2.	2.	3.	7.	9.	18.	10.	8.	4.	71.	44.
1978	-1.	1.	2.	2.	3.	7.	6.	18.	69.	27.	3.	-0.	136.	120.
MIN	-1.	1.	0.	1.	2.	2.	1.	6.	8.	4.	1.	-0.	66.	39.
MAX	52.	21.	8.	14.	11.	45.	47.	113.	153.	80.	33.	22.	394.	315.
TOTAL	381.	300.	237.	230.	281.	510.	736.	2993.	4110.	1899.	980.	453.	13104.	9731.
MEAN	5.	4.	3.	3.	4.	7.	10.	41.	66.	26.	13.	6.	180.	139.
SIDEV	7.	3.	1.	2.	2.	6.	8.	25.	32.	14.	8.	4.	76.	61.
DIST	3.	2.	2.	2.	2.	4.	6.	23.	31.	14.	7.	3.	100.	74.

YEAR	DEC	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	M. Y. TOTAL	AF3-101 TOTAL
1906	9.	9.	6.	7.	8.	25.	39.	38.	28.	20.	16.	18.	204.	128.
1907	12.	16.	13.	13.	23.	27.	48.	50.	30.	40.	20.	18.	310.	160.
1908	14.	12.	7.	7.	7.	16.	37.	25.	21.	20.	16.	12.	190.	96.
1909	14.	10.	1.	11.	8.	31.	37.	36.	39.	38.	27.	55.	207.	150.
1910	16.	23.	20.	21.	37.	61.	61.	48.	18.	20.	15.	28.	366.	146.
1911	24.	16.	17.	27.	36.	21.	25.	30.	24.	17.	21.	20.	277.	95.
1912	35.	11.	12.	11.	16.	15.	18.	28.	39.	23.	18.	10.	235.	106.
1913	37.	27.	10.	10.	12.	10.	37.	40.	21.	20.	19.	26.	282.	122.
1914	10.	10.	13.	12.	14.	10.	32.	55.	39.	23.	20.	10.	261.	149.
1915	19.	8.	12.	11.	11.	25.	32.	28.	23.	17.	9.	9.	204.	99.
1916	2.	18.	13.	12.	10.	30.	28.	31.	31.	24.	34.	14.	205.	114.
1917	70.	14.	15.	6.	21.	10.	27.	37.	48.	32.	27.	31.	306.	143.
1918	10.	13.	12.	12.	16.	16.	19.	19.	26.	33.	25.	20.	222.	97.
1919	12.	12.	10.	10.	12.	11.	33.	43.	16.	9.	8.	13.	189.	101.
1920	9.	11.	11.	10.	13.	11.	20.	42.	32.	16.	11.	10.	196.	110.
1921	10.	12.	12.	12.	16.	15.	23.	30.	43.	13.	17.	11.	231.	121.
1922	16.	10.	16.	15.	20.	20.	28.	42.	36.	23.	22.	17.	268.	129.
1923	9.	13.	15.	15.	16.	10.	30.	42.	31.	26.	14.	13.	237.	129.
1924	14.	16.	14.	13.	15.	13.	30.	31.	15.	9.	5.	9.	180.	85.
1925	9.	10.	9.	11.	14.	10.	31.	32.	16.	13.	10.	11.	179.	91.
1926	12.	12.	13.	13.	16.	16.	35.	35.	16.	10.	7.	8.	192.	96.
1927	9.	11.	11.	11.	13.	16.	26.	37.	23.	17.	13.	20.	204.	103.
1928	12.	14.	9.	11.	11.	10.	29.	46.	20.	15.	13.	7.	190.	110.
1929	11.	11.	0.	0.	9.	10.	20.	30.	26.	18.	13.	10.	210.	111.
1930	13.	12.	11.	0.	17.	10.	30.	28.	19.	15.	18.	15.	207.	100.
1931	13.	11.	10.	0.	9.	12.	24.	21.	11.	0.	0.	0.	155.	64.
1932	4.	7.	7.	0.	9.	11.	29.	36.	21.	16.	10.	6.	165.	103.
1933	9.	12.	11.	11.	12.	12.	19.	22.	30.	16.	10.	8.	173.	87.
1934	7.	10.	12.	12.	14.	11.	27.	18.	7.	5.	4.	5.	152.	57.
1935	6.	8.	9.	10.	11.	10.	19.	20.	33.	10.	0.	0.	160.	90.
1936	7.	10.	10.	10.	13.	11.	33.	47.	23.	14.	12.	11.	201.	117.
1937	10.	12.	11.	11.	13.	13.	26.	41.	20.	15.	10.	13.	197.	103.
1938	11.	11.	13.	12.	15.	10.	32.	36.	24.	14.	10.	13.	204.	106.
1939	12.	14.	13.	13.	13.	10.	30.	30.	16.	10.	9.	10.	194.	95.
1940	10.	10.	11.	11.	13.	12.	23.	40.	17.	10.	3.	10.	172.	90.
1941	10.	11.	12.	0.	9.	15.	9.	39.	31.	26.	13.	8.	194.	105.
1942	11.	14.	13.	16.	19.	15.	30.	32.	31.	28.	33.	0.	250.	121.
1943	6.	10.	10.	13.	19.	15.	32.	23.	20.	22.	23.	0.	190.	96.
1944	6.	7.	10.	0.	12.	15.	13.	30.	30.	27.	20.	10.	208.	110.
1945	10.	10.	10.	11.	12.	15.	7.	27.	24.	20.	23.	0.	182.	82.
1946	0.	0.	0.	0.	13.	15.	26.	22.	17.	21.	24.	6.	181.	87.
1947	7.	13.	12.	0.	20.	11.	27.	37.	26.	22.	23.	14.	224.	112.
1948	0.	11.	13.	11.	23.	17.	27.	30.	30.	16.	13.	7.	195.	92.
1949	5.	6.	5.	10.	10.	10.	30.	34.	30.	22.	11.	0.	197.	121.
1950	6.	10.	9.	10.	23.	17.	13.	20.	18.	20.	12.	7.	161.	60.

NATIONAL TIDE HYDROLOGIC DATA BASE FOR U. S. S.
 STA- A13405 SALT NEAR GLEFJ RIVER, OUT ON THE SAN RAFFL

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	APR-TOTL
1951	4.	10.	12.	12.	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.	107.	69.
1952	12.	10.	10.	10.	26.	26.	26.	26.	26.	26.	26.	26.	26.	26.	26.	26.	26.	26.	301.	168.
1953	9.	13.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	14.	174.	68.
1954	9.	11.	11.	11.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	140.	55.
1955	5.	9.	9.	9.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	133.	50.
1956	4.	9.	9.	9.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	123.	62.
1957	5.	5.	5.	5.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	166.	92.
1958	19.	15.	15.	15.	16.	16.	16.	16.	16.	16.	16.	16.	16.	16.	16.	16.	16.	16.	279.	121.
1959	2.	12.	12.	12.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	120.	40.
1960	3.	7.	7.	7.	17.	17.	17.	17.	17.	17.	17.	17.	17.	17.	17.	17.	17.	17.	127.	60.
1961	16.	7.	7.	7.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	153.	51.
1962	5.	8.	8.	8.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	206.	101.
1963	11.	9.	9.	9.	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.	7.	152.	59.
1964	9.	7.	7.	7.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	140.	76.
1965	4.	11.	11.	11.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	225.	119.
1966	11.	16.	16.	16.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	168.	86.
1967	7.	11.	11.	11.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	177.	60.
1968	0.	10.	10.	10.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	8.	140.	70.
1969	9.	11.	11.	11.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	140.	76.
1970	4.	15.	15.	15.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	225.	119.
1971	2.	12.	12.	12.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	168.	86.
1972	7.	11.	11.	11.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	157.	66.
1973	10.	10.	10.	10.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	150.	55.
1974	8.	11.	11.	11.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	218.	105.
1975	5.	10.	10.	10.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	11.	150.	59.
1976	0.	11.	11.	11.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	12.	174.	80.
1977	7.	9.	9.	9.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	119.	53.
1978	0.	7.	7.	7.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	10.	122.	50.
MIN	0.	1.	1.	1.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.	156.	45.
MAX	70.	83.	83.	83.	87.	87.	87.	87.	87.	87.	87.	87.	87.	87.	87.	87.	87.	87.	119.	40.
TOTAL	773.	773.	773.	773.	1100.	1100.	1100.	1100.	1100.	1100.	1100.	1100.	1100.	1100.	1100.	1100.	1100.	1100.	366.	168.
MEAN	11.	12.	12.	12.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	13.	142.07.	67.6.
STDEV	10.	6.	6.	6.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	19.6.	9.6.
DIS1	1.	6.	6.	6.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	50.	28.
																			100.	40.

82/03/16.
 UNITS: 1000 AC-FT

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
 STA- AF3555 FLOW NEAR ARCHULETA, NM ON THE SAN JUAN RIVER

13.51.21.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	47.	34.	26.	24.	23.	33.	167.	464.	431.	131.	59.	54.	1494.	1194.
1907	38.	22.	15.	8.	12.	30.	74.	162.	359.	278.	98.	49.	1144.	873.
1908	48.	33.	24.	25.	44.	119.	179.	185.	250.	135.	167.	45.	1254.	749.
1909	40.	24.	18.	35.	21.	109.	261.	365.	450.	152.	224.	152.	2067.	1229.
1910	67.	41.	35.	43.	37.	140.	158.	296.	213.	65.	64.	34.	1192.	733.
1911	30.	24.	18.	28.	25.	164.	290.	417.	443.	345.	106.	87.	1976.	1494.
1912	323.	84.	43.	29.	23.	97.	199.	453.	362.	143.	54.	26.	1836.	1157.
1913	35.	38.	15.	13.	14.	29.	213.	331.	208.	65.	32.	49.	1043.	817.
1914	52.	31.	22.	17.	53.	135.	196.	392.	406.	183.	76.	61.	1625.	1177.
1915	108.	47.	27.	16.	24.	70.	309.	357.	401.	209.	63.	41.	1668.	1272.
1916	34.	19.	19.	19.	29.	229.	337.	400.	352.	166.	179.	75.	1857.	1254.
1917	259.	67.	27.	32.	30.	57.	253.	355.	568.	308.	72.	37.	2064.	1483.
1918	24.	13.	9.	9.	18.	74.	88.	193.	254.	102.	45.	62.	891.	637.
1919	21.	17.	14.	13.	18.	62.	266.	409.	262.	187.	93.	41.	1403.	1124.
1920	31.	28.	35.	41.	82.	127.	262.	752.	642.	277.	85.	33.	2394.	1933.
1921	34.	41.	27.	26.	29.	100.	111.	313.	519.	215.	188.	67.	1670.	1158.
1922	29.	19.	21.	19.	26.	81.	266.	508.	508.	119.	46.	23.	1664.	1401.
1923	14.	17.	23.	20.	29.	46.	159.	342.	311.	142.	104.	98.	1305.	954.
1924	64.	49.	34.	24.	38.	44.	260.	373.	244.	58.	30.	20.	1237.	935.
1925	20.	15.	15.	14.	17.	60.	147.	210.	174.	111.	69.	120.	971.	641.
1926	101.	49.	31.	24.	26.	56.	174.	326.	334.	82.	41.	26.	1271.	916.
1927	47.	24.	22.	21.	29.	91.	303.	465.	363.	197.	67.	253.	1881.	1328.
1928	71.	49.	32.	32.	37.	90.	117.	250.	163.	52.	37.	23.	952.	583.
1929	19.	32.	18.	16.	17.	74.	204.	360.	317.	110.	247.	192.	1606.	991.
1930	79.	32.	18.	15.	29.	45.	187.	177.	192.	88.	102.	26.	989.	644.
1931	21.	17.	17.	14.	18.	29.	78.	168.	143.	67.	46.	50.	666.	455.
1932	66.	31.	19.	19.	60.	150.	384.	487.	390.	194.	118.	45.	1963.	1455.
1933	25.	17.	15.	18.	18.	40.	53.	149.	280.	89.	46.	63.	812.	571.
1934	40.	21.	17.	18.	18.	39.	95.	102.	40.	41.	32.	29.	490.	277.
1935	12.	12.	12.	14.	21.	50.	204.	314.	585.	233.	102.	69.	1627.	1335.
1936	36.	22.	14.	14.	13.	92.	249.	290.	125.	59.	83.	63.	1060.	721.
1937	32.	37.	20.	17.	22.	104.	389.	473.	260.	100.	52.	25.	1531.	1221.
1938	28.	19.	14.	16.	17.	101.	281.	354.	436.	142.	54.	98.	1559.	1213.
1939	64.	30.	19.	17.	14.	96.	149.	225.	117.	44.	33.	56.	864.	535.
1940	21.	21.	13.	14.	19.	51.	98.	189.	89.	47.	34.	38.	634.	423.
1941	62.	27.	24.	22.	48.	121.	275.	821.	618.	331.	94.	87.	2530.	2045.
1942	261.	92.	43.	34.	28.	66.	422.	334.	341.	107.	42.	24.	1794.	1204.
1943	16.	18.	16.	17.	25.	59.	202.	197.	152.	75.	58.	25.	860.	626.
1944	18.	21.	19.	14.	14.	40.	147.	424.	423.	159.	40.	12.	1331.	1153.
1945	31.	23.	16.	16.	25.	43.	156.	342.	238.	90.	50.	8.	1037.	825.
1946	27.	16.	11.	14.	15.	26.	85.	89.	131.	39.	42.	25.	521.	345.
1947	35.	29.	20.	15.	20.	34.	55.	226.	174.	70.	93.	63.	833.	525.
1948	69.	32.	20.	19.	26.	37.	228.	393.	371.	102.	48.	12.	1360.	1094.
1949	20.	17.	15.	20.	20.	64.	233.	350.	479.	217.	54.	18.	1505.	1279.
1950	22.	21.	14.	17.	24.	36.	137.	149.	135.	53.	15.	11.	638.	411.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3555 FLOW NEAR ARCHULETA, NM ON THE SAN JUAN RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	16.	11.	10.	10.	11.	21.	39.	140.	125.	27.	34.	14.	458.	331.
1952	8.	14.	22.	31.	19.	59.	328.	435.	507.	148.	66.	26.	1663.	1419.
1953	13.	14.	19.	19.	16.	40.	89.	138.	186.	45.	29.	4.	611.	458.
1954	14.	25.	15.	13.	21.	33.	111.	186.	89.	67.	51.	38.	662.	452.
1955	13.	8.	14.	13.	13.	29.	52.	158.	161.	42.	81.	19.	603.	414.
1956	5.	12.	16.	18.	16.	53.	91.	212.	153.	32.	18.	1.	626.	488.
1957	1.	12.	10.	15.	31.	48.	135.	236.	561.	357.	167.	58.	1631.	1289.
1958	51.	61.	36.	24.	53.	79.	286.	481.	322.	59.	30.	33.	1517.	1149.
1959	17.	19.	15.	12.	16.	19.	41.	104.	117.	29.	42.	7.	437.	291.
1960	66.	47.	23.	17.	17.	180.	247.	229.	283.	75.	25.	12.	1222.	834.
1961	21.	19.	16.	12.	16.	45.	127.	251.	153.	44.	56.	55.	816.	576.
1962	50.	36.	18.	17.	44.	44.	236.	257.	221.	102.	22.	11.	1059.	816.
1963	36.	26.	19.	15.	37.	72.	122.	186.	59.	29.	27.	37.	665.	397.
1964	14.	10.	4.	5.	8.	18.	66.	202.	98.	46.	79.	24.	574.	411.
1965	15.	14.	16.	23.	23.	41.	255.	363.	452.	272.	69.	62.	1606.	1343.
1966	49.	32.	36.	24.	21.	161.	192.	312.	173.	60.	36.	10.	1107.	737.
1967	7.	13.	35.	11.	21.	54.	52.	152.	155.	73.	88.	44.	705.	431.
1968	12.	10.	9.	12.	17.	34.	74.	220.	335.	85.	140.	12.	961.	714.
1969	10.	14.	8.	23.	17.	47.	210.	321.	244.	155.	68.	68.	1187.	930.
1970	72.	43.	28.	16.	17.	23.	52.	238.	166.	72.	50.	219.	996.	528.
1971	40.	28.	15.	17.	28.	53.	98.	113.	161.	58.	42.	15.	666.	430.
1972	52.	36.	33.	22.	27.	69.	84.	135.	112.	27.	13.	21.	630.	358.
1973	184.	70.	37.	33.	36.	124.	251.	573.	545.	232.	61.	39.	2183.	1601.
1974	26.	19.	12.	17.	14.	68.	72.	168.	78.	41.	35.	6.	556.	360.
1975	6.	25.	10.	10.	14.	72.	215.	404.	509.	278.	31.	25.	1598.	1406.
1976	3.	13.	15.	15.	32.	54.	112.	269.	235.	49.	23.	36.	854.	665.
1977	29.	11.	6.	7.	12.	15.	34.	45.	36.	27.	52.	30.	304.	141.
1978	20.	13.	6.	9.	9.	68.	153.	242.	295.	56.	1.	1.	873.	746.
MIN	1.	8.	4.	5.	8.	15.	34.	45.	36.	27.	1.	1.	304.	141.
MAX	323.	92.	43.	43.	82.	229.	422.	821.	642.	357.	247.	366.	2530.	2045.
TOTAL	3391.	2025.	1448.	1376.	1794.	5060.	12917.	21703.	20782.	8757.	4919.	3658.	87837.	64167.
MEAN	46.	28.	20.	19.	25.	69.	177.	297.	285.	120.	67.	50.	1203.	879.
STDEV	57.	17.	9.	8.	13.	42.	94.	144.	156.	86.	48.	58.	520.	422.
DIST	4.	2.	2.	2.	2.	6.	15.	25.	24.	10.	6.	4.	100.	73.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3555 SALT NEAR ARCHULETA, NM ON THE SAN JUAN RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	10.	9.	9.	8.	12.	8.	21.	33.	27.	11.	9.	9.	166.	92.
1907	9.	8.	7.	5.	6.	8.	10.	13.	24.	17.	13.	9.	127.	63.
1908	10.	9.	8.	9.	21.	25.	22.	15.	18.	11.	19.	8.	175.	65.
1909	10.	8.	7.	10.	10.	23.	31.	27.	28.	12.	23.	22.	211.	98.
1910	12.	10.	10.	11.	18.	29.	20.	22.	16.	7.	10.	7.	172.	65.
1911	8.	8.	7.	9.	12.	33.	34.	30.	28.	19.	14.	11.	214.	111.
1912	24.	14.	11.	9.	11.	21.	24.	32.	24.	11.	9.	6.	197.	92.
1913	9.	10.	7.	6.	7.	7.	26.	24.	15.	7.	6.	9.	134.	73.
1914	11.	9.	8.	7.	25.	28.	24.	28.	26.	13.	11.	9.	200.	92.
1915	15.	11.	9.	7.	12.	16.	36.	26.	26.	14.	10.	8.	188.	102.
1916	9.	7.	7.	7.	14.	44.	39.	29.	23.	12.	19.	10.	223.	104.
1917	22.	12.	9.	10.	15.	13.	30.	26.	34.	18.	11.	8.	206.	108.
1918	8.	6.	5.	5.	9.	16.	12.	15.	18.	9.	8.	9.	122.	54.
1919	7.	7.	7.	6.	9.	14.	32.	30.	18.	13.	12.	8.	164.	93.
1920	9.	9.	10.	11.	38.	26.	31.	51.	37.	17.	12.	7.	257.	136.
1921	9.	10.	9.	9.	14.	21.	14.	23.	31.	14.	20.	10.	186.	84.
1922	8.	8.	8.	7.	13.	18.	32.	36.	31.	10.	8.	6.	184.	109.
1923	6.	7.	8.	8.	14.	11.	20.	25.	21.	11.	13.	12.	157.	77.
1924	12.	11.	10.	8.	18.	11.	31.	27.	17.	7.	6.	6.	163.	82.
1925	7.	7.	7.	6.	9.	14.	19.	16.	13.	10.	10.	13.	130.	58.
1926	14.	11.	9.	8.	13.	13.	22.	24.	22.	8.	7.	6.	159.	76.
1927	10.	8.	8.	8.	14.	20.	36.	33.	24.	14.	10.	18.	203.	106.
1928	12.	11.	9.	10.	18.	20.	15.	19.	13.	6.	7.	6.	146.	53.
1929	7.	9.	7.	7.	8.	16.	25.	26.	21.	10.	24.	16.	178.	82.
1930	13.	9.	7.	7.	14.	11.	23.	14.	15.	8.	13.	6.	140.	60.
1931	7.	7.	7.	6.	9.	7.	11.	13.	12.	7.	8.	9.	103.	43.
1932	12.	9.	8.	7.	28.	30.	44.	34.	25.	13.	15.	8.	234.	117.
1933	8.	7.	7.	7.	9.	10.	8.	12.	19.	8.	8.	10.	112.	48.
1934	10.	8.	7.	7.	9.	9.	13.	9.	4.	5.	6.	7.	93.	31.
1935	6.	6.	6.	6.	10.	12.	25.	23.	35.	15.	13.	10.	168.	98.
1936	9.	8.	7.	6.	7.	20.	30.	22.	10.	7.	12.	10.	147.	69.
1937	9.	10.	8.	7.	11.	22.	44.	34.	18.	9.	8.	6.	187.	105.
1938	8.	8.	6.	7.	9.	22.	33.	26.	27.	11.	9.	12.	177.	98.
1939	12.	9.	8.	7.	7.	21.	19.	17.	10.	6.	6.	9.	130.	52.
1940	7.	8.	6.	6.	9.	12.	13.	15.	8.	6.	6.	8.	105.	42.
1941	12.	9.	8.	8.	23.	25.	33.	55.	36.	18.	13.	11.	251.	142.
1942	22.	14.	11.	10.	14.	15.	48.	25.	23.	9.	7.	6.	203.	105.
1943	6.	7.	7.	7.	12.	13.	25.	15.	27.	8.	9.	6.	129.	60.
1944	7.	8.	8.	6.	7.	10.	19.	30.	27.	12.	7.	4.	145.	88.
1945	9.	8.	7.	7.	12.	10.	20.	25.	17.	9.	8.	4.	135.	71.
1946	8.	7.	6.	6.	8.	7.	11.	8.	11.	5.	7.	6.	90.	35.
1947	9.	9.	8.	7.	10.	8.	8.	17.	13.	7.	12.	10.	118.	46.
1948	12.	9.	8.	8.	13.	9.	28.	29.	24.	8.	8.	4.	161.	90.
1949	7.	7.	7.	7.	10.	14.	28.	26.	30.	14.	9.	5.	164.	98.
1950	7.	8.	7.	7.	12.	9.	18.	12.	11.	6.	4.	5.	105.	47.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3555 SALT NEAR ARCHULETA, NM ON THE SAN JUAN RIVER

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	6.	6.	6.	5.	6.	6.	6.	11.	10.	4.	6.	5.	77.	32.
1952	5.	7.	8.	10.	9.	13.	38.	31.	31.	11.	10.	6.	180.	112.
1953	6.	7.	7.	7.	8.	10.	12.	11.	14.	6.	6.	3.	96.	43.
1954	6.	8.	7.	6.	10.	8.	15.	15.	8.	7.	8.	8.	106.	44.
1955	6.	5.	7.	6.	7.	7.	7.	13.	13.	5.	11.	5.	93.	38.
1956	4.	6.	7.	7.	8.	12.	12.	16.	12.	5.	4.	1.	95.	45.
1957	2.	6.	6.	6.	15.	11.	17.	18.	33.	19.	19.	9.	163.	88.
1958	11.	12.	10.	8.	25.	18.	34.	34.	22.	7.	6.	7.	193.	96.
1959	7.	8.	7.	6.	8.	5.	6.	9.	10.	4.	7.	4.	79.	29.
1960	12.	11.	8.	7.	9.	36.	30.	18.	20.	8.	5.	4.	167.	75.
1961	7.	8.	7.	6.	8.	11.	16.	19.	12.	6.	9.	9.	118.	53.
1962	11.	10.	7.	7.	21.	11.	28.	20.	16.	9.	5.	4.	149.	73.
1963	9.	9.	7.	7.	18.	16.	16.	15.	6.	4.	6.	7.	119.	41.
1964	6.	6.	4.	4.	4.	5.	9.	16.	9.	6.	11.	6.	85.	39.
1965	6.	7.	7.	8.	12.	10.	30.	27.	28.	16.	10.	10.	171.	102.
1966	11.	9.	10.	8.	11.	32.	24.	23.	13.	7.	7.	4.	159.	67.
1967	5.	6.	10.	6.	10.	13.	7.	12.	12.	8.	12.	8.	109.	39.
1968	6.	6.	5.	6.	9.	8.	10.	17.	22.	8.	16.	4.	119.	58.
1969	5.	7.	5.	8.	9.	11.	26.	24.	17.	12.	10.	10.	144.	79.
1970	12.	10.	9.	7.	8.	6.	7.	18.	13.	7.	8.	17.	125.	46.
1971	10.	9.	7.	7.	14.	12.	13.	9.	13.	7.	7.	5.	112.	42.
1972	11.	10.	10.	8.	13.	15.	11.	11.	10.	4.	3.	6.	112.	36.
1973	19.	13.	10.	10.	17.	26.	30.	40.	33.	15.	9.	8.	229.	118.
1974	8.	8.	6.	7.	7.	15.	10.	13.	7.	5.	6.	3.	96.	36.
1975	4.	8.	6.	5.	7.	16.	26.	29.	31.	17.	6.	6.	162.	103.
1976	3.	6.	7.	6.	16.	12.	15.	20.	17.	6.	5.	7.	121.	58.
1977	8.	6.	5.	4.	6.	4.	5.	4.	4.	4.	8.	7.	66.	17.
1978	7.	7.	5.	5.	5.	15.	19.	19.	20.	6.	0.	2.	110.	65.
MIN	2.	5.	4.	4.	4.	4.	5.	4.	4.	4.	0.	1.	66.	17.
MAX	24.	14.	11.	11.	38.	44.	48.	55.	37.	19.	24.	22.	257.	142.
TOTAL	669.	617.	544.	526.	883.	1116.	1585.	1606.	1400.	697.	702.	565.	10910.	5289.
MEAN	9.	8.	7.	7.	12.	15.	22.	22.	19.	10.	10.	8.	149.	72.
STDEV	4.	2.	1.	2.	6.	8.	10.	10.	8.	4.	4.	4.	44.	29.
DIST	6.	6.	5.	5.	8.	10.	15.	15.	13.	6.	6.	5.	100.	48.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3795 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	87.	68.	54.	52.	51.	67.	256.	706.	691.	247.	121.	116.	2515.	1899.
1907	118.	35.	27.	15.	2.	90.	166.	290.	646.	453.	205.	113.	2161.	1555.
1908	83.	61.	52.	58.	84.	186.	274.	282.	396.	202.	282.	77.	1994.	1153.
1909	70.	51.	51.	70.	50.	154.	372.	563.	715.	242.	320.	511.	3168.	1891.
1910	125.	84.	74.	87.	78.	243.	269.	484.	348.	119.	120.	72.	2102.	1220.
1911	66.	56.	47.	60.	55.	238.	421.	648.	702.	526.	177.	142.	3139.	2298.
1912	477.	135.	80.	61.	53.	149.	292.	713.	625.	266.	109.	63.	3022.	1896.
1913	75.	79.	39.	34.	33.	49.	279.	506.	393.	165.	77.	122.	1849.	1343.
1914	120.	68.	53.	45.	157.	226.	273.	616.	694.	378.	180.	144.	2954.	1961.
1915	223.	94.	63.	62.	129.	137.	480.	590.	658.	447.	146.	77.	3107.	2175.
1916	64.	40.	39.	80.	81.	382.	455.	616.	696.	365.	460.	170.	3449.	2132.
1917	555.	137.	61.	68.	78.	84.	354.	570.	904.	596.	187.	86.	3680.	2424.
1918	52.	34.	28.	25.	51.	119.	127.	334.	487.	238.	115.	165.	1776.	1186.
1919	44.	42.	37.	32.	52.	104.	362.	661.	487.	389.	240.	104.	2553.	1899.
1920	64.	60.	80.	96.	248.	215.	343.	1142.	1048.	569.	229.	83.	4176.	3102.
1921	70.	84.	63.	65.	87.	170.	165.	506.	874.	459.	481.	181.	3205.	2005.
1922	66.	47.	51.	45.	75.	141.	353.	803.	870.	292.	131.	60.	2931.	2317.
1923	28.	43.	55.	48.	84.	75.	218.	554.	578.	336.	273.	247.	2539.	1686.
1924	144.	100.	75.	57.	115.	72.	347.	606.	477.	181.	88.	50.	2310.	1610.
1925	42.	39.	46.	34.	45.	96.	213.	387.	365.	268.	172.	339.	2046.	1233.
1926	240.	100.	72.	55.	78.	95.	248.	522.	624.	211.	119.	62.	2424.	1604.
1927	106.	53.	52.	51.	82.	126.	365.	719.	622.	507.	184.	711.	3577.	2213.
1928	198.	124.	60.	60.	85.	133.	149.	418.	369.	161.	89.	72.	1917.	1097.
1929	51.	79.	46.	38.	49.	151.	328.	582.	575.	322.	581.	445.	3246.	1806.
1930	140.	60.	41.	29.	70.	77.	268.	287.	425.	191.	288.	52.	1927.	1171.
1931	37.	31.	25.	21.	50.	38.	77.	232.	272.	164.	115.	103.	1164.	745.
1932	157.	65.	46.	35.	207.	206.	469.	665.	618.	333.	248.	122.	3172.	2086.
1933	52.	36.	27.	29.	48.	73.	61.	180.	501.	223.	108.	150.	1486.	965.
1934	102.	34.	41.	35.	32.	44.	123.	201.	107.	95.	82.	59.	956.	526.
1935	31.	19.	27.	40.	50.	76.	248.	384.	824.	379.	170.	144.	2391.	1834.
1936	69.	39.	32.	36.	50.	137.	316.	445.	257.	124.	180.	151.	1839.	1143.
1937	68.	69.	48.	25.	141.	193.	538.	689.	388.	216.	96.	68.	2538.	1830.
1938	94.	34.	37.	36.	47.	187.	377.	498.	725.	303.	103.	209.	2650.	1902.
1939	109.	55.	47.	43.	34.	142.	187.	332.	226.	103.	60.	136.	1475.	849.
1940	41.	34.	28.	39.	50.	69.	118.	313.	183.	113.	75.	131.	1195.	728.
1941	149.	64.	81.	78.	127.	211.	391.	1362.	984.	590.	216.	214.	4466.	3326.
1942	656.	196.	98.	72.	60.	128.	604.	524.	610.	227.	76.	48.	3301.	1966.
1943	34.	34.	43.	44.	50.	96.	313.	349.	303.	162.	123.	71.	1623.	1127.
1944	42.	51.	50.	37.	49.	76.	209.	690.	771.	351.	88.	41.	2457.	2022.
1945	68.	52.	44.	42.	63.	73.	199.	527.	441.	201.	135.	22.	1866.	1368.
1946	60.	42.	29.	37.	36.	46.	123.	145.	286.	106.	101.	51.	1063.	660.
1947	55.	61.	47.	32.	46.	50.	69.	365.	343.	187.	312.	141.	1709.	964.
1948	201.	70.	60.	45.	72.	81.	326.	604.	657.	222.	108.	38.	2486.	1810.
1949	70.	53.	40.	65.	71.	131.	341.	533.	845.	398.	106.	41.	2696.	2118.
1950	49.	43.	37.	43.	51.	56.	158.	198.	249.	120.	41.	41.	1084.	724.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3795 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	34.	22.	33.	31.	30.	33.	39.	178.	254.	108.	83.	63.	909.	579.
1952	32.	41.	38.	91.	42.	87.	444.	684.	878.	297.	114.	64.	2811.	2302.
1953	36.	38.	44.	47.	36.	54.	116.	189.	351.	127.	95.	23.	1158.	783.
1954	47.	58.	37.	34.	37.	48.	135.	274.	187.	181.	101.	99.	1237.	777.
1955	102.	35.	36.	32.	34.	64.	68.	216.	285.	114.	178.	39.	1204.	683.
1956	16.	26.	37.	42.	35.	75.	117.	293.	291.	93.	64.	19.	1109.	794.
1957	8.	30.	26.	39.	65.	73.	187.	356.	905.	622.	384.	151.	2847.	2070.
1958	130.	135.	80.	55.	120.	162.	422.	786.	612.	155.	71.	70.	2799.	1974.
1959	44.	45.	37.	31.	32.	33.	42.	144.	240.	97.	105.	23.	874.	523.
1960	102.	91.	50.	39.	45.	263.	335.	335.	477.	174.	65.	34.	2009.	1321.
1961	55.	43.	41.	39.	41.	66.	166.	357.	302.	108.	124.	113.	1455.	933.
1962	92.	74.	43.	38.	96.	65.	312.	381.	390.	201.	55.	37.	1784.	1284.
1963	127.	57.	42.	34.	68.	94.	159.	280.	131.	81.	85.	111.	1270.	652.
1964	40.	35.	29.	32.	25.	36.	81.	294.	164.	110.	183.	65.	1093.	649.
1965	36.	36.	44.	55.	52.	75.	338.	544.	694.	500.	171.	137.	2681.	2075.
1966	114.	84.	93.	53.	58.	250.	273.	473.	310.	135.	86.	47.	1975.	1191.
1967	20.	37.	82.	45.	41.	63.	61.	226.	247.	139.	207.	100.	1268.	672.
1968	30.	27.	28.	31.	50.	65.	95.	346.	594.	170.	308.	24.	1768.	1205.
1969	41.	41.	30.	67.	39.	96.	323.	515.	392.	302.	135.	126.	2108.	1532.
1970	187.	82.	50.	42.	37.	49.	82.	388.	315.	171.	116.	459.	1978.	956.
1971	69.	56.	46.	42.	53.	86.	143.	179.	299.	145.	148.	50.	1315.	765.
1972	125.	71.	74.	51.	54.	93.	109.	204.	232.	75.	53.	71.	1214.	621.
1973	493.	140.	78.	74.	119.	274.	485.	956.	889.	413.	98.	93.	4113.	2744.
1974	47.	36.	34.	49.	42.	105.	83.	247.	151.	97.	69.	23.	984.	579.
1975	49.	68.	36.	39.	39.	151.	290.	573.	799.	525.	89.	65.	2723.	2188.
1976	18.	30.	35.	35.	60.	70.	125.	371.	353.	89.	51.	63.	1301.	938.
1977	52.	31.	17.	18.	31.	26.	29.	38.	63.	82.	81.	90.	558.	212.
1978	29.	34.	27.	38.	42.	134.	239.	372.	493.	104.	-4.	-5.	1505.	1208.
MIN	8.	19.	17.	15.	2.	26.	29.	38.	63.	75.	-4.	-5.	558.	212.
MAX	656.	196.	98.	96.	248.	382.	604.	1362.	1048.	622.	581.	711.	4466.	3326.
TOTAL	7631.	4358.	3482.	3383.	4731.	8382.	17921.	33541.	36157.	18161.	11188.	8496.	157431.	105779.
MEAN	105.	60.	48.	46.	65.	115.	245.	459.	495.	249.	153.	116.	2157.	1449.
STDEV	119.	33.	18.	17.	40.	70.	135.	232.	242.	149.	105.	119.	891.	670.
DIST	5.	3.	2.	2.	3.	5.	11.	21.	23.	12.	7.	5.	100.	67.

82/03/17.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3795 SALT

15.37.59.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	44.	43.	47.	50.	36.	45.	92.	158.	112.	55.	47.	38.	767.	417.
1907	46.	28.	30.	18.	3.	57.	66.	77.	106.	80.	67.	37.	616.	330.
1908	43.	40.	46.	55.	55.	103.	97.	75.	74.	49.	74.	27.	737.	295.
1909	42.	36.	45.	64.	36.	88.	122.	132.	115.	55.	89.	131.	954.	423.
1910	47.	49.	57.	77.	51.	128.	96.	117.	67.	35.	47.	26.	794.	315.
1911	42.	28.	43.	57.	39.	125.	134.	148.	113.	88.	60.	45.	932.	483.
1912	59.	65.	59.	57.	37.	86.	102.	160.	104.	58.	44.	23.	855.	423.
1913	43.	47.	38.	35.	25.	35.	98.	121.	73.	43.	35.	40.	633.	336.
1914	46.	43.	46.	45.	91.	120.	97.	142.	112.	72.	61.	46.	920.	422.
1915	52.	52.	51.	58.	78.	80.	148.	137.	108.	79.	53.	27.	924.	473.
1916	41.	31.	38.	72.	53.	184.	142.	142.	112.	70.	113.	53.	1052.	467.
1917	61.	66.	51.	62.	51.	54.	118.	133.	137.	95.	63.	30.	920.	482.
1918	40.	28.	31.	28.	36.	72.	54.	86.	86.	54.	45.	51.	611.	281.
1919	39.	32.	37.	33.	37.	64.	120.	150.	86.	73.	74.	35.	779.	429.
1920	41.	40.	59.	83.	132.	116.	115.	234.	153.	92.	72.	29.	1165.	594.
1921	42.	49.	51.	60.	56.	96.	66.	121.	133.	81.	117.	55.	927.	401.
1922	42.	34.	45.	45.	50.	82.	117.	176.	133.	61.	49.	22.	855.	487.
1923	36.	32.	47.	47.	54.	49.	82.	130.	98.	62.	67.	72.	794.	376.
1924	48.	54.	57.	54.	70.	47.	116.	140.	85.	46.	38.	19.	775.	386.
1925	38.	30.	42.	36.	33.	60.	80.	97.	69.	58.	59.	93.	696.	305.
1926	53.	54.	56.	53.	51.	60.	90.	124.	104.	50.	46.	23.	763.	367.
1927	45.	37.	46.	49.	54.	75.	121.	161.	103.	86.	62.	172.	1010.	470.
1928	51.	62.	50.	56.	55.	78.	61.	104.	70.	43.	38.	26.	693.	277.
1929	40.	47.	42.	39.	35.	87.	111.	135.	97.	65.	132.	117.	947.	409.
1930	48.	40.	39.	31.	47.	50.	95.	76.	78.	47.	83.	20.	654.	297.
1931	37.	26.	29.	24.	36.	28.	37.	64.	56.	43.	45.	35.	460.	200.
1932	49.	42.	42.	36.	114.	112.	146.	151.	103.	66.	75.	40.	466.	466.
1933	40.	29.	30.	31.	35.	48.	31.	52.	88.	52.	43.	47.	526.	223.
1934	45.	28.	39.	36.	25.	32.	53.	57.	28.	31.	36.	22.	432.	168.
1935	36.	20.	30.	41.	36.	50.	90.	97.	128.	72.	59.	46.	702.	386.
1936	42.	30.	34.	37.	36.	80.	108.	109.	53.	36.	61.	48.	675.	307.
1937	42.	43.	43.	27.	83.	106.	162.	155.	72.	51.	40.	25.	850.	440.
1938	44.	28.	37.	38.	34.	103.	123.	119.	116.	63.	42.	62.	810.	421.
1939	46.	37.	43.	43.	26.	83.	73.	86.	48.	32.	29.	44.	539.	239.
1940	38.	28.	31.	40.	35.	46.	51.	82.	41.	34.	34.	42.	504.	209.
1941	48.	41.	60.	70.	76.	114.	127.	270.	146.	94.	69.	64.	1178.	636.
1942	63.	83.	68.	66.	41.	76.	177.	124.	102.	53.	35.	18.	905.	456.
1943	37.	28.	41.	44.	36.	60.	107.	90.	60.	43.	47.	26.	618.	300.
1944	38.	36.	45.	38.	35.	50.	79.	155.	121.	69.	38.	16.	721.	429.
1945	42.	36.	41.	42.	43.	48.	76.	125.	80.	49.	50.	10.	642.	330.
1946	41.	32.	32.	38.	27.	33.	53.	44.	58.	33.	42.	19.	452.	187.
1947	40.	40.	43.	34.	33.	35.	34.	93.	66.	47.	88.	45.	598.	240.
1948	51.	44.	50.	45.	48.	53.	111.	140.	108.	52.	44.	15.	758.	410.
1949	42.	37.	39.	60.	48.	77.	114.	126.	130.	74.	43.	16.	807.	445.
1950	39.	32.	37.	43.	36.	39.	64.	56.	52.	36.	23.	16.	473.	208.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3795 SALT

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	37.	21.	34.	33.	24.	25.	22.	52.	53.	33.	37.	23.	394.	160.
1952	37.	31.	38.	79.	31.	55.	140.	154.	134.	62.	45.	23.	829.	490.
1953	37.	30.	41.	46.	27.	38.	50.	54.	67.	37.	40.	10.	479.	209.
1954	39.	39.	37.	35.	28.	34.	57.	74.	42.	46.	42.	33.	505.	218.
1955	45.	28.	36.	34.	26.	43.	34.	61.	58.	35.	60.	15.	475.	186.
1956	32.	24.	37.	42.	27.	49.	51.	78.	58.	30.	31.	9.	468.	217.
1957	29.	26.	30.	40.	44.	48.	72.	91.	137.	97.	101.	48.	762.	398.
1958	47.	65.	60.	53.	73.	92.	134.	173.	102.	42.	33.	25.	899.	451.
1959	39.	33.	37.	33.	25.	25.	23.	44.	51.	31.	43.	10.	394.	149.
1960	45.	51.	44.	40.	33.	136.	113.	87.	85.	45.	31.	14.	723.	329.
1961	40.	32.	39.	40.	30.	45.	66.	91.	60.	33.	48.	37.	562.	251.
1962	44.	45.	41.	39.	61.	44.	107.	96.	73.	49.	28.	15.	641.	325.
1963	47.	39.	40.	35.	46.	59.	64.	75.	32.	28.	37.	37.	539.	199.
1964	38.	28.	32.	34.	20.	27.	38.	78.	38.	34.	62.	24.	452.	188.
1965	37.	29.	41.	53.	37.	49.	114.	128.	112.	85.	59.	44.	788.	439.
1966	46.	49.	65.	51.	40.	130.	97.	115.	61.	38.	38.	18.	748.	311.
1967	34.	29.	61.	45.	30.	42.	31.	63.	52.	39.	67.	34.	526.	184.
1968	36.	24.	31.	36.	36.	44.	43.	89.	100.	44.	87.	10.	577.	276.
1969	38.	31.	32.	62.	29.	60.	110.	123.	73.	63.	51.	41.	713.	368.
1970	50.	48.	44.	42.	28.	35.	39.	98.	62.	44.	46.	120.	656.	243.
1971	42.	38.	42.	42.	37.	55.	59.	52.	60.	40.	53.	19.	540.	211.
1972	47.	44.	57.	49.	38.	59.	48.	58.	49.	27.	27.	26.	528.	182.
1973	60.	67.	58.	67.	73.	140.	150.	202.	135.	76.	41.	32.	1101.	563.
1974	39.	29.	35.	48.	31.	65.	39.	68.	36.	31.	33.	10.	462.	174.
1975	39.	43.	36.	39.	29.	87.	101.	134.	125.	88.	38.	24.	783.	447.
1976	33.	26.	36.	37.	42.	47.	53.	94.	68.	30.	26.	23.	514.	245.
1977	40.	26.	23.	21.	24.	21.	17.	15.	19.	28.	36.	31.	301.	79.
1978	36.	28.	30.	39.	31.	79.	87.	94.	87.	33.	0.	0.	544.	301.
MIN	29.	20.	23.	18.	3.	21.	17.	15.	19.	27.	0.	0.	301.	79.
MAX	63.	83.	68.	83.	132.	184.	177.	270.	153.	97.	132.	172.	1178.	636.
TOTAL	3124.	2801.	3102.	3310.	3145.	4945.	6319.	8009.	6212.	3897.	3829.	2665.	51353.	24431.
MEAN	43.	38.	42.	45.	43.	68.	86.	110.	85.	53.	52.	37.	703.	335.
STDEV	6.	12.	10.	14.	21.	33.	38.	45.	32.	19.	23.	29.	196.	119.
DIST	6.	5.	6.	6.	6.	10.	12.	16.	12.	8.	7.	5.	100.	48.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3800 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	458.	382.	245.	227.	245.	618.	1263.	3960.	5083.	2758.	1410.	1430.	18077.	13064.
1907	730.	477.	351.	289.	387.	788.	1621.	3155.	6119.	4747.	1883.	903.	21450.	15642.
1908	678.	364.	267.	319.	357.	669.	1147.	1750.	3132.	1851.	1171.	583.	21997.	7880.
1909	558.	375.	308.	375.	309.	720.	1192.	3716.	7375.	3843.	1775.	1451.	21997.	16127.
1910	737.	492.	371.	361.	423.	1391.	1863.	3582.	3055.	1307.	679.	574.	14835.	9808.
1911	620.	427.	368.	378.	438.	917.	1002.	3016.	4097.	2244.	911.	564.	14982.	10358.
1912	1138.	442.	353.	346.	327.	538.	902.	3684.	6151.	3206.	1362.	632.	19082.	13944.
1913	636.	533.	305.	354.	314.	523.	1830.	3271.	3145.	1984.	875.	702.	14472.	10230.
1914	670.	538.	330.	370.	401.	876.	1594.	4686.	6296.	3117.	1405.	784.	21067.	15692.
1915	965.	527.	334.	304.	397.	526.	1484.	2427.	3642.	2148.	854.	529.	14198.	9701.
1916	558.	411.	343.	394.	424.	1391.	1803.	3736.	4752.	2633.	1932.	809.	19188.	12924.
1917	1403.	496.	369.	260.	352.	507.	1545.	3763.	7772.	4941.	1619.	822.	23849.	18022.
1918	510.	448.	403.	356.	374.	656.	901.	2761.	5393.	2289.	968.	692.	15751.	11344.
1919	570.	496.	410.	287.	317.	653.	1415.	3231.	2598.	1537.	904.	532.	12951.	8781.
1920	377.	405.	394.	407.	602.	685.	984.	5917.	6994.	3165.	1376.	621.	21928.	17061.
1921	535.	596.	405.	414.	457.	944.	930.	4180.	8467.	2849.	1973.	953.	22703.	16427.
1922	488.	418.	453.	351.	439.	907.	1186.	4700.	5761.	2160.	1149.	657.	18670.	13806.
1923	337.	401.	400.	375.	340.	449.	1316.	3835.	5078.	3054.	1745.	1014.	18344.	13283.
1924	748.	646.	424.	313.	507.	509.	1666.	3264.	3781.	1672.	721.	390.	14639.	10383.
1925	388.	393.	275.	262.	403.	608.	1382.	2537.	2861.	2087.	1041.	1175.	13411.	8866.
1926	1021.	609.	447.	360.	354.	644.	1635.	3546.	4076.	1999.	966.	459.	16114.	11256.
1927	462.	335.	379.	337.	389.	606.	1269.	4136.	4065.	3135.	1321.	2117.	18552.	12605.
1928	980.	739.	444.	470.	463.	755.	1026.	4581.	4272.	2241.	1048.	559.	17578.	12120.
1929	625.	570.	344.	332.	346.	924.	1698.	4276.	5415.	2744.	2390.	2744.	21407.	14134.
1930	965.	560.	437.	299.	485.	575.	1793.	2168.	3725.	1694.	1891.	691.	15284.	9380.
1931	588.	424.	289.	264.	367.	430.	598.	1388.	2043.	1148.	672.	424.	8632.	5176.
1932	536.	353.	253.	273.	557.	674.	1676.	4286.	4194.	2685.	1364.	694.	17546.	12841.
1933	368.	378.	273.	273.	256.	501.	516.	1604.	4680.	1898.	818.	564.	12130.	8698.
1934	441.	298.	334.	308.	303.	349.	557.	1480.	1018.	721.	533.	285.	6628.	3777.
1935	213.	181.	229.	255.	274.	340.	686.	1585.	4709.	2255.	959.	594.	12280.	9235.
1936	388.	319.	266.	264.	318.	460.	1400.	4032.	3360.	1709.	1262.	705.	14485.	10502.
1937	377.	443.	317.	200.	414.	701.	1560.	3834.	2958.	1923.	838.	597.	14162.	10275.
1938	506.	385.	391.	326.	355.	794.	1659.	3599.	5325.	2503.	1027.	1051.	17920.	13086.
1939	618.	480.	411.	348.	300.	809.	1229.	2865.	2250.	1105.	630.	672.	11718.	7449.
1940	358.	313.	284.	262.	301.	439.	736.	2442.	2213.	984.	522.	525.	9380.	6375.
1941	732.	410.	365.	356.	430.	676.	1127.	5323.	4599.	2428.	1190.	683.	18319.	13477.
1942	1814.	1013.	577.	404.	396.	661.	2903.	3500.	4835.	2074.	939.	412.	19428.	13312.
1943	358.	374.	369.	345.	345.	534.	1625.	2447.	3294.	2133.	1188.	614.	13624.	9498.
1944	386.	443.	379.	285.	344.	515.	1061.	3622.	4760.	2526.	858.	333.	15513.	11970.
1945	378.	379.	308.	330.	359.	430.	790.	3150.	3358.	2468.	1466.	495.	13913.	9767.
1946	538.	434.	320.	348.	314.	506.	1141.	1971.	2756.	1433.	853.	449.	11063.	7300.
1947	430.	473.	423.	265.	353.	657.	844.	3600.	3791.	2727.	1575.	779.	15916.	10962.
1948	830.	578.	441.	376.	432.	625.	1728.	4033.	3915.	1663.	887.	373.	15880.	11339.
1949	362.	400.	346.	327.	351.	692.	1377.	3474.	5117.	2810.	986.	420.	16662.	12778.
1950	540.	476.	364.	347.	395.	632.	1270.	2239.	3782.	2027.	818.	429.	13318.	9319.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA - AF3800 FLOW

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	423.	356.	423.	308.	357.	417.	565.	2035.	3695.	2205.	1172.	532.	12486.	
1952	430.	451.	340.	491.	386.	435.	2329.	5569.	6201.	2318.	1255.	694.	8499.	
1953	376.	377.	374.	402.	365.	459.	555.	1285.	3910.	1662.	1033.	405.	20900.	16417.
1954	318.	427.	343.	318.	342.	389.	667.	1753.	1396.	1256.	665.	495.	11204.	7413.
1955	571.	356.	290.	255.	253.	591.	698.	1951.	2332.	1220.	920.	360.	8368.	5072.
1956	225.	274.	335.	380.	280.	514.	994.	2815.	3535.	1152.	704.	298.	11505.	6201.
1957	194.	305.	258.	295.	331.	509.	869.	2806.	6669.	4906.	2008.	1011.	20160.	8495.
1958	756.	838.	503.	392.	537.	689.	1600.	4598.	4563.	1308.	677.	439.	16900.	15250.
1959	333.	359.	368.	306.	314.	350.	464.	1380.	2826.	1449.	767.	316.	12068.	12068.
1960	557.	518.	351.	290.	315.	750.	1721.	1978.	3223.	1362.	583.	328.	9233.	6119.
1961	361.	349.	265.	244.	319.	368.	638.	1643.	2529.	957.	719.	856.	11975.	8283.
1962	820.	547.	371.	334.	775.	545.	2533.	4120.	3849.	2551.	913.	412.	9248.	5766.
1963	555.	448.	343.	202.	371.	575.	764.	1808.	1839.	934.	686.	735.	17769.	13052.
1964	319.	342.	266.	268.	262.	344.	649.	2355.	2985.	1729.	915.	366.	9259.	5345.
1965	301.	325.	363.	380.	369.	443.	1401.	3392.	5597.	3794.	1623.	877.	10801.	7718.
1966	875.	571.	552.	455.	395.	981.	1333.	2523.	1934.	1054.	590.	358.	18866.	14183.
1967	336.	349.	371.	289.	307.	576.	605.	1691.	3628.	2187.	951.	517.	11622.	6845.
1968	352.	328.	239.	313.	338.	518.	639.	2124.	5022.	1742.	1469.	425.	17769.	8111.
1969	444.	386.	321.	392.	353.	572.	1973.	3870.	3004.	2036.	893.	608.	13508.	9528.
1970	675.	514.	384.	383.	361.	447.	615.	3630.	4189.	2097.	917.	1132.	14850.	10883.
1971	650.	516.	407.	430.	453.	601.	1378.	2480.	4586.	2249.	930.	530.	15344.	10532.
1972	579.	502.	407.	434.	436.	829.	804.	2035.	3880.	1280.	649.	466.	15209.	10693.
1973	1083.	606.	384.	447.	414.	886.	1401.	4731.	3880.	1280.	649.	466.	12302.	7999.
1974	419.	455.	378.	379.	371.	796.	953.	3556.	4981.	2849.	1039.	583.	19404.	13961.
1975	323.	457.	290.	354.	346.	615.	837.	2726.	3439.	1543.	710.	298.	13296.	9491.
1976	296.	378.	376.	329.	453.	524.	838.	2553.	4957.	3857.	942.	394.	16097.	12378.
1977	352.	294.	224.	246.	253.	244.	383.	623.	2756.	1239.	610.	365.	10718.	7386.
1978	269.	303.	296.	293.	281.	625.	1230.	2712.	1124.	456.	488.	332.	5021.	2587.
MIN	194.	181.	224.	200.	245.	244.	383.	623.	5335.	2417.	580.	315.	14654.	11693.
MAX	1814.	913.	577.	491.	775.	1391.	2903.	5917.	1018.	456.	488.	285.	5021.	2587.
TOTAL	41112.	32464.	25919.	24306.	27350.	45391.	88362.	225099.	300046.	158435.	78163.	46929.	23849.	18022.
MEAN	563.	445.	355.	333.	375.	622.	1210.	3084.	4110.	2170.	1071.	643.	1093574.	771941.
STDEV	280.	122.	70.	62.	85.	208.	507.	1115.	1527.	924.	418.	334.	14980.	10575.
DIST	4.	3.	2.	2.	3.	4.	8.	21.	27.	14.	7.	4.	4067.	3328.
													100.	71.

82/03/17.
UNITS: 1000 TONS

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3800 SALT

15.37.59.
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YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1906	310.	318.	234.	230.	249.	450.	595.	1005.	904.	627.	558.	567.	6047.	
1907	427.	367.	297.	269.	348.	548.	702.	859.	1033.	897.	706.	398.	6851.	3131.
1908	406.	308.	248.	286.	328.	480.	558.	572.	638.	482.	480.	284.	5071.	3491.
1909	355.	314.	273.	318.	295.	509.	558.	962.	1182.	780.	673.	574.	5071.	2250.
1910	430.	374.	308.	310.	371.	868.	769.	938.	627.	383.	309.	281.	6807.	3497.
1911	382.	341.	307.	319.	381.	620.	511.	833.	774.	547.	392.	277.	5968.	2717.
1912	581.	349.	298.	302.	308.	402.	477.	956.	1037.	692.	543.	302.	5683.	2665.
1913	389.	394.	271.	306.	299.	393.	760.	881.	640.	504.	379.	328.	6247.	3162.
1914	403.	397.	285.	314.	357.	597.	694.	1129.	1055.	679.	557.	357.	5544.	2785.
1915	518.	392.	288.	278.	355.	395.	662.	717.	711.	531.	372.	264.	6824.	3557.
1916	355.	333.	293.	328.	372.	869.	752.	966.	861.	608.	720.	366.	5482.	2621.
1917	671.	376.	307.	251.	324.	383.	680.	970.	1227.	921.	624.	370.	6823.	3187.
1918	334.	352.	325.	307.	339.	472.	476.	784.	943.	554.	412.	324.	7107.	3798.
1919	360.	376.	329.	268.	301.	471.	641.	874.	558.	426.	390.	265.	5624.	2757.
1920	271.	330.	321.	335.	480.	490.	505.	1326.	1138.	686.	547.	298.	5258.	2499.
1921	345.	424.	326.	338.	392.	634.	486.	1043.	1305.	640.	733.	415.	6726.	3655.
1922	324.	337.	352.	305.	381.	614.	571.	1131.	989.	533.	473.	312.	7084.	3476.
1923	251.	328.	324.	318.	317.	348.	611.	983.	903.	670.	663.	435.	6322.	3225.
1924	434.	447.	337.	283.	423.	385.	714.	880.	731.	450.	324.	209.	6151.	3168.
1925	277.	323.	253.	252.	358.	444.	631.	739.	598.	521.	436.	488.	5616.	2775.
1926	539.	430.	349.	309.	326.	465.	705.	931.	771.	507.	411.	237.	5322.	2490.
1927	312.	292.	313.	297.	349.	443.	597.	1036.	770.	682.	530.	768.	5979.	2915.
1928	524.	488.	347.	367.	396.	529.	519.	1111.	798.	547.	439.	275.	6386.	3085.
1929	384.	412.	293.	294.	321.	623.	723.	1060.	946.	625.	856.	275.	6340.	2974.
1930	518.	407.	344.	274.	410.	425.	750.	663.	723.	454.	708.	324.	7198.	3354.
1931	368.	340.	261.	253.	334.	335.	363.	488.	469.	351.	306.	223.	6001.	2590.
1932	345.	302.	239.	259.	454.	483.	717.	1062.	787.	616.	306.	223.	4092.	1671.
1933	266.	316.	252.	259.	257.	380.	329.	539.	852.	490.	544.	325.	6133.	3182.
1934	302.	270.	288.	280.	291.	283.	347.	510.	284.	259.	359.	277.	4576.	2210.
1935	183.	196.	224.	248.	270.	277.	398.	534.	856.	549.	409.	164.	3531.	1399.
1936	276.	283.	248.	254.	302.	354.	637.	1018.	671.	457.	510.	289.	4431.	2337.
1937	271.	350.	278.	213.	365.	498.	684.	983.	872.	494.	366.	329.	5339.	2783.
1938	332.	319.	319.	290.	326.	552.	712.	941.	935.	588.	432.	289.	5403.	2773.
1939	381.	368.	330.	303.	289.	560.	584.	804.	503.	343.	291.	448.	6193.	3176.
1940	261.	279.	259.	252.	290.	341.	416.	720.	497.	318.	250.	317.	5073.	2234.
1941	428.	333.	305.	307.	376.	484.	552.	1233.	841.	576.	487.	262.	4145.	1951.
1942	801.	560.	413.	333.	354.	475.	1030.	923.	872.	519.	487.	321.	6242.	3202.
1943	262.	313.	307.	301.	319.	400.	703.	721.	662.	529.	401.	218.	6899.	3345.
1944	275.	349.	313.	266.	319.	388.	530.	945.	862.	592.	486.	296.	5298.	2614.
1945	272.	316.	272.	293.	329.	336.	437.	858.	671.	583.	373.	185.	5399.	2929.
1946	346.	345.	280.	303.	298.	383.	556.	621.	582.	583.	576.	251.	5193.	2548.
1947	297.	365.	336.	254.	325.	473.	456.	941.	732.	407.	371.	233.	4725.	2166.
1948	467.	415.	345.	318.	377.	454.	732.	1018.	749.	622.	611.	355.	5767.	2751.
1949	263.	327.	294.	291.	324.	494.	630.	918.	908.	449.	384.	201.	5910.	2948.
1950	304.	304.	304.	304.	304.	304.	304.	304.	304.	304.	304.	304.	5721.	2948.

NATURAL FLOW HYDROLOGIC DATA BASE FOR C. R. S. S.
STA- AF3800 SALT

YEAR	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	W. Y. TOTAL	APR-JUL TOTAL
1951	293.	303.	336.	280.	328.	327.	350.	635.	719.	541.	481.	265.	4856.	2244.
1952	297.	354.	291.	377.	347.	339.	891.	1272.	1043.	559.	508.	325.	6603.	3765.
1953	270.	315.	310.	332.	333.	354.	346.	462.	749.	449.	434.	215.	4568.	2005.
1954	241.	341.	293.	286.	317.	309.	390.	573.	357.	373.	304.	250.	4034.	1693.
1955	361.	303.	262.	248.	255.	434.	402.	617.	516.	366.	395.	196.	4354.	1901.
1956	190.	256.	288.	320.	275.	388.	508.	794.	696.	352.	318.	170.	4554.	2350.
1957	171.	274.	243.	272.	310.	385.	465.	792.	1099.	917.	743.	434.	6106.	3273.
1958	438.	529.	377.	327.	442.	492.	695.	1114.	836.	383.	308.	228.	6170.	3029.
1959	249.	305.	307.	279.	298.	284.	307.	486.	592.	410.	341.	178.	4035.	1795.
1960	355.	387.	297.	269.	299.	527.	730.	623.	651.	393.	273.	183.	4986.	2397.
1961	263.	299.	247.	241.	302.	296.	379.	548.	547.	312.	323.	382.	4140.	1785.
1962	463.	401.	308.	295.	577.	407.	942.	1033.	740.	595.	392.	218.	6371.	3310.
1963	354.	352.	293.	213.	337.	425.	427.	585.	435.	307.	311.	340.	4379.	1754.
1964	242.	296.	247.	256.	262.	280.	383.	702.	616.	461.	393.	199.	4337.	2162.
1965	232.	286.	304.	320.	336.	344.	637.	903.	969.	774.	626.	389.	6120.	3283.
1966	484.	412.	401.	359.	353.	655.	617.	737.	451.	332.	276.	195.	5272.	2136.
1967	250.	300.	308.	269.	294.	425.	366.	559.	709.	538.	406.	259.	4683.	2172.
1968	258.	287.	231.	283.	315.	390.	380.	654.	896.	463.	577.	223.	4957.	2393.
1969	303.	320.	280.	326.	325.	423.	799.	989.	619.	513.	385.	294.	5576.	2920.
1970	405.	385.	315.	322.	331.	347.	370.	947.	787.	523.	394.	474.	5598.	2626.
1971	394.	386.	328.	347.	390.	440.	630.	728.	840.	548.	398.	264.	5693.	2745.
1972	364.	379.	328.	349.	380.	571.	442.	635.	744.	378.	298.	239.	5106.	2198.
1973	561.	429.	315.	355.	366.	603.	637.	1136.	891.	640.	436.	284.	6653.	3305.
1974	291.	356.	312.	319.	337.	553.	494.	933.	682.	427.	320.	170.	5195.	2537.
1975	243.	357.	262.	306.	320.	448.	454.	777.	888.	782.	403.	210.	5450.	2901.
1976	229.	315.	311.	292.	390.	394.	454.	742.	582.	370.	283.	198.	4561.	2148.
1977	259.	268.	221.	243.	255.	212.	271.	281.	305.	191.	236.	184.	2925.	1048.
1978	215.	273.	266.	271.	275.	454.	584.	774.	936.	574.	272.	177.	5071.	2869.
MIN	171.	196.	221.	213.	249.	212.	271.	281.	284.	191.	236.	164.	2925.	1048.
MAX	801.	560.	413.	377.	577.	869.	1030.	1326.	1305.	921.	856.	768.	7198.	3798.
TOTAL	25518.	25387.	21766.	21390.	24680.	32772.	41418.	60838.	55834.	38306.	32253.	21953.	402115.	196395.
MEAN	350.	348.	298.	293.	338.	449.	567.	833.	765.	525.	442.	301.	5508.	2690.
STDEV	114.	61.	39.	35.	54.	119.	158.	215.	209.	147.	138.	115.	924.	586.
DIST	6.	6.	5.	5.	6.	8.	10.	15.	14.	10.	8.	5.	100.	49.